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Chapter 10: Housing Waste

How To Do It

- ◆ **State and local requirements.** Determine whether your State or local health or environmental department has any requirements for management and disposal of waste from work that may disturb surfaces covered with known or presumed lead-based paint; fulfill those requirements.
- ◆ **Waste categories.** Determine what categories of waste will be generated (low-lead waste content materials, architectural components, concentrated lead waste, or other waste) and follow the recommendations in this chapter.
- ◆ **Liquid wastewater.** Dispose of liquid wastewater in the toilet, not in a storm drain or on the ground.
- ◆ **Disposal acceptance of solid waste wrapping.** Determine if the planned state-approved disposal facility accepts solid waste wrapped in plastic or waste from residential projects (e.g., municipal or construction & demolition waste landfills).
- ◆ **Solid waste wrapping.** Wrap solid waste in heavy-duty plastic (6-mil polyethylene or equivalent); seal all seams.
- ◆ **Bag small waste material.** Place small waste material in heavy-duty plastic (single 6-mil or double 4-mil polyethylene or equivalent) bags and securely tape them shut.
- ◆ **Storing and transport of solid waste.** Store solid waste in a designated, secure area separate from the work area and transport it to a State-licensed or permitted solid-waste landfill.

I. Introduction

In August 2000, the U. S. Environmental Protection Agency (EPA) clarified its policy with respect to the status of waste generated by contractors as well as residents from lead-based paint-disturbing activities conducted in households (household waste) (EPA, 2000a). The clarification provided that the household waste exemption in the Resource Conservation and Recovery Act (RCRA; 42 U.S.C. §6901) applies to waste generated by contractors as well as to waste generated by residents. As a result, the household waste exemption applies to all residential paint-disturbing activities, including abatement, interim control, renovation and remodeling of housing. Types of housing included in the household waste exemption are single-family homes, apartment buildings, public housing, and military barracks. Residential lead-based paint waste is waste generated from these activities and includes, but is not limited to, known or presumed lead-based paint debris, chips, dust, and sludges. In 2003 EPA amended its solid waste regulations to codify this policy (EPA, 2003). A summary fact sheet (publication EPA530-F-03-007), available through EPA's website RCRA Online at www.epa.gov/epawaste/nonhaz/municipal/landfill/lbp_fs.pdf, states that:

Construction and demolition (C&D) landfills are allowed to accept residential lead-based paint (LBP) waste for disposal. So long as these landfills do not accept any other household waste, they do not have to change their current operating practices and procedures. Municipal solid waste landfills also may continue to dispose of residential LBP.

This rule applies to residential LBP waste from abatement, rehabilitation, renovation, or remodeling in homes, residences, and other households. "Household" means single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas. Individuals and firms who create residential LBP waste, such as contractors and do-it-yourselfers, may dispose of LBP waste from these households at C&D landfills.

Household waste falls into four categories, for the purpose of this chapter:

- ◆ Materials that usually have low lead content, such as personal and mop wash water, protective clothing, and plastic sheeting;
- ◆ Architectural debris, such as painted doors, trim, and windows;
- ◆ Concentrated lead waste content materials, such as paint strippings, lead paint chips, and dust; and
- ◆ Other waste.

On the jobsite, waste should be separated into these categories to the extent possible (see Figure 10.1). While RCRA hazardous waste rules do not apply, HUD and EPA both recommend that the lead-safe practices described in this chapter be followed to reduce the likelihood that household waste will contaminate the environment.

States and local governments may institute hazardous waste handling and disposal requirements applicable to lead activities in housing. Owners and contractors should determine what, if any, State or local regulations apply, particularly what may be disposed of at municipal



FIGURE 10.1 Separate waste into categories during work.

solid waste or construction and demolition landfills. Owners and contractors must comply with these local requirements if they are more stringent than Federal rules.

II. Recommended Lead-Safe Practices

A. Low-Lead Content Waste Materials

This waste category typically exhibits Toxicity Characteristic Leaching Procedure (TCLP) concentrations of leachable lead below 5 ppm. The TCLP is a laboratory procedure designed to predict whether a particular waste is likely to leach chemicals into ground water at dangerous levels (see Unit II.C, below (www.epa.gov/wastes/inforesources/pubs/orientat/romapc.pdf)). This waste category includes filtered personal wash water and mop water, disposable personal protective clothing that has been vacuumed before disposal, plastic sheeting that has been misted and cleaned before disposal, and carpeting. Wash water does not include unfiltered spent stripper solutions, stripper sludges, or any other liquid paint removal products, all of which are simply solid waste.

According to EPA, LBP debris is any component, fixture, or portion of a residence or other building coated wholly or partly with LBP. LBP debris can also be any solid material coated wholly or partly with LBP resulting from a demolition.

Paint chips and dust, leftover paint or paint thinners, sludges, solvents, vacuum filter materials, wash water, sandblasting material, contaminated and decontaminated protective clothing and equipment, and other wastes such as lead-contaminated soil are not considered LBP debris. They remain subject to RCRA requirements.

When properly decontaminated, some of these wastes, such as protective clothing and equipment do not exhibit toxicity characteristics for lead. Some of these wastes are generated in smaller amounts and are homogenous. A hazardous waste determination may easily be made through the use of the Toxicity Characteristic Leachate Procedure (TCLP) or knowledge of that waste. However, a firm is allowed to manage these materials as a solid waste, if:

- ◆ The quantities of hazardous waste (including non-LBP debris waste from LBP activities) the firm generates are less than 100 kg (i.e., approximately one 55-gallon drum/container) per month.
- ◆ The firm qualifies as a conditionally exempt small quantity generator (CESQG) of hazardous waste (including non-LBP debris waste from LBP activities).

Lead-contaminated soil is not considered LBP debris nor is it eligible to be disposed of under the exclusion rule. RCRA requirements must be followed when disposing of lead contaminated soil.

These *Guidelines* recommend that generators follow the following practices for low-level waste content materials:

- ◆ Large waste material should be wrapped in heavy-duty sheeting (6-mil polyethylene or equivalent), and all seams should be sealed with tape during storage and transported to a State-licensed or permitted solid waste disposal facility. (Some disposal facilities do not accept waste wrapped in plastic. In this case, the waste should be covered in plastic during storage and transport only.)
- ◆ Small waste material should be placed in heavy-duty bags (single 6-mil or double 4-mil polyethylene or equivalent). The bags should be securely taped shut with gooseneck closure. OSHA's

disposal requirement is that lead-contaminated protective clothing be placed in a closed container in the change area, per 29 CFR 1926.62(g)(2)(v).

- ◆ The waste should be stored in a designated secure (locked) area. Dumpsters should have lids and be padlocked.
- ◆ Liquid wastewater should be disposed of in the toilet after any local pretreatment steps (e.g., filtering, gravitational separation) have been satisfied. Wastewater should not be poured into storm drains or onto the ground.
- ◆ Wrapping and sealing large waste material in plastic may not be necessary if a covered transport vehicle is used and if plastic is used to line walkways to the vehicle during loading. Wrapping and sealing waste materials in plastic, however, will minimize final cleanup and dust generation from abrasion of loose components coated with lead-based paint.
- ◆ Solid waste should be disposed of only in State-licensed or permitted solid-waste landfills, either municipal or construction and demolition as permitted if available; otherwise it may have to be transported to an approved hazardous waste facility.

B. Architectural Components

This category includes waste defined as intact, discarded architectural components which are sometimes referred to as finish carpentry or painted building components. Such components include, but are not limited to, painted doors, door trim, windows, window trim or sills, baseboards, soffits, fascia, columns, railings, moldings, radiators, walls, and stone or brick (see Figure 10.2). Paint chips that are removed from or fall off these components are not included in this category. Category B does not include lead sheeting.

These *Guidelines* recommend the following procedures for handling architectural components:



FIGURE 10.2 Radiators and trim are examples of intact architectural components that are low-level lead waste.

1. Once components are removed from the contained work area, the cutting or breaking of painted materials or any action that is likely to generate leaded dust should be avoided.
2. Separate glass from windows for recycling. While it is still inside the work area, waste should be wrapped in heavy-duty sheeting (6-mil polyethylene or equivalent) and all seams should be taped shut. Confirm in advance whether the selected disposal facility will accept waste wrapped in plastic. If not, the waste should be covered with plastic during storage and transport only.
3. Store waste in a designated and secure area separate from the work area. If material is stored or handled outdoors, heavy-duty sheeting should be placed underneath and on top of the material to prevent soil contamination. Plywood or other durable material should be placed on top of the plastic to prevent puncture of the plastic by nails or other fasteners.
4. Waste should be transported in covered vehicles to minimize lead dispersal into the environment.
5. Waste should not be disposed of in a solid waste incinerator and it should not be reused or recycled for mulch. Solid waste should be disposed of only in State-licensed or permitted solid-waste landfills, either municipal or construction and demolition as permitted if available; otherwise it may have to be transported to an approved hazardous waste facility

Deconstruction: Deconstruction, an approach to increasing the amount of sustainable construction and decreasing the amount of waste generated from construction projects, has been described as,

“The systematic disassembly of a building, generally in the reverse order of construction, in an economical and safe fashion, for the purposes of preserving materials for their reuse.”
(US Army, 2010)

and

“‘The disassembly of buildings so as to safely and efficiently maximize the reuse and recycling of their materials.’ While cherry-picking the highest-value materials is standard demolition practice, deconstruction aims to increase reuse options by pushing materials salvage beyond the usual windows, doors and light fixtures to include flooring, siding, roofing and framing. In some cases, deconstruction can yield items that are no longer commercially available, such as the old-growth Douglas fir and redwood lumber.” (EPA, 2000b)

Lead-based paint’s “presence can affect the cost effectiveness of structural and non-structural deconstruction projects, because it limits the amount of lumber that can be reused or resold, increases worker safety expenses, and often results in higher costs for LBP removal procedures.” (EPA, 2008) With strong regulations limiting the installation or other reuse of LBP-coated materials supporting the goal of minimizing the potential for subsequent lead exposure by building occupants, materials coated with LBP should not be reused directly. As EPA further notes, the feasibility of deconstructing a building containing materials coated with lead-based paint is very project specific. For example, LBP may be present on just a few building components, such that the small amount of LBP-coated materials would not meaningfully affect project costs, and the best option may be to dispose of the LBP wood. Where a large amount of LBP-coated materials is present, removing the lead-based paint may be feasible; obtaining a significant amount of valuable wood from a large-scale project may defray costs of paint removal. For example,

some species of dimensional lumber, such as oak, southern yellow or other pines, American chestnut, and Douglas fir, can be quite valuable, and may justify paint removal for deconstruction. Similarly, a wood's value is also determined by the original grade, the extent of damage from such things as nail holes and decay, and the size of the lumber. For instance, industry professionals prefer salvaged lumber that is at least 6-feet long with at least 2- by 4-inch dimensions (USDA, 2005). It must be stressed that if a project manager does decide to cut, grind, sand or otherwise manipulate LBP-coated materials, proper safety and health techniques, including containment of the dust, must be utilized to ensure the safety of project workers and subsequent building occupants; see Chapter 9 of these *Guidelines*.

C. Concentrated Lead Waste

This category of waste includes paint strippings, lead paint chips and dust, and vacuum debris and filters. Such waste must be tested by an analytical laboratory and classified as either hazardous or non-hazardous. One EPA test method that is used is the Toxicity Characteristic Leaching Protocol (TCLP), which simulates leaching in a landfill in the laboratory by adding acid to the sample and mixing it for 24 hours before analyzing the liquid for heavy metals. Non-residential waste tested in accordance with the TCLP that it is likely to leach lead above 5 ppm is defined as toxic and must be labeled as hazardous waste category D008 (lead). Then appropriate transport and disposal is required (EPA, 2004) (see Figures 10.3 and 10.4).

These *Guidelines* recommend the following procedures for handling of residential waste:

- ◆ Wrap in plastic with seams sealed shut (if disposal facility allows) or place in heavy-duty bags (single 6-mil or double 4-mil polyethylene or equivalent).
- ◆ Cover during transport.
- ◆ Prohibit from being treated at a solid waste incinerator.
- ◆ Dispose only in a State-permitted or licensed solid waste landfill, if available; otherwise it must be transported to an approved hazardous waste facility.

D. Other Regulated Waste

In some cases, TCLP leachate lead levels of soil that is being removed from the site may exceed 5 parts per million, which EPA otherwise categorizes as hazardous waste (see Figure 10.5). RCRA regulates the proper disposal of toxic wastes, including residential soil that is significantly



FIGURE 10.3 Concentrated lead waste.

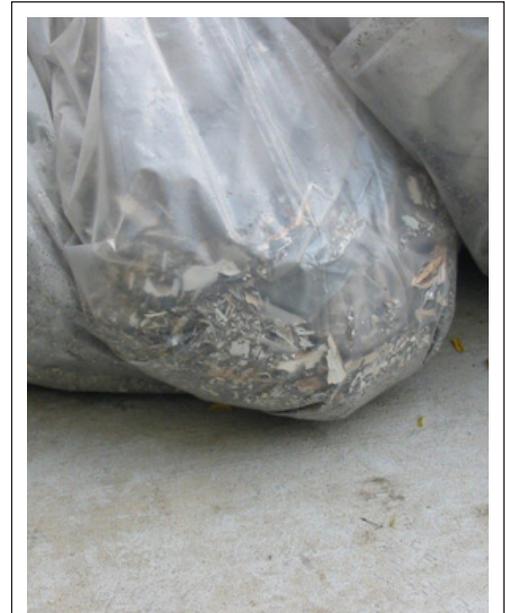


FIGURE 10.4 Paint chips should be double-bagged and seams sealed.

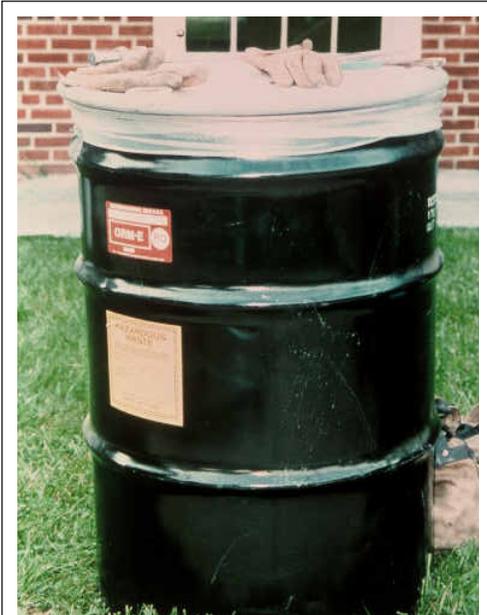


FIGURE 10.5 EPA regulates disposal of hazardous waste.

contaminated with lead. An EPA summary of RCRA is at www.epa.gov/lawsregs/laws/rcra.html; links to RCRA regulations in general are at www.epa.gov/epawaste/laws-regs/. Links to information on waste regulation under RCRA is provided at the "Wastes - Information Resources" page, www.epa.gov/wastes/inforesources/; a detailed introduction to RCRA is the "RCRA Orientation Manual 2008: Resource Conservation and Recovery Act," at <http://www.epa.gov/wastes/inforesources/pubs/orientat/index.htm>. EPA can authorize a State to have the primary responsibility of implementing RCRA hazardous waste program or a more-stringent program. As of the publication of these *Guidelines*, all 50 states, the District of Columbia, and Guam are authorized to implement the base, or initial, RCRA program, and many also to implement subsequently promulgated parts of the RCRA program. To help the public find state programs, EPA has included both a map and an alphabetically linked list of states and US territories web sites at www.epa.gov/epawaste/laws-regs/state/stats/stats_safrn.htm. EPA also has a site dedicated to reducing, reusing and recycling construction and demolition debris at <http://www.epa.gov/osw/consERVE/imr/cdm/index.htm>.

References

EPA, 2000a. U.S. Environmental Protection Agency, "Regulatory Status of Waste Generated by Contractors and Residents from Lead-Based Paint Activities Conducted in Households," Memorandum signed July 31, 2000. See www.epa.gov/lead/pubs/fslbp.htm. Accessed 7/31/2012; this site may be moved or deleted later.

EPA, 2000b. U.S. Environmental Protection Agency, Building Deconstruction and Design for Reuse (FY2002 OSWER Innovation Pilot Results Fact Sheet), www.epa.gov/oswer/docs/iwg/building_decon_reuse.pdf. Accessed 7/31/2012; this site may be moved or deleted later.

EPA, 2003. U.S. Environmental Protection Agency, Criteria for Classification of Solid Waste Disposal Facilities and Practices and Criteria for Municipal Solid Waste Landfills: Disposal of Residential Lead-Based Paint Waste, Final Rule, 68 Federal Register 36487-36495: June 18, 2003. Accessed 7/31/2012 through <http://www.fdsys.gov>; this site may be moved or deleted later.

EPA, 2004. U.S. Environmental Protection Agency, RCRA in Focus: Construction, Demolition, and Renovation, EPA-530-K-04-005, available at <http://www.epa.gov/wastes/inforesources/pubs/infocus/rif-cd.pdf>. Accessed 7/31/2012; this site may be moved or deleted later.

EPA, 2008. U.S. Environmental Protection Agency, Lifecycle Construction Resource Guide. http://www.epa.gov/oswer/iwg/pilots/docs/2008_lifecycle_construction_resource_guide.pdf. Accessed 7/31/2012; this site may be moved or deleted later.

US Army, 2010. U.S. Army Corps of Engineers, Construction Waste Management, Research and Development Center / Construction Engineering Research Laboratory (Tom Napier). Published in National Institute of Building Sciences, Whole Building Design Guide. www.wbdg.org/resources/cwmgmt.php. Accessed 7/31/2012; this site may be moved or deleted later.

USDA, 2005. U.S. Dept. of Agriculture, Directory of Wood-Framed Building Deconstruction and Reused Building Materials Companies, 2004. Forest Products Laboratory (Robert H. Falk, G. Bradley Guy). General Technical Report FPL-GTR-150. http://www.fpl.fs.fed.us/documnts/fplgtr/fpl_gtr150.pdf. Accessed 7/31/2012; this site may be moved or deleted later.