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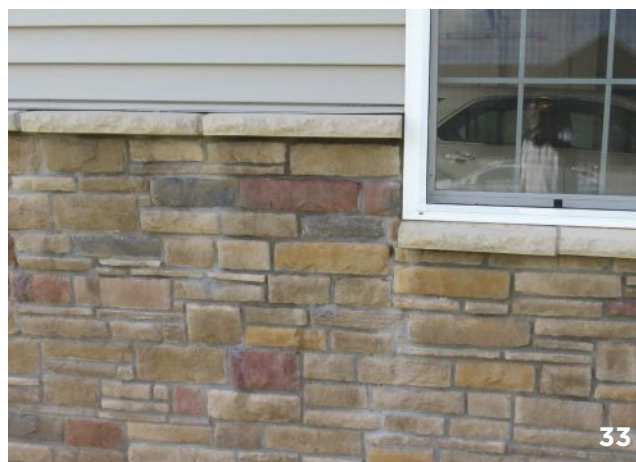
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**ON THE COVER:** Mark Epler of Risinger Homes air-seals the back of a brick-veneer wall on a gut rehab of a 1960s home in Austin, Texas. See the story on page 39. Photo by Paul Bardagjy.

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# Letters

## Fall Protection for Holes

I read the October issue Q&A entitled “Are Guardrails Needed if Workers Wear Harnesses?” The provided answer needs to be supplemented with additional OSHA requirements for holes that have fall heights of less than 6 feet. Specifically, 29 CFR 1926.501(b)(4)(ii) requires all holes regardless of depth to be protected such that employees cannot trip or stumble into them. A personal fall arrest system (PFAS) does not meet OSHA’s requirements for such holes. In such cases, holes must be either covered or guarded. If the question involved a deck with a fall exposure of less than 6 feet, a PFAS is not permitted and the hole must be either guarded or covered.

OSHA clarified this in an 11/17/98 letter of interpretation regarding an elevator pit, as follows:

*The fall protection standard, at 29 CFR 1926.500(b), defines a hole as “a gap or void 2 inches ... or more in its least dimension, in a floor, roof, or other walking/working surface.” The standard has two requirements with respect to holes. First, 1926.501(b)(4)(i) requires that employees be protected from falling through holes more than 6 feet by fall arrest systems, guardrails, or covers. So, if a hole is more than 6 feet deep, one of these protection systems must be used.*

*Second, 1926.501(b)(4)(ii) requires that employees be protected from tripping or stepping into holes by placing covers over them. This provision does not specify a minimum depth for the requirement to apply.*

The first issue is whether the pit is a “hole.” The pit you describe is located in and surrounded by a floor, roof, or other walking/working surface of a significantly larger dimension than the pit. This pit would be considered a hole under the standard. Since the fall distance is less than 6 feet, the applicable requirement is 1926.501(b)(4)(ii), which requires a cover to protect against the tripping/stepping-into hazard. Alternatively, a guardrail could be used to prevent employee exposure to this hazard.

**Timothy Carlsen, PE**  
Edison, N.J.

*The following excerpts were taken from comments posted on jlconline.com in response to the indicated articles.*

## Word to the Wise

**“Replace the Deck Framing or Just Re-Skin?” Q&A, 7/13**

When underneath the deck framing, I also check the nails used in any existing hangers. You’d be surprised how many times the original hangers — or hold-down hardware — were attached with roofing nails, since they obviously “fit” and were readily available. — *WJParker*

## Cringe-Worthy Solution?

**“Hot-Water Systems,” Letters, 5/13**

Reading this letter literally made me cringe. The problem isn’t that Mr. Landes’ design won’t work — it will work very well. The problem is that the energy to keep the water moving in his recirculation loop has to come from somewhere, and it will come from the water heater. While this solution may well save water, it will waste a significant amount of energy. Hot water will constantly be leaving the water heater, and cooler water will be returning, to be reheated. The demand-controlled recirculation approach promoted by Gary Klein is a far better solution, as the water in the pipes is only hot when it needs to be. — *Eric Woodhouse*

## Preserving Original Framing

**“Don’t Cut Historic Timbers,” Letters, 3/13**

I too am a historic restoration contractor. I agree with what Scott Killian said [about not cutting original framing members]. We deal with this quite a lot in our work converting old barns into homes. We typically restore the original timber frame and then enclose this with a new shell. In the case of an older purlin roof we typically frame a new roof system over the old roof. We can frame this so that there is no load on the older roof and the new framing does all the work. This new framework then houses insulation and ventilation, and the original framework is kept in place. It also allows us to shore up older weak framing and fasten it to the new framing. The only drawback is that the location of the fascia and soffit is higher on the building. — *John Sheridan*

---

## KEEP 'EM COMING!

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# From the JLC Forums

## Framing a Basement Ceiling

In this thread from May 2013, forum members debate various methods for framing a flat ceiling to accept drywall in a finished basement.

### [dgblldr, Michigan](#)

Say you want to frame a basement ceiling for drywall. The joists are not in plane and you need to drop 3 to 4 inches anyway to clear ducts, pipes, and other stuff sticking below the joists. No soffits, just one flat ceiling. What's your favorite method for framing the ceiling quickly and accurately?

### [Portstan, Maryland](#)

The quickest and cheapest way is to scab 2x6s to the existing joists and set with multiple string lines or a laser level. It's low tech ... but isn't terribly difficult to make it perfect. Not that suspending a ceiling below doesn't have its advantages, but it's not exactly rocket science.

### [jimAKAblue, Sterling Heights, Mich.](#)

Dropping ceilings in most basements is relatively easy. I use the bottom of the subfloor as my baseline and just cut all the hanger blocks to one dimension. I then attach my "ceiling joist" to the blocks, flush with the bottom ... You will encounter a few high or low spots, but they will be quite easy to see and adjust after the framework is completed.

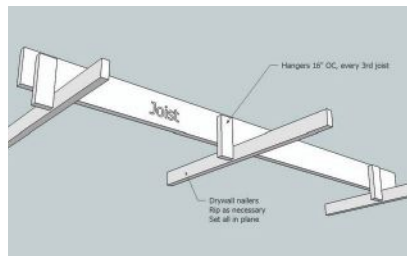
Because you are in MI, it's quite possible that you will encounter some dropped floor joist areas. We often dropped entire sections  $\frac{3}{4}$  inch for the mud base for ceramic floors. Occasionally, I'd drop the entire length of a beam and then build up one side. Just adjust your hanger blocks  $\frac{3}{4}$  inch and your framework will be in plane.

### [dgblldr](#)

Pretty much what we do. Just scouting

for better techniques. Using the subfloor as reference is an interesting idea, but a decent laser is cheap enough so I don't know if there is anyone out there without one.

We simply set the bottom of the hangers at the laser plane and then install the nailers flush with it (see illustration).



This ceiling system suspends nailers from 2x4 hangers placed 16 inches on-center on every third joist.

### [jimAKAblue](#)

I developed my technique after messing around with lasers and string lines when I installed grids in basements. I eventually found that it was efficient to hang my wires, then just make a bend at the same distance from the bottom of the deck. After installing all of the grid, a quick glance would expose any high or low points. Typically, I'd have to rebend one or two spots.

For me, it isn't worth pulling strings or lasers.

### [Dick Hackbarth, PE, St. Paul, Minn.](#)

I'd do what you show in [your drawing]. Set a laser level 2 or 3 inches lower than you want the bottom of the nailer 2x4s, then use a 2- or 3-inch spacer block held

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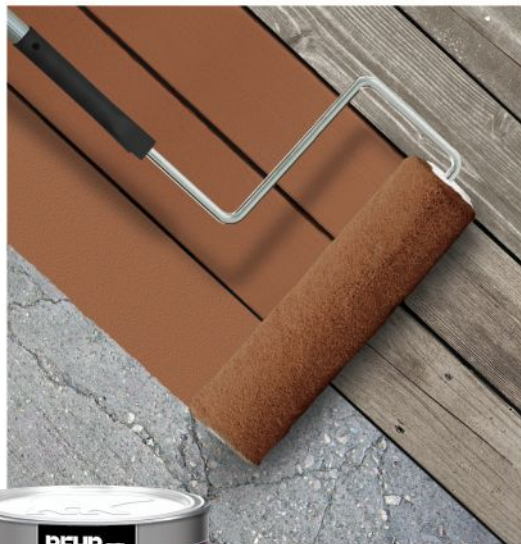


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## From the JLC Forums

under the 2x4 to locate its bottom elevation to nail it off.

### [dgbldr](#)

Too complicated. What we do is set a plane laser to the final plane we want and leave it on. Then we go around the room and nail up the hangers so the bottom edge just touches the laser beam. Then it's a simple matter to nail up the long pieces flush with the bottom of the hangers.

By the way, a rotary laser is not necessary. A 180-degree laser against a wall will cover the whole room.

### [Dick Hackbarth, PE](#)

Just remember that the nails in the short hanger blocks are loading the blocking in tension parallel to the grain, near the end of the block to boot, a very weak nail-loading orientation. So, watch the end distance in your nailing. From that standpoint,  $\frac{3}{4}$ -inch plywood might be better for the hanger blocks.

Then, a second consideration, the design load of the ceiling system shouldn't be a hanger-loading problem, but there isn't anything to make this look like a light hung ceiling. What if someone hangs a swing or chin-up bar with a few lag screws from what they think are floor joists? One or two hangers and a spanning 2x4 might have to take that load.

### [customwoodworking](#)

I don't want to make any waves here, but the suspended grid is by far the easiest and most efficient way to frame ceilings.

Think about a few things here. I can get the material into the residence in about three minutes, solo!

Also, no dust for the homeowner to complain about (yet), and all that scrap wood you need to dispose of now is replaced by a small cardboard box with minimal metal scrap that you get paid for when you sell it to the scrap yard.

You no longer have to tell your electrician to sweep up his hole shavings, and

your lighting layout is spot-on.

Your client is much happier because you didn't lose any height in her already-only-7-foot basement, except for the thickness of drywall and the lowest point on the joist.

Your drywall guy lowered his price

because his install was easier when all his materials landed perfectly on layout and laid flat as glass, plus you didn't call him back to float out that bad spot in the middle of the room where the light hits it just right.

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# From the JLC Forums

## Box Newel With a Metal Stanchion

Steel comes in handy to stiffen a newel post in this June 2013 thread.

### M Smith, Whittier, Calif.

I just finished this small stair job last week — large custom box newels and an 8-foot run of guardrail with plain square balusters painted white (client supplied a picture).

I had a metal stanchion welded up from a remnant piece of 3x3-inch tubing with 1/8-inch wall thickness, and a 6x6x3/8-inch steel plate drilled for 3/8-inch lag bolts. Parts and welding cost me \$55.

After some careful layout and blue tape on the floor, I lathered up the bottom of the plate with Bondo, set the stanchion in place, slipped the box newel over, centered it on my layout, and held it firmly in place for about a minute. The bottom of the newel was scribed to the floor so it sat plumb in both directions. I slipped

the newel off, drilled holes for lags, and anchored it down. I lathered up the stanchion with PL Premium about three-quarters of the way down from the top, and added a healthy dose right at the weld joint area. I carefully slipped the newel over, and propped a stick against the ceil-

ing to put downward pressure overnight.

The inside diameter of the newel was 3 1/8 inches — just enough wiggle room for the PL to get some purchase.

Result: *Very solid install.* The box newel itself has a lot of mass because the base is 7 1/4 inches, and it doesn't have a "weak



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# From the JLC Forums

link” like a traditional turned post, so they tend to be stout regardless of the install technique.

## IamTheWalrus

Nice job, nice description. How would you have done it had you been part of the team for the from-ground-up build? It looks like you had to do what you did because you were invited to the party kind of late....

## jimAKAblue, Sterling Heights, Mich.

What is the function of the Bondo?

## M Smith

Because the bottom of the steel plate was not flat and the wood floor was not flat, [the Bondo] allowed me to set the stanchion quickly in the exact location I wanted it and plumb it in both directions. It also gives a void-free, solid base material so that when you tighten down the lags it stays true. It sticks to just about anything and sets quickly. I use it for a lot of applications where I have an uneven surface. In conjunction with PL, it can be a fastener-free technique for prefinished items.

Ground up? Would have been a solid 4x4 subpost down below subfloor as deep as you can get it, sandwiched and lagged into framing. As it was, on this job I was subcontracted by the flooring company, who had already torn out the old wood flooring and installed new, very expensive wood flooring, and *then* called me out to the job.

## Newman, California

Don't use Bondo, it's not dense — use epoxy instead.

## BobboMax, Portland, Ore.

I like everything except lagging it to the floor. You don't know what you're actually engaging, and I expect the lags to loosen over time as the floor moves. Not, mind you, that I have any better ideas, unless you could go under the floor and use

bolts and *big* washers. Bellevilles [spring washers] would be ideal, might even work with lags.

## Shane Gillespie, Tennessee

Very nice. I tell you what comes to my mind: The next remodel guy trying to

disassemble that. He's gonna be scratching his head saying, "What in the world is holding this thing!"

## Gary Katz, Moderator

Very very nice and clean. I like the Bondo idea a lot!

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## Q. Birdsmouths in Rafters: Are They Necessary?

*Why are we still cutting birdsmouths in rafters? We now have power tools that can easily rip a continuous beveled strip that can be added to the top plate to attach the rafters. Plus, we have steel connectors to ensure the attachment.*

**A.** *Mark McKenzie, an engineer in Brewster, Mass., responds:* Although this alternative framing method could work in some instances, I think that the issues raised outweigh the benefits when compared with conventional (and properly executed) birdsmouth rafter cuts.

To begin with, how well the rafter was attached would depend directly on how well the ripped strip was attached to the plate, which would require an engineered attachment schedule to ensure that the ripped strip stayed put. And my guess is that the narrow strip would most likely split when you tried to nail through it.

Another problem with this method occurs when the rafters attach to the top of a wall instead of to a plate on the floor deck. The angled strip on top of the wall plates would prevent the ceiling/attic joists from bearing properly on the top plate, and the strip itself would not provide adequate bearing for those joists.

Placing the joists on the strip above the plate would also make it more difficult to attach the top edge of the wallboard.

Structurally, a rafter sitting on an angular bearing point (the inclined plane of the ripped strip) would require that the rafter-plate connection deal with the horizontal and vertical components of the force differently than with a birdsmouth. A lot of force is transferred down the length of the rafter, and the seat cut on the birdsmouth transfers that force directly to the top plate. With the ripped strip installation, there would be no horizontal bearing surface to resist that force. Granted, a structural ridge can lessen the amount of force on a rafter — but even then, I would not attempt a ripped-strip rafter installation without having the entire system approved by an engineer.

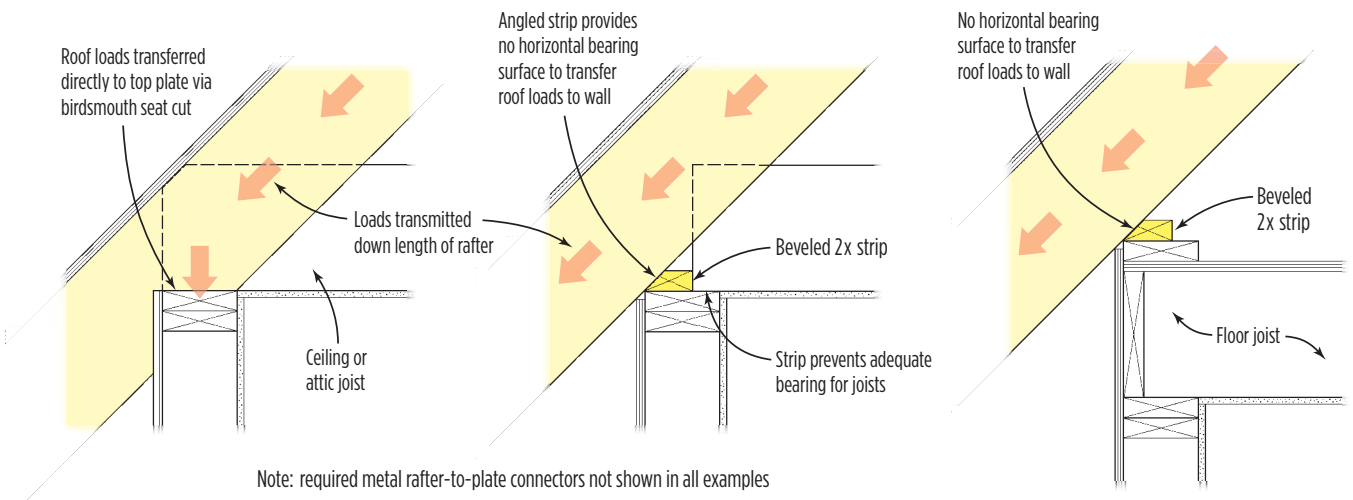
The solution of simply adding metal clips can also be problematic. Again, an engineer should be consulted to ensure

that any metal clips used are rated for the additional loading from the elimination of the birdsmouth, in addition to dealing with any standard regional conditions such as wind uplift or seismic.

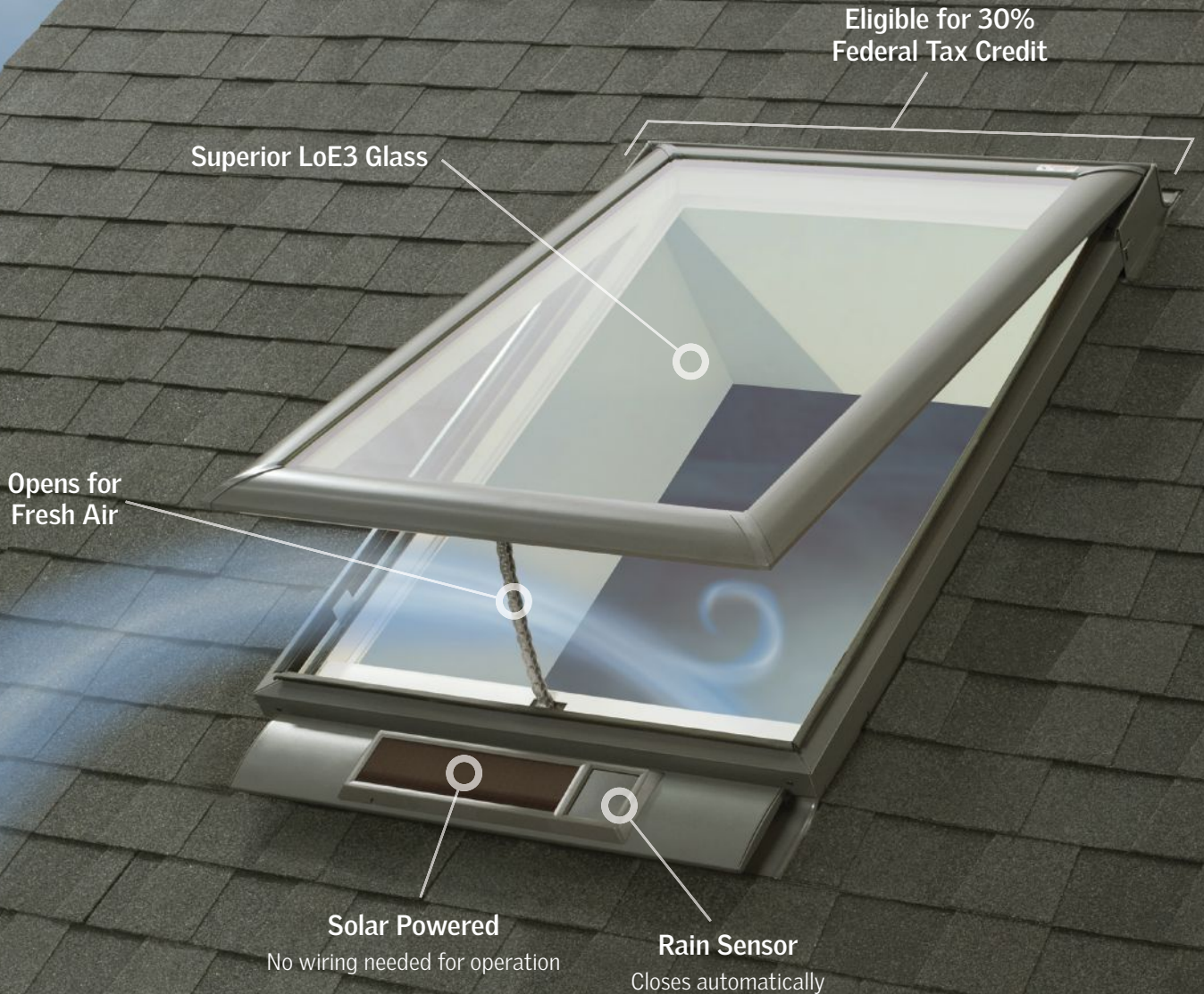
In general, while the ripped-strip installation does eliminate the need to make two cuts for the birdsmouth, it's debatable whether there are any real labor savings. Ripping the attachment strip requires a completely different setup with a different tool, whereas most framers I know cut the birdsmouths as just a small additional part of rafter-cutting "production." Those two cuts add just a few seconds to the whole process.

As a final admonition, make sure that any framing detail — such as the rafter-plate connection — is done in a properly engineered manner. It's always better to have an engineer review and approve your methods before you start cutting and nailing.

## Rafter Attachment



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## Q&A

### Q. Pros and Cons of Epoxy Grout

*I've heard that epoxy grout is better for some types of tile installations. But I've also heard that it's expensive and difficult to work with. Assuming all of these claims are true, when is it best to use epoxy grout, and what are the keys to working with it?*

**A.** *Michael Byrne, a veteran tile installer and consultant and the moderator of JLC's ceramic tile forum, responds: In my experience, regular and latex-cement grouts can be relatively trouble-free — even in harsh environments — if they are used correctly.*

For any grout, you need to follow the manufacturer's instructions: Use the correct proportions of wet and dry ingredients (grout that is applied too wet is practically useless), fill the grout joints

**Today's epoxy grouts are less prone to sagging and discoloration than older versions, and are much easier to install and clean.**

properly, clean with a minimum amount of water, and then allow the grout to cure completely before the tile installation is put into service.

That said, epoxy grouts generally have higher chemical resistance and are more flexible than regular cement grouts, which supposedly makes them more durable and more stain-resistant for places like kitchens and entry halls, and in commercial installations such as restaurants. However, epoxy grouts can be used on any interior installation and with any ceramic or natural stone tile (unless otherwise noted by the tile manufacturer). Most epoxy grouts clean up with water and generally do not need to be sealed

after installation. They also usually cost more than other grouts.

In the past, I never liked using epoxy grouts because they were difficult to install and clean properly. The worst problem was that pinholes often appeared after the grout had been cleaned. This happened because many epoxy grouts sagged once placed in the tile joints, which forced trapped air upward in tiny bubbles. These bubbles always seemed to reach the surface just as the epoxy components began to harden, creating the pinholes. The pinholes were all but impossible to fix quickly because the left-over epoxy grout was too hard to spread to fill them. (I should point out that pinholes can also result from air escaping from under tiles that have not been bedded properly.)

Older versions of some epoxy grouts were also prone to discoloration when exposed to the ultraviolet rays in direct sunlight.

However, in response to concerns voiced by installers, many manufacturers have solved the problems that affected earlier versions. Through research and technological improvements, epoxy grouts are available that do not sag or discolor and that are much easier to install and clean.

In fact, some epoxy grout can actually be fun to use. Laticrete (800/737-8345, [laticrete.com](http://laticrete.com)) epoxy grouts outperform and are easier to work with than their predecessors. The fun part is that the company makes one additive called "Dazzle" that produces a bright metallic look, and another called "Glow" that — you guessed it — makes the epoxy grout glow in the dark.

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## Stick-Estimate Worksheet

by George Weissgerber, MCR, CKBR

In this age of information overabundance, keeping things simple is critical. One of the simplest estimating methods is the stick method, which many contractors use when they first get started — me included. I used to make a list of the materials I needed, then go to the hardware store and lumberyard to find out what everything cost. To determine a project's price, I doubled the cost of the materials — thinking that would also cover my labor — added a bit for Murphy, then added overhead and profit. While I rarely lost money on materials, I often didn't make what I wanted to on labor. Plus, doing the material takeoff and pricing that way was about as efficient as watching paint dry. (On the bright side, I didn't need to maintain a material database, since I used whatever prices were marked on the materials at the lumberyard.)

Though today I generally use a unit-price estimating system (more on that in a future column), I still use the stick method for any task I have never attempted before. I've made a few upgrades, however, to my original process. To get a labor number, I look at job histories or consult with my production team and subcontractors. And trips to the lumberyard are now unnecessary because I can find pricing on the Internet or through email with

my favorite suppliers. But possibly the biggest difference — the subject of this column — is a form I designed that serves as a checklist of materials and labor steps required to complete a task, and also converts labor hours into labor dollars and calculates material costs — for instance, the cost of studs per linear foot of wall from the purchase price of a single 2x4x8.

Occasionally, a custom task becomes popular. Because my experiences with it are well-documented on this form, I can easily add the task to my unit-pricing database as a new unit. The fact is, this form applied to any task can be a building block for a unit-price system. For an example, I've put together a form (see facing page) that lists all the costs for replacing 100 square feet of decking. As you read through it, it's important to keep a few assumptions in mind.

**Unit of measure (UOM).** To be useful, the unit of measure should make it easy to think through the project. In the case of decking, it would make no sense to estimate costs per square inch. And although one square foot may be the ideal unit of measure, the best way to approach this project is on a slightly larger scale. Here I've based the estimate on a 100-square-foot decking job; if I need

1

The item's unit of measure (UOM) depends on the work being estimated; it should make thinking through the project easy.

2

Total cost per project UOM (100sf) includes materials, labor, subcontractors, overhead, and profit.

3

Base labor hours on actual job history. The time estimate is calculated for the project's UOM, 100sf in this example.

4

Start-up and punch-out costs are often overlooked. It takes time to do the things listed here, and time is money.

5

Here, the hourly wage for the crew is \$50: the sum of \$30 for the average lead carpenter plus \$20 for the average helper.

6

The worksheet calculates labor burden based on the percentage entered. Leave it blank if "Cost of Crew" includes labor burden.

7

The "Estimating UOM" is always the same as the project UOM.

8

The "Purchase UOM" should match the units in which the materials are typically purchased.

9

Don't forget delivery charges, shipping costs, or special-order upcharges.

10

Purchase price times quantity yields the estimating cost per project UOM — in this case, per 100sf.

11

The worksheet automatically calculates sales tax based on the rate entered.

12

Enter subcontractor costs, one per line. The "Quantity" column should reflect the project UOM.

## Item or Task Worksheet

**Item Description:** Replace 100sf of existing PT decking with 1x6 Trex Transcend Tiki Torch (grooved), using hidden clips. Decking to be run perpendicular to the existing joists. Protect site, haul debris, broom clean-up.

### Unit of Measure:

1	100sf	<i>Enter unit of measure for typical project</i>	Total Costs From Below:	\$1,528.63
			Mark-up Factor:	1.50
			Sale Price:	\$2,292.95

### Labor:

Description	Crew Type / Size	Cost of Crew / Hr.	Time Hr. / UOM	Estimating Cost / UOM
Start-up: Mobilization, site protection, material delivery	Lead / helper - 2	\$50.00	1	\$50.00
Demo/Prep: Demo existing decking	Lead / helper - 2	\$50.00	1	\$50.00
Haul trash to dump	Driver - 1	\$18.00	1	
Rough-in: Rework deck joists as required	Lead / helper - 2	\$50.00	0.5	\$25.00
Finish: Install decking	Lead / helper - 2	\$50.00	2.5	\$125.00
Add for hidden fasteners	Lead / helper - 2	\$50.00	1	\$50.00
Punch Clean: Punch-out, clean-up, walk-through, collection	Lead / helper - 2	\$50.00	1	\$50.00
Labor Subtotals:			8	\$350.00
			30% Labor Burden:	\$105.00
			Total Cost of Labor:	\$455.00

### Bill of Materials:

Description	Estimating UOM	Purchase UOM	Purchase Price	Quantity	Estimating Cost / UOM
Misc. site/dust protection materials	100sf	job	\$25.00	1	\$25.00
Trex Transcend 1x6-20' Tiki Torch (grooved)	100sf	20' board	\$69.93	12	\$839.16
Trex Hideaway Clips, 50sf, 90 clips / box	100sf	box	\$32.88	2	\$65.76
Trex Hideaway Starter Clips, 36 clips / box	100sf	box	\$33.49	1	\$33.49
Carbide-tipped saw blade	100sf	each	\$12.00	1	\$12.00
Min order delivery charge	100sf	trip	\$25.00	1	\$25.00
Subtotal Materials:					\$1,000.41
6.0% Sales Tax:					\$60.02
Total Cost of Materials:					\$1,060.43

### Subcontractors:

Description	Estimating UOM	Sub UOM	Sub Price	Quantity	Estimating Cost / UOM
Total Cost of Subcontractors:					\$0.00

### Other Costs:

*Enter any misc. costs such as engineer, design, dump, or permit fees.*

Description	Estimating UOM	Purchase UOM	Purchase Price	Quantity	Estimating Cost / UOM
Dump fees	100sf	\$/ton	\$66.00	.2	\$13.20
Total Cost of Others:					\$13.20

# Business | Stick-Estimate Worksheet

a square-foot price, I can divide the worksheet results by 100.

**Labor.** The amount of time allotted to each task is the most difficult item on this worksheet to forecast. Not only is every company different, but every worker has different abilities. Initially, you could use estimating manuals for these numbers, but your goal should be to use labor figures based on the actual results of completed projects. This involves good labor tracking (see “Using a Simple Timecard to Collect Labor History,” 6/13) and regular updating of labor items in your estimates to reflect your crew’s productivity.

**Crew type/size.** Match your field crew’s abilities to the requirements of the job. In a small company, it might be best to enter specific employees by name; for a larger company, the main thing is to decide how many people will be needed at what level of skill for each task.

**Cost of crew/hr.** Add up the average hourly wages of the crew members. In this example, the \$50/hr. total is the sum of \$30/hr. for the average lead carpenter and \$20/hr. for the average helper.

**Labor burden.** An employee’s hourly wage is only part of the cost for labor. You also need to include the employer’s Social Security contribution (FICA), state and federal unemployment tax (SUTA and FUTA), workers’ comp insurance, and any benefits your company provides, such as health care, vacations, tool allowance, and uniforms. The total of these additional costs is called “labor burden” and is usually calculated as a percentage of the hourly wage (see “The True Cost of Labor,” 3/08).

**Bill of materials.** This is a simple quantity takeoff based on the “Estimating UOM,” which in this case is 100 square feet. The “Purchase UOM” matches the units in which each material line item is

typically purchased — for example, nails by the box or decking by a particular length.

**Subcontractors.** If you have a subcontractor quote, you won’t need to convert it to Project UOM. But many contractors estimate with flat rates without asking trade contractors for pricing. If that’s the case, make sure to use the “Quantity” column to convert to the project UOM — multiplying by 100, for example, to convert a square-foot price.

**Notes.** Use this field to explain anything that could be useful if someone asks, “Where did you come up with that?” For example, if you inflated labor estimates to reflect difficult site access, you can note it here to jog your memory.

In my next article, I’ll look at how to use unit-price estimating for larger projects.

*George Weissgerber is senior vice president at Case Design/Remodeling in Bethesda, Md.*



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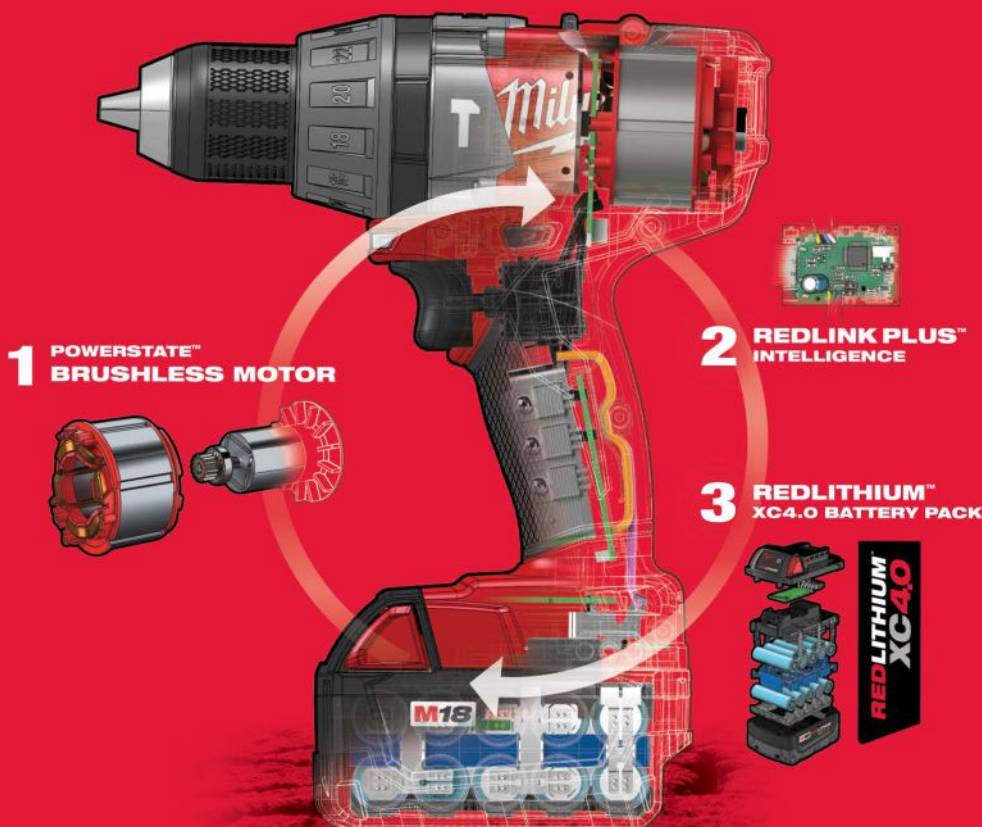
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# On the Job

## Mixing Cladding and Stick-On Stone

by Mark Parlee



A common exterior detail on homes throughout North America mixes a manufactured stone veneer, or what the industry calls adhered concrete masonry veneer (ACMV), on the lower part of the walls with some other type of cladding, such as stucco or vinyl, on the upper part. The stone creates an exterior wainscoting, if you will, that looks nice. But unless the details are executed well, it only looks nice for a short while.

Builders in my area have been using manufactured stone for more than two decades, but judging from the number of failures, they still get some of the critical water-management details wrong. While there are still problems with flashings and drainage planes on the upper cladding, the basic materials to create a drainage plane are in place. But builders are treating the exterior as if the siding stops at the stone, as if the lower sections of wall are covered by an impervious material that will completely protect the wood framing to which it is adhered. ACMV is

very porous and will absorb water. Think of it as fat stucco with chunks of concrete in it. That's really what it is, and it should be detailed accordingly.

I was recently called in to look at a house sided with vinyl siding and ACMV. Water staining on the interior drywall and leakage below a window in the garage prompted the call, but inspection also revealed efflorescence on the stone (1), damage to the OSB near the foundation sills in other parts of the house (2), and corrosion, even rot, around fasteners through the sheathing (3).

The efflorescence reveals where water is concentrating as it drains from the upper walls and windows. The ACMV is absorbing this water, and as it evaporates from the stone, it is bringing calcium hydroxide (from the lime in Portland cement) to the surface, where it reacts with the carbon dioxide in air to form a white powder. This is normal for any concrete product. What makes it noticeable is that the wall is becoming disproportionately wet

## On the Job | Mixing Cladding and Stick-On Stone



in some areas where the efflorescence is happening more.

After hosing down the upper wall to confirm the leakage pathway (4), we tore off the drywall below the window to reveal a wet wall cavity with mold-infested OSB (5).

The problem was a poor flashing detail at the edge of the window and the lack of an effective drainage plane behind the ACMV. The builder had applied a single layer of housewrap to the walls, before slathering them up with mortar and applying the ACMV. Any water draining from the upper walls hit an ACMV dam, and traveled in three ways:

- Some of the water flowed down the crack between the housewrap and the ACMV. There was no flashing here, just the vinyl starter strip (6).
- Some water flowed down the exterior, soaked through the ACMV, passed through the housewrap by capillary action, and soaked the OSB sheathing, where we measured 55% moisture content (7).

• And some of the water flowed around the window flange and down the wall studs inside the garage. The window had a built-in J-channel to receive vinyl siding. This worked well for the upper part of the window that butted against vinyl, but on the lower part of the window that abuts the ACMV, there was a big open channel that allowed water to drain right into the wall.

What's required here is an insert (available from window manufacturers that make this type of vinyl window) to fill the J-channel, and then backer rod and sealant installed between the window insert and the ACMV (8). Getting a good seal using backer rod requires a skilled installer. A more foolproof way to create a durable seal between the ACMV and the window flange is to install a vinyl casing bead, such as E-Z Bead ([amico-lath.com/e-z-bead.htm](http://amico-lath.com/e-z-bead.htm)), to create the proper sealant channel.

Had the wall details allowed for it, the

water should have drained all the way down the drainage plane to the bottom of the wall, where it must be allowed to escape and drain away from the building. To make this happen, the wall needs a continuous drainage plane behind the vinyl that is allowed to drain out of the wall via a through-wall flashing above the ACMV (9). Vinyl is a loose and forgiving cladding, and you can get away with one layer of housewrap, as long as it is lapped over the top of the through-wall flashing.

Behind the ACMV, you need much more. The ACMV should be detailed like a stucco wall. I like to use a rainscreen mat, such as the Keene Driwall system, over the housewrap. (If a rainscreen mat is not used, at the very least you need a layer of black paper over the housewrap, or two layers of black paper, as is required by code for an exterior lath and plaster assembly.) The housewrap and rainscreen mat should lap over the foundation sill and terminate at the bottom of the



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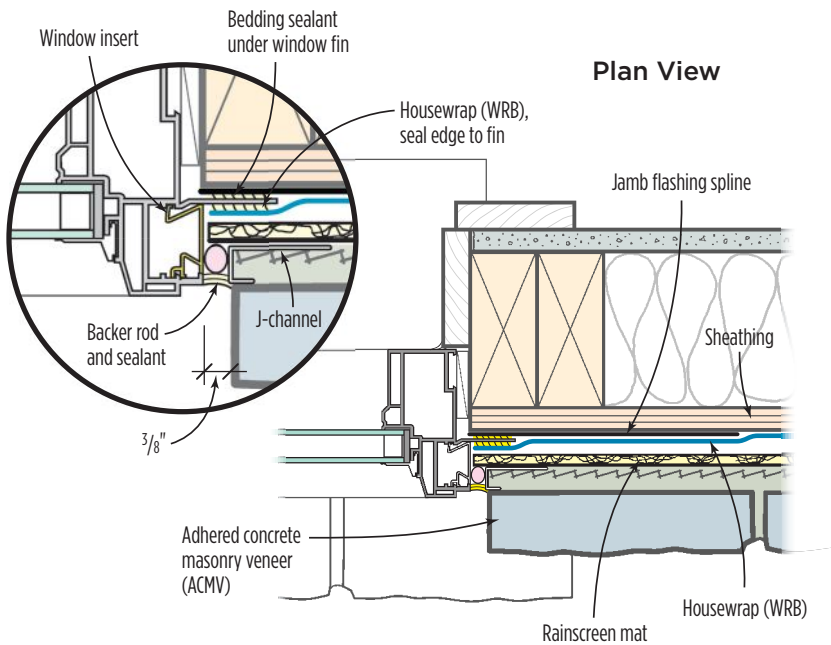
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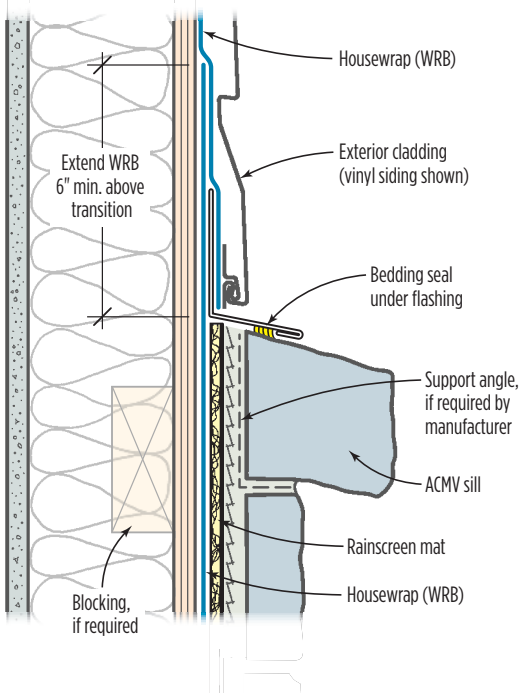


wall at a weep screed positioned at least 4 inches above grade (10).

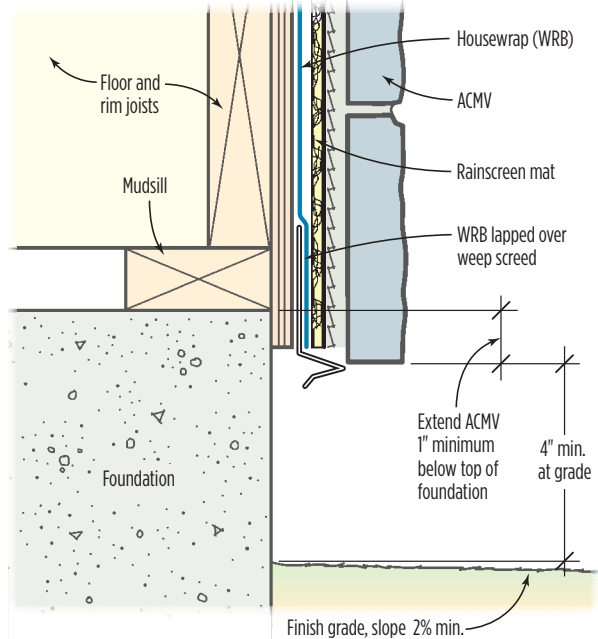
I get a lot of push-back from builders who complain that a two-layer WRB, or a WRB with a rainscreen mat, is expensive. The details shown in the illustrations here will end up costing \$2 to \$3 per square foot, depending on your location. That's a real investment, I admit. But compare that to the cost of remediation: This job will cost at least \$25 per square foot in labor and materials to fix, and I have had remediation jobs for failed ACMV that have gone as high as \$58 per square foot. This says nothing about the legal fees that might be involved, and the long-term damage to your reputation as a builder. I'll take the couple of dollars a square foot over the remediation costs any day.

*Mark Parlee, a building-envelope consultant and builder in Urbandale, Iowa, specializes in exterior renovations and envelope solutions.*

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Paul Bardagjly

# An Air-Sealing Priority List

To cost-effectively meet air-sealing requirements for new construction, some leaks matter more than others. Recent research gives us some clues.

by Clayton DeKorne

**A**ir-sealing a home is fraught with difficulty. We've learned we need to do it: If done well, it has a positive impact on occupant comfort, building energy efficiency, and indoor air quality. The big questions always come down to how much (how tight) and where building professionals should focus their efforts.

If you're building to Passive House standards, perhaps the answers are clear. How much? A lot; you need to get total air leakage down to 0.6 air changes per hour at 50 pascals of negative pressure. Where?

Everywhere, beginning at framing.

Framing a Passive House resembles wrapping holiday presents. You are applying lots of peel-and-stick flashing to sheathing joints (including those in the OSB you've added to the underside of the roof trusses to complete the air barrier on the lid), and lapping and taping the sub-slab poly to walls. To get to the air-change limits required for a Passive House, you seal everything possible, and you have worked out the cost-effectiveness by selling to a clientele that values — and will pay for — a very energy-efficient and

healthy house. Extreme tightness is part of that package.

Or you may not be building to Passive House standards, but have just positioned yourself in a market to sell energy-efficient homes with good indoor air quality, and have gone to great lengths to see to it these homes perform without mishap — no window condensation, no clammy interiors, certainly no rot or moldy closets and bathrooms or peeling paint or dry-wall pops or ceiling cracks or any number of the other unfortunate consequences of elevated indoor humidity. Matt Risinger

## An Air-Sealing Priority List

of Austin, Texas, takes this approach, and he's clear on how much air-sealing he needs to do: His goal is to get his homes to about 1 ACH50. He's also clear on where he needs to focus his air-sealing efforts, but it can change. That's because all of the homes Risinger builds are designed by architects, and he doesn't always have as much control over the building envelope as he might like. He has worked out air-sealing details using a combination of caulk, spray foam, and Owens-Corning's EnergyComplete system — a latex-based sprayable sealant ([ocenergycomplete.com](http://ocenergycomplete.com)) — that has allowed him to reach around 1.5 to 2 ACH50. He needs that level because the architect may come along and spec aluminum-and-glass doors on pivot hinges or some other equally awesome but leaky assembly that makes the whole thing 4 or 5 ACH50. That doesn't always happen, and most of the time Risinger is able to deliver an exceptionally tight, energy-efficient package. But it happens enough that he is always trying to push the envelope (no pun intended) on air-sealing. His latest approach relies on continuous exterior insulation in concert with Tremco sealants ([tremcosealants.com](http://tremcosealants.com)) to seal plate lines and penetrations, and SIGA tapes ([sigatapes.com](http://sigatapes.com)) to seal sheathing joints.

For a majority of builders, however, the focus is not on air-sealing or energy-efficiency or indoor air quality. It's not that they are resistant to these features, it's just these are not the features they perceive as ones that sell homes. I'll go on the record and support that perception. I just don't think a lot of homeowners care. Even if they care in principle (and more and more certainly do), they are not always responding to those features when they decide to enter into a contract on a new home. What they respond to are fine interior finishes, elegant materials, and dramatic settings. That's why, in fact, the architect put in those way-cool, pivot-hinge doors. Aesthetics count more.

Except for one thing: You have to meet



**Lab testing.** To test different types of air-barrier leaks, one side of a pressure chamber was filled with many different “plugs,” each composed of a different building assembly. Four are shown here: 1) a framed wall with a window; 2) a gang of recessed can lights; 3) a series of interior wall partitions (to simulate the plate lines that connect with the attic); and 4) a stack of rim joists. The joints in the assemblies in each “plug” were selectively sealed and unsealed and the change in CFM50 recorded.

code, and more and more state energy codes are forcing even reluctant builders to pay attention to air-sealing. Under the 2012 International Energy Conservation Code (IECC), blower-door testing is no longer an option; it is mandatory, along with a “visual inspection.” The air-sealing requirements have also gotten much stricter: In climate zones 1 and 2 (hot-humid places), a house needs to reach a 5 ACH50 threshold, down from 7 ACH50. In all other climate zones (3 to 8), homes need to reach 3 ACH50. Granted, 3 ACH50 is still a far cry from 0.6 ACH50, but it's a huge leap from 7 ACH50, particularly for builders that have not necessarily been

positioning themselves in the business of selling energy efficiency. It also hits a number (3 ACH50) that a lot of building science suggests is the right one.

So far, only five states have adopted the 2012 IECC or an equivalent energy code: It's law in Maryland and Illinois, and becomes effective in California, Washington, and Massachusetts in 2014. At least 16 additional states will adopt the 2012 IECC or an equivalent by the end of 2015. So for the moment, many builders can continue to avoid this issue, but the handwriting is on the wall: Eventually everyone in home building will have to confront these new air-sealing provisions.

## Air-Sealing Resources

For anyone air-sealing homes, here are some essential resources:

**Thermal Bypass Checklist Guide** (search at energystar.gov) focuses on requirements for building an Energy Star home, including dos and don'ts for sealing common building-envelope air leaks.

**Visual Inspection criteria.** On the Library Resources page of its Energy Codes Training site (nyserdacodetraining.com), NYSEDA offers an interactive module that walks building officials through the criteria for visual inspection (per Table R402.4.1.1), which is mandatory under the 2012 IECC.

**Building Science Corporation** (buildingscience.com) offers tons of free building-science resources. Joe Lstiburek's article "Just Right and Airtight" is an important read that focuses on essential air-sealing principles.

**The Energy Vanguard blog** (energyvanguard.com) by Allison Bailes translates difficult building-science topics into plain language for all. For folks working on existing homes, the posting "The 3 Rules of Air-Sealing" provides clear guidance on retrofit air-sealing.

**The Musings of an Energy Nerd blog** by GreenBuildingAdvisor.com's Martin Holladay provides practical information relating to all things green-building. The posting "One Air Barrier or Two?" should be evaluated when considering the information I have presented in this article.

Other must-reads from our own pages include:

- "Air-Sealing for Hot Climates," by Matt Risinger, *JLC*, 11/12
- "Air-Sealing Tips and Tricks," by Terry Nordbye, *JLC*, 1/12
- "Blower Door Testing," by David Keefe, *JLC*, 1/10
- "Practical Details for Energy Efficiency," by Paul Bourke, *JLC*, 2/01

*Visit JLC Online for more important resources relating to this article.*

### Sealing at the Sheathing

The easiest way to accomplish a complete and durable air barrier is to seal at the sheathing layer. This only works for new construction or gut rehabs because you need access to the sheathing without insulation. Once the insulation and drywall are up, all bets are off. The sheer number of holes, including electrical and plumbing penetrations, plus the interconnectivity of framing cavities, makes air-sealing after drywall incredibly demanding. Ask the weatherization and home performance contractors. As Bob Kahabka, owner of Northern Comfort Diagnostics in Elmira, N.Y., explains, the biggest leaks often involve intercavity communication. Consider as an example a leak that originates at the band joist on the windward side of a building. It sends air through the second-story floor and out the recessed lights in the kitchen. You seal the recessed

lights, and now that air travels up through an interior wall and out electrical outlets or from behind the second-floor baseboard. You may chase down all these leaks, and now that same air is moving with even greater force through the top plates into the attic. Seal the top plates in the attic and the air finds a plumbing chase ... you get the idea. Chasing down air leaks in an existing home is a demanding practice.

Weatherization folks who know their stuff are famous for solving such problems with dense-pack insulation in interior walls or interior floors. (Yes, this is "insulation" that has nothing to do with insulating; the dense pack is used only to shut down the air pathway, and it's often more cost-effective than chasing down all the individual air outlets.) It's precisely these complex air pathways in existing homes that prompted the New York State Empower program's "Advanced Air-Sealing Protocol," which Kahabka

helped write and which he uses to train installers in the Empower program. The protocol relies on zonal pressure diagnostics, as well as blower-door assisted thermal imaging and diagnostic smoke, to pinpoint significant leaks and identify areas where air moves through the insulation when the house is pressurized. Had Kahabka only been able to seal that rim joist where the leak originated, all the contortions to shut down intercavity communication would be unnecessary. For a home-performance contractor, of course, that isn't typically an option. But the experience illustrates how stopping the leaks before insulation and drywall is the best way to go for new construction and gut rehabs.

There are a number of ways to air-seal at the sheathing layer, and the easiest methods establish the air barrier at the inside face of the exterior sheathing, with the ceiling drywall as the air barrier on the lid. Among the options are the following:

- Owens-Corning's EnergyComplete is a two-part, latex-based sealant. When the two parts mix in the applicator, a polymerization reaction causes the sealant to foam (there is no blowing agent). This forms a compressible foam seal that can fill a crack, create a fillet, or be applied on a framing surface to create a gasket for drywall. Being able to create a gasket has the distinct advantage of allowing you to do the air-sealing all at once, before drywall is installed, even for leaks at the top plates of interior walls, duct boots, and recessed lights that seal to the drywall.
- Knauf EcoSeal (ecoseal.knaufinsulation.us/kiss.html) is an acrylic-based sealant. There is no foaming; it is more like a sprayable caulk that will seal a crack or create a fillet. But if you're trying to create a gasket, you need to apply the overlying drywall before the bead cures.
- The so-called "flash-and-batt" approach can be used. This method takes advantage of the air-sealing capacity of spray-foam insulation, but uses it sparingly, applying just an inch or so to interior framing

## An Air-Sealing Priority List

cavities for air-sealing, and then installing batts (works with blown cellulose or fiberglass, too) to provide cavity insulation. While the flash-and-batt approach is cheaper than full-depth spray foam, it suffers from the same limitation: It only seals the cavities, and there are a limited number of leaks that occur in framing cavities. Spray-foam insulation typically cannot be applied with the precision needed to seal all the other gaps and cracks where leakage occurs.

### Air-Sealing on a Budget

When air-sealing at the sheathing layer, you have fewer leaks to seal than you have in an existing building. Still, there are a lot: Add up all the plate lines, framing corners, sheathing panel joints, window and door openings, recessed lights and duct boots, rough-in electrical and plumbing penetrations, plus myriad other penetrations, and you have a lot of leaks.

Faced with the question “With nearly a mile of joints on a typical house that connect the inside to the outside, which ones are the most important to air-seal?”, Dave Wolf, senior research and development project leader of Owens-Corning Science and Technology, set out to prioritize the leaks in a house by ranking which ones have the biggest impact on reducing the blower-door number. Acknowledging that many builders who will be trying to meet the new energy code will have a limited budget for air-sealing, Wolf’s goal was to identify the leaks that would give a builder the most “bang for his air-sealing buck.” He approached this on two fronts: in a research lab and in a test house.

In the research lab at Owens-Corning, Wolf’s team built an 8-foot by 8-foot pressure chamber. It’s essentially a big box, with one 8x8 face open that the researchers filled with an 8x8 “plug” before depressurizing the chamber to 50 pascals. Each plug was composed of a different kind of building assembly. Four of these can be seen in the photos on page 40; 17 different

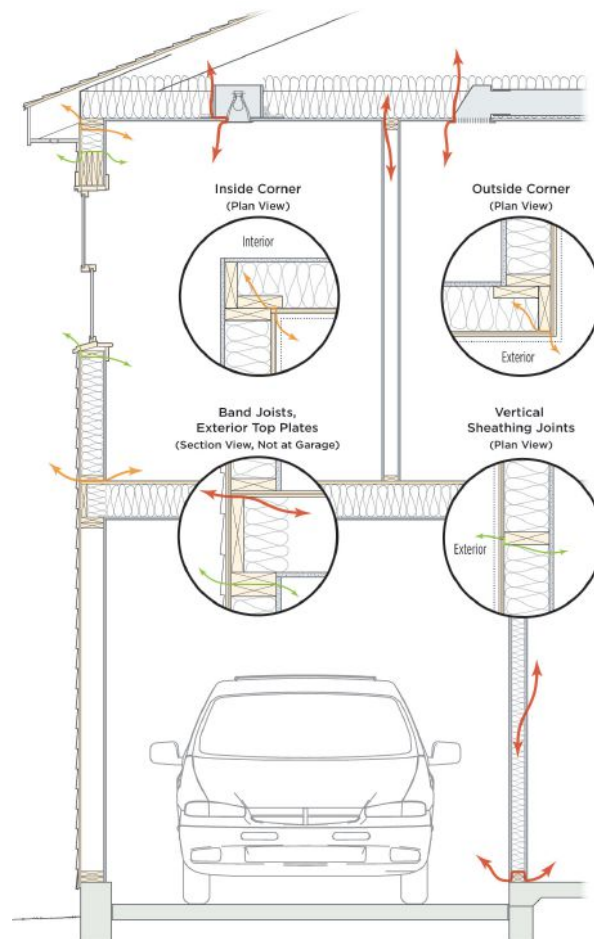
ones were used in all. The idea was to create a lot of variability in each type of leak through a building assembly. Using a soft clay with which the research team could systematically seal and unseal the joints, Wolfe recorded the effect on CFM50, and gradually collected enough data to develop coefficients (in CFM50 per foot of leak or CFM50 per unit for duct boots, recessed light, switch and outlet boxes, and the like) for each type of leak.

Next, Wolf’s team moved to a test house that stood on the grounds of the Owens-Corning research facility. The house was gutted, bringing it to the appropriate phase of construction just before insula-

tion when all the framing joints and penetrations into the attic could be sealed. The work here was a little more painstaking, as it had to be done in concert with continuous blower-door testing, but it followed the same general procedure: Seal and unseal the joints, and record the effect on the blower-door readings. By plotting the reduction in CFM50 against installation cost for each type of leak (with cost inferred from the amount of material needed plus the effort to seal a joint), Wolf’s team ranked air leaks in order of importance. The results are shown in the chart on the facing page.

These results may be useful for reach-

## Air-Sealing Priorities



The arrows represent common air leaks in a building, and their colors correspond to data in the chart at far right.

Note that the leaks at the window represent those between the sheathing and the framing around windows (and doors). They are **not** those between the window unit and the rough opening. (It is assumed these gaps will be air-sealed without question.)

ing an air-sealing target in new construction. The target for most will be the code requirement, given in ACH50, that reportedly “normalizes” a blower-door reading (which is expressed in CFM50) for house volume. While there is much controversy about how valid this is (building scientists argue that leakage is a function of area, not volume), ACH50 is, nevertheless, how the code is written.

$ACH50 = (CFM50 \times 60) \div \text{house volume}$ .  
 Or,  $CFM50 = (ACH50 \times \text{house volume}) \div 60$ . So, for example, if you were aiming for 3 ACH50 in a 2,000-square-foot house with 8-foot ceilings (volume = 16,000 cubic feet), you'd be aiming for a blower-door

number of 800 CFM50 or lower.

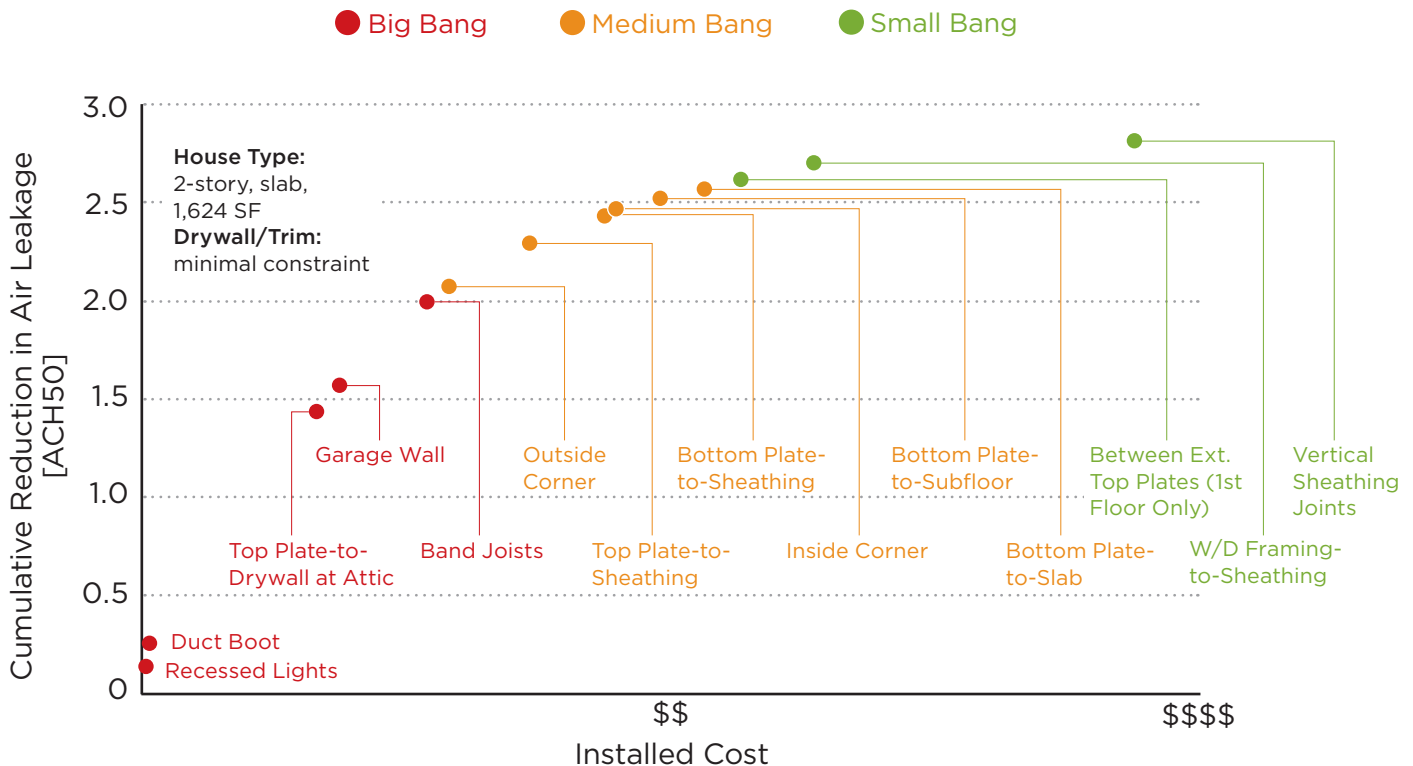
The results suggest taking a systematic approach, sealing in order of leak importance and using a blower door to check progress, as you zero in on the code requirement.

Wolf cautions that the results are only a guide. They apply specifically to a small (1,624 square-foot) two-story on a slab. It is likely they hold for a lot of other houses, too, but builders should evaluate their own buildings. Bear in mind that the results are ranked specifically for reducing the blower-door number, and do not necessarily address comfort and indoor air quality, which may require more action. Also, the

results leave out some leakage areas that could be quite significant in reducing the blower-door number. Rough-in mechanical penetrations (pipes, wires, and ductwork) through interior wall plates do not appear in the results. Nor do ceiling soffits, fireplace walls, and tub and shower units, which could present huge leaks if these units get installed before drywall without first insulating and installing an air barrier behind them. These leaks do appear in the visual inspection criteria (Table R402.4.1.1) of the 2012 IECC, so you'll be obligated to address them in any case.

*Clayton DeKorne is executive editor of JLC.*

## Bang for Your Air-Sealing Buck



Air leaks are ranked on the basis of CFM50 reduction for the amount of effort required, and the amount of material needed, to complete each air-sealing task. Owens-Corning grouped the results in three categories: those that provide a “big bang for a builder’s air-sealing buck” (red); those that provide a “medium bang” (orange); and, as the return tapers off, those that provide only a “small bang” (green). Certain leaks — like vertical sheathing joints and the sheathing joints around windows and doors — require a lot of sealant for only a modest reduction in airflow, which is why they are “small bang” leaks.

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## TOOL TEST

# Lightweight Framing Guns

These sub-8-pound guns are comfortable to use and surprisingly powerful

by Tim Uhler

I run a framing crew in the Pacific Northwest, and in this part of the country we use full round-head (FRH) plastic-collated stick nails. These nails are collated at an angle of 21 to 22 degrees, and the guns that take them have longer magazines than the guns that drive paper- or wire-collated fasteners. I've been using this type of tool since high school, and the thing I like most about the newer models is how much lighter they are than the

guns I learned on. Many of these guns have also been shortened top-to-bottom to fit more easily between tightly spaced framing members.

For this article, my crew and I tested the seven plastic-collation stick nailers that weigh less than 8 pounds (with an air fitting but no nails). We wanted to test the very lightest models, and that seemed like a reasonable cutoff. The paper-collated versions of all of these tools are listed in the spec chart on pages 46 and 47. Those models have different magazines than the guns we tested but are otherwise the same.

Our method of testing was simple: Take the tools to the job site and use them in the normal course of our framing work. Later on, we drove full clips of nails into lumber at varying speeds and counted the number of heads that were not set flush.

### Weight and Balance

As important as it is for a gun to be light, it's even more important for it to be well-balanced. If two guns weigh the same, the one that's less well-balanced will cause more fatigue and feel heavier. Except for the Porter-Cable, most of these guns feel

## Lightweight Framing Guns

very well-balanced. The Porter-Cable is tall and feels quite bulky. At 7.5 pounds, the Max is one of the lighter guns tested and is so well-balanced it feels lighter than it actually is.

### Performance

Here's how the nailing tests were performed: With the compressor set to 115 psi, I put a 28-nail clip of 3-inch by .131-inch nails into each gun and then bounce-fired into a double layer of LVL until it was empty. For models that don't let you fire the last few fasteners, I loaded enough to

fire 28. I performed the test twice, waiting for the compressor to refill and stop running before starting with another gun.

In the first test I fired at the pace I'd normally shoot framing, and none of the guns left any nails proud. The guy I was working with pointed out that when we frame walls we normally shoot three nails through the plate and into the stud, take a step, and then shoot the next stud. Used that way, the guns have time to cycle and have little trouble driving fasteners flush.

In the second test I fired as fast as the guns would go while another carpenter

timed how long it took to empty the clip.

I wouldn't make overly much about these results, because there are only a couple of times you nail this way in real-world framing. You do it when you gang LVLs together — and even then the guns have time to cycle because you drive three nails and then move 12 inches down the board for the next set. You might go faster nailing sheathing, but the fasteners will be smaller and take less power to drive. The five guns that left zero nails or one nail proud were at the top. The Porter-Cable and the Ridgid were at the bottom.



## Lightweight Framing Guns

	Bostitch LPF21PL	Grip-Rite GRTFR83	Hitachi NR90AE(S)	
<b>Height</b> (INCHES, BY AUTHOR)	12¼	12¾	13⅛	
<b>Length</b> (INCHES)	21½	21⅝	21¼	
<b>Weight</b> (BY AUTHOR)	7.66 pounds	7.50 pounds	7.36 pounds	
<b>Nail length</b> (INCHES)	2 to 3¼	2 to 3¼	2 to 3½	
<b>Nail diameter</b> (INCHES)	.113 to .148	.113 to .148	.120 to .131	
<b>Mode selector switch</b>			●	
<b>Dry-fire lockout</b>		●		
<b>Rafter hook</b>	●	●		
<b>Includes</b>	Gun	Gun, wrench, oil, safety glasses	Gun, safety glasses	
<b>Web price</b>	\$220	\$205	\$180	
<b>Country of origin</b>	Taiwan	Taiwan	Taiwan	
<b>Warranty</b>	7-year	3-year	5-year	
<b>Equiv. paper-tape model</b>	LPF33PT	GRTFC83	NR90AD(S)	
<b>Pros</b>	One of our favorite models; compact; well-balanced; dampens recoil very well	Large metal rafter hook; sharper-than-average nosepiece; includes swivel air fitting	Reliably drives nails flush; comfortable grip; good depth-of-drive mechanism	
<b>Cons</b>	Rafter hook is looser than others so gun sometimes pivots when hung from a belt	Grip is thicker and less comfortable than on other models	Does not include a rafter hook; depth-of-drive thumb-wheel sticks when wet and dirty	

I was not surprised by the Ridgid, as it felt slower when I used it to frame.

**Recoil.** The trade-off in using a lighter gun is that there is likely to be more recoil. The repetitive recoil from nailing sheathing or ganging framing members can be very hard on the wrist. We found that the Porter-Cable dampened recoil better than the other guns; when we pulled the trigger there was virtually no movement or kick. The Senco and the Bostitch were also quite good in this regard. Bringing up the rear was the Ridgid, which due to the amount of recoil was uncomfortable to use. The

## Speed Nailing Test \*

	Time to drive 28 nails (in seconds)	Number of nails not driven flush	Percentage of nails not driven flush
Bostitch LPF21PL	8	1	3.6%
Grip-Rite GRTFR83	8	1	3.6%
Hitachi NR90AE(S)	8	0	0.0%
Max SN883RH2	8	0	0.0%
Porter-Cable FR350B	8	5	17.9%
Ridgid R350RHE	11	4	14.3%
Senco SN902XP	8	0	0.0%

\* At normal speed, all guns set every nail flush.



	Max SN883RH2	Porter-Cable FR350B	Ridgid R350RHE	Senco SN902XP
	12¼	14¾	13¾	12¼
	20¾	21⅝	19	17¼
	7.42 pounds	7.42 pounds	7.34 pounds	7.96 pounds
	2 to 3¼	2 to 3½	2 to 3½	2 to 3¼
	.113 to .148	.113 to .148	.113 to .162	.113 to .148
	●	●	●	●
		●	●	●
		●	●	●
	Gun, safety glasses	Gun, plastic case, wrench, oil	Gun, soft bag, safety glasses	Gun
	\$235	\$200	\$230	\$250
	Thailand	Taiwan	Taiwan	China
	1-year	3-year	3-year	5-year
	SN890CH2/34	FC350B	R350CHE	SN901XP
	One of our favorite models; compact; well-balanced; comfortable grip; built-in filter ejects grit	Dampens recoil extremely well	Nose opens to clear jams; nice rafter hook; includes swivel air fitting; adjustable exhaust	Extremely compact; dampens recoil very well
	Does not include a belt hook or air fitting; depth-of-drive thumb wheel sticks when wet and dirty	Bulky and unwieldy; feels heavier than it actually is; rafter hook is not adjustable; included case is gigantic	Cycles more slowly than other guns tested; drive piston sticks during repetitive shooting; not very good at dampening recoil	Rafter hook is not adjustable; light for a framing gun but heavier than other models tested; air fitting not included

## Lightweight Framing Guns

Hitachi, Max, and Grip-Rite guns did an acceptable job dampening recoil and felt about the same.

**Firing modes.** Like most framers, I use bump-fire 99% of the time. I only use sequential when there is no choice but to nail near where I'm holding something, or when I can't afford for the pieces to move in the event of a double-fire. In that case, if the gun has a mode switch, I'll change to sequential.

These guns come from the factory set to fire sequentially, but are easily switched over to bump-fire (contact-trip). Except for the Bostitch, all are equipped with a selectable trigger that allows you to change modes at will. To change the Bostitch to bump-fire, you must pull a pin, flip a switch on the trigger, and then reinsert the pin. It takes about 15 seconds to make the change — which for most carpenters will be a one-time operation.

**Toenailing.** All seven guns have aggressive nosepieces that really dig in for toenailing. This is a big plus when dealing with engineered lumber, which is slicker and denser than sawn framing lumber. The nosepieces on the Ridgid, Porter-Cable, and Hitachi guns are so sharp I have to be careful when touching them.

### Features

Every gun we tested has slightly different features, some of which matter more than others.

**Rafter hook.** I think every framing gun should come with a belt or rafter hook. The Hitachi and the Max are the only guns in the group that don't have this feature. For the tools that do have them, some hooks are better than others. Senco's hook is fixed to the right side of the gun, which is fine for me because I like to hang the gun from the left side of my pouch. Most of the guys I work with prefer to hang their gun to the right, so the Senco would be a problem for them.

The hooks on the Grip-Rite, Porter-Cable, Ridgid, and Bostitch tools swivel to

either side. Bostitch's swivels a little too easily and sometimes gets turned around when hooked to my bags.

**Magazine.** The Grip-Rite can be loaded from the top or the rear. I don't see an advantage in this, but it is kind of interesting. The only jams we've had with any of these guns were when the nails or collation were broken or damaged. Max and Bostitch have a magnet built into the nosepiece to keep the last nail straight so the tool won't jam. I don't know if this helps, because jamming was simply not a problem with any of these guns.

About half of the guns have dry-fire lockout, which prevents them from being fired when the magazine is empty. This feature doesn't matter to me and would have no effect on my purchasing decision.

**Depth-of-drive.** All of these guns have a tool-free depth-of-drive adjustment. The Max and the Hitachi have the adjustment in front of the trigger, and the rest of the guns have it on the nosepiece. I found the Max and the Hitachi the hardest to adjust, and they also seemed to get grime stuck in them the most. The Senco, Bostitch, Grip-Rite, and Ridgid guns have the adjustment on the nosepiece and are the most consistently easy to adjust. I can't pick one as better; they all did a great job.

### The Bottom Line

Most of these guns are very good and I'd be happy to own them. The two that are not are the Porter-Cable and the Ridgid. The Porter-Cable is bulky and the Ridgid is slow. If I had to buy one of the tools in this test, I would go for the Max or the Bostitch. Both guns are powerful and fast. The Max is compact, well-balanced, and has a comfortable grip. The Bostitch does a good job dampening recoil, is compact and well-balanced, and comes with a hook.

*Tim Uhler is a lead framer for Pioneer Builders in Port Orchard, Wash. This article first appeared in Tools of the Trade magazine.*




Most of the guns tested have a selector switch next to or on the trigger that allows the carpenter to change freely between sequential and bump-fire modes.



The Bostitch converts easily to bump-fire, but the change is unlikely to be reversed because it requires the use of pliers.



Rafter hooks are practically indispensable, and it's hard to believe that not every gun has one.



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Greg Reigler

# What's New in Kitchens and Baths

For clients struggling with product selections, these materials and fixtures may help seal the deal

by Charles Wardell

The *JLC* staff receives hundreds of announcements for new kitchen and bath products each year. Some are memorable, others not so much. Most big manufacturers have a range of products to satisfy every taste, so it can be hard to discern trends behind these announcements, but trends are there if you dig a bit. To uncover them we interviewed a variety of K&B product experts, from designers to manufacturers to market researchers. Their insights should help builders and remodelers determine which product types their customers will warm to.

The most important trend is that kitchens and baths continue to be the two areas where homeowners want more space and better space. A recent study by the Research Institute for Cooking & Kitchen Intelligence (RICKI) in North Carolina found that even when buyers are downsizing their homes, only 15% would be willing to accept a smaller kitchen, and just 13% a smaller bath. Nearly half (46%) would sacrifice the family room or living room for that kitchen and bath space.

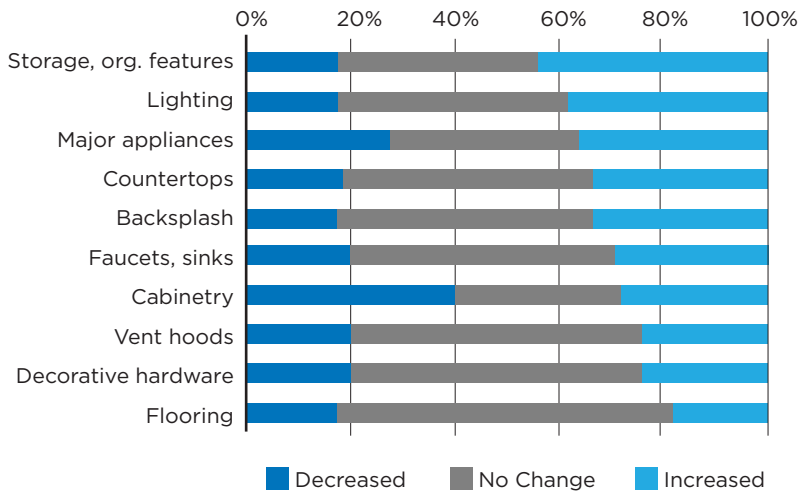
The reason that's true for the kitchen is that everyone is spending more time

there. It is a place for socializing, entertainment, and even work. At the same time, people still have to cook and eat, and in many households the space needs to accommodate two cooks. But there are three obstacles to satisfying these demands. The simplest one is budget; the other two — demand for customization and need for storage — can require some creativity to overcome.

With today's multi-tasking kitchens, it should be no surprise that the RICKI study found a growing interest in customization. "Most people don't want their kitchen

# What's New in Kitchens and Baths

## The Shifting Budgets



**Spending trends.** How have remodeling budgets changed compared with two years ago? According to the Research Institute for Cooking & Kitchen Intelligence (RICKI), consumers have upped spending on storage and organizational features more than any other category, even while their overall cabinet budgets have decreased. Part of the reason is that more people are upgrading their existing cabinets rather than buying new ones.

to look like everyone else's," says Brenda Bryan, the organization's executive director. The catch is that most also worry about hurting their resale value.

This worry helps explain the popularity of "safe" cabinet choices. "We have gone from traditional cabinetry to transitional designs with clean lines," says Alan Zeilinski, who owns Better Kitchens in Niles, Ill., and was president last year of the National Kitchen & Bath Association. He says that nationwide, the most popular colors for cabinets are whites and off-whites, while stainless steel continues to dominate the appliance world.

The customization is happening in countertops, backsplashes, and — especially — islands. "Buyers are looking at the island like a piece of furniture," says Bryan. "It's a place to make a personal statement." The island's cabinets can be a different color and style from the main

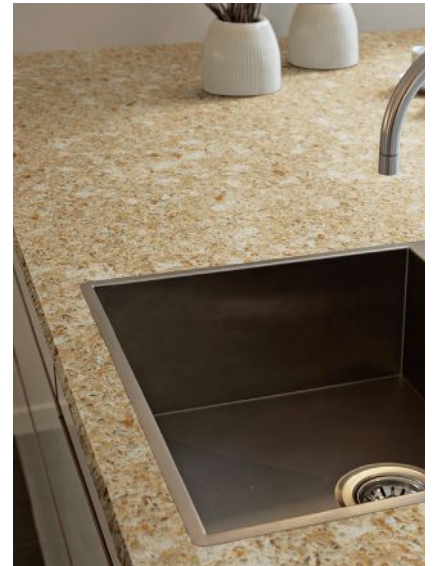
cabinets, and there can be two or three counter heights with different countertop materials. If the homeowners want a more consistent look when they sell, changing the island will cost less than changing the look of an entire kitchen. Contractors who understand this might offer a menu of stock cabinets while aggressively promoting their custom island designs.

People who use the kitchen more also tend to want to keep more stuff in it. Consequently, storage budgets are rising, with 44% of respondents in the RICKI study spending more on this item. Designers are specifying taller cabinets and more walk-in pantries, while manufacturers are responding with enough new storage and organization products to meet anyone's needs.

Storage is also in demand for the bath. "We're seeing a decline in pedestals even for small baths, because there's no way

## Surfaces

**Recycled countertop.** Though granite remains the leader, engineered countertops are catching up. Green products like Cosentino's Eco, with 75% recycled content, are especially popular.



to store things," says Zeilinski. "We're also seeing more demand for wall-hung storage."

Another thing people want with them in the kitchen is their gadgets and music, and that's especially true of younger buyers, according to our experts. They suggest including nooks or shelves for wireless speakers in the kitchen and bath, and dedicated charging stations for tablets or smartphones in the kitchen. "Many people want to play music, watch a movie on the tablet, or talk on the phone while cooking," says Bryan.

## Surfaces

Surfaces are where budgets and customization meet. The RICKI study found that along with more partial remodeling (people changing cabinet faces, backsplashes, and countertops), there has been more demand for better counters.

## Fixtures



**Wall-hung commode:** Though most buyers want a bigger bath, those who can't have it want products that save space without sacrificing storage, like the Veil toilet by Kohler.

**Clawfoot tub.** Freestanding tubs — such as this one from Victoria + Albert — are hot sellers, making it clear that demand for traditional design in the bathroom has not abated.

**Accessible toilet.** Products for aging-in-place, like American Standard's Champion Pro toilet, will continue to proliferate.

**Hands-free faucet.** Buyers flock to anything that makes life easier. Kohler's Sensate faucet is activated with a wave of the hand.

The countertop trade is dominated by small fabricators, so there are no hard numbers on how much of what materials are being installed. But Kevin Cole, communications director with the International Surface Fabricators Association, says that his experience with fabricators across the country suggests the following rough estimates, based on the square footage of each material installed.

- Laminate: about 55% (of total)
- Solid surface: a little over 12%
- Natural stone: 9%
- Engineered stone: 7%
- Tile: 7%
- Cast products (polymers and concrete-based): 7%
- Other (stainless steel, glass, for example): 3%

Laminate's high share reflects its dominance in entry-level homes, but stone has taken the lead in remodeling, with in-

stalled square footage growing 9% or 10% per year. The lion's share of that is still granite, although engineered stone has been gaining. This is especially true for recycled products like Cosentino's Eco.

Customers are also more willing than ever to experiment with different counter combinations. As mentioned above, mixing of materials is becoming more common, so you're seeing more projects with a solid-surface counter, a granite island, and a tile backsplash.

### Fixtures

When it comes to fixtures, consumers have come to expect water savings, though much of that trend is driven by government regulations. What really pushes their buttons is ease of use. Happily, today's fixtures satisfy both desires.

The best fixtures are engineered to reduce everyday frustrations. Cooks with

food-caked hands usually work lever faucets with the elbows, but a growing number of companies — Moen, Kohler, Delta, and Daze, for instance — now make hands-free models that are activated by waving a hand or utensil beneath the spout, or by simply touching any part of the faucet. These and other companies — such as American Standard, Chicago Faucets, and Speakman — also offer residential hands-free bath faucets.

There are also electronic showering systems that can be programmed to give each family member a particular temperature and flow rate, although designers say that the market for these is small. However, a surprising number of buyers are interested in custom shower systems with steam, according to Sam Rose, director of Showroom and Builder Business Development at Ferguson Bath, Kitchen, and Lighting Gallery. "We're getting more requests for these than

## Appliances



**Two-oven stove.** Thirty-inch ranges with two ovens — like Whirlpool's Gold Double Oven Freestanding Range — are increasingly popular. The small upper oven heats leftovers and cooks small dishes without using a lot of energy.

**Ceiling range hood.** Manufacturers have made great strides in vent technology. Broan-Nutone's Best Sorpresa Cirrus can be mounted in 9-foot ceilings without sacrificing airflow, because air is drawn in through the edges as well as the center.

**Sideways oven door.** Any product that makes life easier will find a ready audience. This Gaggenau oven has a door that opens sideways so users don't have to reach as far.

**Hot-water dispenser.** GE has added hot water to the water dispenser on its Cafe refrigerator.

ever. It's a part of the bath that has been underemphasized by distributors."

Another priority in the bathroom is saving space. One solution is Kohler's new Veil wall-hung toilet. Because the tank is embedded in the wall behind an access plate (it requires 2x6 framing), the toilet protrudes only 21 inches into the room (compared with 28 inches for a standard round-bowl toilet and 31 inches for an elongated bowl). And the wall-hung design makes cleaning a lot easier.

Companies are also prioritizing new aging-in-place products, but doing so in a way that doesn't call attention to the fact. For example, American Standard's Champion Pro toilet is designed to meet ADA requirements — but don't expect it to be described as such. "We call it 'right height,'" says Gray Uhl, the company's design director. Walk-in tubs and accessible showers are also in demand, so ex-

pect new products in those areas. "The big focus in the next few years will be to continue developing new multigenerational products and accomplishing more in less space, with less water," Uhl says.

Some trends seem counterintuitive — like the growing popularity of the freestanding tub. Even as contemporary design becomes more common in the kitchen, Rose says, traditional styling still rules in the bath.

### Appliances: More Time in the Kitchen

Just as with fixtures, the top sellers among appliances are those that address day-to-day frustrations. Take the French-door refrigerator with a bottom freezer, an arrangement that makes both boxes more accessible. This design has been a real home run for manufacturers, and everyone we spoke with reported brisk sales.

The latest appliances come with lots of embedded technologies, but the question is always whether they enhance usability. "People don't want technology for its own sake; they want it to be functional," says Bryan. While being able to control the oven from a smartphone has appeal to what Rose calls "the aspirational customer," it's not where most price-driven customers want to spend their budget.

Among the new technologies that show promise are enhancements to the fridge's water dispenser. For instance, GE has added a hot-water dispenser, an auto-fill option, and advanced filtration. The company says the new filter even removes trace amounts of pharmaceuticals from the water.

In dishwashers the most requested feature is silence, a consequence of people spending more time in the kitchen. "If you talk to manufacturers you would think

## Lighting

**Versatile LEDs.** Today's LED products offer a lot more design choices than incandescents or halogens. Troy Lighting's Ginza (right), Corbitt's Spellbound (far right), and CSL's Pro puck (below) show what's possible.



that cleanability is the number one thing, but people assume that the machine will get dishes clean," says Zeilinski. "The feature they continue to lock in on is quiet." He adds that demand has dropped somewhat for integral dishwashers — those with the controls hidden on the top of the door — because of cost. "In 2012 integral was 60%, now it's about 56%."

Vent-hood makers have heard the outcry for quiet and are responding with veritable stealth models. Manufacturers publish different sound ratings for their low and high blower speeds; most of the development has gone into making blowers quieter at low speeds, to encourage users to keep them on longer. (High speeds are meant for spot ventilation, such as when someone burns a steak, so sound is less of an issue.) "Compared to five years ago, sound levels have probably dropped 30% to 40% in our products," says Brian

Wellnitz, a marketing manager at Broan-Nutone. He says the company's IQ Blower system puts out only 1.5 sones, barely enough to hear, and that sound levels at high-speed settings have dropped 10% to 15%. The blower's digital motor uses only 4 to 8 watts of electricity.

At least one model also aims for visual stealth. The Best Sorpresa Cirrus model from Broan-Nutone is mounted flush to the ceiling and can be ordered with blower options of up to 1,200 cfm. The manufacturer claims that its perimeter aspiration technology increases air velocity by pulling air in around the edges and the center, rather than through a large filter area.

In the realm of cooking, Bryan says that RICKI's research found one of the fastest growing products to be the double oven range, which places a small oven box above the main oven. It's great for heat-

ing things up, and is more efficient from an energy-use standpoint.

The growing need to service multiple cooks is making point-of-use appliances mainstream among people who can afford them. "It used to be assumed that clients wanted a big fridge," says Zeilinski. "Now a lot of them prefer multiple smaller refrigerators and refrigerator drawers."

Zeilinski says that fewer people want to be stuck buying all their appliances from the same manufacturer. Instead, more of them are cherry-picking: shopping different manufacturers' products to get the features they care about and to make their budget dollars go further.

## Lighting

Today's lighting products illuminate two trends mentioned above: They support aging in place by providing ample task illumination for people with declining

# What's New in Kitchens and Baths

## Cabinets



Chip Hatter

**Balancing act.** Buyers are trying to balance resale value with customization. They're choosing white cabinets with custom tile work and islands that can be replaced for relatively low cost.

**Space-saving storage.** Organizational products like Diamond Cabinets' pull-down spice rack (far left) and message center (left) are hot sellers among all buyer groups.



vision, and they add class to even the simplest kitchen or bath. Rose, for one, says that his customers have been putting more emphasis on lighting. "Consumers are looking at lighting as the jewelry of the home. And more and more builders, remodelers, and designers see it as a way to put a real finishing touch on a kitchen or bath."

Of course, the big news in lighting is LEDs. The best models are now dimmable, have color renderings that mimic incandescents, and are omnidirectional. That last feature is accomplished with small light sources inside the globe that point in different directions.

Today's LEDs cost less and use less electricity per watt. Cree just came out with screw-in LEDs that are shaped like incandescents, shine just as brightly, and cost just \$10 to \$13. Philips is selling one for around \$15.

On the energy side, manufacturers have made huge gains. According to Steve Nadell, president of Troy-CSL Lighting, outputs of his company's products have increased from 25 lumens to around 200 lumens per watt. This is made possible, in part, by more effective internal heat sinks, which let LEDs burn brighter without sacrificing service life.

Speaking of heat, consumers like that LEDs put out less of it than incandescents or halogens. "We converted our showroom to LEDs," says Zeilinski. "It has taken a big load off of the air conditioning, and customers comment about the lack of hot spots."

### What's Next?

Our experts believe that the next five years will see the above trends continue with some new twists. While most expect to see continued growth in stone countertops,

some also predict more preference for black appliances as younger buyers take over the market. There will also be more technology in the kitchen and bath, with affluent young buyers the main audience for remote control via smartphone apps, whether used to start the oven or program the electronic shower.

Aging-in-place will remain a big factor for the next few decades. Expect more and better task lighting as designers and engineers look for ways to make life easier for aging clients. Also expect more nonslip flooring, a wider range of dishwashers elevated off the floor to reduce bending, and a greater selection of wall ovens with side-swing doors. In fact, that side-swing oven door is typical of a lot of new products, says Bryan: "It may not be mainstream yet, but consumers are asking for it."

*Charles Wardell is a JLC contributing editor.*



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# You've Been Rated

Online review sites are here to stay

**Y**ou know consumers are online looking for ideas and contractors. You know, too, that referrals are your best lead source. Review sites such as Angie's List and Yelp — which marry the two concepts — seem the perfect solution. And, according to a 2012 survey of 2,862 Internet shoppers conducted by search engine information hub Search Engine Land, 72% trust online reviews.

“But when you're trying to build a relationship-based business model through technology, there are bound to be breakdowns,” says industry consultant and author Dave Lupberger. There are small breakdowns such as “having to do a lit-

tle dance because you don't want [clients] reporting that you're rude or disinterested,” as Keith Liston, owner of Liston Construction in St. Louis, says. And there are big breakdowns such as last year's widely publicized case involving remodeler Christopher Dietz, in Washington, D.C., who sued former client Jane Perez for posting negative reviews on Angie's List and Yelp and is currently involved in a defamation suit against Perez. Although the sites removed Perez's negative comments, Dietz says, “Even if I win the monetary award ... she is still defaming me. If I win, I've still lost.”

So is it possible for online reviews to be a win-win for contractors?

*This staff-written article first appeared in the April 2013 issue of Remodeling magazine.*

## Sites for Sore Eyes

Consumer-driven sites leave contractors no choice but to play the game

Simply put, online review sites ask consumers to rate businesses from which they have received services or purchased products. Other consumers read those reviews and use the information to make informed decisions — turning those sites into lead generators.

Angie's List and Yelp are the two largest, most widely known sites, but there are others. These include Manta, Google+, and Hotfrog (international); remodeling industry-specific sites such as HomeAdvisor (formerly ServiceMagic); local/regional sites such as Kudzu (South); "hyperlocal" sites such as Brooklyn, N.Y.'s Park Slope Parents; and sites that have a wider purview than just consumer reviews, such as GuildQuality and Houzz Pro+.

In the review category, Angie's List is the biggest player, but it's anybody's guess as to how these sites will shake out, with newcomers such as Porch and YouNeedMyGuy, which use a consumer's own social networks to share business referrals.

While consumers are looking for a good contractor, contractors are looking for good leads.

For some contractors, such as Dan Wolt, owner of Zen Windows, in Columbus, Ohio, Angie's List offers leads that "are far and away the best. They are gold." Because Zen Windows gets consistently high reviews, Wolt says that often, when he gets in touch with prospects from Angie's List, "they don't question anything; it's like they're talking to the president of the United States." They buy from him straight away based solely on his Angie's ratings.

Wolt spends a good portion of his marketing dollars on Angie's List, running "Big Deals" and paying to advertise his



Super Service Award wins. "It will go to 78,000 people and it's a full page and costs \$500. I make \$500 off four windows; how would I turn this down?" he says.

Other specialty remodeling company owners report similarly positive experiences with online review sites, but many full-service and design/build remodelers don't see as much traffic. That may be due to the nature of their clients and the idea that a remodeling contract is too complicated. "It's harder when there are so many layers ... and you have so many subs and it takes a long time for projects to come to fruition," Keith Liston, of Liston Construction in St. Louis, says.

**Power of the people.** Since online review sites are consumer-driven, contractors have no choice but to be involved with them, especially when a consumer criticizes them in some way. Oddly enough, the adage that only people with a gripe tend to shout loudest and most often doesn't hold true on online review sites. Yelp reports that 67% of its users give businesses four or five stars out of a possible top rating of five stars.

Remodelers may have to put reputation management on the top of their to-do list. Negative reviews push a business down in the rankings and cause damage, "but if you don't respond, it can be lethal," says

Bob Davis, owner of Window Outfitters in Savage, Minn. Having a negative review — as long as you haven't done anything criminal — can still work in your favor. "Clients have said that they selected us when they saw how we explained our side of the story," Davis says.

Whether the reviews are positive or negative, consumers know that they are the ones pulling the strings. "We treat every Angie's List [lead] as a referral. We go out and look at the project instead of qualifying it on the phone," Liston says. "You don't want to upset [those prospects]."

On Angie's List, even if a consumer doesn't use a service, he or she can write a review, though it carries less weight in the rankings than a client's review. More disturbing are reports that customers are using their power to threaten remodelers for services, saying that if they don't get what they want, they will post a negative rating.

One contractor told us about a customer who said he wouldn't write a good review unless the remodeler gave him \$500. "That's extortion," says the remodeler, who spoke with an Angie's List representative about it and claims he was told to pay the money. Angie's says that its policy is to investigate this kind of complaint since "members are held to a high standard." The remodeler paid the \$500. "It would have cost more to fight this [in court] and lose my branding and reputation," he says.

From a consumer's perspective, these sites might weed out unskilled remodeling companies and help make good remodeling experiences even better. Wolt puts it bluntly: "[Angie's List] is an unbelievable thing for unbelievable companies. But if you suck, you're dead."

# Optimized Engagement

SEO experts explain how reviews can boost your online visibility

## How does a review differ from a testimonial?

A business owner won't post a bad testimonial on their own website. But online reviews are populated by the consumers themselves, lending them more credibility. — *Todd Sachs, CEO, DotStudio and meetlocalbiz.com*

For a review, you send an email to a happy customer with a link that lets them post to a search engine-visible review site. A video testimonial is something you have to produce, edit, post online with the right keywords, syndicate, and share. Both are effective, but testimonials require a lot more steps from an SEO [search engine optimization] perspective. — *Mitch Levinson, managing partner, mRelevance*

## So reviews do help with SEO?

Yes. Whether they're good or bad, when reviews are appropriately formatted,



search engines will recognize them and weight them with more importance. Google might say, "I can see this is a review, so I'm going to return this in the search results more frequently." — *Geoff Graham, founder, GuildQuality*

Another key factor that search engines look for is how recent the content is. Older content goes down in value in the search engine's mind, so you don't want

to let your reviews get too stale. — *Victoria Badgley, VP of marketing, Instamomial*

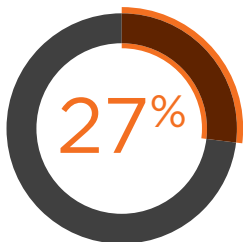
## To stay relevant, how often should I ask customers for reviews?

Every job. Use collateral material or an email with an URL to point happy customers to a Web page with all your online accounts. Remodelers that are afraid to ask [for reviews] will be surprised by their results when they do start asking. If you ask 10 customers to do something, half might actually do it! — *M.L.*

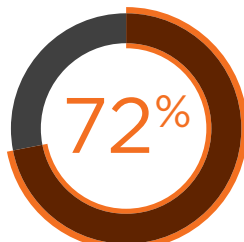
If you're regularly asking customers for reviews, if you do get a bad one, you can battle it back with eight to 10 great reviews. — *T.S.*

Having case studies and testimonials is always a best practice. You have to be proactively making sure your happy customers' voices are being heard. — *V.B.*

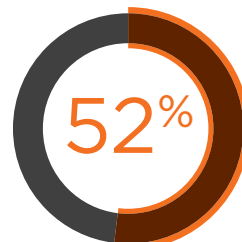
## The Write Stuff Consumers surveyed ...



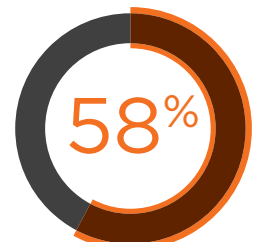
regularly use online reviews to determine which local business to use



say that they trust online reviews as much as personal recommendations



say that positive online reviews make them more likely to use a local business



say that they trust a business that has positive online reviews

## I ♥ Angie (Not)

Contractors' love-hate relationship with the online world's biggest player

There is a thicket of ethical and practical issues that cause contractors to be wary, frustrated, and angry with Angie's List. Stories abound about the difficulties of getting rid of negative reviews — get more positive reviews written, is Angie's List's response — and about aggressive advertising tactics, especially since Angie's went public in 2011.

Angie's List had a net loss of nearly \$53 million in 2012 and has not made a profit since its inception. Contractors told us that since going public, Angie's List employees have been more aggressive in getting them to advertise, in collecting payment, and in seeking reviews from current and former clients.

"[Angie's List] called a client we [did] a job for six years ago," says Terry Stamman, owner of Twin Cities Siding Professionals in Minnesota. That person wrote a negative review. "We don't even have the same employees we had six years ago."

Contractors don't have to pay to be on Angie's, but they do have to pay to advertise. Service provider advertising is 69% of



Angie's total revenue, up from 57% in 2010. Consumer membership revenue declined from 43% in 2010 to 31% in 2012.

When Angie's List is new to an area (currently it's in 219 markets), membership fees are low; in more established markets, joining costs more. When a contractor buys advertising, his costs rise depending on the number of people in his market.

Contractors don't have to advertise, but if they do, they must offer Angie's List members a discount. If you have a no-discount policy, you're out of luck. And your own success will cost you. For example,

if you're an A-rated window company, Angie's might suggest that, for a fee, it will offer your name when someone calls seeking a window company. If you're an A-rated company that can't afford to pay the fee, it's your loss. By taking money from both sides, says media consultant to the home improvement industry Darren Slaughter, "[Angie's List is] doing a disservice to both contractors *and* consumers."

Contractors report finding it difficult to disengage from advertising. And signing Angie's terms and conditions means that anything you submit to its site becomes Angie's property. "You're giving away your business identity. ... Your name, phone number, Web address," says Brian Javeline, president and co-founder of MyOnlineToolbox.com. "Everything about this service is designed to drive traffic to [Angie's List] first."

Despite the issues, remodelers are sticking with Angie's, but those we spoke with feel like Bob Davis, of Window Outfitters, in Savage, Minn., who is "only on it for self-defense."

---

## Why you **should** pay for positive reviews

According to the business-technology website ZDNet, "User-generated content and reviews online have become the singular driving force in influencing word-of-mouth marketing."

Good reviews on Google Places or Yelp can be pure gold. But while some argue that there's nothing wrong with rewarding customers with a gift card, cash, or a discount for going

online to review a company, others oppose it as at best unethical and at worst a lousy business practice. Here are some of the pros (with the cons listed on the facing page).

✔ **You already do it.**

Rewarding clients for online reviews is a "natural progression" from rewarding them for referrals, says Jeff Moeslein, of Legacy Remodeling in Pitts-

burgh. A page on Legacy's website steps clients through the Google, Angie's List, and Yelp review processes. Positive reviews are acknowledged with a \$25 gift card. Moeslein reads every review and forwards it to the appropriate team member.

✔ **If you don't do it, you**

**miss out.** Companies such as vPunch, an electronic loyalty program, make it easy

to reward clients for writing online reviews. vPunch business clients register customers for a vPunch account. Online reviews flow through the vPunch website, as does transaction activity. vPunch posts the review on a review site or via social media. The review is another way to earn rewards in the form of "virtual money," i.e., future discounts.

# Friend or Faux?

Despite fake reviews, consumers are still believers — for now

According to Bing Liu, a data-mining expert at the University of Illinois at Chicago, about one-third of all consumer reviews on the Internet are fake, that is, written by marketers or by third-party services such as Ad Blaze, whose website touts it will “write a professional review. ... Each [one] from a unique IP address located in the city of your choice. ... The reviews will be leaked at random times to look natural.” It guarantees that “your online listing will be safe and secure.”

Even if a review isn't an outright fake, some disgruntled consumer — who might never have used your services at all — can still slam you. Minnesota home improvement contractor Terry Stamman discovered a negative review on Angie's List from an unknown name and email address. He got in touch with the writer, for whom he had never done any work. It turns out she was angry that he wouldn't come out to her house on a one-legger sales call. Although she removed her comments, a series of such negative reviews can do serious reputation damage.



On Angie's List, users are paid members; they do get vetted. On Yelp, moderators don't govern the site, but it has a reputation system among its reviewers and uses its own “filtering software” to weed out fake reviews — positive or negative. Cornell University has developed software to spot online fakes, and Yelp conducted a sting operation in 2012 resulting in a “consumer alert” badge to be placed on a business's profile page if it is found to be using phony reviews.

The only way that fake reviews will stop is if consumers become educated or distrustful — a business that has all positive

reviews should send up red flags. But with recent surveys showing that 72% of consumers trust online reviews, this issue isn't going away anytime soon.

So what's a company to do? Dan Wolt, owner of Zen Windows, in Columbus, Ohio, checks Angie's List every day and alerts Angie's if he doesn't know who a reviewer is.

You can also choose not to engage with consumer-driven sites and focus on places where you have more control. “You don't want to abdicate marketing responsibilities to a review site,” says remodeling industry consultant Shawn McCadden. For example, GuildQuality, which does customer satisfaction surveys, converts those questionnaires to starred reviews that show up in search engines. A company can publish completed surveys to its Facebook or Twitter feed with links back to its own site.

Online review site leads should be part of a larger strategy. “You need a marketing plan, not just a list of tactics,” McCadden says.

---

## Why you **shouldn't** pay for positive reviews

### ✗ **You shouldn't need to.**

Last year, 15 of the 40 jobs undertaken by Harris Construction & Woodworking, in Poway, Calif., directly resulted from remarks posted about the company on Yelp. Owner James Harris says all he did to make that happen was to let clients know that he is on Yelp. They do the rest. “From a customer's standpoint,” he

says, a “review that's solicited or paid for lacks credibility. You have to take those with a grain of salt.”

### ✗ **It's palm-greasing.**

Brand expert and author Rob Fuggetta, president of Zuberance, in California, cites several reasons, including new Federal Trade Commission guidelines directing reviewers

who are paid to state such.

“Authenticity is important,” he says, “and ... the results are better when you don't pay.” Zuberance has generated more than 30 million online reviews, including tweets and blog posts, for clients, “and not a single advocate has received a dime.”

### ✗ **You'll get flagged.**

Morgan Remmers, manager

of Yelp's local business outreach, says that the company's policy is to “discourage solicitation or reward” of online reviews as these create bias because businesses only steer happy customers there. Such reviews violate Yelp's terms of service. (You can read an interview with Remmers at remodelingmag.com.)

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# Products



## Ultimate Hood for Outdoor Use

An outdoor kitchen should have a range hood designed specifically for use outside. The *Best WPD38* is made from corrosion-resistant stainless steel and has controls engineered to resist the effects of heat and moisture, says the manufacturer. It's 27 inches deep to handle the intense heat of a large outdoor grill; an optional wall extension adds another 3 inches to accommodate deeper grills. The hood is sold in a range of widths from 36 to 60 inches and costs \$1,720 to \$2,800.

**Broan-NuTone**, 800/558-1711, [bestrangehoods.com](http://bestrangehoods.com).



## Recycled Resin Studs

The *EcoStud* stud and track system is for use in non-load-bearing walls and could be a good solution for a basement remodel. The studs look like steel but provide a better thermal break because they're manufactured from 100% post-industrial plastic resin. They're also light — 3.5 pounds apiece compared with around 8 pounds for wood or steel — so workers can carry more studs per trip from the truck to the basement. They cost about \$6 apiece.

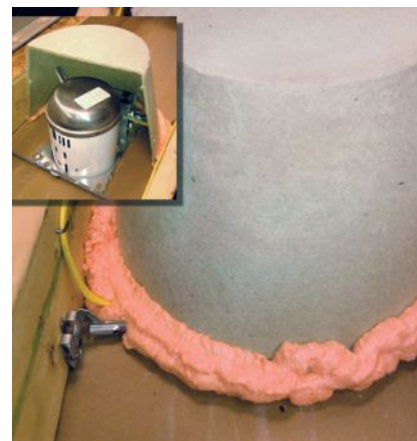
**EcoStud**, 877/586-5543, [ecostud.com](http://ecostud.com).



## Windows Menu

The highly customizable *1500 Vinyl Collection* makes it easier to specify PlyGem windows by consolidating a number of different vinyl window lines into one platform. Builders start with the window type (single-hung, sliding, picture, or architectural shapes) then choose from various frames (brickmold, beveled, or flat), colors, grilles, hardware options, and energy features. Prices vary widely; the unit shown would cost between \$185 and \$200.

**Ply Gem**, 888/975-9436, [plygem.com](http://plygem.com).



## Recessed Can Covers

The Tenmat *FF130E* insulation protection cover is made from a fire-resistant material and is designed to keep insulation away from recessed light fixtures, as required by code. When installed with a foam sealant, it also stops air leakage through the fixture (the DOE estimates that recessed lights account for 50% of total thermal losses through ceilings). The covers are not meant for use in one- or two-hour fire-rated ceiling assemblies. They cost \$15 each.

**Tenmat USA**, 302/633-6600, [tenmatusa.com](http://tenmatusa.com).

# Products



## Truss and Rafter Screw

The *SDWC* structural wood screw can be used to fasten trusses and rafters to top plates without hardware. (The hardware shown in the photo is merely a guide.) The screw has a fully threaded shank, which ensures that its entire length engages the work. No predrilling is needed, and the head countersinks fully into the top plate. It's sold in 4<sup>1</sup>/<sub>2</sub>- and 6-inch lengths for \$33 and has been tested to meet ICC-ES AC233 (screw) and ICC-ES AC13 (roof-to-wall assembly) standards.

**Simpson Strong-Tie**, 800/999-5099, strongtie.com.



## Sticks to Concrete

*Florprufe* polyolefin vapor barrier glues itself to the underside of a concrete slab — so if it tears, any moisture that gets through won't migrate. A 1-mil protective coating keeps it from feeling sticky during construction; once the concrete is in place, pressure breaks down the coating and activates the adhesive. At 21 mils, the product is also quite thick. It comes in 4-foot by 115-foot rolls that cost about \$700.

**Grace Construction Products**, 866/333-3726, graceconstruction.com.



## More Than a Pretty Face

The direct-vent *Energy Pro Gas Fireplace* delivers a lot of bang per Btu, with an annual fuel utilization efficiency (AFUE) of 92.6%. It's also certified as a central furnace, with cutouts on top for four supply ducts, each of which can carry heated air as far as 50 feet with a maximum of three elbows. The unit can be ordered with a wireless thermostat and various mantel options. It costs \$7,400.

**Hearth & Home Technologies**, 888/427-3973, heatnglo.com.



## PVC Trim Adhesive

*PVC Trim Welder* comes in fast- and slow-curing formulations and laminate grade. The fast-dry's five-minute open time means you can glue up an outside miter or other assembly and put it in place right away; the slow-dry's 15- to 20-minute open time provides more flexibility when gluing long pieces. The laminate grade has a low viscosity so it will spread across the surface when two boards are placed one on top of the other. A 50-ml cartridge costs \$13, a 220-ml \$29.

**Extreme Adhesives**, 603/895-4028, pvctrimwelder.com.

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# Products



## Quick Cable

The *TimberTech CableRail* is meant for use with composite rail systems that have structural wood posts inside composite sleeves. Quick Connect fittings fasten the cable to the posts: Simply drill through the sleeve, screw the fitting into the wood post, then connect the cable to the fitting's swivel and tighten it with a wrench. Cost is around \$355 for a 6-foot section, including the composite railing, cable, and connectors. If you lose a connector, you can buy one for \$24.

**TimberTech**, 800/307-7780, [timbertech.com](http://timbertech.com).



## Insulated Sheathing

Available nationwide since January, *Zip System R-Sheathing* consists of 1/2-inch (R-3) or 1-inch (R-6) polyisocyanurate foam bonded to the inside of Zip System enhanced OSB structural sheathing. The product has a built-in water-resistant barrier (the green facing) and a 180-day guarantee against moisture damage. When used with Zip System tape, it also serves as an air barrier. Cost ranges from \$42 to \$46 per sheet.

**Huber Engineered Woods**, 800/933-9220, [zipsystem.com](http://zipsystem.com).



## Reclaimed Vanity

The handcrafted *Americana Vanity Hutch* is made from textured wood rescued from structures like old barns, houses, and fences. It comes with hand-forged iron hardware in 24-, 30-, and 36-inch widths in four finishes: chestnut, whitewash, anvil, and driftwood. The company also offers paired stone and copper vanity tops. A 36-inch vanity base costs \$2,300.

**Native Trails**, 800/786-0862, [nativetrails.net](http://nativetrails.net).



## Stronger, Lighter, Wider

*BamDeck 3G* is a 3/4-inch-thick composite decking made from 60% reclaimed bamboo fibers and 40% recycled HDPE plastics (derived from detergent bottles and milk cartons). Cylindrical chambers running through the material reduce weight by 20% and increase tensile strength by 35% compared with the company's solid decking. The planks come in 5 1/2- and 8 1/4-inch widths for \$2.40 to \$3.10 per linear foot. They're meant for use with hidden fasteners.

**Cali Bamboo**, 888/788-2254, [calibamboo.com](http://calibamboo.com).

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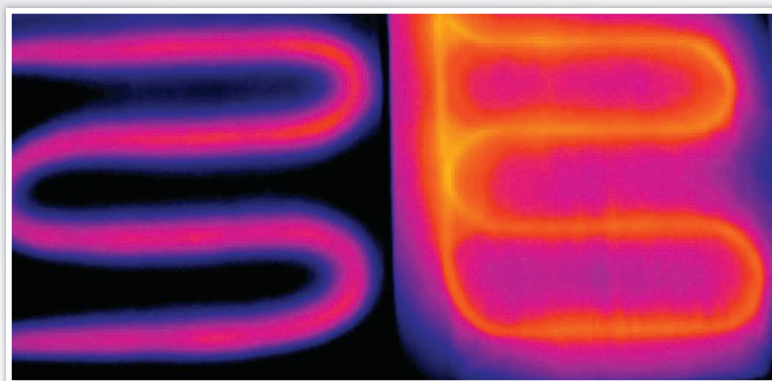
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## Ridgid Tri-Stack Compressor

by Sim Ayers



### Tri-Stack Specs

**Weight:** 77 pounds

**Amps:** 14.5

**Rpm:** 3,450

**Tank capacity:** 5 gallons

**Maximum pressure:** 150 psi

**SCFM:** 4.9 @ 90 psi

**Price:** \$300

**Warranty:** 3 years, 90-day money-back guarantee

**Ridgid**  
**800/474-3443**  
**ridgid.com**

I've been a hands-on contractor since 1989, building everything from custom homes to 32,000-square-foot commercial buildings. At the moment, I'm running a four-man crew and doing fire-insurance work. Regardless of the job, we normally use hand-carry, twin-stack compressors for everything from framing to finish. I've owned a bunch of them over the years, and they're usually a good match for the work we do. But they're bulky and weigh up to almost 80 pounds, which makes them a chore to carry.

Ridgid's new oil-free Mobil Air Tri-Stack 5-gallon compressor (model OF50150TS) separates into two parts for carrying, and it also delivers more air than my twin-stacks. When I saw it at Home Depot several months ago, I couldn't resist buying it to see if it would be a significant step up.

### Split Personality

As the name indicates, the Tri-Stack has three tanks, including a pair of two-gallon tanks on the bottom and a one-gallon tank up top that bolts to the motor. The bottom has a regulator with two outlets, and the top has a regulator with one outlet.

If you search "tri-stack" at [ridgid.com](http://ridgid.com) and click on the link, you can view a video that demonstrates the compressor's versatility. For starters, you can separate the top and bottom units by simply pulling and twisting a knob and releasing the connecting hose. That allows you to carry the 43-pound top section with one hand and the 34-pound bottom section with the other. You can also use the regulated top section solo for powering a finish nailer and other small loads. Used this way, the compressor kicks on after almost every shot because of the small top tank, but for some interior trim jobs, we've found the self-contained unit to be a convenient substitute for a pancake. Meanwhile, the bottom unit can serve as a regulated air-carry tank, but according to Ridgid you can only drive about 20 two-inch, 15-gauge finish nails into pine before you have to reconnect the top unit to refill the tanks. For small jobs, why not just use the top unit instead?

Yet another option is to separate the two units and connect them with an extension hose so you can plug the compressor directly into a receptacle (as recommended) but move the main tanks closer to the work.



The compressor quickly separates into two parts for easier carrying.

### Weigh In!

Want to test a new tool? Or share a tool-related testimonial, gripe, usage tip, or news flash? Take a minute and contact us at [JLCtools@hanleywood.com](mailto:JLCtools@hanleywood.com) or 707/951-9471.

Sim Ayers

# Toolbox

We've done this, and although it allows us to use shorter hoses, we haven't noticed any change in line pressure.

Most of the time, though, we use the compressor conventionally and only break it down for easier carrying.

## Performance

The Tri-Stack has other premium features, including quarter-turn ball valves for draining the tanks and quick-connect hose couplers. I also like its oil-free convenience.

As a general guideline, Ridgid says the compressor will power two framing nailers. Plugging directly into 20-amp circuits and using a splitter, we've simultaneously run up to two framing nailers, a palm nailer, and a metal-connector nailer, which is more than we can do with our twin-stacks. However, we normally use just one nailer at a time when nailing off shear walls with the Tri-Stack. It has a duty-cycle rating of 50%, which means it can pump about half the time you use it without causing excessive

wear. I didn't time it, but I'm pretty sure we generally stayed within that limit. That's a conservative rating, though; Ridgid actually pushed the compressor to 67.7% in its durability tests.

## The Bad News

I had to return my first Tri-Stack after a week because it suddenly only pressurized to 30 psi and kept running. I simply swapped it for a new one. The second one ran great for about six months, then the same thing happened. Call me crazy, but we like the compressor's easy carry, ample power, and versatility so much that I'm not only having it repaired (luckily there's an authorized service center about 20 miles away), but I just bought another one. I'm hoping I initially bought into a defective batch or tapped into damaging low voltage on a job site, but we'll see.

*Sim Ayers owns SBE Builders in Discovery Bay, Calif.*



The top section can be used solo for powering a finish nailer or other small jobs.

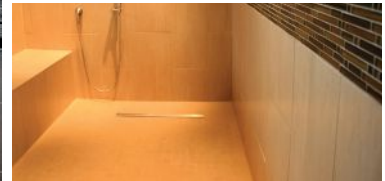
## Classic Drywall Knife

Sometimes tool manufacturers get it right the first time. Stanley's fixed-blade No. 199 cast-aluminum utility knife — complete with its fleur-de-lis — was introduced in 1936 for cutting fiberboard, and it's still one of the most popular knives for ripping drywall panels. To rip panels, experienced rockers commonly start by pinching their tape-measure blade at the required dimension on the panel edge, holding their knife against the tape's blade hook, and pulling both hands along the panel to score the face paper. The knife blade on the Stanley (and on some other fixed-blade knives) extends about 1/4 inch farther than typical retractable blades do, which makes it easier to hold it against the tape's hook. As a bonus, the extended blade doesn't wiggle. The classic knife (model 10-209, stanleytools.com) costs about \$6 to \$8. — *Bruce Greenlaw*



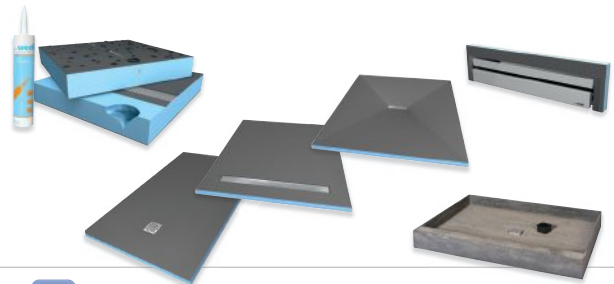
## Speedy Cabinet Clamp

Crescent City, Calif., carpenter David Montez reports that he has been using Pony Cabinet Claw clamps for several years to help speed the work when installing face-frame cabinets. The dual-action clamps draw neighboring cabinets tight while flushing up the meeting stiles. Built-in drill guides make it easy to bore pilot holes and screw the stiles together before removing the clamps. The clamps are made by the Adjustable Clamp Co. (adjustableclamp.com) and currently cost about \$62 per pair at Amazon.com. — *B.G.*



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## Stabila LD 420 Laser Distance Meter

by Bruce Greenlaw



### LD 420 Specs

**Range:** 2 inches to 328 feet

**Accuracy:**  $\pm 1/25$  inch

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**Price:** \$230

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I tested 13 laser distance meters for the January 2013 *JLC*. These models cost \$115 to \$280, are accurate to within  $1/16$  inch or better, and let you measure lengths by yourself with simple pointing and clicking. Most add helpful features such as estimating tools and the ability to measure indirectly. My favorite was the Bosch GLM 80, which costs about \$175.

Meanwhile, the Stabila LD 400 I tested was an older model with a perplexing keypad and a high price of \$250. But Stabila is now replacing that model with the LD 420, which costs about \$230. It's powered by two AAA batteries that are supposed to deliver up to 5,000 measurements. I used the new tool for a while to see how it measures up.

**Range and accuracy.** The LD 420 can measure lengths from about 2 inches up to either 262 feet when aiming at typical surfaces or 328 feet when aiming at an accessory target plate. It's accurate to  $1/25$  inch, which is as good as it currently gets.

**Functions and features.** The LD 420 can calculate square and cubic feet; add, subtract, multiply, and divide dimensions and calculations; take a continuous reading while moving toward or away from a target and freeze the minimum and maximum distance measured (making it easy to measure diagonals); and lay out a series of equal intervals. Like most of the other models, it can also use Pythagorean geom-

etry to calculate certain measurements indirectly, which requires you to take two or three shots from a distance. A trapezoid function lets you measure a sloped ceiling from base to peak without climbing a ladder. Several of the measuring functions let you press the MENU button for extra information. For instance, if you measure the area of a rectangular room, then press the MENU button twice, you instantly get the length of the diagonal.

The meter's memory stores the last 20 dimensions or calculations in order, which isn't unique. But it can also store up to 10 constants (including custom ones you create with the keypad) that you can drop into calculations any time.

Other common features include a programmable timer that delays the shot after you push the measure button, an illuminated display, and a tailpiece that makes it easy to measure from inside corners to check diagonals. And it has an IP65 rating, which means you can hose it off and it's completely sealed against dust.

**Rocker switch.** There are a few dedicated buttons on the keypad, but you access many of the functions and settings through the MENU button and surrounding rocker switch. I figured out all of the menu options over two cups of coffee, but if you have no experience with these tools you'll definitely want to study the manual.

**I'd buy it.** I use the timer regularly, so I wish you could activate it with one press of a button like you can with some models. Instead you have to push various buttons a total of seven times. Also, unlike some top models, the LD 420 doesn't include an inclinometer, which can measure slopes and angles. But I really like this meter's trim-carpentry precision, versatile feature set, uncluttered keypad, rugged build, and reasonable price. It's one of my favorites.



If the meter gets dirty, you can simply hose it off.

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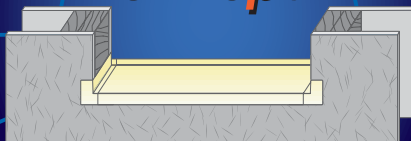


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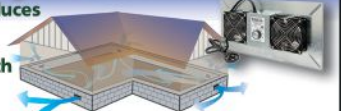


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## Production Demolition Comes to Detroit



**A**lthough it's generally easier to tear a house down than build one, things get complicated when tear-downs number in the tens of thousands. That's the way things stand in Detroit, which faces a reverse housing crisis of epic proportions: With a dwindling population — just 700,000 residents live there today, compared with nearly two million in the boom years after WWII — abandoned and derelict houses have depressed property values, provided refuge for criminals, and fueled thousands of arson fires each year. City officials have tried to pick away at the backlog, but managed to tear down only about 7,200 homes in the past three years, leaving more than 30,000 slated for demolition.

In February, however, the city got some unexpected help from a new nonprofit agency called the Detroit Blight Authority. Demolition contractors hired by the DBA — with funding from the Kresge Foundation — completely cleared 288 lots in a 10-block area of the city's Eastern Market District in a mere 10 days.

The DBA is the brainchild of Bill Pulte, a Michigan native and CEO of a private equity firm in nearby Bloomfield Hills. If his name is familiar, it should be: Pulte's grandfather, also known as Bill Pulte, is the founder of Pulte Homes, one of the nation's largest home builders.

According to the younger Pulte, the DBA intends to do for demolition what an earlier generation did for production building. "It's all about division of labor," he says. "When you're building a house, the cabinet guy doesn't do the drywall too." Neighborhood-wide blight clearance, he explains, proceeds in four distinct stages. The

With one successful urban land-clearance project already under its belt (shown), the nonprofit Detroit Blight Authority has embarked on a second, in the city's Brightmoor neighborhood. The first week's work in Brightmoor — a 500-lot area containing about 70 vacant structures — yielded 700,000 pounds of trash, 200 discarded tires, 14 abandoned boats, and, sadly enough, one unidentified body.

first involves removing trash and debris and cutting back long-neglected trees and bushes, which have left parts of the city a tangled and dangerous urban forest. Once brushed-out areas are safely accessible, utility crews can cut off the water and power, and cap the sewer lines. After that comes remediation of asbestos wraps on pipes and boilers, followed by structural demolition.

That broadband approach to blight clearance is notably more efficient than tearing down individual houses scattered throughout the city. It's also cheaper, Pulte says. According to him, the cost per demolished structure has dropped from \$9,500 — which is what the city had been spending — to as little as \$5,000 with DBA on board.

Challenges remain, however. Obtaining demolition permits has proven tedious, and a dispute is simmering with state officials over whether basement excavations can be partially filled with broken or ground-up masonry — the DBA's preferred approach — or must be filled with clean dirt. Still, the organization is pressing ahead with its eventual goal of demolishing 13,000 houses per year, and plans to tackle a larger 15-acre site at a yet-to-be disclosed location later this year. — *Jon Vara*



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