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Up in Smoke

Historic Restoration Project Presents Unique Challenges

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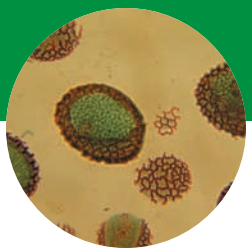

By Michael A. Pinto, CSP, CMP

An Environmental "Mash-Up" – Part 3: Mercury, Lead & Cadmium Hazards

The pace of information available that can significantly impact the cleaning and restoration industry is accelerating on a daily basis. Over the past couple of issues I have identified and explained some of the recent studies and occurrences that can have a positive effect in terms of business development, or a negative effect with regards to regulatory/legal punishments. Since these items of interest have come from a variety of sources and touch on many different aspects of the cleaning and restoration industry, I grouped them under the heading of "environmental mash-up;" a term used in music to describe when DJs blend parts of disparate songs to create something new from existing materials that do not seem to have many commonalities. This month's installment of my environmental mash-up has a little something for everyone in the industry even if you're strictly on the cleaning side rather than remediation.

Mercury in Old Gym Floors is a Potential Environmental Concern Even From a Cleaning Perspective

Although it has not received a lot of publicity, information has come to light in the last few years that older gymnasium floors, which were finished with a polyurethane coating, can have measurable amounts of the heavy metal mercury in them. While the amount of mercury is small, generally 0.1 percent to 0.2 percent by weight, disturbing the flooring through aggressive cleaning, refinishing or repair can result in hazardous levels of mercury impregnating dust in the air.

This situation of accidental disturbances of the mercury floor finish causing problems has happened so often that in September 2005, the Oregon Department of Human Services issued a health advisory which stated in part:

> It has recently come to our attention that 3M Tartan flooring used widely in the U.S. in public buildings, schools, gymnasia, etc. from approximately 1950 through the early 1970s, contains mercury as a stabilizer and with aging and mechanical damage, the mercury can escape as mercury vapor… Mechanical injury and normal aging of the flooring leads to increasing release of mercury. Removal or other major disturbances of the flooring can produce dangerous levels of mercury in air…If your school facilities have any 3M Tartan flooring, you may want to consider having a commercial industrial hygiene firm perform mercury vapor tests in affected rooms, especially if the flooring is aging, softening or breaking up.[1]

Restoration contractors have to be especially careful when dealing with water losses or other damage that may require cutting or removing hardwood floors, even if the floor was installed after 1970. Just as when schools put carpet over vinyl asbestos tile as a temporary means to limit exposure, it is quite common that schools installed another gym floor, whether wood or synthetic, on top of an old 3M Tartan or Robbins Chemturf floor instead of spending the money to abate the mercury in the old finish.

In a case that is still ongoing, a restoration company conducted less than $3,000 worth of repairs to a hardwood floor, but had the saw blade set too deep and cut into the lower mercury contaminated flooring. The school district now has an estimate of $450,000 for cleanup and abatement that they are trying to pass on to the restoration firm.

Nor is the restoration company "off the hook" if it is a total demolition. The EPA's National Emission Standards for Hazardous Air Pollutants (NESHAPs) requires appropriate abatement prior to renovations and/or repairs that may cause air emissions.

Lead in Ceramic Tiles Can Also Cause Exposure Problems When Disturbed

A more recent study by a group called "healthystuff.org" reported that their testing of common home improvement products showed a number of hazardous materials that had not been previously disclosed. For example, 3/4 of ceramic tile samples tested contained lead, with levels as high as 1,900 parts per million. By comparison, the Consumer Product Safety Commission (CPSC) standard for lead in children's products is currently 300 parts per million, with that level scheduled to drop to 100 ppm[1] in August 2011.

While the spokesperson for healthystuff.org was most concerned about potential exposure from normal wear and tear, the real risk is to workers performing demolition on the tile; whether it is do-it-yourselfers or professional restoration contractors. Intentional breaking of the tile, or worse, cutting with a high-speed drill, disk or blade, is where the lead dust is really going to fly!

This is just another reason why cleaning and restoration contractors should be outfitting their workers with personal protective equipment for virtually all cleaning and remediation activities.

Still Concerns about Lead in Home Furnishings and Toys

Lead in ceramic tile is not the only source of exposure to be concerned about. Surprisingly, even though lead in paint has been banned in the U.S. since 1978, the use of lead in plastic has not been outlawed. Lead is strictly regulated in plastic products manufactured in the U.S. and Canada, but similar restrictions are either lacking or poorly enforced in many nations that supply consumer goods such as vinyl mini-blinds, electrical switch plates, vinyl-base molding, power cables for electronics, and toys to the North American market.

Lead is still commonly used by foreign manufacturers for plastic and vinyl items as it softens and stabilizes the plastic. However, when the plastic is exposed to substances such as sunlight, air, and detergents, the plastic breaks down and may form lead dust. Restoration workers cleaning or removing such household goods following a flood or fire are at an increased risk of lead exposure because the heat or moisture may have brought the lead to the surface of the plastic items. The Lead Check swabs that I have recommended in previous columns for checking lead content on painted surfaces are also appropriate for checking such household items.

Even Wallpaper May Pose Risks From Environmental Contaminants

If it is not lead or mercury, it is another heavy metal: cadmium. The same study that found lead in ceramic tiles tested 2,312 types of wallpaper. The wallpaper samples were tested with X-ray fluorescence (XRF) analyzer, which reportedly measures chemicals at or close to the surface. Among wallpapers, more than half contained one or more hazardous chemicals, primarily cadmium and lead. One in eight contained cadmium levels over 100 parts per million.

Once again, the study found that cadmium and lead were not used in any U.S. made wallpaper products, but acknowledged they were commonly found as contaminants in imports. Unfortunately, once a product is installed in the building as wall covering, it is virtually impossible for a cleaning or restoration contractor to know whether it is from North America or of foreign origin. At this point it is too early to tell whether the heavy metals in the wallpaper pose an exposure risk for either the occupants or cleaning and restoration contractors who are disturbing the surfaces.

Next month in Part 4, we'll look at links between asthma and fungus in the lungs. ■

Michael Pinto, CSP, CMP, is the CEO of Wonder Makers Environmental, Inc. He has over 30 years of safety and environmental experience from jobs in the private sector, the non-profit arena and regulatory agencies. Wonder Makers specializes in identifying microscopic contamination in buildings such as mold, VOCs, infectious agents, asbestos and lead. Pinto is the author of five textbooks and over 150 published articles, and can be reached at map@wondermakers.com

Resources

[1] http://www.cpsc.gov/ABOUT/Cpsia/sect101.html