

APPENDIX G

GLOVE BAG WORK PROCEDURES

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These procedures are to be followed by maintenance staff and contract persons performing the removal of asbestos-containing pipe insulation using glove bag procedures work at KPDSB buildings.

NOTE: If more than a minor amount of insulation (more than 1 square metre) is to be removed a notification to the Ministry of Labour will be required.

1. EQUIPMENT

All equipment must be on site before proceeding with the work.

1.1 Single Use Glove Bag

A pre-fabricated plastic bag with air-tight sleeves and gloves permanently sealed to the bag to allow access to pipe insulation. Bag shall be equipped with valves or openings for vacuum hose and nozzle of water sprayer, a tool pound with a drain, a seamless bottom and a means of sealing off the lower portion of the bag.

1.2 Moveable Glove Bag

A Glove Bag as defined in 1.1 but equipped with a high strength double throw zipper and removable straps. Required if the bag is to be moved during the removal operation.

1.3 HEPA Vacuum

An asbestos-approved vacuum (HEPA filtered) equipped with brushes, fittings, etc. A vacuum can be opened to empty only by fully protected worker within a Type 2 enclosure.

1.4 Respirators

Workers using glove bag must wear approved respiratory protection. Respirators and filters must be provided by the employer, and individually assigned to workers. Respiratory protection shall be a half-face piece respirator with high efficiency (P100) filters. Respirators must be kept in position from the time the worker attaches bag to pipe until final cleaning of the pipe and bagging of waste is completed. Filters shall be changed after 24 hours of wear or sooner if breathing resistance increases. No person using respirator shall wear facial hair which affects the seal between respirator and face.

1.5 Protective Clothing

Workers shall wear disposable Tyvek coveralls (or equivalent) with attached elasticized hood. Coveralls and hood shall remain in place until worker completes cleaning of pipe. Overalls may be cleaned for re-use, for a maximum of 8 hours cumulative wear or disposed of as asbestos waste.

1.6 Other Equipment

- Labelled asbestos waste bags (6 mil) - for all asbestos waste in glove bag, disposable suit, cleaning materials, etc.
- Asbestos warning signs.
- Wire saw - saw with flexible serrated wire blade and handles to allow use inside glove bag.
- Knife with fully retractable blade or carpet (hook) knife for use inside glove bag.
- Securing Straps - Reusable nylon straps at least 1" wide with metal buckle for sealing ends of Moveable Glove Bag around pipe and/or insulation.
- Water Sprayer -Garden reservoir type, low velocity, capable of producing mist or fine spray with water containing wetting agent. Wetting agent shall be diluted 2 oz. per gallon of water.
- Plastic sheet (2 mil polyethylene) to cover exposed or damaged sections of pipe prior to attaching glove bag.
- Plastic drop sheet (6 mil polyethylene) to protect furnishings, flooring or equipment in the event of a spill.
- Sealer or encapsulant suitable for service temperature of pipe applied by brush, cloth or hand sprayer.
- Miscellaneous tools and cleaning supplies, wire cutters, snips, scouring pads, sponges, brushes, buckets, tape etc.

2. OTHER PROTECTIVE MEASURES

Do not eat, drink or smoke in the work area.

On completing clean up of work area, use HEPA vacuum or wet cloth to clean hands, face, respirator and boots. Remove protective equipment and proceed to nearest washroom to wash all exposed skin on hands and face.

3. SCHEDULING OF WORK

Schedule work when occupants are absent. If persons are present, do not start work.

If work is required on an emergency basis and the area is occupied, the Facilities Manager or an assigned representative is to advise occupants to vacate area until work is complete and clearance is given to return.

4. PREPARATION

- Where practical, clear area below pipe of moveable furnishing or equipment. Provide scaffold as required to reach pipe.
- Install plastic drop sheet over furnishings, flooring or equipment for protection in the event of a spill. Drop sheet shall be sufficient size to capture any material dislodged from the pipe.

- Post an asbestos warning sign at all entrances to room in which the procedure is being used. If necessary use rope or tape barriers to separate work area.
- Disable ventilation system in area of Glove Bag operation. Seal voids and openings in the proximity of the Glove Bag operation, including ventilation ducts.
- Don protective clothing and respirator prior to disturbing any ACM by any work.
- Pre-clean with HEPA vacuum or wet methods any loose material on surface of pipe or any material on the floor. If ACM is on floor, Type 2 procedures may be required for clean up. (See Type 2 Procedures.)
- Check condition of pipe insulation where removal will be performed. If the insulation has minor damage, mist surface and patch with tape. If damage is more extensive, wrap pipe with 2 mil plastic and "candy stripe" with duct tape first. If pipe insulation is severely damaged and cannot be simply repaired, glove bag is not appropriate. (Use Type 2 or Type 3 Procedures.)

5. EXECUTION

- Follow manufacturer's instructions for Glove Bag being used.
- Place tools necessary to remove insulation in tool pouch. Fasten bag onto pipe and seal all openings to pipe with cloth securing straps or tape.
- Place hands into gloves and use necessary tools to remove insulation. Arrange insulation in bag to obtain full capacity of bag. Do not use glove bag method on insulation jacketing made of aluminium of thickness greater than 0.51 mm (24 gauge) or steel.
- Insert nozzle of spray pump into bag through valve and wash down pipe and interior of bag thoroughly. Use one hand to aid washing process. Wet surface of insulation in lower section of bag and exposed end of asbestos insulation remaining on pipe by spraying with water prior to moving bag.
- If Glove Bag is to be moved along pipe, adjust strap tension, move bag and re-seal to pipe using double-pull zipper to pass hangers. Repeat stripping operation.
- If Glove Bag is removed from pipe for use on new section of pipe, extract the air from the Glove Bag with a HEPA vacuum and seal interior zip lock. Re-install in new location before opening zip lock.
- If Glove Bag is ripped, cut or opened in any way, cease work and repair with tape before continuing work. If damage is not readily repaired, discontinue use of Glove Bag, thoroughly wet contents, extract the air from the Glove Bag with a HEPA Vacuum and place Glove Bag in an asbestos waste container.
- To remove bag once filled, wash top section and tools thoroughly. Place tools in 1 hand (glove), pull hand out inverted, twist to create separate pouch, double tape to seal. Cut between tape and place pouch with tools in next glove bag; or into water bucket, open pouch underwater, clean tools and allow to dry.
- Extract air from the Glove Bag with a HEPA vacuum and pull asbestos waste container over Glove Bag before removing the pipe. Remove securing straps or tape. Remove Bag from pipe directly into asbestos waste container.
- After removal of bag ensure pipe is clean of residue and clean surfaces of pipe or wipe with wet cloth.

- Before completion of shift, apply sealer to all surfaces of freshly-exposed pipe. Apply heavy coat of sealer or end cap to exposed ends of asbestos insulation to remain.
- Once Glove Bag is filled dispose of as contaminated waste. Do not reuse bag.
- Clean work area with HEPA vacuum or by damp wiping.

6. WASTE TRANSPORT AND DISPOSAL

Provide storage area for holding minor amounts of asbestos waste in sealed containers. Containers shall be labelled and assigned exclusively for asbestos waste.

When waste is removed from site, collect the completed waste waybills from the disposal firm. For work performed by a contractor, the contractor will complete and transfer copies of the waste manifest, on behalf of the owner. Waste generated by Maintenance staff will be stored at a secure location until sufficient accumulates for a waste pick-up.

7. NOTICE OF PROJECT

If a contractor or Maintenance staff will use glove bags for major amounts of removal (more than one square meter of pipe insulation measured on the outside diameter of the insulation), they must submit a written **Notice of Project** to the Ministry of Labour as required by Regulation 278/05.