

## Lead Management

### Guideline

Revision Date: 12/12/11

**Applies To:** North Campus Apartments, Resident Hall Director Apartments in dormitories, and other University owned residential rental properties and all construction/renovation operations where lead-containing materials are disturbed.

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## Summary

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Lead may be a component of building materials in many campus buildings. This Guideline has been developed to inform the University community of the lead management program for university buildings, and to outline work procedures for employees that disturb or contact lead-containing materials during the course of their work. This lead management program is intended to address all applicable regulations issued under these agencies:

- [Michigan Occupational Safety & Health Administration \(MIOSHA\)](#)
- [U.S. Department of Housing and Urban Development \(HUD\)](#)
- [Michigan Department of Health & Human Services \(MDHHS\)](#)

Materials likely to contain lead include latex and oil-based paints, especially paints manufactured before 1978, radiation shielding materials, plumbing joints, solder, pipe wrap and other materials used as soundproofing. Examples of construction and renovation operations performed that may result in lead exposure include sanding, scraping, cutting, grinding, welding, demolition, drilling and sandblasting lead-based paint.

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## Scope

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This Guideline affects North Campus Apartments, Resident Hall Director Apartments in dormitories, other University owned residential rental properties and all construction/renovation operations where lead-containing materials are disturbed.

## Reference Regulations

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- [Lead Exposure in Construction](#): MIOSHA Part 603
- [Lead-Based Paint Poisoning Prevention in Certain Residential Structures](#): EPA 40 CFR 745 and [HUD 24 CFR 35](#)
- Lead-Based Paint Disclosure Rule: [HUD 24 CFR 35, Subpart A](#)
- [Lead Abatement Act](#): Michigan Part 54A
- [Lead Hazard Control Rules](#): MDCH Rule 325
- [EPA Renovation, Repair and Painting Program](#): 40 CFR Part 745

## Glossary of Terms

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TERM	DEFINITION
Action Level	Means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter (30 µg/m <sup>3</sup> ) of air averaged over an 8-hour period.
Child-Occupied Facility	Means a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Child-occupied facilities may include, but are not limited to, day-care centers, preschools and kindergarten classrooms.
Cleaning Verification Card	Means a card developed and distributed, or otherwise approved, by the EPA for the purpose of determining, through comparison of wet and dry disposable cleaning cloths with the card, whether post-renovation cleaning has been properly completed.
Consumer Product Safety Commission (CPSC)	The U.S. Consumer Product Safety Commission is charged with protecting the public from unreasonable risks of serious injury or death from more than 15,000 types of consumer products under the agency's jurisdiction.
Lead	Includes all metallic lead, all inorganic lead compounds, and organic lead soaps.
Lead Abatement	Projects intended to permanently eliminate lead based paint hazards, i.e., removal of paint, lead-containing dust, enclosure or encapsulation of painted surfaces, replacement of painted components and all associated preparation and clean up work.
Lead-Based Paint (LBP)	The EPA defines this as paint, or other surface coatings, that contain lead equal to or in excess of 1.0 milligram per square centimeter (mg/cm <sup>2</sup> ) or 0.5 percent (by weight) or 5,000 µg/g. During construction activities where workers have potential exposure to lead, paint with lead in any amount would be considered lead-containing material, as defined in this Section.

TERM	DEFINITION
Lead-Containing Material (LCM)	Building materials containing lead in any amount.
Negative Initial Determination	Means a demonstration by the employer, that employee exposure during an operation is expected to be consistently below the <u>Permissible Exposure Limit (PEL)</u> and Excursion Limit (EL). It is job specific and the work place conditions, type of material, control methods, work practices, and environmental conditions <b>must</b> closely resemble those of the activity to be represented.
Permissible Exposure Limit (PEL)	An employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 µg/m <sup>3</sup> ) averaged over an 8-hour period.
Renovation	Refers to a modification of all or part of any existing structure that disturbs a painted surface, including (but not limited to) removal/modification of painted surfaces, components or structures, surface preparation activities and window replacement as defined in 40 CFR part 745, subpart E.
Renovator	Means a person who either performs or directs workers who perform a renovation. A certified renovator is a renovator who has successfully completed a renovator course accredited by the EPA or the Michigan Department of Community Health. Note: because the term renovation is broadly defined by the EPA rule "Lead-Based Paint Renovation, Repair and Painting Program" contractors such as electricians and plumbers may be considered "renovators" under this rule.
Resource Conservation and Recovery Act (RCRA)	Gives the EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste.
Target Housing	Residential housing built before 1978 including private housing, public housing, and housing receiving federal assistance. At the Ann Arbor Campus; North Campus Apartments, Residence Hall (director apartments only), offsite residential properties and other on-campus residential properties meet the definition of target housing.
Wet Disposable Cleaning Cloth	Refers to a commercially available, pre-moistened, white disposable cloth designed to be used for cleaning hard surfaces such as countertops and uncarpeted floors.

Target housing does **not** include:

- Housing built on or after January 1, 1978,
- Zero bedroom units, such as efficiencies, lofts and dormitories,
- Housing leased for less than 100 days,
- Housing exclusively for the elderly,
- Rental housing inspected by a certified inspector and found to be lead-based paint free,
- Property where all lead-based paint has been removed, and clearance has been achieved,
- Non-residential property,
- Unoccupied housing that will remain vacant until it is demolished.

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## Responsibility

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### ***Deans, Directors and Department Heads***

- Designate and empower individuals who will be responsible for implementing the Lead Management Program as appropriate within each department, if applicable.
- Actively support this Guideline within individual units.
- Ensure an environment where supervisors and other personnel are encouraged to follow this Guideline.

### ***Supervisors***

- Assure that employees who may disturb lead-containing material during construction and renovation activities receive training & medical surveillance in accordance with this Guideline. In addition, assure employees practice safe work procedures in accordance with their training, and use the proper equipment and controls.
- Substitute the use of new lead-based paints with ones containing no lead.
- Allocate resources to support the implementation of this Guideline.
- Follow [Work~Connections](#) procedures if there is an accident or injury; <http://www.workconnections.umich.edu/employees/work-related-illness-injury/step-one/>.
- Contact EHS to request technical assistance and to provide air monitoring when necessary.

### ***Employees***

- Comply with this Guideline and any further safety recommendations initiated by your Supervisor or EHS.
- Conduct assigned tasks in a safe manner, wear appropriate personal protective equipment, and use only equipment for which training has been provided.
- Test suspect lead-containing materials prior to disturbance and use appropriate safe work procedures.
- Contact your supervisor or EHS when you have questions/concerns.

### ***UM-Architecture, Engineering and Construction (AEC) or Other Project Planners***

- Contact EHS during the design phase of projects that may involve the disturbance of suspect lead-containing material when the scope of the project will include scraping, hand-sanding, or otherwise removing lead-containing material/paint from existing surfaces.
- Cutting, drilling, abrading, demolishing, or otherwise disturbing building elements coated with lead-containing material/paint.
- Removal of lead sheet products, e.g., radiation shielding, soundproofing, flashing, and piping.
- When testing indicates lead material is present, include "[Section 13285 – Lead Products Removal and Disposal](#)" of the Master Specification maintained by AEC. If the project will impact Child Occupied Facilities or Target Housing, use "[Section 28333 – Lead Products Removal and Disposal – Renovation, Repair and Painting in Child Occupied Facilities and Target Housing](#)."
- Ensure that new paint used in interior or exterior construction projects does not contain lead.

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## **EHS**

- Review and revise the Lead Management Program as necessary.
- Coordinate and/or contract industrial hygiene services to survey and monitor lead disturbance activities.
- Provide training or coordinate the scheduling of external training services as necessary.
- Provide technical assistance and conduct safety audits.
- Serve as a University liaison for local, county, and state agencies regarding lead issues and inspections.
- Schedule and maintain records of all medical surveillance, training, air monitoring, and building surveys.
- Review and revise University lead specifications in conjunction with AEC.

### ***University Housing, Day Care Managers & Others Managing Target Housing***

- Provide appropriate lead disclosure information to residents that are leasing housing built prior to 1978.
- Maintain signed lead disclosures from residents for a period of three (3) years.
- Follow all procedures outlined in this program and related documents for proper inspection and maintenance of properties.

## **Construction or Renovation Work: Non-Child Occupied Facilities/Non-Target Housing (most campus buildings)**

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### ***University Staff – Construction or Renovation Work: (Non-Child Occupied Facilities/Non-Target Housing)***

#### **Surveys**

Before work begins, all materials suspected of containing lead **must** be tested in buildings built or renovated prior to 1978. Workers will follow their department procedures for determining the presence of LBP or contact EHS. Specific written compliance plans have been developed for Plant Operations and University Housing staff.

#### **Project Procedures**

If the material contains lead, staff **must** follow the procedures in their department compliance program or follow the project specific work plan developed by EHS ([Appendix A](#)). The program or work plan will address engineering controls, work practices, protection of building occupants and University property, personal protective equipment (PPE), air monitoring, training, medical surveillance, clean up, waste handling and recordkeeping.

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## Training

University employees involved in construction or *renovation* activities impacting *lead containing material (LCM)* **must** receive lead safety training conducted by EHS. The training **must** be given prior to initial job assignment and annually thereafter. The training covers:

1. Recognition and identification of lead-containing materials and operations.
2. Health hazards of lead exposure.
3. Procedures in the Lead Compliance Program for site preparation, worker protection and specific work procedures, including engineering, work practice controls, and personal protective equipment.
4. Personal monitoring procedures and the employee access to sample results.
5. An overview of *RCRA*, as it applies to lead waste and appropriate disposal methods.
6. The content of "[Lead Exposure in Construction](#)" (MIOSHA Part 603 and its Appendices).

## Medical Surveillance

All employees who have the potential to be exposed to lead above the *Action Level* in their work environment are included in the University's medical surveillance program. Generally, employees included in this medical program are maintenance and construction workers such as painters and welders who disturb lead-containing material. Medical surveillance will be conducted annually in accordance with the University's Protocol for lead medical surveillance. (Refer to [Appendix B](#) for additional information.)

To participate in the medical surveillance program, the supervisor should indicate that the employee is exposed to lead on the employee's [Medical Surveillance Request Form](#). The completed Form will be evaluated by EHS and the employee will be contacted directly by the University's occupational health care provider to schedule the physical exam.

Written results of the lead medical surveillance will be provided to the employee from EHS within 5 working days of receipt from the occupational health care provider. Refer to [Appendix C](#) for an example of the lead testing information.

If the employee's blood lead level exceeds 40 micrograms per deciliter ( $\mu\text{g}/\text{dl}$ ) of whole blood, EHS will review with the employee the follow-up testing process and temporary work restrictions.

If temporary work restrictions become necessary based on blood lead level follow-up or the final medical determination of the occupational health care provider, the medical removal provisions of MIOSHA Part 603 will be followed. The University will ensure protection of the employee's normal earnings, seniority and other employment rights and benefits during this period.

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The employee will continue follow-up medical surveillance until the University's occupational health care provider notifies EHS of:

1. two consecutive blood-sampling tests indicating a blood lead level at or below 40 µg/dl,
- OR
2. A subsequent final medical determination that the employee no longer has a detected medical condition which places them at an increased risk of impairment.

At this point, the employee may return to their former work assignments.

For further details on the lead medical surveillance, refer to UM-EHS Physical Exam Policy #07c, located in [Appendix B](#).

### **Air Monitoring**

In all potential occupational lead exposure situations, personal air monitoring will be done initially on a representative number of projects. Depending on the results of previous air monitoring, additional projects may be monitored on specific time intervals, as specified in the MIOSHA regulation. All air monitoring will be handled by EHS.

If a negative initial determination (as defined by the regulation) is made for a specific activity, then air monitoring may cease until there is a change in control methods, equipment, work practices or personnel, at which point air monitoring will resume.

EHS will maintain lead air monitoring records for compliance with these requirements.

### ***Outside Contractors – Construction or Renovation Work: (Non-Child Occupied Facilities/Non-Target Housing)***

#### **Surveys**

The project planner will contact EHS to request a building or project survey for lead-containing materials. Outside consultants may be used by EHS in conducting surveys.

#### **Project Procedures**

When the University contracts with an outside firm to perform work on materials known to contain lead "[Section 13285 – Lead Products Removal and Disposal](#)" of the Master Specification will be incorporated into the contract. The Master Specification addresses protection of workers and University property, in accordance with all applicable state and federal regulations. The contractor will be required to submit proof of compliance with the elements in the MIOSHA [Lead Exposure in Construction](#) standard before work begins.

#### **Air Monitoring**

EHS reserves the right to perform air monitoring during the project and may monitor the contractor work practices for compliance with the terms of the project specification, in which the Master Specification has been incorporated. EHS may use outside consultants to perform monitoring.



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## Construction/Renovation/Repair/Painting or Lead Abatement Work: (Child-Occupied Facilities/Target Housing)

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### ***University Staff – Construction or Renovation Work: (Child-Occupied Facilities/Target Housing)***

#### **Scope of Work**

University staff who participate in the University lead program and who are trained as certified *renovators* may perform construction/renovation/repair and painting in *child-occupied facilities* or *target housing* when the purpose of the project is not *lead abatement*. All projects **must** be reviewed and approved by EHS.

#### **Surveys**

All inspections for *lead based paint* in child occupied facilities or target housing will be conducted using State of Michigan certified lead inspectors or lead risk assessors. Inspection procedures will be in accordance with EPA and MDHHS regulations applicable to child-occupied facilities. Generally, an x-ray fluorescence (XRF) device will be used for testing, in accordance with the most current documented methodology.

All original inspection reports will be maintained by EHS and results shared with workers and project planners needing the information. Copies of reports will also be provided to the affected University departments for use in [Lead Disclosure Procedures](#), as covered in Section 3 of this Guideline.

Since the EPA and MIOSHA definitions of lead concentrations differ, additional survey work using paint chip analysis may be necessary on projects where greater than 2 square feet (ft<sup>2</sup>) of material will be disturbed. University staff that may be planning work in these areas, e.g., Housing staff trained as certified renovators, are instructed to contact EHS for a final determination.

#### **Project Procedures**

When University staff will perform renovation, repair or painting, EHS will prescribe work practices to be followed. The University Housing compliance program addresses procedures for Housing staff.

If University staff trained as certified renovators will perform renovation, repair or painting as approved by EHS, target housing occupants (if any are present) will be given the EPA pamphlet “Renovate Right” prior to work. Cleaning verification will be completed after completion of the project, or clearance dust sampling will be completed using the same standards as those established for abatement projects.

#### **Staff Training**

All staff who perform lead construction or renovation work in child occupied facilities or target housing will be trained as certified renovators. Medical Surveillance and Air Monitoring provisions will be the same as for staff working in non-child occupied facilities.

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## ***University Staff – Lead Abatement Work: (Child-Occupied Facilities/Target Housing)***

**NOTE:** All lead abatement projects will be performed by outside State of Michigan licensed lead abatement contractors as described in paragraph d of this Section.

## ***Outside Contractors Construction or Renovation/Repair/Painting Work: (Child-Occupied Facilities/Target Housing)***

### **Project Procedures**

When the University contracts with an outside firm to perform lead renovation, repair or painting projects the residential lead master spec [Section 28333 – Lead Products Removal and Disposal \(Renovation, Repair and Painting in Child Occupied Facilities and Target Housing\)](#) will be used. This will address all provisions (including proper work practices and engineering controls) of both EPA and MIOSHA regulations. EPA certified lead renovator firm will be hired to perform the work using individuals trained as or under the supervision of certified renovators.

In addition to the submittals for MIOSHA compliance, the contractor will be required to submit to the occupants (if any are present) EPA’s pamphlet “Renovate Right” before work commences.

The lead abatement contractor will be responsible for all post-project and post-abatement cleaning to meet the clearance levels established in MDHHS regulations.

### **Air Monitoring**

EHS reserves the right to perform air monitoring during the project and may monitor the contractor work practices for compliance with the terms of the project specification, in which the Master Specification has been incorporated. EHS may use outside consultants to perform monitoring.

### **Cleaning Verification**

At the completion of all work, a certified renovator **must** conduct a visual inspection to determine if deteriorated painted surfaces and/or visible amounts of dust, debris or residue are still present. If present, the contractor will be called in to re-clean.

After the visual inspection and any subsequent cleaning, the certified renovator **must** further verify cleaning by using a *wet disposable cleaning cloth* to wipe surfaces and then compare the cloth to a “*Cleaning Verification Card*”. Re-cleaning and re-testing will be repeated as necessary until cleaning standards are met.

The clearance report and all other required documentation will be submitted to EHS.

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## ***Outside Contractors – Lead Abatement Work: (Child-Occupied Facilities/Target Housing)***

### **Project Procedures**

When the University contracts with an outside firm to perform lead abatement, the residential lead abatement specification “Lead Products Removal and Disposal – Lead Abatement in Child Occupied Facilities and Target Housing” will be used. This specification is maintained by EHS and is used only in special cases where the specific goal of a project is to remove a lead based paint hazard. This specification will address all provisions of both MDHHS and MIOSHA regulations. A State of Michigan licensed lead abatement firm will be hired to perform the work.

In addition to the submittals for MIOSHA compliance, the contractor will be required to submit the MDHHS “[Occupant Protection Plan](#)” and a copy of the required MDHHS “[Notification of Lead Abatement Activity](#)” Form before work commences.

The lead abatement contractor will be responsible for all post-project and post-abatement cleaning to meet the clearance levels established in MDHHS regulations.

### **Air Monitoring**

EHS reserves the right to perform air monitoring during the project and may monitor the contractor work practices for compliance with the terms of the project specification, in which the Master Specification has been incorporated. EHS may use outside consultants to perform monitoring.

### **Clearance Testing & Post Abatement Report**

At the completion of all work, EHS will arrange clearance testing in accordance with MDHHS regulations. All clearance testing will be conducted by a State of Michigan certified lead inspector or lead risk assessor. A visual inspection will be performed to determine if deteriorated painted surfaces and/or visible amounts of dust, debris or residue are still present. If present, the contractor will be called in to re-clean.

After the visual inspection and any subsequent cleaning, the certified inspector/risk assessor will conduct clearance sampling as per MDHHS regulatory specifications. Re-cleaning and re-testing will be repeated as necessary until clearance standards are met.

The clearance report will be submitted to EHS and to the lead abatement contractor. The contractor will then prepare a final [Post Abatement Report](#), including all elements specified in the MDHHS regulation. EHS will review the report for accuracy and completeness before the project file is considered complete.

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## Lead Notification/Disclosure – Target Housing (not applicable to Child Occupied Facilities)

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### **General**

Before the sale or rental of pre-1978 target housing can take place, the University **must** provide the following information to the potential purchaser or lessee before being obligated under any contract to purchase or lease the property:

1. The EPA booklet "[Protect Your Family from Lead in Your Home.](#)"
2. Any and all reports and records the University has that contain information on the presence, location or condition of any known lead-based paint and/or lead-based paint hazards in any portion of the property. The University is not obligated to perform any testing, but if testing reports exist, they **must** be disclosed.
3. A "[Disclosure of Information](#)" Form attached to the contract, which contains the following:
  - a. "Lead Warning Statement."
  - b. A statement disclosing the presence of known lead-based paint or indicating no knowledge of lead-based paint.
  - c. A statement by the purchaser or lessee affirming receipt and review of the information provided.
  - d. Signatures of the purchaser or lessee and a University representative.
4. Details on disclosure procedures for specific University of Michigan properties is maintained in the University of Michigan Lead Notification/Disclosure Program managed by EHS.

### **Purchaser Right to Test**

Before the sale of residential property, the University **must** also give the purchaser a 10-day period to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards, unless the parties mutually agree in writing to a different period of time. The purchaser may waive the risk assessment or inspection opportunity by so indicating in writing.

### **Surveys**

The University is not obligated to perform residential building surveys before the sale or rental of residential property under this regulation. However, the University may choose to conduct a survey performed by a certified lead inspector and become exempt from the disclosure requirements if the building is found to be lead-based paint free as defined by MDHHS regulations. Departments interested in this option should contact EHS.

### **Recordkeeping**

The "[Disclosure of Information](#)" will be kept on file for three years with the University department holding the contract or closing documents. All building lead survey reports will be kept on file at EHS.

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## Related Documents

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- Lead Management Program for Non-Child Occupied Facilities and Target Housing
- Lead Management Program for Child Occupied Facilities, University Housing and Other Target Housing
- [Residential Lead Notification/Disclosure Program](#)
- [EPA's Lead Website](#)
- [CPSC's Ban on Lead-Based Paint](#)
- [MDCH's Lead Hazard Control – Final Rules](#)
- [MDCH's Revisions to the Lead Hazard Remediation Rules](#)
- [MIOSHA's Lead Exposure in Construction Fact Sheet](#)
- [Lead Standard – MIOSHA Part 310](#)

## Technical Support

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All referenced guidelines, regulations, and other documents are available through EHS (7-1142).

## Attachments

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- [Appendix A](#) – Project Specific Lead Compliance Plan Template
- [Appendix B](#) – UM-EHS Protocol for Lead Medical Surveillance – Policy #07c
- [Appendix C](#) – Medical Surveillance – Lead Testing Explanation