

APPENDIX 'A'

FUMEHOOD DECONTAMINATION PROTOCOL

**FUMEHOOD DECONTAMINATION PROTOCOL
SELECT FUMEHOODS
K.W. NEATBY BUILDING
OTTAWA, ONTARIO**

DST FILE NO.TS-SO-025497

1.0 EXISTING CONDITIONS

1) Asbestos-containing materials

- a) Asbestos-containing transite panels line the interior (sides, backside, and top and bottom (base) panels) of the following fumehoods:

Item	Floor	Lab Room No.	Fume Hoods ID
1	1	1001	30-270-105
2	1	1010	30-270-136
3	1	1043	30-270-233
4	1	1045	30-270-247
5	1	1047	30-270-248
6	2	2034	30-270-173B
7	2	2035	30-270-177
8	2	2036	30-270-187B
9	2	2037	30-270-189
10	2	2038	30-270-221
11	2	2039	30-270-205
12	3	3044	30-270-229
13	4	4013	30-270-129
14	4	4038	30-270-199
15	4	4039	30-270-207
16	4	4042	30-270-213
17	4	4044	30-270-231
18	4	4048	30-270-253
19	4	4048	30-270-255

- i) In some cases, the transite panels have been covered with metal sheathing but remain beneath.
- b) The fumehood exhaust ducting consists of asbestos-containing transite for following fumehoods:

Item	Floor	Lab Room No.	Fume Hoods ID
1	1	1001	30-270-105
2	1	1010	30-270-136
3	2	2037	30-270-189
4	2	2039	30-270-205
5	3	3044	30-270-229
6	4	4013	30-270-129
7	4	4038	30-270-199

- c) Asbestos-containing vinyl flooring (e.g. 9"x9", 12"x12", etc.) is assumed present beneath all fumehoods.
- d) Asbestos-containing pipe insulation is present on select pipe runs behind the bottom cabinet of select fumehoods.

2) Fumehoods

- a) The fumehoods were reportedly used for acids including Hydrochloric, Sulfuric, Acetic, and for organic solvents, bases, etc. It is reported that the hoods were not used for Perchloric acid.
 - i) All surfaces of the fumehood and immediate ducting servicing the fumehood shall be considered impacted by chemical residue.
 - ii) The cabinets and concealed flooring beneath fumehoods shall be considered impacted by chemical residue.
 - iii) The wooden base panels of fumehoods are assumed impacted by chemical residue.

2.0 FUMEHOOD DISMANTELLING SCOPE OF WORK

1) Fumehoods

- a) Remove asbestos-containing pipe insulation on pipe runs behind the bottom cabinet of each fumehood, transite panels lining the interior of the fumehoods, concealed vinyl flooring, transite exhaust ducting (where present), and dismantle all components of the fumehoods that are not asbestos-containing transite (e.g. sinks, fixtures, wood sides, sashes, etc.) Type 2 Asbestos Abatement precautionary measures as prescribed in Ontario Regulation 278/05 – *Designated Substance – Asbestos on Construction Projects* and in Buildings and Repair Operations, as amended (O.Reg. 278/05). Any disturbance of asbestos-containing transite using power tools must be by means of power tools that are attached to dust-collecting devices equipped with HEPA filters.
 - i) Only those workers performing the work should be present within the work areas when the work is performed.
 - ii) Worker/Visitor Protection:
 - a. Provide, at minimum, each worker with National Institute for Occupational Health and Safety (NIOSH) approved tight-fitting, half-face, air purifying respirators equipped with P-100 (minimum)/multi-gas filter cartridges.
 - b. Eye protection which prohibits liquid splashes to the eye.
 - c. Dust and chemical-impermeable gloves
 - d. Disposable coveralls and boot covers (or thoroughly clean boots before leaving the work area).
 - iii) A competent supervisor must be present during the work.

- iv) Isolate the work area using an enclosure constructed of fibre-reinforced polyethylene sheeting or 6 mil polyethylene sheeting and tape. Cover exposed floor in work area as well.
- v) Provide negative pressure within the enclosure by drawing air from work area and exhausting it out using High Efficiency Particulate Aerosol (HEPA) filtered vacuum/units.
- vi) Build a one (1) chambered decontamination unit between contaminated work area, with two curtained doorways, one to contaminated Work Area and one to uncontaminated area. Provide wash basin, water, soap, and towels for worker decontamination. Decontamination Room must be large enough to accommodate at least one worker allowing sufficient space to decontaminate themselves comfortably.
- vii) No personnel are permitted to leave Decontamination Room unless first decontaminated by HEPA vacuuming to remove dust and debris. No contaminated materials or persons to enter uncontaminated area.
- viii) Ensure that air handling system servicing fumehood is not operational through lock-out/tag-out procedures prior to start of work.
- ix) Carefully wet-mist asbestos-containing transite materials prior to removal. Remove materials with care, in a manner that minimizes dust release.
 - (1) Clean to the extent practicable all soiled transite panels with appropriate detergent solution prior to disposal.
- x) Place dust and asbestos-containing waste in sealed dust tight waste bags as required by O.Reg. 278/05. Treat drop sheets and disposable protective clothing as asbestos waste; wet and fold these items to contain dust, then place in appropriate waste bags.
- xi) Clean exterior of each waste filled bag using damp cloths or HEPA vacuum and place in second clean waste bag immediately prior to removal from Work Area.
- xii) Seal and appropriately label asbestos waste bags and remove from site. Dispose of as Asbestos Waste and following requirements of Provincial authority having jurisdiction.
- xiii) Dismantle remaining non-asbestos components of fumehood. Handle all these components as impacted by chemical residue.
 - (1) Metal and glass components shall be cleaned using an appropriate detergent solution and appropriately recycled.
 - (2) Wood components shall be disposed of in accordance with requirements of the landfill accepting the waste (i.e. may be subject to leachate tests as required by the landfill).
- xiv) Clean all flooring beneath fumehoods with appropriate detergent solution. Following cleaning, remove and dispose of all flooring beneath the fumehoods as asbestos-containing material using appropriate asbestos precautions.
- xv) Where exhaust ducting is composed of transite,
 - (1) Remove transit exhaust ducting elbow servicing the fumehood, and remove a further 0.9 metres of transite exhaust ducting straight run from that point.
 - (2) Seal (e.g. canvas and lag, coupling) remaining edges of transite ducting interface so as to allow for future duct re-instatement without disturbing the remaining transite exhaust ducting.
- xvi) Use appropriate dust control measures such as air misting and HEPA filtered negative air units to reduce dust generation during work. Do not dry sweep or dry whisk.

- xvii) Place dust and contaminated waste in sealed dust tight waste bags. Seal and appropriately label waste bags and remove from site. Dispose of in accordance with requirements of Provincial authority having jurisdiction.
 - xviii) Surface clean wall that was previously concealed by fumehood using HEPA vacuum and damp wiping techniques.
 - xix) All materials (e.g. rags) used to clean material impacted by chemical residue, including waste items, dust, and HEPA vacuum bags, shall be disposed of in accordance with requirements for the landfill accepting the waste (i.e. may be subject to leachate tests as required by the landfill).
- b) Final Cleaning: HEPA vacuum and wet wipe all surfaces within the enclosure. All Type 2 enclosures will be subject to inspection and/or clearance air sampling prior to tear down.
 - c) Do not disturb asbestos-containing materials that are not to be abated or disturbed as part of this project, in vicinity of work and/or work areas.
 - i) Contractor to request Designated Substances Report for the building from the Department Representative.

3.0 GENERAL

1. In the event of conflict between these instructions and O.Reg. 278/05, the more stringent shall be applied.
2. Contractor is to notify the Department Representative of any asbestos-containing or suspect asbestos-containing material discovered during work and not apparent from this scope of work. Do not disturb such material until instructed by the Department Representative.
3. All HEPA filtered vacuums must be DOP tested and in good working order.
4. All work is subject to evaluation by anyone designated by the Department Representative (including air sampling). Additional work (e.g. modifications to enclosure system, additional cleaning, etc.) required to obtain satisfactory conditions as determined by those designated will be performed by the contractor at no extra charge to the Department Representative.
5. Contractor is to verify that all required lock-out/tag-out, as required by the appropriate parties, has been performed prior to abatement activities.
6. Air Monitoring
 - a) All work areas, and areas outside of work areas, from beginning of work until completion of cleaning operations are subject to air monitoring.
 - ii) If air monitoring shows that areas outside work area enclosures are contaminated, enclose, maintain and clean these areas, in same manner as that applicable to work areas.
 - iii) Stop work and clean areas outside of Work Areas when fibre levels exceed 0.05 fibres per cubic centimetre (f/cc), as determined by Phase Contrast Microscopy, and correct procedures.
 - iv) All required cleaning, re-cleaning, additional air testing and/or inspections will be at no extra charge to the Department Representative.

- v) Final air monitoring to be conducted as follows: After Work Area has passed visual inspection and acceptable coat of lock-down agent has been applied to surfaces within enclosure, and appropriate setting period has passed, Contractor will perform asbestos air monitoring within Work Area.
 - vi) Type 2 post abatement air monitoring results must show fibre levels of less than 0.05 f/cc.
 - vii) If air monitoring results show fibre levels in excess of 0.05 f/cc, re-clean work area.
 - viii) Repeat as necessary until fibre levels are less than 0.05 f/cc.
 - ix) All cleaning, re-cleaning, additional air testing and/or inspections required to meet these requirements will be at no extra charge to the Department Representative.
7. Contractor must have experience in hazardous materials abatement/decommissioning.
8. Contractor must submit proof of worker training satisfying the requirements prescribed in O.Reg. 278/05 in advance of site work.
9. Contractor must submit all waste disposal manifests following work.
10. Contractor will have access to the following facility utilities: hot and cold water, domestic drains, and electricity.
11. All work is to be carried out during hours specified by the Department Representative.
12. All waste removal is to be performed during hours specified by the Department Representative.
- a) Any on-site waste bin placement, as well as waste transfer routes are to be approved by the Department Representative or as designated.
 - b) All asbestos waste must be placed in a separate, designated waste bin. The bin must be secure if placed on site.
13. A spill kit, including absorbents, appropriate for corrosive substances must be present at all times in the areas of work.

END OF SECTION