



Insulation That Won't Make You Sick

by Alex Wilson

One of the highlights of the Advanced Residential Construction conference in March was a presentation on the toxicity of building materials. A speaker at the Quality Building Council's conference in Monticello, N.Y., recommended that we not use laminated-wood products (plywood, waferboard, particleboard, paneling, etc.), asphalt foundation coating, petroleum-based paints and stains, drywall, every caulk we've heard of, all the insulation materials we've ever used, pressure-treated lumber...and on and on.

As Paul Bierman-Lytle spoke, attendees on both sides of me joked about going off to live in a tent. It's an issue we would all prefer to laugh off. But as Bierman-Lytle assured us, it isn't a joking matter.

He quoted from studies done by NASA and the National Bureau of Standards on the toxicity of common building materials. He told a few horror stories about home owners being sickened by formaldehyde ("the most ubiquitous toxin—it's in everything") and other common household toxins—including radon, polyvinyl chloride, and lead. He also spoke about the long-term health problems that are widespread among workers in building-products manufacturing plants and among the tradesmen who install these products.

Bierman-Lytle began looking into nontoxic building materials because several members of his construction crew were frequently out sick, and he suspected there might be a connection. Though there were many skeptics in the audience, they listened to every word of his talk.

Bierman-Lytle is raising awareness across the country of the hazards of everyday building products. He said the toxins have three tiers of effect: (1) the effect on workers manufacturing them, (2) the effect on those installing them, and (3) the effect on home owners living with the products. His design and construction firm, the Master's Corp., no longer uses any materials he considers toxic in the finely crafted (and expensive) homes he builds.

Because this is an energy column, I'll focus on what he had to say about insulation materials—one of the more challenging areas of nontoxic construction.

Based on the health effects, the Master's Corp. no longer uses any of the usual insulation materials. Bierman-Lytle considers fiberglass a carcinogen—not quite as dangerous as asbestos, but definitely unsafe. Polystyrenes give off petroleum vapors and are flammable. And urethanes, he said, give off deadly combustion gases in high-temperature fires—like the methyl isocyanate produced in the Bophal disaster.

Bierman-Lytle didn't specifically mention cellulose or phenolic foam, but in a later interview said they both contain toxins—either as particulate matter or gas—and that users face a grim choice between fire hazards or toxic flame-retardant chemicals.

Did You Say Cork?

As Bierman-Lytle worked down the list, those in the audience wondered what was left. He finally got to it: cork. That's right, cork—a type of bark. Although rarely used as insulation in the U.S., Bierman-Lytle said it is not uncommon in parts of Europe. He uses it as loose fill, but said rigid boards may soon be available.

One drawback to cork is the cost—about 25 percent higher than conventional materials for an equivalent R-value. Another problem is the limited supply of natural cork. It wouldn't take many builders, he said, to seriously deplete the supply: leaving none to stopper our wine bottles. If you're concerned about that, Bierman-Lytle noted there are other safe, natural materials you can use for insulation, including coconut fibers and clay pebbles.

Another option—and the only product produced in the U.S. that he recommends—is Air-Krete, a magnesium-silicate product that is injected into stud cavities and insulates at about R-4 per inch. It's harmless, he said, and completely fireproof. Though there aren't many installers of Air-Krete, there are some in New England, many of whom are willing to travel to relatively distant projects. (To find a local installer, contact Air-Krete Inc., P.O. Box 380, Weedsport, NY 13166, 315/834-6609.)

In general, all "safe" options will add from 10 to 25 percent to the cost of an insulating job, Bierman-Lytle said.

Bierman-Lytle's approach may never become standard practice. But extreme positions will likely lead the rest of us toward a greater awareness of the materials with which we work. Already, wood-laminate manufacturers are reducing the formaldehyde outgassing of their products, and we can expect to see a new emphasis on the use of dust masks and respirators in the workplace. And we can look forward to many new building products—some of which are already being used in Europe—that are healthier for those who manufacture, install, and live with them.

Bierman-Lytle has recently formed a new company, HealthMasters, which offers consulting services on the health aspects of building and construction materials. The company also imports various nontoxic paints, finishes, caulks, insulation (including, of course, cork), and other construction materials from Europe. For further information, contact HealthMasters Inc., P.O. Box 514, New Canaan, CT 06840, 203/966-3541. ■

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