Asbestos Abatement - Training Program Standard

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1. Training Standard Topic

Asbestos Abatement

2. Purpose

The purpose of the Asbestos Abatement training program is to provide learners with:

- knowledge of legislative requirements pertaining to asbestos work including worker, supervisor and employer responsibilities
- knowledge of evaluating the potential for asbestos contamination of a work area and its surroundings, while recognizing the hazards and risks associated with activities that can expose workers to asbestos containing material (ACM), types of asbestos abatement work and the required control measures
- knowledge of site containment, asbestos removal, sampling plan and clearance testing procedures
- understanding of safe work procedures for planned and emergency asbestos work
- knowledge of safety and personal protective equipment to be used when exposed to and when handling ACMs

The training is intended for employers, supervisors and workers who actively work with ACMs.

The Asbestos Abatement training program outlines minimum requirements for the development and delivery of Asbestos Abatement training programs in Manitoba. It was

developed in consideration of the *Manitoba Workplace Safety and Health Act and Regulation* and *Canada Labour Code* Part II.

NOTE:

1. This training standard does not include details of sampling procedures or how to develop an inventory;

2. It is required to have the respirator training along with respirator fit testing as per CSA Z94.4-11 or most current revision cited in the *Manitoba Workplace Safety and Health Act and Regulation* successfully completed before the Asbestos Abatement training is taken.

3. Design

The design of the training program must meet the following criteria:

- compliance with adult learning principles:
    1. Ensure learners know why they need to learn specific content and its relevance to their workplaces;
    2. Relate training to learners' own experiences when simulating workplace scenarios;
    3. Challenge and engage learners using a variety of activities that allow opportunities for participation, feedback and interaction;
    4. Recognize the limits of attention spans and apply techniques to address the various ways that adults learn;
    5. Use realistic activities and tools to support the transfer of learning to the workplace.
- Use language that is appropriate for all learners;
- Provide content that is accurate and current;
- Include references to legal and technical information;
- Use a variety of technical teaching aids;
- Provide learner materials that follow the principles of instructional writing and good graphic design;
- Be consistent with provincial and federal legal requirements.

4. Delivery

Regardless of the delivery method, all Endorsed Training programs must meet the requirements of this standard along with ***The Accessibility for Manitobans Act***. The delivery method must be reasonable and practicable to support the learner's ability to attain the applicable learning outcomes.

4.1 Face-to-Face Learning

The following is the maximum ratio of learners to instructor:

- Basic Theory Module: 12:1
- Practical Module: 12:1

The following are the minimum hours for training delivery:

- Basic Theory Module: 18
- Practical Module: 12

  The Asbestos Abatement Basic Theory Module must be completed before the Asbestos Abatement Practical Module is taken.

The timing for delivery of this training program may be extended for various reasons such as the amount of equipment available for demonstration of learning outcomes, instructor experience, and/or the learning needs of the training participants.

4.2 Distance Learning

Distance learning includes training via a live video link; a plan for interactivity with a qualified instructor should be developed and available.

This type of learning is acceptable for:

- Basic Theory Module

5. Learning Outcomes

Employers will need to supplement any training program that meets the requirements of this training program standard with additional information, instruction and training in workplace-specific policies and procedures, and workplace-specific hazards and equipment related to Asbestos Abatement.

5.1 Asbestos Abatement Basic Theory Module

5.1.1 Legal Requirement

Content includes:

- specific legislative requirements pertaining to asbestos work, including worker, supervisor and employer responsibilities, notification to Workplace Safety and Health and the Workers Compensation Board of Manitoba, serious incidents, and control requirements

- an overview of the legislative documents and additional available resources on asbestos work and how to access them

At the end of this module, learners will be able to:

- identify parts in the *Manitoba Workplace Safety and Health Act and Regulation* and/or *Canada Labour Code* Part II, as applicable, pertaining to asbestos work in the workplace
- explain the legal duties and responsibilities of the employer, supervisor and worker as they relate to asbestos work in the workplace
- describe workers' rights as they relate to asbestos work in the workplace
- reference and access various resource documents related to asbestos work

5.1.2 Asbestos types, sources and use

Content includes:

- an overview of the different types of asbestos encountered in Manitoba and their use in various industry sectors
- an outline of different sources of asbestos or ACMs in the workplace

At the end of this module, learners will be able to:

- explain the different types of asbestos and their use
- identify the different sources of asbestos or ACMs in workplaces.

5.1.3 Identification and assessment of hazards of asbestos work

Content must include:

- an overview of the various hazards of asbestos in workplaces with a focus on various health effects
- an overview of the means and severity of asbestos exposure, including but not limited to, inhalation, dermal and ingestion
- an overview of the additive properties and the impact of smoking on the risk of asbestos-related illness
- a description of the other hazards of abatement work that are not directly associated with asbestos exposure, including but not limited to, electricity, working at height, uneven or slippery surfaces, cold and hot working conditions, scaffolding and confined space
- an overview of the job hazard analysis process for identifying and assessing hazards
- a list of criteria for evaluating the potential for asbestos contamination of the work area and its surroundings

- a description of high, moderate and low risk asbestos abatement work (i.e., type 3, 2 or 1 work)
- a description of the medical examination requirement for workers working in asbestos processes, including pulmonary function testing for workers with more than 100 hours of asbestos exposure per year of work

At the end of this module, learners will be able to:

- list and identify the common hazards associated with exposure to and abatement of asbestos-containing material
- describe the chronic health effects and various illnesses associated with exposure to asbestos
- explain the impact of asbestos fibers on lung tissue
- explain the additive properties as they relate to asbestos
- describe the combined health effects of smoking and asbestos exposure
- identify other hazards of abatement work that are not directly associated with asbestos exposure
- identify the criteria for evaluating the potential for asbestos contamination of the work area and its surroundings
- differentiate between high-, moderate- and low-risk asbestos abatement work
- describe the importance of and the steps for conducting a job hazard analysis
- perform a job hazard analysis for asbestos work
- describe the medical examination requirement for workers working with asbestos

5.1.4 Asbestos inventory

Content must include:

- a detailed description of the importance and legal requirements of an asbestos inventory, including the key content details, documentation and periodic inspection of an asbestos inventory

At the end of this module, learners will be able to:

- describe the steps that must be taken when a site is suspected to contain ACMs
- state the purpose, importance and legal requirements of an asbestos inventory
- recognize and understand the key details that must be included in a well-developed asbestos inventory
- describe the requirements pertaining to documentation of the asbestos inventory
- explain the importance of and requirements pertaining to periodic inspections of ACMs

5.1.5 Control of hazards due to asbestos work

Content includes:

- an overview of the hierarchy of controls and the different types of control measures to eliminate or reduce the risk associated with asbestos, including but not limited to, control plan, asbestos sampling, dust control, containment, safe removal, clearance testing and decontamination
- an overview of the importance and requirements of an asbestos control plan, including the key elements, labelling and signage
- an overview of the criteria to determine the condition of ACMs, including steps to take in case of damaged condition
- a description of the requirements for safe work procedures for exposure to and abatement of asbestos-containing material
- an overview of emergency situations related to asbestos such as fire, injury, breach in containment and steps to take in various emergency situations when working with ACMs
- understand the importance of communication of control measures in the workplace

At the end of this module, learners will be able to:

- describe various control measures to eliminate or reduce the risk associated with exposure to and abatement of asbestos-containing material
- identify various ergonomic measures to control the identified musculoskeletal hazards
- state the purpose, importance and legal requirements of an asbestos control plan
- recognize the required elements of an asbestos control plan
- describe the requirements for labels and signage for identification of ACMs
- recognize the condition of ACMs and its relation to the asbestos inventory and control plan
- describe the steps to be taken if ACMs are discovered in damaged condition
- explain the importance and need of safe work procedures for exposure to and abatement of asbestos-containing material
- explain the requirements of site-specific safe work procedures for exposure to and abatement of asbestos-containing material
- identify training requirements for personnel involved with exposure to and abatement of asbestos-containing material
- describe various emergency situations and appropriate emergency plans if these occur while working with asbestos
- describe the importance of communication of asbestos control measures in the workplace to applicable interested parties

5.1.6 Site protection and cleanup

Content must include:

- a description of the need and requirements for site protection, dust control procedures, safe removal techniques, site cleanup, asbestos-containing material cleanup, containment, decontamination procedures and clearance testing

At the end of this module, learners will be able to:

- explain the requirements for preparing site protection
- describe the procedures and methods used to enclose and isolate the work area to minimize release of asbestos fibers into the air
- identify dust control procedures
- identify tools to be used in the safe removal process
- recognize safe removal techniques
- recognize correct site cleanup and asbestos-containing material disposal procedures
- explain when and why to apply encapsulation
- describe containment and negative air setup
- recognize the requirements pertaining to use, maintenance and inspection of air filtration system
- explain the setup of a typical decontamination facility and the procedures for its use and maintenance
- describe air monitoring and testing
- explain when to perform clearance testing

5.1.7 Asbestos sampling

Content must include:

- a description of how to take a grab bulk sample
- a description of how to interpret test results
- an explanation of the roles and responsibilities of a subject matter expert pertaining to asbestos sampling

At the end of this module, learners will be able to:

- describe the need to take a sample
- explain the requirements for taking a grab bulk sample
- interpret test results and apply them to the work plan
- explain the roles and responsibilities of a subject matter expert pertaining to asbestos sampling

5.1.8 Personal protective equipment

Content must include:

- an overview of personal protective equipment (PPE) required when exposed to and when handling asbestos-containing materials
- an overview of the use, care, storage, maintenance, inspection and limitations of personal protective equipment
- an overview of how respiratory protective devices are selected, used and maintained

At the end of this module, learners will be able to:

- identify common personal protective equipment requirements when exposed to and when handling asbestos-containing materials
- recognize the importance of using, maintaining and inspecting PPE
- select the PPE applicable when exposed to and when handling asbestos-containing materials
- identify respirator fit-testing requirements
- recognize the limitations, advantages and disadvantages of various types of respiratory protective devices, including but not limited to, half- and full-face air purifying respirators, powered and non-powered air purifying respirators, supplied air and self-containing breathing apparatus (SCBA)
- recall the required documentation for PPE

5.2.1 Practical Module

In this additional training module, participants will simulate an exposure to and/or handling of asbestos-containing materials in actual predetermined scenario(s).

The practical module must include:

- selection of appropriate PPE required during practical exercise
- inspection and identification of damaged PPE
- proper use, storage and maintenance of PPE
- proper fit testing of respirators
- proper don and doff of typical respirators, user seal checks, visual checks and maintenance (e.g., changing a filter or valve)
- proper don and doff of other protective equipment (such as protective clothing) that may be used in asbestos abatement
- proper use of typical asbestos removal equipment and tools
- effective techniques used to set up and repair asbestos containment and negative air setup and testing
- effective set up of a physical containment with a single-stage and three-stage decontamination unit
- use and inspection of an air filtration system (HEPA unit)
- safe grab sampling of asbestos containing material

- safe asbestos containing material disposal procedures
- safe decontamination methods of equipment and facility

The practical skills outlined above are taught in a classroom session and must be demonstrated during practical training exercises.

At the end of this module, learners will be able to:

- identify correct and appropriate PPE when exposed to and during asbestos abatement
- inspect PPE for any damage
- demonstrate proper use, storage and maintenance of PPE
- demonstrate proper fit testing of respirators
- demonstrate proper don and doff of typical respirators
- demonstrate proper don and doff of protective equipment
- demonstrate proper use of typical asbestos removal equipment and tools
- practice effective containment and negative air setup and testing
- demonstrate safe grab sampling of asbestos-containing material
- demonstrate effective use and inspection of an air filtration system
- demonstrate safe asbestos-containing material disposal procedures
- set up a single-stage and three-stage decontamination unit
- demonstrate safe decontamination methods of equipment and facility

6. Resource Material

The Asbestos Abatement training program standard has material requirements for both learners and instructors.

The date and version number should be indicated on all resource materials, which include:

- terms and definitions
- job aids, evaluation tools and templates
- copies of the applicable provincial or federal safety legislation
- manufacturers' instructions for equipment
- participant and instructor manuals with copies of activities
- instructor manual and lesson plan

Learner materials will include:

- learning objectives, agenda, training content and evaluation/testing.

Instructor materials will include:

- instructional methods, learning activities and lesson plan timing

- detailed instructor manual and lesson plans, including all learning activities and audio-visual resources.

7. Equipment

For the practical module, learners must have hands-on, practical experience and must be trained on the proper use, care and limitations of the applicable equipment according to manufacturer specifications and what is listed below. The equipment provided must comply with the requirements of the *Manitoba Workplace Safety and Health Act and Regulation*, such as meeting or exceeding the equipment specified in the National Standards of Canada and/or the Canadian Standards Association technical standards, as applicable.

7.1 Equipment for Demonstrating Learning Outcomes

The equipment listed below may be used for the delivery of the Practical Module.

Personal protective equipment:

- Half-mask respirator (properly sized and fit-tested for the learner)
- Full-mask respirator (properly sized and fit-tested for the learner)
- Powered air purifying respirator (properly sized and fit-tested for the learner)
- Gloves
- Safety footwear
- Eye and hearing protection
- Hard hat
- Coveralls
- Goggles

Ratio of equipment available to learner shall be 1:1.

Additional equipment:

- Hand tools
- Pry bars
- Utility knives
- Tape
- Sample bags

Ratio of above equipment available to learner shall be 1:3.

- Glove bags
- GFCI breaker
- Manometer

- HEPA vac
- Negative air pressure system
- Appropriate equipment to build a three-stage decontamination unit

Ratio of above equipment available to learner shall be 1:12.

7.2 Other Equipment

The equipment listed below may be used in the delivery of the Practical Module so that learners become familiar with the look and function of this equipment:

Equipment required:

- Air sampling equipment
- Various types of respirators other than what is supplied for practical
- Various removal, cleaning and disposing tools for different asbestos containing materials

Ratio of equipment available to learner shall be 1:12.

7.3 Damaged Equipment

Damaged equipment may be used in the delivery of the Practical Module so that learners are able to inspect the equipment and identify damage.

Ratio of equipment available to learner shall be 1:12.

8. Learner Evaluation

The training program must include a plan for learner evaluation that meets the requirements below. There must be a variety of evaluation methods available to the instructor and/or evaluator that are appropriate to the learning outcomes.

8.1 Evaluation Methods

The training program will include methods to evaluate whether key concepts have been understood by the learner, using a variety of evaluation methods that are appropriate to the learning outcomes, including:

- open discussion
- group discussion
- questions and answers
- written and/or oral test, where applicable

Evaluation methods must be clearly outlined in the evaluation plan and the corresponding results must be documented by the evaluator.

8.2 Evaluation of Demonstration Learning Outcomes

a. Learning outcomes requiring demonstration must be performed satisfactorily in order to successfully complete the Practical Module;
b. For learners with language, literacy or accommodation needs, alternative evaluation methods may be employed to verify satisfactory demonstration of learning outcome by the learner. These evaluation methods must be clearly outlined in the evaluation plan and the corresponding results must be documented by the evaluator.

9. Validation/Refresher Requirements

Learners who have successfully completed an approved training program must periodically refresh their training in order to maintain its validity. This supports learners in maintaining their foundational knowledge and skills.

9.1 Validation/Refresher Requirements

Completion of both the Basic Theory Module and Practical Module in accordance with the criteria set out in this standard and the training provider standard is required to confirm a successful training program has been completed.

Training remains valid for a period of three years from the date of successful completion of the Asbestos Abatement Basic Theory Module and the Asbestos Abatement Practical Module unless there is a change in regulations.

9.2 Refresher Training

A worker's training is re-validated for another three-year period after successfully completing the training of the Asbestos Abatement Basic Theory Module and Asbestos Abatement Practical Module.

Glossary

Asynchronous Instruction (ASTD)
A general term used to describe forms of education, instruction and learning that do not occur in the same place or at the same time. It uses resources that facilitate information sharing outside the constraints of time and place among a network of people.

Blended Learning
Describes the practice of using several training delivery mediums in a single training program

and typically refers to the combination of classroom instruction and eLearning.

Distance Learning
An educational situation in which the instructor and students are separated by time, location or both. Education or training courses are delivered to remote locations via synchronous or ASTD.

ELearning (Electronic Learning)
A term covering a wide set of applications and processes that includes web-based learning, computer-based learning, virtual classrooms and digital collaboration.

Face-to-Face Training
Usually refers to traditional classroom training in which an instructor teaches a course to a room of training participants. The term is used synonymously with on-site training, classroom training and instructor-led training (slightly modified from ASTD definition).

Minimum Hours for Training Delivery

The timing for instruction of a training program that excludes breaks and lunch:

- 3.5 hours of instruction is equal to a half-day of delivery;
- 7 hours of instruction is equal to a full-day of delivery.

Module
A unit of instruction that can be measured, evaluated for change, assembled to form complete courses or bypassed as a whole, and that is usually intended to teach one or a group of skills or areas of knowledge (slightly modified from ASTD definition).

Evaluator
A person who evaluates learners.

Instructor
A person who delivers training programs.

Qualification
A skill, quality or attribute that makes somebody suitable for a job, activity or task.

Asbestos Abatement Terms

Abatement
Procedures to encapsulate, enclose or remove asbestos-containing material.

ACM (Asbestos-Containing Material)
a) a friable material containing 0.1 per cent or greater asbestos
b) a non-friable material containing 1.0 per cent or greater asbestos
c) vermiculite insulation that contains asbestos

Air Monitoring
The process of measuring a sample of airborne fibre levels in a specified area over a period of time. This involves drawing a known volume of air through a filtered cassette with an effective (0.25 um) pore size, counting the fibres that collect on the filter and expressing the result as fibres per cubic centimetre (f/cc).

Asbestos
A generic name given to a number of commercially significant naturally occurring hydrated mineral silicates. These silicates are incombustible, separate into sub-light microscopic fibres and have a unique crystalline structure. Asbestos may be found as the fibrous form of crocidolite, amosite, chrysotile, anthophyllite, actinolite, tremolite or a mixtucontaining any of these minerals

Contaminated Item
Any object that has been exposed to airborne asbestos fibres without being sealed off, isolated or cleaned.

Decontamination Facility
An area constructed to prevent the spread of asbestos fibres beyond the work area. It is a series of rooms consisting of a clean room, a shower room, an equipment or waste transfer room. There can be 2 sets of decontamination facilities, one for personnel leaving the work area and one for waste being removed from the work area.

Decontamination Unit
A series of interconnected airlocks used for employee or waste decontamination**.**

Encapsulation
The process of coating asbestos-containing materials to control the release of asbestos fibres into the ambient air. A sealant is applied that hardens the material (penetrant sealant) and/or provides a protective

Fibre
A particle that is at least five microns long and has a length-to-width ration equal to or greater than 3:1

GFCI (Ground Fault Circuit Interrupter) breaker
An electrical safety device that quickly breaks an electrical circuit with leakage current to ground to protect workers against electric shock from electrical equipment.

Glove Bag
A onetime use, manufactured impervious bag-like enclosure constructed of at least 6-mil transparent polyethylene sheeting, seamless at the bottom, with inward projecting long sleeve glove(s), which may also contain an inward-projecting water-wand sleeve, an internal tool pouch, and an attached, labeled receptacle or portion for asbestos waste. The glove bag is constructed and installed to surround the object or area to be decontaminated and contain all asbestos fibers released during the abatement process.

Grab bulk sample
Rudimentary collection of suspected ACM debris from horizontal or vertical surface without the use of hand tools

HEPA Filter
A High Efficiency Particulate Arresting (HEPA) Filter. HEPA filters are used in both respirators and air handling equipment. The filters have a minimum particulate removal efficiency of 99.97 per cent for thermally generated mono-dispersed DOP aerosol particles with a diameter of 0.3 micrometers and a maximum pressure drop of 1.0 inch water gauge when clean and operating at their rated airflow capacity.

Manometer
A device that is able to measure the pressure of a medium (a liquid, or a gas). The manometer being used to measure the pressure differential for the enclosure should be properly calibrated in accordance with manufacturer's specifications and should be in good working order to offer a reliable measurement of the pressure differential.

Negative Air Pressure System
Reduced air pressure within the work area compared to air pressure in adjacent areas, produced through the use of negative air units. Reduced pressure in the work area prevents leakage of contaminated air out of the work area. Airborne fibres will tend to be pulled into the HEPA filter equipped filtration system instead of escaping the work area (enclosure).

Removal
Procedures necessary to strip asbestos-containing materials from designated areas and to then dispose of these materials at an acceptable site.

Respirator
Personal protective equipment that protects a worker against the inhalation of airborne contaminants providing it is the correct type of respirator and is fitted, used, and maintained in accordance with the CSA Z94.4-11 or most current revision.

Acknowledgements Statement

The Asbestos working group has developed an Asbestos Abatement Training Program Standard that outlines the minimum requirements for program objectives, training requirements and learning outcomes that are designed to educate Manitoba workers on working in compliance.

Please note that while reasonable efforts have been made to ensure that the criteria of the Training Program Standard is met, the responsibility resides with the employers to ensure compliance with the training requirements under the *Manitoba Workplace Safety and Health Act and Regulation*. In determining what rights or obligations a party may have under the province's legislation, reference should always be made to the official version of the *WSH Act* and *WSH Regulation*.

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