PART 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. *Act Respecting Occupational Health And Safety (as amended)*
        1. *Québec R.S.Q., Chapter S-2.1*
    2. *Province of Québec's Safety Code for the Construction Industry*
        1. *Work Liable to Produce Asbestos Dust Emissions. Québec R.S.Q., Chapter S-2.1, r.4, Section 3.23*
    3. *Regulation Respecting Occupational Health and Safety*
        1. *Québec R.S.Q., Chapter S-2.1, r.13*
    4. *Regulation Respecting the Quality of the Work Environment*
        1. *Québec R.S.Q., Chapter S-2.1, r. 11*
    5. *Regulation Respecting Hazardous Materials (O.C. 1310-97), under the Environmental Quality Act*
        1. *R.S.Q., c. Q-2 - (21)*
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 0.1 per cent or more asbestos by dry weight as per Quebec Regulation Respecting Occupational Health and Safety (Québec R.S.Q., Chapter S-2.1, r.13)

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.

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 outlined in the Québec R.S.Q Chapter S-2.1, r. 13.

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 area 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 the analytical sample results listed above, the following building materials contain regulated amounts of asbestos:

   - All duct sealants throughout the 5th and 10th Floors should be considered asbestos-containing, unless proven otherwise on a case-by-case basis via bulk sampling and laboratory analysis:
     - Non-friable brown sealant on ductwork = applied to ductwork throughout the 5th and 10th Floors contains 1.18% Chrysotile asbestos,
     - Non-friable grey sealant on ductwork, applied to ductwork throughout the 5th and 10th Floors contains 2.74% Chrysotile asbestos,
   - Drywall joint compound contains 1% Chrysotile asbestos. All drywall joint compound shall be considered asbestos-containing, unless

proven otherwise on a case-by-case basis via bulk sampling and laboratory analysis, and

- Friable white firestop at pipe penetration in Sprinkler Room B on the 5th Floor contains 40% Chrysotile asbestos

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

- Carpet mastic beneath the carpets on the 5th and 10th Floors,
- Dark brown window caulking throughout the 5th and 10th Floors,
- Black tar on fiberglass covering ductwork throughout the 5th and 10th Floors,
- Beige caulking associated with pipe penetrations in Room 10-109 on the 10th Floor and other electrical rooms on the 5th and 10th Floors,
- Red caulking associated with electrical wire penetrations in Room 10-109 on the 10th Floor,
- An additional grey sealant on ductwork in the ceiling space on the 10th Floor. However, as outlined in Section 4.1.1, all duct sealants should be considered asbestos-containing given the confirmed presence of regulated amounts of asbestos in brown and grey duct sealant materials,
- White caulking associated with drywall panels in the ceiling space on the 10th Floor,
- 12” x 12” vinyl floor tiles (beige with black specs) and associated mastic in the Kitchenette on the 5th Floor,
- Grey cementitious parging associated with electrical pipe penetrations in Electrical Room C on the 5th Floor, and
- Black mastic on ductwork in the ceiling space on the 5th and 10th Floor,

Ceiling tiles observed in the project areas on the 5th and 10th Floors are not suspected to be asbestos-containing, as supported by the newer date of manufacturing stamps on the rear of tiles. The date of manufacture would post-date the use of asbestos in ceiling tile products.

4. BENZENE: Not Identified
5. COKE OVEN EMISSIONS: Not identified
6. ETHYLENE OXIDE: Not Identified
7. ISOCYANATES: Not Identified
8. LEAD: **Identified**

The following paint contain detectable concentrations of lead and concentrations of lead greater than the Federal Canada Consumer Product Safety Act's limit of 90 ppm:

- Brown paint applied to induction units contains 691 ppm lead (Sample 29424-LP01).

No additional paint samples were collected by DST for lead content analysis during the site investigation, as other paints encountered in the project area were in good condition and sampling without matrix interference (i.e. removing the paint without the substrate material) would have proved difficult. As such, all other paint finishes that have not been sampled are assumed to be lead containing.

Lead is also assumed to be present in the following materials:

- Solder on the joints of copper piping;
- Cast-iron drainpipe joint caulking; and
- Emergency light batteries.

9. MERCURY: **Identified**

   Mercury is assumed to be present in the following:

   - Fluorescent light fixtures containing fluorescent light tubes were observed throughout the project area. Fluorescent light tubes contain mercury in a vapour form and in the phosphor coating on the lamp tube.

10. SILICA: **Identified**

    Free crystalline silica is assumed to be present in concrete building materials, vinyl floor products, ceiling tiles, and drywall.

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. ASBESTOS

   1. As per section 3.23 of the Québec Safety Code for the Construction Industry, the employer shall determine the types of asbestos present in the materials before undertaking work liable to generate asbestos dust. In the case of asbestos removal work or demolition work involving

asbestos, it is required to use the methods and procedures, as well as to attest to the existence of a training and information program that complies with section 3.23 of the Québec Safety Code for the Construction Industry. Section 3.23 stipulates that in a work environment where asbestos dust is present or expected to be produced, workers shall wear respirators suitable for such asbestos work in accordance with *CSA Standard Z94.4-93* "Selection, Use, and Care of Respirators".

2. All asbestos materials are subject to specific handling and disposal precautions, and must be removed prior to demolition or renovation. The Québec Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST) must be notified of any project involving removal of asbestos-containing materials.

3. Based on the Québec *Safety Code for the Construction Industry*, work involving ACMs is categorised into three categories: low; moderate and high risk, depending on whether the ACMs are friable or non-friable and how the material will be manipulated or removed. The following work procedures apply to identified and suspected ACMs:

    1. In Québec, the removal or disturbance of drywall installed with asbestos joint-filling compounds can be completed using low-risk work procedures.
    2. The removal or disturbance of friable asbestos-containing firestops must be conducted using a minimum of Moderate Risk asbestos work procedures, provided the volume of asbestos debris does not exceed 0.03 m^3 for each work operation. It should be noted that the removal of asbestos-containing pipe fitting insulation or firestops can be conducted using glovebag procedures (Moderate Risk), provided the material is in good condition and a proper seal with the glove bag can be maintained throughout the removal process. Should these conditions not be met, then more stringent work procedures (e.g. High Risk) are required.
    3. The removal or disturbance of these non-friable ACMs can be completed using low-risk work procedures, provided the materials remain in a non-friable condition during removal and only hand tools are used. If this condition cannot be met, than more stringent (moderate or high risk) work procedures are required.
    4. The handling and packaging of asbestos waste must comply with the requirements of Québec R.S.Q., Chapter S2.1, r.4, Section 3.23.10 and the Regulation Respecting Occupational Health and Safety (Québec R.S.Q., Chapter S-2.1, r.13). The *Federal Transportation of Dangerous Goods Act* controls the transport of

the waste to a disposal site. Although there is no specific legislation on the disposal of asbestos waste in Québec, it is recommended in terms of best management practices, to inform the waste transporter and waste disposal site of the nature of the asbestos waste before transport

2. LEAD

1. Follow recommendations provided in the CNESST document entitled *Guide de Prévention – L'exposition au plomb* and the Ontario Ministry of Labour's (MoL) Guideline "Lead on Construction Projects", September, 2004. The Ontario 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. Regulatory limits have been established under the Quebec's *Regulation respecting the quality of the work environment* for occupational exposure to airborne lead that may be present in a workplace. The Time Weighted Average Exposure Values (TWAEV) to airborne lead dust or fumes should not exceed 0.05 milligram per cubic metre (mg/m^3) limit during the removal of paints and products containing any concentration of lead.

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. The disposal of construction waste containing lead is controlled by the *Regulation Respecting Hazardous Materials (O.C. 1310-97)*, under the *Environmental Quality Act, R.S.Q., c. Q-2 - (21).* Any material that produces a leachate containing lead in a concentration higher than 5 mg/L is considered as a hazardous material and should be handled accordingly.

3. MERCURY

1. The exposure of workers to mercury should be reduced to a minimum as defined under Schedule 1 of the Québec *Regulation Respecting Occupational Health and Safety*.

2. Follow recommendations provided in the CNESST published worker respiratory and clothing protective measures based on presumed airborne concentrations of mercury generated during the work, as well as clean-up procedures for minor and major disturbances of mercury containing products. In addition, the OHS Branch of the Ontario MoL has published *The Safe Handling of Mercury: A Guide for the Construction Industry*. This information should be followed during the disturbance of materials or products containing mercury. In the event of conflict, the more stringent procedures should be applied.

3. The Québec *Regulation respecting Hazardous Materials (O.C. 1310-97), under the Environmental Quality Act, R.S.Q., c. Q-2 - (21)* stipulates that fluorescent light tubes, in quantities where it is anticipated that a leachable extract could have a concentration higher than 0.1 mg/L or ppm, is considered hazardous waste and should be treated as such.
4. Fluorescent lamp tubes are considered hazardous material in the Province of Québec and shall be recycled if removed from service. For information regarding the collection of fluorescent lamp tubes, please consult the Departmental Representative.

4. SILICA

1. The Québec *Regulation Respecting Occupational Health and Safety* defines crystalline silica in the form of respirable dust as a suspected carcinogen.

2. Silica dust can be generated through such processes as blasting, grinding, crushing, and sandblasting silica-containing material. Since silica is presumed present in concrete building materials, flooring compounds/mastics, vinyl floor tiles and drywall within the project area, appropriate respiratory protection and ventilation must be donned during the demolition and modifications of these structures, as per the "*Guide des appareils de protection respiratoire utilisés au Québec"*, published by the *Institut de recherche Robert-Sauvé en santé et en sécurité du travail*. Personal protective equipment shall be selected, adjusted, used and cared for in accordance with the *CSA Standard Z94.4-93* entitled "*Selection, Use and Care of Respirators"*.

3. The exposure of workers to silica should be reduced to a minimum as defined under Schedule 1 of the Québec *Regulation Respecting*

Occupational Health and Safety. 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. Also follow recommendations in : *Prévention de l’exposition des travailleurs à la silice* by CNESST. These work procedures should be followed when performing work involving the disturbance of silica-containing materials.

END OF SECTION