"R" Wars — Cellulose and Fiberglass Duke It Out

by Tim Maker

In 1990, a California contractor lost a $56,000 suit brought by a homeowner who charged that she had been made sick by loose-fill fiberglass attic insulation sucked in through gaps in her hvac ducts. But the case, while significant, was just one skirmish in what has shaped up as an all-out turf war between the manufacturers of fiberglass and cellulose for the loose-fill attic insulation market. The fiberglass industry questions cellulose's claims of fire retardancy, while cellulose manufacturers say that fiberglass is carcinogenic. With each side producing volumes of evidence to support its charges, what's the builder to believe?

Cellulose Attacks

An organization called "Victims of Fiberglass" (VOF) has been a standard bearer in the effort to portray loose-fill fiberglass as a cancer risk for both insulators and homeowners. The results of its efforts have been mixed. The fact that VOF's founder was the director of the Cellulose Marketing Council at the same time he headed VOF hasn't helped the organization's credibility; on the other hand, VOF has had some success in publicizing its position. Concerns raised by the organization were aired in a lengthy article in the September 7, 1992, issue of *Barron's* magazine, as well as in the *New York Times* and *Wall Street Journal*. The *Barron's* article noted that although researchers have not been able to link fiberglass to cancer among employees of fiberglass manufacturers, the product has been common for less than 30 years — not long enough to make conclusive correlations.

Of greater concern to builders and insulators is the view of asbestos researcher Irving Selikoff of the Mt. Sinai School of Medicine in New York City. Selikoff was quoted as saying that construction workers' exposure to airborne fiberglass could be 100 times higher than factory workers' exposure.

▲*Fiberglass* *Cellullose*▼

Conflicting claims are generating more heat than R-value.

Fiberglass Counters

The fiberglass industry has responded in part with an opinion piece written earlier this year by a British pathologist in the *British Journal of Industrial Medicine*. Dr. J.M.G. Davis calls for toxicological testing of dust from cellulose insulation. Not only did Davis lack specific evidence, however; the Cellulose Insulation Manufacturers' Association also charged that he was on retainer to the fiberglass industry.

But the Davis article was only a sideshow. The fiberglass companies have launched their biggest attack not on health, but on cellulose's claims to fire safety. CertainTeed Corporation, one of the "big three" fiberglass companies, issued a white paper earlier this year titled "Cellulose Insulation Flammability." The paper charged that while cellulose comes out of the plant with adequate fire retardancy, it might not maintain its fire retardancy over time. The paper also reported that, when involved in a house fire, cellulose tended to smolder and re-ignite after firefighters had extinguished the fire.

These charges, if they're made to stick, could reverse the widespread confidence among researchers in the fire-retardant chemicals used in cellulose. The white paper cites field evidence showing that the level of fire-retardant chemicals in cellulose can decrease over time, with the result that after as little as two years the material will no longer pass a standard fire-retardancy test. A leading researcher at the Oak Ridge National Laboratory, however, has questioned the test methods used.

Effectiveness Issues

The cellulose industry also claims that fiberglass doesn't insulate very well in cold weather. These claims are based on computer simulations sponsored by the Oak Ridge National Laboratory in 1990 that demonstrated that one brand of low-density (0.5 lb. per cu. ft.) blown fiberglass lost much of its effective R-value at very low temperatures — as much as 50% at –18°F, because of air movement through the top layer of the insulation.

But most attics, even those built in 8,000-degree-day climates (Minneapolis, for instance), spend very little time at –18°F. Oak Ridge calculates that with low-density blown fiberglass attic insulation the loss of R-value in such a climate will only cost $14 per year for a gas-heated house. If that's too much, you can use a high-density loose-fill fiberglass such as Owens Corning "Standard Blend," which doesn't lose its R-value at low temperatures.

For cellulose, the big question is settling. When blown into an attic, loose-fill cellulose settles on the order of 10% to 20% after installation. The Federal Trade Commission requires that cellulose be labeled with the number of bags (per 1,000 sq. ft.) needed to achieve a particular R-value. FTC rules also require that the *settled* thickness of insulation for that R-value be listed. As a practical matter, however, it's much easier for contractors to install to a thickness than a bag count, so they want manufacturers to label with both the installed and settled thickness.

Fiberglass manufacturers, on the other hand, say that blown fiberglass doesn't settle at all. The cellulose industry counters that fiberglass hasn't been tested and should have FTC test and labeling requirements similar to those for cellulose.

The Bottom Line

It's important to remember that despite the disturbing nature of the charges, the real story behind all the rhetoric is a battle over market share.

However given the history of asbestos — a similar mineral fiber — it's not hard to imagine that airborne glass fibers could pose a health risk, particularly to those blowing it into attics. That cellulose, which is basically ground-up newsprint, would pose a comparable risk seems less likely.

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Insulators I have spoken with say that, for both products, the Insulation Contractors Association of America and the individual manufacturers do a good job of explaining the health risks to installers. They also say that proper safety equipment — goggles and respirator masks (NOT paper masks) — is mandatory when installing any insulation product. As for risks to the homeowner, the best strategy is not to route ducts through loose-fill insulation. If the design leaves no choice in the matter, then the installer should take extra care to seal the ducts.

Most large insulating contractors who install both products favor cellulose for attic insulation, mainly because it's less expensive for the same R-value than with blown fiberglass. And while it's easy to imagine ground-up newspaper as a fire hazard, at least 20 years' experience with cellulose insulation, and the lack of documented cases where cellulose was implicated as a cause of house fires, leads most observers — myself included — to treat it as a safe and reliable product. ■

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