

**STANDARD OPERATING PROCEDURES
UNDER THE UNIVERSITY OF TORONTO
ASBESTOS MANAGEMENT PROGRAM**



**OFFICE OF ENVIRONMENTAL HEALTH AND SAFETY;
FACILITIES AND SERVICES,
OFFICE OF ENVIRONMENTAL HAZARDS AND SAFETY**

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1.0 INTRODUCTION

When authorized workers conduct activities involving the disturbance of asbestos, specific precautions are required in order to maintain a safe work environment for the workers and other building occupants. These precautions or operating procedures have been established through the classification of asbestos-related activities according to the hazard they present. Classification of work is a key feature of the *Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations (O. Reg. 278/05)*, made under the Occupational Health and Safety Act of Ontario. The regulation requires all work with asbestos to be classified into one of the categories: Type 1, Type 2, or Type 3. In keeping with the Type 1, 2 and 3 classification process, the Office of Environmental Health and Safety has developed detailed operating procedures for a variety of asbestos-related activities.

2.0 DEFINITIONS

2.1 Asbestos

Asbestos is a generic term describing a number of naturally occurring, fibrous, hydrated mineral silicates that differ in chemical composition and are suitable for use as non-combustible, non-conducting and chemically resistant materials. Different types of asbestos which may be found in buildings are chrysotile, amosite, crocidolite, tremolite, actinolite or anthophyllite.

2.2 Asbestos-Containing Material

Any material found to contain 0.5% or greater content of asbestos by dry weight, as determined by Polarized Light Microscopy, in accordance with the U.S. Environmental Protection Agency's Test Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, June 1993.

2.3 Friable Material

A friable material is one which, when dry, can be crumbled, pulverized or powdered by hand pressure or is crumbled, pulverized or powdered. Friable materials present a greater hazard of releasing asbestos fibres than non-friable materials.

Three types of friable material commonly used in buildings are:

- Sprayed fibrous fireproofing
- Thermal pipe insulation
- Decorative or acoustic texture plaster

2.4 Non-Friable Material

A non-friable material cannot be easily crumbled, pulverized or powdered by hand pressure. Binders such as cement, vinyl or asphalt hold the material together, such that the asbestos fibres are not readily released. Common non-friable asbestos-containing building materials include asbestos cement boards (transite) and vinyl floor tiles.

2.5 Type 1 Operations

Type 1 operations do not generate appreciable amounts of airborne asbestos, and generally present little hazard to workers or bystanders. Activities that do not include significant disturbance of non-friable products are generally classified as a Type 1 activity. Type 1 operations include:

- Installing or removing ceiling tiles that are asbestos-containing material, if the tiles cover an area less than 7.5 square metres and are installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.
- Installing or removing non-friable asbestos-containing material, other than ceiling tiles, if the material is installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.
- Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material if,
 - the material is wetted to control the spread of dust or fibres, and
 - the work is done only by means of non-powered hand-held tools.
- Removing less than one square metre of drywall in which joint-filling compounds that are asbestos-containing material have been used.

2.6 Type 2 Operations

Type 2 operations may generate enough airborne asbestos to require protective equipment, but are short-lived. Some work with non-friable asbestos-containing material and all work with friable asbestos-containing material is classified as Type 2 or Type 3. Type 2 operations include:

- Removing all or part of a false ceiling to obtain access to a work area, if asbestos-containing material is likely to be lying on the surface of the false ceiling.
- The removal or disturbance of one square metre or less of friable asbestos-containing material during the repair, alteration, maintenance or demolition of all or part of machinery or equipment or a building, aircraft, locomotive, railway car, vehicle or ship.
- Enclosing friable asbestos-containing material.
- Applying tape or a sealant or other covering to pipe or boiler insulation that is asbestos-containing material.
- Installing or removing ceiling tiles that are asbestos-containing material, if the tiles cover an area of 7.5 square metres or more and are installed or removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.
- Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material, including floor tiles, if,
 - the material is not wetted to control the spread of dust or fibres, and
 - the work is done only by means of non-powered hand-held tools.
- Removing one square metre or more of drywall in which joint filling compounds that are asbestos-containing material have been used.
- Removing asbestos-containing vinyl floor tiles.
- Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material, including floor tiles, if the work is done by means of power tools that are attached to dust-collecting devices equipped with HEPA filters.
- Removing insulation that is asbestos-containing material from a pipe, duct or similar structure using a glove bag.
- Cleaning or removing filters used in air handling equipment in a building that has sprayed fireproofing that is asbestos-containing material.
- An operation that,
 - (a) is not classified as a defined Type 2 operation (above),
 - (b) may expose a worker to asbestos, and
 - (c) is not classified as a Type 1 or Type 3 operation.

2.7 Type 3 Operations

Type 3 operations are large scale activities which may generate significant asbestos levels, are of longer duration and pose a serious risk both to workers and bystanders. Type 3 operations include:

- The removal or disturbance of more than one square metre of friable asbestos-containing material during the repair, alteration, maintenance or demolition of all or part of a building, aircraft, ship, locomotive, railway car or vehicle or any machinery or equipment.
- The spray application of a sealant to friable asbestos-containing material.
- Cleaning or removing air handling equipment, including rigid ducting but not including filters, in a building that has sprayed fireproofing that is asbestos-containing material.
- Repairing, altering or demolishing all or part of a kiln, metallurgical furnace or similar structure that is made in part of refractory materials that are asbestos-containing materials.
- Removing vinyl floor sheeting with asbestos-containing paper backing
- Breaking, cutting, drilling, abrading, grinding, sanding or vibrating non-friable asbestos-containing material, if the work is done by means of power tools that are not attached to dust-collecting devices equipped with HEPA filters.
- Repairing, altering or demolishing all or part of any building in which asbestos is or was used in the manufacture of products, unless the asbestos was cleaned up and removed before March 16, 1986.

3.0 SUMMARY OF TYPE 1, 2 AND 3 ASBESTOS OPERATIONS

N0.10 Entry into Mechanical Chases (Shafts) in Buildings with Asbestos-Containing Sprayed Fireproofing

Applies to entry into, and work performed in mechanical chases where asbestos-containing sprayed fireproofing is exposed and present, and where debris is present on horizontal surfaces.

3.1 Type 1 Operations

R1.00 Non-Friable Asbestos Disturbance

Applies to operations involving the minor disturbance of asbestos in non-friable products.

R1.20 Missing Ceiling Tile Replacement

Applies when placing new tiles in missing-tile locations, above which there is sprayed, asbestos-containing fireproofing. Does not apply to replacing damaged or existing tiles.

R1.21 Removal of Less Than 7.5 Square Metres of Asbestos-Containing “Lay-In” Ceiling Tiles

Applies to the removal of less than 7.5 square metres of ceiling tiles above which there is no sprayed asbestos-containing fireproofing on steel beams or deck.

R1.30 Removal of INTACT Vinyl-Asbestos Floor Tiles

The majority of work with asbestos floor tiles follow Type 2 asbestos procedure (SOP R2.30 Removal of Vinyl-Asbestos Floor Tiles and Sheeting Flooring) since floor tiles that are initially intact may break during removal. This Type 1 procedure may be used if all the following conditions apply: vinyl-asbestos floor tiles are intact; no asbestos paper backing is present; floor tiles do not adhere/stick to the floor; floor tiles are removed by hand-held, non-powered tools; and, activity has been reviewed by the Hazardous Construction Materials Group (HCMG) and/or EHS and the use of a Type 1 procedure has been approved.

R1.50 Re-keying of Fire-Rated Doors with Friable Asbestos-Containing Core Material

Re-keying refers to the removal of some or all of the existing hardware from the mortise cavity and reinstallation without altering the door. Minor disturbance of the asbestos-containing core material is not anticipated; these procedures are intended to address minor fallout of core material (if any) into the mortise cavity.

R1.60 Clean-Up of Flood Water in Buildings with Asbestos-Containing Sprayed Fireproofing

Includes the HEPA vacuuming of (flood) water that has come into contact with asbestos-containing, sprayed fireproofing and the disposal of water-soaked ceiling tiles that are the result of this “flood” water. Does not apply to the disposal of material that is a result of delamination of the asbestos-containing, sprayed fireproofing that has fallen or is likely to fall onto the ceiling below. For circumstances where the contaminated water has gathered on top of cadaver bags or on embalming tables for fully embalmed and cured cadavers, please refer to **SOP R.1.61 Clean-up of (Flood) Water Contaminated with Asbestos-Containing Material in the Teaching Lab (Cadavers)**.

R1.70 Demolishing Cinderblock Wall with Asbestos-Containing Coating Using Hand Tool

This procedure applies to demolishing cinderblock walls with asbestos-containing coating using hand tools such as sledge hammers. Disturbance of this material using power tools is a Type 2 procedure – refer to R2.13 (drilling only) or R2.14 (breaking, cutting, abrading, grinding, sanding or vibrating).

R1.80 Removing Asbestos-Containing Pipe Insulation Elbows by Cutting Adjacent Non-Asbestos Materials (No Asbestos Disturbance)

This procedure applies to removing asbestos-containing pipe insulation by cutting non-asbestos insulation around the asbestos-containing elbows (e.g. fiberglass on the straight run of the pipe).

3.2 Type 2 Operations

R2.00 Minor Friable Asbestos Disturbance

Applies to work performed in the vicinity of asbestos-containing sprayed fireproofing, thermal insulation or texture plaster where there is a potential for disturbance. Does not include activities which specifically involve the removal of asbestos-containing material.

R2.01 Clean-Up of Asbestos Material and Asbestos Dust

Applies to the clean-up of fallen asbestos-containing material or asbestos dust, particularly on floor areas in mechanical rooms and pipe and duct spaces.

R2.02 False Ceiling Entry

Applies to entry into a false ceiling where friable, asbestos sprayed fireproofing is present above the ceiling.

R2.04 Drilling Asbestos Containing Materials (e.g. plaster, mastics, textured boards, stucco, etc.) with a HePA filtered Power Tool

These procedures apply to the drilling of holes (**each less than ½ inch in diameter**) in the asbestos-containing plaster application for the sole purpose of attaching fasteners for wall hangings and the like. This activity may generate enough airborne asbestos to require protective equipment, but is of short duration.

R2.05 Drilling of Holes in Wall with Asbestos Drywall Joint Compound with a HEPA Filtered Power Tool

Apply to the drilling of holes in walls that contain asbestos drywall joint compound using a power tool with HEPA filtration. In lieu of this procedure, where possible, the use of hand tools to drill drywall with asbestos drywall joint compound should be encouraged and Type 1 procedures (R1.00) can be followed.

R2.10 Minor Friable Asbestos Removal

Applies to the removal of one square metre (10.8 square feet) or less of wet friable material in one work shift, including mechanical insulation, sprayed fireproofing and texture plaster.

R2.11 Minor Repair of Thermal Insulation

Applies to patching or minor repair of asbestos-containing, thermal insulation.

R2.12 Removal of Asbestos-Containing Pipe Insulation Using a Glove Bag

R2.13 Drilling into a Wall that Contains A Non-Friable Asbestos Containing Coating Using a HEPA Vacuum for Dust Collection

Applies drilling holes in a wall that contains a non-friable asbestos-containing coating (e.g. sealant, paint) by means of power tools. The nozzle of the vacuum is held just below the hole to collect dust. For other disturbances (abrading, grinding, sanding or vibrating), refer to Procedure R. 2.14.

R2.14 Disturbance of Wall that Contains a Non-Friable Asbestos-Containing Coating Using a HEPA Filtration Tool.

Applies to breaking, cutting, abrading, grinding, sanding or vibrating a wall that contains a non-friable asbestos-containing coating (e.g. sealant, paint) by means of power tools that are attached to dust-collecting devices equipped with HEPA filters.

R2.20 Removal of Asbestos-Containing Ceiling Tiles (Major Operation)

The removal of more than 7.5 square meters (10 tiles @ 2 feet by 4 feet) asbestos-containing lay-in ceiling tiles or any quantity of laminated asbestos-containing ceiling tiles, from one location and above which there is **no** sprayed, asbestos-containing fireproofing, using only hand-held non-powered tools.

R2.30 Removal of Vinyl-Asbestos Floor Tiles

These procedures apply to all work involving the removal of floor tiles that are broken (non-intact) or may be broken during the removal process (i.e. cannot be removed without breaking into small pieces). Do not use this procedure for removal of asbestos-containing sheet flooring. Type 3 procedures are required in those cases.

R2.40 Removal of Asbestos-Cement Board Products (Non-Intact)

Applies to the removal of cement board products that cannot be removed intact (without breaking into smaller pieces), or in sections, without producing a pulverized or powdered waste with hand-held non-powered tools.

R2.50 Minor Alteration of Fire-Rated Doors with Friable Asbestos-Containing Core Material

These procedures apply to all work involving the minor disturbance or removal of friable asbestos-containing core material from fire-rated doors. This work is conducted at a central location (e.g. Carpenter's shop) and not in the requesting department. This minor disturbance/removal shall be limited to: 1) enlarging the mortise cavity with hand-powered tools, or 2) alteration of the door to include the removal of no more than 1 square foot of asbestos-containing material with hand-powered tools.

R2.70 Replacement of Air Handling Unit Filters Servicing Buildings with Asbestos-Containing Sprayed Fireproof

R2.80 Removal of More Than 1 Square Metre of Drywall with Asbestos-Containing Drywall Compound

3.3 Type 3 Operations

R3.00 Major Friable Asbestos Removal

4.0 ADDITIONAL DOCUMENTS

The follow documents are available from the EHS website (<https://ehs.utoronto.ca/our-services/occupational-hygiene-safety/asbestos-management-program/>)

- R4.00 Respirator Selection Chart
- Procedural Checklists Type 1 and 2
- Asbestos Equipment Checklist.