



Facilities Reduction Program
Best Practices Toolbox



FACILITY REDUCTION PROGRAM (FRP)
BEST PRACTICES TOOLBOX
LIBRARY DOCUMENT

Environmental Considerations

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Environmental Considerations

Various environmental factors are associated with removal projects. The presence of materials that could be considered hazardous to personnel or result in hazardous waste generation are among the most prevalent factors to consider in a removal project due to significant impacts on project costs. It is not uncommon for the environmental factors to more than double the costs associated with removal projects.

Typically, environmental regulations can be located in the Code of Federal Regulations (CFR) Title 40 – Protection of the Environment. Other considerations such as worker safety are typically addressed in CFR Title 29 – Labor. Since the primary concerns related to worker safety that will be addressed by the Toolbox are related to exposure to hazardous materials/wastes, these categories will be grouped together as “environmental” considerations.

Typical Environmental Factors

The most common hazardous components resulting from demolition and/or deconstruction are lead-based paint (LBP), asbestos-containing materials (ACM), mercury, and PCBs. Diversion of chemically treated wood such as creosote and CCA may also be problematic in some locations. It is important to note that buildings constructed up until mid-1970 are suspect candidates to contain LBP. This poses a significant problem because of the number of World War II era structures yet to be removed. In addition to the hazards mentioned above, there are numerous special use facilities that contain a wide range of “exotic” substances that require special handling prior to facility removal.

The magnitude of the environmental abatement challenge impacting the Facility Removal Program can be gleaned from the following projections:

- Over nine million cubic feet of treated lumber is projected from CONUS Army wide demolition and renovation of buildings over the next 15 years.
- Demolition and renovation of buildings at CONUS Army installations is projected to generate greater than 440,000 square feet of friable ACM and 160 million square feet of non-friable ACM over the next 15 years. Asbestos is suspected to be present in most structures; non-friable ACM is the major component of the asbestos stream, while friable ACM is still present as pipe insulation or surfacing material in some buildings.
- In excess of 30 million square feet of LBP is anticipated from CONUS Army installations over the next 15 years. LBP was noted in almost all World War II-era buildings surveyed.

To further complicate the environmental impact on deconstruction and demolition activities, all DoD agencies and organizations follow policy that directs compliance with Federal, State, and local regulations, as well as EPA regulations. The guidelines can vary between locations and require careful research before proceeding, because some states are much more stringent than others, and set guidelines more stringent than federal levels.

Regulatory Overview

Basic regulatory requirements that govern many removal projects include:

- The Resource Conservation and Recover Act (RCRA) of 1976;
- The National Environmental Policy Act (NEPA) of 1969;
- The Clean Air Act Amendments (CAAA) of 1990;
- The Clean Water Act (CWA) of 1977; and
- The Toxic Substances Control Act (TSCA) of 1988.

Handling and disposal of hazardous wastes are generally regulated under the 1976 Resource Conservation and Recover Act (RCRA). This law sets standards for solid waste management and identifies certain solid wastes as hazardous wastes. RCRA requires special management for hazardous wastes from generation to final disposal and is commonly referred to as “cradle to grave” management. RCRA promulgated regulations that can be located in 40 CFR Parts 260-282.

The most common hazardous material components from the demolition and deconstruction of military facilities are ACM, LBP, and chemically treated wood. Disposal of wastes containing these materials require proper management and may include tracking, permitting, potential storage, transportation, proper final disposal techniques, and the additional fees associated with these practices.

ACM Overview

Asbestos Containing Materials (ACMs) are found in construction debris in furnace and pipe insulation, insulation, mastic, floor tile, ceiling tile, siding, transit board and roof shingles. There is a health concern when it is exposed, disturbed, and considered friable. By definition, friable indicates asbestos that is easily crumbled, or reduced to powder by hand pressure. Friable ACM requires full containment, monitoring, proper notification, and disposal at a special hazardous waste landfill. Non-friable (not producing powder with hand pressure) can be removed with minimal containment. The Toolbox “Library” and Toolbox “Helpful Links” provide additional information regarding ACM considerations, policy, regulations, and common practices.

ACM Regulatory Requirements

The EPA requirements associated with ACM-related demolition are defined under the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations (40 CFR 61). These regulations specify emission limitations and control procedures. The EPA defines an ACM as a material that contains more than one percent asbestos. The presence of asbestos in a material is determined using a polarizing light microscope. Friable ACM materials must be removed, labeled as such, and disposed of in an authorized landfill. Non-friable ACMs are not regulated at the federal level; however, individual states may have limitations that are more stringent. As long as proper labeling and containers are used, asbestos waste that is wetted during removal can typically be disposed of in “regular” non-hazardous landfills.

Materials containing asbestos must not be recycled and must be disposed of in accordance with state and local landfill regulations. Deconstruction of ACMs must be in accordance with OSHA, TSCA, and the Clean Air Act, per 40 CFR 61, Subpart M. The Clean Air Act, Section 112, defines requirements for precautionary procedures against fiber release during deconstruction processes.

Lead-Based Paint (LBP) Overview

Most structures built before 1978 are coated with LBP. LBP was applied in kitchens, baths, wood trim, and siding. During deconstruction and demolition processes, debris is generated that contains lead contamination. The wastes generated during demolition processes are generally commingled and are not typically considered a hazardous waste under Resource Conservation and Recovery Act (RCRA). This is because LBP-coated demolition debris usually does not contain a high lead concentration when composite samples are collected and can commonly be disposed of in “regular” non-hazardous landfills. Incineration of LBP debris is not an accepted practice due to potential violations of the Clean Air Act. The Toolbox “Library” and Toolbox “Helpful Links” provide additional information regarding LBP considerations, policy, regulations, and common practices.

LBP Regulatory Requirements

The regulatory requirements are in a transition mode from management under EPA RCRA to TSCA. Title IV of the TSCA, Lead Exposure Reduction, requires compliance with state and local LBP regulations. As of August 2000, the EPA considered LBP-coated debris from residential buildings altered by homeowners to be non-hazardous by definition. With this ruling, EPA considers lead paint debris generated by contractors in households to be considered a ‘household waste’ and is therefore excluded from RCRA Subtitle C hazardous waste regulations.

The testing procedure for the hazardous identification of lead is Toxicity Characteristic Leaching Procedure (TCLP). The federal regulatory standard for lead is five milligrams per liter (5 mg/L). If the concentration of lead is greater than 5 mg/L, the waste is considered a RCRA hazardous waste. OSHA provides procedures for proper deconstruction and safety precautions and the Clean Air Act requires appropriate monitoring of the release of lead dust and exposure. HUD guidelines provide technical information on how to identify LBP hazards and how to address safety issues. Many states will maintain all requirements of the federal program, but will enforce their own guidelines for the overall handling, treatment, and disposal of lead-containing materials. For deconstruction, a federal regulation provided by the Occupational Safety & Health Administration (or OSHA) concerns lead exposure in construction/deconstruction, and applies to all construction work where an employee may be exposed to lead.

Treated Wood Overview

Wood found in buildings may be treated with chemicals such as pentachlorophenol, creosotes, and arsenic compounds, which results in a hazardous waste classification if the chemicals present exceed regulatory levels for landfill disposal.

The majority of this wood can be salvaged and reused for purposes similar to its original use. Reuse applications include signposts, landscaping timbers, parking barriers, retaining walls, and fences.

Treated Wood Regulatory Requirements

Regulatory requirements of wood treated with chemicals fall under air permitting, local regulatory agencies, drinking water rules, and the US Department of Agriculture (USDA). Rules such as 40 CFR Parts 9, 141, and 142 regulate drinking water standards and limitations for components like arsenic.

Chemically treated wood is not necessarily considered a hazardous waste. States such as Washington have a Dangerous Waste Designation Process (Chapter 173-303-071 WAC)

that should be followed to ensure that proper handling and classifications occur. Demolition landfills are not permitted to burn chemically treated wood due to air permitting requirements, but can grind the wood to be reused as products like mulch.