LEAD-BASED PAINT HAZARD POLICY

Health Hazard

Lead exposure can be harmful to individuals of all ages. However, lead exposure is especially damaging to children, fetuses, and women of childbearing age. The effects of lead poisoning may occur gradually and imperceptibly, often showing no obvious symptoms. Common symptoms of lead poisoning include loss of appetite, nausea, vomiting, stomach cramps, difficulty in sleeping, fatigue, moodiness, headache, joint or muscle aches, anemia, and effects on male and female reproductive systems. Lead exposure has been associated with learning disabilities, growth impairment, permanent hearing and visual impairment, and other damage to the brain and nervous system. Blood lead levels in the United States have been reduced through efforts to reduce lead in gasoline, drinking water piping systems, and food cans. There remains a significant health hazard from improperly managed lead-based paint. Lead was used as a primary ingredient in many oil based paints during the first half of this century. Usage of lead-based paint decreased during the 50’s and 60’s and was banned from residential use in 1978.

Lead-based paint (LBP) presents a lead exposure hazard for occupants of UNC buildings and for workers required to remove paint. Lead poisoning may occur when workers inhale or ingest lead dust and fumes during abrasive blasting, sanding, cutting, burning, or welding of surfaces coated with lead containing paints. Exposure can occur by inhaling the fine dust or by ingesting paint dust during hand-to-mouth activities. Lead from exterior paint can flake and contaminate the soil around buildings. Lead contaminated dust can be formed as paint wears, especially at windows and doors.

Legal

Worker exposures to lead are regulated under OSHA 29 CFR 1926.62. The Permissible exposure limit (PEL) is 50 micrograms per cubic meter of air averaged over an 8-hour period. The paint chips and dust from abatement projects are regulated as hazardous waste under the EPA Resource, Conservation, and Recovery Act (RCRA). The EPA regulates lead-based paint hazards in single and multi-family housing constructed before 1978. EPA regulations require landlords of rental properties inform occupants of the lead-based paint hazards at the time of the lease agreement and whenever renovations in the unit are planned. Occupants are required to receive a copy of the EPA booklet, “Protect Your Family from Lead in Your Home”.

The State of North Carolina requires individuals who are engaged in lead-based paint activities (inspectors, risk assessors, project designers, supervisors, and workers) to be certified for such activities.
Lead Testing

All paint removal projects must be reviewed by the Department of Environment, Health and Safety (EHS) so that the paint can be tested for lead content. Facilities Services will complete applicable parts of the attached form. "Request for Lead-Based Paint Inspection" when requesting a survey for lead-based paint of university buildings.

The survey of the building painted surfaces will entail collecting representative samples of the following, if applicable: siding, window and door components, support columns, and metal surfaces including railings, handrails, stairs, fenestra windows, vents etc. Analysis for lead-based paint is conducted on-site by using an XRF (X-Ray Fluorescence) Spectrum Analyzer. Paint chips may be collected, if necessary, and submitted to an approved laboratory for lead content analysis. A copy of the test results will be forwarded to Facilities Services.

Lead-based Paint Abatement

A safe and complete abatement job cannot be done without containing all lead within the work area so that lead is not dispersed to adjacent areas/units and the outside environment. Contractors hired to remove lead-based paint from University buildings are to have documented lead hazard abatement training and certification and shall submit a written abatement plan. If the abatement plan necessitates the breaking or disturbing of leaded surfaces or other dust generating procedures, containment steps must be taken.

Written Abatement Plan

Contractors hired to remove lead-based paint from University buildings shall submit a written abatement plan that must be reviewed and approved by EHS prior to beginning paint removal. The plan shall address:

- An overall time table
- Specification of abatement methods
- Containment of lead dust and debris
- Protection of workers
- Clean up during and after abatement
- Waste management and disposal
- Record keeping

Lead-Based Paint (LBP) Removal or Abatement Methods

Uncontained water blasting and open abrasive blasting are unacceptable methods of abatement. The removal method selected will depend upon the type of surface and whether the surface is interior or exterior. Some methods present additional hazards, such as fire and chemical exposures, which require additional precautions. The following removal methods are acceptable:
Mechanical methods
  • Sanding equipped with vacuum and HEPA filtration
  • Abrasive blasting with a vacuum arrangement

Heat Methods
  • Hot air guns (operating at temperature below 1100 °F)

Chemical Methods
  • On-site chemical stripping
  • Off-site chemical stripping

Encapsulation
Whole component Replacement

The following methods of abatement of lead-based paint are prohibited:
  • Stripping paint on site with methylene chloride based solutions
  • Torch or flame burning
  • Heating paint with a heat gun above 1100 degrees Fahrenheit
  • Sandblasting

Paint Film Stabilization

Definition:
Paint film stabilization is the systematic repair and restore of damaged paint. This is a process of wet scraping, priming, and repainting surfaces that are coated with deteriorated lead-based paint.

Objective:
To guide the workers in the safe management of lead-based paint (LBP) commonly encountered during the paint film stabilization (paint repair & restore) of University buildings. The procedures will help the workers to:

1. Control the creation of lead-contaminated dust.
2. Effectively clean up lead-contaminated dust and debris created by the work.
3. Protect workers, and occupant’s health and safety.

Performance:
A moderate amount of lead-contaminated dust and debris will be generated or disturbed during paint film stabilization work at University buildings. A moderate amount is clearly visible and may contain debris and paint chips. These quantities of paint chips may be regulated as hazardous waste.
Four important rules to follow when chipping loose paint:

1. Mist the work area to minimize airborne dust.
2. Using a putty knife or scraper, carefully scrape loose paint flakes and deteriorated surfaces.
3. Collect all debris and paint chips created on 6-mil plastic sheeting and place in waste drum.
4. Vacuum the entire work area thoroughly using a HEPA vacuum.

Personal Protective Equipments:
**Personal protective equipment includes protective clothing and respirators are to be used in all projects.** Protective clothing is worn to prevent harmful materials such as lead from coming into contact with the body. Protective clothing includes coveralls, head covering, foot covering, and gloves.

Respirators should always be used; typically a half face HEPA filter air-purifying respirator is to be used in all paint film stabilization. Powered air purifying respirators (PAPR) should be provided if requested by an employee for use where respirators are required.

Personal Hygiene:
All workers should wash their hands and face immediately after every project. Eating, drinking, smoking, and applying cosmetics should not be permitted in any work area.

Equipment:
1. Cleaning supplies, such as cloths, mop and bucket.
2. Misting or spray bottles.
3. Tape and plastic drop cloths and 6-mil plastic sheeting
4. High Efficiency Particulate Air (HEPA) filter-equipped vacuum cleaners.
5. Putty knives or scrapers.
6. Personal Protective Equipment (PPE), such as; full Tyvek suite, disposable gloves, respirators with HEPA cartridges, and safety glasses.

Preparation:
I. **For Exterior Surfaces:**

1. Cover ground under work area with polyethylene sheeting.
2. Attach edge of ground polyethylene sheeting to building
3. The polyethylene sheeting should extend ten feet beyond the perimeter of the working surfaces.
4. Mist the work surfaces; use a putty knife or scraper to remove all loose paint
5. Maintain good housekeeping duties throughout the work.
6. Remove debris and paint chips at frequent intervals, place in waste drums.
7. Limit access through the work area, a tape “barricade” may be placed to help control traffic.

II. **For Interior Surfaces:**
1. Move furnishings and equipment away from area of work.
2. Place plastic drop cloth over fixed in place equipment or furnishings.
3. Place 6-mil plastic sheeting on the floor under area of work extending five (5) feet.
4. Mist the work surfaces; use a putty knife of scraper to remove all loose paint.
5. Maintain good housekeeping duties throughout the work.
6. Remove debris and paint chips at frequent intervals, place in waste drum.
7. Limit access through the work area, a tape “barricade” may be placed to help control traffic.

Cleaning Work Area:
After completing the work, remove polyethylene sheeting contaminated with lead paint chips and place it in a 55-gallon drum provided by EHS.
1. Plastic sheeting should be rolled inward and placed in waste drum.
2. Waste generated during repair & restore of deteriorated lead-based paint work may be regulated as hazardous waste
3. Call EHS to arrange for waste pick-up.

Worker Protection

The potential for exposure to lead exists during all lead-based paint abatement projects. Employees can also be exposed to other potential hazards from chemicals and physical agents. Lead-based paint abatement contractors must provide, at a minimum, the level of protection afforded by OSHA construction industry lead standard, OSHA 29 CFR 1926.62. All workers potentially exposed to lead must wear respirators. The following engineering controls and good work practices must be used to minimize both employee exposure to lead and environmental contamination, and these controls and practices must be incorporated into the written lead-based paint abatement plan:

- Abatement methods that minimize lead exposure
- Engineering controls to contain lead contamination
- Protective clothing and equipment
- Respiratory protection program in accordance with OSHA standard 29 CFR 1910.134
- Medical surveillance
- Hygiene facilities and practices
- Exposure monitoring
- Training
- Record keeping

Containment
A safe and complete abatement job cannot be done without containing all lead within the work area so that lead is not dispersed to adjacent areas and the environment. If the abatement plan necessitates breaking or disturbing leaded surfaces resulting in the generation of lead dust, containment steps must be taken.

For interior areas, all movable objects are to be removed from the work area and the area must be sealed from no work areas. Work areas can be sealed off by using 6-mil polyethylene sheeting to seal off all doorways and entrances. All nonmovable objects are to be covered with 6-mil polyethylene sheeting and sealed with tape. Floors are to be covered with at least two layers of 6-mil polyethylene sheeting. Heating and air conditioning systems must be shut down and air intake and exhaust vents are to be sealed.

For exterior areas, abatement procedures may generate large quantities of liquid and/or solid waste, which must be contained. For liquid waste, 6-mil polyethylene plastic sheeting is to be placed as close to the building foundation as possible. The edges are to be extended a sufficient distance to contain the runoff and outside edges raised to catch liquid waste. For solid waste the 6-mil polyethylene sheeting is to be extended out from the foundations a distance of 3 feet per story with a minimum of 5 ft and a maximum of 20 ft.

**Cleanup**

Cleanup of the abatement work area must be done daily, at the end of each work day, and, at the end of the abatement project, a minimum of 24 hours after active abatement has ceased. Workers must wear protective clothing and equipment, including respirators during all cleanup activities.

Daily cleanup helps minimize problems during final cleanup and limits the potential exposure of abatement workers to lead dust throughout the abatement process. Large demolition type debris should be wrapped and sealed in plastic. Small debris and other surfaces should be sprayed with a water mist to minimize re-aerosolization of settled dust, before sweeping. Dry sweeping is prohibited. The waste is placed in a double 4-mil or single 6-mil plastic bag, sealed, and moved to the designated waste storage area. The integrity of the plastic containment sheeting must be inspected daily and repaired as needed.

Before final cleanup can begin and before abated surfaces can be painted or sealed, the plastic sheeting used for containment must be removed. Upper level plastic covering cabinets and counters must be sprayed with water and carefully folded. Floor plastic must be sprayed and then swept. It should be folded from the periphery to the middle to trap any lead dust remaining on the plastic and then sealed in plastic bags. The entire area should be HEPA vacuumed starting with the farthest area from the door and from the ceilings to the floor. The entire area should then be washed down using a detergent with a high-phosphate content, followed by a final HEPA vacuuming. Cleaning of equipment should also include thorough HEPA vacuuming and washing with a high-phosphate solution. The abated surfaces may need to be painted or sealed before final cleanup with a HEPA vacuum and high-phosphate solution. Liquid waste generated during the LBP removal and clean up is to be containerized, labeled, and disposed of as hazardous waste.
Monitoring and Inspection

The EHS must inspect and approve the containment area before abatement work can begin, and, may inspect and perform air monitoring during the abatement project. A final clearance inspection and surface dust sampling will be performed at least 24 hours after the final cleanup is complete.

The permissible amount of leaded dust remaining on each of the following surfaces following lead hazard work is as follows:

1. 40 µg/ft² on floors.
2. 250 µg/ft² on interior window sills (stools).
3. 400 µg/ft² on window troughs.
4. 400 µg/ft² on exterior concrete.

Waste Disposal

Lead contaminated waste generated during the abatement project must be disposed of as hazardous waste through EHS. Such waste includes lead paint chips; lead paint dust; solvents, caustics, and sludge used for paint stripping; liquid waste from exterior blasting, wash water from cleanup; rags, sponges, and mops used for cleanup. Other wastes, which may be considered hazardous, include plastic sheets and tape used to cover floors and other surfaces during lead paint removal, and disposable protective clothing and respirator filters.

The cost for disposal is charged to the cost of the project. An account number to be billed for disposal costs must be provided to EHS before the project begins. Requests for hazardous waste 55-gallon drums are to be made to EHS at 962-5509. The disposal of lead contaminated waste is to be in accordance with hazards waste management regulations.

Early discussion of the project is critical since some projects may require the acquisition of a temporary hazardous waste identification (ID) number. This ID number which is issued by the Department of Environment, and Natural Resources (DENR), will be project specific and may take up to 30 days to obtain.
Appendix A

Hazardous Waste Management for Contracted Removal of Lead Based Paint
Using PEEL-AWAY 1 System

Drums for lead based paint-stripping waste may be obtained through EHS by contacting Steve Parker at 962-5509.

1. Drums must be labeled as Hazardous Waste when the first waste material is deposited in the drum. Examples of appropriate labels are attached. Labels may be obtained from EHS.

2. **Liquid and solid paint wastes should not be collected in the same containers.**

**Solid paint wastes** are to be collected in 30-gallon open-head plastic drums.

Only the following materials\(^1\) are to be placed in the drums for solid paint waste collection:
- Paint chips and peelings.
- PEEL-AWAY 1 paste.
- PEEL-AWAY 1 fibrous laminated cloth.
- Paper and cloth wipes contaminated with PEEL-AWAY 1.

**Liquid paint wastes** are to be collected in 55-gallon closed-head plastic drums.

Only the following materials\(^1\) are to be placed in the drums for liquid paint waste collection:
- Reinstate from the neutralization of PEEL-AWAY 1 residual.

3. Lids and/or bungs must be in place and secured except when waste is being added to the drum. Drums must remain closed when not in use.

4. Each waste drum must be removed within three days after it is filled. Multiple filled drums on site are not permitted. Please place the fill date on the drum with a permanent marker and request drum pickup as soon as a drum is full. Drums requested for pickup must be readily accessible by drum-dolly and truck.

5. Request for waste removal is to be made through EHS using the Hazardous Materials Transfer Form. The forms may be obtained by calling EHS. Examples of correctly prepared forms for solid and liquid paint wastes are attached. A separate form should be used for each drum. **A UNC Account Number, to which disposal fees are to be billed, must be included on the Hazardous Materials Transfer Form.**

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\(^1\) The presence of other materials may result in waste rejection and/or surcharges from the disposal firm and citations and/or fines from the DOT and/or EPA.
Appendix B

Request for Lead-Based Paint Inspection

To:  Nagui Rizkallah, Department of Environment, Health & Safety CB# 1650

Date: ____________________________________________

From:
   □ Facilities Services (Design Services) - CB 1800
   □ Facilities Planning - CB 1090
   □ Others ________________________________________

Please test the following area(s) for lead-based paint:

Building: ________________________________________

Rooms: _________________________________________

Material to be Checked: ________________________________________

_____________________________________________________

□ No LBP                               □ LBP Present

Comments: _________________________________________

_____________________________________________________

_____________________________________________________

_____________________________________________________

_____________________________________________________

___________________________________________________________________________

Safety Inspector ___________________________ Date ___________

Please complete this sheet and return to Facilities Services with test results.