
Lead Management Program



DARTMOUTH

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Section 1 – Scope

This program provides a framework for identifying, evaluating, and controlling lead exposure hazards across campus operations, maintenance, renovation, and construction activities to protect employees, occupants, and the surrounding community.

Key Regulatory Components:

- Occupational Safety and Health Administration (OSHA) Lead Standards (General Industry and Construction): Sets exposure limits and requires monitoring, engineering controls, work practices, personal protective equipment (PPE), and medical surveillance. All work activities must be evaluated and controlled in accordance with the applicable standard.
- Appendix A – Lead Work Practices: Provides detailed procedures for operations and maintenance involving lead-based paint, adapted from the National Institute of Building Sciences manual. Practices are organized into three tiers based on dust-generation potential, with increasing controls for containment, worker protection, and cleaning.
- Environmental Protection Agency (EPA) Renovation, Repair, and Painting (RRP) Rule: Applies to activities disturbing lead-based paint in pre-1978 housing and child-occupied facilities. Requires EPA-certified firms and renovators using lead-safe work practices. On campus, this may include student housing, childcare facilities, historic structures, and other pre-1978 buildings.
- New Hampshire Lead Paint Poisoning Prevention and Control Statute: Governs reporting of elevated blood lead levels, investigations, inspections, corrective actions, contractor licensing, occupant notification, and compliance for sale/rental/conversion of pre-1978 properties. Particularly relevant for older Dartmouth buildings, student housing, and childcare facilities.

Section 2 – Purpose

The Dartmouth College Lead Management Program (Program) aims to safeguard the well-being of all students, faculty, and staff at Dartmouth College (Dartmouth). The Dartmouth Environmental, Health, and Safety (EHS) department has established this Program to inform students, faculty, staff, stakeholders, and contractors about the standardized, systematic procedure for preventing exposure to hazardous lead concentrations. This Program applies to all students, faculty, staff, stakeholders, and contractors involved in or potentially impacted by activities that disturb lead-containing materials.

Through this comprehensive evaluation and management process, EHS strives to maintain a safe and healthy environment by proactively addressing and mitigating hazards at Dartmouth.

Key goals of this Program:

- Lead hazards are proactively identified and managed
- Regulatory requirements are consistently met across all applicable standards
- Certified personnel and approved work practices are utilized
- Implement protective measures, including engineering controls, personal protective equipment (PPE), hygiene practices (such as access to washing facilities), and proper housekeeping.
- Limit worker exposure below the OSHA permissible exposure limit (PEL) of 50

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- micrograms of lead per cubic meter of air (50 µg/m³) averaged over an 8-hour workday.
- Provide training and education about the dangers of lead and how to protect oneself.
- Monitor workplace air and conduct medical surveillance (like blood lead level testing) for at-risk employees.
- Proper documentation, notification, and recordkeeping are maintained

A copy of this Program is available on the EHS website and will be provided to all faculty, staff, and students enrolled in the program upon request.

Questions about this Program should be directed to Environmental Health and Safety at 603-646-1762 or ehs@dartmouth.edu.

Section 3 – Regulatory Considerations

3.1 OSHA Lead Standards for Construction (1926.62) and General Industry (1910.1025)

Dartmouth College employees may fall under both the OSHA General Industry and Construction Lead Standards due to the diverse nature of campus activities. The General Industry Standard applies to routine operations in fixed workplaces, while the Construction Standard covers renovation, demolition, and repair work that disturbs lead-containing materials. Both OSHA lead standards apply to worker protection. Because Dartmouth manages academic, residential, and infrastructure projects, employees and contractors may perform tasks governed by either or both standards. To ensure compliance and protect health, Dartmouth must assess work for potential lead exposure and apply controls consistent with the applicable OSHA requirements.

3.2 Environmental Protection Agency Renovation, Repair, and Painting Rule (EPA RRP)

The Environmental Protection Agency Renovation, Repair, and Painting Rule (EPA RRP) regulates renovation, repair, painting, and maintenance activities that disturb lead-based paint in pre-1978 buildings where children may be present or where lead exposure could occur. Its goal is to prevent the release and spread of lead dust through certified work practices, proper containment, and verified cleanup. Compliance protects occupants, reduces liability, and supports safe campus and building management.

Applicability:

- Pre-1978 buildings, historic structures, student housing, or child-care facilities may fall under the RRP Rule.
- Routine maintenance, renovations, window replacements, painting, and repair activities may trigger compliance requirements.

Certification Requirements (Effective April 22, 2010):

- Workers must be certified by the EPA
- A Certified Firm must perform work.
- Lead-safe work practices must be followed during all applicable activities.

Covered Structures:

- Target Housing: Pre-1978 homes, except those for the elderly or disabled (unless a child under six resides there) and zero-bedroom dwellings.
- Child-Occupied Facilities: Pre-1978 daycare centers, preschools, or kindergarten classrooms regularly visited by children under six (minimum 3 hours/day, 2 days/week,

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totaling at least 60 hours/year).

Covered Renovation Activities:

- Any paid work that disturbs painted surfaces in pre-1978 buildings, including:
 - Painting, sanding, scraping, or burning surfaces
 - Removal or modification of painted components (doors, windows, walls, ceilings)
 - Re-plastering, re-plumbing, weatherization
 - Window replacement and demolition

When the RRP Rule Applies:

- Interior: Disturbing >6 square feet per room.
- Exterior: Disturbing >20 square feet.
- Large projects or specific activities (e.g., window replacement, demolition) are covered, regardless of their size.
- Rental properties where work is performed for compensation.

When the RRP Rule *Does Not Apply*:

- Housing built in 1978 or later.
- Minor repairs below the size thresholds (≤ 6 sq ft interior, ≤ 20 sq ft exterior).
- Housing for the elderly or disabled, unless children under six are present.
- Zero-bedroom dwellings (unless children under six reside there).
- Homeowners performing work on their own homes for personal use without compensation.
- Volunteer or unpaid work.

3.3 New Hampshire Department of Health and Human Services Title X Public Health Chapter 130-A Lead Paint Poisoning Prevention and Control

The New Hampshire Lead Paint Poisoning Prevention and Control statute (Title X, Chapter 130-A) establishes requirements for identifying, preventing, and managing lead hazards in paint, dust, and soil. It authorizes the New Hampshire Department of Health and Human Services (DHHS) to receive reports of elevated blood lead levels, conduct investigations, require inspections and occupant notifications, and enforce corrective actions. The statute and its associated administrative rules also regulate lead-related work through licensing and certification requirements and impose obligations related to the sale, rental, or conversion of pre-1978 properties.

For Dartmouth College, Chapter 130-A is particularly relevant to older campus buildings, student housing, and the childcare facility. Elevated blood lead reports, hazard complaints, renovations, or changes in building use may trigger compliance obligations. Dartmouth College must ensure qualified contractors are used, prohibited work practices are avoided, inspections and notifications are completed when hazards are identified, and records are maintained. Once a lead hazard is identified or remediation begins, Dartmouth College becomes subject to the full scope of the state's administrative rules, underscoring the need for a proactive and well-documented lead management program.

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Section 4 – Definitions

Definitions are provided in **Appendix B**.

Section 5 – Responsibilities

There are several stakeholders at the College, along with external consultants, who play essential roles in the Lead Management Program:

5.1 Environmental Health and Safety (EHS)

- 1) Develop, maintain, and evaluate the effectiveness of the Lead Management Program.
- 2) Regularly perform and coordinate monitoring and/or comprehensive risk assessments to identify potential hazards for at-risk individuals.
- 3) Provide frequent and regular inspections of job sites, materials, and equipment.
- 4) Coordinate lead-based paint surveys in Dartmouth-owned buildings.
- 5) Characterize waste and coordinate proper disposal of lead-containing products.
- 6) Provide safety training.
- 7) Maintain all compliance monitoring data and preserve it indefinitely.
- 8) Register employees exposed to lead above the OSHA action limit in a medical surveillance program with Occupational Medicine.
- 9) Enroll employees exposed or reasonably expected to be exposed to lead above the OSHA action limit in the Respiratory Protection Program.

5.2 Supervisors

- 1) Adhere to the requirements of this Program.
- 2) Initiate the process of obtaining lead hazard assessments for individuals.
- 3) Designate Competent Persons to oversee work that may impact lead-containing materials.
- 4) Oversee work on lead-containing materials in target housing is conducted in accordance with regulations.
- 5) Inform EHS about any unusual situations or modifications in work methods that could render initial lead hazard assessments inaccurate representations of lead exposure.
- 6) Coordinate individuals' participation in safety training sessions organized by EHS.
- 7) Contact EHS to enroll individuals who may have been exposed to lead above the OSHA action level in the Respiratory Protection Program, which includes medical evaluation, training, and fit testing.

5.3 Employees

- 1) Adhere to the requirements of this Program.
- 2) Participate in the EHS safety training sessions.
- 3) Participate in the medical surveillance program, if required.
- 4) Properly apply and adhere to control measures (e.g., ventilation, wet methods, PPE, etc.) when required to prevent disturbance and contamination of lead-containing materials.
- 5) Report any circumstances that may potentially make the initial lead hazard assessment unrepresentative of actual lead exposures.

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5.4 Project Managers and Facility Managers

- 1) Oversee contractors' work on lead-containing materials in accordance with regulations.
- 2) Must attend lead awareness training at least annually.
- 3) Coordinate waste characterization and proper disposal of lead-containing products with EHS.

5.5 Contractors/Subcontractors

- 1) All lead inspections and risk assessments be conducted by NH-licensed Lead Inspectors or Risk Assessors
- 2) All abatement work is to be performed by NH-licensed firms employing NH-certified Abatement Supervisors and Workers
- 3) All renovation and repair work on target housing will be performed by an EPA RRP Certified Firm and Certified Renovator.
- 4) Comply with all applicable requirements of Dartmouth's Contractor Safety Manual.
- 5) Conduct work in compliance with 1926.62 and 1910.1025.
- 6) Notify EHS if potential hazards other than lead are encountered (e.g., asbestos, PCBs, etc.) and/or if work activities uncover hazards that have not been identified on a hazardous materials survey.

5.6 Occupational Medicine

- 1) Conduct medical surveillance under 29 CFR 1910.1025 and 29 CFR 1926.62 for all Dartmouth employees enrolled in medical surveillance.

5.7 Real Estate Office and Residential Operations

- 1) Inform tenants who have children aged six years or younger about all available information related to lead-based paint within the unit that they are going to lease.
- 2) Supply tenants with children aged six years or younger with a certification affirming either "Lead Free" or "Lead Safe" status.
- 3) Submit a copy of the "Lead Free" or "Lead Safe" certification, accompanied by relevant sample results, to the New Hampshire Department of Health and Human Services in accordance with the instructions provided on the forms.
- 4) Supply tenants with children aged six years or younger with a copy of the "Sample Pre-Renovation Form."
- 5) Provide tenants with children aged six years or younger with an EPA pamphlet titled "Protect Your Family from Lead in Your Home" and "The Lead-Safe Certified Guide to Renovate Right."
- 6) Procure and retain all required lessee lead disclosure forms.

Section 6 – Procedures

6.1 Construction and Renovation Projects

Construction Project Managers must follow the procedures outlined below for projects that involve demolition, paint surface preparation and removal, or other construction or maintenance endeavors generating lead dust or fumes that could potentially impact occupied areas.

- Establish written Lead Compliance Plans
- Based on the chosen method of removal, EHS may conduct or facilitate air sampling and

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inspections in neighboring occupied zones to ensure the safety of the Dartmouth community in the vicinity of the project. A visual assessment might also be appropriate upon project completion to verify the thorough cleaning of the work area.

- For projects that involve removing paints or finishes from underlying materials, it is necessary to engage EHS to analyze the paint and determine its characteristics for proper disposal. If the paint is categorized as regulated waste, EHS will assist in obtaining disposal containers and coordinate the disposal.

6.2 Elements of a Written Compliance Program

In every instance where employee exposure exceeds the permissible exposure limit (PEL), the employer must establish and implement a documented compliance program to reduce employee exposure to or below the PEL. This compliance program should incorporate routine and frequent inspections of work sites, materials, and equipment, all conducted by a qualified individual or individuals. Furthermore, written compliance programs must be reviewed and updated at least annually, or whenever there is a change in the process, equipment, controls, personnel, or new evidence of adverse health effects. These programs should encompass:

- A description of each activity in which lead is emitted (such as equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices).
- The means are used to achieve compliance, and engineering plans and studies are used to determine the engineering controls selected where they are required.
- Information on the technology considered to meet the PEL.
- Air monitoring data that documents the source of lead emissions.
- A detailed program implementation schedule, including copies of documentation (such as purchase orders for equipment and construction contracts).
- A work practice program.
- An administrative control schedule, if applicable.

6.3 Exposure Limits

OSHA establishes maximum limits for exposure to lead for all covered workers, which include a permissible exposure limit (PEL) and an action level (AL).

- Permissible Exposure Limit: maximum allowable exposure of 50 micrograms of lead per cubic meter of air ($50 \mu\text{g}/\text{m}^3$) averaged over an 8-hour workday. Suppose employees are exposed to lead for over 8 hours in a workday. In that case, their allowable exposure as a time-weighted average (TWA) for that day must be reduced according to the following formula: Employee exposure (in $\mu\text{g}/\text{m}^3$) = $400 \div$ the number of hours worked.
- Action Level: Regardless of respirator use, it is an airborne concentration of $30 \mu\text{g}/\text{m}^3$, averaged over an 8-hour workday. The AL is the level at which an employer must initiate specific compliance actions, as outlined below.

6.4 Hazard Assessment

For projects that involve removing paints or finishes from underlying materials, it is necessary to engage EHS to analyze the paint and determine its characteristics, ensuring appropriate work

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practices and disposal. If the paint is categorized as hazardous and regulated waste, EHS can assist in obtaining disposal containers and will coordinate the disposal. If laboratory results identify the material(s) as containing lead, then see Sections 5.1 and 5.2 for next steps.

Where a determination is made that no employee can be exposed to airborne concentrations of lead at or above the action level, the employer shall make a written record of such determination. The record shall include, at a minimum, the date of determination, the location within the worksite, and the name and number of each employee monitored.

EHS and/or consultant will conduct lead hazard evaluations for construction, renovation, and hot work activities that may expose workers to lead concentrations exceeding the OSHA Action Level of 30 µg/m³ over 8 hours.

These assessments will involve air monitoring and observing work methods and engineering controls for each task. EHS will provide the worker and their supervisor with a written report detailing the sampling results, observations, and recommendations. The report will outline any necessary adjustments in work methods or engineering controls identified by EHS during the task to minimize lead exposure. Furthermore, the report will notify the worker about the frequency of subsequent sampling, if relevant. Depending on the standard, written reports will be provided to the worker and supervisor within the following timeframe.

- General Industry: within 15 working days of receiving the laboratory analysis report.
- Construction: within five (5) working days of receiving the laboratory analysis report.

6.4.1 Pending Employee Exposure Assessment

Before conducting an exposure assessment and confirming that employees are not exposed above the PEL, Dartmouth may treat the employees as if they were exposed above the AL and may implement protective measures for employees in the interim. These measures include respiratory protection, protective work clothing and equipment, hygiene facilities, biological monitoring, and appropriate training. These measures are significant for tasks that have the potential to result in high exposure to lead. These include:

- 1) Manual demolition of painted structures, such as drywall.
- 2) Manual scraping and sanding.
- 3) Use of a heat gun when lead-containing coatings or paints are present.
- 4) Power tool cleaning, with or without local exhaust ventilation.
- 5) Spray painting with lead-containing paint.
- 6) Demolition of lead-containing mortar.
- 7) Abrasive blasting, rivet busting, welding, cutting, or torch burning on structures with lead-containing coatings or paint.
- 8) Movement and removal of abrasive blasting enclosures.
- 9) Cleanup activities involving the use of dry, expendable abrasives on painted surfaces.
- 10) Any other task that Dartmouth believes may result in exposures exceeding the PEL for lead.

Additionally, employers are required to post warning signs in each work area where employee exposure to lead is above or anticipated to be above the PEL and must remain posted until the

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work area(s) have been verified to be cleared. See Appendix C for an example of a warning sign.

6.4.2 Initial Exposure Monitoring

In cases where numerous employees perform the same job and have similar exposure to airborne lead, initial monitoring may be conducted on a representative sample of these employees. This approach is allowable when a substantial group of workers engages in similar tasks, and their exposure levels are comparable, also known as similar exposure groups (SEGs).

For employees performing similar tasks under essentially identical conditions and with similar lead exposure levels and durations, 29 CFR 1910.1025 and 29 CFR 1926.62 stipulate that monitoring should focus on those individuals within the group who are anticipated to have the highest exposure levels – also known as worst-case sampling. The findings from this monitoring are then extended to cover the other employees within the same group who share similar working conditions and lead exposure characteristics.

- Collection of representative full-shift (for at least seven continuous hours) personal samples, including at least one sample for each shift for each job classification in each work area.
- Instead of initial monitoring, the use of objective data that proves that a specific material or product containing lead will not cause exposure equal to or exceeding the Action Level when it is managed, used, or processed.

6.4.3 When Monitoring Shows Employee Exposure BELOW the Action Limit

Monitoring may discontinue if the initial assessment shows no employee is exposed at or exceeding the AL for lead of 30 µg/m³ over eight hours. Additional exposure monitoring is only necessary if changes in processes or controls could lead to more employees being exposed to lead at or above the AL, or if employees who were already exposed at or above the AL might now be exposed above the PEL.

6.4.4 When Monitoring Shows Employee Exposure ABOVE the Action Limit

Dartmouth will provide employees with the following medical surveillance services at no cost if they are exposed to lead on the job at or exceeding the AL on any day in any consecutive 12 months.

1. Initial Medical Surveillance: Dartmouth shall make available initial medical surveillance, including biological monitoring, specifically blood sampling, and analysis to measure lead and zinc protoporphyrin (ZPP) levels.
2. Ongoing Medical Surveillance Program: Employees exposed to lead at or above the Action Level for more than 30 days within a consecutive 12-month period must be enrolled in a medical surveillance program that includes regular biological monitoring.

6.4.5 Employee Notification of Monitoring Results

EHS will inform the monitored employee in writing about the results of personal exposure assessments within five (5) or 15 working days of receiving those results from the laboratory. Suppose the laboratory results show that the representative employee's exposure, without respirators, exceeds the PEL. In that case, EHS will provide written notice stating that the

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employee's exposure has exceeded the PEL, including corrective actions that have been taken or will be taken to reduce the exposure to or below the PEL.

- General Industry: within 15 working days of receiving the laboratory analysis report.
- Construction: within five (5) working days of receiving the laboratory analysis report.

6.4.6 Biological Monitoring Tests

An [OSHA National Recognized Testing Laboratory](#) will conduct blood lead sample analysis, and the results must be precise with a 95% confidence interval (95% CI), falling within plus or minus 15% or 6 µg/dL, whichever is greater. When an employee's airborne lead level reaches or exceeds the Action Level for more than 30 days within a consecutive 12-month period, the employer must provide biological monitoring on the following schedule:

- 1) At least every two months for the first six months and every six months thereafter for employees exposed at or exceeding the Action Level for more than 30 days annually.
- 2) At least every two months for employees whose last blood test showed a blood lead level at or above 40 µg/dL.
- 3) At least monthly, an employee is removed from exposure due to an elevated blood lead level.

6.4.7 Medical Surveillance

When an employee's airborne exposure to lead is at or exceeding the AL for more than 30 days in any consecutive 12 months, immediate medical consultation is required in the following situations when the employee notifies the employer:

- 1) They have developed [signs or symptoms commonly associated with lead-related diseases](#).
- 2) They have experienced difficulty in breathing during respirator use or a fit test.
- 3) They seek medical advice regarding the effects of past or current lead exposure on their ability to have a healthy child.
- 4) They are under medical removal and have a medically appropriate need for consultation.

6.4.8 Medical Exams

A licensed physician will conduct a comprehensive medical examination to assess lead exposure for each employee whose blood lead level is 40 µg/dL or above. It should include the following components outlined in section 1910.1025(j)(3) or 1926.62(j)(3).

6.4.9 Information for the Examining Physician

Dartmouth will provide each examining physician with the following information:

- 1) A copy of [29 CFR 1926.62 Lead Standard](#) or [29 CFR 1910.1025 Lead Standard](#), including all relevant appendices and guidelines.
- 2) A description of the employee's job responsibilities concerning their exposure to lead.
- 3) The employee's current or expected level of exposure to lead.
- 4) Details regarding the personal protective equipment the employee uses or will use.
- 5) Records of any previous blood lead level measurements for the employee.
- 6) Any previous written medical opinions that have been provided for the employee.

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6.4.10 After the Medical Examination

Dartmouth will obtain and provide the employee with a written opinion from each examining or consulting physician. This written opinion will contain information solely related to the employee's occupational exposure to lead and must include:

- 1) Any identified medical conditions that could increase the health risks associated with lead exposure.
- 2) Recommendations for specific protective measures or limitations on the employee's exposure to lead.
- 3) Any restrictions or limitations regarding the use of respirators.
- 4) The results of blood lead level determinations.

Additionally, the written statement may include a note indicating that the physician has informed the employee of the consultation or medical examination results, as well as any identified medical conditions that may require further examination or treatment.

Furthermore, any lab conducting blood lead analysis on New Hampshire residents, whether adults or children, must, in compliance with regulations established under Revised Statutes Annotated (RSA) 130-A:10, submit the test outcomes of elevated blood lead concentrations to their state health department.

6.4.11 Medical Removal Provisions

Temporary medical removal can occur in two situations:

- 1) If an employee's blood lead level is at or above 50 µg/dL based on periodic and follow-up blood sampling tests, Dartmouth must remove that employee from work if their exposure is at or above the Action Level.
 - a) The employee may return to their previous job status when two consecutive blood sampling tests indicate their blood lead level is below 40 µg/dL.
- 2) Suppose a final medical determination by a physician recommends reduced lead exposure for medical reasons. In that case, Dartmouth must remove the employee from work if their lead exposure is at or above the AL.
 - a) The employee may return to work when a subsequent final medical determination finds that the employee no longer has a detected medical condition that puts them at an increased risk of lead exposure.

Dartmouth must honor the recommendation if the physician provides a written opinion recommending the employee's removal or other special protective measures.

Dartmouth must remove any restrictions placed on employees or discontinue special protective measures when a subsequent final medical determination indicates that these measures are no longer necessary. Suppose the employee's former position no longer exists. In that case, they should be returned to a job assignment based on Dartmouth's discretion, which would typically align with the employee's qualifications and skills as if no removal had occurred.

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- 3) For any employee removed, (1) Dartmouth shall maintain the employee's current earnings, seniority, and other employment rights and benefits as though the employee had not been removed from normal exposure to lead or otherwise limited for up to 18 months from the date of removal.

6.4.12 Records Requirements Involving Medical Removal

In the event of medical removal, Dartmouth's records must contain the following information:

- 1) The worker's name and social security number.
- 2) The date each instance of worker removal from the current lead exposure occurred.
- 3) The date when the worker was reinstated to their previous job status.
- 4) A concise explanation of how each removal was carried out or is being executed.
- 5) A statement clarified whether the removal's rationale was an elevated blood lead level.

Section 7 – Exposure Prevention and Control

7.1 Controls

Control measures encompass a range of strategies, including local and general exhaust ventilation, process and equipment adjustments, substituting materials, replacing components, and implementing isolation or automation. Some examples of engineering controls aimed at minimizing worker exposure to lead include:

- 1) Exhaust ventilation
 - a) Equipment power tools with high-efficiency particulate air (HEPA) vacuum attachments to capture dust at the source.
 - b) A containment structure designed to optimize clean air flow past the workers' breathing zone, equipped with HEPA dust collection devices.
- 2) Encapsulation or enclosure
 - a) Encapsulate or enclose the lead-based material with a material that bonds to the surface, such as acrylic or epoxy coating or flexible wall coverings.
 - b) Isolate it using gypsum wallboard, plywood paneling, and aluminum, vinyl, or wood exterior siding. Floors coated with lead-based paint can be covered using vinyl tile or linoleum.
- 3) Substitution – substitute materials and chemicals that do not contain lead.
 - a) Hydraulic shears for torch cutting through lead-containing materials.
 - b) Chemical strippers instead of hand scraping with a heat gun.
- 4) Isolation
 - a) When possible, isolate the lead-containing work area from other work zones to reduce the potential for lead exposure.
- 5) Component replacement
 - a) Replace lead-based painted building components with new components free of lead-containing paint, or lead solder with lead-free solder.
- 6) Modification of the process of the equipment
 - a) When applying lead-based paints or other lead-containing coatings, use a brush

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- or roller rather than a sprayer.
- b) Use steel or iron shot/grit sand instead of sand in abrasive blasting.
- c) Select blasting techniques that produce less dust than open-air abrasive blasting.
 - i) Wet blasting using high-pressure water with or without an abrasive, or surrounding the blast nozzle with a ring of water, and vacuum blasting, where a vacuum hood for material removal is positioned around the exterior of the blasting nozzle.
- d) When using a heat gun to remove lead-based paints, verify that it's a flameless, electrical, softener type.

7.2 Housekeeping Practices

According to 29 CFR 1926.62 and 29 CFR 1910.1025, the employer must keep all surfaces as free as possible from lead contamination.

Vacuuming lead dust with HEPA-filtered equipment or moistening the dust with water before sweeping are effective control measures to achieve this. It's essential to note that compressed air should not be used to remove lead from contaminated surfaces unless a ventilation system is in place to capture the dust generated by the compressed air.

Also, any lead-containing debris and contaminated items collected for disposal should be placed in sealed, impermeable bags or other closed, impermeable containers. These bags and containers should be clearly labeled as containing hazardous waste, specifically lead waste. These measures provide added protection when controlling lead exposure.

7.3 Personal Protective Equipment and Respiratory Protection

In situations where engineering and work practice controls alone are insufficient to adequately control workers' exposure to lead, personal protective equipment, including respirators, is necessary and shall be identified in the ECP. Protective clothing may include protective work clothing, gloves, shoes, eye protection, and disposable Tyvek coveralls. The employer shall provide and comply with 1910 Subpart J – Personal Protective Equipment. Respirators are employed as a supplementary measure to reduce worker lead exposures below the permissible exposure limit (PEL). When respirators are required, all must do so following Dartmouth's Respiratory Protection Program.

7.4 Personal Hygiene Practices

The following personal hygiene practices are required to minimize the spread and contamination of lead:

- Dartmouth will provide adequate washing facilities for employees' personal hygiene practices, including washing their hands and face after work and before eating, drinking, smoking, or applying cosmetics.
- All employees must refrain from the presence, consumption, or use of food, beverages, tobacco products, and cosmetics in work areas.
- A designated parking area separate from the work site should be created to prevent cars from becoming contaminated with lead.

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7.5 Change Areas

Dartmouth must provide a clean change area for employees whose airborne lead exposure exceeds the permissible exposure limit (PEL). This area should have storage facilities for employees' regular street clothes and a separate section for removing and storing lead-contaminated protective work clothing and equipment. This separation is essential to prevent cross-contamination between the employees' street clothes and work attire.

Employees are obligated to use this clean change area for various purposes, including:

- 7) Changing into clean protective work clothing.
- 8) Putting on respirators before commencing work.
- 9) Dressing in their regular street clothes after completing work.

No lead-contaminated items must enter this clean change area to maintain a clear separation between clean and contaminated materials.

Employees are strictly prohibited from wearing work clothing contaminated with lead away from the job site. Under no circumstances should employees take lead-contaminated work clothes home or launder them. Instead, these contaminated garments must be professionally laundered or disposed of following all relevant federal, state, and local regulations.

7.6 Handling Contaminated Protective Clothing

Employees should not depart the worksite while wearing protective clothing or equipment contaminated with lead. This measure is crucial for minimizing the transfer of lead contamination from the workplace to the workers' residences, offering additional safety for employees and their families.

If suitable, disposable coveralls and separate shoe covers can be employed to eliminate the need for laundering. Workers must remove their protective clothing in designated change rooms.

Employees must exit the respirator-use area to cleanse their faces and respirator facepieces as needed. Moreover, using HEPA vacuuming, damp wiping, or another appropriate cleaning method before taking off a respirator to eliminate loose particle contamination on the respirator and around the face mask seal is mandatory.

Place contaminated clothing designated for cleaning, laundering, or disposal in the provided sealed containers. These containers must be labeled as follows:

- **DANGER:** Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead-contaminated wash water following applicable local, state, or federal regulations.

Workers handling contaminated clothing, including those in laundry services or subcontractors, must receive written information about the potential health risks associated with lead exposure. Under no circumstances should lead be removed from protective clothing or equipment through brushing, shaking, or blowing, as these actions disperse lead into the work area.

7.7 End-of-Day Procedures

Dartmouth is responsible for verifying that workers exposed to lead levels above the permissible

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exposure limit (PEL) follow specific procedures at the end of their workday. Dartmouth will provide showers near the worksite with water, soap, and clean towels for employees exposed to airborne lead levels exceeding the permissible exposure limit. These showers enable employees to shower thoroughly before leaving the worksite. Employees are expected to change out of their work clothes, shower, and then change into clean street clothes before departing the work site.

To prevent environmental contamination, all wastewater generated from these washing and showering facilities must be disposed of strictly according to relevant local, state, or federal regulations.

The steps include:

- 10) Placing contaminated clothes, including work shoes and personal protective equipment that needs cleaning, laundering, or disposal, in a properly labeled closed container. This prevents the spread of lead dust and keeps contaminated items separate.
- 11) Taking a shower and washing their hair if shower facilities are available. If showers are not provided, employees must at least wash their hands and face thoroughly at the end of the work shift. This helps remove any lead dust or residue from their skin.
- 12) Changing into street clothes in clean change areas. Street clothes should be free from lead contamination, and this change should occur in designated areas to prevent cross-contamination between work and personal clothing.

7.8 Preventing Heat Stress

Workers who wear protective clothing, especially in hot environments or within containment structures, may be at risk of heat stress if appropriate control measures are not implemented. Some steps to minimize the risk of heat stress include:

- Acclimate to your work environment.
- Perform the most strenuous tasks in the coolest parts of the day.
- Hydrate with water throughout the day.
- Wear breathable clothing.
- Take frequent breaks in the shade or cooler locations.

Section 8 – Training

Dartmouth will educate employees about lead hazards in accordance with OSHA's Hazard Communication standards for construction (29 CFR 1926.59) and general industry (29 CFR 1910.1200). This includes, among other things, verifying compliance with requirements regarding warning signs and labels, providing safety data sheets (SDSs), and delivering employee training and information.

Dartmouth's training program includes all employees who may be exposed to lead or lead compounds at or above the AL on any given day. This program also covers employees who may experience skin or eye irritation from lead compounds. Initial training must be provided to employees who engage in work tasks that may involve lead; thereafter, it must be repeated annually. In summary, this training should cover:

- 1) The content of the OSHA lead standards and their appendices.
- 2) The specific job operations that might result in lead exposure above the action level.

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- 3) The proper selection, fit, use, and limitations of respirators.
- 4) The purpose and description of the medical surveillance and removal protection programs.
- 5) Information about the adverse health effects associated with excessive lead exposure.
- 6) The engineering and work practice controls are relevant to employees' job assignments.
- 7) The contents of any lead-related compliance plan in place.
- 8) Clear instructions to employees that chelating agents should not be routinely used to remove lead from their bodies. They should only be used under medical supervision and as directed by a licensed physician.

Section 9 – Recordkeeping

Records will be maintained following 29 CFR 1910.1025 and 29 CFR 1926.62, including lead exposure, air sampling data, waste disposal manifests, and medical surveillance data.

- EHS is responsible for retaining all documents related to lead exposure, including hazard assessments, sampling data, waste disposal manifests, and correspondence.
 - ☐ Exposure monitoring records will be retained for at least 40 years or for the duration of employment plus 20 years, whichever is longer.
- Supervisors are responsible for maintaining lead hazard exposure assessments for their employees.
- Occupational Medicine is responsible for maintaining all medical records and for providing access whenever an employee or designated representative requests access to an exposure or medical records, within 15 days, if possible.
 - ☐ Medical surveillance records will be retained for at least 40 years, or for the duration of employment plus 20 years, whichever is longer.

Section 10 – Program Evaluation

This Program will undergo annual review and evaluation by EHS unless changes in operations, the OSHA Construction and General Industry for Lead Standards (29 CFR 1926.62 and 29 CFR 1910.1025, respectively), or other relevant OSHA standards necessitate an immediate re-validation of this Program.

Section 11 – References

Websites:

- 1) [ATSDR Lead Toxicity](#)
- 2) [EPA Lead Programs](#)
- 3) [EPA Lead Regulations](#)

Regulations:

- 1) EPA Regulations (Standard – 40 CFR), Toxic Substances Control Act – [745 Lead-Based Paint Poisoning Prevention in Certain Residential Structures](#)
- 2) NH DHHS Regulation (Title X, Public Health, Chapter 130-A), [Lead Paint Poisoning Prevention and](#)

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- 3) OSHA Regulations (Standards – 29 CFR), Toxic and Hazardous Substances – [1910.1025 Occupational Exposure to Lead](#)
- 4) OSHA Regulations (Standards – 29 CFR), Toxic and Hazardous Substances – [1926.62 Lead Standard for the Construction Industry](#)
- 5) OSHA Regulations (Standards – 29 CFR), Toxic and Hazardous Substances – [1910.1200 Hazard Communication](#)
- 6) OSHA Regulations (Standards – 29 CFR), Toxic and Hazardous Substances – [1910.1020 Access to Employee Exposure and Medical Records](#)
- 7) OSHA Regulations (Standards – 29), Rules of Agency and Procedure Concerning OSHA Access to Employee Medical Records – [1913.10 OSHA Access to Employee Medical Records](#)

Publications:

- 1) Dinardi, S. R. (2003). The Occupational Environment: Its Evaluation, Control, and Management. AIHA (American Industrial Hygiene Association).
- 2) Mulhausen, J.R., Damiano, F., & American Industrial Hygiene Association. Exposure Assessment Strategies Committee. (1998). *User's guide to "A strategy for assessing and managing occupational exposures."* AIHA American Industrial Hygiene Association.
- 3) USEPA 2016. Quick Guide to Drinking Water Sample Collection

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Appendix A – Lead Work Practices

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Overview of Work Practices and General Procedures

The following outlines sixteen specific work practices and refers to three general procedures described below. These are designed to be used together and are organized around three levels of dust generation (defined below). As the potential for lead-contaminated dust increases, so do the required levels of preparation, protection, and cleanup to safeguard workers and building occupants.

Every work practice must be performed in conjunction with one of the three general procedures – these procedures apply universally, regardless of the specific task.

Work Practice Format

Each work practice follows a **five-part format**:

1. **Description** – Outlines the unique purpose and requirements of the practice.
2. **Examples** – Provide guidance on the appropriate level of preparation and protection under typical conditions. Examples are not provided for all three levels if certain scenarios are unlikely to occur.
3. **Preparation** – Refers to the corresponding section of the general procedures.
4. **Work Practice** – Provides detailed instructions for carrying out the O&M task. When all three levels are included, higher levels may reference lower-level steps to avoid repetition.
5. **Clean Up** – Refers to the applicable cleanup guidance in the general procedures.

Levels of Anticipated Dust Generation

The guidance in this manual is structured around **three levels** of expected lead-contaminated dust generation, developed through the NIBS consensus process:

- **Level 1 – Minimal Dust:** A negligible amount of dust may be generated. Dust is non-visible or barely visible and confined to a localized area. Requires minimal preparation and protection.
- **Level 2 – Moderate Dust:** A visible but limited amount of dust or debris may be produced. Containment within a small area (e.g., a drop cloth) is sufficient. Does not require full-scale preparation or protection.
- **Level 3 – Significant Dust:** A substantial quantity of dust and debris will be generated, requiring full-scale area preparation, containment, and worker protection.

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General Procedures

Each of the sixteen work practices must follow one of the three general procedures. These procedures cover both work area preparation and cleanup, including:

- Tools and Supplies
- Personal Protective Equipment (PPE)
- Dust Control Measures
- Work Area Access Controls
- Surface Cleaning
- Worker Hygiene and Waste Disposal

Summary Comparison of Lead Work Practice Levels

Category	Level 1	Level 2	Level 3
Description / Use	Minor repairs or maintenance involving small surface areas (e.g., drilling, minor sanding, or touch-up painting).	Moderate repairs generating limited dust and debris that can be contained within the immediate work area.	Major repairs, demolition, or surface preparation generating substantial dust and debris that may exceed OSHA's Action Level.
Typical Activities	Tightening screws, removing small fixtures, hand-sanding limited areas, or minor paint disturbance.	Removing components (windows, baseboards), moderate scraping or drilling, small-scale paint removal.	Large-scale paint removal, wall or ceiling demolition, major renovations, or work involving extensive lead-based paint disturbance.
Containment Requirements	Single plastic drop cloth beneath work area (minimum 6 mil).	Plastic sheeting extending 6 feet from work area and taped to seal edges.	Full containment: plastic sheeting extending 10 feet or more, sealed seams, and "flap" door entry system.
Access Control	Occupants excluded from immediate area during work.	Occupants excluded from room; restrict entry with barrier tape and signage.	Work area fully vacated and secured; polyethylene "flap" doors installed; access limited to trained and protected personnel only.
Engineering Controls	Wet methods (misting) to minimize dust.	Wet methods and localized HEPA vacuuming.	Full-scale dust suppression using misters, negative air machines, or localized exhaust if airborne dust levels are expected to be high.

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Category	Level 1	Level 2	Level 3
PPE Requirements	Gloves, eye protection, and disposable shoe covers (as needed).	Disposable coveralls, gloves, and respirator (half-face with HEPA filter if dust likely).	Full PPE: respirator with HEPA or combination cartridges, disposable or reusable coveralls with hood, gloves, and shoe covers.
Respiratory Protection	Not typically required unless visible dust is generated.	Half-face respirator with HEPA filters when dust generation is moderate.	Half-face or full-face respirator with HEPA filters; combination filters required if solvents or vapors are present.
Dust Control	Wet methods and immediate cleanup.	Extended containment and frequent HEPA vacuuming of visible dust.	Full containment with sealed floors/walls; HEPA vacuuming before, during, and after work.
Cleanup Procedures	Wet wipe work surfaces and HEPA vacuum area.	HEPA vacuum followed by wet wiping and rinsing (two-bucket method).	Full cleaning: debris removal, HEPA vacuuming, wet wipe and rinse (three-bucket method), and post-cleaning clearance testing.
Waste Disposal	Collect debris in sealed plastic bags and dispose per local requirements.	Dispose of debris in 6 mil plastic bags; contact EHS if large quantities generated.	All waste double-bagged (6 mil minimum); may be regulated under RCRA. Contact EHS for disposal guidance.
Worker Hygiene	Wash hands and face before eating, drinking, or leaving area.	HEPA vacuum protective clothing before removal; wash thoroughly.	HEPA vacuum clothing, wash face and hands, and shower after work. Respirators rinsed prior to removal.
Clearance Testing	Not required.	Recommended if visible dust was generated.	Strongly recommended; may be required to verify successful cleanup.
Training Requirement	Basic lead awareness training.	task-specific lead safety training.	Advanced training with respiratory protection and containment procedures.

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Lead General Procedures: Level 1

1.0 Overview

Level 1 General Procedures apply to work activities that generate a negligible amount of lead-contaminated dust. This dust may be non-visible or barely visible, but localized, and small paint chips or debris may still result from disturbing painted surfaces.

These procedures are designed to protect workers and work areas from potential lead exposure and to ensure thorough cleanup of any dust or debris produced during the task.

2.0 Tools, Equipment, and Supplies

The following tools and materials are commonly referenced in work practices using Level 1 procedures. For routine Operation and Maintenance (O&M) activities, maintaining a dedicated cart stocked with these items is recommended.

Tools

- Garden sprayer or mister

Supplies

- Plastic drop cloth
- Bucket with clean water
- Sponges
- Detergent (*lead-specific cleaner preferred*)
- Clean cloths
- Paper towels
- Plastic disposal bags
- Duct tape

Note: Some states restrict the use of high-phosphate detergents (those containing $\geq 5\%$ tri-sodium phosphate, or TSP) due to environmental concerns. Use phosphate-free cleaning agents specifically formulated for lead cleanup instead.

Personal Protective Equipment (PPE)

- Disposable gloves
- Safety glasses

3.0 Preparation

Dust Control

- Place a plastic drop cloth beneath the immediate work area to capture any dust or debris.
- The drop cloth should be large enough to contain all the material generated.
- Secure the edges to nearby walls if possible, though this is optional.

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Access Control

- Restrict access to the drop cloth area to only those performing the work.

Personal Protection

- Work as cleanly and carefully as possible to prevent dust migration.
- If any dust or debris escapes the drop cloth area, immediately upgrade the operation to a Level 2 procedure.

4.0 Cleanup

Cleaning Solution

- Prepare the cleaning solution according to the manufacturer's instructions.
- Store it in a clearly labeled container for use during wet wiping or mopping.

Work Area Wiping

1. Put on disposable gloves.
2. Moisten a cloth or paper towel with the cleaning solution, wring out excess liquid, and wipe the work area thoroughly.
3. Dispose of used towels as soon as they become soiled and continue using clean ones as needed.
4. Rinse the surface with a clean, damp towel.
5. Wipe down tools and the drop cloth using the same method.
6. Fold and store the drop cloth for future use.

5.0 Waste Disposal

- Place all waste, used towels, and debris into a plastic disposal bag and seal securely.
- Waste from O&M work may be regulated as hazardous waste under the Resource Conservation and Recovery Act (RCRA) and applicable state or local regulations.

6.0 Worker Hygiene

- After completing work, thoroughly wash hands and face before eating, drinking, smoking, or applying cosmetics.
- Never consume food or beverages or apply cosmetics within the work area during O&M activities.

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Lead General Procedures: Level 2

1.0 Overview

Level 2 General Procedures apply to work activities that generate a moderate amount of lead-contaminated dust and debris. This level of contamination is clearly visible and may include paint chips and debris, but will not spread beyond a small drop cloth area to other surfaces in the room. These activities do not require full-scale site preparation or extensive worker protection, but they still demand careful containment, cleaning, and hygiene practices to prevent lead spread and exposure.

The following procedures are designed to protect workers and occupants, as well as ensure the thorough cleanup of all dust and debris generated during Operation and Maintenance (O&M) tasks.

2.0 Tools, Equipment, and Supplies

The following items are commonly referenced for Level 2 work practices. For ongoing O&M activities, it is recommended to maintain a dedicated cart stocked with these materials.

Tools

- Garden sprayer or mister
- Putty knife or paint scraper

Supplies

- Plastic drop cloths
- Tape (for securing plastic sheeting)
- Mop and mop bucket
- Two additional buckets with clean water (for rinse method)
- Sponges
- Clean cloths
- Paper towels
- Plastic disposal bags
- Detergent (*lead-specific cleaner preferred*)

Note: Some states restrict the use of high-phosphate detergents ($\geq 5\%$ tri-sodium phosphate or TSP) due to environmental concerns. Use phosphate-free cleaning agents specifically formulated for lead cleanup.

Personal Protective Equipment (PPE)

- Disposable gloves
- Disposable shoe covers
- Safety glasses or goggles
- Work gloves (as needed for task-specific protection)

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3.0 Preparation

Dust Control

- Move portable furnishings and equipment away from the work area.
- Cover any fixed-in-place furniture or equipment with plastic sheeting.
- Place plastic drop cloths on the floor beneath the work area, extending at least five (5) feet from all sides of the lead-based paint surface.
- Overlap and seal multiple sheets with tape as needed.
- Turn up the edges of the drop cloth at the wall baseboards and **seal them with tape** to contain dust and debris.

Access Control

- Limit entry through the work area to authorized personnel only.
- A tape barricade across doorways or openings may be used to discourage unnecessary traffic.

Personal Protection

- Wear disposable gloves and shoe coverings to prevent tracking dust outside the work area.
- Remove shoe covers before stepping off the plastic sheeting.
- Use safety glasses or goggles and work gloves as needed for protection based on the specific task.

4.0 Cleanup

Cleaning Solution

- Mix the cleaning solution per the manufacturer's instructions and store it in a labeled container.
- Prepare two clean rinse buckets and place them in the work area along with the cleaning solution.
 - One bucket should be designated clean rinse.
 - The second should be a dirty rinse.
- If available, the mop bucket may serve as an additional container for dirty wrings.

Work Area Wiping

1. Put on disposable gloves.
2. Moisten a cloth or paper towel with the cleaning solution and **wring out excess liquid**.
3. Wipe the work surface thoroughly, disposing of towels as they become soiled.
4. Continue with clean towels as needed until the entire surface is covered.
5. Rinse the surface with a clean, damp cloth.
6. Wipe down tools and drop cloths using the same procedure.
7. Fold and store the drop cloth for reuse, or dispose of it if contaminated.

Tip: Change rinse water periodically depending on the level of contamination.

Mopping Work Area (Three-Bucket Method)

Prepare three buckets labeled or designated as follows:

- **Cleaning Solution**
- **Clean Rinse**
- **Dirty Rinse (Mop Bucket)**

Steps:

1. Dip the mop into the cleaning solution and wring out excess liquid.
2. Mop small sections of the floor until the mop becomes dry.

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3. Rinse the mop in the **dirty rinse bucket**, wring thoroughly, then dip in the clean rinse bucket and wring again.
4. Repeat steps 1–3 until the entire floor surface is thoroughly cleaned.

Note: Change rinse water periodically to maintain cleaning effectiveness.

Rinsing the Work Area (Post-Cleaning)

1. Replace the cleaning solution bucket with a second clean rinse bucket.
2. Follow the same three-bucket sequence (clean rinse → dirty rinse → mop bucket).
3. Continue until all surfaces are rinsed and free of visible residue.

5.0 Waste Disposal

- Place all used cloths, towels, disposable items, and debris into a plastic disposal bag and seal securely.
- Waste generated during O&M activities may be regulated as hazardous waste under the Resource Conservation and Recovery Act (RCRA) and applicable state or local regulations.
 - Contact ehs@dartmouth.edu for disposal assistance.

6.0 Worker Hygiene

- After completing work, wash hands and face thoroughly before eating, drinking, smoking, or applying cosmetics.
- Do not consume food, beverages, or apply cosmetics within the work area during O&M activities.

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Lead General Procedures: Level 3

1.0 Overview

Level 3 General Procedures apply to work activities that generate substantial amounts of lead-contaminated dust and debris.

This level of contamination cannot be contained by simple drop cloths and may produce airborne lead levels exceeding OSHA's action level of $30 \mu\text{g}/\text{m}^3$.

These procedures require full-scale site preparation, enhanced worker protection, and comprehensive cleaning measures to safeguard workers and prevent contamination of adjacent areas.

Cleaning and clearance procedures must be completed before occupants are permitted to re-enter the space.

2.0 Tools, Equipment, and Supplies

The following tools and materials are commonly referenced for Level 3 work practices. For ongoing Operation and Maintenance (O&M) activities, maintaining a dedicated, well-stocked cart is recommended.

Tools

- Garden sprayer or mister
- Putty knife or paint scraper
- Utility knife
- HEPA vacuum with appropriate attachments

Supplies

- Plastic drop cloths (polyethylene sheeting, 6 mil thickness recommended)
- Clean water buckets
- Sponges
- Clean cloths and paper towels
- Plastic disposal bags
- Duct tape
- Warning signs and barrier tape
- Detergent (*lead-specific cleaner preferred*)

Note: High-phosphate detergents ($\geq 5\%$ tri-sodium phosphate or TSP) are restricted in some states. Use phosphate-free cleaning agents formulated specifically for lead cleanup.

Personal Protective Equipment (PPE)

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- Respirator with HEPA filters, or combination HEPA/organic vapor cartridges when working with solvents or petroleum vapors
- Disposable coveralls or reusable protective clothing with hoods
- Disposable gloves
- Disposable shoe coverings

3.0 Preparation

Dust Control

- Remove all movable furnishings and equipment from the work area whenever possible.
- Cover any remaining items with plastic sheeting, overlapping and sealing seams to prevent dust or debris infiltration.
- Install plastic sheeting on the floor, extending at least ten (10) feet beyond all lead-disturbance areas.
- Overlap and tape additional sheets to create continuous containment.
- Turn the plastic up the wall baseboards and seal to the wall with tape.

Access Control

- Vacate and secure the work area by scheduling, locking doors, or installing barriers and signage.
- Use overlapped polyethylene “flap” doorways at entry points to minimize dust migration.
- Only authorized FO&M personnel wearing full protective gear may enter the containment area.
- Workers must not exit the containment area wearing contaminated protective clothing. Remove all protective gear carefully to ensure dust remains inside containment.

Personal Protection

- Workers must wear respirators, coveralls, hoods, gloves, and shoe coverings.
- The respirator must be at least a half-face, negative-pressure model equipped with HEPA filters, used and maintained in accordance with OSHA’s Respiratory Protection Standard (29 CFR 1910.134).
- Reusable clothing should be laundered professionally and never taken home.
- If other hazardous substances (e.g., solvents) are present, use combination HEPA/organic vapor cartridges as appropriate.

4.0 Cleanup

Debris Removal

- Collect and remove all visible debris using wet cloths.
- Place small debris into 6 mil plastic disposal bags; larger pieces should be wrapped and sealed for disposal.
- HEPA vacuum all visible surfaces, including plastic sheeting, to remove settled dust and debris.

Wiping Work Area

Cleaning Solution

- Mix the cleaning solution according to the manufacturer’s instructions and store it in a labeled container.
- Prepare two rinse buckets, labeled ‘*clean rinse*’ and ‘*dirty rinse*’. A mop bucket can serve as an additional container for dirty rinses.

Cleaning Process

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1. Moisten a clean cloth with the cleaning solution and wring out excess liquid into the dirty rinse bucket.
2. Wipe the work surfaces thoroughly.
3. Apply additional cleaning solution as needed until all surfaces are cleaned.
4. Discard used cloths in a sealed disposal bag.

Rinsing Process

1. Dip a new clean cloth in the first rinse bucket, wring out, and wipe all surfaces.
2. Rinse the cloth again, then dip and wring it out in the second rinse bucket.
3. Continue cleaning and rinsing until all surfaces are free of residue.

Note: Replace rinse water periodically, depending on the level of contamination.

HEPA Vacuuming

- Use a HEPA vacuum to remove residual dust from all surfaces, including plastic sheeting, corners, and baseboards.
- HEPA vacuum disposable coveralls and shoe coverings before removal.
- Remove PPE carefully, placing used garments, gloves, and shoe covers in sealed disposal bags.

Drop Cloth Removal

- Wipe all tools and equipment with wet cloths before removal from the area.
- Roll drop cloths inward to contain debris and place them into sealed disposal bags.
- Remove and dispose of all polyethylene flap doorways after cleaning and, if applicable, clearance testing.

Mopping Work Area (Three-Bucket Method)

Use the three-bucket system labeled as:

- Cleaning Solution
- Clean Rinse
- Dirty Rinse (Mop Bucket)

Steps

1. Dip the mop into the cleaning solution, wring out excess, and mop a small section of the floor.
2. Rinse the mop in the dirty rinse bucket, then the clean rinse bucket, wringing thoroughly between steps.
3. Repeat the process until the entire area is thoroughly cleaned.

Note: Change rinse water as needed based on contamination levels.

Final Rinse

- Replace the cleaning solution bucket with a second clean rinse bucket and repeat the process to ensure all residues are removed.
- Continue until all surfaces are visibly clean and dry.

Caution: *Clearance testing using dust wipe samples is recommended following Level 3 work to confirm that lead dust has been adequately controlled and removed.*

5.0 Waste Disposal

- Place all waste, used cloths, and debris into sealed plastic disposal bags.

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- Waste from O&M work may be subject to regulation under the Resource Conservation and Recovery Act (RCRA) and state or local regulations.
 - For assistance with proper disposal, contact ehs@dartmouth.edu

6.0 Worker Hygiene

- After completing work, wash hands and face thoroughly before eating, drinking, smoking, or applying cosmetics.
- Do not consume food, beverages, or apply cosmetics within the work area during O&M activities.

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Lead Work Practice (WP) 1: Removing Paint Chips and Debris

1.0 Description

Lead-based paint chips and debris must be removed from affected surfaces to prepare for subsequent Operations and Maintenance (O&M) work and to prevent contamination of adjacent areas. All removal activities shall employ wet methods to minimize the generation of airborne lead-containing dust.

2.0 Examples

Level 1

- Removing small or negligible amounts of lead paint dust or debris from surfaces using tape.
- Removing minimal lead paint dust or debris from exposed cavities.

Level 2

- Chipping and removing loose or flaking paint from deteriorated surfaces.
- Collecting detached paint chips and debris for disposal.
- Removing moderate amounts of lead paint dust or debris from exposed cavities.

Level 3

- Removing debris following the unexpected disturbance of lead-based paint and substrate materials.
- HEPA vacuuming accumulated lead paint debris.
- Removing substantial quantities of lead paint dust or debris from exposed cavities.

3.0 Preparation

Select and follow the General Procedures appropriate for the corresponding level of work. When performing work on floors or other horizontal surfaces, surround the immediate area with plastic drop cloths and seal all edges with tape to prevent the spread of contamination.

4.0 Work Practice

Performance Level 1 – Dust and Chip Removal

- Negligible amounts of lead paint dust or chips may be effectively removed using adhesive tape.
 - Wrap tape around fingers with the tacky side facing out and gently press the surface until loose paint fragments adhere.
 - Dispose of used tape in a sealed disposal bag.
 - This method may also be used to remove dust from surfaces or exposed cavities prior to cleaning.
- Refer to WP2 – Cleaning Damaged or Deteriorated Surfaces for detailed cleaning procedures.

Performance Level 2 – Collecting Dust or Debris / Chipping Loose Paint

Dust and Debris Collection:

- Use wet cloths to collect moderate amounts of lead paint dust or debris from surfaces or exposed cavities.
- Dispose of used cloths and collected material in a disposal bag.
- Alternatively, use a HEPA vacuum to collect dust and debris, followed by surface cleaning as described in WP2 – Cleaning Damaged or Deteriorated Surfaces.

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Chipping Loose Paint:

- Mist the work area lightly to suppress dust.
- Using a putty knife or scraper, carefully remove loose or flaking paint and any deteriorated substrate material.
- Chip or wet sand edges (see WP4 – Wet Sanding) until no loose paint remains.
- Collect all resulting debris using wet cloths and place in disposal bags.

Performance Level 3 – Removing Debris / HEPA Vacuuming

Debris Removal:

- Mist debris with a cleaning solution during collection to prevent dust dispersal.
- Collect all paint chips and debris using wet sweeping, mopping, or wiping methods.
- Work in smaller sub-areas to prevent accumulation of large waste piles.
- Place all debris into sealed disposal bags.

HEPA Vacuuming:

- For areas with significant lead paint dust or debris, use a HEPA-filtered vacuum with the appropriate attachment for the surface.
 - Use the crevice tool for cracks, corners, or along baseboards.
- Vacuum the entire surface thoroughly, overlapping each pass.
- Conduct a second vacuuming pass at a 90° angle to the first for thorough cleaning.
- Refer to WP14 – Changing Filters and Waste Bags in HEPA Vacuums for maintenance and dust removal procedures.

5.0 Clean-Up

Conduct final cleaning in accordance with the General Procedures corresponding to the level of work performed. Ensure that all debris, materials, and equipment are properly decontaminated or disposed of per institutional and regulatory requirements.

*** End ***

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Lead Work Practice (WP) 2: Cleaning Damaged or Deteriorated Surfaces

1.0 Description

When lead-based paint (LBP) surfaces are intact and undisturbed, standard housekeeping practices are sufficient. However, accessible surfaces with deteriorated or damaged paint should be cleaned periodically to prevent the accumulation of lead-containing dust.

Areas with chipped, cracked, or flaking paint may require surface preparation followed by wet cleaning (wiping or mopping) or HEPA vacuuming. In addition, surfaces newly identified as containing LBP may require an initial cleaning to remove existing dust and debris.

2.0 Examples

Level 2

- Wet cleaning walls with chipped or cracked paint.
- Wet cleaning door and window trim with flaked or peeling paint.
- Mopping floors with chipped or cracked paint.
- Wet wiping windowsills and troughs with flaked or deteriorated paint.
- Performing initial cleaning where dust or debris is present.

Level 3

- Wet cleaning or mopping surfaces with significant accumulations of dust or debris.
- HEPA vacuuming surfaces where substantial quantities of lead-containing dust or debris are present.

3.0 Preparation

Select and follow the General Procedures corresponding to the appropriate level of work. Ensure that all surfaces are properly prepared and that containment measures are in place to prevent the spread of lead-containing dust.

4.0 Work Practice

Performance Level 2

Surface Preparation:

If flaking or chipping paint is present, follow WP1 – Removing Paint Chips and Debris prior to cleaning.

Cleaning:

Perform wet wiping or wet mopping using the procedures outlined in General Procedures – Level

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2. Ensure all visible dust and debris are removed, and replace cleaning cloths or mop water as needed to prevent recontamination.

Performance Level 3

Surface Preparation:

If flaking or chipping paint is present, follow WP1 – Removing Paint Chips and Debris prior to cleaning.

Cleaning:

Use the General Procedures – Level 3 methods for wet cleaning and HEPA vacuuming. Select the appropriate vacuum attachment for the surface being cleaned (e.g., crevice tool for corners or baseboards). Continue cleaning until all visible dust and debris are removed.

Note: A variety of attachments are available for HEPA vacuums to accommodate different surface types and configurations.

5.0 Clean-Up

Perform final cleaning in accordance with the General Procedures corresponding to the level of work performed. Ensure that all debris, cleaning materials, and equipment are properly decontaminated or disposed of in compliance with institutional and regulatory requirements.

*** End ***

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Lead Work Practice (WP) 3: Removing Small Areas of Paint

1.0 Description

At times, small areas of lead-based paint (LBP) must be removed to prepare a surface for maintenance, repair, or installation activities. LBP can be removed from various surfaces using several approved methods, including wet scraping, chemical stripping, and mechanical or abrasive removal. These procedures are designed to minimize the generation and spread of lead-containing dust and debris during surface preparation.

2.0 Examples

Level 1

- Wet scraping a small area of paint prior to attaching hardware such as a coat hook or picture hanger (see WP7 – Attaching to a Lead-Painted Surface).
- Wet scraping a small paint area before drilling a single hole (see WP5 – Penetrating Lead-Based Paint).

Level 2

- Wet scraping a moderate area of paint prior to attaching multiple hardware items (e.g., coat hooks, door knobs). See WP7 – Attaching to a Lead-Painted Surface.
- Wet scraping paint before undercutting a door (see WP5 – Penetrating Lead-Based Paint).
- Wet scraping paint prior to cutting larger openings (e.g., for conduit or utility access). See WP5 – Penetrating Lead-Based Paint.

Level 3

- Chemical removal of lead-based paint.
- Wet scraping larger areas prior to installing fixtures such as cabinets (see WP7 – Attaching to a Lead-Painted Surface).
- Wet scraping multiple building components, such as window frames, prior to repainting (see WP8 – Applying Coatings to Lead-Painted Surfaces).

3.0 Preparation

Follow the General Procedures corresponding to the appropriate level of work. Ensure all surfaces are properly prepared and implement adequate containment measures to prevent the spread of lead-contaminated dust and debris to surrounding areas.

4.0 Work Practice

Performance Level 1 – Hand Scrape Paint Removal

1. Lightly mist the area to be scrapped.
2. Use a utility knife to cut around the section to be removed.
3. Gently scrape the paint down to the substrate using a hand scraper.
4. Collect all dust and debris with a wet paper towel and place the waste in a disposal bag.

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Performance Level 2 – Hand Scrape Paint Removal

1. Mist the area to be scraped to minimize airborne dust.
2. Score around the perimeter of the area using a utility knife.
3. Carefully scrape the paint to the bare substrate, keeping the surface wet throughout.
4. Smooth the edges of the adjacent painted area until no loose paint remains. *Wet sanding methods* (see WP4 – Wet Sanding) may be used to prevent flaking.
5. Collect paint chips and debris using wet cloths and place all waste in a sealed disposal bag.

Caution: Dry methods, such as dry scraping or sanding, must never be used to remove lead-based paint.

Performance Level 3 – Chemical and Mechanical Paint Removal

Chemical Paint Removal:

- Follow the manufacturer's instructions for the chemical paint remover, including application, dwell time, and removal.
- Collect all chemical residue and removed paint according to manufacturer guidance and place in approved disposal containers.
- If the product requires neutralization, follow the manufacturer's instructions precisely before final cleaning.

Respiratory and Skin Protection:

- Respirators must be equipped with filters appropriate for lead particulates and chemical vapors.
- Use gloves and protective clothing rated for chemical resistance as specified by the manufacturer.

Mechanical or Abrasive Paint Removal:

- Cover the surrounding area with plastic sheeting or drop cloths to prevent dust migration.
- Lightly mist or wet the surface throughout the operation to minimize dust generation.
- Collect visible dust and debris using wet cloths and place in sealed disposal bags.

Caution: Dry scraping or sanding **must not** be used for lead-based paint removal.

5.0 Clean-Up

Conduct final cleaning in accordance with the General Procedures for the applicable level of work performed. Ensure all waste, materials, and tools are properly decontaminated or disposed of per institutional policy and applicable regulatory requirements.

*** End ***

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Lead Work Practice (WP) 4: Wet Sanding

1.0 Description

Wet sanding may be required as part of surface preparation or as a finishing step following other maintenance or repair activities. This work practice outlines the proper procedure for wet sanding lead-painted surfaces to minimize the generation and spread of lead-containing dust.

2.0 Examples

Level 2

- Wet sanding painted wood or metal surfaces.
- Wet sanding painted walls or ceilings.
- Wet sanding cut edges to smooth or feather rough paint transitions.

3.0 Preparation

Follow the General Procedures – Level 2 prior to beginning work. Ensure all containment, PPE, and wet methods are in place to prevent lead dust migration.

4.0 Work Practice

Performance Level 2 – Wet Sanding

1. Lightly mist the surface before sanding.
2. Remove loose or deteriorated paint using **damp sandpaper** or a **damp abrasive sponge**.
3. Maintain surface moisture throughout the sanding process by **periodically misting** the area.
4. Mist any dust or debris generated to prevent dispersion into surrounding areas.
5. Wet sand all paint edges to achieve a smooth transition, ensuring **no loose paint remains**.

Caution: Dry sanding methods must never be used on lead-based paint, as they generate hazardous airborne lead dust.

5.0 Clean-Up

Perform final cleaning according to the General Procedures – Level 2. Ensure that all dust, debris, tools, and materials are properly decontaminated or disposed of in compliance with institutional policy and applicable regulatory requirements.

*** End ***

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Lead Work Practice (WP) 5: Penetrating Lead-Based Paint (LBP)

1.0 Description

Lead-painted materials may require drilling, sawing, planing, routing, cutting, hammering, or prying during maintenance or repair activities. This work practice outlines safe methods for performing these tasks while minimizing the release and spread of lead-containing dust. Before beginning work, evaluate the extent of material or paint disturbance to determine the appropriate level of preparation and controls.

2.0 Examples

Level 1

- Drilling small holes (e.g., for installing coat hooks on painted wood walls).
- Planing painted wood with manual tools.
- Prying open doors, windows, or drawers that are slightly stuck due to paint buildup.
- Removing electrical switch plates with paint around the edges.

Level 2

- Sawing with manual or power tools.
- Undercutting, routing, or planing one or two painted wood doors with power tools.
- Prying open doors, windows, or drawers that are completely painted shut.
- Drilling larger holes (e.g., for passing electrical conduit through walls).

Level 3

- Sawing, routing, or planing multiple painted wood doors with power tools (e.g., undercutting all doors in a multi-unit building).
- Cutting or grinding concrete surfaces coated with lead-based paint.

3.0 Preparation

Follow the General Procedures for the appropriate level prior to beginning work. Ensure all containment measures, PPE, and wet methods are in place to control and prevent lead dust migration.

4.0 Work Practice

Performance Level 1

Surface Preparation

- Mist the work area and remove loose paint using a utility knife or scraper. (See *WP3 – Removing Small Areas of Paint.*)

Drilling, Sawing, or Planing

- Drill or plane through the wetted surface, keeping all dust and debris on the plastic drop cloth.
- Clean tools, especially planes, thoroughly after use to remove trapped dust and debris.

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Prying

- Select the correct tool for the job.
- Place damp cloths beneath the tool to minimize damage and debris generation.
- Pry open the object while surfaces remain wet.

Finishing

- Mist the area of paint penetration.
- Carefully remove all loose paint with a scraper until edges are smooth and stable.
- Wet sand edges if needed (*see WP4 – Wet Sanding*).
- Collect all debris with wet cloths and place waste in a sealed disposal bag.

Performance Level 2

Surface Preparation

- Mist the work area. Use a utility knife or scraper to remove loose paint or cut along painted edges of components to be detached.
- (See *WP3 – Removing Small Areas of Paint* for guidance on removing paint along cutting lines.)
- Warning: Do not mist power tools. Use a ground fault circuit interrupter (GFCI) to prevent electrical shock.

Sawing, Routing, Planing, or Drilling

- Perform work on wetted surfaces, rewetting as needed.
- Turn off tools during rewetting and avoid spraying water directly onto power tools.
- Keep all debris contained on the drop cloth.
- If dust or debris spreads beyond containment, increase drop cloth coverage or use Level 3 procedures.
- After work, disconnect tools and re-mist the surface.

Prying

- Choose the correct tool size and type for the job.
- Cut along painted separation lines with a utility knife.
- Place damp cloths beneath the prying tool and work carefully while surfaces remain wet.
- (A *window zipper* tool can be used to unstick painted shut windows.)

Finishing

- Mist the area and remove all loose paint with a scraper.
- Wet sand edges to smooth transitions if needed (*see WP4 – Wet Sanding*).
- Collect debris using wet cloths and place waste in a disposal bag.
- Keep the disposal bag on the drop cloth to prevent contamination of adjacent areas.

Performance Level 3

Surface Preparation

- Mist the work area and remove loose paint or slice painted edges as needed.
- (See *WP3 – Removing Small Areas of Paint*.)

Sawing, Routing, Planing, or Drilling

- Follow Level 2 procedures and use a HEPA vacuum to collect all chips and debris at the point of generation.

Cutting or Grinding Concrete

- Wet the surface before cutting or grinding.

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- Prevent debris from dispersing onto unprotected areas.
- Use a HEPA vacuum to capture all dust and debris.
- After completing work and disconnecting tools, mist and wet-wipe the surface.

Finishing

- Follow Level 2 finishing procedures.

5.0 Clean-Up

Conduct final cleaning in accordance with the General Procedures for the level of work performed. Ensure all dust, debris, tools, and materials are properly decontaminated or disposed of in compliance with institutional policy and applicable regulatory requirements.

*** End ***

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Lead Work Practice (WP) 6: Removing Components from Lead-Painted Surfaces

1.0 Description

Lead dust and debris may be released when removing items that have been painted over on building surfaces. This work practice emphasizes careful handling and controlled methods to prevent unnecessary contamination.

2.0 Examples

Level 1

- Removing hardware or accessories from lead-painted windows or doors.
- Removing nails or screws from lead-painted walls or door frames.
- Removing cabinet hardware from lead-painted cabinets.

Level 2

- Removing painted-over hardware or accessories from doors or windows.
- Removing painted-over electrical, mechanical, or plumbing fixtures, fittings, or covers.
- Removing wood or metal trim from painted surfaces in good condition.
- Removing painted wood or metal trim that may be damaged during removal.
- Removing wall coverings adjacent to lead-based paint (LBP).
- Removing carpet or resilient flooring adjacent to LBP.

Level 3

- Removing vinyl or paper wall coverings from lead-painted walls.
- Removing carpet or resilient flooring from lead-painted floors.
- Removing lead-painted acoustic ceiling tiles.
- Removing drywall or wood paneling from lead-painted walls.
- Removing painted plaster, drywall, or wood paneling.
- Removing suspended ceilings installed beneath deteriorated lead-painted surfaces.
- Removing glued acoustic tile from lead-painted ceilings.

3.0 Preparation

Before beginning work, follow the General Procedures applicable to the performance level. Confirm that all containment measures, personal protective equipment (PPE), and wet methods are in place to control and prevent the spread of lead dust.

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4.0 Work Practice

Performance Level 1

Surface Preparation:

- Lightly mist the painted surfaces. Carefully remove any loose paint using a utility knife or scraper.

Removal:

- Use appropriate tools for the task. Avoid using hammers to remove screws, as this may generate lead dust. Proper tool selection minimizes surface disturbance.
- After removal, collect paint chips and debris with a wet cloth.

Performance Level 2

Surface Preparation:

- Follow the Level 1 surface preparation procedures.

Removal:

- Score or cut along the painted edges to be separated using a utility knife. Use tools suited to the task to minimize paint disturbance.
- Carefully remove all nails and screws. If
- prying is necessary, place a wet cloth between the tool and the painted surface to reduce damage.
- Wet sand or chip remaining paint edges (refer to WP4 – *Wet Sanding*) until only well-adhered paint remains.
- Collect all chips and debris with a wet cloth and place them in a disposal bag.

Performance Level 3

Surface Preparation:

- Follow Level 1 procedures. For floor work, cover and tape down drop cloths around the work area to contain lead dust. Use suitable tools to minimize paint disturbance.

Removal:

- While misting, gently separate and remove components.
- For materials such as carpet or wallpaper, roll them with the painted side inward and place them in a disposal bag or wrap in plastic.
- Wet scrape or wet sand remaining painted surfaces (see WP4 – *Wet Sanding*) until only firmly adhered paint remains.
- Collect larger paint chips and debris with a wet cloth. Complete cleaning using HEPA vacuuming procedures as outlined in *General Procedures – Level 3*.

5.0 Clean-Up

Perform final cleaning in accordance with the General Procedures for the corresponding work level. Ensure that all dust, debris, tools, and materials are properly cleaned, decontaminated, or disposed of in accordance with institutional policy and applicable regulatory requirements.

*** End ***

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Lead Work Practice (WP) 7: Attaching to a Lead-Painted Surface

1.0 Description

This work practice outlines procedures for safely attaching items to lead-painted surfaces. When performed carefully, these activities generate minimal lead dust or debris. Levels 2 and 3 involve deteriorated paint surfaces and require surface preparation prior to attachment.

2.0 Examples

Level 1

- Installing nails or screws into surfaces where paint is in good condition.
- Installing hardware or accessories on well-maintained painted surfaces.
- Using adhesives to attach items to painted surfaces in good condition.

Level 2

- Installing nails or screws into surfaces with chipped or cracked paint.
- Installing hardware or accessories on surfaces with chipped or cracked paint.
- Using adhesives to attach items to surfaces with chipped or cracked paint.
- Attaching items to painted surfaces using power-actuated tools where both paint and substrate are in good condition.

Level 3

- Installing nails or screws into surfaces with visible lead dust, debris, or a deteriorated substrate.
- Attaching items to painted surfaces with chipped or cracked paint and damaged substrate using power-actuated tools.

3.0 Preparation

Before beginning work, follow the General Procedures applicable to the appropriate performance level. Confirm that all containment measures, personal protective equipment (PPE), and wet methods are established to control and prevent the spread of lead dust.

4.0 Work Practice

Performance Level 1

Surface Preparation:

- No surface preparation is necessary when applying adhesives, nails, or screws to paint in good condition.
- Lightly mist the area if a “starter” hole must be drilled.

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Drilling “Starter” Hole:

- Follow *Work Practice WP5 – Penetrating Lead-Based Paint* for drilling procedures.

Attachment:

- Attach items directly to the surface, taking care to minimize disturbance of the painted area.

Performance Level 2

Surface Preparation:

- Lightly mist the surface.
- Using a putty knife or scraper, remove any loose or flaking paint.
- Collect debris with wet cloths and place it in a disposal bag.

Attachment:

- Attach items using nails, screws, or adhesives.
- When using nails or screws, mist the surface to minimize lead dust generation.

Performance Level 3

Surface Preparation:

- Lightly mist the surface and remove all loose paint using a putty knife or scraper.
- Use a HEPA vacuum to collect visible dust and debris. Repair deteriorated areas following *Work Practice WP11 – Patching a Lead-Painted Surface* before attaching items.

Attachment:

- Use Level 2 attachment procedures for nails, screws, or adhesives.
- When using power-actuated tools, ensure all loose paint has been removed and the substrate is stable.
- Place duct tape over the attachment point and make the connection through the tape to minimize lead dust release.

5.0 Clean-Up

Perform final cleaning according to the General Procedures for the corresponding work level. Ensure all dust, debris, tools, and materials are properly cleaned, decontaminated, or disposed of in compliance with institutional policies and applicable regulatory requirements.

*** End ***

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Lead Work Practice (WP) 8: Applying Coatings to Lead-Painted Surfaces

1.0 Description

Proper surface preparation is a critical step in this work practice. All surfaces must be clean, stable, and sound before applying any coating material. Manufacturer instructions must be followed precisely.

When paint is in good condition and the new coating will not cause flaking or chipping, standard preparation methods are sufficient. However, if paint is deteriorated or the surface is unstable, additional precautions and preparation are required before coating application.

2.0 Examples

Level 1

- Applying paint or sealant over surfaces in good condition.
- Preparing and applying liquid encapsulants over surfaces in good condition.

Level 2

- Applying paint or sealant over painted surfaces with minor cracking or chipping.
- Applying liquid encapsulants over painted surfaces with minor cracking or chipping.
- Applying paint over glossy surfaces following appropriate abrasive preparation.

Level 3

- Applying paint or sealant to deteriorated painted surfaces.
- Applying liquid encapsulants over surfaces with deteriorated substrates.

3.0 Preparation

Before beginning work, follow the General Procedures corresponding to the appropriate performance level. Confirm that all containment measures, personal protective equipment (PPE), and wet methods are in place to control and prevent the migration of lead dust.

4.0 Work Practice

Performance Level 1

Paint and Sealer Application:

- Coatings may be applied directly over lead-painted surfaces. Take care to minimize any disturbance to the underlying layers.

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Liquid Encapsulants:

- Apply all encapsulants in accordance with manufacturer instructions.
- Test a small area first to confirm compatibility with the lead-painted surface. The encapsulant should adhere firmly, form a continuous and durable finish, and provide a permanent barrier.

Note: HUD defines “permanent” as a 20-year service life.

- Apply the encapsulant to create a uniform, sealed coating over the lead-painted surface. Do not disturb the surface until the encapsulant has fully cured.

Note: Encapsulants should **not** be applied to friction surfaces (e.g., floors), as wear and abrasion can cause deterioration and re-exposure of lead paint.

Performance Level 2

Surface Preparation:

- Follow *WP3 – Removing Small Areas of Paint* to remove chipped or cracked paint. If necessary, use *WP4 – Wet Sanding* to remove additional paint or to prepare glossy surfaces for coating.
- All remaining paint must be well adhered to both the substrate and underlying layers.
- Collect dust and debris with wet cloths and place in a disposal bag.

Paint or Sealer Application:

- Paint or sealer may be applied directly to the prepared surface. Take care to minimize disturbance of the underlying paint.

Liquid Encapsulants:

- Apply according to manufacturer directions. Clean the surface thoroughly to remove dirt, oils, grease, chalking, or other contaminants that may affect adhesion. In some cases, a primer coat may be required—refer to the manufacturer’s guidance.

Performance Level 3

Surface Preparation:

- Follow Level 2 surface preparation procedures. If substrate repair is needed, refer to *WP11 – Patching a Lead-Painted Surface* prior to coating.
- Use a HEPA vacuum to collect all paint chips and debris.

Paint or Sealer Application:

- Apply paint or sealer directly over the surface, minimizing disturbance of the underlying layers.

Liquid Encapsulants:

- Generally, Level 2 application methods are sufficient. However, certain encapsulant systems are designed for deteriorated substrates and should be selected based on the

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expected level of wear and mechanical stress. Consult the manufacturer for appropriate product recommendations.

Some encapsulant coatings can fill cracks or damaged areas due to their allowable film thickness. When reinforced, these systems provide increased durability. If mechanically fastened to the substrate (see *WP7 – Attaching to a Lead-Painted Surface*), the result is a strong, continuous, and seamless barrier suitable for use on deteriorated materials.

5.0 Clean-Up

Perform final cleaning in accordance with the General Procedures for the applicable work level. Ensure all dust, debris, tools, and materials are properly cleaned, decontaminated, or disposed of in accordance with institutional policies and relevant regulatory requirements.

*** End ***

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Lead Work Practice (WP) 9: Installing Materials Over Lead-Painted Surfaces

1.0 Description

Most materials can be installed over lead-painted surfaces. Surface preparation is an important element of this work practice. In some situations, it may be desirable to first perform WP1 Removing Paint Chips and Debris and/or WP11 - Patching a Lead-Painted Surface at Level 3. WP9 can then be executed at a lower level. These materials are not effective in creating an "enclosure" to prevent migration of lead paint dust.

2.0 Examples

Level 1

- Installing carpet or resilient flooring over floors with intact paint and a good substrate condition.
- Installing acoustic, or decorative tile, over walls or ceilings with paint intact and substrate in good condition.
- Installing paper, vinyl, or fabric wall or ceiling coverings over surfaces in good condition.

Level 2

- Installing carpet or resilient flooring over floors with chipped or cracked paint.
- Installing acoustic, or decorative tile, over walls or ceilings with chipped or cracked paint.
- Installing paper, vinyl, or fabric wall or ceiling coverings over painted surfaces that are chipped or cracked.

Caution: In some cases these activities could generate more than a moderate amount of dust and debris, requiring Level 3 work practice.

Level 3

- Installing resilient flooring over floors with chipped, cracked, or flaking paint and a deteriorated substrate.
- Installing acoustic, or decorative tile, over walls or ceilings with chipped, cracked, or flaking paint and a deteriorated substrate.
- Installing paper, vinyl, or fabric wall, or ceiling coverings over painted surfaces that are chipped or cracked with deteriorated substrate (not a recommended practice.)

3.0 Preparation

Before beginning work, follow the General Procedures corresponding to the appropriate performance level. Confirm that all containment measures, personal protective equipment (PPE), and wet methods are in place to control and prevent the migration of lead dust.

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4.0 Work Practice

Performance Level 1

Installation:

- Carefully cut, fit, and install materials without disturbing the surface. If paint chips or debris are created, wet wipe the surfaces and plastic drop cloth and place in a disposal bag.

Performance Level 2

Surface preparation:

- For work on floors, surround the work surface with drop cloths, taping down the edges.
- Mist the surface.
- Use a putty knife or scraper to remove all loose paint from the work surface (WP1 - Removing Paint Chips and Debris).
- Damp mop or wet wipe the surface before installation.

Installation:

- Follow the Level 1 installation instructions.

Performance Level 3

Surface preparation:

- Use the Level 2 surface preparation procedures.
- Use a HEPA vacuum to collect excess dust and debris (WP1 - Removing Paint Chips and Debris) before wet mopping or wet wiping (WP2 – Cleaning Damaged or Deteriorated Surfaces).
- Use Work Practice WP5 - Penetrating Lead- Based Paint to remove substrate material before installation.
- Use Work Practice WP11 - Patching a Lead-Painted Surface to patch the surface before installation.

Installation:

Follow the Level 1 installation instructions.

5.0 Clean-Up

Perform final cleaning in accordance with the General Procedures for the applicable work level. Ensure all dust, debris, tools, and materials are properly cleaned, decontaminated, or disposed of in accordance with institutional policies and relevant regulatory requirements.

*** End ***

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Lead Work Practice (WP) 10: Enclosing Lead-Painted Surfaces

1.0 Description

The risk of exposure to lead dust from severely deteriorated surfaces can be reduced by enclosing the affected areas with permanent, rigid barriers. Suitable enclosure materials include drywall, tongue-and-groove wood, concrete, masonry, metal, stucco, or other durable systems designed to provide long-term protection.

Enclosures should **not** be used where future access to the enclosed area may be necessary or where the enclosure could be easily damaged. For surfaces with deteriorated paint or substrate, complete the necessary preparatory work using *WP3 – Removing Small Areas of Paint*, *WP5 – Penetrating Lead-Based Paint*, or *WP11 – Patching a Lead-Painted Surface* prior to installation.

2.0 Examples

Level 1

- Installing rigid enclosures (e.g., walls, ceilings, or floors) over painted surfaces with paint intact and substrate in good condition.
- Installing drywall or paneling over walls or ceilings where paint is intact and the substrate is in good condition.

Level 2

- Installing enclosures over surfaces with chipped or cracked paint.
- Installing drywall or paneling over walls or ceilings with chipped or cracked paint.

Caution: These activities may generate more than a moderate amount of dust and debris, requiring Level 3 work practices.

Level 3

- Installing enclosures over surfaces with chipped, cracked, or flaking paint and a deteriorated substrate.
- Installing drywall or paneling over walls or ceilings with deteriorated paint and substrate conditions.

3.0 Preparation

Before beginning work, follow the General Procedures corresponding to the applicable performance level. Confirm that all containment measures, personal protective equipment (PPE), and wet methods are in place to control and prevent the spread of lead dust.

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4.0 Work Practice

Performance Level 1

Rigid Enclosure:

- Cut, fit, and install enclosure materials carefully to avoid disturbing the painted surface.
- Apply a continuous bead of sealant along all perimeters, joints, openings, and penetrations to ensure a permanent, dust-tight barrier that prevents the release or migration of lead-contaminated dust.
- Drywall edges may be sealed with tape and spackle, or with “J” channels around cut edges.
- Apply a continuous bead of sealant along the back side of the rigid enclosure before installation to maintain an airtight seal.

Performance Level 2

Surface Preparation:

- Lightly mist the work area.
- Use *WP1 – Removing Paint Chips and Debris* to remove any loose or flaking paint, and *WP4 – Wet Sanding* to smooth painted edges.
- Remaining paint must be sound and firmly adhered to the substrate.

Enclosure:

- Follow Level 1 enclosure installation procedures.
- Clearly mark the underlying wall “lead paint” before installation.
- Apply a bead of caulk around all perimeter edges, particularly along the bottom edge.
- Secure panels to the wall or furring strips.
- Set baseboards and shoe molding into a continuous bead of caulk to ensure a tight seal.

Performance Level 3

Surface Preparation:

- Lightly mist the surface.
- Use *WP1 – Removing Paint Chips and Debris* to remove all loose or flaking paint.
- Repair deteriorated substrate materials using *WP5 – Penetrating Lead-Based Paint* and *WP11 – Patching a Lead-Painted Surface*.
- Finish the edges with *WP4 – Wet Sanding*.

Enclosure:

- Follow the Level 1 enclosure installation procedures for rigid enclosures.

5.0 Clean-Up

Perform final cleaning in accordance with the General Procedures for the applicable work level. Ensure all dust, debris, tools, and materials are properly cleaned, decontaminated, or disposed of in compliance with institutional policies and applicable regulatory requirements.

*** End ***

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Lead Work Practice (WP) 11: Patching a Lead-Painted Surface

1.0 Description

Patching building surfaces may be required before performing other lead O&M work practices or to restore damaged areas. The amount of dust generated will depend on the type of material (e.g., wood, plaster), as well as the condition of the existing paint, surface, and substrate.

When paint and the underlying surface are in good condition and patching does not cause visible flaking or chipping, work may proceed with standard preparation. However, if existing paint or surfaces are deteriorated or patching will significantly disturb painted areas, additional precautions must be implemented.

2.0 Examples

Level 1

Paint and substrate are intact and in good condition.

- Patching small holes after removing hardware or accessories.
- Repairing small cracks or holes prior to applying coatings.
- Repairing small defects before installing new materials or enclosures over the surface.

Level 2

Paint is deteriorated, but the substrate remains sound.

- Patching holes or cracks after removing hardware or accessories.
- Repairing openings created during *WP5 – Penetrating Lead-Based Paint*, prior to coating, installing, or enclosing.
- Repairing holes or cracks found after completing *WP6 – Removing Components from Lead-Painted Surfaces*.

Level 3

Both paint and substrate are deteriorated.

- Patching holes after removing hardware or accessories.
- Repairing large openings created during *WP5 – Penetrating Lead-Based Paint*, prior to coating, installing, or enclosing.
- Repairing large holes found after *WP6 – Removing Components from Lead-Painted Surfaces*.

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3.0 Preparation

Before beginning work, follow the General Procedures applicable to the corresponding performance level. Verify that all containment measures, personal protective equipment (PPE), and wet methods are properly established to control and prevent the spread of lead dust.

4.0 Work Practice

Performance Level 1

Patching:

- Install the patch as smoothly as possible.
- Use a putty knife or similar tool to create a flush, even surface. If desired, finish the repair using *WP4 – Wet Sanding*.
- After patching, apply paint or sealer following *WP8 – Applying Coatings to Lead-Painted Surfaces*.

Performance Level 2

Surface Preparation:

- Lightly mist the work area.
- Use a putty knife or scraper to remove loose paint. If necessary, remove damaged sections using *WP5 – Penetrating Lead-Based Paint* before installing the patch.

Patch Installation:

- Cut drywall patches to fit loosely to avoid disturbing surrounding painted areas.
- Remove loose paint around patch edges on walls and ceilings before applying texture.
- For wood surfaces, make clean cuts using wet methods (see *WP5 – Penetrating Lead-Based Paint*).
- If the patch must be nailed to a lead-painted surface, use *WP7 – Attaching to a Lead-Painted Surface*.
- Finish by applying paint or sealer per *WP8 – Applying Coatings to Lead-Painted Surfaces*.

Performance Level 3

Surface Preparation:

Follow Level 2 procedures. Use a HEPA vacuum to collect all paint chips and debris.

1. Tape a plastic disposal bag below the repair area.
2. Cut the perimeter of the damaged area.
3. Wet scrape along the cut line.
4. Mist while sawing within the cut line and remove damaged plaster.

Patch Installation:

5. Install the patch following Level 2 procedures.
6. Tape, block, and skim the perimeter of the patch.
7. Wet sand or sponge the joint for a smooth finish.

Use a putty knife to blend the patched area with the existing surface. Finish by smoothing with *WP4 – Wet Sanding* and applying paint or sealer in accordance with *WP8 – Applying Coatings to Lead-Painted Surfaces*.

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5.0 Clean-Up

Conduct final cleaning following the General Procedures for the applicable work level. Ensure all dust, debris, tools, and materials are properly cleaned, decontaminated, or disposed of in accordance with institutional policies and applicable regulatory requirements.

*** End ***

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Lead Work Practice (WP) 12: Exposing Lead-Paint Contaminated Cavities

1.0 Description

Removing building components such as window casings, door jambs, or trim can release accumulated lead dust and debris. The amount of potential exposure depends on the size of the opening and the height from which debris may fall. For example, dust falling from a 9-foot crown molding presents a greater exposure risk than debris released from a baseboard at floor level.

This work practice provides procedures to minimize exposure to lead-contaminated dust when cleaning cavities or voids exposed during the removal of building components.

2.0 Examples

Level 1

- Removing plumbing access covers.
- Removing electrical switch plates.
- Removing small trim components such as cap/shoe molding, base trim, or window trim where paint and substrate are in good condition and minimal dust or debris is expected.

Level 2

- Removing trim such as baseboards or window casings where paint is deteriorated or moderate dust and debris are expected.
- Removing door jambs or window casings with deteriorated paint or moderate dust generation potential.
- Cutting or drilling through surfaces to expose cavities with moderate amounts of dust or debris.

Level 3

- Removing trim such as baseboards or window casings where both paint and substrate are deteriorated or significant dust and debris are anticipated.
- Removing door jambs or window casings where both paint and substrate are deteriorated.
- Cutting or drilling through surfaces that expose large cavities with substantial dust or debris.
- Accessing areas above suspended ceilings.

3.0 Preparation

Before beginning work, follow the General Procedures applicable to the corresponding performance level. Verify that all containment measures, personal protective equipment (PPE), and wet methods are in place to control and prevent the spread of lead dust.

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Note: If more dust or debris is discovered than anticipated, escalate to the higher-level General Procedures immediately.

Warning: Before removing any component that may expose electrical wiring, disconnect power to the affected circuit and lock out the breaker to ensure safety.

4.0 Work Practice

Performance Level 1

Component Removal:

- Remove the access cover or component using appropriate hand tools.
- If the surface is coated with lead-based paint, follow *WP5 – Penetrating Lead-Based Paint* procedures.

Cleaning:

- Use wet cloths to wipe interior cavity surfaces and place all waste materials into disposal bags.
- Allow all surfaces to dry before using electrical tools or restoring power to previously de-energized circuits.
- Reinstall building components to reseal the cavity.
- Follow *WP7 – Attaching to a Lead-Painted Surface* as applicable.

Performance Level 2

Surface Preparation:

- Lightly mist surfaces with flaking or chipping paint.
- Use a putty knife or scraper to remove all loose paint before removal.
- Detach the component using appropriate tools.
- If lead-based paint is present, follow *WP5 – Penetrating Lead-Based Paint* or *WP3 – Removing Small Areas of Paint*.

Cleaning:

- Clean interior surfaces using *WP2 – Cleaning Damaged or Deteriorated Surfaces*.
- Replace the component to seal the cavity, following *WP7 – Attaching to a Lead-Painted Surface* if the attachment surface is painted with lead-based paint.

If the component is to be reused, wet wipe or carefully scrape the back to remove loose paint and dust. Ensure all surfaces are dry before operating electrical tools or re-energizing circuits.

Performance Level 3

Surface Preparation:

- Lightly mist exterior surfaces with deteriorated paint.
- Use a putty knife or scraper to remove all loose material, collecting visible debris with wet cloths for disposal.
- Score painted edges around cover plates or trim with a utility knife to reduce paint chipping during removal.

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- Remove fasteners carefully and detach components to expose the cavity.

Cleaning:

- Use a HEPA vacuum with appropriate attachments to remove dust and debris from all interior cavity surfaces.
- Wet wipe remaining residue following *WP2 – Cleaning Damaged or Deteriorated Surfaces*.
- If trim or cover plates will be reused, clean the back surfaces by wet wiping or scraping to remove loose paint and dust.
- Ensure all areas are completely dry before using electrical tools or restoring power.

5.0 Clean-Up

Perform final cleaning according to the General Procedures for the applicable work level. Ensure all dust, debris, tools, and materials are thoroughly cleaned, decontaminated, or disposed of in accordance with institutional policies and all applicable regulatory requirements.

*** End ***

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Lead Work Practice (WP) 13: Door and Window Maintenance

1.0 Description

Friction between lead-painted doors, windows, and their jambs can generate lead dust. Similarly, sticking doors may crush lead-based paint at the hinges, also producing lead-contaminated dust.

Maintenance and repair activities involving doors and windows often require the use of specific work practices, including:

- WP3 – Removing Small Areas of Paint
- WP5 – Penetrating Lead-Painted Surfaces
- WP7 – Attaching to a Lead-Painted Surface
- WP12 – Exposing Lead-Paint Contaminated Cavities

This work practice outlines the additional precautions necessary for maintaining, rebuilding, removing, or replacing lead-painted doors and windows to minimize exposure to lead dust and debris.

2.0 Examples

Level 1

- Repairing loose door hinges
- Removing a door or hinge painted with lead-based paint

Level 2

- Repairing sticking doors painted with lead-based paint
- Unsticking painted-shut windows
- Removing window units for replacement
- Reglazing doors or windows after removal

Level 3

- Repairing, cutting, or rebuilding damaged doors or windows
- Reglazing doors or windows in place
- Replacing severely deteriorated window units

3.0 Preparation

Before starting work, follow the General Procedures applicable to the corresponding performance level. Verify that all containment measures, personal protective equipment (PPE), and wet methods are properly implemented to prevent the spread of lead dust.

Note: If greater amounts of dust or debris are discovered during work than initially expected, immediately escalate to the higher-level General Procedures.

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Warning: Before removing any components that may expose electrical wiring, disconnect power to the affected circuit and lock out the breaker to ensure worker safety.

4.0 Work Practice

Performance Level 1

Door Maintenance:

- For loose hinges on a sound jamb, remove hinge screws one at a time. Insert a dowel into each screw hole, cut or break it flush to the surface, and reinstall new screws.
- If dowels are not large enough to fill the screw holes snugly, carefully score painted edges around the hinge with a utility knife. Pull the hinge slightly away from the jamb, insert dowels, trim them flush, and reattach the hinge securely.
- If the door binds against the hinge jamb, remove the hinge screws and place a shim behind the hinge leaf to create approximately 1/8" clearance. If the shim causes the door to rub on the latch side, plane the hinge side of the door as needed, then reinstall the hinge screws.

Performance Level 2

Surface Preparation:

- Mist the work area to control dust.
- Score along the edges of components to be separated using a utility knife.
- Loosen putty and glazing stops on windows with a scraper or knife.
- Collect all debris with a wet cloth and dispose of it properly.

Caution: Never use open-flame torches to soften painted glazing putty—heat may generate hazardous lead fumes.

Replacing or Repairing Windows or Doors:

- Carefully pry or cut apart painted joints to minimize paint disturbance. After repairs or replacement, reinstall components gently.

Unsticking Painted-Shut Windows:

- Use a window zipper or similar cutting tool between sash and stops/parting beads.
- Avoid striking the window sash, as this can break glass and release lead dust.
- Pry gently from the exterior, alternating sides, and place a damp cloth under the pry bar to prevent paint damage.
- Wet sand or wet scrape (see WP4 – Wet Sanding) painted edges to remove loose paint.
- Clean the window trough, stool, and sill following WP2 – Cleaning Damaged or Deteriorated Surfaces. Use a HEPA vacuum if available.

Planing Doors:

- If the door rubs against the jamb, remove it from the hinges and use WP5 – Penetrating Lead-Based Paint to plane the edge. Reinstall the door once complete.

Window Replacement Units:

- When installing new windows in existing jambs, no removal of jamb or casing is required.

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- **Interior Work:** Seal openings with plastic to prevent dust migration. Mist the area, clean debris as disassembly proceeds, and use a HEPA vacuum for cleanup.
- **Exterior Work:** Completely seal the interior opening with plastic. After removing sash, stops, and parting beads, wet scrape, HEPA vacuum, and wash the opening before removing the seal.

Seal and caulk both interior and exterior sides of the replacement window. Install the new unit against a bead of caulk along the inside of the exterior stop, and set the interior stop into a second bead of caulk.

Performance Level 3

Surface Preparation:

- Mist the surface and score painted seams using a utility knife.
- Scrape away any loose paint, caulk, or glazing (see WP3 – Removing Small Areas of Paint).
- Collect large debris with wet cloths and dispose of properly.
- HEPA vacuum remaining dust and debris.

Repairing, Cutting, or Rebuilding Doors or Windows:

- Mist surfaces before removing damaged sections.
- Use the procedures in WP5 – Penetrating Lead-Based Paint for safe sawing or prying.
- Patch damaged areas using WP11 – Patching a Lead-Painted Surface.
- Apply new coatings following WP8 – Applying Coatings to Lead-Painted Surfaces.

Replacing Severely Deteriorated Window Units:

- Use Level 2 procedures for disassembly, continuously HEPA vacuuming dust and debris.
- Follow Level 2 installation procedures for installing the new window units.

Replacing Windows In Place:

- Follow Level 2 installation procedures and use a HEPA vacuum throughout to capture dust and debris.

5.0 Clean-Up

Conduct final cleaning in accordance with the **General Procedures** for the applicable performance level. Confirm that all dust, debris, tools, and materials are properly cleaned, decontaminated, or disposed of in compliance with institutional policies and all relevant regulatory requirements.

*** End ***

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Lead Work Practice (WP) 14: Changing Filters and Waste Bags in HEPA Vacuums

1.0 Description

Filters and waste bags in High-Efficiency Particulate Air (HEPA) vacuums must be replaced periodically. These components may contain substantial amounts of lead dust and debris. If a waste bag tears or ruptures, it can release significant contamination, increasing the risk of lead exposure. This procedure outlines the safe methods for emptying, cleaning, and maintaining HEPA-filtered vacuums used for collecting lead-based paint dust and debris. It provides all required steps for this work and **does not require a separate General Work Procedure**.

Note: When performed carefully and with proper precautions, this procedure can be completed safely without undue risk.

2.0 Example

Level 3 Activities

- Removing or replacing the waste bag
- Removing or replacing the HEPA filter
- Cleaning or maintaining the vacuum interior
- Removing both the HEPA filter and waste bag, followed by wet wiping the vacuum
- Emptying the HEPA vacuum

3.0 Preparation

- Designate a contained work area, preferably separate from occupied living spaces and outside normal traffic paths.
- Cover any fixed equipment or furnishings in the room with plastic sheeting.
- Place two layers of plastic drop cloths on the floor within the work area, ensuring they are taped and sealed securely.
- Extend the drop cloths at least five (5) feet in all directions from the vacuum or to the maximum space allowed by the area.

4.0 Work Practice

Removing HEPA Filter and Waste Bag

- Some HEPA vacuum models require simultaneous removal of the HEPA filter and waste bag, while others allow them to be removed separately. Consult the manufacturer's instructions to determine the correct procedure.
- Carefully remove the HEPA filter following the manufacturer's guidance and immediately place it into an approved disposal bag.

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- If removing the waste bag:
 - Gently compress the bag to release excess air without rupturing it.
 - Seal the bag opening with tape to prevent dust release.
 - Place the sealed bag inside a labeled disposal bag for proper containment.

Installing HEPA Filter and/or Waste Bag

- Install the new HEPA filter and/or waste bag according to the manufacturer's instructions.
- Verify that the filter is correctly positioned and properly seated to ensure an airtight fit and optimal vacuum performance.

Cleaning the HEPA Vacuum

- If available, use a **second HEPA vacuum** to clean the interior of the first vacuum.
- Once filter and waste bag replacement is complete, wet wipe both the inside and outside surfaces of the vacuum thoroughly to remove residual dust.

5.0 Clean-Up

Perform final cleanup in accordance with the General Procedures for Level 3 Clean-Up. Ensure that all dust, debris, tools, and materials are properly cleaned, decontaminated, or disposed of per institutional policies and applicable regulatory requirements.

*** End ***

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Lead Work Practice (WP) 15: Cleaning or Removing Contaminated Carpet

1.0 Description

Removing lead dust from contaminated carpet is extremely difficult—and often impossible. Large quantities of lead-contaminated dust can accumulate beneath carpeting. Studies have shown that dry vacuuming may increase exposure risk by drawing embedded lead dust closer to the surface, posing a serious hazard, particularly to crawling infants and young children.

When performed correctly, wet cleaning methods can help remove heavy accumulations of lead dust and debris. This procedure also provides methods for safely removing and disposing of contaminated carpet.

2.0 Examples

Level 1

- Cleaning a small area of carpet contaminated with lead dust.

Level 2

- Removing a small section of lead-contaminated carpet.

Level 3

- Removing and disposing of lead-contaminated carpet.
- HEPA vacuuming or wet cleaning carpet contaminated with lead dust.

3.0 Preparation

Follow the General Procedures corresponding to the applicable performance level. Note: Plastic drop cloths are not used for carpet cleaning or removal.

4.0 Work Practice

Performance Level 1 – Cleaning Small Areas

Surface Preparation:

- Remove all objects from the area to be cleaned.
- Do **not** use plastic drop cloths.
- Collect visible debris using wet wipes and/or a HEPA vacuum before starting.

HEPA Vacuuming:

- Thoroughly vacuum the area, making at least two passes in perpendicular directions (90° apart).

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- Follow *WP14 – Changing Filters and Waste Bags in HEPA Vacuums* when changing filters or bags.

Wet Cleaning:

- Lightly mist the carpeted area to be cleaned.
- Wash using a lead-specific cleaning solution and appropriate rags or sponges.
- Rinse with clean water and dispose of waste according to applicable requirements.

Performance Level 2 – Removing Small Sections

Surface Preparation:

- Follow Level 1 preparation procedures.

Carpet Removal:

- Mist the carpet section to be removed, maintaining moisture throughout cutting.
- Cut using a carpet knife or similar tool.
- Place the removed section directly into a disposal bag.
- Collect and remove any remaining debris beneath the carpet using wet wipes or a HEPA vacuum.

Performance Level 3 – Full Cleaning or Removal

Surface Preparation:

- Follow Level 1 preparation procedures.
- Use a HEPA vacuum to collect dust and debris before cleaning or removal.

HEPA Vacuuming:

- Thoroughly vacuum the carpet, making several overlapping passes in one direction and then perpendicular to that direction.
- Follow *WP14 – Changing Filters and Waste Bags in HEPA Vacuums* when replacing filters or bags.

Wet Cleaning:

- Clean the carpet in manageable sections.
- Mist each section before scrubbing with a lead-specific cleaning solution and approved materials.
- Rinse with clean water and replace rinse water between sections.
- Dispose of all waste materials appropriately.

Carpet Removal:

- The carpet may be removed in full or cut into sections for easier handling.
- If cutting into sections, mist the entire carpet before cutting.
- If removing whole, continuously mist and roll the carpet inward on itself to contain dust.
- Use a HEPA vacuum to remove accumulated debris beneath the carpet—avoid introducing moisture into the vacuum.
- Wrap the carpet securely in 6-mil plastic sheeting, seal tightly, and dispose of it in accordance with institutional and regulatory requirements.

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5.0 Clean-Up

Perform final cleanup in accordance with the General Procedures for the applicable work level. Ensure that all dust, debris, tools, and materials are thoroughly cleaned, decontaminated, or disposed of in compliance with institutional policies and all applicable regulatory standards.

*** End ***

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Lead Work Practice (WP) 16: Landscaping in Soil Containing Elevated Levels of Lead

1.0 Description

Soil known to contain lead should be kept wet during any landscaping or soil-disturbing activities. Wetting the soil minimizes the spread of lead dust. Wet soil can be carefully raked to remove paint chips and other debris. Planting grass or ground cover on exposed soil surfaces can help reduce the transfer of lead-contaminated dust into buildings via foot traffic.

2.0 Examples

Level 2

- Raking, digging, or tilling soil known to contain lead dust.
- Removing soil with known lead contamination to reduce hazard.
- Raking loose paint chips from the soil surface.

3.0 Preparation

- Follow the General Procedures corresponding to the applicable performance level.
- For soil work, do not use plastic drop cloths directly on the ground. Instead, use drop cloths to surround the work area where soil disturbance occurs.

Caution: Use only hand tools for raking, digging, or tilling to minimize dust generation.

4.0 Work Practice

Performance Level 2 – Soil Handling

Raking, digging, or tilling soil:

- Perform work on damp or wet soil to minimize lead dust exposure.
- Keep soil consistently wet and handle it gently to limit dust dispersion.
- Clean soil from clothing and tools before leaving the work area.

Soil removal:

- Move soil only while it is thoroughly wet to prevent dust spread.
- Avoid lifting or dropping soil in a manner that could scatter soil or dust outside the prepared area.
- Place contaminated soil in disposal bags at least 6 mil thick.
- **Caution:** Do not overfill bags.

Raking loose paint chips:

- Work on small soil sections to avoid large accumulations of lead paint chips.
- Gather chips into a small pile and place them into a disposal bag.
- Take care not to disturb underlying soil when removing paint chips.

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5.0 Clean-Up

- Roll drop cloths inward and place them in disposal bags with other generated waste.
- Ensure all dust, debris, tools, and materials are properly cleaned, decontaminated, or disposed of in accordance with institutional policies and applicable regulatory requirements. After work is complete, thoroughly wash hands and face.
- Do not eat, drink, or smoke during or before washing following activities.

*** End ***

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Appendix B – Definitions

Abatement – any measure or set of measures designed to permanently eliminate a lead exposure hazard.

Action Level (AL) - An action level means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 µg/m³) calculated as an 8-hour time-weighted average (TWA). If met, additional monitoring and medical surveillance may be required.

Administrative Controls - A method of controlling employees' exposure to occupational hazards by implementing work procedures and practice changes. These controls involve written safety policies, rules, supervision, and training to reduce the duration, frequency, and/or severity of exposure to potential hazards in the workplace.

American Conference of Governmental Industrial Hygienists (ACGIH) is a non-profit, scientific organization that advances occupational and environmental health.

Ceiling Limit Value - the concentration that should not be exceeded during any part of the working day.

Competent Person – An employee capable of identifying existing and predictable lead hazards in the environmental or working conditions and has authorization to take immediate corrective measures to eliminate them.

Construction Work - Tasks encompassing construction, alteration, repair, painting, and decoration activities. This includes a wide range of actions, such as demolishing or salvaging structures containing lead, taking away or containing materials containing lead, engaging in new construction, altering, repairing, or renovating structures with lead, and conducting maintenance tasks connected with these construction operations.

Construction Project Managers: a supervisor or project manager overseeing construction work.

Containment - A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during an abatement.

Control Measures - Actions taken to minimize or eliminate potential occupational hazard exposures.

Elevated blood lead level (EBL) - An excessive absorption of lead that is a confirmed concentration of lead in whole blood of 20 µg/dL (micrograms of lead per deciliter of whole blood) for a single venous test or of 15–19 µg/dL in two consecutive tests taken 3 to 4 months apart.

Enclosure - The use of rigid, durable construction materials mechanically fastened to the substrate to act as a barrier between lead-based paint and the environment.

Engineering Controls - Actions taken to eliminate or reduce exposure to occupational hazards using engineered machinery or equipment. These measures involve modifying or substituting equipment, processes, or workspaces to minimize or eliminate the hazard at its source.

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Exposure Monitoring - The measurement of an individual's or a similar exposure group's exposure to a chemical, physical, or biological agent.

General Industry – Applies to all occupational lead exposures except those defined as Construction Work. Such as to routine operations in maintenance, laboratory work, or facility support where lead exposure can occur in fixed workplaces.

Lead – means metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

Lead Hazard Evaluation - A measurement that quantifies an employee's exposure to lead. This encompasses comprehensive personal air samples taken over an entire shift, accurately representing the employee's typical daily exposure to lead.

Lead Hot Work – Burning, cutting, or torch cutting of materials with lead-containing coating or paint.

Lead-Free Certification - A certification granted by an EPA-accredited Lead Dust Sampling Technician to a lessee with children aged six and under, confirming that the property lacks lead-based paint.

Lead-Safe Certification - A certification issued by an accredited EPA-accredited Lead Dust Sampling Technician to a lessee who has children aged six and under, indicating that the property is clear of lead-based paint hazards.

Medical Surveillance - Systematic assessment of employees exposed or potentially exposed to occupational hazards. This assessment monitors individuals for adverse health effects and determines the effectiveness of exposure prevention strategies.

Occupational Safety and Health Administration (OSHA) - Governing agency responsible for establishing and enforcing occupational health and safety regulations.

OSHA Action Level - An 8-hour time-weighted average lead exposure of 30 mg/m³. See “Action Level” for an in-depth definition.

OSHA Permissible Exposure Limit – An 8-hour time-weighted average lead exposure of 50 mg/m³. See “Permissible Exposure Limit” for an in-depth definition.

Personal Protective Equipment (PPE) - Includes all clothing and accessories designed to create a barrier against workplace hazards and protect employees from potential injuries or exposure to harmful agents.

Permissible Exposure Limit (PEL) – Set by OSHA. The limit that OSHA (legal limit) has set for employee exposure to regulated contaminants that a worker may be exposed to in a typical 40-hour work week (8 hours/day, based on a time-weighted average). The employer will ensure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 mg/m³) average over 8 hours.

Similar Exposure Group (SEG) - A group of workers having the same general exposure profile for the agent(s) being studied because of the similarity and frequency of the tasks they perform, the materials and processes with which they work, and the similarity of the way they perform the tasks.

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Target Housing: Any residential property built before 1978. Triggers mandatory lead-based paint disclosure and notification rules in real estate transactions. Excludes zero-bedroom dwellings and housing for the elderly or disabled unless a young child under six resides there.

Time Weighted Average (TWA) - Represents airborne concentrations of substances averaged over time.

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Appendix C – Lead Warning Sign

Employers are required to post these warning signs in each work area where employee exposure to lead is above or anticipated to be above the PEL and must remain posted until the work area(s) have been verified to be cleared:



All signs must be well-lit and kept clean to be easily visible. Statements that contradict or detract from the signs' meaning are prohibited. However, signs required by other statutes, regulations, or ordinances may be posted in addition to or in combination with this sign.

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