



LEAD PAINT: A RENOVATOR'S HAZARD

BY CLAYTON DEKORNE

No removal method's risk-free, but simple precautions can minimize hazards

Recent legislation aimed at preventing lead poisoning may pose serious problems for renovators. Regulations such as those enacted by Massachusetts require the certification and eventual licensing of any person involved with the deleading of a building. Certified contractors must also implement safety procedures that are similar to those required in the removal of asbestos, including protective clothing and respirators for all employees, complete isolation of the work area, and clean-up using High-Efficiency Particulate (HEPA) vacs and phosphate washing. What is most startling is that these regulations can apply to anyone engaged in the renovation of a building that contains lead-based paint.

Many homes contain lead paint and consequently a lot of renovators may be affected by such legislation. The Environmental Protection Agency (EPA) estimates that as many as 42 million homes in the U.S. contain lead paint. The use of lead in paint was not restricted until 1973, and it wasn't completely banned until 1978. Therefore, any house built before these dates may contain some of the hazardous paint.

While Massachusetts has the most comprehensive laws on lead paint in existence so far, they are not the only ones. The City of Baltimore, Md., was the first to enact deleading regulations, and these served as a model for the Massachusetts code. Connecticut has drafted similar regulations, but the bill has not yet been passed by the legislature. Maine, Rhode Island, and New Jersey have all enacted lead-poisoning-prevention acts that are considered preliminary to further deleading regulations.

Meanwhile, loud rumblings of

nationwide rulings are coming from the federal government. The 1987 Housing and Community Development Act requires public-housing authorities to remove lead paint in all Section Eight

housing. The Housing Act also called for a demonstration by the Department of Housing and Urban Development (HUD) of different techniques to eliminate the hazards of lead paint. The

demonstration project, scheduled this year, will test 40 different abatement procedures in 200 problem homes repossessed by the Federal Housing Authority. Until the results of this study are published, public-housing authorities are basing their abatement efforts on an interim report from the National Institute of Building Sciences. All the efforts are aimed at fulfilling the McKinney Amendments Act, which has called upon HUD to develop a feasible plan to remove lead-based paint from all federal housing. Congress has even proposed a plan calling for the mandatory removal of lead paint from all private housing that is backed by a federally insured mortgage.

Lead Poisoning

What's all the fuss about? Lead poisoning is a serious health hazard. Lead that is ingested accumulates in the blood and travels wherever calcium travels in the nervous system. Low levels of lead in the blood can cause irritability, hypertension, or depression. High blood levels can cause blood disease, mental retardation, or death.

Children are particularly vulnerable. Because the brain grows quickly in the first four years of life, lead poisoning commonly leads to learning disabilities and behavioral problems in small children. The problem is compounded by infant children's constant desire to put things in their mouths. Lead poisoning can also lead to a miscarriage or premature birth and can limit the development of an unborn child's nervous system. Deleading regulations universally require the posting of signs that restrict small children and pregnant women from entering the job site.

Lead-based paint in place on walls

Removing Lead Safely

The precautions recommended will depend on the method of removal chosen, but primarily consideration should be given to whether or not the building will be occupied during the process. When the building is to remain occupied it is of the utmost importance to protect the household environment, especially if there are pregnant women or young children involved. Even very low levels of lead exposure can cause serious complications for these individuals. Adhering to the following guidelines will minimize both the exposure and health risks involved in the removal of lead-based paint.

- Do not allow pregnant women or children to participate in the stripping process. They should not enter the work area or be exposed to any residue from the process. Routine screening may be indicated if they are living in the house during extended paint restoration.
- Seal the work area from any occupied living areas. Large sheets of plastic are excellent for this when the edges are sealed with tape. Closing a door will not adequately contain lead dust and vapors.
- Wear a respirator with a filter specifically designed to filter lead

particles. Change the filter often. Ordinary dust masks are not sufficient to filter lead particles.

- Do not eat, smoke, or drink in the work area and wash thoroughly before doing so even after leaving the area to avoid ingesting lead.
- Wear full-length coveralls or work clothes. Store them in the work area or in a plastic bag to avoid contaminating the rest of the house. Wash lead contaminated clothing separately.
- Provide active exhaust ventilation for the work area. Simply opening a window is not sufficient.
- Limit the duration of exposure to a half day at a time and less in the cases of dry sanding or burning with a torch.
- Keep the work area clean. Sweep up paint chips and dust daily. Damp mop to keep dust down.
- Dispose of trash properly. Dust, paint chips, and chemical sludge as well as rags and drop cloths are contaminated with lead in a toxic form. Dispose of these materials as hazardous waste. Set out as curbside garbage, they present a real danger to children and pets.

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and woodwork does not present an immediate health hazard. Only when it peels off the wall or is actively removed does it become a problem. Lead dust is especially harmful because it is immediately broken down when ingested. Thus, even if a remodeler is not purposely deleading a house, he can create a hazard by just demolishing a plaster wall or refinishing woodwork.

Business Sense

A contractor can take a few precautions to prevent any real hazards (see "Removing Lead Safely"). This includes taking some legal precautions to reduce liability. A clause should be inserted in a contract or estimate that specifies owner responsibility for a lead paint hazard. In states with deleading regulations in place, this will put the burden of finding a certified deleader on the owner. The deleader then assumes responsibility for removing the hazard according to state guidelines. In states that do not yet have regulations, such a clause can protect you from possible liability if a case of lead poisoning is traced to the site. It cannot protect you, however, if your contract specifically states that you will remove any lead-based paint. You then assume the responsibility for the hazard as a deleader.

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The contractor should also specify that the owner is to pay for testing by a certified laboratory or agency. Even though most old houses are likely sites for lead-based paint, it's worth testing the surfaces of a work area. If a hazard does not exist, it may not be necessary to take costly precautions.

Some public health departments will test a paint sample provided by a homeowner free of charge. The test is called a "wet chemical method." Results are usually returned within two to three weeks. Private testing agencies can also provide this test at a reasonable price. Or they can test for lead paint right on the site using portable equipment. This test, known as X-ray fluorescent spectroscopy, gives immediate results and does not mar the work surface. In New England this test costs between \$40 and \$60.

Removing Lead Paint

There is no completely risk-free method of removing lead-based paint. The least harmful method uses heat guns or plates to soften the old paint so it can be scraped away. Heat temperatures generated by a heat gun are too low to vaporize the lead. Open flame methods are the very worst because they do vaporize the lead. Lead vapors that are breathed in are more quickly absorbed into the blood than lead that is ingested.

Chemical strippers are messy and contain methylene chloride, another dangerous toxin. Moreover, the residue contains hazardous levels of lead. The combined hazard must be disposed of as Class A toxic waste.

Caustic strippers that do not contain methylene chloride contain strong phosphates, which are also hazardous to the user. But the dry chips that are left over can, at least, be disposed of in an ordinary Class C landfill.

By far the worst removal method is dry scraping and sanding. Sanding is especially bad because it creates a fine lead dust that can easily get into eyes, be breathed in, or swallowed. OSHA requires a high-efficiency rated dust mask (3M model 9970 is a disposable high-efficiency respirator).

Dust can easily settle throughout a house. The lead particles are electrostatically charged and are attracted to household surfaces. This makes lead dust hard to remove.

Most regulations insist that a HEPA vacuum must be used to pick up lead dust. Some of the particles are so fine they reportedly pass through the filters of ordinary vacuums. The dust would then be dispersed even more widely. Maryland regulations require a minimum of four HEPA vacuumings followed by phosphate washes for

each job—two before painting and two after.

The use of HEPA vacuums, however, remains controversial. According to Dr. Thomas Spittler, director of the EPA Environmental Service Division Lab in Lexington, Mass., a HEPA vacuum has such a fine filter that it doesn't pull much air through it. Consequently, it doesn't suck up much dust. A HEPA vacuum has "an efficient filter," but is an inefficient vacuum device, says Spittler.

An ordinary vacuum cleaner is often the more practical choice, Spittler feels. Although the ordinary vacuum does not filter out the smallest particles, after multiple vacuumings, it ends up picking up most of the lead hazard, he says. In fact, Spittler has shown that after several minutes of operation, ordinary vacuums begin to trap many of the fine particles in the layer of hair, fibers, and dirt particles that build up on the conventional filter. In effect, the conventional filter ends up doing much of the work of a high-efficiency filter.

Regardless of the vacuum type, the important thing is to reduce the loading of dust particles on household surfaces. Repeated vacuumings are absolutely essential. But preventing the dust from spreading outside the work area is probably the only really safe method to avoid a widespread hazard.

Other Concerns

The existence of lead paint on a site might change the approach you take to solving some details on a project. For instance, walls may be covered over with drywall without demolishing the plaster, and woodwork may be replaced instead of refinished. It is important to remember that raising dust will cause the most problems. For this reason, encapsulating the paint may be worth considering.

Encapsulation is usually considered a short-term solution. Covering over the old paint with new paint is never considered a permanent solution since the surface may be disturbed and the hazard exposed at some future date. But at least the lead is not stirred up into an immediate and possibly widespread hazard. Other encapsulents such as vinyl, gypsum-impregnated fabric, or epoxy finishes may provide a more durable finish. A customer should be made aware of the trade-offs between this solution and another more expensive and complete, but possibly more hazardous, solution.

Preservation requirements should also be taken into consideration. Where state regulations are already in place this may be difficult. Mary Wilford, a restoration contractor in Litchfield, Conn., had to box in the original columns of a farmhouse in Massachusetts to comply with regulations. Chemical strippers would not adequately remove the paint. She did not want to spread the hazard to the four winds by dry scraping and sanding. She chose to box them to at least keep them intact. She is hopeful that an acceptable finish may be found in the future. Unfortunately, the period balusters and railings on the porch had to go.

The Massachusetts regulations now require not only the removal of the paint but the removal of the first layers of wood until no paint can be detected. This requires extensive sanding. Not only will ornate woodwork become obliterated by this procedure but the risk of contamination is increased.

There is an ongoing need to find alternative methods to contain or remove the hazard of lead-based paint. But remodelers and others who are faced with the problem should look for new solutions and question old ones. If we don't, we may be forced into implementing unreasonable solutions.

For More Information

Here are a few persons who can provide additional information about the lead-paint hazard. They welcome both inquiries and input. Contact: Susan Chandler, Architect, Connecticut Historical Commission, Hartford, CT 06103 (203/566-3005); James Keck, Policy Director for the City of Baltimore Department of Health, LeadTec Services, 522 Beck Avenue, Baltimore, MD 21221, (301/682-5323); Dr. Thomas Spittler, Director of Region 1 Environmental Services Div. Laboratory, 60 Westview St., Lexington, MA 02173 (617/860-4300). ■

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