

Part 1 General

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| 1.1 SECTION | .1 | Alteration project procedures. |
| <u>INCLUDES</u> | .2 | Removal of designated building equipment and fixtures. |
| | .3 | Removal of designated construction. |
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| 1.2 RELATED | | |
| <u>SECTIONS</u> | .1 | Section 02 83 11 - Lead Base Paint Abatement Intermediate Precautions. |
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| 1.3 REFERENCES | .1 | CSA S350-M1980, Code of Practice for Safety in Demolition of Structures. |
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| 1.4 ALTERATION | .1 | Materials: As specified in Product sections; match existing Products and work for patching and extending work. |
| <u>PROJECT PROCEDURES</u> | .2 | Employ skilled and experienced installer to perform alteration work. |
| | .3 | Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity. |
| | .4 | Remove, cut, and patch Work in a manner to minimize damage and to provide means of restoring Products and finishes to original or specified condition. |
| | .5 | Refinish existing visible surfaces to remain in renovated rooms and spaces, to renewed condition for each material, with a neat transition to adjacent finishes. |
| | .6 | Where new Work abuts or aligns with existing, provide a smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance. |
| | .7 | When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and submit recommendation to Departmental Representative for review. |
| | .8 | Where a change of plane of 6 mm or more |

occurs, request instructions from
Departmental Representative.

- .9 Patch or replace portions of existing
surfaces which are damaged, lifted,
discoloured, or showing other imperfections.
- .10 Finish surfaces as specified in individual
Product sections.

1.5 SUBMITTALS

- .1 Section 01 33 00: Procedures for submittals.
- .2 Shop Drawings: Indicate demolition and
removal sequence and location of salvageable
items; location and construction of temporary
work.
- .3 Project Record Documents: Accurately record
actual locations of capped utilities,
subsurface obstructions.

1.6 REGULATOR REQUIREMENTS

- .1 Conform to applicable code for demolition
work, dust control, products requiring
electrical disconnection and re-connection.
- .2 Obtain required permits from authorities.
- .3 Do not close or obstruct egress width to any
building or site exit.
- .4 Do not disable or disrupt building fire or
life safety systems without 3 days prior
written notice to Owner.
- .5 Conform to procedures applicable when
hazardous or contaminated materials are
discovered.

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- 1.7 SCHEDULING
- .1 Schedule Work to coincide with new construction.
 - .2 Describe demolition removal procedures and schedule.
 - .3 Perform noisy, malodorous, dusty work in accordance with municipal bylaws.
- 1.8 PROJECT CONDITIONS
- .1 Conduct demolition to minimize interference with adjacent buildings.
 - .2 Cease operations immediately if structure appears to be in danger and notify Departmental Representative. Do not resume operations until directed.
- 1.9 PROJECT CONDITIONS
- .1 If material resembling spray or trowel applied asbestos, Lead paints or mould or other designated substance listed as hazardous be encountered in course of demolition, stop work, take preventative measures, and notify Departmental Representative immediately. Proceed only after receipt of written instructions have been received from Departmental Representative.
 - .2 Structures to be demolished are based on their condition on date that tender is accepted.
 - .1 Remove, protect and store salvaged items as directed by Departmental Representative. Salvage items as identified by Departmental Representative. Deliver to Departmental Representative as directed.
- Part 2 Products
- 2.1 NOT USED
- Part 3 Execution
- 3.1 PREPARATION
- .1 Provide, erect, and maintain temporary barriers and partitions as required.
 - .2 Erect and maintain weatherproof closures for exterior openings.
 - .3 Erect and maintain temporary partitions to prevent spread of dust, odours, and noise to permit continued Owner occupancy.
 - .4 Protect existing materials and assemblies which are not to be demolished.

3.2 DEMOLITION
AND DECONSTRUCTION

- .5 Notify affected utility companies before starting work and comply with their requirements.
- .6 Mark location and termination of utilities.
- .7 Provide appropriate temporary signage including signage for exit or building egress.
- .1 Demolish structure, interior finishes and assemblies as indicated and as follows:
 - .1 Remove miscellaneous items and components as indicated on Drawings.
 - .2 Remove hazardous materials in accordance with requirements in Section 02 83 11.
- .2 Deconstruct materials and assemblies without damage and to minimize dusting.
- .3 At end of each day's work, leave work in safe and stable condition.
- .4 Demolish to minimize dusting. Keep materials wetted as directed by Departmental Representative.
- .5 Keep debris removal to pathways approved by Departmental Representative.
- .6 Remove materials in covered containers.

END OF SECTION

PART 1 - GENERAL

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| 1.1 <u>SUMMARY</u> | .1 | Comply with requirements of this Section when performing following Work: <ul style="list-style-type: none">.1 Removal of lead based paint from walls ceilings as indicated on drawings by scraping or sanding using non-powered hand tools..2 Manual demolition of lead-painted plaster walls or building components by striking wall with sledgehammer or similar tool. |
| 1.2 <u>SECTION INCLUDES</u> | .1 | Requirements and procedures for abatement of lead based paints. |
| 1.3 <u>RELATED REQUIREMENTS</u> | .1 | Section 02 41 19 Selective Demolition. |
| 1.4 <u>REFERENCES</u> | .1 | Department of Justice Canada <ul style="list-style-type: none">.1 Canadian Environmental Protection Act, 1999 (CEPA). |
| | .2 | Health Canada <ul style="list-style-type: none">.1 Workplace Hazardous Materials Information System (WHMIS), Material Safety Data Sheets (MSDS). |
| | .3 | Human Resources and Social Development Canada (HRSDC) <ul style="list-style-type: none">.1 Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations. |
| | .4 | Transport Canada (TC) <ul style="list-style-type: none">.1 Transportation of Dangerous Goods Act, 1992 (TDGA). |
| | .5 | Underwriters' Laboratories of Canada (ULC) |

1.5 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: Owner, Departmental Representative, Consultant or designated representatives 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 meter 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 meter of air within Work Area.

- .8 Competent person: individuals, Departmental Representative capable of identifying existing lead hazards in workplace and taking corrective measures to eliminate them.
- .9 Lead in Dust: wipe sampling on vertical 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.

1.6 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide proof satisfactory to 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: Provincial and local requirements for Notice of Project Form.
- .4 Provide proof of Contractor's General and Environmental Liability Insurance.
- .5 Quality Control:
 - .1 Provide Departmental Representative necessary permits for transportation and disposal of lead based paint waste and proof that it has been received and properly disposed.
 - .2 Provide proof satisfactory to Departmental 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.
 - .3 Provide proof that supervisory personnel have attended lead abatement course, of not less than two days duration, approved by Departmental 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 Encapsulates.
 - .2 Amended water.
 - .3 Slow drying sealer.

1.7 QUALITY ASSURANCE

- .1 Regulatory Requirements: comply with Federal, Provincial/Territorial 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 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 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. Facilities for washing are located as indicated on drawings.
 - .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 and approved respirators to Authorized Visitors to Work Areas.
 - .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.

1.8 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.
- .2 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.

- .3 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.9 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 available for inspection at the Office of the Departmental Representative.
- .2 Notify 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 Departmental Representative.

1.10 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 Departmental Representative copy of notifications prior to start of Work.
- .4 Hours of Work: perform work involving Lead Paint Removal located at Building 90, Renous Institution outside of normal working hours. Include in Contract Sum additional costs due to this requirement.

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 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for trapping residual lead paint residue.
 - .5 Lead waste containers: fibre 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 Approved Supervisor must remain within Lead Work Area during disturbance, removal, or other handling of lead based paints.
- 3.2 PREPARATION
- .1 Remove and wrap items to be salvaged or reused, and transport and store in area specified by 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 areas, using HEPA vacuum and cover with polyethylene sheeting sealed with tape.
 - .3 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.
 - .4 Seal off openings, corridors, doorways, windows, skylights, ducts, grilles, and diffusers, with polyethylene sheeting sealed with tape.
 - .5 Cover floor surfaces in work area from wall to wall with FR polyethylene drop sheets to protect existing floor during removal.
 - .6 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.
 - .7 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).
 - .8 Maintain emergency and fire exits from work areas, or establish alternative exits satisfactory to Authority having jurisdiction.

- .9 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.
- .10 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 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 work day.
 - .4 Use smoke test method to test effectiveness of barriers as directed by Departmental Representative.

3.3 LEAD - BASE PAINT ABATEMENT

- .1 Removal of lead based paint to be performed by scraping or sanding using non-powered hand tools, or manual demolition of lead-painted plaster walls or building components by striking a wall with sledgehammer or similar tool.
- .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, 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 work area including equipment and access room, and equipment used in process. After inspection by Departmental Representative, apply continuous coat of slow drying sealer to surfaces. Do not disturb work for 8 hours with no entry, activity, ventilation or disturbance during this period.
- .6 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 Departmental Representative will result in work stoppage, at no cost to Owner.
- .2 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 When lead dust leakage from Work Area occurs Departmental 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 LEAD SURFACE
SAMPLING - WORK
AREAS

- .1 Final lead surface sampling to be conducted as follows:
 - .1 After Work Area has passed a visual inspection for cleanliness approved by Departmental Representative and acceptable coat of lock-down agent has been applied to surfaces within enclosure, and appropriate setting period of 8 hours has passed. Departmental Representative will perform lead wipe sampling in Work Area.
 - .1 Final lead wipe sampling results from horizontal and vertical surfaces where lead based paints have been removed must show lead levels of less than 40 micrograms of lead in dust per square foot. Samples must be 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 specified cleaning procedures, and when lead wipe sampling is below acceptable concentrations proceed with final cleanup.
- .2 Remove polyethylene sheet by rolling it away from walls to center 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.

3.7
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 Departmental Representative.