Georgia Tech

Research News

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"WE'RE WAY BEHIND" IN SOLUTIONS: CONTRACTORS WILL FIND TOUGH PROBLEMS IN LEAD PAINT REMOVAL

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As efforts to solve the nation's asbestos problem continue, some asbestos contractors are moving into what may be the next major area of public health concern: lead-based paint. But contractors moving into lead paint removal will find fewer regulations, less information on appropriate control measures, more difficult testing procedures, little public awareness -- and much less funding for dealing with the problem.

"About a third of the people who take our lead abatement course are asbestos control contractors," said Research Scientist David Jacobs, who directs a course in lead-based paint abatement at the Georgia Institute of Technology. "It would be simplistic to think that people who have been doing asbestos abatement can automatically move into lead paint."

Ingestion of lead-based paint can cause severe neurological injury, particularly among children. It can cause mental retardation, behavior problems, learning disabilities and other health effects that appear to be irreversible. Recent research has shown harm at levels not previously considered hazardous.

Lead-based paint was widely used in the United States until the 1950s, and an estimated 40 million homes now contain it. In many of those homes -- particularly in inner-city areas -- the paint is peeling from the interiors and exteriors of homes.

"The paint eventually deteriorates to dust and becomes part of house dust or the soil in which children play," said Jacobs. "The smaller the dust particle, the more easily it is absorbed into the body. As children crawl around on the floor, they have frequent hand to mouth contact and swallow the lead in the dust."

Researchers once thought children ingested lead paint only by chewing on woodwork. Newer research suggests both settled and airborne lead dust may be a more significant factor. Lead dust can be created, for instance, by the simple raising and lowering of window sashes.

While the danger of lead paint is clear, what should be done about it is not.

As in asbestos abatement, work done to remove lead-based paint can pose a danger in itself. Unless adequate clean-up is done, residents moving back into structures may be harmed by microscopic lead particles left behind. Abatement workers and home remodelers alike may also be poisoned if proper precautions are not taken, Jacobs warned.

The U.S. Department of Housing and Urban Development has recently released guidelines for contractors to use in detecting and abating lead paint hazards in public housing. Research efforts into better control methods have only recently begun, leaving conclusions years away.

"People have been struggling to determine what level of control we really need to have," Jacobs explained. "We still have a long way to go in knowing which abatement techniques work best and how much clean-up is needed."

The operators of buildings containing asbestos are increasingly being urged to leave undamaged materials in place, especially if it is present in inaccessible areas and if proper precautions are taken to prevent it from being disturbed. But because lead paint is often peeling from walls and woodwork which are accessible, no similar strategy appears practical for lead paint -- though certain types of coatings show promise as encapsulants.

Another major problem is finding the lead paint. Not all old paint contains lead, but to know for sure requires costly laboratory testing or less reliable portable X-ray fluorescence testing. Senior Research Scientist Chris Papanicolopoulos at Georgia Tech and researchers at other institutions are working to develop better techniques, but funding is limited.

"We are simply way behind," said Jacobs. "The nation has not devoted enough resources to this problem. We know enough now to begin solving this problem and we have the technology to do much better."

HOW DO YOU DEAL WITH LEAD PAINT?

The best control methods are those which disturb the paint least, said Jacobs. Sanding, dry scraping and open-flame burning are not recommended because they create hazardous dust and lead fumes. If lead-based paint must be removed, chemical strippers, heat guns or heat plates can do the job with less danger.

Dealing with lead paint on woodwork or windows can involve replacing the entire component, avoiding substantial disturbance of the paint. Replacement of old windows can also bring benefits in energy conservation, Jacobs noted.

On large surfaces such as interior walls or exterior boards, a form of encapsulation can be appropriate. Sheetrock can cover interior walls, while siding materials such as aluminum or vinyl can contain peeling or chalking exterior paint.

Regardless of the method, a home's residents and their belongings should be moved out while work is underway. Workers should wear special respirators with high efficiency particle accumulator (HEPA) filters designed to remove tiny dust particles, and should be tested for blood lead levels before, during and after completing the job.

Extensive clean up is required to remove lead dust, including wet-mopping and vacuum cleaning with a special HEPA vacuum cleaner. Home vacuum cleaners, said Jacobs, make matters worse by distributing the fine dust not captured by their filter bags.

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