# Asbestos Management Program

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## Purpose

The Asbestos Management Program is to ensure that all University employees, students, and visitors are safe from the hazard of asbestos exposure and maintain compliance with all Federal and State regulatory bodies with respect to the various applicable asbestos regulations.

## Introduction

Asbestos is a naturally occurring mineral that was once commonly used to enhance the quality of building materials. Asbestos was lightweight, yet it added strength to composite materials while being resistant to water, heat, and various chemicals. It’s estimated that approximately 3,000 different types of materials once contained asbestos. As the 1900s progressed, the danger associated with asbestos exposure became better known, and in the 1970s, the use of asbestos within several types of materials was banned. By the early 1980s, most asbestos-containing products were removed from market in the United States, and in 1989 the EPA banned the manufacture, import, processing, and distribution of asbestos. Although this ban was overturned in 1991, the use of asbestos in building materials in the United States predominantly ceased.

### Types of Asbestos-Containing Materials

Due to the large-scale use of asbestos in a wide variety of building materials from the early 1900s through the 1970s, many of our University buildings were constructed with asbestos-containing materials (ACM). Some materials that can contain asbestos include troweled acoustical ceilings, sprayed-applied fireproofing, pipe insulations, and floor tile. Refer to Appendix A, List of Suspect Asbestos-Containing Materials for a more extensive list of materials that have been found to contain asbestos.

### Asbestos-Containing Materials at Penn State

Since many University buildings were constructed when ACM was commonly used, asbestos management is a major program at the University. The Asbestos Management Program is developed and implemented by the Environmental Health and Safety Department (EHS), a unit of the Office of Physical Plant (OPP).

When ACM is intact and undisturbed, it does not pose a health risk to building occupants; however, the prolonged exposure to airborne asbestos fibers from damaged or disturbed materials can result in illnesses, such as: asbestosis, lung cancer, and mesothelioma. Damaged materials that are reported to or discovered by EHS are remediated as quickly as possible. Furthermore, events in which ACM may be disturbed (maintenance activities, renovations, demolitions, etc.) prompt the professional abatement of these materials.

## Scope and Applicability

The Asbestos Management Program applies to all University owned and leased buildings at the University Park Campus, Commonwealth Campuses, Research and Extension Centers, and various other buildings located throughout Pennsylvania and the United States. This Program contains components that are applicable to all Penn State employees, students, asbestos abatement contractors, and asbestos consultants.

### Exceptions

The Hershey Medical Center, College of Medicine, Penn State Health, and the Pennsylvania College of Technology are exempt from all non-regulatory requirements of the Program; however, they may choose to adopt certain or all elements, as their officials see fit.

## Terms and Definitions

**Abatement**—the removal, repair, encapsulation, or enclosure of ACM by professionals trained and licensed to perform these asbestos-related activities. Abatement is also used as a generalized term characterizing the removal of ACM by professionals who typically implement certain engineering controls, personal protective equipment, and waste disposal practices designed to protect the health and safety of employees and all current and future building occupants.

**Asbestos**—generalized term for any one (1) of the six (6) following naturally occurring minerals: chrysotile, amosite, crocidolite, tremolite, actinolite, and anthophyllite.

**Asbestos-containing Material (ACM)**—any material containing greater than 1% asbestos.

**Disturbance**—an activity that disrupts the matrix of ACM, causes ACM to become crumbled or pulverized, or generates visible debris from ACM.

**EPA**—The United States Environmental Protection Agency: A federal agency that sets and enforces regulations designed to protect the environment and control pollution.

**Friable ACM**—any material containing more than 1% asbestos, that when dry can be crumbled, pulverized, or reduced to a powder with hand pressure.

**Miscellaneous ACM**—any ACM which is not thermal system insulation or surfacing material.

**Non-Friable ACM**—any material containing more than 1% asbestos, that when dry cannot be crumbled, pulverized, or reduced to a powder by hand pressure.

**OSHA**—the United States Occupational Safety and Health Administration: a federal agency that sets and enforces regulations designed to ensure safe and healthful working conditions.

**OSHA Class I Asbestos Work**—activities involving the removal of thermal system insulation (TSI), surfacing ACM, and presumed ACM (PACM).

**OSHA Class II Asbestos Work**—activities involving the removal of miscellaneous ACM.

**OSHA Class III Asbestos Work**—repair and maintenance operations where ACM is likely to be disturbed.

**OSHA Class IV Asbestos Work**—maintenance and custodial activities during which employees contact but do not disturb ACM or PACM activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

**Presumed ACM (PACM)**—thermal system insulation and surfacing material found in buildings constructed no later than 1980.

**Surfacing ACM**—ACM that is sprayed, troweled-on, or otherwise applied to surfaces.

**Thermal System Insulation**—ACM applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain.

## Roles and Responsibilities

### Roles and Responsibilities for Penn State

#### Environmental Health and Safety (EHS)

1. Develop and implement the Asbestos Management Program, develop Standard Operating Procedures, and assist other work units with the application of the Program requirements. Specific components of the Program implemented by EHS include, but are not limited to:
* Management of contracted asbestos abatement work (development of abatement specifications, solicitation of bids, leading pre-bid meetings, review of contactor submittals, and coordination of 3rd party oversight/air monitoring firms.
* Determination of asbestos-containing materials via historical data review, bulk sampling, or contracting with asbestos consultants for survey work.
* Response to Incidents, oversight of corrective actions, development of preventative actions based upon causal analysis, and documentation of such events within LionSafe.
* Development and implementation of training strategies.
* Document control in accordance with the Records Retention Schedule, as defined by the Office of Records Management.
* Asbestos-related regulatory submittals to PADEP.
* Pre-qualification review of asbestos removal contractors and asbestos consulting firms.
1. Periodically review and update the Asbestos Management Program.
2. Serve as the technical experts to asbestos-related questions from University stakeholders and the Penn State Community.

#### Office of Physical Plant, Auxiliary & Business Services, Intercollegiate Athletics, Applied Research Lab, and Commonwealth Campuses

1. Provide the necessary funding to remove ACM prior to demolitions, renovations, or when reports of damaged building materials are submitted.
2. Identify maintenance, janitorial, and other employees who require Asbestos Awareness Training and ensure that the training is received.
3. Assess work orders for potential suspect ACM disturbance prior to initiating work.

#### Office of Physical Plant Project Managers, Project Coordinators, Construction Service Representatives, Planner/Estimators, and Commonwealth Campus Facility Directors

Ensure that EHS is involved as early as possible in project planning so any asbestos-containing materials can be identified and removed without impeding projects or maintenance activities.

#### Office of Physical Plant Hazardous Materials Planner/Estimator

1. Evaluate work orders in which ACM or suspect ACM may be disturbed.
2. Utilize various resources to facilitate asbestos abatement when work orders require ACM to be removed.
3. Appropriate funding and resources to facilitate a timely response to damaged building materials.

#### Office of Physical Plant Asbestos Removal Workers

Perform asbestos removal work in accordance with the scope and practices in Appendix C, Asbestos Management Standard Operating Procedures for OPP Asbestos Removal Workers.

#### Office of Physical Plant Training Office

Coordinate the training, certification, and license process for individuals who are required to maintain asbestos occupation licenses.

#### Safety Officers, Facility Coordinators, and Managers

1. Identify maintenance, janitorial, and other employees who require Asbestos Awareness training and ensure that the training is received.
2. Address reports of building material damage in a timely manner.
3. Ensure that all repair, maintenance, and renovation work is coordinated through the Office of Physical Plant or through the Commonwealth Campus Facilities Director.

#### All Employees and Students

1. In accordance with PSU Policy AD38 – “Administration of University Real Estate and Physical Facilities,” all interior modifications must be approved by the Office of Physical Plant.
2. Do not handle or disturb known or suspect ACM unless your job description and training allow.
3. Report the damage of any building materials observed in University owned or leased facilities to a Supervisor, Facility Coordinator, Safety Officer, or EHS.

### Third Party Responsibilities

#### Asbestos Abatement Contractors

1. Deliver the specified submittals to EHS prior to and following each asbestos abatement project, as noted in the Asbestos Removal Performance Specification.
2. Comply with the asbestos notification requirements to the PADEP prior to any asbestos abatement project.
3. Perform asbestos abatement work directly in accordance with all applicable regulations and the project-specific Asbestos Removal Performance Specification.

#### Asbestos Consultants

1. During asbestos abatement activities, ensure contractor adherence to the project-specific Asbestos Removal Performance Specification.
2. Perform on-site air monitoring and visual inspections in accordance with the Asbestos Removal Performance Specification to determine the effectiveness of engineering controls and work practices during abatement activities and the successful completion of the work.
3. Deliver an Asbestos Abatement Oversight / Air Monitoring Report to EHS at the completion of each abatement project.

## Resources, References, and Source Information

### Requirement and Program Design Inputs

Regarding asbestos, the University is mainly regulated by four authorities, two State and two Federal. These include the EPA, OSHA, PADEP, and the Pennsylvania Department of Labor and Industry (PADL&I).

#### Regulations (Federal, State, Local)

**40 CFR Part 61, Subpart M – The EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP): Asbestos.**

This regulation has also been adopted and promulgated by PADEP. These standards require the removal of regulated ACM prior to the renovation or demolition of structures. Along with requiring that no visible emissions be created from the work, the regulation also specifies work practices and engineering controls necessary to reduce asbestos hazards during removal projects. The use of a waste disposal manifest or shipment record is also required to track the disposal of ACM.

Finally, NESHAP requires the University to notify the PADEP of impending asbestos abatement activities.

This notification must be submitted 10 working days prior to the start of projects that exceed the removal of 260 linear feet, 160 square feet, or 35 cubic feet of friable ACM or other ACM that may be rendered friable. Projects involving lesser quantities of ACM removal require a 5-day notification. In-house Operations and Maintenance activities are reported on an annual basis.

**40 CFR Part 763 – The Asbestos School Hazard Reauthorization Act (ASHARA).**

This act requires that anyone involved in asbestos related work in public and commercial buildings be certified by an EPA accredited training provider. States have also been mandated to set up their own accreditation programs.

**PA Act 194-1990 – Asbestos Occupations Accreditation and Certification Act.**

This is the result of the above Asbestos School Hazard Reauthorization Act. The certification requirements have, however, been extended to include all facilities, including private residences. The occupations currently mandated for certification are as follows:

* Asbestos Removal Worker
* Asbestos Removal Supervisor
* Asbestos Building Inspector
* Asbestos Management Planner
* Asbestos Project Designer
* Asbestos Abatement Contractor

All certifications require annual refresher training and fee submittal to PADL&I.

Various other regulations also apply to the program. These are related to such agencies as the Department of Transportation (PA and Federal), Allegheny County and the City of Philadelphia. Asbestos removal operations at Greater Allegheny Campus, specifically, fall within the regulatory purview of the Allegheny County Health Department. The Federal Clean Water Act must also be complied with when disposing or treating asbestos contaminated water. Descriptions of these requirements are not provided, but they are notable and are managed within the program.

#### Codes and Standards

**29 CFR 1910.1001 – OSHA Asbestos in General Industry Standard.
29 CFR 1926.1101 – OSHA Asbestos in Construction Standard.**

The OSHA Standards for asbestos in General Industry and Construction are very similar and detail worker training, permissible exposure limits, work practices, personal protective equipment, waste disposal, etc.; however, some differences do exist.

To understand which Standard a certain activity falls under, OSHA defines “construction work” as: work for construction, alteration, and/or repair, including painting and decorating.” In general, asbestos abatement is regulated by the Construction Standard.

### Other Resources

Since the asbestos regulations that the University is governed by are not wholly comprehensive, other guidelines are also used for direction. Examples of these guidelines are:

**ASTM E1368**—Standard Practice for Visual Inspection of Asbestos Abatement Projects

**EPA Managing Asbestos in Place, A Building Owners Guide to Operations and Maintenance Programs for Asbestos Containing Materials** (EPA Green Book)

**EPA Guidance for Controlling Asbestos Containing Materials in Buildings** (EPA Purple Book)

**EPA Asbestos Exposure Assessment in Buildings, Inspection Manual**

Also, there are regulations that the University is not required to comply with but are still used for guidance. The most prominent example of this is the Asbestos Hazard Emergency Response Act (AHERA). This regulation was developed for the management of asbestos in public school systems, grades K-12. Some components of the AHERA regulations are widely used for asbestos management, surveying, sample analysis, etc. and are generally viewed as best practices.

## Standard EHS Program Information

### Incident and Emergency Planning and Response

In the event of an asbestos-related incident or emergency, contact:

PSU EHS at 814-865-6391

In consideration that some University buildings contain ACM, it is prudent to be prepared for potential asbestos-related incidents and emergencies. Although each Incident and emergency scenario is unique, the fundamental response actions have been outlined in the Incidental Asbestos Disturbance and Emergency Response Procedures, which is included as Appendix B, Incidental Asbestos Disturbance and Emergency Response Procedures.

After an incidental disturbance or emergency event, EHS will gather the information necessary to submit an Incident report in LionSafe, determine causal factors, and preside over corrective / preventative actions.

### Training Requirements

Training is an essential element to any successful Environmental Health and Safety program. Not only does training assist individuals in comprehension of work-related hazards, approved work practices, and expectations, it serves a crucial role in reducing risk within the diverse and dynamic University setting. There are several regulatory training requirements that apply relating to asbestos.

#### EPA Training Requirements

Asbestos-related occupations require PADL&I-issued licensure to legally perform these activities in Pennsylvania. Each of these licenses requires both initial and annual training performed by certified Trainers following EPA’s Asbestos Model Accreditation Plan, which is described within 40 CFR Part 763, Subpart E, Appendix C, Asbestos Management Standard Operating Procedures.

**Asbestos Removal Supervisors**

For all University employees permitted to perform asbestos removal work as part of their job duties, they must receive an initial 5-day Asbestos Removal Supervisor training and an annual 8-hour refresher training course. During this annual refresher course, the standard operating procedures for OPP Asbestos Removal Workers are also reviewed.

**Asbestos Building Inspector**

The various University employees who are permitted by EHS to collect asbestos bulk samples must hold an Asbestos Building Inspector license, which involves an initial 3-day training and annual 4-hour refresher training course.

**Asbestos Project Designers**

Certain individuals within the Environmental Health and Safety Department also possess licenses as Asbestos Project Designers. Project Designers undergo an initial 3-day training and annual 8-hour training.

**Asbestos Management Planners**

Certain individuals within EHS possess licenses as Asbestos Management Planners. Asbestos Management Planners receive an initial 2-day training and 4-hour refresher course annually.

For each of the above-mentioned trainings (both initial and annual refresher), each individual must demonstrate their knowledge via a written test developed and proctored by the EPA-certified and Pennsylvania-licensed training provider.

#### OSHA Training Requirements

In accordance with OSHA Standards 1926.1101 (k)(9) and 1910.1001(j)(7), employers must offer training any employee who:

1. Performs OSHA Class I – IV work; or
2. is likely exposed to asbestos at or above the permissible exposure limit (PEL) or Excursion Limit (EL).

Other than the University employees who are trained and licensed to perform asbestos removal, no other employees are permitted OSHA Class I – III asbestos work at the University. OSHA Class IV asbestos work is defined as “maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up waste and debris resulting from Class I, II and III activities.”

Custodial and maintenance employees at the University are not permitted to clean waste and debris from Class I, II, or III activities; however, they may work in buildings in which they may contact ACM. As such, these employees who may perform Class IV asbestos work are required to be assigned and perform annual Asbestos Awareness training, which is offered digitally through Penn State’s web-based Learning Resource Network (LRN). EHS also offers work units the option for in-person Asbestos Awareness training.

Although Asbestos Awareness training is only required for a small sub-set of University work units, any University employee may request to receive Asbestos Awareness training.

### Documentation & Recordkeeping

#### Customer Record Retention Requirements

Record management is a critical component of the Asbestos Management Program. Records within the Program are maintained by EHS and include those retained for internal information purposes only and those retained in accordance with the Record Retention Policy. Many asbestos-related documents are permanently maintained.

Table 1. Summary of Customer Record Retention Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| Records Series (Types of Documents) | Record Description | Records Series Description | Retention Period |
| Hazardous Building Material Records | Asbestos survey reports and laboratory reports / dataAbatement Notifications, invoices, and manifestsAbatement oversight/air monitoring reports and invoices | Hazardous Building Materials Records | Transfer of Ownership from PSU + 30 years |

#### Additional Document and Recordkeeping Requirements

EHS also permanently retains various other asbestos-related records in digital and / or hard-copy format. Examples of these records include:

1. Laboratory analytical results of personal air samples collected from University asbestos removal workers.
2. Annual asbestos removal notifications to PADEP for the asbestos removed by University employees.
3. Bi-annual Residual Waste Reports.
4. Various waste disposal records (waste shipment records for asbestos removed by University employees, PADEP Form U’s, PADEP Form 26R’s, and Non-Hazardous Waste Certifications).

Currently, all Asbestos Awareness training records are recorded by Penn State’s LRN, and training records associated with asbestos licenses held by University employees are indefinitely maintained by OPP.

## Hazard Management

At University Park, the OPP Asbestos Removal Work Unit (212 crew) is structured within the Office of Physical Plant and is mainly responsible for performing small-scale short-duration asbestos removal work in response to reports of damaged building materials and helps to facilitate certain maintenance activities. The OPP 212 crew consists of licensed asbestos removal technicians that are Asbestos Removal Supervisors licensed through PADL&I.

The OPP 212 crew is not purposed to perform large-scale asbestos removal work at the University. At Penn State locations outside of University Park campus, all asbestos removal work is performed by asbestos abatement contractors that are pre-qualified by EHS and OPP.

In addition to the OPP Asbestos 212 crew, certain individuals within OPP Renovation Services are trained and licensed Asbestos Removal Supervisors and are approved by EHS to perform the removal of asbestos-containing floor tile and mastic by non-friable removal methods, only.

Refer to Appendix C, Asbestos Management Standard Operating Procedures for the standard operating procedures set forth for University employees whose job description, training, and licensure enables them to perform asbestos removal work.

## Asbestos Abatement

If any asbestos-containing building materials will be disturbed by renovation or demolition work, a licensed asbestos abatement contractor will be contracted to perform the asbestos abatement work. Various maintenance-related activities may also prompt abatement.

### Asbestos Abatement Contractor Pre-Qualification

To be prequalified as an approved asbestos abatement contractor for the University, prospective contractors must submit a pre-qualification package to EHS for the review of company experience, insurance, licensure, industrial hygienist references, respiratory protection program, and medical surveillance.

Refer to Appendix D, Asbestos Contractor Prequalification Procedure for the EHS pre-qualification procedures.

Following the EHS review of company qualifications, a separate pre-qualification process is conducted through the Office of Physical Plant which examines contractor safety metrics, financial statements, bonding capacities, ownership status, and references.

Refer to Appendix E, Contractor Prequalification Form (opp.psu.edu/prequalification) for the OPP prequalification procedures.

Contractors found to be in noncompliance with the University's requirements are removed from the prequalified bidders list.

### Asbestos Abatement Procedures

The minimum requirements for an asbestos removal project are provided within OSHA 1926.1101. PSU EHS also creates Asbestos Removal Performance Specifications for contracted abatement projects, which outlines these regulatory requirements and additional provisions while working on University property.

Refer to Appendix F, Asbestos Containing Materials Removal Performance Specification for the standard Asbestos Removal Performance Specification.

### Asbestos Abatement Oversight and Air Monitoring

For projects in which a licensed asbestos abatement contractor performs asbestos removal within University owned or leased buildings, the University also contracts with a 3rd party asbestos consulting firm to provide on-site oversight and air monitoring services for the duration of the project. While the abatement work is in progress, it is the duty of the on-site consultant to ensure that procedures are followed as described within the Asbestos Removal Performance Specification and that all regulatory requirements are met. A series of air samples are to be collected during the abatement work (outside of the work area) and after the asbestos removal (within the work area), following a final visual inspection in accordance to the most updated version of ASTM E1368 (Standard Practice for Visual Inspection of Asbestos Abatement Projects). The requirements set forth for the oversight and air monitoring consultant are also described within the Asbestos Removal Performance Specification (Appendix F, Asbestos Containing Materials Removal Performance Specification).

The prequalification of these consulting firms contracted to perform asbestos abatement oversight and air monitoring is similar to abatement contractors. However, certain nationally recognized accreditations are required of the firm's personnel and laboratory status. First, the person or persons performing on-site work must have successfully passed a National Institute for Occupational Safety & Health (NIOSH) 582 Equivalency course – Sampling and Evaluation Airborne Asbestos Fibers. All analysts, both on-site and in the laboratory, must also be participants in the AIHA's Proficiency Analytical Testing (PAT) program. This requires analysts to continually prove competence by analyzing air samples on a quarterly basis and submitting the results to AIHA.

## Asbestos Identification

Interior building materials in University owned and leased facilities constructed prior to 1990 are presumed to contain asbestos until otherwise specified by PSU EHS. All inquiries for the identification of asbestos-containing materials at these facilities are to be directed to PSU EHS. EHS maintains all historic asbestos laboratory data and survey records and can also perform / coordinate the sampling of suspect building materials.

### Bulk Sampling

PSU EHS coordinates the bulk sampling of building materials for asbestos at all locations owned or leased by the University. Samples are only collected by PADL&I licensed Asbestos Building Inspectors (EHS staff, OPP Commonwealth Project Coordinators, OPP Hazardous Material Planner/Estimator, or third party consultants).

Specific sampling procedures are outlined within Appendix G, Asbestos Bulk Sampling Procedure.

### Laboratory Analysis

Following bulk sample collection, materials are sent to an asbestos laboratory to be analyzed for the presence and quantification of asbestos. The analytical method utilized for bulk samples is EPA 600/R-93/116, which entails the microscopic analysis of materials via Polarized Light Microscopy (PLM). If a material is found to contain less than 1% asbestos, samples are typically analyzed by the Point Count method, which provides a more precise asbestos quantification.

Before being used by the University, a laboratory must submit certain credentials. These include accreditation through the National Voluntary Laboratory Accreditation Program (NVLAP), the American Industrial Hygiene Association (AIHA), and PADEP.

## Revision History

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| --- | --- |
| Revision Date | Purpose or Description |
| June 1979 | Initial program documents |
| March 1996 | Major additions and edits |
| September 2016 | Major additions and edits |
| February 2024 | Major additions and edits |