

1. GENERAL

1.1 REFERENCES

1. Federal Legislation
 1. Canada Labour Code, Part II, Section 124 and 125. Canada Occupational Health and Safety Regulations
 2. Transportation of Dangerous Goods Act, 1992 (TDGA)
 3. Canada Consumer Product Safety Act
 1. Surface Coating Materials Regulations SOR/2005-109.
 4. Canadian Environmental Protection Act, 1999 (CEPA)
 1. PCB Regulations (SOR/2008-273)
 2. Federal Halocarbon Regulations, 2003 (SOR/2003-289)
2. Provincial Legislation
 1. Ontario Occupational Health and Safety Act, R.S.O. 1990, 2010 edition.
 1. Ontario Regulation 490/09 – Designated Substances (O.Reg. 490/09).
 2. Ontario Regulation 278/05 – Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations, (O.Reg. 278/05).
 3. Ontario Regulation 213/91 for Construction Projects (O.Reg. 213/91)
 2. Ontario Environmental Protection Act, R.R.O. 1990,
 1. Ontario Regulation 347/09, General – Waste Management (O.Reg. 347/09).
 2. Ontario Regulations 362/90 – Waste Management, PCBs (O.Reg. 362/90)
 3. Ontario Regulation 463/10, Ozone Depleting Substances and Other Halocarbons (O.Reg. 463/10).
3. Canadian General Standards Board (CGSB).
4. Canadian Standards Association (CSA International). CAN/CSA-Z94.4-11 - Respiratory Protection
5. Underwriters' Laboratories of Canada (ULC).

1.2 DEFINITIONS

Asbestos-Containing Materials (ACMs): means material that contains 0.5 per cent or more asbestos by dry weight as per Ontario Regulation 278/05.

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.

Lead-Containing Material: Paint or surface coating that contains concentrations of lead above the Federal Canada Consumer Product Safety Act's limit of 90 ppm.

Time-weighted average exposure limit (TWael): the time-weighted average airborne concentration of a biological or chemical agent to which a worker may be exposed in a work day or work week as prescribed by Ontario Regulation 490/09 Designated Substances, as amended.

1.3 DESIGNATED SUBSTANCES

Confirm with the Departmental Representative that no additional designated substances have been brought to the project area prior to beginning work.

Additional designated substances and hazardous materials may exist outside the accessible survey areas but are beyond the scope of this project.

Should any additional material, suspected to be a designated substance, be encountered within the project area, any disturbance of such material must be stopped, precautionary measures taken, and the Departmental Representative must be notified immediately. Do not proceed until written instructions have been received.

1. ACRYLONITRILE: Not Identified

2. ARSENIC: Not Identified

3. ASBESTOS: **Identified**

Based on bulk sampling and laboratory analysis, the following materials contain regulated amounts of asbestos:

- Black and white window putty, generally observed between and beneath the metal frame components and the window glass. Black and white window putty was confirmed by laboratory to contain 2.81% and 0.91% Chrysotile asbestos respectively. Based on visual observations of all the different types of windows, all building window types should be assumed to be comprised of asbestos-containing window putty between and beneath the metal frame components and glass of each respective window throughout the building, unless proven otherwise by bulk sampling and laboratory analysis.

Bulk sampling and laboratory analysis has determined that the following materials do not contain regulated amounts of asbestos:

- White window putty associated with the JJ Window, East elevation, inner window. However, based on the confirmed presence of asbestos in window putty materials denoted above, all window putty associated with all windows shall be considered asbestos-containing.
- Black caulking between the window frame and stone, JJ Window, East Elevation;
- Grey/black caulking between screen and metal frame, JJ Window, East Elevation;

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- Brown painted caulking, between metal frame and stone, G Window, East Elevation;
 - Black caulking, between metal frame and stone, A Window, East Elevation;
 - Caulking, painted brown, between metal frame and metal frame, in window groove, O Window, West Courtyard;
 - Black caulking between inner window and outer window on marble transition piece, E Window, East Courtyard;
 - Grey caulking between metal frame and window, interior side, E Window, East Courtyard;
 - Black caulking around the door frames associated with the south elevation bronze doors and west elevation bronze door;
 - Exterior stone mortar;
 - Grey caulking around the door frame associated with the north elevation bronze doors;
 - Caulking materials homogeneous to the above noted samples were identified at the various building window types throughout the building. Based on the above noted laboratory results, caulking materials visually homogeneous to the above noted materials in this section are considered non-asbestos-containing.
4. BENZENE: Not Identified
5. COKE OVEN EMISSIONS: Not identified
6. ETHYLENE OXIDE: Not Identified
7. ISOCYANATES: Not Identified
8. LEAD: Identified

Based on the analytical results, the following paints contain concentrations of lead greater than the Federal Canada Consumer Product Safety Act's limit of 90 ppm:

- Brown paint collected from Window D-D, North Elevation, contains 921 ppm lead;
- Brown paint collected from Window JJ, East Elevation, contains 707 ppm lead.

No other lead paint samples were collected for lead content analysis, as other paints and surface coatings encountered in the project areas were in good condition and sampling without matrix interference (i.e. removing the paint

without the substrate material) would have proved difficult. All other paints and surface coatings shall be assumed to contain detectable concentrations of lead, unless specific bulk sampling and laboratory analysis confirms otherwise.

Based on the analytical results, the exterior stone mortar contains 8.5 ppm lead. This mortar is considered to be lead-containing, though, as a point of reference, at a concentration significantly below well below the Federal Canada Consumer Product Safety Act's limit of 90 ppm for surface coatings.

9. MERCURY: Not Identified

10. SILICA: **Identified**

Free crystalline silica is expected to be present in the following materials:

- Stone and mortar materials

11. VINYL CHLORIDE MONOMER: Not Identified

12. POLYCHLORINATED BIPHENYLS (PCBs): Not Identified

13. MOULD: Not Identified

14. HALOCARBONS: Not Identified

15. OTHER HAZARDOUS MATERIALS: Not Identified

1.4 RECOMMENDATIONS

1.4.1 ASBESTOS

All work must be done in accordance with O.Reg 278/05 (as amended).

1. The disturbance of ACMs on construction and demolition projects in the province of Ontario is governed by *O.Reg 278/05*, as amended. This regulation classifies all asbestos disturbances as Low Risk (Type 1), Moderate Risk (Type 2), or High Risk (Type 3), each of which has defined precautionary measures. All asbestos materials are subject to specific handling and disposal precautions, and must be removed prior to demolition. The Ontario Ministry of Labour (MoL) must be notified of any project involving removal of more than a minor amount (e.g. typically 1 square metre) of friable asbestos material.

2. Type 1 work procedures can be used for the removal of non-friable ACMs (e.g. window putty's), provided that the material can be wetted and removed using only non-powered hand tools. If these conditions cannot be met, then more stringent (e.g., Type 2 or Type 3) procedures are necessary.
3. Disposal of asbestos waste must be done in accordance with "General – Waste Management" O.Reg 347/90 (as amended) under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act. The waste must be disposed at a licensed waste disposal site. Proper notification must be issued to the Departmental Representative prior to transportation of waste.

1.4.2 LEAD

1. Follow recommendations provided in the Ontario Ministry of Labour (MoL) Guideline entitled "Guideline: Lead on Construction Projects". This guideline classifies all lead disturbances as Type 1, Type 2a, Type 2b, Type 3a or Type 3b work, and assigns different levels of respiratory protection and work procedures for each classification.
2. Work procedures and personal protective equipment must be used to ensure that workers are not exposed to airborne lead levels that exceed the TWAEL of 0.05 milligram per cubic metre (mg/m³) prescribed by O.Reg 490/09.
3. The use of mechanically-powered tools or torches on lead-containing materials increases the concentration of airborne lead dust or fumes requiring more stringent respiratory protection and controlled work procedures.
4. Even at low concentrations, there may be a potential for exposure to high concentrations of lead depending on the activities performed that disturb the lead-containing materials. At low lead concentrations, conducting a risk assessment to assess the potential for exposure is required to determine the need to follow precautionary measures.
5. Disposal of construction waste containing lead must be done in accordance with O.Reg 347/90 – General Waste Management, as amended, under the Ontario Environmental Protection Act and the federal Transportation of Dangerous Goods Act. The classification of the waste is dependent upon the result(s) of leachate test(s). The waste can be classified as "hazardous, "non-hazardous" or

“registerable solid waste” depending on the results of the leachate test.

1.4.3 SILICA

1. Comply with Ontario Regulations O.Reg 490/09 when performing works that may disturb silica-containing materials. The regulation provides requirements for allowable exposure levels.
2. Silica dust can be generated through such processes as blasting, grinding, crushing, and sandblasting silica-containing material. Since silica is present in select materials within the project area, appropriate respiratory protection and ventilation must be donned during the demolition and modifications of these structures.
3. Follow recommendations provided in the MoL Guideline entitled “Guideline: Silica on Construction Projects”. This document classifies all silica disturbances as Type 1, Type 2 or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification. These work procedures shall be followed when performing work involving the disturbance of silica-containing materials.

2. PRODUCTS

Not used

3. EXECUTION

Not used

END OF SECTION