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Canada

Dealing with Lead-Based Paints During Renovations

by D. Stevenson

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Scientists are learning that long-term exposure to very low levels of lead can affect the mental development of infants and children. A common source of that exposure is lead-based paint uncovered during home renovations. That has led to renewed concern about the old paint lining the walls of many Canadian homes.

Paint that is disturbed during renovation can pose a significant long-term health hazard to children living in or visiting the building. The dust left behind may contain high levels of lead. This is picked up on children's hands or toys, and ingested when they put their fingers or other objects in their mouths. For these reasons, it is crucial to determine whether lead-based paint is present before beginning renovation work on an older building.

The Use of Lead in Paint

Lead was used as a white pigment in paint until the mid-1950s. Some paints contained as much as 50% lead by weight in the dried film. Even after the introduction of titanium-based pigments, lead was still used in smaller amounts as a drying agent in alkyd paints.

In 1976, the federal government passed regulations under the Hazardous Products Act limiting the amount of lead in interior paint to 0.5% by weight. Exterior paints may contain more lead, but must carry a warning label.

In 1990, members of the Canadian Paint and Coating Association agreed to eliminate all added lead from their products. Virtually none of the paint available to consumers today contains any added lead.

Unless they have already been renovated, most buildings built before the mid-1950s are likely to contain some lead-based paint. Smaller amounts of lead are also a possibility in buildings constructed between then and 1980. Surveys in the U.S. have found that 74% of privately-owned housing built before 1980 contains some lead-based paint. So far, there have been no similar Canadian studies.

Detecting Lead-Based Paint

A number of spot-test kits are available. These contain a chemical solution (usually sodium sulfide) which changes colour when applied to paint which contains lead. The kits are useful as a screening technique, but are not a reliable way of measuring the amount of lead present.

X-ray fluorescence (XRF) devices are used to detect lead in paint that is in place on the wall. These are generally more accurate than the test kits. For best results, they should be used only by a trained technician. XRF analysers are often used in the U.S., but are so far uncommon in Canada.

The most dependable method of detecting lead-based paint is to have a sample analyzed by a commercial testing laboratory. Several samples will have to be taken from different parts of the house. The most reliable laboratories are those certified by the Standards Council of Canada or the Canadian Association for Environmental Analytical Laboratories.

Strategies for Dealing With Lead-Based Paint

When lead-based paint is discovered, there are a number of ways to proceed. If the paint is in good condition, or covered by newer, lead-free paint, the best choice may be to leave it alone. Disturbing the paint may create a problem where one didn't exist before. If doing nothing is not an option, there are three possible strategies: encapsulation, replacement, and removal.

Encapsulation covers over or protects the paint so that residents in the building are not exposed to it. Because the old paint has not been removed, lead problems are still possible during future renovations or demolition. But encapsulation is often the cheapest solution and the one least likely to cause lead problems while work is in progress.

Old paint that is in good condition can be covered by one or more layers of new, lead-free paint. Not all new paints will adhere to the older paint, however. Sanding to improve adhesion is not a good idea, because of the leaded dust that would be created. Instead, a special sealant may have to be applied. Other effective encapsulants include heavy wallpaper, drywall, or panelling.

Encapsulation is an effective treatment for walls, ceilings and other large painted areas. Replacement may be preferable for trim, moulding, baseboards, and removeable components such as doors and windows. These can be removed, discarded, and replaced with new components finished with lead-free paint. Care must be taken during removal and replacement to minimize the production of dust.

Where replacement is not an option (as in the case of heritage renovations, for example), removal may be the only choice. This should be approached with caution, because of the danger lead-based paint presents to both workers and residents.

Safety First

Not all paint-removal methods are suitable for use with lead-based paint. Sanding and sandblasting are not recommended, because of the amount of dust produced. Heat-stripping should not be used either: heat guns or blowtorches may produce toxic lead fumes.

Most authorities recommend instead the use of chemical strippers. These pose hazards of their own, and should be used with caution. Workers should follow the manufacturer's instructions carefully, work only in a well-ventilated area, and have the proper protective equipment.

Wherever possible, building components should be removed and refinished off-site. If this is not possible, a number of safety precautions must be carefully followed to prevent workers and family members from being exposed to dust. These rules represent good working practice whenever the presence of lead-based paint makes the release of dust a possibility, even if paint is not actually being removed.

Working areas should be isolated as much as possible from the rest of the building. Doors, windows and heating vents should be covered over with plastic. Rugs, furniture and floors should also be covered. Workers should wear protective clothing, including a suitable respirator, inside the working area, and remove it whenever they leave.

The working area must be thoroughly cleaned at the end of each working day, with all scrapings and other waste collected and placed in a sealed container. Once all work is finished, a final clean-up, using a high-phosphate detergent and a high-efficiency particle accumulator (HEPA) vacuum, is recommended.

The waste produced in renovations involving lead-based paint is considered in some provinces to be hazardous waste requiring special treatment. Contact your local waste-management authority for more information.

This is only a partial list of safety precautions; for more details, contact the agencies listed at the end of this article.

Where to Get Help

Authorities in the United States have responded more quickly to the problem of lead-based paint than Canadian authorities. A number of states, including Massachusetts, have developed guidelines or licensing regimes for lead-abatement contractors. For more information, contact the Massachusetts Department of Public Health, Childhood Lead Poisoning Prevention Program, 305 South Street, Jamaica Plain, Massachusetts, 02130, U.S.A.

The U.S. Department of Housing and Urban Development has produced a number of reports on lead abatement, which include recommendations for removal methods and safety precautions. For more information, contact HUD User Information, P.O. Box 6091, Rockville, Maryland, 20850, U.S.A., telephone: (301) 251-5154.

Health and Welfare Canada's Environmental Health Directorate can provide more information on the effects of lead on human health. Contact your regional office, listed in the Blue Pages of your telephone directory.

The Canada Mortgage and Housing Corporation is sponsoring lead-abatement research and is developing removal guidelines for contractors. Contact Project Implementation Division, Canada Mortgage and Housing Corporation, 700 Montreal Rd., Ottawa, Ontario, K1A 0P7, telephone: (613) 748-2347, fax: (416) 748-2402, or your regional CMHC office.

Lead-test kits are available from Pace Environs, 81 Finchdene Square, Scarborough, Ontario, M1X 1B4, telephone: (416) 293-4955, toll-free 1-800-359-9000, fax: (416) 293-2492; Abotex Enterprises Limited, 3031 Wildwood Drive, Windsor, Ontario, N8R 1S7 PH: 519-735-8645 or LEAD HOTLINE: 800-268-LEAD (5323) [*revised 97/06/26*]; or HybriVet Systems Inc., 4 Mechanic Street, Suite 205, Natick, Maine, U.S.A., 01760, telephone: (508) 651-7881.

Directories of certified analytical laboratories are available from the Standards Council of Canada, 350 Sparks Street, Ottawa, Ontario, K1R 7S8, telephone: (613) 238-3222, fax: (613) 995-4564; and the Canadian Association for Environmental Analytical Laboratories, 1 Nicholas Street, Suite 532, Ottawa, Ontario, K1N 7B7, telephone: (613) 562-2200.

For more information on the history of lead in paint, contact the Canadian Paint and Coatings Association, 9900 Cavendish Boulevard, Suite 103, St-Laurent, Quebec, H4M 2V2 telephone: (514) 745-2611, fax: (514)745-2031.