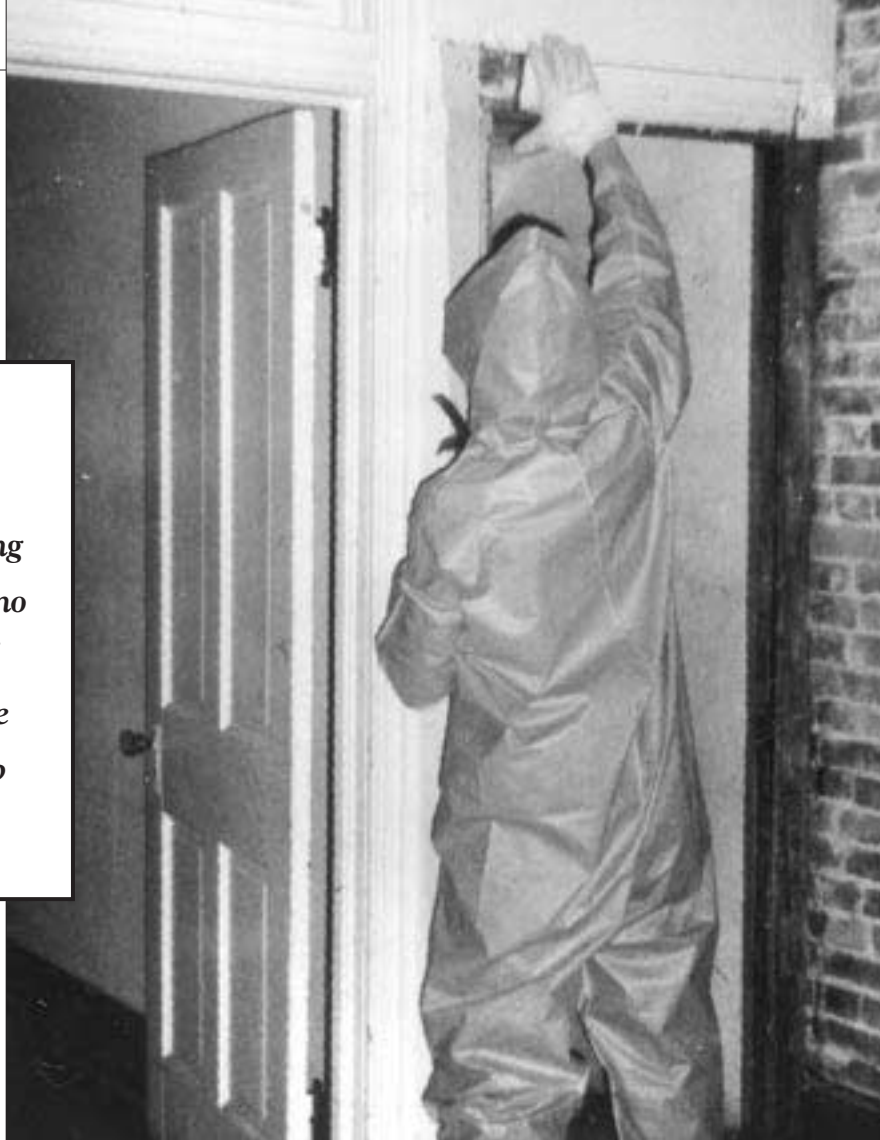


Although lead in paint can pose a serious hazard during remodeling, there's no reason for panic if you take reasonable precautions to keep dust down



Lead Paint Update

by Clayton DeKorne

Editor's note: Four years ago, we ran an article on the hazards of lead-based paint in old houses. At that time legislation to regulate lead paint had just been passed in Massachusetts and Maryland, and was pending in several other states and before the U.S. Congress. Since then, 32 states have passed some form of lead paint legislation, and Title X of the Housing and Community Development Act — the "Residential Lead-Based Paint Hazard Reduction Act of 1992" — was signed into federal law. This bill places strict controls on deleading activity in all federally owned and regulated housing, and is intended to pave the way "to eliminate lead-based paint hazards in all housing." At least one more bill — the "Comprehensive Lead Hazard Reduction Act" (S. 391) — is pending in the Senate Finance Committee. The bill includes a provision that requires disclosure of any lead paint by mortgage companies during all residential property transfers. More bills are likely to follow. In light of this increasing

legislative activity, we thought it was time to revisit this topic. We'll also keep you posted in future issues on any legislative and scientific developments that will affect your work.

Lead has long been known as a serious health hazard, especially for young children. Lead binds to calcium in the blood stream and travels to bones and nerves, where it can disrupt a child's growth and brain development. Even very low levels of lead in the blood of children under the age of seven have been linked to a subtle loss of I.Q. and to behavioral problems. Thus, health officials have set themselves the task of identifying the primary sources of environmental lead and taking whatever steps necessary to reduce the risk for children.

While children's blood lead levels have gone down significantly over the past two decades, largely as a result of deleading gasoline in the

1970s, lead remains a serious hazard. Lead poisoning affects over 3 million U.S. children each year.

These days, health experts agree that the principal cause of lead exposure for children is the lead in house dust. However, just where the lead in the dust originates is still debated. Some researchers suspect lead may come from soil dust and air emissions, and others point to the lead in old paint as the primary source. While no studies have drawn this link conclusively, enough evidence points to the paint that the Centers for Disease Control have named lead paint the "most common high-dose source of lead exposure for preschool children." This statement has prompted legislators and health officials to push for laws that regulate all work in houses with lead paint.

As a first step towards reducing the lead risk, many states have passed lead poisoning prevention laws.

Most of these allocate money for programs to test the blood lead levels of young children. This will allow health officials to identify possible sources of lead before they cause serious cases of lead poisoning. Some states have gone beyond this to institute regulations that require training and certification for contractors involved in any *deleading activity* — work done specifically to reduce a building's lead content. So far, none of these laws affects ordinary remodeling, house repairs, or repainting in private homes. But around the nation, health, environmental, and labor agencies are debating the question: Should the definition of deleading encompass all work that disturbs lead paint?

The Extent of the Hazard

Lead exists in nearly all old houses. The use of lead in paint was not restricted until 1973, and it wasn't

Answers to Clients' Questions About Lead Paint

The hazards of lead-based paint have been well publicized in newspapers and on television. As more and more states push for stricter deleading regulations, these stories will appear again and again. So don't be surprised if your clients inundate you with questions. Although lead paint in old houses can be a serious hazard when disturbed in the course of remodeling, facts will serve everyone's needs better than sensationalism and hysteria. To help set the record straight, we have answered as accurately as possible a few of the most likely questions you'll hear. You should study these answers carefully so you can reassure clients without arousing either false confidence or increased anxiety.

Q. *Should I have my children's blood tested for lead?*

A. Regardless of whether you have detected the presence of lead-based paint in your home, many health experts recommend that all children below the age of seven have their blood lead level tested. Children should be tested at least once before the age of three, and then again at age six.

Q. *What is a safe blood lead level?*

A. Health officials recommend that a child's blood lead level stay below 10 µg/dl (micrograms of lead per deciliter of blood). If the child's blood lead level is at or just over 10 µg/dl, your child does not have lead poisoning, but the child does have a blood lead level that is higher than normal. Although no immedi-

ate action is required, your pediatrician will notify the public health department. If many children in the area have similar levels, the health agency will want to identify the source of the lead and eliminate it before they have actual lead poisoning cases on their hands.

If the child's blood lead level is between 15 and 19 µg/dl, then the health agency will probably send a public health worker to your house to work directly with you to identify the source of lead and discuss reasonable steps to eliminate the risk to your child. In addition, a regular schedule of blood screenings will be set up to see if the child's blood lead rises.

Blood lead levels above 20 µg/dl are generally considered serious, but below 45 µg/dl there is no specific medical treatment for lead. Usually a health worker will visit you within ten days to identify the lead source and reduce the risk. At 45 µg/dl, the child has severe lead poisoning and prompt chelation therapy may be required. At this level the health department will require that the lead source be removed before the child can return to the house. If the source turns out to be the paint in your house, full-scale abatement will probably be required. Some states have provisions for low-interest loans to help finance this work.

Levels at or above 70 µg/dl are treated as medical emergencies, and the child must be hospitalized immediately.

If you have further questions about the health effects of lead, you should contact your public health department, or the Centers for Dis-

ease Control (Dept. of Health and Human Services, Lead Poisoning Prevention Services, Atlanta, GA 30333; 404/488-7330) for a free copy of *Preventing Lead Poisoning in Young Children*.

Q. *If lead is detected in the paint, should it be removed?*

A. Not necessarily. Even if you detect lead paint in your house, you may not have a hazard on your hands. Much depends on the location and condition of the paint. Chances are high that the top layers of paint do not contain lead, so only if the paint is cracked and peeling is there a strong likelihood of high lead dust levels from paint.

Q. *What are my options if lead paint is found?*

A. If the budget allows, full abatement of the lead-based paint is the most reliable means of completely removing the hazard from a house. The average cost for a single-family home is about \$7,500, and you'll have to move out of the house while the work is conducted.

If the paint is cracked and peeling, you can safely paint over it to contain the hazard. This is a temporary fix, however, and if the paint is chipped again, the hazard will be exposed once more. Nevertheless, if you repaint and clean on a regular basis, this approach is often effective.

It is very important that you don't first try to strip the paint with chemical strippers or burn it off with a torch. Most importantly, don't dry-sand and scrape to remove

old paint as you prep. Lots of children have become poisoned as a result of their parent's renovations.

To prep for repainting, sponge the surface down with water and wet-scrape. Remove only the large flakes; don't scrape so much that you pulverize the paint to a fine dust. If the paint layers are thick and there is extensive peeling, the surface will appear mottled under the new layer of paint. It will be very difficult to smooth the surface without causing a serious lead hazard. If the mottled look is unacceptable, you should consider replacing the woodwork and covering walls and ceilings with new drywall.

A hazard can also be caused by the opening and closing of windows and doors. The scraping action may abrade the painted surfaces and release lead dust into your home. You may wish to replace these doors and windows along with their jambs. Also check painted floors, stairs, and steps. If these test positive for lead paint, you may want to have the floors covered with vinyl flooring or replaced altogether. Be sure to check the paint both inside and outside the house. Lead is less common in interior paint, but is very common in exterior paint.

Lead poisoning is indeed a serious health risk. There is no need for panic, however. In most cases, reasonable precautions can prevent any harm during building renovations. Your best allies are knowledge of lead risks and common sense on the parts of both the homeowners and the contractor.

— C.D.

completely banned until 1978. Lead is most common in houses built before 1960. It is often found on house exteriors, where lead was added to improve the weatherability of the paint. But there is plenty of lead on interior surfaces, as well. Before 1960, lead was the most common white pigment used in paint, so nearly all light-colored paints used from that period have a strong chance of containing some lead. The older the paint, the higher the concentration is likely to be.

Current estimates of the hazard from lead show that lead poisoning occurs most frequently in low-income, inner-city neighborhoods because of the poor quality of painted surfaces in much of the housing. However, there have been thousands of cases of lead poisoning linked to lead-based paint in more affluent neighborhoods, and many of these cases were caused by lead that

was released when a homeowner or contractor stripped paint from interior woodwork and walls. Also, studies have shown conclusively that burning or sanding off lead paint can increase the amount of ingestible or inhalable lead in buildings. These facts have led many to the conclusion that demolition work, or any work that disturbs existing paint, can increase lead dust levels and elevate blood lead levels in children living in the house.

Even adult workers who are exposed to high concentrations of lead-paint dust on a regular basis have suffered from lead poisoning. In some cases, workers have also exposed their own families to lead poisoning by the lead brought home on their clothes. As a result of such cases, some health officials suspect that there is a greater risk from ordinary renovation work than from intentional abatement with its strict

controls on worker and occupant safety. The EPA is currently studying exactly how remodeling work contributes to the overall lead hazard and how this work should best be controlled. And according to several health officials, legislators in many states are waiting for the EPA results before instituting controls on renovation work in older buildings. But the EPA results aren't due for another 18 to 20 months.

Worker Safety

Whether or not you are now required to protect clients against lead dust by state law, federal law requires you to protect employees. OSHA's new "Lead in Construction Standard" went into effect June 3, 1993. This interim standard covers "all construction work where an employee may be occupationally exposed to lead," and specifically includes "new construction, alter-

ation, repair, or renovation of structures, substrates, or materials that contain lead."

This new standard sets a worker's exposure limit at 50 micrograms of lead dust in a cubic meter of air during an eight-hour work day — a level often reached in the demolition of older homes. If lead dust exceeds the "action level" of 30 micrograms, training and blood tests for workers must be instituted. Over the 30 microgram action level, half-face respirators with HEPA filters and protective clothes are required, and an inspector may limit the amount of time workers are exposed to the dust.

Under the mandatory standard, a contractor would be responsible for performing the air monitoring and showing an inspector documentation of the results. And, according to Dick Morris, Director of Codes and Technology at the National Association of

Home Builders, OSHA's compliance division has proposed constant air monitoring during all remodeling work. This strict interpretation of the

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new standard is facing stiff opposition from remodelers, and Morris is hopeful that air-quality data gathered by HUD will convince OSHA that air monitoring is unnecessary for most remodeling activities. HUD measured the amount of airborne lead during several abatement demonstrations, and found that the lead hazard is low when lead-painted woodwork is removed, or when lead-painted walls are covered with drywall.

Even if you're not worried about an OSHA inspection, however, it's wise to take some basic precautions when working in old houses. Wear a NIOSH-approved HEPA filter mask, such as 3M's model 9970. Also, set up some means for employees to wash up before eating, smoking, and going home. Do this washing at an outdoor spigot, not in the client's bathroom. Wear coveralls during demolition work and insist on workers changing clothes before going home. Health officials further recommend that workers store their work clothes in a plastic bag and wash them separately. They don't have to treat these clothes like radioactive waste, but they should be careful.

Avoid Negligence

In the last few years there have been thousands of lawsuits over lead paint. According to Rhonda Daniels of the Legal Department of the National Association of Home Builders, most of these suits have been brought against landlords for negligence, usually for failing to inform tenants of lead paint in a building. But remodeling contractors, she says, may also face similar liability for negligence.

Avoid paint stripping jobs. In states that have deleading regulations in place, the NAHB Legal Department recommends including specific language in the contract that prohibits extensive removal of lead-based paint except by a trained and state-certified abatement contractor.

But even in states without specific deleading regulations on the books, you may still be liable for negligence if you set out to actively remove the lead paint in a home. In one case in Pennsylvania, where standards for lead abatement have yet to become law, a remodeling contractor was sued for failing to control dust on a job site, to dispose of the debris properly, and, while stripping paint, to inform his client to test her children. These days it is wise to avoid work where you must strip lead paint, unless you are willing to seek training and abide by the accepted federal or state abatement standard.

If your work will disturb painted surfaces — for example, tearing out plaster and woodwork — but does not specifically involve paint stripping, first test the paint. If no lead exists in paint where you are working, there is no reason to take expensive precautions.

If lead does exist, protect your liability by first informing the client of the hazard. Learn as much as you can about the lead laws in your state. Be ready to answer a client's questions and discuss options (see "Answers to Clients' Questions," previous page). With all the media attention lead is receiving, your client's anxiety will likely be high. So the more accurate information you can pass on to them, the more likely you will get the job in the first place.

The NAHB Legal Department further recommends protecting against liability by taking precautions to keep dust low. Describe the procedures you will take to reduce the risk, and then include a clause in the contract or estimate that specifies owner responsibility for the hazard. If this provision is unacceptable to the client, don't accept the job.

Test for lead. The most reliable way to test for lead is to send a paint sample to a qualified lab. Collect a chip that contains all layers of the paint. In most cases, you have to take a sharp chisel to peel up a chip that includes the original first coat. Make sure to take separate samples from walls, woodwork and floors in each room you will be working in. This test will cost between \$35 and \$50 per sample. With most labs you'll need to allow several weeks for the results to come back.

There are a couple of tests that can give immediate results on site. Swab tests that contain a solution that turns pink when rubbed over a lead-containing material are a good indicator that lead paint is present, but these do not accurately measure the amount of lead. These cost less than \$20 for a multi-test kit and are

available in painting supply houses and hardware stores. For best results, carefully feather the paint by lightly sanding to expose every layer of paint.

Another test — *X-ray fluorescent spectroscopy*, or XRF — can give an immediate on-site reading of the amount of lead in the paint. However, this test is very expensive (about \$300), is inaccurate at low concentrations (which might still present a hazard), and is only reliable on flat surfaces.

Dust Control

Many of the procedures recommended to control dust on site are not much different from those you probably already take to keep dust down and make life more pleasant for both workers and clients. Remember that lead dust is not just a nuisance, however; it is a health hazard. You will have to be more conscientious than you are normally.

Here are some proven methods remodelers and certified abatement contractors use to control this dust:

Complete coverup. Isolate the work area from occupied areas of the house. Seal doors with two layers of 6-mil poly. Tape completely around doors, including at the floor. This will mean you have to use a separate entrance, maybe even a window. But then you don't want dusty workers tromping through occupied parts of the house, anyway.

Restrict children and pregnant women from coming into the isolated work area. If a client is pregnant, you should advise her to move off site while the work is going on, or suggest that work be suspended until she and the child are less at risk.

Cover floors with poly to keep dust from working down between floor boards or into carpet. One effective technique is to tape down the poly in 2-foot-wide overlapping strips, so the poly is held secure in the middle, not just along the edge. This will make the poly surface much easier to work on. Keep in mind, however, that poly is difficult to vacuum because the loose sheet keeps getting sucked into the nozzle, and is likely to tear as demolition debris is ground into it. So for long-term projects, it's best to cover the poly with thin plywood or hardboard. Tape the poly to the baseboards and then tape the plywood edges to the poly to keep grit from getting under the panels. This surface will be much easier to clean, and will withstand rough traffic.

Ventilate. Run a window fan to exhaust dusty air outdoors. This will slightly depressurize the rooms you are working in, helping keep dust out of the rest of the house. Make

sure that other windows near the exhaust stream are kept closed.

One contractor I spoke with screws a furnace filter over the fan to keep the bulk of the dust from blowing into a neighbor's house, or from being spread around the neighborhood where it may be picked up by children playing in the yard. If the fan blows onto a sidewalk, he also cordons the area off with safety tape to prevent people from walking right into the exhaust.

Periodic cleanup. Vacuum the work area on a regular basis. Plan to vacuum at the end of each task. If

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you generate a lot of dust, stop and vacuum, then damp mop the area before proceeding. You want to collect as much of the dust as possible so it's not spread around as you work, and this means keeping the work area free of tools and debris. Keep tools in one area and keep them covered with poly.

Plan to leave enough time at the end of each day for a thorough cleanup. Federal abatement protocol calls for three complete vacuum cleanings, followed by three damp moppings. Rinse out the mop often and in lots of water so you don't end up just smearing the dust around.

HEPA vacs are often recommended for cleaning up lead dust. They are required for true abatement work and may soon be required by OSHA. But, at least for now, they are not required for remodeling work, and they probably aren't needed.

Studies by Dr. Thomas Spittler at the EPA Region 1 Lab in Lexington, Mass., show that an ordinary vacuum is sufficient to capture most lead dust generated during remodeling projects. While lead dust can be very fine, dust and dander build up on all vacuum filters. Dr. Spittler has found that after several minutes of vacuuming, ordinary vacuum filters start to approach the filter efficiency of a HEPA filter. Spittler recommends a good-quality wet/dry vacuum. The more air flow and suction you have, the more dust you will pull from surfaces, Spittler says.

Demolition

Demolition creates the most dust, so it is the most risky. Approach the job carefully. Taking a sledge hammer to a room may be more satisfying, but this generates too much dust. Instead, cut walls into sections so you can carry plaster, lath, and stud pieces out as a unit. This will not only reduce the

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amount of dust you create, but is often more efficient. In cases where you do have to shovel dusty debris into buckets, mist it down first. Also, when removing woodwork or painted panels, use a razor knife to cut through the paint at edges. This will help prevent the paint from chipping when the pieces are pried apart.

Use dust collection attachments on cutting tools whenever possible. Some circular saws, such as Skil and Hitachi, offer a vacuum attachment to pull dust away from the cut. In addition, two specialty tool manufacturers, Desco Manufacturing Co. (1445 West Cowles St., Long Beach, CA 90813; 310/437-0456) and Nilfisk of America (300 Technology Dr., Malvern, PA 19355; 215/647-6420) sell dust shrouds with vacuum attachments for Milwaukee Sawzalls.

Finally, be aware of what's on the other side of what you are taking apart, and make sure the dust is contained. For example, you may need to staple poly to the underside of floor joists to keep dust from spreading through a basement or crawlspace as you pull up interior wall plates.

Paint Prep

Paint prep is difficult to do well when lead paint is involved. You should never dry-sand, scrape, or burn paint off. Instead, experts recommend wet-sanding and wet-scraping. Use enough water that the paint dust doesn't become airborne, and to avoid creating a thick paint sludge. Sponge down the surfaces as you go with lots of water, and suck up the runoff with a wet/dry vacuum.

After removing the peeling paint,

prime surfaces with a high-quality primer. The primer will seep into crevices between layers and help lock them together; it also improves the bond between the new coat and the old.

On the exterior, don't sand or burn off paint, and don't scrape or water blast without taking precautions to contain the paint chips or overspray. Experts recommend that you erect scaffolding and enclose it with poly. This, of course, will drastically increase the cost of the job. At the very least, drape the ground and surrounding shrubs so you can collect as much of the old paint as possible. Take real care to keep the work area clean and to dispose of the poly and loose paint chips in sealed garbage bags. ■

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For More Information

The following publications are good sources of information on the hazards of lead paint for contractors:

What Remodelers Need to Know and Do About Lead, An Interim Guide. Available for \$15 from The National Association of Home Builders' Bookstore, 15th & M Streets, NW, Washington, DC 20005; 800/368-5242. A summary of the guide is available free from the NAHB Remodelers Council. Please include a self-addressed stamped envelope.

OSHA Lead in Construction Standard. A copy of the complete standard is available from your state OSHA office, or a summary of this standard is available from the NAHB Remodelers Council. Again, please include a self-addressed stamped envelope.

Comprehensive and Workable Plan for the Abatement of LBP in Privately-Owned Housing. Report to Congress, Dec. 1990. Available for \$4 from HUD USER, P.O. Box 6091, Rockville, MD 20850; 800/245-2691.

Lead Testing and Abatement Directory. A comprehensive listing of lead testing firms, abatement firms, products, publications, government agencies, and organizations affiliated with the environmental lead hazard. Available for \$75 from IAQ Publications, 4520 East-West Hwy. #610, Bethesda, MD 20814; 310/913-0115.