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Reinventing OSHA: Builders, Government Try New Approach

Seven job-site deaths in 18 months have sparked action on safety by Denver-area home builders and OSHA officials

by Ted Cushman

Denver, Colo., is a boom-town for home builders. About two years ago, the area emerged from a long building slump and into a period of red-hot home sales and residential construction. But the building boom came at a terrible price for some. Over 18 months, many workers were injured and seven lost their lives on residential building sites.

Alarmed by the surge in injuries and deaths, federal



New safety guidelines under consideration by OSHA would affect procedures like truss erection, where current rules are said to be impractical.

OSHA officials have started paying special attention to residential sites. But the Denver OSHA branch's efforts go well beyond its traditional methods of surprise inspections and fines. Bart Chadwick, director of OSHA's Region VIII headquarters in Denver, says, "Just levying big fines with no follow-up and no education hasn't worked." Denver OSHA officials have joined forces with the Home Builders

Association of Denver to propose revisions to OSHA regulations and to change the way the rules are enforced. The idea is to make OSHA rules practical for a residential construction site, and then to enforce the rules effectively across the board, not just spo-

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Hardboard Siding Pulled From Florida Market

Masonite Division of International Paper, the nation's leading producer of hardboard siding, announced in March that it was pulling its product out of Florida after Palm Beach County building officials banned the use of hardboard siding in new construction. Masonite and other hardboard siding is permitted in the county only for warranty and repair work.

Masonite's problems in Florida began several years ago when occupants of HUD-financed homes in a

Palm Beach County subdivision named Victoria Woods complained of discoloration and rot affecting their siding. Although the problems were due to faulty construction,

not the materials, according to company executive Errol Savoie, Masonite wound up replacing most of the siding in the development. "These buildings had all sorts of

problems," said Savoie. "You could wring out the insulation with your hands like a sponge. The water intrusion was incredible." Savoie said rain was entering the building walls because of improper roof flashing.

HUD's own reports on the Victoria Woods subdivision supported Masonite's contention of widespread installation problems. "There were pictures of siding with grass growing up behind it," said Anton Tenwolde, a scientist

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Masonite says faulty installation and maintenance caused problems with its product in South Florida. The siding shown here was installed in contact with the ground.

OSHA, *continued*

radically. The Denver situation has attracted attention in Washington, and the changes begun in Colorado could well end up changing OSHA's approach to residential construction nationwide.

The deaths in Denver forced both the government and the home builders to take a hard look at safety on the building site. "We took the Safety Committee of the Denver HBA from three guys who met twice a year to 45 guys who meet every month," says Chadwick. Chadwick meets with the committee, and the give-and-take has reportedly been serious.

Josh Fowler of the Denver HBA says, "OSHA has admitted that we just can't do some of the things their rules require." The rules rely on physical safety measures like scaffolding and safety ropes, says Fowler; but during the most hazardous phases of homebuilding, such as truss erection, there is usually no practical way to anchor scaffolds or ropes.

Chadwick says, "I asked the builders to make a list of all the things we wanted that they just couldn't do. And the list wasn't all that long." Then he asked for a list of all the safety measures that builders felt they could do. In the end, Chadwick says, he gave the builders this promise: "You do all the things you say you can do, and we'll work with you on these other things." And in OSHA Region VIII, Chadwick says, his word goes: "All the OSHA inspectors in a six-state area work for me. You can't get a citation from anybody else."

The builders association and the Denver OSHA office are continuing to work together on safety issues. They've put some of their ideas in writing, proposing

new rules in the area of fall protection. The proposal, which is now under consideration in Washington, relies mainly on training and organization to reduce risks in house framing. For example, only trained and experienced workers would be allowed to walk the plates and set trusses, and an experienced person would have to be responsible for supervising the process.

Chadwick says that OSHA officials in Washington support his initiative. Joseph Dear, Assistant Secretary of Labor for OSHA, told Congress in February that OSHA had "concerns" about the applicability of some OSHA Reform Act provisions to "small construction projects." Said Chadwick, "That was a direct reference to what we're talking about."

What about the costs to builders of doing even "the things they can do?" The Denver HBA's Fowler says, "OSHA doesn't care. They've told us that cost is not relevant to their rule-making."

But Chadwick says he thinks unsafe conditions, rather than safety measures, are driving costs up. According to Chadwick, workers comp costs for framers in Denver can be as high as 30% of payroll. "Comp insurance alone adds \$8,000 to the cost of a \$150,000 home in this town," he says. And he thinks the impact is unfair to the more careful builders. "What we want is to create a level playing field. These unsafe builders are driving up the cost for everybody else."

The Denver office is doing more than talk to create that level field. In mid-March they socked U.S. Homes in Colorado Springs, Colo., with a number of citations carrying fines totaling \$183,550. □

Weatherization Is Cost-Effective, Says Government

A study of the Department of Energy's Weatherization Assistance Program conducted by scientists from the Oak Ridge National Laboratory (ORNL) indicates that the weatherization program has caused a major reduction in the nation's energy use.

Comparing the energy use of a sample of 14,971 weatherized dwellings to a control group of 3,655 homes still on the program's waiting list, ORNL experts concluded that the weatherization of 198,000 homes in 1989 reduced energy use in the following year by an amount equivalent to 601,000 barrels of oil. Over the estimated 20-year lifetime of the weatherization measures, the 1989 work will save the equivalent of 12 million barrels of oil, the scientists say.

Total costs of the program per dwelling averaged \$1,550 in 1989, the study found. In the years since then, the net energy dollars saved per dwelling averaged \$1,609, giving a three- to four-year payback of 109%. This cost-effectiveness estimate does not include side benefits of improved health or safety.

The study also provided broken-down figures showing which types of weatherization steps were most cost-effective in various regions of the country. The Oak Ridge scientists hope this information will help in fine-tuning future weatherization efforts.

For a copy of the Oak Ridge report, Weatherization Works, contact Dr. Marilyn Brown at Oak Ridge National Laboratory, P.O. Box 2009, Oak Ridge, TN 37831-6206; 615/574-5939. □

Hardboard, *continued*

with the U. S. Forest Products Laboratory (FPL).

Palm Beach building official Dominic Sims said that some of the replacement siding installed under Masonite's warranty started to have problems in as little as six months. But Savoie said, "What Sims saw was a little bit of edge swelling on about 20 feet of siding, out of thousands of feet. We couldn't fix all the problems with the buildings."

Any wood or wood-based product will have the same kind of problems Masonite can have if it's not installed and maintained correctly, according to Savoie. "You can't install it in contact with the ground. And it's not maintenance-free — you have to paint it."

A lawsuit against Masonite

arising out of the Victoria Woods problems was dismissed in March. But Savoie says Masonite has had enough of South Florida. "We're pulling out until we feel like our product has a chance to perform," he said. "We'll be back. We're just waiting for the construction industry here to do a better job of policing itself."

HUD has contracted with FPL to oversee construction of some test buildings in South Florida to measure the performance of hardboard siding with scientific accuracy. It will take several years for results to become available.

In the meantime, information regarding installation, maintenance, and performance standards for hardboard siding is available from Masonite at 407/279-1079. □

STATE BY STATE

Massachusetts. A bill that would prevent construction within 150 feet of state rivers and streams is being pushed in the Massachusetts House again this year. The measure has the governor's support, but opponents say it would close off 350,000 acres to building.

New York. Governor Mario Cuomo signed a worker's compensation reform bill in December. The law includes a provision to eliminate a 13% surcharge paid to hospitals by comp insurers. It also requires insurance companies to offer small business policies that have deductibles, but lower premiums. The Insurance Department will be required to hold hearings on any comp increase exceeding 2%.

Vermont. Vermont Technical College is now offering a two-year major in Construction Practice & Management. Professor Stephen Strait, who heads up the program, said the first year focuses on practical skills like math, drafting, surveying, and carpentry. The second year focuses on management skills. For information, call VTC at 800/442-8821.

Rhode Island. A new prompt payment law covers any work done for the state. Under the new law, all bills presented to the state must be paid within thirty days. Contractors on state jobs are required to pay subs within ten days of being paid themselves.

Comeback Ahead for Structural Brick?

Builders worried about the high cost of lumber are looking at all kinds of wood substitutes, from engineered lumber to steel or even plastic. One option few have considered is a return to a material that has been around for centuries: structural brick.

General Shale Brick of Johnson City, Tenn., has just introduced a hollow-core brick called "SuprKing" that is designed to be reinforced with concrete and rebar. At 4⁵/₈x9⁵/₈x2³/₄ inches, the bricks are slightly larger than standard-sized bricks, but still small enough to be attractive in residential use, the company says.

Bearing walls built with the SuprKing system are reinforced with rebar and concrete grout, with horizontal reinforcement placed in the mortar beds. Flashing is placed at the foundation and stepped up as the brick is laid to prevent water infiltration. Metal Z-channel furring attached to the inside surface of the brick at 24 inches on-center is used to attach foam insulation and drywall to the interior face of the wall. Bricks with a knockout in the horizontal dimension are

used to make a steel-reinforced bond-beam for spanning window and door openings.

Although builders can use standard techniques for

If the idea catches on, other companies can be expected to join the game. "Brick in America is a no-growth industry," says Tom Ostby of Oakes Brick and



SuprKing structural bricks are slightly oversize and have large holes for grout and rebar. Here a mason works on a reinforced load-bearing brick wall.

attaching floor and roof systems to masonry bearing walls, house plans will have to be engineer-approved.

General Shale's Dennis Fair says that at today's lumber prices, structural brick is cost-competitive. And he adds that the price of brick is stable: "It's not going to change on a daily basis."

Tile, a Minneapolis masonry distributor. "We sold as many bricks in 1956 as we did in 1992. We're looking for any way to increase sales."

Information on SuprKing is available from General Shale Brick, P.O. Box 3547 CRS, Johnson City, TN 37602; 615/282-4661. □

Customers Care About Ecology, Study Shows

Research conducted by the Western Wood Products Association (WWPA) seems to indicate a growing concern about environmental issues among building and remodeling customers. But it is unclear whether the higher level of concern will effect actual buying decisions.

While many of the 343 builders and 263 remodelers who responded to a WWPA survey reported a growing volume of customer questions about the ecological impact of

using wood products, only a small fraction reported that their customers would pay more for an ecologically superior material.

Most customer's questions relate to concern about America's woodlands. A large majority of builders and remodelers say their clients think the wood products industry is not taking good care of the national forests.

In response to an aggressive marketing campaign by suppliers of alternative framing

materials, the WWPA has contracted with Scientific Certification Systems of Oakland, Calif., the independent environmental research group, to evaluate the life-cycle ecological costs of wood products as compared to other building materials. WWPA hopes the results of the independent study will support their contention that wood use benefits the environment. For more info, call WWPA's Timm Locke at 503/224-3930. □

Rising Tide of Building Lifts Nation's Economy

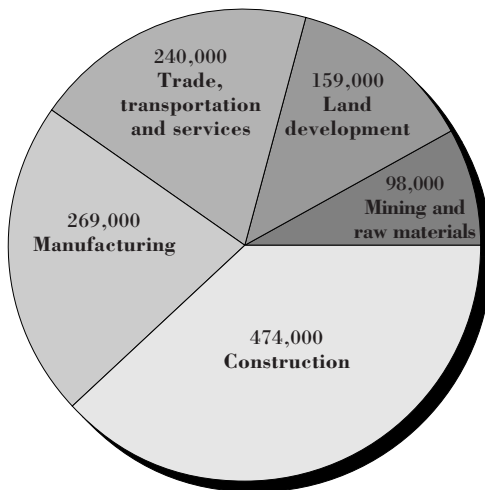
You may or may not own stock in any companies that supply building materials. But if you're a building contractor, you may be interested to know that as building recovers from the last recession, it's pulling a lot of other industries up with it.

A recent report by the Department of Housing and Urban Development says that the housing rebound in the last half of 1993 helped to create 1.2 million jobs nationwide, including 474,000 construction jobs, 159,000 jobs in land development, 269,000 jobs in

Armstrong World Industries, for example, a major player in flooring products, is rebounding from a three-year slump on the strength of increased demand for flooring. Manufacturers of home furnishings also credit new home construction with stimulating big increases in sales of their products. The residential construction industry is expected to remain strong in the coming year.

Jerry Doctrow, who directs research services at Legg Mason Realty Group, a Baltimore, Md., consulting firm, advised home builders

New Construction-Related Jobs in 1993



manufacturing, 240,000 jobs in trade, transportation and services, and 98,000 jobs in mining and raw materials.

Industries directly related to home construction are getting a big boost. Cabinet-makers say the industry's sales rose over 11% in 1993, with January 1994 sales up 16% over the previous January, despite cold weather. And whole corporations have the building industry to thank for their good fortune:

meeting in Washington last fall to make state and local governments aware of the economic importance of home construction. Although individual builders are mostly small businesses, he says, in Maryland and other states the home building and remodeling industry employs more people than manufacturing. Good conditions for home construction, he said, can be a key to prosperity in local areas as well as nationwide. □

FROM WHAT WE GATHER

Plywood and OSB have been trading at nearly equal prices in some regions, *Random Lengths* reports. Plywood has generally cost more than OSB in the past, but some traders think that wider acceptance of OSB by contractors is causing the price gap to narrow. Some dealers reportedly prefer to handle OSB because the supply of plywood is less reliable.

People whose homes were destroyed by the L.A. earthquake are eligible for a 100% reconstruction loan from the U. S. Department of Housing and Urban Development. Applicants who can prove residency and document the destruction of their homes can borrow as much as \$203,150 in government-insured funds to build replacement housing. Renters as well as owners can qualify for the loan.

Everything you ever wanted to know about federal and state laws and regulations pertaining to lead in paint, soil, dust, air, or water can now be found on a computer database produced by the National Institute of Building Sciences (NIBS). The information, 2,200 pages worth, is in the form of six IBM-compatible computer floppy diskettes. It costs \$225 and can be ordered from NIBS' Publications Department, 1201 L St. N.W., Suite 400, Washington, DC 20005; 202/289-7800.

The federal government is making a big move to metric in construction, reports the Construction Metrication Council. More than \$50 billion worth of government-funded metric construction will be on the drawing boards or in construction by 1996.

A new consensus plumbing code has been released by the American National Standards Institute. The standard, ANSI A40-1933, is the first national consensus plumbing code developed since 1955. Copies are available for \$40 from NAPHCC Publications Dept., 180 S. Washington St., P.O. Box 6808, Falls Church, VA 22046; 800/533-7694.

The Midwest is emerging as a center of wind-power development, *The Renewable Quarterly* reports. A new 25-megawatt wind-power plant in Minnesota and a 5-megawatt Iowa wind farm scheduled to go on-line this spring will make those states second and third behind California in wind energy production nationwide.

Electricity "leakage" from a houseful of appliances could cost some consumers as much as \$10 monthly, *Home Energy* magazine reported in December, because many home appliances use small amounts of electricity even when turned off. Swedish researcher Eje Sandberg found that the transformer on a low-voltage halogen light bulb draws two watts when switched off. A TV or VCR can draw eight or ten watts.

Innovative Window Upgrade Technique Saves Time, Money

Remodeling a house with old windows? You'll like the new system developed by Jim and Maisy Conachen. Called "Bi-Glass," the technique allows leaky, old, wooden windows to be rebuilt as modern, energy-efficient windows without sacrificing the original look. And, the Conachens say, the cost is substantially less than the price of a replacement window unit.

What Jim Conachen does is replace the old window sash with a modern, insulated, spring-loaded sash. Old sash weights are removed and the cavity filled with insulation. Then he trims down the window frame and profiles it to fit into the new sash. Once equipped with tilt-out hardware, the window can fit right back into its old location.

But before reinstalling the window for good, Jim uses a specially designed router and jig to remove the old divided lights. The muntins, the small wood pieces that separate the lights, are routed away from the outside face of the window, and the glass pops out easily. But the interior side of

the muntin is preserved, so that the appearance of the window inside the room is not changed.

Then a single piece of low-E double-pane glass is installed in place of the old divided lights, and sealed with silicone caulk. A new exterior muntin grille, made on site, is attached over the outside of the window. Now the window can be popped back into its sash. It's a look-alike for the original, but with the thermal characteristics of a modern manufactured replacement window.

It sounds complicated. But Jim Conachen has been doing

it for eight years, and he's got it down to a system. The U.S. Department of Energy gave Jim and Maisy a grant to develop and perfect the technique. The couple is now offering their system to other contractors as a complete package. They say trained licensees can replace a houseful of windows in a few days at prices ranging from around \$125 for a casement window to around \$200 for a double-hung. "Peter Andrews, our first licensee, was making money in three weeks," Maisy says. She sees the Bi-Glass sys-

tem as a lucrative sideline for contractors that evens out their cash flow. Training an experienced carpenter to use the system takes about a week, according to Jim.

The package includes a 14-foot trailer complete with all the equipment needed for the window changeout operation, including a table saw and a jig-mounted router with special bits. The trailer just needs to be plugged into power on the site. The patented router jig is the only really specialized tool on the trailer, says Maisy Conachen; the rest of the equipment is general-purpose, making the trailer a versatile all-weather job-site work station.

If you're a contractor interested in adding this capability to your bag of tricks, you can call Bi-Glass Systems at 800/729-0742. But you may have to wait in line; the company already has a backlog of applicants. And only a limited number of licenses will be given in any one market — the Conachens don't want their licensees to be competing against each other. □



This patented router jig is the core of the Bi-Glass window replacement system.

Study Links "Sick Buildings" to Mineral Fibers

Cornell University researchers report that small fibers of manmade "rock wool" or "slag wool," commonly used to make commercial insulation and office ceiling tile, are the most likely cause of the loosely defined worker complaint known as "sick building syndrome (SBS)." In a study of 4,000 workers in nine states, scientists found no link between SBS and airborne

pollutants other than the mineral fibers, but a strong link was observed between high levels of fiber dust and worker complaints of headache, lethargy, and respiratory or skin irritation.

Acoustical ceiling tiles seem to be the biggest cause of mineral fiber dust in the air, particularly in cases where the brittle tiles are frequently removed and replaced to allow access to mechanical systems in the ceiling. The study would tend to explain why SBS is primarily a workplace phenomenon, since acoustical tiles and rock wool insulation are rare in residential construction. □



DAN DRABEK