

NOTEBOOK

MARCH 2001

EDITED BY JON VARA

HUD Takes Aim at Lead Hazards

In September of 1999, the federal Department of Housing and Urban



HUD

Development (HUD) published Lead Safe Housing Rule 24 CFR 35, which established lead-safe work rules for contractors performing work on HUD-funded housing. A year later, in September of 2000, the new rule went into effect and, according to HUD estimates, will cover about 1.2 million dwelling units. As we reach the midpoint of the new rule's first year, it's informative to have a look at what it says, how it's been implemented, and how similar legislation might affect builders in the future.

HUD's Three-Step Program

From the contractor's standpoint, the rule has three main components, which correspond roughly to the beginning, middle, and end of any given project.

Assessment. Before a project can begin in any pre-1978 structure, the area must be evaluated by a trained and licensed risk-assessment person. This individual evaluates whether lead-based paint is present and recommends what sort of remedial work is required, from

continued on next page

The gypsum used to make drywall comes either from natural gypsum (quarried rock) or from a by-product of coal-burning power plants. Guess which gypsum source is considered more environmentally friendly? If you guessed natural gypsum, guess again. Most green building enthusiasts prefer drywall made from flue-gas desulfurization (FGD) sludge.

Because of Clean Air Act requirements, power plants burning high-sulfur coal use scrubbers to remove much of the sulfur dioxide, a component of acid rain, from their flue gas. The scrubbing

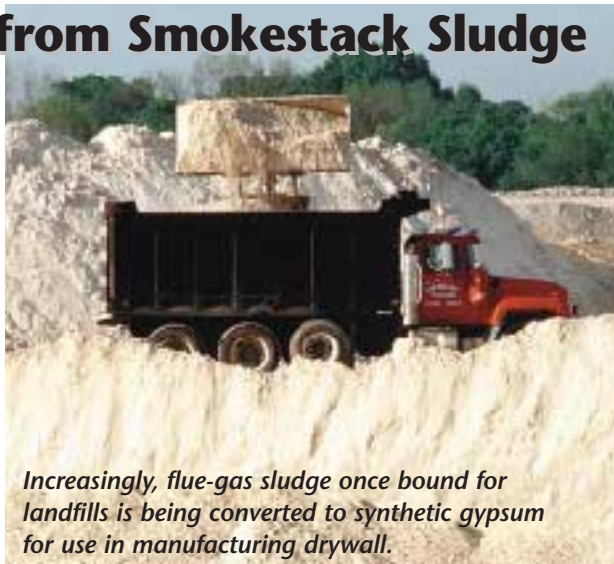
industry to move toward more and more use of synthetic gypsum," says Jerry Walker, executive director of the Gypsum Association.

The main reason for the trend is the need for drywall manufacturers to lower their transportation costs. Until a few years ago, virtually all of the East Coast drywall plants used gypsum shipped from mines in Nova Scotia, while West Coast plants depended on natural gypsum shipped from Mexico. But 9 out of the 10 newest U.S. wallboard plants are located near coal-burning power plants, which produce a ready supply of synthetic gypsum.

Making Drywall from Smokestack Sludge

process results in the production of 22 million tons of FGD sludge a year. Because landfill costs are rising, coal-burning plants are under pressure to find a market for their FGD sludge, which can be easily processed into calcium sulfate, or synthetic gypsum.

Most of the major U.S. drywall manufacturers — including Georgia-Pacific, Lafarge, Temple-Inland, and U.S. Gypsum — now use synthetic gypsum for at least some of their production. "There is a trend in the



Increasingly, flue-gas sludge once bound for landfills is being converted to synthetic gypsum for use in manufacturing drywall.

TEMPLE-INLAND

OFFCUTS

The nation's Realtors could be in for a major headache if the U.S. Patent and Trademark Office accepts a petition filed by a San Francisco attorney. The petition seeks to strip the term "Realtor" of its status as a trademark, putting it in the same category as thermos, escalator, aspirin, and other former trademarks that were later declared to be generic. The National Association of Realtors, which owns the trademark, is expected to mount a vigorous defense.

CAT scan technology can improve sawmill efficiency, according to a team of researchers at Louisiana State University. The researchers found that the computer imaging technique — ordinarily used for medical diagnostic purposes — can be used to generate a "virtual log" that enables the sawyer to plan the most efficient sequence of cuts through the log itself, increasing yield by more than 18%. While still too costly for general use, the new method could become practical if the price of CAT scan equipment declines in the future.

The U.S. Congress passed the American Homeownership and Economic Opportunity Act before adjournment last year. The act allocates \$15 million for grants to states and local communities to make it easier for low-income families to own homes.

A chainsaw-wielding attacker has severely damaged Luna, the 1,000-year-old California redwood in which environmental activist Julia Hill lived on a platform for two years. The unknown vandal sliced a 32-inch-deep cut somewhat less than halfway around the tree's 38-foot circumference. Professional arborists hope that the tree can be kept alive, and an investigation into the vandalism continues.

HUD Takes Aim

continued from page 1

full-scale abatement to so-called "interim controls," such as stabilizing deteriorated lead paint.

The work phase. If the initial assessment reveals the need for full-scale lead abatement, the work must be undertaken by a licensed lead-abatement contractor. If lead abatement is not considered necessary, but the work that is needed will disturb existing lead-based paint — as in a kitchen or bath remodel, for example — some training is still required. In that case, the contractor must have completed a HUD-approved course in lead-safe work practices, and all workers on the site must have received basic training as well.

Post-project clearance. When the work itself is done — whether it involved full-scale lead-abatement work or not — the final step is to call in a licensed inspector to test the property for residual lead dust. The so-called clearance examiner must then prepare and sign a report documenting that the house passed clearance. By law, the clearance examination cannot be performed by a person who was also involved in the work phase of the project.

Training New Inspectors

Since the new rule took effect last year, many companies that provide HUD-approved training to inspectors and clearance technicians report a sharp increase in demand for their services. "There's definitely a shortage of trained people," says Parmesh Reddy, of Big Apple Occupational Safety in New York. "Our classes are always full, and contractors are always calling us."

"We know there's a need to expand capacity," says HUD spokesman Brian Sullivan. "That's why we published the rule a year before it took effect. I know a lot of people are getting on board late, but they've had plenty of

time." Sullivan notes that HUD extended last September's deadline for states and municipalities where there were critical shortages of trained people, and HUD has provided funding for training programs in such areas.

Conflicting Laws

According to Michael Mittelholzer, a legal affairs expert with the NAHB, another problem with the new HUD rule is that it may place compliant builders in conflict with state law. "[In] quite a few states, if you find lead paint at all, you're required to abate," he says. "They don't recognize the kinds of interim controls that HUD does."

In general, Mittelholzer explains, federal law prevails over state law, but in regulatory matters the more stringent standard often wins out. "It's determined by case law, but because there's not much case law available yet, there are very few precedents," he says. "It's all very unsettled."

Getting Ready for the EPA

To builders who don't work on HUD-financed housing, the new rule may seem irrelevant. But within the next few years, *all* residential remodelers working on pre-1978 structures are likely to face similar requirements. "The EPA will probably be issuing its own proposed work rules this August," says Mittelholzer. "The timetable isn't definite, but it will probably become final a year later, with an additional two years for training."

Mittelholzer thinks that, in the long run, the difficulties with the HUD rule may improve the program that's eventually adopted by the EPA. "HUD is basically an example of how not to do this," he says. "The EPA is looking three years down the road, but that still may not be enough time to get all these folks trained."

OFFCUTS

A group of builders in the Tampa area has built several experimental homes designed to resist wildfires, floods, and windstorms. The homes with backing from an insurance consortium make use of a variety of strengthening features — such as reinforced doors and wind-resistant, non-combustible roofing — which increase their cost by \$7,400 to \$14,200. If the initial offering of “Fortified Florida” homes is successful, the “Fortified ... for safer living” program will be expanded nationwide.

The Chicago city government is considering licensing general contractors, according to the *Chicago Sun-Times*. Although licenses are already required of all subcontractors operating in the city, general contractors have so far been exempted. The absence of licensing requirements has been blamed for building collapses and other serious problems in recent years.

Wood product suppliers that follow sustainable forestry practices should be given “preference” in purchasing, according to a recent directive from the National Lumber & Building Material Dealers Association. The NLBMDA has also informed its 8,000 members that it will recognize most third-party certification programs used to monitor forestry practices.

A decline in new home construction will likely cause lumber production to decline in 2001, according to the Western Wood Products Association. The association expects housing starts to decrease by 4% this year, with the lumber used in residential construction falling by 4.8%, to about 20 billion board feet. Lumber imports from Canada are expected to increase significantly, as an import-limiting trade pact between the U.S. and Canada expires at the end of March.

Developers in rapidly growing areas of Colorado are hiring private security companies to prevent job-site theft and vandalism, according to the *Denver Rocky Mountain News*. The security services have reportedly caught some particularly brazen thieves, including those driving flatbed trucks filled with lumber, washing machines, and microwave ovens.

Predrilling Yields Drier, Straighter Studs

Wood products specialists at the NAHB Research Center in Upper Marlboro, Md., are experimenting with a simple method of producing drier, straighter studs. The first step involves boring a series of 3/4-inch holes through the wide face of each stud to increase the area of exposed end grain. “Lumber dries 15 times more readily out the end grain than it does out the side grain,” says researcher Kevin Powell. The size and spacing of the holes — 29 of them in each 8-foot stud, in two parallel rows on staggered 6-inch centers — was chosen to comply with stud grading rules, which permit the equivalent of one 1 1/2-inch hole per linear foot.

Predrilling studs and stacking them in a prescribed manner for kiln-drying may prove to be a cost-effective way to reduce warp, according to researchers at the NAHB Research Center.



KEVIN POWELL

The predrilled studs are then conventionally kiln-dried, with two important exceptions: Instead of being stacked on their wide faces for drying, according to the standard practice, the studs were stacked on edge. The stacked studs were also restrained from sideways distortion with an arrangement of U-shaped metal rods. “Lumber stacked on the flat face resists bowing very well, because the whole weight of the pile tends to counteract it,” Powell says. “But it doesn’t resist crook as well, because the only force working against it is friction between the studs and the stickers.” Edgewise stacking, he explains, is much more effective at preventing crook, which is a bigger problem than bow from the builder’s standpoint.

Not only did the predrilled studs dry in 40% less time and show markedly less crook, but subsequent weathering tests found that they remained dimensionally stable through repeated cycles of wetting and drying. Another potential advantage, Powell notes, is that the predrilled holes are available for plumbing and wiring.

Do the holes significantly weaken the studs? Research in that area continues, with the testing of wall assemblies in a laboratory racking apparatus. But the preliminary results have been encouraging, according to Kevin Powell. “I haven’t had a chance to run all the numbers yet,” he says, “but the studs appear to be performing quite well in strength tests.”

Disposing of the Alaskan Honey Bucket

In most rural areas of the United States, septic systems are common, and the disposal of residential wastewater is a relatively simple matter. But in the Alaskan bush, wastewater disposal is an engineering challenge. Digging a trench in permafrost is similar to cutting solid stone, and air temperatures down to 60°F below zero are a brutal challenge to plumbing.

Because of these difficulties, about one-third of rural Alaskans have no access to a flush toilet, instead using a “honey bucket” — a plastic 5-gallon pail equipped with a toilet seat. Small villages without the tax base to maintain community wastewater pipes usually organize a honey-bucket haul system. “They take their honey buckets and deposit the contents into little wagons, stationed along the boardwalk,” says Linda Taylor, an engineering associate with the Alaska Department of Environmental Conservation. “The community uses a four-wheeler or snowmobile to take it to a lagoon or honey bucket holding pond.”

Three years ago, Alaska Governor Tony Knowles announced a program to bring safe water and sewage disposal to all Alaskans, declaring, “Let’s put the honey bucket in a museum.” The Governor’s Council on Rural Sanitation has been working with several agencies, including the Alaska Native Tribal Health Consortium and the Department of Environmental Conservation, to implement the goal.

Finding water. Before a village can install its first flush toilet, a source of water must be located. Many rural Alaskans haul drinking water in a bucket or depend on water delivered by truck. Drilling a well won’t work if the ground consists of permafrost. Some villages use lake or river water for a “fill-and-draw” system, which typically stores 500,000 to 1 million gallons of water in an insulated, heated steel tank. Because bitter temperatures complicate winter pumping, such tanks are filled in the autumn, and provide drinking water to a village until the spring thaw.

Pipes from the water source to homes

can be buried, but only if the soil conditions are well understood. “The inconsistency of the soil creates enormous problems for trenching,” says Greg Capito, supervisor for the Village Safe Water Program at the Alaska Dept. of Environmental Conservation. “Even in areas without permafrost, there are ice wedges, ice lenses, and frost-susceptible soils.”

Arctic pipe, which is often installed above ground, consists of high-density polyethylene (HDPE) pipe surrounded by several inches of insulation and a jacket of corrugated metal. To minimize the chance of a freeze-up, village water systems typically

plants, which discharge into a lake or river.

Although septic systems are sometimes installed in permafrost-free areas of Alaska, they are prone to failure. “Because of low soil temperatures, the wastewater cools off very quickly, and you get very little treatment in the tank,” says Robert Tsigonis, a Fairbanks engineer and inventor. “Leach fields don’t last very long, because they tend to plug up. They also tend to thaw the ground, and then the ground moves, and the pipes come apart.”

Tsigonis has invented a self-contained cold-climate sewage treatment plant, which he markets through his company,



KEVEN KLEWENO

In rural Alaska, where permafrost is common, wastewater is often conveyed through above-ground pipes for disposal in sewage lagoons (above). Even when pipes can be buried, they are always encased in a thick layer of insulation (left).

use a pump to keep water in delivery pipes circulating. Most also depend on an “add-heat” system — an oil-fired boiler — to keep the water above 40°F. Pipes often include a continuous electric heat tape that can be turned on for an emergency thaw.

Where does it go? Small villages usually dispose of their wastewater in a lagoon, located away from areas where children might play. Larger municipalities can afford climate-controlled wastewater treatment

Lifewater Engineering (866/777-9787). “Sewage treatment in Alaska is an interesting problem, one that is not easily solved,” says Tsigonis. His system, designed for residential use, has a three-compartment insulated above-ground fiberglass tank that maintains the effluent at 60°F with minimal energy input. According to Tsigonis, the effluent is clean enough to discharge on the surface of the ground.

OFFCUTS

Armstrong World Industries filed for Chapter 11 bankruptcy protection last December. The Lancaster, Pa.-based company had manufactured tile containing encapsulated asbestos until the early 1980s, and asbestos gasket material for internal combustion engines until the mid-1980s. But according to the company, “nearly all” of the injury and wrongful death lawsuits lodged against it stem from thermal insulation products used by the company before 1958, or by a licensed subsidiary after 1958. The asbestos-induced bankruptcy filing was the second by a major building-products company in a matter of weeks, coming on the heels of a similar move by Owens Corning in October.

Concrete workers are considered to be at risk for silicosis, according to a publication bulletin issued by the American Society of Concrete Contractors. Silicosis is a potentially fatal scarring of the lungs caused by inhaling crystalline silica, which is found in concrete dust. The publication — *Safety Bulletin #31, Silica Dust Exposure in the Concrete Industry* — outlines procedures contractors can use to minimize worker exposure. For more information, contact the ASCC at 800/877-2753.

The city of Chicago is paying for the construction of five different architect-designed green homes. As part of a campaign to promote affordable, environmentally friendly infill housing, the new homes will be going up in a North Side neighborhood this year, and are expected to cost from \$115,000 to \$175,000 to build.

British inventor Frederick McKee has developed what may be the ultimate in double-glazed windows: Rather than air, nitrogen, or argon, the gap between panes is filled with chemically treated water. According to an article in *The New Scientist*, the fluid-filled windows are connected to a circulator pump and heat exchanger, making it possible to use captured solar energy for space heating. Two engineers quoted in the story agreed that the idea is “brilliant,” but expressed a few reservations. “People have a problem picturing water being pumped through their windows,” one said. “They worry about things like leaking and the system breaking down.”

Calif. Supreme Court Says No to Homeowners

The California Supreme Court issued a potentially far-reaching verdict in the case of *Aas vs. William Lyon Company*, which pitted a group of San Diego homeowners against the Newport Beach, Calif.-based home builder. The plaintiffs had sought compensation to cover the cost of repairs and the loss of future value in their homes, cit-

ing a number of building code violations, including faulty shear walls and wiring defects (see *Notebook*, 12/98).

But in a ruling early last December, the high court upheld rulings by the original trial court and a court of appeals that bar homeowners from suing a builder to recover the cost of repairs unless the defects have actually caused property damage or personal injury. Before the ruling, a plaintiff could sue a builder over repair costs any time within 10 years of purchasing a new home — a situation that had helped support a thriving construction defect litigation “industry” in the state.



Predictably, attorneys representing homeowners denounced the ruling, while some builders’ organizations, such as the California Building Industry Association, hailed it as an important victory. But according to Pete Fowler — a Southern California general contractor and construction consultant with extensive experience in defect litigation — the effects of the court decision are likely to be mixed and may not be fully felt for years.

“Carriers who insure electrical contractors are very, very pleased with the ruling,” Fowler says. “A plaintiff’s electrical expert can go through almost any house and come up with a list of minor code infractions that might cost thousands of dollars to fix, although they don’t carry any risk. This ruling says that if there’s no actual damage, there’s no case.”

On the other hand, Fowler explains, plaintiffs can still bring suit over construction defects that do cause damage. “Roofers don’t benefit very much,” he says. “If somebody builds a house that’s a leaker, the ruling won’t protect them.”