

Northwestern

Asbestos Management

Environmental Health and Safety

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I. Purpose

This program establishes the processes and procedures designed to protect the Northwestern community from the hazards associated with exposure to asbestos through evaluation, reporting, training, notification, safe work practices, medical surveillance, personal protective equipment, and abatement.

II. Scope

This program applies to Northwestern employees and contractors who perform service or maintenance activities and may encounter asbestos-containing materials (ACM) or presumed asbestos-containing materials (PACM) on campus property. This program also applies to the removal and disposal of asbestos from campus property.

III. Work Class Descriptions

A. Class I

Activities involving the removal of thermal system insulation (TSI) and surfacing ACM and PACM. Northwestern employees are not permitted to perform Class I activities.

B. Class II

Activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics. Northwestern employees are not permitted to perform Class II activities.

C. Class III

Repair and maintenance operations where ACM, including TSI and surfacing ACM and PACM, is likely to be disturbed. Northwestern employees may perform limited Class III activities, not to include TSI, with adequate training (see **Section X – Training**) and established safe work practices (see **Section IX – Safe Work Practices**).

D. Class IV

Maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste, and debris resulting from Class I, II, and III activities. Northwestern employees may perform maintenance and custodial activities during which employees contact but do not disturb ACM or PACM, with adequate training (see **Section X – Training**). Northwestern employees trained in Class IV work are not permitted to perform activities to clean up dust, waste, and debris resulting from Class I, II, and III activities.

IV. Responsibilities

A. Environmental Health and Safety (EHS)

- i. Adhere to the requirements of this program.
- ii. Review and revise this program, as necessary.
- iii. Coordinate and/or administer training (see **Section X – Training**) and exposure monitoring, when necessary.
- iv. May develop safe work practices for employee activities that may disturb limited amounts of asbestos-containing materials (e.g., inserting/removing nails and screws from walls, cutting openings in walls).

- v. Provide consultation and guidance, as necessary and upon request, to identify, evaluate, and control potential exposure to asbestos.
- vi. Investigate asbestos-related concerns and provide guidance related to potential asbestos fiber release incidents.
- vii. Review abatement project scopes to ensure they meet University and regulatory requirements.
- viii. Maintain an inventory of the type, quantity, and location of known or presumed ACM, building materials that have been tested for asbestos content, and ACM that has been removed, encapsulated, enclosed, or repaired.
- ix. Coordinate with Facilities Operations, Facilities Capital Projects, and other departments to facilitate material sampling and analysis, abatement, and air monitoring, as necessary.

B. Departments and Units

- i. Adhere to the requirements of this program.
- ii. Ensure that employees complete all required training (see **Section X – Training**).
- iii. Ensure that employees do not perform work for which they are not trained or authorized to perform.
- iv. Inform employees and contractors of the location of known or suspected ACM where employees or contractors may be exposed to asbestos.
- v. If suspected ACM is discovered and may be disturbed by work activities not covered by an established safe work practice, stop work, and contact EHS to coordinate sampling, analysis, and abatement, if necessary, before work is continued.
- vi. Provide resources and funding for material sampling, laboratory analysis, abatement, and air monitoring, when necessary.
- vii. Coordinate with EHS and qualified and licensed contractors to identify project scopes and arrange material sampling and analysis, abatement, and air monitoring.
- viii. Provide material sampling results, reports, abatement plans, and air monitoring results to EHS for review.

C. Project Managers and Supervisors

- i. Adhere to the requirements of this program.
- ii. Complete all required training (see **Section X – Training**).
- iii. Notify EHS of any known or suspected ACM that has been disturbed, damaged, appears deteriorated, or may be disturbed by planned activities, unless the activities are covered by an established safe work practice (e.g., inserting/removing nails and screws from walls, cutting openings in walls),
- iv. Ensure any required sampling and abatement occurs.

D. Employees

- i. Adhere to the requirements of this program.
- ii. Complete all required training (see **Section X – Training**).
- iii. May perform maintenance and custodial activities during which employees may contact but do not disturb ACM or PACM, when trained (see **Section III – Work Class Descriptions** and **Section X – Training**).
- iv. May perform maintenance activities during which employees may disturb limited amounts of ACM, not to include TSI, when trained (see **Section III – Work Class Descriptions** and **Section X – Training**).
- v. Are not permitted to perform Class I or II work.

- vi. Notify supervisor or EHS immediately if ACM or PACM has potentially been disturbed if not associated with an established safe work practice.
- E. **Contractors (e.g., Maintenance, Operations, Custodial, Construction)**
 - i. Adhere to the requirements of this program.
 - ii. Ensure that subcontractors adhere to the requirements of this program.
 - iii. Ensure that employees complete all applicable asbestos training, as required.
 - iv. Inform employees and Northwestern project managers of the location of known or suspected ACM where employees may be exposed to asbestos.
 - v. Are not permitted to disturb any material that may contain or is presumed to contain asbestos unless authorized to do so with the appropriate safe work practices and in alignment with this program.
 - vi. Notify a Northwestern project manager immediately if ACM or PACM has potentially been disturbed that is not part of a project-specific safe work practice.
- F. **Environmental Health Consultants and Abatement Contractors**
 - i. Adhere to the requirements of this program.
 - ii. Perform work in accordance with all applicable federal, state, and local rules and regulations.
 - iii. Ensure that subcontractors adhere to the requirements of this program.
 - iv. Ensure that employees are appropriately licensed, qualified, and trained for the scope of work.
 - v. Coordinate material sampling and abatement activities with Facilities Operations, Facilities Capital Projects, EHS, and project managers, as necessary.
 - vi. Perform air monitoring, as necessary (see **Section VII – Abatement**).
 - vii. Provide thorough project scopes, testing, analysis, reporting, recommendations, and records of service(s) performed on Northwestern property.

V. Identification and Sampling

- A. The presence, location, and quantity of ACM and PACM must be identified in Northwestern-owned buildings as follows:
 - i. Constructed before January 1981, and
 - ii. Constructed after January 1981 when EHS or a qualified environmental health consultant suspects the presence of asbestos.
- B. Departments, supervisors, or project managers must notify EHS of any suspected ACM, known ACM, or PACM that may be disturbed, has been disturbed, or must be disturbed to facilitate repairs or maintenance, except for employee activities that are covered by an established safe work practice (e.g., inserting/removing nails and screws from walls, cutting openings in walls).
- C. ACM and PACM that are in good condition and do not present a danger to students, staff, faculty, or contractors, as determined by EHS or a qualified environmental health consultant, may be left in place with appropriate signage (see **Section VI – Labeling and Signage**) and recordkeeping (see **Section XI – Recordkeeping**).
- D. Regardless of the age of the building, a thorough asbestos inspection of either the whole building or the portion of the building that will be affected by renovation or demolition activities is required prior to renovation and demolition activities if the building is subject to the EPA National Emission Standards for Hazardous Air Pollutants

- (NESHAP). This does not apply to single-family homes and residential buildings with four or fewer units.
- E. All activities that are not within the scope of established and authorized safe work practices (e.g., Class III work) that may disturb suspected ACM or PACM must stop until:
 - i. Analysis confirms that the material is not asbestos, or
 - ii. If the material is confirmed asbestos, appropriate abatement is complete (i.e., removal, encapsulation, enclosure, or repair).
 - F. Departments must inform EHS of all material sampling and coordinate efforts with EHS, when requested.
 - G. A qualified and licensed contractor must collect an appropriate number of samples for analysis in accordance with ASTM E2356-18 Standard Practice for Comprehensive Building Asbestos Surveys.
 - H. Survey reports must include analytical results and recommendations for abatement, and must be communicated to EHS, project managers, and applicable departments, including Facilities Operations and Capital Projects, as necessary.

VI. Labeling and Signage

- A. Asbestos danger labels and signs must be posted in areas identified by EHS or a qualified environmental health consultant.
- B. Labels must be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers.
- C. Thermal System Insulation (TSI) Labeling
 - i. TSI on ductwork, piping, and other systems that is known or presumed to contain asbestos must be appropriately labeled with an asbestos danger label.
 - ii. Labels must be applied where confusion may occur, such as close to valves or flanges and adjacent to changes in direction, branches, and where pipes pass through walls, floors, or ceilings.
 - iii. Labels must be applied at the beginning and end of continuous ductwork and pipe runs.
 - iv. Labels must be placed at reasonable intervals (e.g., every 75 feet) on unobstructed continuous ductwork and pipe runs.
 - v. Labels must be affixed in a manner and size that is clearly visible and legible.
 - vi. Asbestos danger labels must include the following information: DANGER: CONTAINS ASBESTOS FIBERS; MAY CAUSE CANCER; CAUSES DAMAGE TO LUNGS DO NOT BREATHE DUST; AVOID CREATING DUST (see **Appendix A – Danger Labeling and Signage Example**).
- D. Danger Signage
 - i. In lieu of the labeling requirements in **Section VI.B-V.**, danger signage may be posted at the entrances to areas (e.g., mechanical and boiler rooms) known to contain ACM or PACM.
 - ii. If danger signage is posted in lieu of labels, a list of ACM or PACM must be kept in the area and made accessible to room entrants.
 - iii. Danger signage must contain the same information as labels in **Section VI.vi**.
 - iv. Danger signs must be affixed in a manner and size that is clearly visible and legible.

VII. Abatement

If known or presumed ACM is in poor condition, may be disturbed by planned work activities that are not within the scope of established and authorized safe work practices (e.g., Class III work), or otherwise presents a risk of exposure, it must be abated.

- A. Asbestos abatement must be performed by a licensed and qualified contractor, in accordance with all federal, state, and local rules and regulations.
- B. The preferred method of abatement is removal, when feasible.
- C. When removal is not feasible, ACM may be encapsulated, enclosed, or repaired.
- D. ACM that is not removed must be appropriately labeled (see **Section VI – Labeling and Signage**) and documentation of the type, quantity, and location of the ACM must be maintained (see **Section XI – Recordkeeping**).
- E. Prior to abatement, EHS and the project manager must review the contractor's scope of work to ensure University and regulatory requirements are adhered to.
- F. The project manager must provide advanced notification to potentially affected building occupants, departments, contractors, and EHS of the dates, locations, nature, extent of asbestos, abatement process, and scope of work.
- G. The abatement contractor must make all necessary state and local notifications detailing the nature and extent of the abatement. Copies of all notifications must be forwarded to the project manager and EHS.
 - i. All abatement projects within Cook County require a 10-day notification to the Cook County Department of Environment and Sustainability, regardless of the amount of material to be disturbed.
 - ii. Projects, where removal of asbestos-containing materials is greater than 3 linear feet/square feet and up to 260 linear feet, require a 2 working day notification to the Illinois Department of Public Health (IDPH).
 - iii. Projects, where removal is greater than 260 linear feet or 160 square feet, require a 10 working day notification to the Illinois Environmental Protection Agency.
- H. Areas, where Class I, I, or III activities are performed must be designated as regulated areas.
 - i. Only qualified abatement contractors may enter and work in regulated areas; Northwestern employees and unqualified contractors are not permitted to enter or work in regulated areas.
 - ii. Abatement contractors must adhere to the requirements of 29 CFR 1926.1101(e) for regulated areas, including but not limited to area demarcation, posting signage, restricting access, enforcing prohibited activities, and ensuring that contractors wear personal protective equipment, including appropriate respiratory protection.
- I. Air monitoring must be performed during abatement, as necessary, and is the responsibility of the abatement contractor.
 - i. Area air monitoring at the perimeter of each regulated area must be performed daily. For regulated areas that include a decontamination unit, at least one sample must be collected at the entrance to the decontamination unit.
 - ii. Personal air monitoring must be performed in accordance with 29 CFR 1926.1101.
 - iii. Final air clearance monitoring must be performed following all abatement activities except for the following, unless deemed necessary by EHS:

- a) glove bag operations where the glove bag is the sole means of removal or repair, or
 - b) the removal of intact, non-friable asbestos-containing materials
- iv. Post-abatement final clearance air monitoring must be conducted by an IDPH-licensed contractor using aggressive methods in accordance with 77 IL Admin Code Section 855.220.
- v. Air samples must be analyzed by Phase Contrast Microscopy (PCM, NIOSH method 7400) or Transmission Electron Microscopy (TEM, NIOSH Method 7402).
- vi. All air monitoring results must be provided to the project manager and EHS within 24 hours of analysis.
- J. Regulated areas may not be removed or returned to normal occupancy until:
 - i. All abatement work is complete,
 - ii. The area is determined to be free of visible dust, debris, and residue by an IDPH-licensed asbestos supervisor,
 - iii. Final clearance air monitoring, if necessary, has been performed and verifies that airborne asbestos concentrations are below the applicable regulatory limits, and
 - iv. All abatement-related waste, barriers, and equipment have been removed from the work area.
- K. Asbestos-containing waste, including protective clothing and equipment, will be containerized in watertight containers labeled “DANGER: CONTAINS ASBESTOS FIBERS; MAY CAUSE CANCER; CAUSES DAMAGE TO LUNGS DO NOT BREATHE DUST; AVOID CREATING DUST” (see **Appendix A – Danger Labeling and Signage Example**).
- L. Abatement contractors must complete a waste shipment record (i.e., manifest) and ensure the transport of ACM waste to an appropriately licensed disposal site in accordance with 40 CFR Part 61, Subpart M.
- M. A copy of the waste shipment record (i.e., manifest) signed by the owner or operator of the designated disposal site must be sent to the project manager and EHS within 35 days of the date the waste was accepted by the initial transporter.

VIII. Fiber Release Events

If known or presumed ACM is disturbed that is not within the scope of an abatement project or an established and authorized safe work practices (e.g., Class III work):

- A. Contact supervisor and EHS immediately.
- B. Restrict access to the area with signs, barrier tape, and locks, as necessary.
- C. Shut down or isolate the HVAC system serving the immediate area of the fiber release until clean-up and/or abatement is complete.
- D. Only EHS, qualified environmental health consultants, or other qualified or authorized individuals as determined by EHS, may enter the area, with appropriate training and personal protective equipment (PPE).
- E. Follow the abatement procedures listed in **Section VII – Abatement**.
- F. In the event an employee’s body or clothing is contaminated with ACM or PACM:
 - i. Contact supervisor and EHS immediately.
 - ii. Wash hands and other potentially affected body parts immediately.
 - iii. Prevent spreading fibers by avoiding such activities as driving/riding in vehicles until clothing has been changed.

- iv. When able, change clothing, and put contaminated clothing in a watertight bag or container, and dispose of in accordance with **Section VII – Abatement**.
- v. Take a shower as soon as practical.

IX. Safe Work Practices

All Class III work performed on campus must be performed according to task-specific Safe Work Practices. These safe work practices include, but are not limited to::

- A. Use of wet methods.
- B. Use of HEPA-filtered vacuums.
- C. Whenever feasible, local exhaust ventilation must be used.
- D. Use of impermeable drop cloths and either mini-enclosures or glovebags is required whenever drilling, cutting, abrading, sanding, chipping, breaking, or sawing surfacing materials.
- E. Containment of the work area (e.g., impermeable dropcloths and plastic barriers) is required when there is no negative exposure assessment or monitoring results showing the PEL has been exceeded.
- F. Protective clothing (e.g., coveralls, head coverings, gloves, and foot coverings) and respirators are required if surfacing material is being disturbed, if there is no negative exposure assessment, or if the PEL has been exceeded. Refer to the [Northwestern Respiratory Protection Program](#) for additional information and requirements.

X. Medical Surveillance Program

Northwestern employees engaged in Class III work for a combined total of 30 or more days per year or who are exposed at or above a permissible exposure limit (PEL) must be enrolled in an annual medical surveillance program, which includes medical questionnaires, basic physical, pulmonary function test, chest x-ray (if necessary), and any other tests deemed appropriate. The PELs for asbestos are:

- A. Airborne concentrations of asbestos in excess of 0.1 fiber per cubic centimeter of air as an 8-hour time-weighted average (TWA).
- B. Airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of 30 minutes (excursion limit).

XI. Training

Northwestern employees must complete training, as follows:

- A. Online awareness-level asbestos training must be completed by employees biennially who may work near asbestos-containing material but do not perform activities that may potentially contact or disturb asbestos.
- B. In addition to the requirements of **Section X.A.**, employees who perform maintenance and custodial activities during which they may contact but do not disturb ACM or PACM must complete 2-hour Class IV asbestos awareness level training within 60 days of hiring and annually (see **Section III – Work Class Descriptions**).
- C. In addition to the requirements of **Section X.A.**, employees who perform maintenance activities during which they may contact and disturb limited amounts of ACM or PACM must complete 16-hour Class III asbestos operations and maintenance training and annual 4-hour refresher training (see **Section III – Work Class Descriptions**).

- D. Additional training may be required in extenuating circumstances, as required, which are not defined in this program.

XII. Recordkeeping

- A. Project managers must forward all project scopes, sampling and analytical reports, abatement records, and air monitoring results to EHS for recordkeeping.
- B. EHS will maintain records of asbestos testing and the type, quantity, and location of all known ACM, PACM, and ACM that have been identified, removed, encapsulated, enclosed, or repaired.
- C. Training records will be maintained by EHS in myHR Learn and kept for the duration of employment, plus 1 year.
- D. If objective data is used to determine employee exposure levels, records of the objective data will be maintained by EHS for at least 30 years.

XIII. Regulatory Authority

Northwestern and its contractors will comply with the Occupational Safety and Health Administration's (OSHA) standards and any other applicable codes and standards, including:

[Northwestern Contractor Safety Program](#)

[Northwestern Employee Exposure Records](#)

[Northwestern Respiratory Protection Program](#)

OSHA 29 CFR 1910.1001 – Asbestos

OSHA 29 CFR 1910.1001 – Toxic and Hazardous Substances – Asbestos

OSHA 29 CFR 1910.120 – Hazard Communications

OSHA 29 CFR 1926.1101 – Construction Standard – Asbestos

OSHA 29 CFR 1910.134 – Respiratory Protection Standard

US DOT Hazardous Material Regulation – 49 CFR Part 171

EPA 40 CFR 61 – National Emissions Standards for Hazardous Air Pollutants

EPA 40 CFR 763 – Asbestos Hazard Emergency Response Act

105 ILCS 105 – Asbestos Abatement Act

225 ILCS 207 – Commercial and Public Building Asbestos Act

77ILL Adm. Code 855 – Asbestos Abatement for Public and Private Schools and Commercial and Public Buildings in Illinois

ASTM E2356-18 Standard Practice for Comprehensive Building Asbestos Surveys

XIV. Contact

For questions, contact Environmental Health and Safety at ehs@northwestern.edu.

Appendix A – Danger Labeling and Signage Example

