

SECTION 02 83 33.13
LEAD-BASED PAINT REMOVAL AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removing and disposal of lead-based paint (LBP) and paint with lead (PWL) as necessary to effectively apply a Fiberlock Lead-Based Paint Encapsulant such as Lead Barrier Compound (LBC), Type III Interior/Exterior thermoplastic-elastomeric water-based copolymer or approved equivalent at all interior locations indicated in Bid Item 2. The OSHA Construction Industry Standard for lead (29 CFR 1926.62) does not use the EPA/HUD definition for Lead. According to OSHA, if a material contains lead by laboratory analysis, the Contractor is subject to the 29 CFR 1926.62 Lead standard. The Contractor shall assume that all work for this project will disturb paints and coatings that contain lead and will comply with the current OSHA 29 CFR 1926.62 Lead in Construction standard. The intent of this project is not to remove all lead containing materials rather the intent is to cost effectively stabilize the potential lead hazard by surface preparation and application of the Lead-Based Paint Encapsulant and/or removal of the paint and substrate as necessary to complete the project. The surfaces that contain lead include, but are not limited to, electrical panels, ceilings, walls, pipes, stair components, hand rails, beams, columns, doors, door frames, door casings, door jambs, wall baseboards, cabinets and all other interior or exterior painted surfaces and components.

1.2 RELATED REQUIREMENTS

- A. Hazardous Material Abatement: Section 02 82 11, TRADITIONAL ASBESTOS ABATEMENT.
- B. The contractor shall refer to table in Section 02-82-11, TRADITIONAL ASBESTOS ABATEMENT, Paragraph 1.1.2 (B) Extent of Work for schedule requiring contractor to retain a 3rd party lead inspector to sample and test for lead via paint chip sample collection and for determining unit cost for lead abatement. Additionally, contractor shall provide a unit cost for each TCLP test performed by a 3rd party lead inspector, for determination of lead waste disposal requirements.

1.3 DEFINITIONS

- A. Action Level: Employee exposure, without regard to use of respirator, to lead airborne concentration of 30 micrograms per cubic meter of air averaged over 8-hour period. As used in this section, "30 micrograms per cubic meter of air " refers to action level.
- B. Area Monitoring: Sampling of lead concentrations within lead control area and inside physical boundaries which are representative of airborne lead concentrations which may reach breathing zone of personnel potentially exposed to lead.
- C. Breathing Zone: Area within hemisphere, forward of shoulders, with 150 mm to 225 mm (6 to 9 inches) radius and center at nose or mouth of employee.
- D. Certified Industrial Hygienist (CIH): As used in this section, refers to an Industrial Hygienist Certified in the Comprehensive Practice of Industrial Hygiene by the American Board of Industrial Hygiene and employed by Contractor.
- E. Change Rooms and Shower Facilities: Rooms within designated physical boundary around lead control area equipped with separate storage facilities for clean protective work clothing and equipment and for street clothes which prevent cross-contamination.
- F. Competent Person: Person capable of identifying lead hazards in work area and authorized by contractor to take corrective action.
- G. Decontamination Room: Room for removal of contaminated personal protective equipment (PPE).
- H. Eight-Hour Time Weighted Average (TWA): Airborne concentration of lead averaged over 8-hour workday to which an employee is exposed.
- I. High Efficiency Particulate Air (HEPA) Filter Equipment: HEPA filtered vacuuming equipment with UL 586 filter system capable of collecting and retaining lead-contaminated paint dust. HEPA filter means 99.97 percent efficient against 0.3 micron (0.012 mil) size particles.
- J. Lead: Metallic lead, inorganic lead compounds, and organic lead soaps. Excluded from this definition are other organic lead compounds.
- K. Lead Control Area: Enclosed area or structure with full containment to prevent spreading lead dust, paint chips, and debris from lead-based paint removal operations. Lead control area is isolated by physical boundaries to prevent unauthorized entry of personnel.

- L. Lead Permissible Exposure Limit (PEL): Fifty micrograms per cubic meter of air as 8-hour time weighted average as determined by 29 CFR Part 1926.62. When employee is exposed for more than 8 hours per work day, determine PEL by following formula. PEL micrograms/cubic meter of air = 400/No. of hrs. worked per day.
- M. Personnel Monitoring: Sampling of lead concentrations within employee breathing zone to determine 8-hour time weighted average concentration according to 29 CFR Part 1926.62. Take samples representative of employee's work tasks.
- N. Physical Boundary: Area physically roped or partitioned off around enclosed lead control area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean same as "outside lead control area."

1.4 APPLICABLE PUBLICATIONS

- A. Comply with references to extent specified in this section.
- B. American National Standards Institute (ANSI):
 - 1. Z9.2-12 - Fundamentals Governing the Design & Operation of Local Exhaust Ventilation Systems.
- C. Code of Federal Regulations (CFR):
 - 1. 29 CFR Part 1910 - Occupational Safety and Health Standards.
 - 2. 29 CFR Part 1926 - Safety and Health Regulations for Construction.
 - 3. 40 CFR Part 260 - Hazardous Waste Management System: General.
 - 4. 40 CFR Part 261 - Identification and Listing of Hazardous Waste.
 - 5. 40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste.
 - 6. 40 CFR Part 263 - Standards Applicable to Transporters of Hazardous Waste.
 - 7. 40 CFR Part 264 - Standards for Owners and Operations of Hazardous Waste Treatment, Storage, and Disposal Facilities.
 - 8. 40 CFR Part 265 - Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.
 - 9. 40 CFR Part 268 - Land Disposal Restrictions.
 - 10. 49 CFR Part 172 - Hazardous Material Table, Special Provisions, Hazardous Material Communications, Emergency Response Information, and Training Requirements, and Security Plans.
 - 11. 49 CFR Part 178 - Specifications for Packaging.
- D. Underwriters Laboratories (UL):
 - 1. 586-09 - High-Efficiency, Particulate, Air Filter Units.

1.5 PRE-REMOVAL MEETINGS

- A. Conduct pre-removal meeting at VA Dublin, Building 26, First Floor, Dublin, Georgia a minimum of 30 days before beginning Work of this section. This meeting a minimum 30 days before beginning work may be modified by the Contracting Officer.
 - 1. Required Participants:
 - a. Contracting Officer's Representative.
 - b. Certified Industrial Hygienist.
 - c. Architect/Engineer.
 - d. Inspection and Testing Agency.
 - e. Contractor.
 - f. Paint removal contractor.
 - g. Other installers responsible for finishing resulting surfaces.
 - 2. Meeting Agenda: Distribute agenda to participants minimum 3 days before meeting.
 - a. Respiratory protection program.
 - b. Hazard communication program.
 - c. Hazardous waste management plan.
 - d. Safety and health regulation compliance.
 - e. Employee training.
 - f. Lead Abatement schedule.
 - g. Lead Abatement sequence.
 - h. Preparatory work.
 - i. Personal and Property Protection before, during, and after Lead Abatement.
 - j. Application of Lead Barrier Compound (LBC).
 - k. Inspecting and testing.
 - l. Other items affecting successful completion.
 - 3. Document and distribute meeting minutes to participants to record decisions affecting installation.

1.6 SUBMITTALS

- A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
 - 1. Description of each product.
 - a. Paint abatement products.
 - b. Lead-Based Paint Encapsulant, Lead Barrier Compound (LBC)
 - c. Vacuum filters.

- d. Respirators.
- 2. Safety data sheet for each chemical product.
- 3. Installation/Surface Preparation instructions.
 - a. Paint abatement products.
 - b. Lead-Based Paint Encapsulant, Lead Barrier Compound (LBC)
- C. Test Reports: Submit testing laboratory reports.
 - 1. Submit air monitoring results within three working days, signed by testing laboratory employee performing air monitoring, employee analyzing sample, and CIH.
 - 2. Submit TCLP Test Results for lead waste generated by this project.
- D. Certificates: Certify completed training.
 - 1. Submit certificate for each employee signed and dated by CIH and employee stating employee was trained in lead hazards or other potential project hazards.
- E. Qualifications: Substantiate qualifications comply with specifications.
 - 1. Paint removal contractor.
 - 2. Testing laboratory.
 - a. Name, address, and telephone number.
 - b. Current evidence of participation in NIOSH PAT Program.
 - c. Copy of current AIHA accreditation certificate.
 - 3. Industrial hygienist.
 - a. Name, address, and telephone number.
 - b. Resume showing previous experience.
 - c. Copy of current ABIH CIH certification.
 - 4. Paint disposal facility.
 - a. Name, address, and telephone number.
 - b. Current license or authorization to receive and dispose lead contaminated waste.
- F. Record Documents:
 - 1. Completed and signed hazardous waste manifest from waste transporter.
 - 2. Paint disposal facility receipts and disposition reports.
 - 3. Certification of medical examinations.
 - 4. Employee training certification.

1.7 **QUALITY ASSURANCE**

- A. Safety and Health Regulation Compliance:

1. Comply with laws, ordinances, rules, and regulations of federal, state, and local authorities having jurisdiction regarding removing, handling, storing, transporting, and disposing lead waste materials.
 - a. Comply with applicable requirements of 29 CFR Part 1910.1025.
 - b. Notify Contracting Officer's Representative and request resolution of conflicts between regulations and specified requirements before starting work.
2. Comply with the following local laws, ordinances, criteria, rules and regulations regarding removing, handling, storing, transporting, and disposing lead-contaminated materials:
 - a. State of Georgia Rules for Solid Waste Management, Chapter 391-3-4.
 - b. State of Georgia Rules for Hazardous Waste Management, Chapter 391-3-11.
 - c. State of Georgia Rules for Lead-Based Paint Hazard Management, Chapter 391-3-24, For General Reference Purposes Only.
- B. Paint Removal Contractor: Experienced contractor, registered or licensed by applicable state agency regulating lead-based paint removal.
- C. Testing Laboratory: State certified independent testing laboratory experienced in airborne lead monitoring, testing, and reporting.
 1. Successful participant in NIOSH Proficiency Analytical Testing (PAT) Program within prior 12 months.
 2. Accredited by American Industrial Hygiene Association (AIHA).
- D. Certified Industrial Hygienist: Certified as CIH by American Board of Industrial Hygiene in comprehensive practice and responsible for:
 1. Certify Training.
 2. Review and approve lead-based paint removal plan for conformance to applicable referenced standards.
 3. Inspect lead-based paint removal work for conformance with approved plan.
 4. Direct monitoring.
 5. Ensure work is performed according to specifications.
 6. Ensure personnel and environment hazardous exposures are adequately controlled.
- E. Paint Disposal Facility: State certified disposal facility qualified to receive and dispose lead-based paint.
- F. Lead-based Paint Abatement and Encapsulation Plan:

1. Submit detailed, site-specific plan describing lead-based paint abatement, encapsulation and lead dust control procedures.
 2. Include sketch showing location, size, and details of lead control areas, decontamination rooms, change rooms, shower facilities, and mechanical ventilation system.
 3. Include eating, drinking, and restroom procedures, interface of trades, work sequencing, collected wastewater and paint debris disposal plan, air sampling plan, respirators, protective equipment, and detailed description of containment methods ensuring airborne lead concentrations do not exceed action level outside lead control area.
 - a. Eating, drinking, and smoking are not acceptable within lead control area.
 4. Include air sampling, training and strategy, sampling methodology, frequency, duration, and qualifications of air monitoring personnel.
- G. Respiratory Protection Program: Establish and implement program required by 29 CFR Part 1910.134 and 29 CFR Part 1926.62.
1. Provide each employee with a negative pressure or other appropriate respirator equipped with P100 HEPA filters during preparation, scraping and packaging of paint. During application of encapsulant or LBC provide each employee with a pre-filter, P100 HEPA filter and combination organic vapor cartridge respirator, at a minimum.
 - a. Test fit each employee's respirator at initial fitting and annual intervals, as required by 29 CFR Part 1926.62 and 29 CFR 1910.134.
- H. Hazard Communication Program: Establish and implement program required by 29 CFR Part 1910.1200.
- I. Hazardous Waste Management Plan: Establish and implement plan according to applicable requirements of Federal, State, and local hazardous waste regulations including the following:
1. Identification of hazardous wastes associated with work.
 2. Estimated quantities of generated and disposed waste.
 3. Names and qualifications of each contractor transporting, storing, treating, and disposing wastes. Include facility location and 24-hour point of contact. Provide two copies of EPA and State of Georgia hazardous waste rules and regulations, permits and EPA Identification numbers.

4. Names and qualifications (experience and training) of personnel working on-site with hazardous wastes.
5. List of required waste handling equipment including cleaning, volume reduction, and transport equipment.
6. Spill prevention, containment, and cleanup contingency implementation measures.
7. Work plan and schedule for waste containment, removal, and disposal with daily waste cleaned up and containerization.
8. Hazardous waste disposal cost.

1.8 WARRANTY

- A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

PART 2 - PRODUCTS

2.1 PAINT ABATEMENT PRODUCTS

- A. Chemical Stripper, if used: Biodegradable, non-toxic, capable of removing existing paint layers in one application, and acceptable to CIH.
- B. Encapsulant/LBC: Shall be approved as permanent abatement (20+ years).

2.2 ACCESSORIES

- A. Waste Collection Drums: 49 CFR Part 178; Type 1A2, steel, removable head, 200 L (55 gal.) capacity, capable of containing waste without loss.
- B. Vacuum Cleaner: HEPA (99.97%) filtered type.
- C. Scrapers:
 1. Metal type for use on metal, concrete, and masonry surfaces.
 2. Plastic type for use on wood, plaster, gypsum board, and other surfaces.
- D. Rinse Water: Potable.
- E. Cleaning Cloths: Cotton.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Before exposure to lead-contaminated dust, provide workers with comprehensive medical examination required by 29 CFR Part 1926.62 (j) Medical Surveillance.

1. Exemption: Examination is not required when employee medical records show last examination required by 29 CFR Part 1926.62(j) was completed within previous 12 months.
- B. Maintain complete and accurate employee medical records according to 29 CFR Part 1926.62 (n) Recordkeeping and 29 CFR Part 1910.20.
- C. Train each employee performing paint removal, disposal, and air sampling operations according to 29 CFR Part 1926.62.
 1. Certify training is completed before employee is permitted to work on project and enter lead control area.

3.2 PREPARATION

- A. Protect existing work indicated to remain.
 1. Perform paint removal work without damaging and contaminating adjacent work.
 2. Restore damage and contamination to original condition.
- B. Notify Contracting Officer 10 days before starting paint removal work.
- C. Lead Control Area Requirements:
 1. Establish exterior lead control area by placing a 6-mil polyethylene drop cloth extending 30' around the perimeter of the lead-based paint removal work area, place lead danger tape around perimeter and lead warning signs around the perimeter in accordance with the wording in 29 CFR 1926.62 (m) (1) (i). Use dust suppression techniques when removing exterior paint.
 2. Contain interior removal operations using negative pressure full containment system with a minimum HEPA filtered exhaust system that provides four air exchanges per hour, with attached personal decontamination facility. The Contractor shall seal openings and penetrations to the exterior or other non-work areas of the building with two layers of independently installed 6-mil polyethylene barriers and duct tape. During scraping of painted surfaces, Contractor shall place a 6-mil polyethylene drop cloth on floor surfaces to capture falling debris and to facilitate clean-up.
Note: Contractor shall determine if polyethylene sheeting needs to be placed on the inside or exterior of the building when removing window components intact.
- D. Boundary Requirements: Provide physical boundaries around lead control area by roping off area or providing curtains, portable partitions or other enclosures to ensure that airborne lead concentrations do not meet or exceed the OSHA action level outside of lead control area.

- E. Heating, Ventilating and Air Conditioning (HVAC) Systems: Shut down, lock out, and isolate HVAC systems supplying exhausting, and passing through lead control areas. Seal HVAC inlets and outlet within lead control area with two layers of independently installed 6-mil plastic sheeting and duct (or poly) tape. Tape seal seams in HVAC components passing through lead control area.
- F. Change Room and Shower Facilities: Provide clean change rooms and shower facilities within physical boundary around lead control area according to 29 CFR Part 1926.62.
- G. Mechanical Ventilation System:
 - 1. Provide ventilation system to control personnel exposure to lead according to 29 CFR Part 1926.57.
 - 2. Design, construct, install, and maintain HEPA filtered fixed local exhaust ventilation system according to ANSI Z9.2 and approved by CIH.
 - 3. Exhaust ventilation air to exterior of the building a minimum distance of 30' from building make-up air, doors, windows or pedestrian traffic.
 - 4. When exhaust ventilation air must be recirculated into work area, provide HEPA filter with reliable back-up filter and controls to monitor lead concentration in return air and to bypass recirculation system automatically when system fails.
- H. Personnel Protection: Provide and use required protective clothing and equipment within lead control area.
- I. Warning Signs: Provide warning signs complying with 29 CFR Part 1926.62 (m) (1) (i) at lead control area approaches. Locate signs so authorized personnel can read signs and take necessary precautions before entering lead control area.

3.3 WORK PROCEDURES

- A. Remove lead-based paint according to approved lead-based paint removal plan.
 - 1. Perform work only in presence of CIH or Industrial Hygienist (IH) Technician under direction of CIH ensuring continuous inspection of work in progress and direction of air monitoring activities.
 - 2. Handle, store, transport, and dispose lead or and lead contaminated waste according to 40 CFR Part 260, 40 CFR Part 261, 40 CFR Part 262, 40 CFR Part 263, 40 CFR Part 264, and 40 CFR Part 265. Comply with land disposal restriction notification

- requirements as required by 40 CFR Part 268. Handle, store, transport, and dispose lead or and lead contaminated waste according to the State of Georgia Solid Waste Management (391-3-4) and Hazardous Waste Management (391-3-11) Rules.
- B. Use procedures and equipment required to limit occupational and environmental lead exposure when lead-based paint is removed according to 29 CFR Part 1926.62.
- C. Dispose removed paint and waste according to Environmental Protection Agency (EPA), federal, state, and local requirements.
- D. Personnel Exiting Procedures:
1. When personnel exit lead control area, comply with the following procedures:
 - a. Vacuum exposed disposable protective clothing surfaces.
 - b. Remove disposable protective clothing and equipment in decontamination room. Place clothing in approved impermeable disposal bag.
 - c. Shower.
 - d. Dress in clean clothes before leaving lead control area.
- E. Monitoring - General:
1. Monitor airborne lead concentrations according to 29 CFR Part 1926.62 by sampling and analysis as directed by CIH.
 2. Take personal air monitoring samples on representative employees anticipated to have greatest exposure risk as determined by CIH. Additionally, take air monitoring samples on minimum 25 percent of work crew or minimum of two employees, whichever is greater, during each work shift.
 3. Submit results of air monitoring samples, signed by CIH, within 72 hours after taking air samples. Notify Contracting Officer's Representative immediately of lead exposure at or exceeding action level outside of lead control area.
- F. Monitoring During Paint Abatement:
1. Perform personal and area monitoring during entire paint removal operation.
 2. Conduct area monitoring at physical boundary daily for each work shift to ensure unprotected personnel are not exposed above action level anytime.
 3. For outdoor operations, take at least one sample on each shift leeward of lead control area. When adjacent areas are contaminated,

clean area of contamination and have CIH visually inspect and certify lead contamination is cleaned.

4. Stop work when outside boundary lead levels meet or exceed action level. Notify Contracting Officer's Representative, immediately.
5. Correct conditions causing increased lead concentration as directed by CIH.
6. Review sampling data collected during work stoppage to determine if conditions require additional work method modifications as determined by CIH.
7. Resume paint abatement when approved by CIH and Contracting Officer.

3.4 LEAD-BASED PAINT ABATEMENT

- A. Remove damaged paint within areas indicated on drawings as necessary to prepare surface for lead encapsulant/LBC. Minimize damage to substrate.
- B. Comply with paint removal processes described in lead paint removal plan.
- C. Lead-Based Paint Removal: Select processes for each application to minimize work area lead contamination and waste.

3.5 FIELD QUALITY CONTROL

- A. Field Tests: Performed by testing laboratory specified in Section 01 45 29, TESTING LABORATORY SERVICES.
- B. The Contractor's CIH shall perform sampling and testing for:
 1. Personal and area air monitoring.
 2. Lead based paint.
 3. TCLP testing of representative waste streams for determination of proper disposal.

3.6 CLEANING AND DISPOSAL

- A. Cleaning:
 1. Maintain lead control area surfaces free of accumulating paint chips and dust. Confine dust, debris, and waste to work area.
 2. HEPA vacuum clean work area daily, at end of each shift, and when paint removal operation is complete.
 3. Wet wipe and mop all floor surfaces with approved lead cleaning solution to remove any residual settled lead dust and debris.
- B. CIH Certification: Certify in writing that inside and outside lead control area air monitoring samples are less than action level, employee respiratory protection was adequate, the work was performed

according to 29 CFR Part 1926.62, and no visible accumulations of lead-based paint and dust remain on worksite.

1. Do not remove lead control area or roped-off boundary and warning signs before Contracting Officer's Representative's receipt of CIH's certification.
 2. Reclean areas showing dust or residual paint chips.
- C. Testing: Test lead-based paint residue, disposable clothing, components, waste debris or used abrasive according to 40 CFR Part 261 for hazardous waste determination.
- D. Waste Collection:
1. Collect lead-contaminated materials including waste, scrap, debris, bags, containers, equipment, and clothing, which may produce airborne lead contamination.
 2. Place lead contaminated materials in waste disposal drums. Label each drum identifying waste type according to 49 CFR Part 172 and date waste materials were first put into drum. Obtain and complete the Uniform Hazardous Waste Manifest forms. Comply with land disposal restriction notification requirements required by 40 CFR Part 268 and the State of Georgia Solid Waste Management (391-3-4) and Hazardous Waste Management (391-3-11) Rules.
 3. Coordinate temporary storage location on project site with Contracting Officer's Representative.
- E. Waste Disposal:
1. Do not store hazardous waste drums in temporary storage location longer than 90 calendar days from drum label date.
 2. Remove, transport, and deliver drums to paint disposal facility.
 - a. Obtain signed receipt including date, time, quantity, and description of materials received according to 40 CFR Part 262.
 - b. Obtain final report of materials disposition after disposal completion.

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