

## **PART 1 GENERAL**

### **1.1 SUMMARY**

- .1 Comply with requirements of this Section when performing the following work:
  - .1 Removal of lead-containing coatings with a chemical gel or paste and fibrous laminated cloth wrap as indicated on drawings.
  - .2 Removal of lead-containing coatings or materials using a power tool with an effective dust collection system equipped with a HEPA filter as indicated on drawings.
  - .3 Removal of lead-containing coatings or materials with non-powered hand tool, other than manual scraping and sanding as indicated on drawings.

### **1.2 RELATED REQUIREMENTS**

- .1 Non applicable.

### **1.3 REFERENCE STANDARDS**

- .1 Department of Justice Canada
  - .1 Canadian Environmental Protection Act, 1999 (CEPA).
- .2 Health Canada
  - .1 Workplace Hazardous Materials Information System (WHMIS), Material Safety Data Sheets (MSDS).
- .3 Human Resources and Social Development Canada (HRSDC)
  - .1 Canada Labour Code Part II, SOR 86-304—Occupational Health and Safety Regulations.
- .4 Transport Canada (TC)
  - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .5 U.S. Environmental Protection Agency (EPA)
  - .1 EPA 747-R-95-007-1995, Sampling House Dust for Lead.
- .6 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (NIOSH)
  - .1 NIOSH 94-113—NIOSH Manual of Analytical Methods (NMAM), 4<sup>th</sup> Edition (1994).
- .7 U.S. Department of Labour—Occupational Safety and Health Administration (OSHA)—Toxic and Hazardous Substances
  - .1 Lead in Construction Regulation—29 CFR 1926.62-1993.
- .8 Underwriters' Laboratories of Canada (ULC)

#### **1.4 DEFINITIONS**

- .1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .2 Authorized Visitors: Departmental Representative or other designated representative(s).
- .3 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects over cuts and tears, and elsewhere as required to provide protection and isolation. For protection of underlying surfaces from damage and to prevent lead dust entering in clean area.
- .4 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.
- .5 Action level: employee exposure, without regard to use of respirators, to airborne concentration of lead of 50 micrograms per cubic metre of air ( $50 \text{ ug/m}^3$ ) calculated as 8-hour time-weighted average (TWA). Minimum precautions for lead abatement are based on airborne lead concentrations less than 0.05 milligrams per cubic metre of air for removal of lead-based paint by methods noted in paragraph 1.1.
- .6 Competent person: Departmental Representative OR individuals capable of identifying existing lead hazards in workplace taking corrective measures to eliminate them.
- .7 Lead dust: wipe sampling on vertical surfaces and/or horizontal surfaces, dust, and debris is considered to be lead-contaminated if it contains more than 40 micrograms of lead in dust per square foot.

#### **1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00—Submittal Procedures.
- .2 Provide proof satisfactory to the Departmental Representative that suitable arrangements have been made to dispose of lead-based paint waste in accordance with requirements of authority having jurisdiction.
- .3 Provide proof of Environmental Liability and Contractor's General Insurance.
- .4 Quality Control:
  - .1 Provide the Departmental Representative with necessary permits for transportation and disposal of lead-based paint waste and proof that lead-based paint waste has been received and properly disposed.
  - .2 Provide proof satisfactory to the Departmental Representative that employees have received instructions on hazards of lead exposure, respirator use, dress, and aspects of work procedures and protective measures.

#### **1.6 QUALITY ASSURANCE**

- .1 Regulatory Requirements: comply with Federal, Provincial, and local requirements pertaining to lead paint, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at the time work is performed.

- .2 Health and Safety:
  - .1 Do Construction Occupational Health and Safety in accordance with Section 01 35 29.06—Health and Safety Requirements.
  - .2 Safety Requirements: worker and visitor protection.
    - .1 Protective equipment and clothing to be worn by workers and visitors in work area include:
      - .1 NIOSH-approved and equipped respirator with replaceable HEPA filter cartridges with an assigned protection factor of 10, acceptable to authority having jurisdiction. Suitable for type of lead and level of lead dust exposure. Provide sufficient amount of filters.
      - .2 Half-mask respirator: half-mask particulate respirator with P-series filter, and 99% efficiency could be provided.
    - .2 Eating, drinking, chewing, and smoking are not permitted in work area.
    - .3 Ensure workers wash hands and face when leaving work area.
    - .4 Visitor Protection:
      - .1 Provide approved respirators to Authorized Visitors to work areas.
      - .2 Instruct Authorized Visitors procedures to be followed in entering and exiting work area.

## 1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 21—Construction/Demolition Waste Management and Disposal.
- .2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional, and Municipal Regulations.
- .3 Disposal of lead waste generated by removal activities must comply with Federal, Provincial, Territorial, and Municipal Regulations. Dispose of lead waste in sealed double thickness 6-ml bags or leak-proof drums. Label containers with appropriate warning labels.
- .4 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

## 1.8 EXISTING CONDITIONS

- .1 Reports and information pertaining to lead-based paint to be handled, removed, or otherwise disturbed and disposed of during this Project are to be found immediately after this Section.
- .2 Notify the Departmental Representative of lead-based paint discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by the Departmental Representative.

## **1.9 SCHEDULING**

- .1 No later than two days before beginning Work on this Project notify following in writing:
  - .1 Appropriate Regional or Zone Director of Medical Services Branch, Health Canada.
  - .2 Provincial Ministry of Labour.
  - .3 Disposal Authority.
- .2 Inform sub-trades of presence of lead-containing materials identified in Existing Conditions.
- .3 Provide the Departmental Representative with a copy of notifications prior to start of Work.

## **1.10 PERSONNEL TRAINING**

- .1 Provide the Departmental Representative with a satisfactory proof that every worker has received instruction and training in hazards of lead exposure, personal hygiene, aspects of work procedures, as well as use, cleaning, and disposal of respirators.
- .2 Instruction and training related to respirators includes, at least:
  - .1 Proper fitting of equipment.
  - .2 Inspection and maintenance of equipment.
  - .3 Disinfecting of equipment.
  - .4 Limitations of equipment.
- .3 Instruction and training must be provided by a competent and qualified person.
- .4 Supervisory personnel shall complete required training.

## **PART 2 PRODUCT**

### **2.1 MATERIALS**

- .1 Polyethylene 0.15 mm thick, unless otherwise specified; in sheet size to minimize joints.
- .2 Tape: fibreglass-reinforced duct tape suitable for sealing polyethylene under dry and wet conditions using amended water.
- .3 Slow-drying sealer: non-staining, clear, water-dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual lead paint residue.
- .4 Lead waste containers: fibre OR metal type acceptable to dump operator with tightly fitting covers and 0.15 mm thickness sealable polyethylene liners.
  - .1 Label containers with pre-printed bilingual cautionary “Warning Lead” clearly visible when ready for removal to disposal site.

## **PART 3 EXECUTION**

### **3.1 SUPERVISION**

- .1 One Supervisor for every ten workers is required.
- .2 Supervisor must remain within work area during disturbance, removal, or handling of lead-based paint.

### **3.2 PREPARATION**

- .1 Remove and store items shall be salvaged or reused.
  - .1 Protect and wrap items as well as transport and store in area specified by the Departmental Representative.
- .2 Work Area:
  - .1 Shut off and isolate HVAC system to prevent dust dispersal into other building areas. Conduct smoke tests to ensure duct work is airtight.
  - .2 Pre-clean fixed casework and equipment within work area using HEPA vacuum as well as cover and seal with polyethylene sheeting and tape.
  - .3 Clean work area using HEPA vacuum. If not practicable, use wet cleaning method. Do not raise dust.
  - .4 Seal off openings with polyethylene sheeting and seal with tape.
  - .5 Protect floor surfaces covered from wall to wall with polyethylene sheets.
  - .6 Maintain emergency fire exits or establish alternatives satisfactory to authority having jurisdiction.
  - .7 Where water application is required for wetting lead containing materials, provide temporary water supply appropriately sized for application of water as required.
  - .8 Provide electrical power and shut off for operation of powered tools and equipment. Provide 24-volt safety lighting and ground-fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical cables and equipment.
- .3 Do not start work until:
  - .1 Arrangements have been made for disposal of waste.
  - .2 Tools, equipment, and materials waste containers are on site.
  - .3 Arrangements have been made for building security.
  - .4 Notifications have been completed and preparatory steps have been taken.

### **3.3 LEAD ABATEMENT**

- .1 Removal of lead-containing coatings with a chemical gel or paste and fibrous laminated cloth wrap; or removal equipped with HEPA filters; or removal with using power tools non-powered hand tool other than manual scraping and sanding.
- .2 Remove lead-based paint in small sections, pack as it is being removed in sealable 0.15 mm plastic bags, and place in labelled containers for transport.

- .3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to staging area. Clean external surfaces again thoroughly by wet sponging. Wash containers thoroughly pending removal to outside. Ensure containers are removed by workers who have entered from uncontaminated areas dressed in clean coveralls.
- .4 After completion of stripping work, wire brush and wet sponge surface from which lead-based paint has been removed to remove visible material. During this work, keep surfaces wet.
- .5 After wire brushing and wet sponging to remove visible lead-based paint, and after encapsulating lead-containing material impossible to remove, wet clean entire work area and equipment used in process. After inspection by the Departmental Representative, apply continuous coat of slow-drying sealer to surfaces of work area. Do not disturb work area for 8 hours: no entry, activity, ventilation, or disturbance during this period.

### **3.4 INSPECTION**

- .1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by the Departmental Representative will result in work stoppage, at no cost to Owner.
- .2 The Departmental Representative will inspect work for:
  - .1 Adherence to specific procedures and materials.
  - .2 Final cleanliness and completion.
  - .3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

### **3.5 LEAD SURFACE SAMPLING—WORK AREAS**

- .1 Final lead surface sampling shall be conducted as follows:
  - .1 After work area has passed a visual inspection for cleanliness approved and accepted by the Departmental Representative, apply coat of lock-down agent to surfaces within enclosure, and appropriate setting period of 8 hours has passed, the Departmental Representative will perform lead wipe sampling.
    - .1 Final lead wipe sampling results from horizontal and vertical surfaces must show lead levels of less than 40 micrograms of lead in dust per square foot. Samples collected and analyzed in accordance with EPA 747-R-95-007.
    - .2 If wipe sampling results show levels of lead in excess of 40 micrograms per square foot, re-clean work area at contractor's expense and apply another acceptable coat of lock-down agent to surfaces.
    - .3 Repeat as necessary until fibre levels are less than 40 micrograms per square foot.

### **3.6 FINAL CLEANUP**

- .1 Following cleaning and when lead wipe surfaces sampling are below acceptable concentrations, proceed with final cleanup.

- .2 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible lead containing particles observed during cleanup immediately using HEPA vacuum.
- .3 Place polyethylene sheets, tape, cleaning material, clothing, and contaminated waste in plastic bags and sealed labelled waste containers for transport.
- .4 Conduct final check to ensure no dust or debris remains on surfaces as result of dismantling operations.

**3.7 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS**

- .1 Repair or replace objects damaged in the course of work to their original state or better, as directed by the Departmental Representative.

**END OF SECTION**