

EPA

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Remodeling Your Home? Have You Considered Indoor Air Quality?

Lead-Based Paint

In general, you should address the following issues when remodeling your home.

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Lead has long been recognized as a harmful environmental pollutant. In late 1991, the Secretary of the Department of Health and Human Services called lead the ***"number one environmental threat to the health of children in the United States."*** There are many ways in which humans are exposed to lead: through air, drinking water, food, contaminated soil, deteriorating paint, and dust. Airborne lead enters the body when an individual breathes or

swallows lead particles or dust once it has settled. Before it was known how harmful lead could be, it was used in paint, gasoline, water pipes, and many other products.

Old lead-based paint is the most significant source of lead exposure in the U.S. today. Most homes built before 1960 contain heavily leaded paint. Some homes built as recently as 1978 may also contain lead paint. This paint could be on window frames, walls, the outside of homes, or other surfaces. Harmful exposures to lead can be created when lead-based paint is improperly removed from surfaces by dry scraping, sanding, or open-flame burning. High concentrations of airborne lead particles in homes can also result from lead dust from outdoor sources, including contaminated soil tracked inside, and use of lead in certain indoor activities such as soldering and stained-glass making.

- [Health Effects of Exposure to Lead](#)
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Health Effects of Exposure to Lead

Lead affects practically all systems within the body. At high levels it can cause convulsions, coma, and even death. Lower levels of lead can adversely affect the brain, central nervous system, blood cells, and kidneys.

The effects of lead exposure on fetuses and young children can be severe. They include delays in physical and mental development, lower IQ levels, shortened attention spans, and increased behavioral problems. Fetuses, infants, and children are more vulnerable to lead exposure than adults since lead is more easily absorbed into growing bodies, and the tissues of small children are more sensitive to the damaging effects of lead. Children may have higher exposures since they are more likely to get lead dust on their hands and then put their fingers or other lead-contaminated objects into their mouths.

Get your child tested for lead exposure. To find out where to do this, call your doctor or local health clinic. For more information on health effects, see [Preventing Lead Poisoning in Young Children \(PDF\)](#) (August 2005), a statement by the Center for Disease Control and Prevention.

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Ways to Reduce Exposure to Lead

Renovation, Repair and Painting (RRP)

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips by disturbing lead-based paint, which can be harmful to adults and children.

To protect against this risk, on April 22, 2008, EPA issued the [Renovation, Repair and Painting Rule](#). It requires that firms performing renovation, repair, and painting projects that disturb lead-based paint in pre-1978 homes, child care facilities and schools be certified by EPA and that they use certified renovators who are trained by EPA-approved training providers to follow lead-safe work practices. Individuals can become certified renovators by taking an eight-hour training course from an EPA-approved training provider. [Learn how to become an EPA certified firm and where to take a training course near you.](#)

Separate remodeling areas from living areas.

It is important to keep the remodeling work, and dust associated with the work, separated from other areas in the home. This can be done using [barriers](#), an [exhaust ventilation strategy](#), and good work practices as described in EPA's 2010 [Renovate Right: Important Lead Hazard Information for Families, Child Care Providers and Schools \(PDF\)](#) (11 pp, 1.1 M, [about PDF](#)), en español ([PDF](#), 11 pp, 2.4 M). Make sure your contractor is aware of these practices, and ask him or her to use them.

Keep areas where children play as dust-free and clean as possible.

Mop floors and wipe window ledges and chewable surfaces such as cribs with either a general all-purpose cleaner or a cleaner made specifically for lead. Wash toys and stuffed animals regularly. Make sure that children wash their hands before meals, nap time, and bedtime. These practices are important at all times, however, pay special attention during remodeling work.

Reduce the risk from lead-based paint.

As mentioned above, most homes built before 1960 contain heavily leaded paint, and some homes built as recently as 1978 may also contain lead paint. This paint could be on window frames, walls, the outside of homes, or other surfaces. Do not burn painted wood since it may contain lead.

Leave lead-based paint undisturbed if it is in good condition – do not sand or burn off paint that may contain lead.

Lead paint in good condition is usually not a problem except in places where painted surfaces rub against each other and create dust (for example, opening a window).

Call the National Lead Information Center www.epa.gov/lead/pubs/nlic.htm call and speak with a specialist Monday through Friday, 8:00 am to 6:00 pm eastern time (except Federal holidays) at **1(800) 424-LEAD [5323]**. The Hotline provides a basic information packet on lead in English and Spanish.

Do not remove lead paint yourself.

Individuals have been poisoned by scraping or sanding lead paint because these activities generate large amounts of lead dust. Consult your state health or housing department for suggestions on which private laboratories or public agencies may be able to help test your home for lead in paint. Home test kits cannot detect small amounts of lead under some conditions. Hire a person with special training for correcting lead paint problems to remove lead-based paint. Occupants, especially children and pregnant women, should leave the building until all work is finished and clean-up is done.

Do not bring lead dust into the home.

During remodeling, avoid tracking dust from the work area throughout the rest of the home. It is also important to avoid bringing lead in from other sources. If you work in construction, demolition, painting, with batteries, in a radiator repair shop or lead factory, or your hobby involves lead, you may unknowingly bring lead into your home on your hands or clothes. You may also be tracking in lead from soil around your home. Soil very close to homes may be contaminated from lead paint on the outside of the building. Soil by roads and highways may be contaminated from years of exhaust fumes from cars and trucks that used leaded gas. Use door mats to wipe your feet before entering the home. If you work with lead in your job or a hobby, change your clothes before you go home and wash these clothes separately. Encourage your children to play in sand and grassy areas instead of dirt which sticks to fingers and toys. Try to keep your children from eating dirt, and make sure they wash their hands when they come inside.

Find out about lead in drinking water.

Most well and city water does not usually contain lead. Water usually picks up lead inside the home from household plumbing that is made with lead materials. The only way to know if there is lead in drinking water is to have it tested. Contact the local health department or the water supplier to find out how to get the water tested. See Lead in Paint, Dust and Soil at www.epa.gov/lead/pubs/leadinfo.htm. See also www.epa.gov/lead for more information about what you can do if you have lead in your drinking water. Call EPA's Safe Drinking Water Hotline (800-426-4791) for more information.

Eat right.

A child who gets enough iron and calcium will absorb less lead. Foods rich in iron include eggs, red meats, and beans. Dairy products are high in calcium. Do not store food or liquid in lead crystal glassware or imported or old pottery. If you reuse old plastic bags to store or carry food, keep the printing on the outside of the bag.

Before ratification of a contract for housing sale or lease, sellers and landlords must:

- Give an EPA-approved information pamphlet on identifying and controlling lead-based paint hazards ("Protect Your Family From Lead In Your Home" pamphlet, currently available in [English](#), [Spanish](#), [Vietnamese](#), [Russian](#), [Arabic](#) and [Somali](#)).
- Disclose any known information concerning lead-based paint or lead-based paint hazards. The seller or landlord must also disclose information such as the location of the lead-based paint and/or lead-based paint hazards, and the condition of the painted surfaces.
- Provide any records and reports on lead-based paint and/or lead-based paint hazards which are available to the seller or landlord (for multi-unit buildings, this requirement includes records and reports concerning common areas and other units, when such information was obtained as a result of a building-wide evaluation).
- Include an attachment to the [contract](#) or [lease](#) (or language inserted in the lease itself) which includes a Lead Warning Statement and confirms that the seller or landlord has complied with all notification requirements. This attachment is to be provided in the same language used in the rest of the contract. Sellers or landlords, and agents, as well as homebuyers or tenants, must sign and date the attachment.
- Sellers must provide homebuyers a 10-day period to conduct a paint inspection or risk assessment for lead-based paint or lead-based paint hazards. Parties may mutually agree, in writing, to lengthen or shorten the time period for inspection. Homebuyers may waive this inspection opportunity.



Types of Housing Covered?

Most private housing, public housing, Federally owned housing, and housing receiving Federal assistance are affected by this rule.

Effective Dates

The regulations became effective on September 6, 1996 for transactions involving owners of more than 4 residential dwellings and on December 6, 1996 for transactions involving owners of 1 to 4 residential dwellings.

Recordkeeping

Sellers and lessors must retain a copy of the disclosures for no less than three years from the date of sale or the date the leasing period begins.

What Can You Do?

If you did not receive the Disclosure of Information on Lead-Based Paint and/or Lead-Based Paint Hazards form when you bought or leased pre-1978 housing, contact **1-800-424-LEAD (5323)**.

What Home Owners Need to Know About Removing Lead-Based Paint

NOTE: If work is being done under an order from a government agency, any method for removing lead-based paint should be cleared with that agency. Special regulations or conditions may apply.

Before the 1970s, household paint often contained lead. As lead paint ages, it can chip or crumble into dust. Exposure to lead-paint dust or chips can cause serious health problems. Children and pregnant women are at higher risk. So, if you live in or own an older home, you need to know how to protect yourself and others.

GETTING STARTED

There are many ways to reduce the hazards of lead-based paint — but SOME METHODS OF REMOVING PAINT ACTUALLY INCREASE THE RISK OF LEAD EXPOSURE. It's important to pick the safest method for your project; the goal is to reduce the hazards while creating as little lead dust as possible.

If lead paint on ceilings and walls is in good repair, then painting them or covering them with wallpaper may be all that is needed to keep the lead paint in place.

BUT —if lead paint is chipping or peeling, or if it's on a surface such as a windowsill or stair rail where children can chew on it, then the lead paint (or the painted material) should be removed or covered. Painted surfaces that rub on each other, such as doors and windows, require special attention to stop the friction. And if the paint has been damaged by other problems, such as water damage due to leaks, then the underlying problem should be fixed first.

SAFETY PRECAUTIONS

BE CAREFUL! During the work, you might stir up dust or create fumes containing lead. This can be very dangerous for adults, children and pets. Always use a method that creates the least amount of dust and fumes.

You should consider hiring a professional contractor with experience in working safely with lead removal. Whether you're going to do the job yourself or hire somebody, it's YOUR responsibility to see that the job is done safely.

Here are some tips:

- Children and pregnant women must not do any lead paint removal work, and they should stay out of the work area until clean-up is complete. (See "Clean-Up" section.) If you're not sure you can clean up every day, arrangements for temporary living quarters should be made.
- Work in one room at a time, and seal off the work area from the rest of the house, including any heating or ventilation ducts, using heavy plastic sheets (6-mil thick is good).

- EVERYTHING in the room (furniture, rugs, carpets, floors, bedding, drapes, dishware, food, toys, etc.) must be removed, or covered with TWO sheets of plastic (again, heavy, 6-mil plastic) and all the seams taped. Plastic used to cover the floor should be secured to the wall or baseboard with duct tape.
- Workers should wear disposable coveralls, shoes, hair covering, goggles and a respirator approved by NIOSH (the National Institute of Occupational Safety and Health) or MSHA (the Mine Safety and Health Administration). Approved respirators will have an approval number on them, (i.e., TC-21C-xxx). Only HEPA (High Efficiency Particulate Air) respirators will filter lead dust and fumes. Simple paper or fabric dust masks will NOT protect a worker from lead dust.
- To avoid ingesting lead, workers should not eat, drink or smoke on the job.
- Workers need to clean up carefully. Before leaving the work area, they should dispose of their coveralls, and remove the dust from their clothes with a HEPA (High-Efficiency Particulate Air) filtered vacuum cleaner. And workers should shower as soon as they can after work, so they don't spread lead dust around their homes.

WHAT TO DO

Enclosure

One way of reducing exposure to lead paint is to cover the surface with a new surface — by putting up drywall or by covering windowsills with vinyl or aluminum, for example. This doesn't require the removal of the lead paint, so this is often the easiest solution. But if the new surface is ever removed or damaged, the lead problem returns. Materials used to enclose lead-painted surfaces should be durable and fire resistant, such as gypsum board, aluminum, vinyl, plywood paneling, laminates, acrylic sheets, plexiglas, fiberglass, or tile.

What you should know about lead testing... Children who may have been exposed to lead-based paint should have a blood test to see if they have elevated blood levels. All children one and two years of age, or who may have been exposed, should be tested. Other children under six years of age, or who may have been exposed, should be tested if their doctors think they are at risk.

Encapsulation

Encapsulation is a technique that bonds materials to the existing painted surface; it's more than just a coat of paint, in that the encapsulant is bonded to the lead paint. It is important to follow product instructions exactly to be sure that a strong, long lasting bond is created.

Replacement

This might be a good time to think about replacement. Sometimes it's easier to replace windows, doors, or woodwork than it is to remove lead-based paint.

Removal

There are several ways to remove lead-based paints:

- **Wire brushing or wet hand scraping** with the aid of a non-flammable solvent or abrasive compound. Liquid paint removers can be used on small areas, such as windowsills, doors and woodwork. Read and follow the manufacturer's instructions and warning labels before

purchasing and using. It is important for workers to use personal protective equipment, such as gloves, safety glasses and disposable coveralls when using some paint removers.

- **Wet hand sanding and/or power sanding with HEPA filters.** Only wet hand sanding and/or an electric sander equipped with a HEPA filtered vacuum attachment should be used. Dry hand sanding should never be done.
- **Heat stripping,** using a low temperature (below 1100 degrees F) heat gun, followed by hand scraping. Heat guns pose a fire hazard, and make lead dust and vapors, so they should be used only by experienced workers wearing respirators.

The following methods of paint removal are hazardous and in some communities illegal, and should NOT be used:

- open flame burning or torching;
- machine sanding or grinding without a HEPA attachment;
- abrasive blasting or sand blasting;
- power washing without a method to trap water and paint chips.

Exterior work should be done on calm days, and wet-misting or vacuuming should be used to control lead dust and paint chips during removal. The ground around the building should be protected with heavy (6-mil) plastic sheets. The outer edges of the sheeting should be raised to trap dust, debris, and liquid wastes. Wastes should be disposed of properly, as described below.

CLEAN-UP

Lead removal will generate lead dust and debris. Unless the house is properly cleaned, *it will be more hazardous after the work than it was before!*

Daily Clean-Up

Everyday, the debris should be misted with water, swept up and placed in double 4-mil or 6- mil plastic bags. Then all surfaces should be wet-dusted and wet-mopped. *This step is very important.*

Final Clean-Up

A HEPA-equipped vacuum should be used on all surfaces (floors, walls, ceilings, woodwork, carpeting, furniture). DO NOT use a standard household vacuum or shop vacuum, which are not designed or equipped to trap lead dust particles. Then wet-mop hardwood surfaces with a solution containing a heavy-duty household cleaner (automatic dishwasher detergent or a lead-specific detergent). The wet-mopping should be followed by another HEPA vacuuming.

Old rugs and carpets should be replaced, if possible; and all furniture, bedding, rugs, carpets, drapes, etc., that were removed prior to work should be cleaned before being brought back in.

DISPOSAL

Debris from lead-based paint removal or renovation may be double-bagged and disposed of in limited quantities in household trash. Lead debris must never be burned. Liquid wastes, including wash water,

must never be dumped onto the ground; waste water should be filtered through a cloth filter before dumping into a sanitary sewer or toilet. The filtered debris can go out with the other trash. The mops and cloths used to clean up lead dust and debris should never be used for any other purpose, and should be disposed of when the job is done.

A FINAL WORD

It is safest not to undertake lead removal on your own. Contact your local health department for additional information or for help in identifying qualified contractors experienced in lead removal.

<http://epaleadtraining.com/epa-lead-pamphlet-rrp/>