



Cellulose Insulation Manufacturers Association

136 S. Keowee Street ❖ Dayton, Ohio 45402 ❖ 937/222-2462 FAX 937/222-5794

A statement by:

Daniel Lea, Executive Director
Cellulose Insulation Manufacturers Assn.

The idea that cellulose insulation supports or promotes fungal contamination of insulated building assemblies is false. In fact, just the opposite is true. Cellulose insulation actively resists fungal colonization. To meet the stringent fire resistance requirements of industry standards and the federal government cellulose insulation is treated with fire retardants. Boric acid and various forms of borax are ubiquitous cellulose insulation fire retardants. In fact, I am not sure if it is possible to make cellulose insulation that would conform with all applicable performance requirements without using boric acid and borax.

In addition to being highly-effective fire retardants, boric acid and borax are, if not technically fungicides, toxic to fungi. Environments rich in borates are inimicable to fungal growth. In so far as I know there is no cellulose insulation marketed in the United States that does not contain borates at concentrations equal to or greater than those that have been proven to be effective in topical application for insect and fungi control. In other words, by its very nature cellulose insulation is insect and fungi resistant. All ASTM standards for cellulose insulation – C739 for loose-fill insulation, C1149 for spray-applied materials, and C1497 for stabilized cellulose – require testing of the material for fungi resistance.

Some mycology and environmental health “experts” – I put the word “expert” in quotes because a true expert knows what he or she is talking about – who see only the word “cellulose” in “cellulose insulation” have erroneously claimed that cellulose insulation promotes fungal contamination of buildings. These “experts” apparently have not read the published literature on the subject, which clearly shows that the most serious cases of fungal contamination of insulation have all involved fiber glass insulation. This has also been reported in the mass media. At least two of the major over-the-air television networks and one of the syndicated “tabloid” programs have broadcast stories about homes that were rendered unlivable due to fungal contamination of insulation. In all cases the insulation was fiber glass.

In April 2001 St. Charles East High School in St. Charles, Illinois, was closed due to serious fungal contamination. Here are sections from the report of the environmental consultants employed by the school district to assess the condition.

*. . .there was fungal growth on the glue beneath the 12" floor tile along the northwest-contaminated wall of Rooms 154 and 155, **on the fiberglass insulation** in both rooms, and on the interior wall behind the drywall in Room 155. It was also discovered that during the previous abatement of Room 154, the area in a wall air vent had not been inspected and no abatement was conducted in this area. **There was significant black fungal growth on the walls and fiberglass insulation.***

And

*The bulk sample results indicate the presence of fungal contamination on various surfaces including: a ceiling tile (*Aspergillus niger* of 2,000 CFU/g); a HVAC return grill in Room 136 (*Penicillium* species variation 1 of 3.6 million CFU/g); beneath the teacher's desk in Room 130 (*Cladosporium* of 6.7 million CFU/g); and, **fiberglass behind drywall in Room 155 (total 70,000 CFU/g including 27% *Penicillium* and 9% *Stachybotrys*).***

And

*The fiberglass insulation behind the drywall in Room 155 indicates 370,000 CFU/g of bacteria comprised of 95% *Corynebacterium* species and 2% Coag-negative *Staphylococcus* and 1% Fermentative gram negative species.*

How, one may ask, can fungi grow on glass? It's not the glass that provides the nutrients necessary for fungal growth, it's the organic materials that collect on the glass fibers. The fiber glass forms a convenient matrix that traps dirt and dust – fiber glass is one of the most common air filter materials – along with enough moisture to activate fungus spores. Unlike cellulose, however, fiber glass has no borates to inhibit the growth and spread of fungi throughout the insulation.

A toxicology consultant to CIMA recently attended a conference in which an “expert” giving a presentation on environmental health showed pictures of a roof structure in which exposed beams and trusses had been sprayed with cellulose commercial spray for fire protection and acoustical purposes. This “expert” claimed the cellulose promoted mold growth. The CIMA consultant called the attention of the “expert” and the audience to a major problem with this statement. The only parts of the roof structure that showed no evidence of mold growth were the areas covered with cellulose insulation. When pressed to defend his statement the “expert” admitted that he really knew nothing about cellulose insulation. He had no idea how it was made, what it contained, or what standards apply to it. He just made an assumption based on the word “cellulose.” The assumption was totally inaccurate, as his own photographs showed.

This is how myths about cellulose insulation as a fungal growth medium are created and spread. The irony is that anyone who believes these myths may end up specifying an insulation that is highly susceptible to fungi colonization, instead of the material that would have made the insulated assembly more resistant to fungal contamination.