

NOTEBOOK

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Free Safety Training for Small Builders

NAHB taps OSHA grant to provide traveling workshop

by Sharon O'Malley

Small builders are risk takers by nature — they're at the mercy of weather, interest rates, and suppliers — so it's not surprising that they're often behind the curve on safety training, even when they're convinced that they have everything under control.

"Most builders care about their workers, and they think they're doing a good job of staying safe, even though most are not in compliance with the law," says Regina McMichael, a Clemson, S.C., safety consultant. The OSHA requirement that employers provide their workers with safety training is widely ignored, mostly because builders have learned that the agency seldom comes calling on residential job sites unless someone gets hurt.

In fact, failure to provide safety training tops the list of OSHA violations for which home builders are cited, according to OSHA spokesman H. Berrien Zettler. If the violation results in an

injury — as is likely to be the case if OSHA has chosen to get involved in the first place — the employer faces a fine ranging from \$1,500 to \$7,500. Slow learners are even worse off: A repeat offender found guilty of willfully violating the law can get clobbered with a fine of \$70,000 or more — enough to shut a small shop down for good.

Although you might think that your own operation is a model of safety, statistics do seem to show that small builders account for a disproportionately large share of serious accidents. According to figures compiled by OSHA, nearly 70% of the deaths in residential construction between 1993 and 1997 occurred in companies with fewer than ten employees.

What does OSHA want? What OSHA asks is reasonable enough: If there's a hazard on a job site, the builder must explain it to employees and teach them how to eliminate it, or at least work
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Mold & Moisture Bankrupt Big Builder

How quickly after a new home is built can the walls develop serious mold problems? In the case of Cincinnati builder Zaring Homes, the answer was ten weeks. Zaring Homes was building over 1,500 homes a year during the mid-1990s, with annual profits of over \$6 million, and when dozens of its new homes became moldy in 1999, the company committed itself to fixing the problems. But the remedies soon became so expensive that the liabilities drove the company to bankruptcy.

Standing water. The first residents began moving into one of Zaring's new-home developments, Parkside, in Mason, Ohio, in May 1999. "In late July, the homeowners complained of wet carpet," says Gregg Nicholls, chief building official in Mason. "They saw mold on the subfloor. In August, holes were cut in the drywall to inspect the framing, and there was a quarter inch of standing water in the bottom of the stud cavities." Since Ohio was suffering a drought that summer,



Water accumulated in the exterior walls of dozens of new homes constructed by Cincinnati builder Zaring Homes. The brick veneer on many of the homes was removed as part of the investigation to determine the source of the moisture.

the amount of water was surprising. "We were able to wring water out of the fiberglass insulation," said Stephen Vamosi, a consulting architect at Intertech Design in Cincinnati.

It soon became apparent that dozens of homes had similarly wet exterior walls. Consultants hired by the homeowners blamed poor detailing of the brick veneer. "We believe that wind-driven
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around it safely. Unfortunately, OSHA's regulations provide no specific guidance as to how much training is enough.

Nancy Quick, a compliance assistant specialist with OSHA's North Aurora, Ill., office, points to "toolbox talks" — quick safety summaries conducted by the job foreman at the beginning of each workday — as a practical way to provide basic safety training. (While there's nothing in OSHA's regulations that specifically requires builders to document their efforts, don't expect the agency to take your word for what you've done. It's essential to keep written records that show when training sessions were held, what topic was presented, and who attended.) Jobs that require specialized skills like forklift operation and trench digging must be supervised by what OSHA terms a "competent person" — someone with substantial expertise and experience in the task at hand.

Free training programs. But for many small builders, lack of time, money, and staff makes even that minimum level of training difficult to achieve.

So the National Association of Home Builders, armed with a grant from OSHA, has developed a free six-hour safety workshop for small builders that it will be offering in over a dozen U.S. cities this fall. (The list currently includes Philadelphia; Charlotte, N.C.; Chicago; Tampa; Denver; Madison, Wis.; Columbus, Ohio; Boston; Austin; Houston; Minneapolis-St. Paul; Honolulu; and Sacramento. For scheduled times and directions, visit the NAHB Research Center's Web site at www.nahbrc.org/safetyseminars.)

According to Robert Matuga, director of labor, safety, and health services for the NAHB, the free training will spare the small builder the expense of cutting a foreman loose from several days' work to attend an OSHA session for safety trainers — a position small builders don't rou-

tinely fill. "Safety specialist is a full-time job" reserved for larger builders, notes McMichael, owner of Aurus Safety Management. "These guys already have full-time jobs as carpenters."

Most state home-builder associations also offer free or low-cost training, and even for-profit firms like Craig Safety, which offers a soup-to-nuts OSHA compliance service, holds workshops for as little as \$10 per pupil.

OSHA also has plenty of free advice for the small builder willing to ask for it. In every state, the agency employs a compliance consultant who can visit a job site, point out potential violations, and teach the builder how to correct those violations. The consultant does not write citations.

Worth it. Even when training is free, McMichael admits, small builders "aren't breaking down the door." But training can pay: OSHA cites a study that shows that for every training dollar a builder spends, at least \$4 comes back in the form of improved productivity. "It turns out that doing the job safely is doing the job more efficiently," says Zettler. A few states give discounts on workers' compensation insurance premiums to firms that routinely train their crews. And OSHA officers are more likely to lighten a fine if a builder involved in an accident can prove that the company has been diligent about training job-site staff.

Research published in the *Journal of Occupational and Environmental Medicine* shows that on-site safety orientations help reduce the risk of injuries on construction sites by a breathtaking 77%.

It's the right thing to do, says McMichael. "The bottom-line reason they should do it is because there's a chance someone could get killed or injured on the job," she says. "Very often, a small builder is hiring his family and friends. You have to go with the moral imperative."

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rain is the source of the moisture," says Timothy Sullivan, an attorney at Taft, Stettinius and Hollister, the Cincinnati firm representing many of the homeowners who are suing Zaring. "The brick is either installed flat against the sheathing, or the air space is filled with mortar."

But consultants hired by Zaring Homes and its insurance company concluded that the source of the water was exterior vapor, which entered the walls through permeable sheathing and condensed on the back of the polyethylene under the drywall. "Every one of the affected houses had air conditioning," says Vamosi.

Expensive repairs. Whatever the source of the moisture, the results were devastating for Zaring Homes. "Zaring did an incredible amount of remediation on a lot of homes," says Nicholls. "They stripped off the brick and the sheathing, so that the studs were open to the exterior. They pulled out all the insulation, put a mold-protective Kilz paint on the inside of the stud cavities, and rebuilt the walls." After the value of Zaring stock plummeted, all of the assets of the company were sold to Drees Company in January 2001, before remediation work was complete. "Zaring Homes went out of business because they have a \$20 to 50 million liability here," says Joe Lstiburek, one of the consultants involved. "Hundreds of homes are potentially involved. To fix the problems would probably cost \$60,000 to \$70,000 per home."

The Zaring story shows how small decisions can have enormous consequences for a builder. Early on in the moisture investigation, Vamosi gave some advice to Allen Zaring, the founder of Zaring Homes. "I told him, 'If you add another inch and a half of insulation to the walls, you will avoid the dew-point conditions,'" recalls Vamosi. "Zaring answered, 'I can't do that because it costs too much. No one else is doing that.' But look what happened to Zaring."

OFFCUTS

Masco Corp., a building-products conglomerate, recently announced the acquisition of Milgard Manufacturing of Tacoma, Wash., a large manufacturer of vinyl and wood windows. Among the many companies already owned by Masco Corp. are American Shower & Bath, Delta Faucet, KraftMaid Cabinetry, Merillat Industries, and Peerless Faucet.

President Vicente Fox of Mexico has been publicly criticized for the expensive remodeling of the presidential residence. Among the taxpayer-financed improvements to Fox's house at Los Piños were \$19,000 worth of electrically operated curtains, according to the Associated Press.

An accused Arizona arsonist tried to blame his crimes on environmentalists, according to the *New York Times*. Mark Warren Sands was arrested on June 14 for burning eight homes under construction in Phoenix and Scottsdale. In order to divert attention from his crimes, prosecutors say, Sands invented an environmental organization, the Coalition to Save the Preserve, and sent anonymous letters to news organizations implying that the fires were being set by environmentalists opposed to sprawl.

A frustrated Minnesota developer plans to raise hogs on a 16-acre site that abuts a residential street, according to the *St. Paul Pioneer Press*. When neighbors opposed his original plan for a 31-house development in the St. Paul suburb of Inver Grove Heights, Marley Danner announced his new intention by putting up a sign with a drawing of a grinning pig's head, reading "Houses or Pigs. Your Choice Was Pigs. Pigs Coming Soon!" A neighbor called Danner's action "pigheaded."

USG Corporation has filed for Chapter 11 bankruptcy to manage the costs of litigating asbestos-related lawsuits. In part, the company attributed the move to the earlier bankruptcies of other building-materials manufacturers, which made USG a highly visible target for litigants. The company expects its operations to continue as usual during the restructuring period.

Plastic Lumber Improves With Age

Although plastic lumber has been gaining acceptance as a material for residential decks for a number of years now, the varied materials provided by different manufacturers make objective comparisons difficult. That situation took a turn for the better this summer, when the ASTM approved standard 6662-01, which establishes minimum performance requirements for resi-

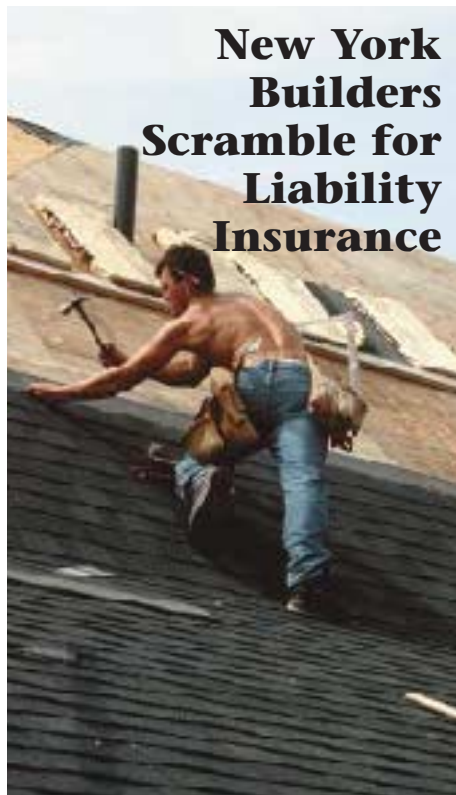


This 11-year-old plastic lumber deck at Rutgers University in New Jersey was recently tested by the ASTM, which found that the material used has gained strength and stiffness.

dential decking that contains more than 50% resin by weight.

The ASTM committee that developed the new standard looked at data from a number of sources, including strength tests it performed on what is thought to be the oldest plastic lumber deck in the United States. The deck in question was built outside a temporary classroom at the Busch Campus of Rutgers University in 1989 and later moved 1½ miles down the road to the main campus at Livingston. "We'd just imported some European machinery to make plastic lumber the year before," says Tom Nosker, a polymer physicist at the university. "We made the lumber we used right here." In the process, the Rutgers group performed material strength tests that the ASTM committee was able to use as a baseline when it tested the same material after a dozen years' exposure to the elements.

Not surprisingly, sunlight had discolored the surface of the material, but researchers were surprised to find that the aged material was slightly stronger and stiffer than it had been when new, although its stiffness was still far short of that of natural wood. "Why that's happened is still conjecture," says Rich Lampo, a U.S Army materials engineer who chairs the ASTM committee on plastic lumber. "It may be that the ultraviolet in sunlight produces some cross-linking of the plastic molecules."



New York Builders Scramble for Liability Insurance

A century-old New York law that holds employers strictly liable for fall injuries has prompted many insurers to drop liability coverage for builders.

In 49 of the 50 states, an employer who is sued by a worker who suffers a fall-related injury on the job can defend himself or herself by seeking to prove that the worker's own negligence — in failing to use available safety equipment, for example, or drinking on the job — either caused or contributed to the accident. The lone exception is the state of New York, where state law holds employers strictly liable for all fall-related injuries, regardless of who is at fault. And that, builders say, has led many insurance carriers to sharply raise the rates they charge for liability coverage, or to stop insuring builders altogether.

"My insurance company wanted to raise its rate from \$1,100 a year to \$3,200," says Rick Stacy, a builder in Bergen, N.Y. "I eventually found a cheaper policy, but I had to do a lot of shopping around. The big issue for a lot of companies seemed to be whether I was willing to give up roofing."

Why is the problem becoming acute now, when the state's so-called scaf-

folding law has been on the books for about a century? According to New York State Builders Association executive vice president Philip Larocque, the root cause is a huge growth in litigation over the past few years. "Just a few years ago, \$10 million claims were rare," he says. "Now it's impossible to keep track of them all. Insurers are under pressure to maintain profits, so they've started sharpening their underwriting pencils."

Past efforts to change the law have failed, and this year's attempt also seems destined for defeat. (Although the state legislature was still in session at press time, the reform measure supported by the NYSBA and other builders' groups was given little or no chance of passage.) "Our definition of crisis is different than the one the state is using," Larocque says. "They want to see builders actually going out of business before they act." Still, he is convinced that change will come eventually. "Governor Pataki hasn't been willing to take this thing on, but it isn't going to go away," he says.

Although most pneumatic-nailer accidents involve fasteners driven into a hand or foot, careless or unlucky workers occasionally suffer far worse. In a number of cases, carpenters on ladders have accidentally bump-fired nails into the heads of coworkers passing beneath (*Notebook*, 3/99). But Jonathan Beijar, a 23-year-old worker from New Bedford, Mass., will be able to tell his grandchildren about the 16-penny nail that surgeons at Boston Medical Center removed from his heart.

The accident took place in February of this year, when a framing gun resting on a rafter on top of some staging began falling toward Beijar, who was standing below. The ground was covered with ice and snow, so rather than jumping aside, he tried to swing the falling gun out of the way by grabbing the air hose. Instead, the gun struck him squarely in the chest and apparently fired on impact, without any pressure on the trigger.

Despite the nail lodged in his right ventricle, the

SIXTEEN-PENNY HEARTACHE

injured man was able to walk to a nearby fire station, from which he was transported to Cape Cod Hospital in Hyannis before being flown to Boston by helicopter. Emergency room doctor Craig Cornwall notes that Beijar's companions wisely didn't attempt to withdraw the nail, which might have resulted in catastrophic internal bleeding. "He was in some distress from pain," Cornwall says, "but he'd have been in a lot of trouble if they'd pulled that thing out." As it was, Beijar made a surprisingly quick recovery and was discharged from the hospital just four days after the accident.

Self-Cleaning Windows

Since the dawn of time, windows have had to be cleaned by somebody — Even the Jetsons' windows were cleaned by Rosie, their robot maid. But according to Pilkington, a British glass manufacturer, Rosie doesn't have to do windows anymore, now that the company has developed what it calls "self-cleaning windows."

The new glass, named Activ, has a coating of titanium oxide. Pilkington claims that its coating has two near miraculous properties: It acts as a catalyst, using sunlight to transform organic dirt into carbon dioxide and water vapor, and it causes rain to sheet down the pane rather than form beads.

The catalytic property of the coating is said to accelerate the natural decomposition of carbon-based smudges — like speeding up a compost pile — literally vaporizing the material in three to five weeks. Unfortunately, not all components of dirt are carbon-based, however. "The dirt on a typical window

Pilkington's new Activ glass (near right) has a coating that makes rainwater run down the glass as a sheet, rather than in individual drops, as on a conventional pane (far right). This sheeting action is one reason the glass is said to be self-cleaning.



has organic components but also inorganic components — for example, sand and clay from farmers' fields and gravel roads. Bird droppings will be half organic," says Chris Barry, director of technical services at Pilkington North America. That's where the second property of the coating comes in handy: In a rainstorm, water runs down the glass in a sheet, in theory carrying away any dust or grit left over from the bird droppings. Barry compares this sheeting action to that of a squeegee.

Barry is confident that the titanium oxide coating will be long lasting. "I expect the titanium oxide to stay on indefinitely," he says. "Nothing will take that coating off short of mechanical abrasion." But homeowners will still need to keep a Windex bottle handy, since the coating doesn't work indoors. "The catalytic action is activated by UV light, so the coating is only applied to the exterior surface of the glass," says Barry. Moreover, if the windows are protected from rain by a roof overhang, the squeegee-like cleaning action can't occur unless someone sprays the windows with a garden hose. Finally, miracles don't come cheap: Activ glass sells for five times the price of conventional glass.

Pilkington began selling the glass in Europe this year and has built a manufacturing plant in Ottawa, Ill., to make Activ for the U.S. market. No major U.S. window manufacturer is yet offering self-cleaning glass, although Andersen Windows is considering it. "We are very closely evaluating the technology," says Nan DeGonda, an Andersen spokeswoman. "I can tell you that is definitely an exciting development."

OFFCUTS

A new publication on protecting building materials from moisture is available from the NAHB. *Moisture Protection of Wood Sheathing: An Installer's Guide* details recommended practices for preventing moisture infiltration of exterior finishes such as stucco, brick veneer, and vinyl. The guide is free and can be obtained by calling the NAHB Research Center at 800/638-8556. It can also be downloaded from the Web at www.nahbrc.org/certif/moisture.pdf, or www.nahbrc.org/certif/moisturespanish.pdf for a Spanish-language version.

All new homes in Frisco, Texas, are required to meet the minimum standards of the city's green building program, according to *Environmental Building News*. The new regulation, which took effect on May 23, requires builders to meet the energy-efficiency requirements of the EPA Energy Star Program, educate buyers about water conservation, incorporate features meant to improve indoor air quality, and recycle wood and brick.

Describing a builder as a cowboy may be seen as complimentary in some areas of the United States, but in Great Britain, the term "cowboy builder" refers to a fly-by-night contractor who performs shoddy work. According to Reuters News Service, the British government recently announced a new builder and tradesman registry program that it says will "empower householders and reward good tradesmen" by making it easier for the householders to find reputable builders.

Georgia-Pacific has announced the close of three drywall plants and production cutbacks at 13 others. The move is expected to reduce the company's North American drywall production by 45%, bringing the supply in line with declining demand.

