Rising concerns about mold and indoor air quality could mean that fireproofing contractors have to rethink the way they approach business.

It is not safe to assume owners, architects and general contractors grasp the amount of water needed to spray on fireproofing, nor is it safe to assume they don’t care. Not with newspapers and television news magazines focusing on “killer mold,” and with environmental consultants, air-conditioning contractors and trial lawyers all fanning such concerns to increase their own business.

If contractors know from manufacturers that the volume of water used in applying sprayed-on fireproofing could promote a mold problem, “I’d make sure they were getting the information out and getting it addressed at the earliest possible stage so we could allocate risk properly,” said Jeffrey Coverdell, a construction attorney with the St. Louis, Mo., office of Husch & Eppenberger. “I’d address it in the contract. I’d put time lines or directions in the contract if necessary to make sure architects and general contractors have the information.”

Even if manufacturers aren’t saying the water can create a problem, contractors should know it anyway, so said environmental consultants, many of whom are ready to lay the blame for mold problems squarely at the foot of the fireproofing contractor.

One fireproofing product requires 11 gallons of water per bag of product to apply it. Consultant Donald Gatley said, “If you put that much moisture load in a room, you either have to get rid of it, or you
have a problem." Gatley, president of Atlanta-based Gatley and Associates, has co-written a book and numerous articles on mold, mildew and indoor air quality. He is a fellow in the American Society of Heating, Refrigeration, and Air Conditioning Engineers.

Virginia Peart, a prominent expert on building mold problems, who was formerly with the Florida Cooperative Extension Service, said contractors should realize that four things are necessary to support mold growth: mold spores, mold food, warmth and humidity. Of those, humidity is the only one that we can really control.

Mold spores, the tiny, hard “seeds” of mold are everywhere, probably in every breath we take, she said, and we cannot eliminate them from normal buildings. When there is a mold growth problem, there can be several thousand spores in every cubic foot of air, she said. Since molds eat organic compounds such as wood, gypsum board, paper, and even residues from soap and body oils, such as fingerprints, we can’t eliminate their food. And, molds like the same range of temperatures that people are comfortable in. That leaves controlling humidity as the most practical method of controlling mold growth.

In new construction, there may not be any food source for mold when a contractor applies the fireproofing. But, if the weather is warm and a general contractor has gypsum board or acoustical tiles installed over the fireproofing before it has cured, that could create a problem. Gatley said he knows of a building in Boston where the owners ended up suing contractors because of indoor air quality problems. In that case, the HVAC system became contaminated because the return air supply was drawn through the ceiling plenum, which is where the initial mold growth occurred as a result of moisture dripping from the fireproofing onto the ceiling tiles.

That is why a subcontractor might want to specify a time line for curing the fireproofing, said Coverdell. “This may be a problem that subcontractors know more about than generals,” he explained.

In a renovation or retrofit job, mold food sources already may be present in the form of drywall, wooden tables or cabinets, carpet or paper. Because of the volume of cellulose products they contain, schools may be the worst facilities for potential mold growth to retrofit.

Many fireproofing contractors may think they are protected by fungicides in the fireproofing. W.R. Grace & Co. Regional Manager Michael Sheahan said his company’s product cannot be responsible for mold growth because the fungicide will kick in and kill any mold that tries to grow on it. But that only inhibits mold growth on the fireproofing itself, however, not on other surfaces.

By understanding why mold growth occurs, contractors can understand why moisture is
the culprit, said Trudy Smith, a project manager at St. Louis-based consultant Environmental Solutions. Often, it was the only thing lacking to get growth started. With the amount of water fireproofing contractors put into a room, “if you don’t remove it, you create a mold farm,” said Bernie Mittelstaedt, director of sales for the Therma-store Products Div. of DEC International, a manufacturer of industrial dehumidifiers.

So how much humidity is necessary to promote mold growth on a surface? According to Gatley, there has to be enough to condense on the surface for 24 hours, or the relative humidity at a surface has to be at least 80 percent for 30 days without interruption. That’s equivalent to a relative humidity reading in the center of the room of 65-70, he said.

**What Is a Contractor to Do?**

After explaining to the owner, architect and general contractor the amount of water used in spraying on fireproofing, and the potential impact of all that moisture, he should find out if the building HVAC system has a dehumidifier that can handle it, Mittelstaedt said. If not, and the responsibility for drying the air is going to rest with the subcontractor, Gatley said: “He’ll have to get industrial humidifiers or bring in a commercial drying contractor.”

Gatley recommends portable DEC humidifiers. “We sell a lot to contractors,” Mittelstaedt said. “That is our niche.”

The typical humidifier available from an appliance store or consumer hardware store can remove up to five gallons of water a day “We call that a toy,” Mittelstaedt said. DEC’s Phoenix contractor dehumidifier, which plugs into a standard wall outlet, can remove up to 38 gallons of water a day If a couple of those aren’t enough, commercial drying contractors, the type hired by a building owner after a flood or a fire sprinkler release, can do the job. They use desiccants (drying agents) and truck-mounted dehumidifiers with 20-inch air ducts.

Of course, whether you actually need to dehumidify the air depends on the type of job, the construction schedule, your agreement with the owner and the weather. If you are retrofitting a school, “it would be nice to do it during Christmas vacation and ventilate with the dry outside air,” Gatley said, but that is not likely to happen.

The first thing to worry about, however, is the contract, Coverdell said. Make sure the architect and general contractor or construction manager understand the potential problem, then negotiate who will have the responsibility for dehumidifying, and who will pay for it.

**About the Author**

Peter Downs is a freelance writer from St. Louis, Mo.