

PART 1 GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 35 29.06 - Health and Safety Requirements.
- .3 Section 01 74 11 - Cleaning.

1.2 REFERENCES

- .1 CSA International
 - .1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.

1.3 SITE CONDITIONS

- .1 Review "Designated Substance Report" and take precautions to protect environment.
- .2 Should material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Departmental Representative immediately.
 - .1 Do not proceed until written instructions have been received from Departmental Representative.
- .3 Notify Departmental Representative before disrupting building access or services.

PART 2 PRODUCTS

2.1 NOT USED

- .1 Not used.

PART 3 EXECUTION

3.1 EXAMINATION

- .1 Inspect building with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.
- .2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.
- .3 Notify and obtain approval of utility companies before starting demolition.
- .4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal

and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.

- .1 Immediately notify Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.
- .2 Immediately notify the Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.2 PREPARATION

- .1 Protection of In-Place Conditions:
 - .1 Prevent movement, settlement, or damage to adjacent structures and elements. Provide bracing and shoring required.
 - .2 Keep noise, dust, and inconvenience to occupants to minimum.
 - .3 Protect building systems, services and equipment.
 - .4 Provide temporary dust screens, covers, railings, supports and other protection as required.
 - .5 Do Work in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .2 Demolition/Removal:
 - .1 Remove items as indicated.
 - .2 Remove parts of existing building to permit new construction.
 - .3 Trim edges of partially demolished building elements to tolerances as defined by Departmental Representative to suit future use.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Refer to demolition drawings and specifications for items to be salvaged for reuse.
- .4 Waste Management: separate waste materials for reuse and recycling.

END OF SECTION

PART 1 GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 35 29.06 - Health and Safety Requirements.
- .3 Section 01 61 00 - Common Product Requirements.
- .4 Section 01 74 11 - Cleaning.

1.2 REFERENCES

- .1 Definitions:
 - .1 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
 - .2 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
 - .3 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.
- .2 Reference Standards:
 - .1 Canadian Environmental Protection Act, 1999 (CEPA 1999)
 - .1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).
 - .2 Department of Justice Canada (Jus)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDG Act) 1992, (c. 34).
 - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
 - .3 Green Seal Environmental Standards (GS)
 - .1 GS-11-2008, 2nd Edition, Paints and Coatings.
 - .2 GS-36-00, Commercial Adhesives.
 - .4 Health Canada material safety data sheet.
 - .1 Material safety data sheet (MSDS).
 - .5 National Research Council Canada Institute for Research in Construction (NRC-IRC)
 - .1 National Fire Code of Canada-2010.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for hazardous materials and include product characteristics, performance criteria, physical size, finish and limitations.

- .2 Submit WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements to Departmental Representative for each hazardous material required prior to bringing hazardous material on site.
- .3 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, usage, location, personal protective equipment requirements, and disposal arrangements.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
 - .1 When exporting hazardous waste to another country, ensure compliance with Export and Import of Hazardous Waste and Hazardous Recyclable Materials Regulations.
- .4 Storage and Handling Requirements:
 - .1 Co-ordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
 - .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
 - .3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada requirements.
 - .4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
 - .1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
 - .2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Departmental Representative.
 - .5 Transfer of flammable and combustible liquids is prohibited within buildings.
 - .6 Transfer flammable and combustible liquids away from open flames or heat-producing devices.
 - .7 Solvents or cleaning agents must be non-flammable or have flash point above 38 degrees C.
 - .8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
 - .9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
 - .10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
 - .1 Store hazardous materials and wastes in closed and sealed containers.

- .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
- .3 Store hazardous materials and wastes in containers compatible with that material or waste.
- .4 Segregate incompatible materials and wastes.
- .5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.
- .6 Store hazardous materials and wastes in secure storage area with controlled access.
- .7 Maintain clear egress from storage area.
- .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
- .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
- .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .11 When hazardous waste is generated on site:
 - .1 Co-ordinate transportation and disposal with Departmental Representative.
 - .2 Comply with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.
 - .3 Use licensed carrier authorized by provincial authorities to accept subject material.
 - .4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.
 - .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
 - .6 Only trained personnel handle, offer for transport, or transport dangerous goods.
 - .7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.
 - .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide photocopy of completed manifest to Departmental Representative.
 - .9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.
- .12 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .13 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

PART 2 PRODUCTS

2.1 MATERIALS

- .1 Description:
 - .1 Bring on site only quantities hazardous material required to perform Work.
 - .2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

PART 3 EXECUTION

3.1 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling.
 - .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
 - .2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.
 - .3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
 - .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
 - .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.
 - .6 Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.
 - .7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
 - .8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
 - .1 Hazardous wastes recycled in manner constituting disposal.
 - .2 Hazardous waste burned for energy recovery.
 - .3 Lead-acid battery recycling.
 - .4 Hazardous wastes with economically recoverable precious metals.

END OF SECTION

Part 1 General**1.1 SECTION INCLUDES**

- .1 Comply with requirements of this Section when performing following work:
 - .1 Disturbance of exterior metal infill panels/spandrel panels adjacent interior perimeter induction units including during spandrel panel removal and installation.

1.2 RELATED REQUIREMENTS

- .1 Section 01 14 25 – Designated Substance Report

1.3 REFERENCES

- .1 Department of Justice Canada.
 - .1 Canadian Environmental Protection Act (CEPA), 1999.
- .2 Ontario Environmental Protection Act, R.R.O 1990,
 - .1 General – Waste Management, O. Reg. 347/90, as amended.
- .3 Ontario Ministry of Labour (MoL).
 - .1 Occupational Health and Safety Act, R.S.O 1990, c. O1 (OSHA)
 - .1 O.Reg. 278/05 – Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations, as amended.
 - .2 O.Reg. 490/09 – Designated Substances, as amended.

1.4 DEFINITIONS

- .1 Asbestos-Containing Materials (ACMs): materials that contain 0.5 percent or more asbestos by dry weight, identified under Existing Conditions Article.
- .2 Authorized Visitors: Departmental Representative, and representative(s) of regulatory agencies.
- .3 Friable Material: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.
- .4 HEPA vacuum: DOP tested, 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.
- .5 Isolated perimeter induction unit enclosure(s): The area isolated from the occupied area(s) via sealing with polyethylene sheeting and tape.
- .6 Non-Friable Materials: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
- .7 Occupied Area: any area of building or work site that is outside isolated perimeter induction unit enclosure(s).
- .8 Polyethylene sheeting sealed with tape: Polyethylene sheeting of type and thickness specified sealed with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide continuous

polyethylene membrane to protect underlying surfaces from water damage or damage by sealants, and to prevent escape of asbestos fibres through sheeting into clean/occupied area.

- .9 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.

1.5 EXISTING CONDITIONS

- .1 The following material has been identified as asbestos-containing and may be disturbed during spandrel panel removal and installation activities:
 - .1 Friable firestopping material at the floor slab within the perimeter induction units, contains 30% Chrysotile asbestos. This material is packed at the base of the building's perimeter induction units at the floor slab and is continuous around the lateral edge of building floor slabs (behind the aluminum spandrel and infill panels), extending to the underside of the floor slabs. This material was generally observed to be in good condition.
 - .2 Refer to the Specification Section 01 14 25 – Designated Substance Report, which is bound to this Specification and forms part of the tender documents package, for details on materials containing Chrysotile asbestos to be handled, removed, or otherwise disturbed and disposed of, or in close proximity to the Project work area.
 - .3 Notify Departmental Representative of suspect asbestos-containing material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative.

1.6 SCHEDULING

- .1 Inform sub-trades of presence of asbestos-containing materials identified in the Specification Section 01 14 25 – Designated Substance Report.
- .2 Hours of Work: perform work involving asbestos precautionary measures outside of regular business hours. **The work schedule must be approved in writing by the Departmental Representative in advance of work.** Contractor shall be available to work continuously from beginning to end of project.

Part 2 Products

2.1 MATERIALS

- .1 Polyethylene: minimum 0.15 mm thick unless otherwise specified; in sheet size to minimize joints.
- .2 FR polyethylene: minimum 0.15 mm thick, woven fibre reinforced fabric bonded both sides with polyethylene.
- .3 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.
- .4 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.

Part 3 Execution**3.1 PREPARATION**

- .1 Prior to exterior cladding removal or repair work, prepare perimeter induction unit areas adjacent to the work as follows:
 - .1 Shut off perimeter induction units adjacent exterior cladding work area.
 - .2 Construct isolation barrier, separating perimeter induction units from interior building areas. Isolation of perimeter induction units to be completed through the use of opaque polyethylene or other suitable material that is impervious to dust and fibres, including asbestos. Seal tops and sides of the units continuous to the carpeting/flooring below the unit. Isolate all units between building columns as part of a single isolation enclosure, constructed tight against the units.
- .2 Maintenance of Enclosures:
 - .1 Maintain isolation enclosures in sound condition.
 - .2 Ensure that polyethylene coving is effectively sealed and taped. Repair damaged isolation enclosures and remedy defects immediately upon discovery.
 - .3 Visually inspect enclosures at beginning and end of each working period.
- .3 Do not begin exterior cladding removal/repair work until:
 - .1 Perimeter induction unit areas adjacent the exterior cladding repair work areas are effectively segregated from the occupied area inside.
 - .2 Isolation enclosures for perimeter induction units have been inspected and approved by the Departmental Representative.

3.2 INSPECTION

- .1 Perform inspection of perimeter induction unit areas adjacent the exterior cladding repair work to confirm compliance with specification and governing authority requirements. Deviation(s) from these requirements that have not been approved in writing by the Departmental Representative may result in Work stoppage, at no cost to the Owner.
- .2 Departmental Representative will inspect Work for:
 - .1 Adherence to specific procedures and materials.
 - .2 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 air leakage from isolated perimeter induction unit enclosure(s) has occurred or is likely to occur, Departmental Representative may order Work shutdown.
- .4 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.3 AIR MONITORING

- .1 From beginning of Work until completion of cleaning operations, Departmental Representative may collect air samples to ensure adequate air quality within the building.
- .2 If air monitoring shows that areas outside the isolated perimeter induction unit enclosure(s) are contaminated, enclose, maintain and clean these areas using HEPA filtered vacuums and/or wet wiping techniques.
 - .1 Stop work and clean areas outside isolated perimeter induction unit enclosure(s) when Phase Contrast Microscopy measurements exceed 0.05 fibres per cubic centimetre (f/cc) and correct procedures.
 - .2 All required cleaning, re-cleaning, additional air testing and/or inspections will be at no extra charge to Departmental Representative.
- .3 Final air monitoring to be conducted as follows: After exterior cladding repair work adjacent isolated perimeter induction unit enclosure(s) has been completed, including installation of new spandrel panel/cladding systems, Departmental Representative will perform post work air monitoring within the void space of each isolated perimeter induction unit enclosure.
 - .1 Final air monitoring results must show fibre levels of less than 0.05 f/cc.

3.4 FINAL CLEANUP

- .1 Following air sampling by Departmental Representative that shows that total airborne fibre and/or asbestos levels inside isolated perimeter induction unit enclosure(s) do not exceed 0.05 fibres/cc, proceed with final cleanup.
- .2 Remove polyethylene sheeting and tape. Vacuum accessible interior surfaces of perimeter induction units, and/or any visible dust and debris observed within the vicinity of the perimeter induction units during cleanup, immediately, using HEPA vacuum equipment. Do not disturb asbestos-containing materials located at the base of the perimeter induction units.
- .3 Place polyethylene seals, tape, cleaning material, etc. in sealed plastic bags and dispose.
- .4 Conduct final check to ensure that no dust or debris remains on surfaces as result of dismantling operations.

END OF SECTION