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Say No to Snitching

The announcement that OSHA plans "to enlist building inspectors in nearly a dozen U.S. cities as undercover safety officers" (*JLC Report,* 7/10) just burns me up. We inspectors have tried for years to serve our homeowner clients and at the same time foster a working relationship with builders. And now, Big Brother, the federal government, wants us to tell on them. I believe this will destroy any mutual respect between inspectors and builders. If this goes through, professional home inspectors will be very unwelcome on job sites. My peers can decide if they wish to take part in this; I won't. Enough is enough!

Chris Keeling
ASHI #11702, GAHI #96105, ICC #5185864
Lawrenceville, Ga.

Likes Simple HVAC

I loved the article "Bare Bones HVAC Proves Its Worth in Affordable Development" (*JLC Report,* 7/10); kudos for touching on a subject that is often ignored because it doesn't sell more product. I have long been an advocate of simple convection heating designs, due to their efficiency and low cost of operation.

Damon Starnes
NW Renovations
Sherwood, Ore.

Strategic Reuse

Like many contractors, we use job-site trailers with shelves, but no one likes to paw through bags looking for the nail or screw they want. So our staff has started saving their laundry detergent containers. We cut the jug so as to leave the handle in place while providing easy access to the contents.

Ray Cox
Northfield Construction Co.
Northfield, Minn.

SIP Tip

The article "Working On a SIPs Roof" (5/10) seems to suggest that a skylight can be put anywhere in a SIP roof, but this isn't the case. For instance, some SIP roofs have structural members (such as double lumber splines or I-joist splines) that can't be cut. It's a good idea to consult an engineer. With heavy snow loads or longer spans, the engineer will likely require structural members from bearing point to bearing point alongside the rough opening for the skylight.

Also, there's no need to remove the SIP in small pieces. First, cut through from both sides with a circular saw set at maximum depth. Next, on the top of the panel, cut another kerf just inside the previous cut (to allow for clearance); then use a long, dull blade (one with no set in the teeth works best) in a reciprocating saw to cut through from the upper kerf to the lower kerf. Finally, push the entire panel chunk from the top into the inside of the structure. This still makes a mess, but it's faster.

Jonathan Kurz
Cimarron, Colo.

Insulation Debate

The May *Q&A* column addressed the question "Can fiberglass batts perform well in tightly sealed houses?" The answer is yes, fiberglass batts will deliver their labeled R-value when properly installed. Batts don't have to be installed "perfectly," but they do have to fill the wall cavity and have a good air barrier. Proper installation requires cutting or splitting batts to fit around wires, pipes, and other obstructions, and there should not be gaps at the top, bottom, or sides of the wall cavities.

Also, batts need to be the proper thickness to fill the wall cavity from front to back. R-11, R-13, and R-15 batts are 3½ inches thick and fill a 2x4 cavity, and R-21 batts are 5½ inches thick and fit a 2x6 cavity. R-19 batts can be installed in a 2x6 cavity, but because they are compressed to less than their design thickness of 6¼ inches, they will perform at approximately R-18.

The answer stated that convection will occur in wall cavities when batts aren't perfectly installed. That statement is misleading: While convection can occur in wall

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cavities where batts have numerous or large gaps, this would be the result of very poor installation. Some of the research showing convection or circulation around batts actually used wire mesh to create the open channels for convection.

The answer is also misleading because the R-value of properly installed fiberglass batts actually increases at colder mean temperatures (while it does decrease slightly at hotter temperatures, as do all common insulation materials).

The thermal testing laboratory at Johns Manville, a world-recognized test lab accredited by the NIST National Voluntary Laboratory Accreditation Program, recently conducted R-value tests on six 2x4 walls insulated with R-13 fiberglass batts installed in various ways. They included walls with batts that were properly installed, and walls that had imperfections intended to represent installation practices typically seen in the field, including inset stapling, voids at the rounded corners in the rear of the cavity, and a 1/2-inch gap at the top of the cavity. The testing showed that all of the walls had nearly the same R-value; in fact, the worst performer had an R-value only 2.6 percent less than its theoretical R-value. This testing clearly showed that batts are not as sensitive to installation defects as some would like to portray. This is not to say batts can just be jammed into a cavity; they must be installed correctly — but not "perfectly" — to perform properly.

The answer was correct in pointing out that poorly installed materials do not deliver the rated R-value. Blown-in cellulose can be installed at low densities, resulting in settling and gaps, and spray foam can be blown short of filling the wall cavity, defects that can result in lower-than-expected R-value.

No material is immune to installation defects, but it is reasonably easy to install fiberglass batts properly, and when they are installed properly, they will deliver their rated performance.

Charles C. Cottrell
North American Insulation Manufacturers Association
Alexandria, Va.

Author and insulation contractor Patrick Dundon responds: Mr. Cottrell is right when he says that bad installation can wreck the performance of any product. On one of my jobs, for instance, we had sprayed closed-cell foam at a depth of 3 to 3½ inches in a 2x6 wall. Later, while the finish carpenters were installing trim, they noticed that one exterior wall was chilly and had air leaks at some of the penetrations. They called me to figure out what was going on. Luckily it was late February, so I used an infrared scanner and blower door to locate the problem. I found that after the spray foam was installed, an electrician had cut through the foam to install an exterior outlet, and the wind was blowing in and travelling through the holes in the studs and into the spaces between the spray foam and the drywall. I patched the hole, and the interior surface temperature of the drywall warmed up 6° before I left the site. So, yes, it's true — any product can fail if it is applied wrong.

However, with all due respect to NAIMA, if batt fiberglass is really as easy and as cost-effective as promoted, why then do Johns Manville and CertainTeed sell blow-in blanket systems? And why do those systems routinely outperform batt jobs? And why is Owens Corning now selling an air-sealing system that uses a sprayed latex sealant in all cavities before the fiberglass goes in? If the development of the blanket and sealing systems is in response to consumer demand, it strikes me that the market is recognizing that those systems work better than batts and that homeowners are willing to pay the premium for the increase in performance.

It's odd that fiberglass manufacturers continue to make 6¼-inch-thick R-19 fiberglass batts and label them for wall insulation, knowing that the insulation cannot perform at R-19 in a 2x6 wall. Consider the wall cavity and batt by volume: A 2x6 cavity in an 8-foot wall framed with precut studs is 92⅝ inches tall, 14½ inches wide, and 5½ inches deep, giving a volume of 7,386.84 cubic inches. R-19 batts made for precut studs are 93 inches long, 6¼ inches thick (or 6½, depending on the manufacturer), and 15 inches wide, giving a volume of 8,718.75 cubic inches. That means if an R-19 batt is fit perfectly in a 2x6 wall cavity between wood studs 16 inches on center, it will be roughly 15 percent out of specification by volume — or "poor" by Building Performance Institute (BPI) standards.

In my answer, I referred to a BPI chart that shows severe deterioration in R-value for poorly installed batts. Admittedly, it may be irresponsible to assume the percentage of deterioration is the same for all batt products. I am a practitioner and observer, not a scientist, and I may be oversimplifying here. However, the transformation in the market is telling me that I am at least partially correct.

When homeowners or builders spend extra for premium insulation systems, they rightfully expect better performance. In response, insulation contractors who install those systems are more conscious of quality control. Many insulation firms also have HERS raters on staff and perform blower-door testing and infrared scanning routinely. These companies are constantly furthering their knowledge through training in an effort to stay competitive.

The real problem with batts, as I see it, is the notion that "anyone can do it." This translates way too quickly into an attitude of "just stuff it in there" and a workforce made up of folks who get paid by the piece. Often no one is policing the installation quality, and code officials are happy to sign off when they see the R-19 label.

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I own an insulation contracting business, and have not installed a batt-only job in more than 10 years. If customers ask me to quote a batt job, I refer them elsewhere; I do not believe that batts can perform at manufacturers' specs in the vast majority of building cavities that I see. We install a lot of both cellulose and foam, depending on the circumstances. There are situations where proper application of cellulose and foam may be difficult, but those instances are far more rare with these products than they are with fiberglass batts.

Beware Online Referral Services

Recently, an online referral service based in Minnesota called me, offering leads at $45 each. I decided to try it, and agreed to buy the required 10 leads in advance. But before I received any leads, the company sent me a contract by e-mail attempting to lock me into an agreement to buy 20 leads at a time — and then charged my credit card twice, to the tune of $450 each time. I called to inquire and never got a return call. After searching online, I found that the company has a history of cheating contractors. I have filed a complaint with the Minnesota attorney general and am considering a complaint for Internet fraud.

I am writing this letter to warn other builders to watch out for shady companies in these difficult times.

David Mitchell
Mitchell Building & Renovation
Worcester, Mass.

KEEP 'EM COMING!

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