

BuildingName
The Description of the Project
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ARCHITECTURE & ENGINEERING
326 East Hoover, Mail Stop B
Ann Arbor, MI 48109-1002
Phone: 734-764-3414
Fax: 734-936-3334

SPECIFICATION DIVISION 2

NUMBER SECTION DESCRIPTION

DIVISION 02 EXISTING CONDITIONS

SECTION 028300 - LEAD REMEDIATION

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DIVISION 02 EXISTING CONDITIONS
SECTION 028300 - LEAD REMEDIATION

DO NOT USE THIS SPEC FOR RENOVATION, REPAIR AND PAINTING (RRP) WORK IN CHILD CARE FACILITIES, FAMILY HOUSING, RESIDENTIAL PROPERTIES AND HALL DIRECTOR/OTHER APARTMENTS WITHIN RESIDENCE HALLS. CONTACT OSEH DIRECTLY FOR ASSISTANCE IN DEVELOPING A CUSTOM SPEC FOR THESE FACILITIES.

THIS SECTION DESCRIBES REQUIREMENTS FOR INSTALLATION, REMOVAL AND DISPOSAL OF LEAD-CONTAINING MATERIALS (LCM) DURING DEMOLITION OR RENOVATION ACTIVITIES.

SURVEY ALL BUILDING COMPONENTS WHICH MAY CONTAIN LEAD OR BE COVERED WITH LEAD-BASED PAINT (LBP), INCLUDING WALLS, CEILING, FLOORS, AND STRUCTURAL STEEL. CONTACT OSEH EARLY DURING THE DESIGN PHASE FOR A LEAD-PAINT SURVEY TO DETERMINE EXTENT AND CONCENTRATION OF LEAD-BASED PAINT, IF ANY. BRETT GOECKE IS THE OSEH CONTACT FOR LEAD-PAINT SAMPLING.

INCLUDE OSEH IN ANY PRE-CONSTRUCTION MEETINGS FOR PROJECTS INVOLVING LBP DISTURBANCE.

FOR DRY SANDBLASTING, WELDING, BURNING, OR OTHER OPERATIONS THAT CREATE SIGNIFICANT AMOUNTS OF AIRBORNE DUST, FUME OR LIQUID WASTE, OSEH MUST REVIEW AND APPROVE THE PROPOSED METHODS OF PAINT DISTURBANCE.

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies requirements for working with lead-containing materials (LCM), during any of the following operations:

DELETE OR MODIFY BELOW TO SUIT PROJECT CONDITIONS.

1. Demolition of Lead-Containing Materials (LCM): Includes razing a building or any portion of a building or piece of equipment with LCM.
2. Incidental Removal or Disturbance of Lead-Based Paint (LBP): This includes activities such as sanding and scraping for paint preparation activities.
3. Removal of Lead-Based Paint (LBP): Complete removal of LBP from substrate, typically prior to torch cutting for demolition activities.
4. Removal or installation of lead sheet products as follows:
 - a. Radiation shielding.
 - b. Soundproofing.
 - c. Flashing.
 - d. Pipe, sink traps and sinks.

- B. Extent of known LCM is as follows:

SELECT ONE OF THE FOLLOWING PARAGRAPHS REGARDING EXTENT OF WORK OR MODIFY TO REFLECT PROJECT SCOPE.

1. As shown on drawings and survey reports. Assume all paint or other coatings not identified on drawings or reports contain lead.
2. Marked at the site during the pre-bid inspection "walk through."

1.2 RELATED SECTIONS

- A. Demolition and removal of items not containing lead as a component is included in Division 02 Section "Selective Demolition."

1.3 DEFINITIONS

- A. The term "Lead-Based Paint" (LBP) is identified as paint or other surface coating such as varnish, sealer or stain containing lead in any detectable amount.
- B. The term "Incidental Removal or Disturbance of Lead-Based Paint" indicates one or more of the following operations:
 1. Scraping, hand sanding, or otherwise removing loose LBP from existing surfaces scheduled to remain in place.
- C. The term "Demolition of LCM" refers to cutting, drilling, abrading, demolishing, or otherwise disturbing building elements coated with LBP or containing lead.
- D. The term "Lead-Containing Materials" (LCM) is identified as construction debris coated with lead-based paint or other materials containing lead, such as x-ray shielding.
- E. The term "Critical Barrier" indicates the perimeter of the enclosure within which lead disruption/removal work takes place. Critical Barriers may include existing floor, wall, and ceiling structures, as well as constructed partitions, closures and seals.
- F. The term "Project Site" indicates the limits of the Project Site as indicated on drawings or by provisions of this specification.
- G. The term "Work Area" indicates the area within the Critical Barrier.
- H. The term "Action Level" means exposure to an airborne concentration of lead of 30 micrograms per cubic meter of air calculated as an 8-hour time-weighted average (TWA).
- I. The term "Exposure Assessment" means a determination of employee exposures for a given task measured by air monitoring. The Assessment must meet the criteria for objective data as outlined in the MIOSHA/OSHA Lead in Construction Standard (MIOSHA Part 603, R325.51992 and 29 CFR 1926.62).
- J. The term "OSHA PEL" stands for the Permissible Exposure Limit established by the Occupational Safety and Health Administration for lead exposure. The OSHA PEL refers to an airborne concentration of lead of 50 micrograms per cubic meter of air calculated as an 8-hour time-weighted average (TWA).
- K. The abbreviation "TCLP" stands for Toxicity Characteristic Leaching Procedure and refers to one of the tests to determine if waste is considered a Hazardous Waste or non-hazardous solid waste.

- L. The term "Hazardous Waste" refers to a listed waste or any solid or liquid waste with one or more of the following characteristics: toxic, corrosive, flammable, explosive, combustible, oxidizer, pyrophoric, unstable (reactive) or water - reactive.
- M. The term "Non-Hazardous Waste" refers to any solid or liquid waste not exhibiting characteristics of Hazardous Waste.
- N. The term "EHS-HMM" refers to Owner's Environment, Health and Safety Department - Hazardous Materials Management Program 1239 Kipke Drive, Ann Arbor, MI 48109-1010, phone (734)763-4568.

1.4 SUBMITTALS

- A. Exposure Assessment Documentation: Submit to EHS
- B. All information used to document previous employee exposure assessments, if available. If not available, conduct an initial exposure assessment at the start of the project.
- C. Written Compliance Plan: Submit to EHS a Written Compliance Plan incorporating all requirements in the MIOSHA Lead in Construction Standard. Also indicate type of containment and method of liquid waste capture to be established if water is utilized for removal.
- D. Health and Safety Requirements: Submit to EHS the following information for each employee that will conduct lead disturbance on the job site:
 - 1. Respiratory Protection Program.
 - 2. Proof of current fit test for respirator that will be worn on Project Site.
 - 3. Proof of medical surveillance for respirator usage and lead work.
 - 4. Proof of lead awareness training in accordance with section 1.5. QUALITY ASSURANCE.
- E. Prepare a written schedule for each operation expected to disturb/remove LCM, indicating the following:
 - 1. Type of work to be performed, such as cutting, demolition, paint removal, or other action.
 - 2. Location of work to be performed.
 - 3. Proposed starting date and time.
 - 4. Proposed working hours.
 - 5. Proposed duration.
- F. Waste Container Order: If necessary, submit an order for hazardous waste containers (pails, drums, or dumpsters) to EHS-HMM not less than 10 working days prior to beginning LBP disruption/removal work. Containers are not needed for demolition waste with LBP that has been TCLP tested and found to be non-hazardous Contact EHS-HMM (734)-763-4568 to order containers and labels. The following information should be submitted with the order:
 - 1. Location
 - 2. Work activities/methods
 - 3. Estimated number of pails, drums or dumpsters needed for both solid and liquid waste.
- G. All submissions must be directed to EHS.

1.5 QUALITY ASSURANCE

- A. Personnel involved in the disturbance of LCM shall be trained in accordance with the requirements of the MIOSHA Lead in Construction Standard, including:
 - 1. The content of the MIOSHA Lead in Construction Standard and its appendices;
 - 2. The specific nature of the operations which could result in exposure to lead above the action level;
 - 3. The purpose, proper selection, fitting, use, and limitations of respirators;
 - 4. The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant);
 - 5. The engineering controls and work practices associated with the employee's job assignment including training of employees to follow relevant good work practices;
 - 6. The contents of any compliance plan in effect;
 - 7. Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician; and
 - 8. The employee's right of access to records under 29 CFR 1910.20.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 HEALTH AND SAFETY REQUIREMENTS

- A. General: Determine employee exposure to lead in air as required in MIOSHA Lead in Construction Standard.
- B. Exposure Assessment: If the Contractor has made a previous Exposure Assessment that is representative of the task to be performed on-site, the Contractor may rely on this data and determine the need for personal protective equipment and work practice controls based upon this data, if approved by EHS.
- C. Job requirements: When the Contractor does not have an Exposure Assessment or the Assessment is determined to be insufficient, the Contractor must conduct personal air monitoring in accordance with the MIOSHA Lead in Construction Standard and follow the requirements below which are outlined by job task until monitoring determines otherwise:
 - 1. Manual demolition, scraping, sanding, heat gun application, power tool cleaning with HEPA dust collection system, spray painting with LCM:
 - a. Use of 1/2 mask respirator with HEPA filters.
 - b. PPE.

- c. Medical surveillance.
 - d. Use of changing room.
 - e. Use of handwashing facilities.
 - f. Provision of lead awareness training.
2. Using lead mortar, lead burning, rivet busting, power tool cleaning without HEPA collection, cleaning up with dry expendable abrasives, removing or relocating enclosure:
- a. Loose fitting PAPR with HEPA or supplied air respirator.
 - b. PPE.
 - c. Medical surveillance.
 - d. Use of changing room.
 - e. Use of handwashing facilities.
 - f. Provision of lead awareness training.

THE TECHNIQUES USED IN THE PARAGRAPH BELOW SHOULD BE USED ONLY IF NO OTHER ALTERNATIVES ARE AVAILABLE AND AFTER CONSULTATION WITH OSEH. DELETE THE PARAGRAPH BELOW IF OSEH WILL NOT ALLOW THESE TECHNIQUES IN THE PROJECT.

3. Abrasive blasting, welding, using cutting torch, burning (Contact EHS for alternatives before using these methods):
- a. Supplied air respirator or SCBA.
 - b. PPE
 - c. Medical surveillance.
 - d. Use of changing room.
 - e. Use of handwashing facilities.
 - f. Provision of lead awareness training.

3.2 PREPARATION

- A. General: Prepare Work Areas in a manner that will protect Owner's personnel and property, and the visiting public, from contact with LCM. Prior to beginning work, confirm starting date and time with Owner. Do not begin work that will disturb LCM without Owner's approval.

DELETE PARAGRAPH BELOW IF NO REMOVAL WORK ON BUILDING EXTERIOR.

- B. Preparing Building Exteriors: Ensure adequate measures are in place to limit airborne lead content below the Action Level of 30 ug/m³ (micrograms per cubic meter) adjacent to the Work Area.
- 1. Erect barricades and install warning tape or signs as necessary to prevent inadvertent exposure of passersby to LCM in all forms, including, but not necessarily limited to dust, particles, and fumes.
 - 2. Completely cover grounds and vegetation with minimum 8-mil thick polyethylene sheets with joints between sheets lapped and taped; with one edge taped to adjacent building surfaces below area of work; and with free ends secured in position with stakes, tie-down lines or weights. Cover sufficient ground area to capture wind-blown chips, dust and particles.

DELETE PARA BELOW IF NO REMOVAL WORK WITHIN BUILDING.

C. Preparing Building Interiors: Ensure adequate measures are in place to protect building occupants from exposure to airborne lead dust, particles, fumes or other LCM exceeding the Action Level of 30 ug/m³ (micrograms per cubic meter) lead content in air. Adequate measures shall include, but are not necessarily limited to, construction of Critical Barriers and/or establishment of negative pressure within Work Area.

1. Seal off openings and penetrations into the Work Area. Provide temporary dust barriers consisting of at least polyethylene plastic sheet on wood studs. Lap and tape joints of plastic sheeting to prevent dust, particles, fumes, and other forms of lead debris from leaving the enclosed area.
2. Discontinue building ventilation within the Work Area and seal off ventilation supply and return or exhaust diffusers, grilles or openings.
3. Post warning signs at all entrances to the Work Area that state the following, as required in MIOSHA Lead in Construction Standard:

**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**

3.3 WORK PRACTICES

A. General: Perform any removal, demolition or disturbance of LCM in compliance with the following requirements:

1. Restrict access to Work Area to essential personnel.
2. Use moist-removal methods and/or HEPA vacuuming where applicable. Do not over-saturate the Work Area.
3. Any debris generated must be cleaned up immediately before it can be tracked into other areas.
4. Remove contaminated clothing and personal protective equipment before leaving the Work Area, or Work Area enclosure, as applicable.
5. If the Action Level is exceeded outside the Work Area, discontinue work and modify Critical Barrier, or perform other modifications of methods or materials as required to reduce the lead contamination below the Action Level.
6. Prohibit eating, drinking, and smoking in the Work Area.

THE PARAGRAPH BELOW COVERS BOTH LARGE AND SMALL PAINT REMOVAL PROJECTS, FOR BOTH EXTERIORS AND INTERIORS. DELETE ONLY IF NO PAINT PREP IS REQUIRED.

B. Incidental Removal of LBP: Remove paint from building surfaces by hand scraping and sanding; or through the use of fluid-applied chemical strippers designed to dry into a solid polymeric sheet and peel off with paint encapsulated. Hand-scraping and sanding must be used in conjunction with moist-removal methods using misted water. Leave moist paint dust and chips in place to air dry before collection. Contact EHS as soon as removal has begun.

1. Wet methods (including power-washing) that use amounts of water that can drip, spill, or leak onto the ground, or onto or into other adjacent surfaces are prohibited unless approved by EHS.
2. Dry removal methods (including sand blasting, power sanding, and other methods relying on high velocity mechanical abrasion) that create airborne fine particulate waste materials are prohibited unless specifically reviewed and approved by EHS.
3. Prior to torch-cutting building elements containing LBP, remove paint within four inches of centerline of cut in accordance with requirements of this Section.

DELETE PARAGRAPH BELOW IF NO SOLID SHEET REMOVAL. BELOW ASSUMES THAT LEAD IS NOT CONTAMINATED BY RADIATION OR REGULATED CHEMICALS. IF CONTAMINATION IS POSSIBLY PRESENT, CONSULT WITH OSEH REGARDING DECONTAMINATION OR DISPOSAL AS HAZARDOUS MATERIAL.

- C. Removal of Solid Lead Sheeting: Remove and stockpile solid lead sheet materials in a manner that will not result in the contamination of Work Area or Project Site. Remove sheet products in the largest sections possible. Do not unnecessarily cut or abrade lead sheet materials. Provide minimum 8-mil thick plastic sheet covering between solid lead stockpiles and walls, floors, paving or ground as applicable.
 1. Do not separate lead sheet materials that are adhesively laminated to gypsum substrates. Remove and dispose as lead hazardous waste all gypsum board with lead laminate attached.

3.4 DISPOSAL

- A. Lead Painted Demolition Debris and Lead Paint Chips: Prior to removal of waste from the site, coordinate Toxicity Characteristic Leaching Procedure (TCLP) testing of LCM waste with EHS-HMM. Allow two weeks for testing results. If TCLP testing shows the waste to be nonhazardous, the waste can be disposed of as normal construction demolition debris. If waste is classified as Hazardous or has not been TCLP tested, comply with the following requirements:
 1. Collect and place solid and liquid waste in Owner-provided containers.
 2. Store waste containers in a secure area (preferably a locked room at the project site. Set containers securely on a hard surface which is accessible to EHS drum carts. Do not stage containers on lawns, dirt piles, gravel drives, areas with mud or basement areas with no elevator access.
 3. Ensure that soil, ground water, and drains or sewers within the storage area are protected from possible contamination. Keep containers secure and tightly closed at all times, except when adding waste.
 4. Keep lead waste segregated from other waste. Do not co-mingle waste. **DO NOT MIX LIQUID AND SOLID WASTE.**

5. Place appropriate labels on all containers. Provide all information required on the label; mark labels using indelible ink. The name of the "Waste Generator" is as follows:
 - a. "Campus Area" 1655 Dean Road, Ann Arbor, Michigan 48109.
 - b. Contact EHS at the start of the project (734-763-4568) for proper generator name and site address.
 6. Mark the side of each container with the name and phone number of Owner's Representative knowledgeable about the type of waste contained.
 7. Do not remove waste from Project Site.
- B. Disposal of hazardous lead waste shall be done in coordination with EHS-HMM.
1. Contact EHS-HMM at least one week in advance to request pick-up of the containers.
 2. EHS will pickup and dispose of properly packaged and staged hazardous lead waste at no cost to the contractor. Call the EHS-HMM Program at 734-763-4568 to schedule a pickup immediately after lead waste has been staged.
- C. Disposal of Non-Hazardous LCM from Demolition/Renovation Activities: Collect non-hazardous LCM waste in a covered dumpster and dispose of the waste at a Type II or III landfill. For projects where large amounts of hazardous waste are generated, EHS may allow for transportation and disposal of waste by a qualified contractor. If applicable, contact EHS for additional transportation and disposal requirements.

3.5 CLEAN UP

- A. Upon completion of LCM or LBP removal and disposal operations, clean all surfaces within the Work Area before it can be tracked into other areas, including, but not necessarily limited to the following:
1. Siding.
 2. Steel support structures.
 3. Floors and ground.
 4. Walls.
 5. Window sills.
 6. Trim.
 7. Ledges and projections.
- B. For projects within building interior spaces, use a HEPA filtered vacuum for removal/elimination of dust, particulates, and debris.
1. Brushing, brooming and other dry methods that generate airborne dust are prohibited.
- C. Remove and dispose of wash water and HEPA filters as Hazardous Waste.
- D. Remove and dispose of all solid waste used for protection and clean-up as Non-Hazardous Waste as indicated in Section 3.4, "Disposal of Non-Hazardous LCM from Demolition/Renovation Activities".

- E. Field Testing: Upon completion of removal, disposal, and clean-up operations, the Owner may visually inspect and/or test the Project Site for evidence of remaining lead contamination. Return to Project Site and, at no additional cost to Owner, re-clean areas found to be contaminated.

END OF SECTION 028300