

## **Part 1 General**

### **1.1 SUMMARY**

- .1 Lead-containing paint is confirmed to be present in almost all the buildings through analytical testing.
- .2 Comply with requirements of this Section when performing following Work, if and as required :
  - .1 Removal of lead-based paint from ceilings and walls by scraping or sanding using non-powered hand tools, ensuring no damage to underlying historic substrate. Mock-up of an area 1m x 1m, in a location approved by the Departmental Representative, to be carried out prior to proceeding with the work.
- .3 In the identified zones where high level of lead was detected (>1,000 mg/kg), complete removal of the coatings will be done using chemical stripping (as outlined in Section 02 83 10). Partial removal, of loose and flaking paint, will be completed on areas <1,000 mg/kg as indicated in attached documents. All removal will be done in ways to ensure no damage to underlying historic substrate.
- .4 Abatement work should follow the most stringent guidelines applicable. Materials with leachable lead concentrations greater than 5 mg/L must also be manifested as dangerous goods during transport under the federal TDGA Regulations. If materials are to be disposed of out-of-province, transportation must comply with the Interprovincial Movement of Hazardous Waste Regulations under the CEPA.

### **1.2 RELATED REQUIREMENTS**

- .1 S Section 02 61 33 Hazardous Designated Substances Report
- .2 Section 02 83 10 Lead Based Paint Abatement – Minimum Precautions

### **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. 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), 4th Edition (2020).
- .6 Nova Scotia Environment
  - .1 Lead in the Workplace: A Guide to Working with Lead (2015)
- .7 Ontario Ministry of Labour
  - .1 Lead on Construction Projects (2011)

#### **1.4 DEFINITIONS**

- .1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .2 Authorized Visitors: Parks Canada Agency (or designated representative) and representatives of regulatory agencies.
- .3 Occupied Area: areas of building or work site that is outside Work 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 Airlock: ingress or egress system, without permitting air movement between contaminated area and uncontaminated area. Consisting of two curtained doorways at least 2 m apart.
- .6 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another. Typically constructed as follows:
  - .1 Place two overlapping polyethylene sheets over existing or temporarily framed doorway, securing each along top of doorway, securing vertical edge of one sheet along one vertical side of doorway, and secure other sheet along opposite vertical side of doorway.
  - .2 Reinforce free edges of polyethylene with duct tape and add weight to bottom edge to ensure proper closing.
  - .3 Overlap each polyethylene sheet at openings 1.5 m on each side.
- .7 Action level: employee exposure, without regard to usage of respirators, to an airborne concentration of lead of 50 micrograms per cubic metre of air calculated as 8 hour time-weighted average (TWA). Intermediate precautions for lead abatement are based on airborne lead concentrations greater than 0.05 milligrams per cubic metre of air within Work Area.
- .8 Competent person: Parks Canada Agency (or designated representative) capable of identifying existing lead hazards in workplace and taking corrective measures to eliminate them.

## **1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide proof satisfactory to the Designated representative that suitable arrangements have been made to dispose of lead-based paint waste in accordance with requirements of authority having jurisdiction.
- .2 Provide Provincial requirements for Notice of Project Form.
- .3 Provide proof of Contractor's General and Environmental Liability Insurance.
- .4 Quality Control:
- .5 Provide Parks Canada Agency (or designated representative) necessary permits for transportation and disposal of lead-based paint waste and proof that it has been received and properly disposed.
  - .1 Provide proof satisfactory to the Designated representative that employees have had instruction on hazards of lead exposure, respirator use, dress, entry and exit from Work Area, and aspects of work procedures and protective measures.
  - .2 Provide proof that supervisory personnel have attended lead abatement course, of not less than two days duration, approved by the Designated representative. Minimum of one supervisor for every ten workers.
- .6 Product data:
  - .1 Provide documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:
    - .1 Encapsulant: Lime based permeable primer, colour: off-white

## **1.6 QUALITY ASSURANCE**

- .1 Regulatory Requirements: comply with Federal, Provincial and local requirements pertaining to lead paint, in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.
- .2 Health and Safety:
  - .1 Require construction work to follow applicable occupational health and safety regulations.
  - .2 Safety Requirements: worker and visitor protection.
    - .1 Protective equipment and clothing to be worn by workers and visitors in Work Area includes:
      - .1 Respirator NIOSH approved and equipped with filter cartridges with assigned protection factor of 50, acceptable to Authority having jurisdiction. Suitable for type of lead and level of lead dust exposure in Lead Work Area. Provide sufficient filters so workers can install new filters following disposal of used filters and before re-entering contaminated areas.
      - .2 Disposable type protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.

- .2 Requirements for workers:
  - .1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters, clean coveralls and head covers before entering Equipment and Access Rooms or Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in clean change room.
  - .2 Remove gross contamination from clothing before leaving work area. Place contaminated work suits in receptacles for disposal with other lead - contaminated materials. Leave reusable items except respirator in Equipment and Access Room. When not in use in Work Area, store work footwear in Equipment and Access Room. Upon completion of lead abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from Work Area or from Equipment and Access Room.
  - .3 Enter unloading room from outside dressed in clean coveralls to remove waste containers and equipment from Holding Room of Container and Equipment Decontamination Enclosure system. Workers not to use this system as means to leave or enter work area.
- .3 Eating, drinking, chewing, and smoking are not permitted in Work Area.
- .4 Ensure workers are fully protected with respirators and protective clothing during preparation of system of enclosures prior to commencing actual lead abatement.
- .5 Ensure workers wash hands and face when leaving Work Area.
- .6 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this Section, in both official languages.
- .7 Ensure no person required to enter Work Area has facial hair that affects seal between respirator and face.
- .8 Visitor Protection:
  - .1 Provide protective clothing, over boots and approved respirators to Authorized Visitors to Work Areas. Including Tyvek suits and bootie covers.
  - .2 Instruct Authorized Visitors in use of protective clothing, respirators and procedures.
  - .3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Work Area.

## **1.7 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for recycling and/or reuse.
- .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, 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 Notify Parks Designated 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 Parks Canada Agency (or designated representative).

## **1.9 SCHEDULING**

- .1 Not later than two days before beginning Work on this Project notify the following in writing, where appropriate:
  - .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 Designated Representative copy of notifications prior to start of Work.
- .4 Hours of Work: perform work involving lead-based paint abatement during normal working hours. Work may be required outside normal working hours to meet schedule requirements requiring approval from Designated Representative.

## **1.10 PERSONNEL TRAINING**

- .1 Provide Designated Representative satisfactory proof that every worker has had instruction and training in hazards of lead exposure, in personal hygiene, in aspects of work procedures, and in use, cleaning, and disposal of respirators.
- .2 Instruction and training related to respirators includes, at minimum:
  - .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 competent, qualified person.
- .4 Supervisory personnel to complete required training.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Polyethylene: 0.15 mm unless otherwise specified; in sheet size to minimize joints.

- .2 FR polyethylene: 0.15 mm woven fibre reinforced fabric bonded both sides with polyethylene.
- .3 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under dry conditions and wet conditions using amended water.
- .4 Lime based vapor permeable coating system: Lime based adherence primer such as Color Rare, Base plus Primer, or equivalent product as approved by Departmental Representative.
- .5 Lead waste containers: fibre or metal type acceptable to dump operator with tightly fitting covers and 0.15 mm 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 Approved Supervisor must remain within Lead Work Area during disturbance, removal, or other handling of lead-based paints.

#### **3.2 PREPARATION**

- .1 Remove and store items to be salvaged or reused, and transport and store in area specified by Parks Canada Agency (or designated representative).
- .2 Work Area:
  - .1 Clean work areas using HEPA vacuum. If not practicable, use wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum.
  - .2 Seal off openings, corridors, doorways, windows, with polyethylene sheeting sealed with tape.
  - .3 Cover floor surfaces in work area from wall to wall with FR polyethylene drop sheets to protect existing floor during removal.
  - .4 Build airlocks at entrances and exits from work areas to ensure work areas are always closed off by one curtained doorway when workers enter or exit.
  - .5 At point of access to work areas install warning signs in both official languages in upper case "Helvetica Medium" letters reading as follows where number in parentheses indicates font size to be used:
    - .1 CAUTION LEAD HAZARD AREA (25 mm).
    - .2 NO UNAUTHORIZED ENTRY (19 mm).
    - .3 WEAR ASSIGNED PROTECTIVE EQUIPMENT AND RESPIRATOR (19 mm).
    - .4 BREATHING LEAD CONTAMINATED DUST CAUSES SERIOUS BODILY HARM (7 mm).

- .6 Maintain emergency and fire exits from work areas, or establish alternative exits satisfactory to Authority having jurisdiction.
  - .7 Where water application is required for wetting lead containing materials, provide temporary water supply by use of appropriately sized hoses for application of water as required. Use clean fresh water, no grey water or water taken directly from the Harbour can be used.
  - .8 Provide electrical power and shut off for operation of powered tools and equipment. No power is available to contractors on the island. 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 lines and equipment.
- .3 Worker Decontamination Enclosure System:
- .1 Worker Decontamination Enclosure System includes Equipment and Access Room and Clean Room, as follows:
    - .1 Equipment and Access Room: construct between exit and work areas, with two curtained doorways, one to the rest of suite, and one to work area. Install waste receptor and storage facilities for workers' shoes and protective clothing to be re-worn in work areas. Build large enough to accommodate specified facilities, equipment needed, and at least one worker allowing sufficient space to change comfortably.
    - .2 Clean Room: construct with curtained doorway to outside of enclosures. Provide lockers or hangers and hooks for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.
- .4 Construction of Decontamination Enclosures:
- .1 Construct framing for enclosures or use existing rooms. Line enclosure with polyethylene sheeting and seal with tape, apply two layers of FR polyethylene on floor.
  - .2 Construct curtain doorways between enclosures so when people move through or waste containers and equipment are moved through doorway, one of two closures comprising doorway always remains closed.
- .5 Maintenance of Enclosures:
- .1 Maintain enclosures in clean condition.
  - .2 Ensure barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately.
  - .3 Visually inspect enclosures at beginning of each workday.
  - .4 Use smoke test method to test effectiveness of barriers as directed by the Designated representative.

### **3.3 LEAD - BASED PAINT ABATEMENT**

- .1 Removal of lead-based paint in areas with lead total lead concentrations <1,000 mg/kg to be performed by scraping or sanding using non-powered hand tools, or manual

demolition of lead-painted wall or building components, as approved by the Departmental Representative. Well adhered coatings will remain on the surface.

- .2 Remove lead-based paint in small sections and 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 thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination Washroom, and store in Holding Room pending removal to Unloading Room and outside. Ensure containers are removed from Holding Room by workers who have entered from uncontaminated areas dressed in clean coveralls.
- .4 After completion of stripping work, brush (with a soft bristle 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 brushing (with a soft bristle brush) and wet sponging to remove visible lead-based paint, and after encapsulating lead containing material impossible to remove, wet clean work area including equipment and access room, and equipment used in process.
- .6 After inspection by Designated representative, apply a continuous coat of lime-based primer to surfaces of work area. Follow the manufacturer recommendation for drying time between coats. Do not disturb work for 8 hours with no entry, activity, or disturbance during this period.
- .7 After enclosing lead painted surfaces, wet clean work area and equipment and access room. During settling period no entry, activity, or ventilation will be permitted.

### **3.4 INSPECTION**

- .1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by Designated Representative will result in work stoppage, at no cost to Parks Canada Agency.
- .2 Designated 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.
  - .4 Once lime based primer is applied, an adherence test for the primer coating will be performed A methodology for testing will be provided to the Contractor from Parks Canada Agency.
- .3 When lead dust leakage from Work Area occurs the Designated Representative may order Work shutdown.
  - .1 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

### **3.5 FINAL CLEANUP**

- .1 Following specified cleaning procedures, and when inspection is satisfactory, 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 equipment.
- .3 Place polyethylene seals, tape, cleaning material, clothing, and other contaminated waste in plastic bags and sealed labelled waste containers for transport.
- .4 Clean-up Work Areas, Equipment and Access Room, and other contaminated enclosures.
- .5 Clean-up sealed waste containers and equipment used in Work and remove from work areas, via Container and Equipment Decontamination Enclosure System, at appropriate time in cleaning sequence.
- .6 Conduct final check to ensure no dust or debris remains on surfaces as result of dismantling operations.

### **3.6 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS**

- .1 Repair or replace objects damaged in course of work to their original state or better, as directed by Parks Canada Agency (or designated representative).

**END OF SECTION**