

SECTION 02 83 19: LEAD HANDLING PROCEDURES

PART 1 GENERAL

1.1 SCOPE

- A. This section covers all contractors performing any task such as handling, demolition, removal, sanding, patching, paint preparation, on-site chemical stripping, torch burning, welding, abrasive blasting, or any task performed on solid lead-containing articles or painted or varnished surfaces that may result in occupational exposures to lead. All contractors performing tasks as identified under OAR 437-03-001 (Lead for the Construction Industry Standard, Oregon) shall be required to perform work in accordance with the standard and these specifications.
- B. Work requirements under this section include, but are not limited to, initial testing and evaluation of work practices, development of a written lead compliance program, lead awareness training, employee monitoring, respiratory protection, engineering controls, containment, wash facilities, and signage.
- C. Lead paint exists throughout the buildings. Contractors shall presume that all painted or varnished surfaces contain lead. Lead-containing vent pipe caps are present on the roof of Building 'F'.
- D. Any contractor subject to potential lead exposure shall provide all labor, materials, equipment, and services necessary to comply with the OSHA standard and disposal requirements.
- E. The general contractor and its subcontractors shall endeavor to select work methods that minimize the creation or spreading of lead dust. If work practices or surface preparation methods create dust that cannot be readily controlled via wet methods or by using basic work area isolation, then the contractor may utilize its hazardous materials abatement contractor to perform the necessary paint stripping or other portions of the work.

1.2 RELATED WORK

- A. The owner may retain an environmental consultant to perform the following:
 - 1. Collect and analyze air, bulk, surface wipe, and soil samples before, during, and after lead handling activities.
 - 2. Observe work by the general contractor and subcontractors.
 - 3. Monitor the contractor's compliance with regulatory and specification requirements.

1.3 DEFINITIONS

- A. Action Level: Employee exposure, without regard to the use of respirators, to an airborne concentration of lead equal to 30 micrograms per cubic meter of air averaged over an eight-hour period.
- B. Air Monitoring: The process of measuring the airborne concentrations of a specific volume of air in a stated period of time.
- C. Atomic Absorption: A method of measuring elements such as lead. The lead is vaporized at high temperature, usually several thousand degrees, and light of a very specific wavelength is shined through the vapor.
- D. Biological Monitoring: The analysis of a person's blood and/or urine to determine the level of lead contamination in the body.

- E. Containment: A process for protecting both workers and the environment by controlling exposures to lead dust and debris created during lead handling tasks.
- F. Contractor: The general contractor, subcontractor, abatement contractor or person performing lead handling procedures specified herein.
- G. Engineering Controls: Measures implemented at the work site to contain, control, and otherwise reduce exposure to lead dust and debris.
- H. Exposure Monitoring: The personal air monitoring of an employee's breathing zone to determine the amount of contaminant (e.g., lead) to which he/she is exposed.
- I. Fixed Object: Fixtures attached to a building or too heavy or bulky to remove from the work area.
- J. Independent Testing Laboratory: A qualified American Industrial Hygiene Association Environmental Lead Proficiency Analytical Testing (AIHA ELPAT) laboratory financially independent from and hired by the owner or contractor.
- K. Industrial Hygienist: The representative assigned to monitor work progress, perform sampling, and visually inspect areas during and after lead handling procedures. The industrial hygienist will be certified by the American Board of Industrial Hygiene or an industrial hygienist in training, or an individual with other appropriate education or experience.
- L. Medical Removal: The temporary removal of workers due to elevated blood lead levels as defined in the OSHA lead standard.
- M. Micrograms: One millionth of a gram: μg . The prefix "micro" means "1/1,000,000 of" (one millionth of). Since there are 453 grams in one pound and 16 ounces in one pound, one gram equals 0.035 ounces. A microgram is equal to about 35/1,000,000,000 (thirty-five billionths) of an ounce.
- N. Movable Object: Furnishings that are not attached to the building structure and can be removed from the work area.
- O. Off Site Paint Removal: The removal of paint or varnish at a site away from the project, such as the stripping of lead paint from the surface of a component in a chemical tank at a commercial paint-stripping facility
- P. Paint Removal: Stripping or removal of lead paint from surfaces of components.
- Q. ppm: Parts Per Million", meaning the weight of one part per weight of the total amount of material. For example, a lead concentration of 1 ppm expresses the ratio of 1 gram of lead dissolved into 1,000,000 grams of water.
- R. Public Area: Any area outside the isolated work area. When work area isolation measures are removed, the work area becomes a public area.
- S. Regulated Area: An area where the permissible exposure limit has been, or is expected to be, exceeded and only trained personnel with appropriate personal protective equipment are allowed.
- T. TCLP: Toxic characteristic leaching procedure is one of the tests for determining whether a solid waste is classified as a hazardous substance via EPA Method 1311.

1.4 SUBMITTALS AND NOTICES

- A. The contractor shall submit three copies of the following information to the architect, owner, and environmental consultant prior to beginning work on the project:

1. WORKER TRAINING PROGRAM. Written proof shall be submitted indicating that all employees impacting lead-containing materials have received training per OAR 437-03-001.
 2. LEAD COMPLIANCE PLAN. A written compliance plan, satisfactory to the architect and environmental consultant, describing lead handling procedures, plans for location of decontamination enclosure systems, worker training and protection measures, engineering controls, dust control and collection techniques, etc., in compliance with OAR 437 Div. 3-001, these Specifications, and applicable regulations shall be submitted. The contractor shall update the lead compliance plan as necessary while work progresses. The construction manager/general contractor (CM/GC) may elect to incorporate affected subcontractors' individual work plans into an overall project lead compliance program.
 3. PRODUCT INFORMATION AND MATERIAL SAFETY DATA SHEETS. Complete product information for chemical removal agents and for any materials, products, and procedures for which the contractor requests approval for use on this job shall be submitted. The contractor shall identify any concerns with possible chemical reaction with new materials, coatings, etc., to be installed after chemical stripping.
- B. Contractor shall not begin work until submittals are complete, reviewed, and accepted by the owner and the environmental consultant. Allow a 10-day review period.
- C. During the work, the contractor shall submit all sampling and exposure monitoring data.

1.5 LEAD EXPOSURE MONITORING AND TESTING REQUIREMENTS

- A. Contractors shall perform employee exposure assessments as required under OAR 437-03-001 for any employees performing tasks that may result in exposures above the action Level.
- B. An independent testing laboratory shall be retained by the contractor. All exposure monitoring analysis shall be performed in accordance with 29 CFR Part 1926.62 as adopted by OR-OSHA.
- C. The owner reserves the right to monitor the contractor's performance via air, dust wipe, and TCLP samples during removal work, in addition to the contractor's exposure monitoring and testing.

1.6 QUALITY ASSURANCE

- A. Periodic monitoring of air and surface dust may be analyzed by the owner's environmental consultant in occupied spaces and containment areas. The following lead exposure limits shall apply to all areas where lead handling procedures are undertaken:
1. Air Samples:
30 µg/m³, OSHA action level
(Eight-hour time-weighted average)
50 µg/m³, OSHA permissible exposure limit
(Eight-hour time-weighted average)
 2. Dust Samples (expected levels at completion of major demolition):
40 µg/ft²: Clearance for stripped surfaces, components, etc.
40 µg/ft²: Clearance level for floors
250 µg/ft²: Clearance level for interior window sills
250 µg/ft²: Clearance level for rough surfaces

Note: The above-noted dust sample standards shall only apply to elementary, preschool, and day-care facilities that are or will be occupied. The owner's representative may modify these standards, if appropriate, in other facilities.

3. Blood Lead Levels:
40 µg/Dl: (OSHA) permissible blood level for worker.
50 µg/Dl: (OSHA) blood level requiring medical removal of worker.
 4. Dispose of as Hazardous Waste:
5 ppm Pb (analyzed as "leachable" using toxicity characteristic leaching procedure, TCLP EPA Method 1311)
 5. Paint: Painted surfaces with lead concentrations greater than the limits of detection as determined by atomic absorption, EPA Method 7420-3050.
 6. Soil: 400 ppm, High-traffic play areas
1,200 ppm, Non-play areas
 7. Waste Water: 0.7 mg/L lead or less to dispose of in the sanitary sewer. Verify with the City of Gresham on local requirements.
- B. If, at any time during the work, analysis of occupied area air or wipe samples taken by the contractor, owner, or owner's representative indicate a concentration in excess of the allowable maximums specified, the contractor shall immediately notify:
1. The general contractor's superintendent
 2. The environmental consultant:
PBS Engineering and Environmental Inc.
503.248.1939
- C. Immediately upon being notified of concentrations exceeding the specified maximum allowable levels, the contractor shall perform the following steps in the order presented, at no additional cost to the owner:
1. Stop lead-related work.
 2. The environmental consultant will determine the affected area and affected adjacent areas considered to be contaminated and will determine the actions to be taken.
 3. Modify work procedures, if feasible, that may be the cause of high lead concentrations. Employ engineering controls to reduce lead exposure.
 4. Carefully resume work under close supervision and monitoring.
 5. The contractor shall be responsible for costs of any testing, cleanup, repair, downtime loss, etc., that is a result of the contractor's negligence, poor maintenance of containment areas, or improper procedures.

1.7 PERSONAL PROTECTION

A. Training

1. When demolition or lead handling activities result in or are expected to exceed the action level, the contractor shall follow personnel protection and work area isolation procedures outlined in this section.

2. Prior to commencement of work, contractor shall ensure all workers have been adequately trained as specified in 29 CFR 1926.62.
3. The contractor shall provide and post at hand wash locations the decontamination, respirator, and work procedures to be followed by the workers as outlined in the written Lead Compliance Program.
4. Workers shall not eat, drink, chew gum, or apply cosmetics in the established work area. Smoking or using other tobacco products is prohibited.
5. Workers shall be fully protected with respirators and protective clothing immediately prior to the first disturbance of lead-containing or -contaminated material and until final cleanup is completed.

B. Building Security and Protection

1. The contractor shall post adequate warning signs at all potential entrances to work areas as required by EPA and OSHA.
2. The contractor shall protect all existing fixed equipment, existing building finishes that are to remain, and existing systems and functions from damage. Extra precautions are to be taken to protect existing electrical panels, light fixtures, etc. Any damage to existing building, services, or equipment shall be remedied by the contractor at their expense.
3. Contractor shall maintain access and use of existing fire lanes.

1.8 SAFETY

- A. With regard to the work of this contract, the safety of the contractor's employees, the owner's employees, and the public is the sole responsibility of the contractor.

1.9 PROTECTION

- A. Damaged or deteriorating materials shall not be used and shall be removed from the premises by the contractor. Materials that become contaminated with lead shall be disposed of in accordance with the applicable regulations by the owner.

1.10 SUBCONTRACTORS

- A. Any subcontractors employed by the contractor shall be bound to all the work and safety standards specified elsewhere in this Specification. Subcontractor personnel shall be fully trained and supervised by the contractor during performance of this work.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Plastic Sheet: Plastic sheet shall be fire-retardant polyethylene material sized in lengths and widths to minimize the frequency of joints. The minimum thickness shall be 6 millimeters.
- B. Plastic Bags: Plastic bags shall be 6-millimeter polyethylene printed with warning labels per OSHA and EPA regulations.
- C. Tape: Tape shall be capable of sealing joints of adjacent sheets of plastic and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under dry and wet conditions, including use of amended water.

- D. Disposal Containers: Disposal containers for all listed hazardous waste shall be ODOT-approved #1-A2 55-gallon steel drums.
- E. Warning Labels and Signs: Warning labels and signs shall be posted as required by OR-OSHA, ODOT, and DEQ regulations.
- F. Chemical Strippers: Use of chemical strippers shall require review from the architect, general contractor, and environmental consultant.

2.2 TOOLS AND EQUIPMENT

- A. Water Sprayer: The water sprayer shall be an airless or other low-pressure sprayer for high-phosphate wash water application.
- B. Scaffolding: Scaffolding, as required to accomplish the specified work, shall meet all applicable safety regulations. All special scaffolding shall have drawings and calculations stamped and signed by a civil or structural engineer registered in the state of Oregon.
- C. Electrical: Electrical tools, equipment, and lighting shall meet all applicable codes and regulations. Ground fault protection as required by OSHA shall be in effect at all times. The contractor shall take all additional precautions and measures necessary to ensure a safe working environment during wet removal.

PART 3 EXECUTION

3.1 WORK AREA CONTAINMENT PREPARATION

- A. The contractor shall perform lead handling procedures under full or partial containment when work practices are expected to create exposures greater than the permissible exposure limit (PEL) of 50 µg/m³. The following lead handling procedures shall always be performed under full containment: abrasive blasting, welding and torch cutting, grinding or dry sanding, heat gun removal, and chemical stripping of lead paints or varnishes with volatile and caustic chemicals. Partial containment will be acceptable for tasks such as selective demolition, spot chemical removal, and patching of surfaces.
- B. The contractor shall perform the following containment procedures in the order in which they are presented: Alternative engineering control methods considered by the contractor must be proven by historical data and approved by the environmental consultant. The liberal use of water spray, ventilation, and HEPA air-filtration devices are most effective for reducing airborne lead concentrations.

3.2 PARTIAL CONTAINMENT WORK AREA PREPARATION

- A. Tasks requiring partial containment include items such as: Selective demolition, exterior paint removal, patching and repair of painted components, and other tasks where incidental exposures to airborne lead concentrations are likely to occur. Historical monitoring of similar procedures may alleviate partial containment requirements.
- B. Contractor shall perform the following procedures in the order in which they are presented and describe procedures for exterior paint removal and other work in non-isolated work areas:
 - 1. Seal off airflow HVAC systems serving other building areas.
 - 2. Restrict access to work area and post warning signs.

3. Install localized HEPA exhaust fan in work area if feasible. Locate fan intake to immediate area of work in a manner that any lead dust released will be drawn away from the worker and into the intake duct.
 4. Cover floor and other surfaces below the work area with 6-millimeter polyethylene sheeting.
 5. Have emergency cleanup equipment and supplies (including HEPA vacuum, wash water, disposal bags, mop, buckets, towels, and sponges) on hand prior to start of abatement work.
- C. When work is complete, the contractor shall remove all visible debris from the work area. Once the area has been cleaned, the contractor shall notify the owner and environmental consultant to perform a visual inspection and dust-wipe or soil sampling as specified in this section. If the area is clean and free of dust and debris, but sample analysis shows concentrations above the stated levels, the contractor may choose to have its hazardous materials abatement contractor perform additional cleaning.

3.3 WASTE DISPOSAL

- A. General: Disposal of building demolition waste coated with lead-based paint will generally not require a hazardous-waste determination (i.e., TCLP testing) if demolition debris is disposed of at a solid waste landfill that is permitted by DEQ and that meets the current design standards for municipal solid waste disposal facilities of 40 CFR Part 258.
- B. Other contractor-generated waste streams shall be tested and properly disposed of by the Contractor. Concentrated lead-based paint waste will require a hazardous-waste determination (i.e., TCLP testing). Lead-based paint waste that is deemed hazardous will be disposed of by the contractor.

END OF SECTION 02 83 19