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Residential Lead-Based Paint Abatement Hazards

Lead is a metal which can produce harmful effects to the nervous, endocrine, renal, and reproductive systems and can interfere with the body's ability to form blood cells. Lead exposure in young children is a particular hazard because children absorb lead more readily than adults and because the developing nervous systems of children are more susceptible to the effects of lead. Lead exposure from deteriorated residential lead-based paint, contaminated soil, and lead in dust are among the major existing sources of lead exposure among children in the United States.^{1,2}

If lead-based paint is present in a residence, it does not necessarily pose a health risk. The lead may be contained in a manner that poses no hazard. The surfaces or materials containing lead-based paint may be intact or stabilized (for example, painted surfaces or materials that are in good condition and show no signs of damage or deterioration). However, the improper removal or abatement of these intact surfaces or materials can create the potential for lead poisoning especially for small children. Disturbing these surfaces or materials, if not properly done, can produce more lead contaminated dust than existed prior to any abatement activity, thus increasing the potential for exposure to harmful concentrations of lead. This disturbance most often occurs during remodeling or renovation of an existing home or apartment when abatement of this material is not performed in accordance with accepted standards and methods.^{3,4} Improper removal or repair of surfaces containing lead-based paint that is cracking, chipping, peeling or blistering is another source of potentially hazardous lead exposure.

Conclusion

Abatement of lead-based paint hazards could elevate environmental lead and blood lead levels of children if performed incorrectly. Lead-based paint hazards can be eliminated safely if proper procedures are followed.⁵ If a home was built before 1978 (the year lead was phased out as a component of residential paint) and remodeling or renovation is being considered, paint inspection and risk assessment are recommended for an accurate lead hazard evaluation. A paint inspection will identify the lead content of all painted surfaces in a home, but it will not determine whether the paint is a hazard or how it should be handled. A risk assessment will identify sources of serious lead exposure and will determine what actions to take to address these hazards.

The terminology associated with lead-based paint abatement activity can be confusing. The following definitions provide a better understanding of these terms.

Lead-Based Paint - paint or other surface coatings that contain lead equal to or in excess of 1.0 milligrams per square centimeter (mg/cm^2) or more than 0.5 percent by weight.

Lead-Based Paint Hazard - any condition that causes exposure to lead from lead-contaminated dust; bare, lead-contaminated soil; or lead-based paint that is deteriorated or intact lead-based paint present on accessible surfaces, friction surfaces, or impact surfaces that would result in adverse human health effects.

Accessible Surfaces - interior or exterior surfaces painted with lead-based paint that is accessible for a young child to mouth or chew.

Friction Surfaces - an interior or exterior surface that is subject to abrasion or friction, including certain window, floor, and stair surfaces.

Impact Surface - an interior or exterior surface that is subject to damage by repeated impacts, for example, certain parts of door frames.

Abatement - any measure or set of measures designed to permanently eliminate lead-based paint hazards. Abatement includes, but is not limited to:

- Removal of lead-based paint and lead contaminated dust;
- Permanent enclosure or encapsulation of lead-based paint;
- Replacement of lead-painted surfaces or fixtures;
- Removal or covering of lead-contaminated soil;
- Preparation, cleanup, disposal, and post-abatement clearance testing activities associated with such measures.

Unacceptable Lead-Based Paint Abatement Methods

- Open-flame burning or torching.
- Machine sanding, grinding, abrasive blasting or sandblasting, unless used with a High Efficiency Particulate Air (HEPA) vacuum which can remove particles of 0.3 microns or larger from the air and retain them in the unit. Regular household or shop vacuum cleaners are not effective in removing lead dust.
- Removal with a heat gun at temperatures above 1100° Fahrenheit.
- Dry scraping, unless in conjunction with heat guns or around electrical outlets.
- Use of methylene chloride paint removal products.
- Uncontained hydroblasting or high-pressure wash.
- Failure to remove or cover lead-contaminated soil.

For more information concerning lead-based paint hazard abatement, contact the Section of Epidemiology (907) 269-8000.

References:

1. Blood Lead Levels-US 1991-1994 MMWR Vol. 46, No. 7, February 21, 1997.
2. Part VIII, HUD/ EPA (24 CFR Part 35, 40 CFR Part 745) Lead: Requirements for Disclosure of Known Lead-Based Paint and/or Lead-Based Paint Hazards in Housing; Final Rule.
3. Children with Elevated Blood Lead Levels Attributed to Home Renovation and Remodeling Activities—New York, 1993-1994, MMWR Vol. 45/Nos. 51&52, January 3, 1997.

4. Residential Deleading and Blood Lead Levels of Lead-Poisoned Children, Pediatrics, American Academy of Pediatrics, Yona Amitai, M.D., et al. Nov. 1991, Vol. 88, No. 5.
5. EPA - Comprehensive Abatement Performance (CAP) Study, April 1996, Volume I: Summary Report.

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