



PROCEDURE

Title: **ASBESTOS MANAGEMENT
PROCEDURE PROGRAM**

Procedure No.: 2005a
Effective Date: **2001 March 05**

Department: Organizational Support Services (Human Resources) – Health and Safety

Reference(s):

- Asbestos Policy
- Asbestos Management Program Document (Previous revision)
- Occupational Health and Safety Act
- Regulation 851: Industrial Establishments

1.0 Introduction and Requirements to the Asbestos Management Program

Asbestos in buildings, and on construction projects within the province of Ontario are governed by Ontario Regulation 278/05. Requirements for an Asbestos Management Program are set out within Section 5(2) of that document. Where an owner knows that materials containing asbestos has been used in a building, the owner shall:

- Prepare and maintain on the premises a record of the location of the Asbestos Containing Material (ACM) in the Asbestos Building Product Survey & Designated Substances Report,
- Give any other person who is an occupant of the building written notice of any information in the record that relates to the area occupied by the person,
- Give any employer with whom the owner arranges or contracts for work written notice of the information in the record, if the work,
 - may involve material mentioned in the record, or
 - may be carried on in close proximity to such material and may disturb it;
- Advise the workers employed by the owner who work in the building of the information in the record, if the workers may do work that,
 - involves material mentioned in the record, or
 - is to be carried on in close proximity to such material and may disturb it;
- Institute and maintain a program for the training and instruction of every custodian, maintenance, Information Technology, and other workers

Administered By: **Operational Support Services (Health and Safety / Facility Services)**

Amendment Date(s): 2001 Jun 26, 2008 Jan 11, 2011 Feb 08, 2022 Apr 25

employed in the building by the owner who is likely to work in close proximity to and may disturb the material,

- Inspect asbestos material annually in order to determine its condition.
- Repair or abate the asbestos material as required or indicated by the inspection.

2.0 Purpose and Scope of Asbestos Management Program Document

- This document provides background information and defines responsibilities for the management of asbestos containing materials (ACMs) present within the Board's facilities.
- The program includes the on-going re-assessment of the asbestos materials. If the assessment indicates continuing disturbance or damage to friable asbestos, appropriate remedial action will be undertaken.
- Any major renovations will be preceded by an evaluation of asbestos materials within the project area. Where renovations are likely to disturb asbestos, the asbestos material will be removed prior to or during renovations.
- It also outlines procedures and work practices for the control of activities, which may result in the disturbance of ACMs.
- The document includes work practices for minor disturbance of asbestos materials (Type 1 Operations). The document also includes policies for inspection of work, air monitoring, and worker training. Specific procedural requirements are documented in [section 17](#) for Type 1 Operations procedures.
- TVDSB staff will not undertake Type 2 or Type 3 Operations. Major asbestos projects (Type 2 and Type 3) are beyond the scope of this document, and where required projects will be managed on a project-by-project basis through the Facility Services, Projects/Maintenance Department with a pre-qualified Asbestos Contractor and/or pre-qualified Asbestos Consultant.

3.0 Regulatory Requirements and Background Information About Asbestos

- This Asbestos Management Procedure Program was implemented in response to the following legislation:
- Occupational Health and Safety Act Regulation 278/05, Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations under the jurisdiction of the Ontario Ministry of Labour.
- R.R.O. 1990, Reg. 347, as amended for asbestos, made under the Environmental Protection Act, under the jurisdiction of the Ontario Ministry of the Environment.

3.1 Occurrence and Types of Asbestos

3.2 Asbestos is not one mineral, but a generic term used to describe a family of naturally

occurring fibrous hydrated silicates. These are divided on the basis of mineralogical features into 2 groups: serpentines and amphiboles. The important property of asbestos as compared to non-asbestiform varieties of silicates is presence of long, thin fibres that can be easily separated. According to some definitions, there are as many as thirty varieties of asbestos, but only six are of commercial importance. Chrysotile, which is by far the most abundant, is the only type that belongs to serpentine group. Crocidolite and amosite, two other most commonly used fibres, together with anthophyllite, tremolite, and actinolite belong to the amphibole group. The distinction between asbestos types is important due to different degrees of severity of asbestos related disease with different asbestos types. Of the 3 commercially important types (chrysotile, amosite and crocidolite), chrysotile is considered the least hazardous and crocidolite the most hazardous. In general, Canadian regulations reflect this variation of health effects. Health Effects of Asbestos

For many years asbestos has been recognized as a health hazard for workers employed in asbestos mining, processing, and installation of asbestos products. Several serious, debilitating diseases that often end in death have been linked to the inhalation of fine asbestos fibres. It is not clear how asbestos fibres cause disease after they enter the lung. For each disease there is a period of latency, usually more than ten years, between first exposure to asbestos and appearance of the disease. The diseases linked to asbestos exposure are described below.

Asbestosis: Asbestosis is a fibrosis (scarring) of the lung tissue, which makes breathing difficult. The most prominent symptom is breathlessness. Detection of asbestosis is by physical examination, X-ray examination and lung function testing. The disease is irreversible and may continue to progress even after exposure is stopped. Rarely a cause of death itself, asbestosis results in an appreciable reduction in life expectancy due to deaths from related illnesses. Asbestosis will develop only with chronic exposure to high levels of airborne asbestos.

Mesothelioma: This is a rare cancer of the cells of pleura (lining of the chest cavity and lungs) and peritoneum (lining of the abdominal cavity). The development of mesothelioma is characterized by a long latency period, usually at least 15 years and sometimes more than 40. There is no effective treatment for mesothelioma. A large proportion of mesothelioma patients die within a year of diagnosis; few survive longer than five years. The amphibole asbestos materials are considered more important than chrysotile in the causation of mesothelioma. Although asbestos was once thought to be responsible for all mesothelioma, other causes have now been identified. Still, the chance of getting mesothelioma in the absence of asbestos exposure is considered to be extremely remote. Mesothelioma is a very rare cancer in the general population.

Lung Cancer: Unlike asbestosis and mesothelioma, lung cancer is not associated only with asbestos exposure. Cigarette smoking has been and continues to be the major cause of lung cancer. Furthermore, there is no basic difference between lung cancer caused by asbestos and that due to other causes.

In general, the risk of getting lung cancer increases with extent of asbestos exposure, in terms of both intensity and duration. This risk is also greatly enhanced by smoking; most asbestos workers who develop lung cancer are smokers. There is no difference in the risk for lung cancer between chrysotile and the amphibole asbestos minerals.

Other Asbestos-Related Cancers: The relationship between asbestos exposure and asbestosis, mesothelioma and lung cancer has been clearly established and is beyond argument. Several other cancers have also been associated with inhalation of asbestos. Although the evidence is not as good as for the diseases discussed above, these cancers should be noted. They are: gastrointestinal cancer affecting all sites in the gastrointestinal tract (oesophagus, stomach, colon and rectum) and cancer of the larynx. The elevated risks of these diseases in the most heavily exposed asbestos workers have always been much less than the elevated risk for lung cancer and mesothelioma. If asbestos exposures are controlled to prevent any increase in lung cancer or mesothelioma risk, the other potential cancer risks should also be well controlled.

Other Asbestos-Related Conditions: Asbestos exposure can also cause pleural plaques and asbestos warts. Pleural plaques are areas of scarring of the pleural surfaces. In general, they are not associated with any functional abnormality and are merely an indicator of asbestos exposure. Asbestos warts are harmless skin growths that occur when asbestos fibres penetrate the skin. These will usually retract when exposure ceases.

3.2 Uses of Asbestos in Building Materials

Asbestos has been widely used in buildings and several uses continue today. The uses of asbestos are generally classed into two groups for purposes of hazard assessment: friable and non-friable products. A friable material is a material that when dry can be crumbled, pulverised or powdered by hand pressure. The use of friable materials in construction is banned today but due to the widespread use of friable materials in the past, these materials still are present in many buildings. In order to establish an asbestos management program, the possible uses of asbestos must be known. These are discussed below in the categories of non-friable and friable products.

3.3 Non-Friable Asbestos Materials – Asbestos-cement (A/C) Products

The largest use of asbestos, in terms of the tonnage of fibres employed, is as a reinforcing agent in cement products. Asbestos-reinforced cement is strong, durable, rigid and resistant to both fire and weather. Portland cement, water and asbestos are mixed to form a slurry from which end products can be fabricated by a process similar to that used in paper making. Products include sheets, pipes and a wide variety of other shapes. The asbestos fibre content of A/C products is usually about 15 percent.

Asbestos-cement sheet is produced in four basic forms: flat sheet, corrugated sheet, siding shingles and roofing shingles. The main use of A/C sheet is for the roofing and cladding of buildings. Other uses are ceiling tiles, decorative panelling, electrical insulation and laboratory tabletops. Asbestos-cement pipe is used for water supply, sewage, irrigation, drainage applications, the transport of corrosive chemical fluids, and electric and telephone conduits. Asbestos cement products are still in production. Non-asbestos substitute cement products are available for some though not all asbestos products.

- **Gaskets and Packings:**

The combination of long asbestos fibres and high temperature rubbers has provided some of the best gasket materials. The asbestos, in bulk fibre, woven, or plaited form, provides strength and temperature resistance, while the rubber or synthetic compound acts as binder and sealing material. Asbestos yarns have been commonly used in the manufacture of braided and woven packing materials. Many of these uses, particularly in sheet forms are still in production and use.

- **Coatings and Sealants:**

Asbestos has been used in roof coatings and cement and, to a lesser extent, in sealants and caulks. Roof coatings consist of asphalt liquefied with solvents and asbestos fibre filler. Roof cements are similar but are formulated to a thicker consistency so that they can be used to seal openings through which a liquid coating would flow. Some of these are still in production.

- **Paper Products:**

Asbestos paper products are used in a wide variety of applications. Among the most important in construction are roofing felt, gaskets, pipeline wrap, millboard and electrical insulation. Some of these applications are discussed under the headings "Insulation" and "Gaskets and Packings". Some uses (particularly where impregnated with tar or asphalt for roofing and pipeline wrap) are still in production.

- **Plastics:**

Asbestos has been used as a reinforcing agent in a wide range of asbestos/polymer composites. Applications include brake and transmission components, floor tiles, engine housings, bins and containers, and a variety of coatings, adhesives, caulks, sealants and patching compounds. Two areas have dominated asbestos use in plastics: phenolic moulding compounds and vinyl-asbestos tile. Few of these products remain in production.

- **Asbestos Textiles:**

Asbestos textile materials are predominantly manufactured from chrysotile fibres. Two types of yarn are produced: plain, possibly braced with organic fibres, and reinforced, which incorporates either wire or another yarn such as nylon, cotton or polyester. Major uses for asbestos textiles are gaskets, packings, friction materials, thermal and electrical insulation, and fire-resistant applications, e.g. welding curtains, protective clothing, theatre curtains, hot conveyor belts and ironing board covers. These products may be considered or become friable in use. Asbestos textiles are no longer in widespread production.

- **Friction Materials:**

Asbestos has been used in the manufacture of brake and clutch linings and pads. The asbestos fibres may be embedded in a phenolic resin with various mixtures of fillers, or a woven asbestos cloth may be impregnated with the resin. Friction products are primarily used in vehicles but may be used in any rotating machinery, for example elevators or printing presses. They are still widely produced and used.

- **Acoustic Ceiling Tiles:**

Some types of mineral wool type acoustic ceiling tiles were formulated with asbestos from the early 1960's. There is no date after which it can be reliably believed asbestos use in tiles was discontinued. Analytical testing is required to distinguish the asbestos and non-asbestos ceiling tiles. The fire-rated tiles are considered more likely to contain asbestos. Amosite was the predominant fibre type used.

3.4 Friable Asbestos Materials:

Friable asbestos products are the main concern of the public and the asbestos management program due to the ease of fibre release. None of the products are still in production in North America or Europe.

- **Fireproofing or Sprayed Insulation:**

Several types of fireproofing or insulation were applied by spraying or trowel application to approximately the mid-1970's. Fibrous products were spray applied after being blown as a dry mix through an application gun. These products may contain up to 90% asbestos and any of the three major types (chrysotile, amosite, or crocidolite). Cementitious products were trowelled or sprayed as a wet slurry. These were harder products which did not contain more than 25% asbestos. Only chrysotile asbestos was used in the cementitious type materials.

3.5 Texture or Acoustic Plasters:

- The use of asbestos was widespread in trowelled or sprayed texture coats, stipple coats and acoustic plasters from the 1950's to the late 1970's (at least as late as 1977). These products always contain less than 25% chrysotile. Some of the harder stipple coats may be considered non-friable in place and only become friable when disturbed by construction or demolition. Other

products in this group can be very soft and extremely friable.

3.6 Mechanical Insulation:

- This is the most widespread use of friable asbestos in buildings. The use dates from the late 1800's to the late 1970's. The material can have a number of appearances and asbestos contents.
 - white, brown, pink or grey block
 - white or grey corrugated paper
 - white, grey or brown layered paper
 - grey trowelled or hand applied material (with the appearance of hard or granular grey dry mud)
- It is possible to find all asbestos types in mechanical insulation although chrysotile is predominant and amosite the next most common.

4.0 Responsibilities of Thames Valley District School Board:

- Meet the requirements of the Occupational Health and Safety Act and Asbestos Regulation for Construction Projects, Buildings and Repair Operations.
- Provide adequate resources to support the activities outlined in the procedures.
- Engage a pre-qualified Asbestos Contractor to undertake Type 2 and Type 3 Operations when the work is necessary.

5.0 Responsibilities of Organizational Support Services - Facility Services, Projects/Maintenance Department:

- Furnish a copy of the updated Asbestos Building Product Survey & Designated Substances Report to each facility.
- Update or arrange for the update of the Asbestos Product Survey & Designated Substances Report for each facility (as defined by Ontario Regulation 278/05), and whenever ACM has been removed, repaired or remediated. This update shall include visual inspection of condition and friability of ACM that has been identified.
- Make a copy of the updated Asbestos Product Survey & Designated Substances Report available to all prospective constructors and workers prior to work and/or when tendering for work involving ACM.
- Receive written verification from contractors that their workers have received appropriate training in asbestos procedures.
- Complete the Asbestos Work Record (see electronic forms).
- Inform Principal/Charge Custodian of situations involving friable ACM and/or planned ACM repair, remediation.
- Maintain records for Facility Services staff training).

6.0 Responsibilities of Health and Safety or Asbestos Consultant:

- Arrange for the collection of samples and analysis of any suspect ACM's not presently identified in the Asbestos Building Product Survey & Designated Substances Report.
- Provide general awareness training in asbestos issues and additional training as requested
- Classify work involving ACM as Type 1, 2, or 3 in accordance with the Regulation 278/05.
- Conduct periodic investigations to verify that work involving ACM is completed according to Type 1, 2, or 3 as specified in the Regulation 278/05.

7.0 Responsibilities of Principal/Vice-Principal/Building Manager/Charge Custodian:

- Ensure that copies of all records, surveys, and reports are maintained and accessible to all staff, contractors and volunteers in main office records and custodial office, and the health and safety bulletin board (within 24 hours for air monitoring results).
- Inform staff of situations involving ACM and/or planned ACM repair, remediation.
- Refer to section 13 for Emergency Asbestos Work instructions when suspected debris is found.
- Notify tenants of the presence of ACM where applicable.
- Update the contacts for their school in the Emergency Contact Chart (section 14.5 – Emergency Asbestos Work) annually or as known changes occur.

8.0 Responsibilities of Staff:

- Do not undertake Type 2 and Type 3 Operations. Do not disturb potential asbestos-containing materials (including drilling into walls /ceilings or lifting/removing ceiling tiles). Report immediately, the discovery of suspected damaged asbestos-containing materials to their immediate supervisor.

9.0 Worker Training

- 9.1 All TVDSB workers will be provided general asbestos awareness training annually.
- 9.2 TVDSB workers directly involved with Type 1 Asbestos Operations will be trained in the hazards, control of hazards, and execution of work including waste disposal.
- 9.3 Training will include physical characteristics of asbestos, health hazards, applicable legislation, respiratory protection, use of protective equipment and specific work procedures.
- 9.4 Respirator training and fit testing will be provided for workers who request a respirator for Type 1 Operations.

10.0 Asbestos Inventory Survey and Assessment

10.1 Survey Scope and Strategy

- The Board retained a professional Asbestos Consultant to conduct asbestos-containing building materials surveys of the Board's facilities.
- In pre-1988 schools or additions, the surveyors inspected every room and ceiling space where access was possible without demolition or safety violations (i.e., confined space entry). Regardless of whether the building had been previously surveyed, the scope described in this section was used for the asbestos component of this survey.
- The survey did not examine for the following non-friable asbestos materials considered to have extremely little potential for exposure: caulking, adhesives, levelling compounds, roofing felts, roofing patch compounds, mastic, grout, etc.

10.2 Documentation

- Copies of the survey report will be kept in the following locations; Facility Services, Projects Department, Health and Safety, applicable Maintenance Zone office, school main office and Custodial office. The Facility Services, Projects Department will be responsible to maintain files on re-assessments (in the Facility Services site location).

10.3 Notification

- Contractors with standing orders (telephone, fire alarm, etc.) who may enter the building on an on-going basis will be informed of the presence of ACMs in the facility, by the Principal/Charge Custodian, and referred to the Asbestos Building Product Survey & Designated Substances Report on site.
- The department initiating work that may or will involve ACM must notify the contractor by providing a copy of the updated Asbestos Building Product Survey & Designated Substances Report during the procurement process and prior to work.

11.0 Evaluation Criteria and Basis of Recommendations

11.1 The Asbestos Building Product Survey and Designated Substances Report provides information regarding the location, condition, and accessibility of ACM in TVDSB Buildings.

11.2 The Asbestos Consultant developed the following ACM evaluation criteria based on the conclusion of previous published studies, particularly the "Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario" and our experience involving buildings that contain ACM. The decision matrix has been modified to meet the specific requirements of the Board. These requirements in all cases meet or exceed the requirements of Regulation 278/05.

11.3 The presence of fallen, friable ACM is noted separately from the presumed friable ACM source and is referred to as **DEBRIS**. Where fallen, non-friable ACM has become friable; it is also reported as **DEBRIS**.

11.4 SUSPECT MATERIALS (SM) are building materials and products that may randomly contain asbestos but were not tested. Evaluation of these materials is based on the assumption that they contain asbestos. Materials may be deemed suspect ACM based on having characteristics similar to products that were sampled and verified ACM (e.g., 9"x9" floor tiles).

11.5 Spray or Trowel-Applied Fireproofing, Insulation and Texture Finishes

11.5.1 To evaluate the condition of ACM spray or trowelled fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes, the following criteria are applied:

GOOD	Surface of material shows no significant signs of damage, deterioration or delamination. Up to 1% visible damage to surface is allowed within range of GOOD . Evaluation of sprayed fireproofing requires the surveyor to be familiar with the irregular surface texture typical of fireproofing as installed. GOOD condition includes unencapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.
POOR	Sprayed materials show signs of damage, delamination or deterioration. More than 1% damage to surface of ACM spray.
NOTE: In observation areas where damage exists in isolated locations, both GOOD and POOR condition may be applicable. The extent or percentage of each condition will be recorded on the survey or re-assessment form. FAIR condition is not utilised in the evaluation of the fireproofing, non-mechanical insulation, or texture coat finishes.	

11.6 Mechanical Insulation

11.6.1 The evaluation of the condition of mechanical insulation (on boilers, breeching, ductwork, piping, tanks, equipment, etc.), utilises the following criteria:

GOOD	Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor damage (i.e., scuffs or stains), but the jacketing (covering) is not penetrated.
FAIR	Minor penetrating damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that had never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges from minor to none. Damage can be repaired.

POOR	Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired.
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11.7 Non-friable and Potentially Friable Materials

11.7.1 For non-friable or potentially friable ACM — such as plaster finishes containing asbestos, and manufactured products such as asbestos cement products (transite), which have the potential to become friable when handled or deteriorated – the condition of these materials is evaluated as follows:

GOOD	No significant damage. Material may be cracked or broken but is stable and not likely to become friable upon casual contact. If there is no friable DEBRIS present, the condition is rated as GOOD .
POOR	Material is severely damaged. Loose DEBRIS is present, or binder has disintegrated to the point where the material has become friable.

Note: * When **DEBRIS** is shown in bold capitals it refers to a friable material which has fallen from a friable or non-friable surface.

A rating of **FAIR** is not used in evaluating the condition of non-friable and potentially friable materials.

11.8 Evaluation of Accessibility

11.8.1 The accessibility of building materials known or suspected of being ACM is rated according to the following criteria:

- ACCESS (A)** Accessible to all occupants of the building.
- ACCESS (B)** Accessible to maintenance staff without a ladder.
- ACCESS (C)** Accessible to maintenance staff with a ladder.
- ACCESS (D)** Not accessible without demolition or removal of fixed building components or building systems.

11.9 Action Matrix and Definitions

11.9.1 This evaluation of the viability of a specific asbestos control option is based on the consideration of condition and accessibility of the ACM. The logic used is based on the principle that 'where no exposure occurs, no risk is present'. In other words, damaged ACM located in an area frequently accessed by all building occupants is of a higher priority than damaged ACM located in an infrequently accessed service area. The following Action

Matrix can be used to determine the response required for the condition of ACM found/being assessed.

11.9.2 For non-friable or manufactured products reported in **GOOD** condition, Management and Action 7 (management and surveillance) are recommended regardless of Accessibility.

11.9.3 The following table outlines ACTION decisions based on relationships of ACCESS and CONDITION:

Action Matrix Table

ACCESS	CONDITION				
	GOOD	FAIR	POOR ¹	DEBRIS ¹	SUSPECT MATERIALS
(A) ² Accessible to all occupants	ACTION 5 ² Proactive removal	ACTION 5 Proactive removal	ACTION 3 Removal	ACTION 1 Immediate Clean-up	ACTION 8 Implement Asbestos Management Program
(B) Accessible to TVDSB employees	ACTION 5 Proactive removal	ACTION 5 Proactive removal	ACTION 3 Removal	ACTION 1 Immediate Clean-up	ACTION 8 Implement Asbestos Management Program
(C) exposed Accessible to TVDSB employees with ladder	ACTION 5 Proactive removal	ACTION 5 Proactive removal	ACTION 5 Proactive removal	ACTION 2 Type 2 Entry precautions/ clean-up	ACTION 8 Implement Asbestos Management Program
(C) concealed Accessible to TVDSB employees with ladder	ACTION 7 Management and surveillance	ACTION 6 Repair	ACTION 6 Repair	ACTION 4 Type 2 Entry precautions/ clean-up	ACTION 8 Implement Asbestos Management Program
(D) Not Accessible	ACTION 7 Management and surveillance	ACTION 7 Management and surveillance	ACTION 7 Management and surveillance	ACTION 7 Management and surveillance	ACTION 8 Implement Asbestos Management Program

¹ Non-friable and potentially friable ACM found in **POOR** condition, and friable **DEBRIS** (from a non-friable ACM source) shall be treated as per **POOR** or **DEBRIS** in the above table.

² See full definition of conditions, actions and access provided in the text of the report.

11.10 The following definitions relate to the Action Matrix Table above (previous sheet):

11.11 Action dealing with the immediate cleanup of fallen ACM likely to be disturbed.

11.12 Action dealing with the need to use Type 2 asbestos procedures to enter an area.

11.13 Action dealing with performing asbestos removal for compliance with the regulations.

11.14 Action dealing with the removal of asbestos that goes beyond compliance requirements but simplifies the asbestos management.

11.15 Action dealing with the repair of asbestos.

11.16 Action dealing with ACM surveillance requirements of the regulations.

11.17 Action for dealing with material that may contain asbestos but not conclusively identified in the survey.

12.0 Ongoing Asbestos Management in Buildings

- The ongoing asbestos management will be conducted by Organizational Support Services - Facility Services, Operations Department, Charge Custodian as required by Ontario Regulation 278/05 (on a yearly basis). The assessment will encompass factors originally noted and concentrate on any signs of deterioration, delamination or disturbance including reporting requirements and Emergency Asbestos Work (section 14.0).
- A bi-monthly assessment of ACM inventory will be completed in occupied areas and annually for all inventory not exposed to occupants.
- The Charge Custodian shall notify the Maintenance Leader, followed by a work order to report any changes of the condition of the ACM and report the signs of change.

13.0 Bulk Sampling

- If bulk samples are necessary, collection of the samples and analysis will be co-ordinated through the Facility Services, Projects/Maintenance or Health and Safety.
- Where ACM may be present, and specific sampling has not been completed, it will be assumed that the material contains asbestos and arrangements for necessary work will be made accordingly.

13.1 Bulk samples will be analysed by methods consistent with Ontario Regulation 278/05. The analytical facility must participate in a recognized quality control program. Either the U.S. National Voluntary Laboratory Accreditation Program (NVLAP) or American Industrial Hygiene Association (AIHA) program is acceptable.

13.2 Sample the material when the area is not in use. Only those persons needed for sampling should be present in the immediate area.

13.3 Spray the material with a light mist of water to prevent fibre release during sampling. Do not disturb the material any more than necessary.

13.4 Collect sample materials with different appearances separately. Mechanical insulation must be sampled separately on all systems, tanks, vessels, etc. Sample both the straight sections of pre-formed insulation and the insulating cement typically

present at elbows, fittings, etc. (unless visually identified as fibreglass).

13.5 Collect the sample by penetrating the entire depth of the material (since it may have been applied in more than one layer or covered with paint or other protective coating).

13.6 Depending on the condition of the material, significant amounts of airborne fibres can be generated during sampling. The use of a respirator is recommended for all sampling.

13.7 If pieces of material break off during sampling, the contaminated area must be cleaned up with a HEPA vacuum cleaner or by wet cleaning.

13.8 Any ACM debris generated must be bags and disposed of as per the Waste Disposal Instructions section 18.0.

13.9 Place samples in labelled plastic bags with a zip-lock closure or in sealed plastic vials. Samples shall be identified with the following information:

- Sample Number
- Building
- Room Number
- Date of Sampling
- Name of Sampler
- Source of sample e.g., Cold Water Pipe, Cold Water Fitting, etc.

13.10 Temporarily seal any openings created to collect the sample, for example, with metal foil tape wrapped completely around the pipe. Advise the Maintenance / Facility Services Projects Department to arrange for insulation repair.

14.0 Emergency Asbestos Work

14.1 These procedures are required to deal with situations such as the following:

14.1.1 water leak from piping with asbestos insulation.

14.1.2 physical damage to piping with asbestos insulation.

14.1.3 in the event of a breach or failure of a Type 2, Glove Bag or Type 3 enclosure.

14.1.4 upon discovery of suspected asbestos debris.

14.2 Staff may encounter fallen material, which may be suspected of containing asbestos. This may occur in areas where asbestos has been documented or in areas not included in the survey (due to limited accessibility, above plaster ceilings, etc.). In these cases, it is important that the exposure of all occupants to airborne asbestos

be minimized by isolating the area.

14.3 All emergency situations are to be reported to Organizational Support Services Facility Services Maintenance Leader and Organizational Support Services Health and Safety as soon as possible. Organizational Support Services Facility Services / Health and Safety in consultation with an Asbestos Consultant will determine if the clean-up is Type 1, 2, or 3 Operation and will provide clean up instructions including contacting a pre-qualified Asbestos Contractor if necessary.

14.4 The general principles of emergency asbestos work are to protect the workers performing the repair and to minimize the exposure of others to airborne asbestos. The procedures given below should be followed to the extent possible in the circumstances of the emergency.

Staff will:

- Clear area of all occupants and cease work in the area. Do not resume work due to risk of disturbing material.
- Shut down ventilation system serving area.
- Leave and isolate the area by locking doors, if this can be done without blocking emergency or fire routes. If this cannot be done the Principal/Charge Custodian will notify appropriate persons not to enter the area. If possible, post a sentry to prevent unnecessary access.
- Make contact with one of the Emergency Contacts listed below.

EMERGENCY CONTACTS

NAME	POSITION	OFFICE TEL..	MOBILE TEL.	HOME TEL..
	Maintenance Leader			
	Maintenance – Emergency #			
	Health and Safety Specialist			
	Health and Safety Specialist			
	Facility Services – Projects (if Construction Project)			

Principal or Building Manager (this chart to be completed annually or as known changes occur)

15.0 Asbestos Operations

15.1 The following sections and TVDSB Respiratory Protection Program describe the standard operating procedures adopted by the Board for asbestos-related work at their facilities. These meet or exceed the requirements of Ontario Regulation 278/05 and other regulatory requirements.

15.2 Procedures to perform Type 1 Operations are presented in section 17.0.

15.2.1 Type 1 Operations

- Installing or removing ceiling tiles that are asbestos-containing material, if the tiles cover an area less than 7.5 square metres (80.5 square feet) 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.

15.2.2 Type 2 Operations

- 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.
- 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 (80.5 square feet) 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 if,

15.2.2.1 the material is not wetted to control the spread of dust or fibres, and

15.2.2.2 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.
- 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 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. Any work that involves one square metre or more (approximately 9 fittings, or more) of insulation to be removed the constructor (in the case of a project) or employer (in any other case) must notify an inspector at the office of the Ministry of Labour nearest the workplace orally and in writing.
- Cleaning or removing filters used in air handling equipment in a building that has sprayed fireproofing that is asbestos-containing material.

15.2.3 Type 3 Operations

15.2.4 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 or any machinery or equipment.

15.2.5 The spray application of a sealant to friable asbestos-containing material.

15.2.6 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.

15.2.7 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.

16.0 Inspection and Monitoring of Asbestos Work

- Asbestos Consultant (if requested), Safety Specialist and/or Joint Health & Safety Committee Representative may:
- Complete a visual inspection of asbestos abatement projects periodically throughout the duration of the asbestos operation to ensure compliance to procedures for Type 1, Type 2 and Type 3 Operations.
- Assess the work area at the completion of the asbestos operation to ensure the area is left free of visible debris, dust or residue.
- Be present, when possible, at beginning of testing conducted with respect to industrial hygiene the workplace to ensure valid testing procedures are used to ensure that the test results are valid.

16.1 Safety Specialist or Facility Services Projects/Maintenance Department will.

- Arrange for air monitoring during Type 3 Operations.
- Notify a Main Joint Health and Safety Committee Representative for the opportunity to attend the air monitoring prior to sampling.

16.2 Air monitoring and analysis during active asbestos removal and clearance air monitoring will be collected in compliance with Ontario Regulation 278/05. Provide air monitoring test results to the Main Joint Health and Safety Committee on a monthly basis and to the Site Administrator for posting on the Health & Safety Bulletin Board within 24 hours.

17.0 Type 1 Operations Work Procedures

These procedures are to be followed by all TVDSB employees and contractors performing the following work (Type 1 Operations, section 12.3) at Thames Valley District School Board facilities.

17.1 EQUIPMENT

All required equipment must be available at the job site before proceeding.

- **Cleaning Methods**

17.1.1 Use of a HEPA filtered vacuum is optional, if used it must be equipped with all brushes and fittings, etc. Extension hose is necessary for ceiling entry work. Once the bag is considered full, it can only be opened following Type 2 procedures and must be conducted by a pre-qualified asbestos contractor.

- Wet cleaning methods may be used in place of a vacuum. Pump sprayer with mister nozzle or alternative method to wet ACM if a HEPA vacuum is unavailable. Respirators

17.1.2.1 Use of a respirator is optional. The Board will supply at the worker's request a half face respirator with HEPA filters (P100), with training on use and qualitative fit testing.

17.1.2.2 Use respirators in accordance with TVDSB's Respirator Protection Program, 2005f and training procedures.

17.1.2.3 Filters must be taped when not in use and changed when breathing resistance increases.

17.1.2.4 Wipe respirators with respirator wiping/sanitizing pads after use.

17.1.2.5 No person using respirator shall wear facial hair, which affects the seal between respirator and face.

17.2 PROTECTIVE CLOTHING

17.2.1 Use of disposable coveralls (Tyvek) is optional. – disposable full body coveralls must be complete with elasticized hoods made of spun polyolefin material.

17.2.1.1 Use CSA green-patch triangle safety shoes or CSA green-patch rubber boots. If safety shoes are worn, they must be used with shoe covers or HEPA vacuumed or wet wiped after working on Type 1 Operations.

17.2.2 Other Equipment

17.2.2.1 Tape (duct tape, fibre reinforced, 2" wide) a plastic sheet (6 mil polyethylene) - to serve as a drop sheet (10'-12' wide) below the work surface.

17.2.2.3 Double-sided tape, i.e., as used for carpet installation, in 3/4" width, for a fixing polyethylene sheeting to ceiling T-bar grid.

Wetting agent, Asbestos-Wet or other surface-active agent to enhance water penetration.

17.2.2.4 Post caution tape and asbestos caution signage.

Signs shall read:

CAUTION

Asbestos Hazard Area

No Unauthorized Entry

Wear assigned protective equipment

Breathing asbestos dust may cause serious bodily harm.

Use small hand tools and cleaning supplies - e.g. scouring pads, sponges, brushes, buckets, etc. for Type 1 Operations.

17.2.2.5 Use labelled yellow asbestos waste bags (6 mil) - for all asbestos waste, disposable equipment, plastic, etc. Text shall read:

CAUTION

CONTAINS ASBESTOS FIBRES

Avoid Creating Dust and Spillage

Asbestos May be Harmful To Your Health

Wear Approved Protective Equipment

17.3 Other Protective Measures

17.3.1 Do not eat, drink or smoke in the work area. Proceed to washroom and wash all exposed skin on hands and face when leaving a work area.

18.0 Preparation

18.1 Cover floor and surfaces below work wherever practical with polyethylene sheeting to catch debris (securing with tape).

18.2 Remove visible dust with a damp cloth or a vacuum equipped with a HEPA filter from any work surface in the work area including the thing to be worked on, if the dust on that surface is likely to be disturbed. If a damp cloth is used, dispose of it as asbestos waste. A wetting agent will be added to the water.

19.0 Execution

19.1 Removal of Vinyl Asbestos Floor Tiles

19.1.1 Complete work using hand tools. (Do not use powered tools).

19.1.2 Remove by wedging a heavy-duty scraper in seam of two adjoining tiles and gradually force edge of one tile up and away from floor.

19.1.3 Remove tiles intact wherever possible. Continue removal of tiles using hand tools. Strike a scraper handle with a hammer using blows of moderate force while maintaining scraper at 25° to 30° angle to floor to remove adhesive that was spread heavily or is hard or tile that will not loosen.

Heat tile and adhesive thoroughly with a hot air gun until heat penetrates through tile and/or adhesive and softens it.

Scrape adhesive remaining on floor with a hand scraper until only a thin smooth film remains. Complete in small sections.

19.1.4 Do not dry scrape surface of adhering pieces of tile.

19.1.5 Vacuum clean floor with HEPA filtered vacuum or wet mop when work is complete.

- [Follow Waste Disposal Instructions section 18.0 to dispose of ACM \(e.g., tiles and adhesive, mop head\). Do not break tiles into smaller pieces.](#)

19.2 Installing, Cutting or Drilling Non-Friable Asbestos Materials Using Hand Tools

Complete work using hand tools. (Do not use powered tools).

19.2.1 Wet all materials to be disturbed where possible.

19.2.2 Clean area frequently during work with HEPA vacuum or by wet methods.

[Follow Waste Disposal Instructions section 18.0 to dispose of removed ACM and equipment \(e.g., ceiling tiles, Tyvek suit, drop sheets\).](#)

19.3 Removal of Other Non-Friable Asbestos Containing Materials

19.3.1 The Type 1 procedures apply only to materials, which can be removed intact, or in sections, without producing a pulverised or powdered waste. This method is applicable to asbestos cement (transite) products, lay-in ceiling tiles and the paper liner inserts in the metal pan ceiling tiles.

19.3.2 Wet all material to be disturbed where possible.

19.3.3. Undo fasteners necessary to remove the ACM. Whenever possible remove asbestos cement panels intact. Do not break.

- Clean surrounding surfaces and asbestos work area frequently with HEPA filtered vacuum or with wet methods (i.e., damp cloth disposed of as asbestos waste after cleaning).

19.3.4 [Follow Waste Disposal Instructions section 18.0 to dispose of removed ACM and equipment \(e.g., ceiling tiles, Tyvek suit, drop sheets\).](#)

19.3.5 Dispose of drop sheets as asbestos waste.

19.4 Waste Disposal Instructions

19.4.1 All ACM waste (e.g., PPE – disposable clothing/respirator filter cartridges, mop heads, cloths, drop sheets, ceiling tiles) will be disposed of in accordance with Ministry of Environment Regulation 347.

19.4.2 Copies of waybills for disposal of asbestos materials will be retained by the Contractor as proof of disposal and furnished to the Board upon request.

19.4.3 TVDSB workers will dispose of asbestos containing materials and contaminated debris (e.g., mop heads, rags) as a result of Type 1 Operations by placing waste in a polyethylene bag.

19.5 Use a HEPA filtered vacuum or damp wipe the bag and seal with tape.

19.5.1 Place sealed first bag into a second labelled, yellow asbestos 6-mil polyethylene bag Text shall read:

CAUTION

CONTAINS ASBESTOS FIBRES

Avoid Creating Dust and Spillage

Asbestos May be Harmful To Your Health

Wear Approved Protective Equipment

With applicable Transportation of Dangerous Goods markings

Seal the second bag with tape.

Place the bag(s) if possible, in a puncture proof container (e.g., drum, barrel).

Seal the outer container.

Provide storage area for holding minor amounts of asbestos waste.

Provide work order to have the bags removed from the site.