Lead Management Program

Central Michigan University

Updated: February 2011
SUMMARY:
Lead may be a component of building material in many University 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:

Occupational Safety & Health Administration (OSHA)
Michigan Occupational Safety & Health Administration (MIOSHA)
Environmental Protection Agency (EPA)
Michigan Department of Community Health (MDCH)

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.

SCOPE:
This Guideline affects University owned properties and all construction/renovation operations where lead containing materials are disturbed.

REFERENCE REGULATIONS:
“Lead” (MIOSHA Part 310)
“Lead Exposure in Construction” (MIOSHA Part 603)
“Requirements for Lead-Based Paint Activities in Target Housing and Child-Occupied Facilities” (EPA 40 CFR 745)
“Requirements for Hazard Education Before Renovation of Target Housing (EPA 40 CFR Part 745)
“Identification of Dangerous Levels of Lead” (EPA 40 CFR 745)
Lead Abatement Act (Michigan Part 54A)
“Lead Remediation Rules (MDCH Rule 325)
“Requirements for Disclosure of Known Lead-Based Paint and/or Lead-Based Paint Hazards in Housing” (EPA 40 CFR Part 745)

DEFINITIONS:
Child Occupied Facility - any University buildings or portion of buildings constructed before 1978, visited regularly by children under the age of 6 where visits are least twice weekly, for 3 hours or more and combined annual visits of at least 60 hours.

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 prep and clean up work).

Lead-Based Paint – (LBP) - 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/cm²) or 0.5 percent by weight. During construction activities where workers have potential exposure to lead, paint with lead content of greater than 0.009% would be considered lead containing material, as defined in this Section. Lead in any amount has to be controlled during any hot work or abrasive blasting operations or other tasks that generate high airborne levels.

Lead Containing Material (LCM) - building materials containing lead. The threshold content used for purposes of managing projects is 0.009%, as defined by the U.S. Consumer Product Safety Commission. Lead in any amount has to be controlled during any hot work or abrasive blasting operations or other tasks that generate high airborne levels.

Target Housing - residential housing built before 1978 including private housing, public housing, and housing receiving federal assistance. At the Mount Pleasant Campus, this includes Barnes Hall, Kewadin Apartments, Northwest Apartments, and Washington Apartments.

Target Housing does not include:
- housing built after 1978.
- zero bedroom units, such as efficiencies, lofts and dormitories.
- housing leased for less than 100 days.
- housing for the elderly.
- rental housing inspected by a certified inspector and found to be lead-based paint free.

RESPONSIBILITY:
Deans, Directors, and Department Heads

Designate and empower individuals who will be responsible for implementing the Lead Management Program as appropriate within each department.

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 and 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 lead-based paints with ones containing no lead or lead content of less than 0.009%, which is the Consumer Product Safety Commission cutoff level for non lead-based paint.

Allocate resources to support the implementation of this Guideline.

Contact Environmental Health & Safety (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.

**Plant Engineering and Planning**

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:

- Scrapping, 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 such as: radiation shielding, soundproofing, flashing, and piping.

Ensure that new paint used in interior or exterior construction projects does not contain lead or that the concentration of lead is below 0.009% lead, which the Consumer Product Safety Commission uses as a cutoff for non lead-based paints.

**Environmental Health & Safety (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.

**University Housing and 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 years.

Follow all procedures outlined in this program and related documents for proper inspection and maintenance of properties.

**PROCEDURES:**

1) **Construction and renovation work in Non-Child Occupied Facilities/Non-Target Housing (most campus buildings):**

   a) **University Staff Performing Construction or Renovation**
      
      i) **Surveys**
      
      Before work begins, all materials suspected of containing lead must be tested. Workers will follow their department procedures for determining the presence of LBP or contact EHS.

      ii) **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, air monitoring, training, medical surveillance, clean up, waste handling and recordkeeping.

      iii) **Training**
      
      University employees involved in construction and renovation activities impacting 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).

iv) 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 (see Appendix B).

To participate in the medical surveillance program, the supervisor should contact EHS and indicate that the employee is exposed to lead. The employee will be contacted directly to schedule the physical exam.

Written results of the lead medical surveillance will be provided to the employee within 5 working days of receipt from the occupational health care provider. See form letter in Appendix C.

If the employee’s blood lead level exceeds 40 micrograms per deciliter whole blood (µg/dl), EHS will review with the employee the follow-up testing process and temporary work restrictions.

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 Appendix B.

v) 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 exposure 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 a lead air monitoring database for compliance with these requirements.

b) Outside Contractors Working in Non-Child Occupied Facilities/Non-Target Housing

i) Surveys
The project engineer will contact EHS to request a building or project survey for lead containing materials. Outside consultants may be used in conducting surveys.

ii) Project Procedures
When the University contracts with an outside firm to perform work on materials known to contain lead, the contractor will be required to submit proof of compliance with the elements in the MIOSHA Lead in Construction standard before work begins.

iii) 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. Outside consultants may perform the monitoring.

2) Construction or Lead Abatement Work in Child-Occupied Facilities/Target Housing

a) University Staff Performing Construction or Renovation

i) Scope of Work
University staff who participate in the University lead program may perform limited construction/renovation 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. All lead abatement projects will be performed by outside State of Michigan licensed lead abatement contractors as described in paragraph b of this Section, unless prior approval has been given by EHS.

ii) 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 risk assessors. Inspection procedures will be in accordance with EPA and MDCH 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/MDCH and OSHA/MIOSHA definitions of lead concentrations differ, additional survey work using paint chip analysis may be necessary on projects where greater than 2 square feet of material will be disturbed. University staff who may be planning work in these areas are instructed to contact EHS for a final determination.

iii) Project Procedures
When University staff will perform construction/renovation, EHS will prescribe work practices to be followed. Since these projects will be very limited in scope, the potential for lead hazards will be low and procedures will be appropriate to the limited scope.

If University staff will perform construction/renovation of larger scope, as approved by EHS, procedures and safety precautions will be enhanced, target housing occupants will be notified as per the EPA Education regulation, and EHS will perform clearance sampling after completion of the project, using the same standards as those established for abatement projects.

iv) Staff Training, Medical Surveillance, and Air Monitoring
These provisions will be the same as for staff working in non-child occupied facilities.

b) Outside Contractors Performing Work

i) Project Procedures
When the University contracts with an outside firm to perform lead abatement, 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 an “Occupant Protection Plan” and a copy of the required State notification 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 EPA/MDCH
ii) 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. Outside consultants may be used to perform monitoring.

iii) Clearance Testing & Post Abatement Report
At the completion of all work, EHS will arrange clearance testing in accordance with EPA/MDCH regulations. All clearance testing will be conducted by a State of Michigan certified inspector or 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 EPA/MDCH regulatory specifications.

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 EPA/MDCH regulation. EHS will review the report for accuracy and completeness before the project file is considered complete.

3) Lead Notification/Disclosure in Target Housing (not applicable to Child Occupied Facilities)

a) 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:

i) The EPA booklet “Protect Your Family from Lead in Your Home”

ii) 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

iii) A “Disclosure of Information” form attached to the contract, which contains the following:
(2) A statement disclosing the presence of known lead-based paint or indicating no knowledge of lead-based paint.
(3) A statement by the purchaser or lessee affirming receipt and review of the information provided.
(4) Signatures of the purchaser or lessee and a University representative.

b) **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.

c) **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 inspector and become exempt from the disclosure requirements if the building is found to be lead-based paint free as defined by EPA/MDCH regulations. Departments interested in this option should contact EHS.

d) **Record keeping**
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.

**ATTACHMENTS:**
Appendix A- Project Specific Lead Compliance Plan template
Appendix B- Protocol for Lead Medical Surveillance
Appendix C- Medical Surveillance Reporting Form
Appendix A

Project Specific Lead Compliance Plan for ________________________________

This plan is intended to fulfill the requirements of section (e)(2) of 29CFR 1926.62 of the MIOSHA Lead Exposure in Construction Standard.

• Activity:
  o Describe scope of work, materials & tools to be used, number of workers involved

• Engineering Controls:
  o Include ventilation controls, work practices, preparation of area, wet methods, prohibition of eating, drinking, smoking, etc.

• Personal Protective Equipment & Personal Hygiene:
  o List all equipment that will be used, cleaning and change out schedule, changing area

• Air Monitoring: Modify if necessary:
  o Personal samples will be collected representative of all activities for a full shift.
  o General area samples will be collected adjacent to the work area.
  o All sampling will continue or activities will cease until the employee’s initial exposure assessment and area samples have been evaluated.
  o Personal sampling will cease after the employee exposure assessment establishes the proper respiratory protection.
  o General area sampling will cease if monitoring results are below the Action Level of 30 µg/m³.

• Schedule:
  o Duration of activity, dates, etc

Modify as necessary:

• Work Practices:
  o The following Work Practices will be required:
    ▪ Limit access to the work area and post signage stating “WARNING, LEAD WORK AREA, POISON, NO SMOKING”.
    ▪ Keep all surfaces free of debris through HEPA vacuuming and disposal of contaminated poly.
    ▪ Do not wear street clothes beneath PPE.
    ▪ Remove contaminated PPE before exiting the work area.
- Shower at the end of the work shift.

- The following Housekeeping items will be provided for by the employer and staged adjacent to the project work area:
  - A HEPA vacuum for gross removal of contamination.
  - A properly labeled covered, waste container for disposal of lead paint debris, poly and contaminated PPE. Coordinate waste container drop off and pick up with the Hazardous Waste Manager.
  - A respirator wash station.

- The following Hygiene Facilities will be provided for by the employer and staged in proximity to the work area:
  - A change room equipped with separate storage facilities for street clothes and PPE.
  - A fully operating shower with an adequate supply of cleansing agents and towels.
  - A hand washing facility with an adequate supply of cleansing agents.
  - A separate and clean eating area.

• Medical Surveillance:
  - Blood samples will be collected before and after the project for analysis of lead and zinc protoporphyrin levels.

• Training:
  - Employee engaged in lead work will be provided with project specific Lead Awareness Training in accordance with 29 CFR 1926.59 Hazard Communication Standard for the construction industry.
  - Employee will have current fit test training and physician permission to wear a respirator.
Appendix B

Protocol for Lead Medical Surveillance

POLICY:

All employees who are exposed to lead above the action level in their work environment will have a medical surveillance program available. Procedures for administering, evaluation and follow-up of lead surveillance shall be in compliance with the OSHA/MIOSHA Lead Regulations for General Industry and Construction (herein referred to as the regulations).

PROCEDURE:

1) Prior to placement in a job that has the potential to have lead exposure above the action level of 30 micrograms per cubic meter of air (µg/m³), employees will be provided with a physical examination. The examination will include at a minimum,
   ▪ a detailed medical and work history, with particular attention to past lead exposure (occupational and non-occupational), personal habits (smoking, hygiene), and past gastrointestinal, hematological, renal, cardiovascular, reproductive and neurological problems;
   ▪ a complete physical examination, with emphasis on the teeth, gums, hematologic, gastrointestinal, renal, cardiovascular and neurological systems;
   ▪ pulmonary status should be evaluated if respiratory protection is to be used;
   ▪ blood pressure measurements;
   ▪ a blood sample analysis to determine: blood lead level, hemoglobin and hematocrit determinations, red cell indices and examination of peripheral smear morphology, zinc protoporphyrin (ZPP), blood urea nitrogen, and serum creatinine;
   ▪ a routine urinalysis with microscopic examination;
   ▪ any other tests deemed appropriate by the examining physician by sound medical practice.

If employees may be exposed to lead at or above the action level of 30 µg/m³ for more than 30 days in any consecutive 12 months, blood sampling and analysis for lead and ZPP levels shall be made available every 2 months for the first 6 months and every 6 months thereafter.

2) The medical surveillance program will be administered by CHIP.

3) Medical examinations shall be made available at least annually for employees in this program. Employees who do not wish to participate in the Lead Program must sign the Blood Lead and ZPP Declination Form attached to this program.
4) Blood lead level sampling and analysis provided pursuant to this section shall have an accuracy (to a confidence level of 95%) within plus or minus 15% or 6 µg/100 ml, whichever is greater, and shall be conducted by a laboratory licensed by the Center for Disease Control, United States Department of Health, Education and Welfare (CDC) or which has received a satisfactory grade in blood lead proficiency testing from CDC in the prior twelve months.

5) Information provided to the examining physician, by EHS shall include:
   - Copies of the lead standards and appendices.
   - A description of the employee's duties in relation to the exposure.
   - The anticipated exposure level to lead and any other toxic substance.
   - A description of any personal protective and respiratory equipment used.
   - Prior blood lead determinations.
   - All prior written medical opinions concerning the employee in the University's possession or control.

6) The physician will submit to EHS, a physician’s written opinion which includes the following:
   - The physician's opinion as to whether the employee has any detected medical condition which would place the employee at increased risk of health impairment from exposure to lead.
   - Any recommended special protective measures to be provided to the employee, or limitations to be place on the employee's exposure to lead.
   - Any recommended limitation of the employee's respirator use.
   - The results of the blood lead determinations.

7) Follow-up surveillance: When the employee’s blood lead level is at or above 40 µg/dl, the physician will schedule the employee for follow-up blood sampling for lead and ZPP every two months. Follow-up testing will continue until two consecutive blood samples indicate a blood lead level below 40 µg/dl. When the employee’s blood lead level is at or above 50 µg/dl, the physician will schedule the employee for follow-up blood sampling for lead and ZPP once per month. Follow-up will continue until two consecutive blood samples indicate a blood lead level below 40 µg/dl.

8) The physician shall not reveal to the University in the written opinion or in any other manner the specific findings or diagnoses unrelated to occupational exposure to lead.

9) The physician shall advise the employee of any medical condition, occupational or non-occupational, which dictates further medical treatment.

10) CHIP will provide the employee with a copy of the physician’s written opinion within 5 days after receipt or 5 days upon receipt.
Lead Medical Surveillance Program

Blood Lead and ZPP Declination Form (Mandatory)

I understand that due to my potential for occupational exposure to lead through activities involving lead based paint products I could incur a body burden of lead that could result in lead poisoning. I have been given the opportunity to have my blood lead levels checked, however I decline at this time.

I understand that I could continue to be exposed, although the use of proper work practices, personal hygiene practices, and personal protective equipment should minimize or eliminate personal exposure.

In the future, if I continue to have occupational lead exposure and want my blood lead levels checked, I can receive the testing at no charge to me at that time.

_______________________  ______________________  ____________
Employee Name                  Employee Signature          Date

_______________________  ______________________  ____________
Supervisor Name                Supervisor Signature         Date
MEDICAL SURVEILLANCE LEAD REPORTING FORM

TO: ________________________________

FROM: Central Health Improvement Program (CHIP)

DATE: ________________________________

SUBJECT: Blood Lead Laboratory Analysis Results.

Attached is a copy of the results of blood lead testing from COMP. We are providing you with results in writing as required by MIOSHA regulations. You are included in the blood lead testing program because your work assignments may include work with lead based paint, or other materials that contain lead. While few CMU employees have been shown to be exposed to excessive amounts of lead, many workers are included in the blood lead testing program as a precautionary measure.

Two analytical tests are conducted on your blood to access the amount of lead that may be in your body. Your blood lead level (BLL) measures the amount of lead that is circulating through your body in your blood. This test is used to help assess the short-term effects from lead exposure. BLLs are reported in micrograms of lead per deciliter of blood (μg/dl). A BLL of less than 40 μg/dl is considered safe. If a worker’s BLL exceeds 50 μg/dl, then certain procedures must be followed to protect that worker from additional lead exposures until their BLL drops back below 40 μg/dl.

The ZPP level test is used to help assess the long-term effects from lead exposure. ZPP levels are reported in micrograms of ZPP per deciliter of blood (μg/dl). If your ZPP level is considered irregular, you will be advised by COMP.

If you have any further questions about your blood test results, or would like additional information on the health effects of lead exposure, the University’s lead program, or the regulations, please feel free to contact EHS.