

SECTION 02 8300**LEAD REMEDIATION****PART 1 - GENERAL****1.01 SUMMARY**

- A. Section includes lead paint removal of lead based paint activities if a lead survey indicates lead levels above threshold levels found in 40 CFR 745 for lead-based or lead-contamination on surfaces or in dust or soil, and a decision is made to abate or remove the lead paint.
- B. It shall be the duty and responsibility of the Contractor to be familiar and comply with requirements of Public Law 91-596, 29 U.S.C. § 651 et seq., the Occupational Safety and Health Act of 1970, (OSHA) and amendments thereto, and to enforce and comply with the provisions of this Act.
- C. Work shall be done in strict accordance with applicable Federal, State, and Local regulations, standards, and codes governing lead abatement and hazardous or otherwise regulated waste. The most recent edition of a relevant regulation, standard, or code shall be in effect. Where there exists conflict between the regulations, standards, codes, or these specifications, the most stringent requirements shall be used.
- D. Workers and supervisors assigned to this project shall have been trained in accordance with California Construction Safety Orders, 1532.1, Lead-Related Construction. The onsite supervisor shall hold "Lead-Related Construction Supervisor" certifications and workers shall hold "Lead-Related Construction Worker" certifications granted by the California Department of Public Health (CDPH), under Title 17.

1.02 ACTION SUBMITTALS

- A. Prior to commencement of work, submit to the University's Representative for University's Environmental Health & Safety (EH&S) and Risk Services the following information at or prior to the Pre-Construction conference:
 - 1. Copies of notifications, permits, applications, licenses and other documents required by Federal, State, or local regulations, including DHS form 8551
 - 2. Copies of medical records or a notarized statement by the examining medical doctor that workers on this project who wear a negative pressure respirator are medically cleared to do so without suffering adverse health effects as required by DOSH regulations
 - 3. Record of successful respirator fit testing performed by a qualified individual within the previous twelve months, for each employee to be used on this project with the employee's name and identification number with each record.
 - 4. In the event employees are hired after the project start date, supply the proper required documentation at least 24 hours prior to working on this project.
 - 5. Proposed respiratory protection program for employees throughout the job, including make, model, and NIOSH approval number of respirators to be used
 - 6. A detailed Project Work Plan as prescribed in this section.

7. Written description, for the University's review and acceptance, of proposed procedures, methods, or equipment to be used that differ from the Contract Specifications, including manufacturers specifications on equipment not specified for the use by this Section..
8. Proposed worker orientation plan that, at a minimum, includes a description of lead hazards and abatement methodologies, a review of worker protection requirements, and the outline of safety procedures
9. Chain-of-Command of responsibility at work site including supervisors, foreman, and competent person, their names and resumes, and certificates of training.
10. List of supervisors and workers intended to be assigned to the project and copies of CDPH Lead-Related Construction Certifications.
11. Proposed Emergency Plan and route of egress from work areas in case of fire injury, including the name and phone number of nearest medical assistance center. This shall be conspicuously posted at the work site filed with proper agencies.
12. The name and address of Contractor's blood lead testing lab, OSHA-CDC listing, and Certification in California.
13. The name and address of personal air monitoring and waste disposal load testing laboratories including certifications of the American Industrial Hygiene Association (AIHA) Environmental Lead Laboratory Accreditation Program (ELLAP) and the California Environmental Laboratory Accreditation Program (ELAP) for heavy metal analysis, listing of relevant experience in air and debris lead analysis, and presentation of a documented Quality Assurance and Quality Control Program
14. Safety Data Sheets (SDS) on materials and chemicals to be used on the project
15. Name, address, and ID number of the hazardous waste hauler, waste transfer route, and proposed disposal site.
16. Name address and ID number of the proposed construction debris site.
17. Name, address, and ID number of hazardous disposal site. Documents must be submitted from these sites proving they are licensed to accept such waste and will accept such waste.
18. MAP number and evidence of a contract with a hauler/disposal facility must be presented at the pre-construction meeting.
19. CAL/OSHA Lead Compliance Program, Title 8, Section 1532.1.
20. CAL/OSHA Respiratory Protection Program, Title 8, Section 5144.
21. CAL/OSHA Injury and Illness Prevention Program, Title 8, Section 3203

1.03 REQUIRED NOTICES AND PROJECT REQUIREMENTS

A. During Abatement Activities, comply with the following:

1. Communicate daily job progress to the University's Representative and EH&S detailing abatement activities. Include review of progress with respect to previously established milestones and schedules, major problems and action taken, injury reports, and equipment breakdown;
2. Maintain copies of work-site entry logbooks with information on worker and visitor access.
3. Post immediately outside of the clean room or area of the decontamination enclosure (as applicable) a list containing the names, addresses and telephone numbers of the Contractor, University Representatives, EH&S, the testing laboratory, emergency services and other personnel who may be required to assist during abatement activities.
4. Segregate waste generated from abatement and clean-up activities.

5. Notify University's Representative and EH&S every day that an abatement waste container is filled.

B. Required Air Samples

1. Abatement Air Monitoring:

- a. Ambient/perimeter air monitoring will be the responsibility of the University & EH&S under separate contract.
- b. Contractor will be responsible for air monitoring as required to meet Cal/OSHA requirements for 8-hour Action Lead or Permissible Exposure Limits. The Contractor will submit the name of the proposed third-party air monitoring or testing laboratory at the Pre-Construction Conference as applicable. Cal/OSHA required personal air sampling shall be conducted on a representative number of workers per containment per job classification day. Testing data will be reviewed by the University's Representative before a final acceptance of the completed project.

C. After Completion of Abatement Activities, provide the following:

1. Submit to the University Representative and EH&S copies of manifests and receipts acknowledging disposal of hazardous and non-hazardous waste material from the project showing delivery date, quantity, and appropriate signature of landfill's authorized representative.
2. Submit a notarized copy of the entry-exit logbook
3. Submit personal monitoring results.
4. Submit waste test results.

D. Authority to Stop Work

1. University's Representative and EH&S has the authority to stop the abatement work if determined that conditions are not within these specification requirements. The stoppage of work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of the EH&S. Stand-by time and expenses required to resolve violations of these specifications or applicable laws shall be at the Contractor's sole expense.

1.04 CONTRACTOR QUALIFICATIONS

A. Work to be accomplished under this section shall include the handling and transportation of lead-based and/or lead-containing materials requiring special expertise. To be eligible for contract award, the Contractor shall possess the following minimum specific qualifications:

1. Single Party responsibility to accomplish Lead related activities required.
2. Certification by the California Contractors' License Board to perform Lead-related Work is recommended.
3. Registration with the California Division of Occupational Health and Safety to perform Lead-related Work is recommended.
4. California Department of Public Health (CDPH) Lead-Related Construction Certification

5. License by the Department of Health Services, and registration with the Department of Toxic Substances Control, for the transporting, handling and hauling of hazardous wastes including lead is recommended.
6. Have been engaged in lead-related activities, including the preparation, removal, spill clean-up, transportation and disposal of high and low concentration toxic fluids and solids for a minimum of five consecutive years prior to bid date.
7. Provide a listing of key personnel who will be involved with the contract including their qualifications and experience in dealing with Lead-materials.

B. Carry liability insurance as indicated in the Supplementary Conditions.

1.05 SAFETY PROCEDURES AND WORKER PROTECTION

- A. Take required actions necessary to protect your employees, the University's employees, staff, professors, students, and the public from exposure to lead containing dust and debris. Regulatory agency requirements shall be met and as a minimum, the following actions shall be taken:
1. Personnel authorized entry into work areas shall be instructed in the proper procedures for lead-related work prior to entry into the area(s).
 2. Consumption of food or tobacco products shall not be permitted in any of the work areas where lead-containing materials or dust is present. Smoking is not permitted anywhere on University property or within vehicles on University property.
 3. After removal of lead-containing material(s) and lead-contaminated material(s) has begun, Work area shall not be left unattended until materials that have been exposed to lead are sealed in approved containers and the work area is secured to prevent unauthorized entry. In general, coordinate and schedule lead-related activities such that lead containing materials are transported off-site for disposal as soon as work has been accomplished.
- B. Prior to commencing lead-related work activities, provide barricades, roping (or similar) and warning signs to clearly identify and effectively guard against unauthorized entry into work area. The following minimum requirements shall be satisfied:
1. At a minimum, barricades shall consist of yellow sawhorses set end-to-end.
 2. Ropes shall be yellow in color and supported by the use of weighted bottom pipe type supports.
 3. Warning signs shall be provided as required by OSHA Regulation 29 CFR 1926.58 and 24 CFR 1926.1101.
 4. When lead-containing materials in any volume are not sealed in containers workers shall wear the appropriate protective clothing and breathing apparatus required by regulations.
- C. After lead removal procedures have begun and until lead-containing materials and incidentals have been sealed in approved containers, the lead related work area shall be attended without exception. If immediate transportation to off-site disposal facilities is not feasible, the work area(s) shall be secured in a manner approved by the University's Representative and EH&S. In addition, the following personal protection procedures shall apply:

1. During removal procedures, and when lead-containing materials are not sealed in approved containers, personnel entering the work area must don protective clothing and equipment as indicated in "Materials" article below. Upon exiting the work area, disposable protective clothing shall be placed in an approved container and sealed for disposal.
- D. Provide sufficient spare personnel protective clothing, eye protection, and breathing apparatus for the University's Representative, EH&S or other authorized visitors upon request.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Protective Clothing and Equipment:
 1. Respiratory Protection: provide respiratory protection against airborne concentrations of lead and chemicals used to remove lead. A respiratory protection program will be in place in compliance with Cal/OSHA Title 8, Section 5144.
 2. Protective Clothing: provide at no cost to the employee and assure that the employee uses appropriate disposable work clothing and equipment that prevents contamination of the employee and the employee's garments.
- B. Engineering and Work Practice Controls: implement engineering and work practice controls, including administrative controls, to reduce and maintain employee exposure to lead to or below the Permissible Exposure Limit ($50 \mu\text{g}/\text{m}^3$ of air) and to reduce chemical exposure and to reduce chemical exposure in accordance with the chemical(s) SDS to the extent that such controls are feasible. When feasible engineering and work practices controls instituted are not sufficient to reduce employee exposure to or below the permissible exposure limits, the employer shall supplement them by the use of appropriate respiratory protection. Engineering and work practices shall be reviewed and approved by the University's Representative and EH&S.
- C. Signs: use signs required by other statutes, regulations, or ordinances in addition to, or in combination with, signs required by this specification in accordance with Cal/OSHA Title 8, Section 1453.1 and Title 12/HLAD (Ch. 6). Assure that no statement appears on or near signs required by this specification that contradicts or detracts from the meaning of the required sign.
 1. The contractor shall post the following warning signs in each work area where an employee's exposure to lead is above the PEL:

DANGER
LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK, OR SMOKE IN THIS AREA

2. Outside the work area and the secured waste storage area the warning signs will read as follows:

CAUTION
LEAD HAZARD
DO NOT ENTER WORK AREA UNLESS AUTHORIZED

3. Assure that signs required by this paragraph are illuminated and cleaned as necessary so that the legend is readily visible.

PART 3 - EXECUTION

3.01 NOTIFICATIONS

- A. As required by CDPH Form 8551, provide written notifications to the following agencies a minimum of five (5) business days prior to commencement of lead demolition and renovation activities:
 1. California Department of Health Services.
 2. Cal/OSHA (24 hours prior)
 3. Others as required by applicable laws.

3.02 PROCEDURES

- A. Selection of Abatement Procedures
 1. Replacement means replacing building components (i.e., windows, doors, and trim) either with new components free of lead-containing paint or with the same components after the paint has been removed off-site. Replacement is a permanent solution.
 2. Encapsulation/enclosure means making lead-based paint inaccessible either by applying a material that bonds to the surface, such as acrylic or epoxy coating, or by enclosing it using systems such as gypsum wallboard, or plywood paneling.
 3. Many on-site removal methods are hazardous and have the potential for contamination by lead off-site. Some of these are chemical strippers, heat guns, and sanding, scraping, or mechanical methods.
 4. Submit for approval by EH&S, the means and methods to be used for the lead removal as stated within the approved Project Work Plan.
- B. Occupants of an Abated Interior Area or Space:
 1. In the case of an abatement exclusively on the exterior of a building, occupants may not need to be relocated if the interior environment can be adequately isolated to assure that no lead debris enters the interior and safe entrance and egress can be assured.
 2. Whenever interior space(s), room(s), or common areas within an occupied building are being abated, the University's Representative will notify occupants within the building prior to the start-up date. The notice should consist of the following:
 - a. Start-up date;
 - b. Area(s)/material(s)/component(s) to be abated; and
 - c. A warning to heed barricades/caution signs/etc.

- C. Specific procedures for site preparation, containment, and waste disposal will vary in accordance with the methods of abatement employed. Refer to Cal/OSHA 1532.1, Title 17/HUD (Ch. 8) for more information.

1. Site preparation: prior to abatement comply with the following steps:
 - a. Posting warning signs at entrances and exits to work area and secured waste storage area (Part 3, Section 3).
 - b. Remove or protect furnishings; and,
 - c. Initiate containment procedures to protect surfaces and contain and control lead dust and debris.
2. Containment: following materials will be needed for containment if containment is required:
 - a. Polyethylene (plastic) sheets at least 6 mil thick;
 - b. Heavy duty tape (e.g., duct tape) to fasten plastic sheets; and,
 - c. Staple gun with heavy duty staples for fastening plastic sheets.
 - d. Spray adhesive to adhere one surface to another.
3. Exterior Procedures:
 - a. Uncontained water blasting and open abrasive blasting or open air grinding are unacceptable methods of abatement.
 - b. Soil contaminated with lead as a direct result of proper or improper abatement will be removed into containers of the type specified in Section below. Analytical testing for waste determination will be performed by the contractor using an appropriately accredited, third-party laboratory. Disposal will be done by EH&S. Contractor will reimburse EH&S for costs of testing and disposal.
 - c. Leaded dust and debris dispersed to the interior environment of adjacent units as a direct result of proper or improper abatement will be removed into containers of the type specified below. EH&S will conduct analytical testing for waste determination and will dispose of the materials. Contractor/Employer will reimburse EH&S for costs of testing and disposal.
 - d. Before beginning to abate lead paint in an exterior work area(s) use the following procedures depending on the method of abatement employed:
 - 1) For Liquid Waste:
 - a) Place polyethylene plastic sheeting (6 mil) as close to the building foundation as possible;
 - b) Extend the edge of the sheets a sufficient distance to contain the runoff and raise the outside edge of the sheets (e.g., with two by fours) to trap liquid waste.
 - c) Have available appropriate containers to hold liquid waste for later transfer and disposal;
 - d) Where seams occur, they must be sealed with tape and spray adhesive edges must be raised (e.g., with two by four framing) and a new section of plastic sheeting and framing shall be added as needed; and,

- e) Liquid waste can be pumped, vacuumed, or bailed for transfer to disposal container.
- 2) For Dry Waste:
 - a) Place polyethylene plastic sheeting (6 mil) as close to the building foundation as possible;
 - b) Extend the sheeting out from the foundation a distance of 3 feet per story being abated with a minimum of 5 feet and a maximum of 20 feet. (It may not be possible to extend sheeting beyond the edge of the nearest sidewalk);
 - c) Weight the sheeting at the foundation and along edges and seams; and,
 - d) Erect vertical shrouds where directed by the University's Representative, at locations susceptible to gusty wind conditions that could cause migration of contaminated material outside of the immediate work area.

3.03 HANDLING AND TRANSPORTATION

A. Lead Based Paint Waste Storage:

1. Manage Lead Based Paint (LBP) waste to minimize the generation of lead dust, limit access to stored LBP wastes including debris, and maintain the integrity of waste packaging material during transfer of LBP waste. Use best management practices including:
 - a. Collect paint chips and dust, and dirt and rubble in plastic trash bags for disposal;
 - b. Store larger LBP architectural debris pieces in containers until ready for disposal;
 - c. Consider use of a covered mobile dumpster (e.g. a roll-off container) for storage of LBP debris until job is done;
- B. Make provisions for the safe storage of waste on-site prior to disposal. For security reasons, waste storage areas must be treated as abatement areas and access restricted by erection of a temporary, locked, chain link fence. . If the abatement is in an interior space the waste may be stored in a secured room. Waste storage areas must be accessible to EH&S.
- C. Storage containers must have the appropriate hazard labels as provided by EH&S when necessary. Small quantities of solid waste can be collected and bagged in 6-mil plastic bags and stored in a designated secure storage area. Otherwise, abatement waste will be packaged and sealed in containers approved under 49 CFR 173, -178, and -199.
- D. Waste will be segregated into lead paint chips and dust, plastic sheeting, stripping solvents, stripping sludge, wash waters, disposable clothes and respirator filters, and other appropriate categories as specified by EH&S, and containers will be marked as to the category of waste.
- E. If accidental mixing of hazardous and non-hazardous waste occurs, the contractor will be responsible to the University for the increase in cost of disposal. Leaving

waste by roadside or near an unauthorized dumpster or release lead-contaminated wash water to the storm drain or sanitary sewer is prohibited.

B. Lead Based Paint Waste Disposal:

1. LBP waste must be disposed of in a University-approved municipal solid waste landfill or a municipal solid waste combustor in a manner in compliance with regulations of the state of California. Sludge or mixtures of LBP waste, e.g. mixtures with chemical paint strippers shall be disposed of in accordance specifications regarding potentially hazardous waste.
2. Other Waste Generated During Abatement:
 - a. Examples of other waste generated during abatement procedures include paint chips scraped off of substrate, paint and immediately underlying substrate(s) removed by grinding, rags contaminated with lead paint and chemical stripper, contaminated personal protective equipment, and containment material such as contaminated plastic sheeting used as ground cover.
 - b. Follow the materials testing requirements of the State of California, as per Title 22, CCR 66261 and other related regulations. This may include other waste testing, such as Total Threshold Limit Concentration (TTLC) and Soluble Threshold Limit Concentration (STLC).
 - c. To determine whether the wastes are classified as non-hazardous solid or hazardous waste as defined under the Resource Conservation and Recovery Act, the Toxicity Characteristic Leaching Procedure (TCLP) must be performed. Representative samples shall be required of material to be disposed.
 - d. Dispose of waste that EH&S determines to be other than hazardous lead abatement waste at no additional University's expense.
3. Dumping and open burning of LBP waste is prohibited.
4. EH&S may have additional testing performed at University's expense and in accordance with University waste management procedures. Comply with EH&S directions to assist in this additional testing.

3.04 DECONTAMINATION

- A. Daily cleanup: The daily cleanup activity will be scheduled for the same time at the end of each workday after active abatement has ceased and sufficient time must be allowed for a thorough and complete cleanup. Under no circumstances will active abatement be proceeding while the daily cleanup is in progress.
- B. Beginning Final Cleanup: The final cleanup process will be scheduled to start no sooner than 24 hours after active abatement has ceased.
- C. Testing: The scheduling of final testing will be coordinated with final cleanup activities to ensure that the testing results provide valid final cleanliness level per Title 17/HUD.
- D. Waste Disposal: Regulations governing hazardous waste storage, transportation and disposal affect both the daily and final cleanup procedures. The abatement contractor must select storage areas and request waste pickups as approved by EH&S.

- E. Preliminary Visual Inspection: After the preliminary final cleanup effort is completed, a University inspector, EH&S representative and from an outside consultant (if applicable), shall visually inspect the entire affected area(s) to ensure that surfaces requiring abatement have been addressed and visible dust and debris and residue have been removed.
- F. Final Cleanup: After painting or sealing is complete, the final cleanup can take place.
- G. Final Inspection: The University's inspector, EH&S, and from an outside consultant (if applicable) will confirm job completeness by determining whether surfaces have been abated in accordance with the approved abatement plan. The inspector must make sure that abated surfaces and floors have been repainted or otherwise sealed.

END OF SECTION