

UNIVERSITY *of* HOUSTON
MANUAL OF ADMINISTRATIVE POLICIES AND PROCEDURES

SECTION: Safety and Risk Management
AREA: Environmental Health and Safety

Number: 06.03.01

SUBJECT: Asbestos-Containing Material
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I. PURPOSE AND SCOPE

This document establishes the authority for asbestos-containing material (ACM) management in University of Houston buildings, and defines responsibilities for the handling of ACM during spill clean up, operations and maintenance, encapsulation, renovation, demolition or removal operations.

This document applies to all University of Houston facilities where existing ACM is handled during spill clean up, operations and maintenance, encapsulation, renovation, demolition or removal operations. This document applies to all University of Houston groups including staff, faculty, students, visitors, lessees and subcontractors.

II. POLICY STATEMENT

The University of Houston is committed to maintaining a safe working environment that is free of hazardous conditions for all faculty, staff and students. To this end, the university must ensure the proper management of ACM. To accomplish this effort, university administration adopts procedures for the management of ACM. Authority for these procedures is assigned to the Safety and Risk Management Department. Responsibility for adherence to this document rests with any campus group directly or indirectly disturbing ACM.

III. ACM BACKGROUND

The University of Houston has multiple buildings that contain ACM, which is typical based on the size and age of the campus. For example, ACM can be found in floor tiles, ceiling tiles and pipe insulation ACM was commonly used in building construction prior to the 1980s due to its fire retardant properties. Over time, ACM can become damaged or cracked and breaks down into a fine dust or powder, which can become airborne. Extensive research has shown exposure to airborne ACM (commonly referred to as friable) poses a serious health problem. The inhalation has been directly linked to cancer and serious respiratory illnesses such as asbestosis of the lung in humans.

Once the relationship between airborne ACM and humans became recognized, ACM was eliminated in building materials in the United States. Other countries, including Canada and Mexico still produce asbestos-containing building materials. Therefore, it is possible that these materials can be used in U.S. construction today, unless strong administrative controls are in place. There also remain significant numbers of older public and commercial buildings that still have ACM, including the main campus. Building owners have the responsibility to survey their buildings for ACM, assess the risk of the ACM becoming friable and when needed, reduce (commonly referred to as abatement) this risk.

IV. INVESTIGATION OF SUSPECTED ACM IN CAMPUS BUILDINGS

The Texas Department of Health (TDH) is the state agency that regulates ACM in public and commercial buildings. These regulations are very comprehensive and can be found in the Texas Administrative Code (TAC) section 295.31-295.73. They involve the license of all persons working on an asbestos abatement project, procedures for conducting any abatement activity and record-keeping requirements. Buildings owners bear the responsibility under TDH regulations for the identification of ACM in their respective buildings and must take measures to prevent ACM from becoming friable (airborne) within the occupied portions of their buildings. The TDH regulations remain in effect for a building until the building is either completely abated or demolished, regardless of building ownership changes.

All persons involved in any ACM activities (i.e., identification, sampling, building renovation and maintenance, preparation of abatement scope of work, etc.) should have some licensing requirements in accordance with TDH regulations. TDH regulations also include medical monitoring requirements along with the licenses. Addendum A of this MAPP details the specific requirements for the different levels of licenses. Non-licensed persons should refer specific questions to the university's Licensed Asbestos Consultant.

V. POTENTIAL DISTURBANCE OF ACM

Any person involved in demolition, construction or renovation of a campus building or ancillary structure must follow the guidelines, as set forth in Addendum A. ACM will be assumed to be present for any areas in which current building surveys are incomplete or deemed unreliable by the university's Licensed Asbestos Consultant.

XI. REVIEW AND RESPONSIBILITY

Responsible Party: Associate Vice President for Administration

Review: Every three years, on or before September 1

XII. APPROVAL

Randy J. Harris
Vice President for Administration and Finance

Arthur K. Smith
President

Date of President's Approval: May 6, 2002

XIII. REFERENCES

Title 25, Texas Administrative Code (TAC), Chapter 295, Texas Asbestos Health Protection.

Title 40, Code of Federal Regulations (CFR), Part 61, Subpart M, National Emission Standard for Asbestos.

Title 40, CFR, Part 763, Subpart G, Asbestos Abatement Projects: Worker Protection Rules.

Title 40, CFR, Part 763, Subpart E, ACMs in School.

Title 40, CFR, Part 763, Subpart E, Appendix C, Model Accreditation Plan.

Title 40, CFR, Part 763, Subpart E, Appendix B, Work Practices and Engineering Controls for Small-Scale, Short-Duration Operations Maintenance and Repair (O&M) Activities Involving ACM.

Title 40, CFR, Part 763, Subpart E, Appendix D, Transport and Disposal of Asbestos Waste.

Title 40, CFR, Part 763, Subpart F, Appendix A, Polarized Light Microscopy.

Title 29, CFR, Part 1926, Subpart D, Section 58, Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite.

Title 29, CFR, Part 1926, Subpart D, Section 58, Appendix G, Work Practices and Engineering Controls for Small-Scale, Short Duration Asbestos Renovation and Maintenance Activities.

Title 29, CFR, Part 1910, Subpart I, Section 134, Occupational Health Standards for a Respiratory Protection Program.

Index Terms: Asbestos
Abatement
Containment
Decontamination
Demolition
Environmental Protection Agency
Environmental Safety
Maintenance
Occupational Safety and Health Administration
Renovation
Texas Department of Health
Texas Natural Resource Conservation Commission

Addendum A

Asbestos-Containing Material Specific Guidelines

1. DEFINITIONS

- A. Accredited person: A person who annually attends and passes the appropriate asbestos course, as described in Title 25, Part 1, Chapter 295 of the Texas Administrative Code (TAC), Subchapter C (relating to Training: Required Asbestos Training Courses). This course must be offered by a licensed asbestos training provider accredited by the department, another state having Environmental Protection Agency (EPA) authority to approve courses, or have been approved directly by EPA.
- B. Adequately wet: Sufficiently mixed or penetrated with liquid clear through with no dry material to prevent the release of particulates. If visible emissions are observed coming from ACM, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.
- C. Air monitoring: The collection of airborne samples for analysis of asbestos fibers.
- D. Asbestos: The asbestiform varieties of chrysotile, amosite, crocidolite, tremolite, anthrophyllite and actinolite and all materials containing 1 percent or more of any of those substances.
- E. Asbestos Abatement: The removal of the encapsulation or the enclosure of asbestos for the purpose of reducing or eliminating airborne concentrations of asbestos fibers or amounts of ACMs.
- F. Asbestos Abatement Activity: Asbestos abatement, or any on-site preparations or clean up related to the abatement.
- G. Asbestos Abatement Contractor: A person who undertakes to perform asbestos removal, enclosure, or encapsulation for others under contract or other agreement, or who bids to undertake asbestos activities. The University of Houston's contracted asbestos abatement contractor requires licensure under 25 TAC §295.45.
- H. Asbestos Abatement Supervisor: An individual who is in the direct and responsible charge of the personnel, practices and procedures of an asbestos abatement operation or project. The University of Houston's contracted asbestos abatement supervisors require licensure under 25 TAC §295.46.

Addendum A (page 2)

- I. Asbestos Consulting Activities: Consulting activities in public buildings include the designing of asbestos abatement projects; the inspection for ACM; the evaluation and selection of appropriate asbestos abatement methods and project layout; the preparation of plans, specifications and contract documents; the review of environmental controls, abatement procedures for personal protection employed during the project; the design of area clearance air monitoring of the project; any inspection, management planning, air monitoring, or project management performed by or for the consultant or consulting agency; consultation regarding compliance with various regulations and standards; recommending abatement options; and representing the consultant agency or consultant in obtaining consulting work.
- J. Asbestos-Containing Material (ACM): Materials or products containing more than 1 percent of any kind or combination of mineral asbestos, as determined by EPA. The recommended methods are listed in EPA/600/R- 93/116, July 1993 “Methods for the Determination of Asbestos in Bulk Building Materials.” This means any one material component of a structure or any layer of a material sample. Composite sample analysis is not allowed.
- K. Asbestos-Containing Building Material (ACBM): Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a public or commercial building.
- L. Asbestos-Containing Waste Material: Includes mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of 40 Code of Federal Regulations (CFR) Part 61, Subpart M. This term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with asbestos. As applied to demolition and renovation operations, this term also includes regulated ACMs, and materials contaminated with asbestos including disposable equipment and clothing.
- M. Asbestos Exposure: The airborne fiber concentration resulting from disturbance or deterioration of asbestos or ACM.
- N. Asbestos Hazard Emergency Response Act of 1986: Public Law 99-519. The act amends the Federal Toxic Substances Control Act, 15 United States Code, §2641, et seq., by requiring an inspection of all school buildings (Grades K-12), all school administrations to develop plans for controlling asbestos in or removing asbestos from school buildings, and providing penalties for non-compliance.

Addendum A (page 3)

- O. Asbestos-Related Activity: The disturbance (whether intentional or unintentional); removal, encapsulation; or enclosure of asbestos, including preparations or final clearance. This includes the performance of asbestos surveys, the development of management plans and response actions, asbestos project design, the collection or analysis of asbestos samples, monitoring for airborne asbestos, bidding for a contract for any of these activities, or any other activity required to be licensed under the Texas Asbestos Health Protection Act.
- P. Asbestos Removal: Any action that dislodges, strips, or otherwise takes away ACM.
- Q. Asbestos Reporting Unit (ARU): An asbestos reporting unit is 160 square feet or 260 linear feet or 35 cubic feet of ACM in public buildings or RACM in facilities, as defined by the National Emissions Standards for Hazardous Air Pollutants (NESHAP).
- R. Asbestos Survey: A comprehensive inspection of a building or facility to determine the location, quantity, and condition of ACMs therein by taking samples or analysis or by visual inspection. The University of Houston contracted asbestos inspectors require licensure under 25 TAC §295.30.
- S. Asbestos Work Permit: A permit authorizing asbestos work at the University of Houston. This permit does not replace requirements to submit notifications to the Texas Department of Health (TDH) and the Texas Natural Resource Conservation Commission (TNRCC).
- T. Bridging Encapsulation: A paste-like substance for coating ACMs to seal remaining surfaces.
- U. Building Owner: The owner of record of any building or any person, such as a property manager, who exercises control over such building. This person contracts for or permits renovation to or demolition of said building. A general contractor hired by the building owner cannot act as the building owner.
- V. Clean Room: A non-contaminated area or room that is part of the worker decontamination enclosure system providing storage for work clothes, street clothes and clean protective equipment.
- W. Clearance Monitoring: Samples taken after an asbestos removal job to show that airborne asbestos fibers are at acceptable levels.
- X. Commercial Asbestos: Any material containing asbestos that is extracted from ore and has value because of its asbestos content (NESHAP definition, 1990).

Addendum A (page 4)

- Y. Commercial Building: The interior space of any industrial or federally owned building. Interior space includes exterior hallways connecting buildings, porticos and mechanical systems used to condition interior space.
- Z. Competent Person: The individual designated as the competent person as required by the U.S. Occupational and Health Administration in 29 CFR §1926.58.
- AA. Containment: A portion of the regulated area that has been sealed and placed under negative air pressure with high efficiency particulate air-filter (HEPA) negative air machines.
- AB. Contractor: A person under contract to perform a service with wage or income reporting and tax responsibility.
- AC. Demolition: The wrecking or taking out of any load-supporting structural member of a public building or facility or any related asbestos removal, stripping, or handling operations together with any related operations or the intentional burning of any public building or facility.
- AD. Designated Person: The individual designated under the Asbestos Hazard Emergency Response Act (AHERA) to oversee all asbestos activities to include compliance with all laws, regulations, and rules.
- AE. Emergency Renovation: An unplanned renovation operation that resulted from a sudden, unexpected event, that is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by non-routine failures in equipment.
1. When abatement has been performed and renovation or demolition has begun, and ACM is found in an area from which was hidden from view.
 2. When a boiler, which provides heat to a building, suddenly fails and needs immediate replacement in winter because the contents of the structure will be severely damaged without the heat, or the building must be occupied by people who have no other place to go.
- AF. Encapsulation: A method of control of asbestos fibers in which the surface of ACM is penetrated by or covered with a liquid coating prepared for that purpose.
- AG. Enclosure: The construction of an airtight, impermeable, semi-permanent barrier surrounding asbestos to prevent the release of asbestos fibers into the air.

Addendum A (page 5)

- AH. Equipment Room: A contaminated area, part of the worker decontamination enclosure system, providing storage for contaminated clothing and equipment.
- AI. Facility: Any institutional, commercial, public, industrial or residential structure, installation or building (including any structure, installation or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship and any active or inactive disposal site. Any structure, installation or building previously subject to 40 CFR §61.141, Subpart M is not excluded, regardless of its current use or function.
- AJ. Facility Owner: The owner of record of any facility or public building or any person who exercises control over a facility or public building to the extent that said person contracts for or permits renovation to or demolition of said facility or public building.
- AK. Friable Material: Materials that when dry can be crumbled, pulverized, or reduced to powder by hand pressure. This includes previously non-friable material after such previously non-friable material becomes damaged to the extent that, when dry, it may be crumbled, pulverized, or reduced to powder by hand pressure.
- AL. Glove Bag: Single use bags with arms, made of transparent polyethylene or other plastic six mil. in thickness, used to enclose ACM during removal and disposal.
- AM. High Efficiency Particulate Air (HEPA) Filtration: A high-efficiency particulate air filter capable of trapping and retaining 99.97 percent of mono-dispersed airborne particles of 0.3 micron or larger in diameter.
- AN. Independent Third-Party Monitor: A person retained to collect air samples to be analyzed by and for the University of Houston. The person must not be employed by the contractor to analyze any area samples collected during abatement projects being monitored or the clearance samples.
- AO. Industrial Building: Any building where industrial or manufacturing operations or processes are conducted and to which access is limited principally to employees and contractors of the facility operator or to invited guests under controlled conditions.

Addendum A (page 6)

- AP. Inspection: Any activity undertaken in a school building, public building or commercial building to determine the presence or location or to assess the condition of, friable or non-friable ACBMs or suspected ACBMs. This activity can be accomplished by visual or physical examination, or by collecting samples of such material. This term includes the re-inspections of friable and non-friable, known or assumed ACBMs that have been previously identified. The term does not include the following:
1. Periodic surveillance of the type described in 40 CFR §763.92(b) solely for the purpose of recording or reporting a change in the condition of known or assumed ACBM;
 2. Inspections performed by employees or agents of federal, state, or local government solely for the purpose of determining compliance with applicable statutes or regulations; or
 3. Visual inspections of the type described in 40 CFR §763.90(i) solely for the purpose of determining completion of response actions.
- AQ. Installation: A building or structure, or group of buildings or structures, at a single demolition or renovation site controlled by the same owner or operator (NESHAP definition, 1990).
- AR. Layer: Any constituent of an asbestos bulk sample that exhibits different physical properties such as color or composition and can be readily separated from the rest of the sample with an instrument such as a modeler's knife.
- AS. Licensee: A person who meets all qualifications and has been issued a license or registration by the TDH in accordance with these sections.
- AT. Major Fiber Release Episode: Any uncontrolled or unintentional disturbance of ACBM, resulting in a visible emission, which involves the falling or dislodging of more than three square or linear feet of friable ACBM.
- AU. Management Plan: A written plan describing appropriate actions for surveillance and management of ACMs.
- AV. Minor Fiber Release Episode: Any uncontrolled or unintentional disturbance of ACBM, resulting in a visible emission, which involves the falling or dislodging of three square or linear feet or less of friable ACBM.

Addendum A (page 7)

- AW. Model Accreditation Plan: A United States EPA plan which provides standards for initial training, examinations, refresher training courses, applicant qualifications, decertification, and reciprocity, as described in Title 40 CFR Part 763, Subpart E, Appendix C.
- AX. Non-friable Material: Material which when dry may not be crumbled, pulverized, or reduced to powder by hand pressure.
- AY. NVLAP: The National Voluntary Laboratory Accreditation Program.
- AZ. NESHAP: The U.S. EPA National Emissions Standards for Hazardous Air Pollutants, as described in Title 40 CFR Part 61.
- BA. Operation and Maintenance (O&M): O&M activities are repairs, maintenance, renovation, installation, replacement or cleanup of building materials or equipment.
- BB. Operation and Maintenance (O&M) Contractor: A person who holds an O&M Contractor (Restricted) license for general asbestos O&M work in a public building, and follows the guidance contained in the EPA "Green Book." A contractor working for other must have the specified insurance for an abatement contractor.
- BC. Operations and Maintenance (O&M) Manual: A record of O&M activities in a public building. The public building owner shall record each individual O&M activity in the manual, including the date of activity, the persons performing the activity, and complete description of the activity. The manual must also include the methods used to prevent the emission of asbestos fibers, and the amount of asbestos removed. An updated total of the amount of asbestos abated shall be kept as a comparison to the amount estimated in the annual O&M notification. The manual will be made available to the department upon request.
- BD. Owner or Operator of a Demolition or Renovation Activity: Any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated. This includes any person who owns, leases, operates, controls, or supervises the demolition or renovation operation or both.
- BE. Phase contrast microscopy (PCM): A method of analysis for overall airborne fiber counts using an optical microscope.
- BF. Permissible Exposure Limit (PEL): The maximum amount of airborne asbestos allowable for an eight-hour time weighted average. The PEL is 0.1 f/cc.

Addendum A (page 8)

- BG. Plans and Specifications: Site-specific asbestos abatement description which included drawings, floor plans or equivalent of sufficient size and detail, that display the location of asbestos abatement activities, the location of regulated area(s), and a clear and understandable written description of the work to be performed.
- BH. Polarized light microscopy (PLM): A method of analysis for detection of the presence and type of asbestos.
- BI. Public Building: A building used or to be used for purposes that provide for public access or occupancy, including prisons and similar buildings. Interior space includes exterior hallways connecting buildings, porticos, and mechanical systems used to connect interior space. This term includes any building during a period of vacancy. This term includes the time during which preparations are being made prior to actual demolition. The university does not include areas covered by Restricted Access Policy as public buildings.
- BJ. Public School: Any elementary or secondary school operated by publicly elected or appointed school officials in which the program and activities are under the control of these officials and which is supported primarily by public funds.
- BK. Regulated Area: The demarcated area in which asbestos abatement activity takes place, and in which the possibility of exceeding the PEL for the concentrations of airborne asbestos exists.
- BL. Renovation: Additions to or alterations of the building for purposes of restoration by removal, repairing and rebuilding.
1. Planned Renovation: A renovation operation in which the amount of asbestos material to be removed is predetermined and a plan for removal is defined.
 2. Emergency Renovation: Renovation that was not planned but resulted from any unexpected event such a non-routine failure.
- BM. Repair: The restoration of damaged asbestos material to good condition, including the external coverings, overhauling, rebuilding, reconstructing or reconditioning of structures or substances where ACMs are present.
- BN. Response Action: A method, including removal, encapsulation, enclosure, repair, and operation and maintenance, that protects human health and the environment from friable ACBM.

Addendum A (page 9)

- BO. Responsible Person: The individual that is designated by the licensed Asbestos Abatement Contractor, Asbestos O&M Contractor, Asbestos Laboratory, Asbestos Consultant Agency, or Asbestos Management Planner Agency, as responsible for their operations and compliance with these rules.
- BP. School: Any public or private, non-profit, elementary or secondary (kindergarten through grade 12) school as defined in the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8801).
- BQ. School Building: Any structure suitable for use a classroom, including a school facility such as a laboratory, library, school eating facility, or facility used for the preparation of food. Any gymnasium, or other facility, that is specially designed for athletic or recreational activities for an academic course in physical education. Any other facility used for the instruction or housing of students or for the administration of educational or research programs. Any maintenance, storage, or utility facility, including any hallway, essential to the operation of any facility described in the definition of "school building." Any portico or covered exterior hallway or walkway. Any exterior portion of a mechanical system used to condition interior space.
- BR. Short Term Excursion Limit (STEL): The maximum amount of airborne asbestos allowable over a thirty-minute sampling period. The STEL is 1.0 f/cc.
- BS. Small-scale, short-duration activities (SSSD): Tasks including, but not limited to removal of asbestos-containing insulation on pipes; removal of small quantities of asbestos-containing insulation on beams or above ceilings; replacement of an asbestos-containing gasket on a valve; installation or removal of a small section of drywall; installation of electrical conduits through or proximate to ACMs. These tasks do not require accreditation when performed in a commercial building. SSSD can be further defined by the following considerations.
1. Removal of small quantities of ACM only if required in the performance of another maintenance activity not intended as asbestos abatement.
 2. Removal of asbestos-containing thermal system insulation not to exceed amounts greater than those which can be contained in a single glove bag.
 3. Minor repairs to damaged thermal system insulation, which do not require removal.

Addendum A (page 10)

4. Repairs involving encapsulation, enclosure, or removal to small amounts of friable ACBM only if required in the performance of emergency or routine maintenance activity and not intended solely as asbestos abatement. Such work may not exceed amounts greater than those that can be contained in a single prefabricated mini-enclosure (glove bag). Such an enclosure shall conform spatially and geometrically to the localized work areas, in order to perform its intended containment function.
- BT. Spill: Any unplanned distribution of friable asbestos outside the regulated work area. Includes damaged pipe insulation, process vessel insulation, transite wallboard, asbestos shingles, etc.
- BU. Start Date: The dates defined as:
1. Asbestos Abatement Start Date: The date on which the disturbance of asbestos begins.
 2. Demolition/Renovation Start Date: The date on which the demolition or renovation process begins.
- BV. Stop Date: The dates defined as:
1. Asbestos Abatement Stop Date (Completion Date): The date upon which air monitoring clearance of asbestos abatement has been achieved. Where air clearance is not required, such as roofing removal, the date upon which the removal of ACM is completed.
 2. Demolition/Renovation Stop Date: The date on which the demolition or renovation is completed.
- BW. Survey: An activity undertaken in a school building, or a public and commercial building to determine the presence or location, or to assess the condition of, friable or non-friable ACBM or suspected ACBM, whether by visual or physical examination, or by collecting samples of such material. This term includes re inspections of friable and non-friable known or assumed ACBM that has been previously identified. The term does not include the following:
1. Periodic surveillance of the type described in 40 CFR §763.92(b) solely for the purpose of recording or reporting a change in the condition of known or assumed ACBM;

Addendum A (page 11)

2. Inspections performed by employees or agents of federal, state, or local government solely for the purpose of determining compliance with applicable statutes or regulations; or
 3. Visual inspections of the type described in 40 CFR §763.90(i) solely for the purpose of determining completion of response actions.
- BX. TDH Notification Form: The purpose of the form is to inform TDH of asbestos abatement, and needs to be filed with TDH 10 working days prior to the start date given on the notification form by the asbestos abatement contractor.
- BY. TEM: Transmission Electron Microscopy.
- BZ. Transportation of ACM: Moving asbestos materials from one site to another.
- CA. Wetted: Sufficiently mixed, coated or penetrated with water or an amended water solution (water with wetting agent added) to prevent dust or fiber emissions. The material must remain wetted until disposed of in accordance with this guideline.

2. GENERAL ASBESTOS NOTIFICATION PROCEDURE

The procedure to ensure adequate notification of any operation involving ACM, or suspected of containing asbestos consists of the following:

- A. The Safety and Risk Management Department is designated to perform compliance oversight on asbestos projects.
- B. The Safety and Risk Management Department shall be contacted at least 30 days prior to the planned demolition or renovation of any structure or equipment in contact with ACM.
- C. The Office of General Counsel may require 30-day notice if the asbestos content in the building is in litigation.
- D. In case of doubt, samples of the suspected materials shall be collected for analysis, by a licensed inspector working for a licensed consultant.
- E. At the University of Houston, if the amount of asbestos to be removed is greater than 260 linear feet and/or 160 square feet and/or 35 cubic feet of waste, a project design and job specific notification to the TDH and TNRCC is required.

Addendum A (page 12)

1. A job being performed by contractors under Facilities, Planning & Construction (FP&C) management, will require the contractor to complete the notification form and make sure TDH receives the notification 10 working days before abatement begins.
 2. FP&C will be responsible for paying the TDH notification fee.
 3. Auxiliaries performing abatement or renovation outside of FP&C are responsible for notification and payment.
- F. Unless positively identified otherwise, all insulation materials to be removed or disposed of must be assumed to contain asbestos and shall be handled accordingly.
- G. A complete written file, including the permit, shall be kept permanently for any work involving the removal of ACMs.
3. GENERAL REQUIREMENTS

A. Labels and Signs

An approved danger label shall be affixed to all ACM areas within a building, that could be accidentally disturbed by occupants or building maintenance personnel. Buildings where ACMs are distributed extensively throughout may meet the requirement by posting a large label at appropriate places in or on the buildings.

1. Unless any government regulations specify otherwise, the label shall state:

DANGER!

**CONTAINS ASBESTOS FIBERS
AVOID BREATHING DUST
CANCER AND LUNG DISEASE HAZARD**

2. Danger signs shall be displayed at the perimeter of each job site location where ACMs are being used, stored, repaired, demolished, renovated, or salvaged.

Addendum A (page 13)

3. Unless any other government regulations specify otherwise, the signs shall be at least 20" x 14" and state:

DANGER – ASBESTOS DUST HAZARD**CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA**

- B. University of Houston employees shall not perform asbestos brake linings and clutch facing servicing.
- C. New ACMs are prohibited unless a substitute cannot be found and the material is approved by the Safety and Risk Management Department.
- D. Any damaged, worn or deteriorated ACMs in any place where an employee or student may have access shall be repaired without unreasonable delay so that asbestos fibers are not released.
- E. Start Date Activities:
 1. The start-date that is listed on the TDH Notification form (Item #16) should be the date that abatement will begin. This would include activities such as the scraping of ACM ceiling texture, glove-bag removal of pipe insulation and the removal of resilient floor covering materials.
 2. Pre-Abatement activities, including the construction of the containment or the hanging of the polyethylene, should only be listed under extremely hazardous conditions. The likelihood of asbestos disturbance should be so great that the workers should be equipped with respirators and other protective equipment.
 3. All of the notification procedures regarding the start-date, including amendments, cancellations and the 10 working-day requirement, will still be enforced.
- F. Stop Date Activities:
 1. The stop-date that is listed on the TDH Notification form (Item #16) should be the date that visual and air-monitoring clearance has been completed.

Addendum A (page 14)

2. All of the notification procedures regarding the stop-date, including amendments for changes, will still be enforced.
 3. The abatement should be continuous from the start-date through the stop-date. The specific weekly work schedule should be described on the TDH Notification form (Item #5). If plans call for periods of time when no work will be performed, then the project must be listed as a “phased project” on the notification form.
4. **ASBESTOS SURVEY MINIMUM REQUIREMENTS**
- A. O&M, renovation and demolition require an asbestos survey.
 - B. The asbestos survey shall consist of furnishing all items, materials, operations or methods listed, mentioned, indicated, or scheduled in these specifications. This includes all labor, materials, equipment, transportation and incidentals necessary and required for project completion. The asbestos survey does not allow for the classification of materials as assumed ACMs.
 - C. The asbestos survey included:
 1. Bulk sampling and analysis;
 2. Photographic identification of sample locations;
 3. Determination of homogeneous zones;
 4. Assessment of condition of asbestos containing materials;
 5. Building site assessment with prioritization of asbestos according to condition;
 6. Date entry into AutoCAD;
 7. Estimation of abatement costs; and
 8. Base line air monitoring in areas considered in poor condition.
 - D. Bulk sampling consists of on site coring and gathering of suspect asbestos containing materials under controlled conditions.

Addendum A (page 15)

- E. Air monitoring consists of a base line in areas considered in poor condition. Area air monitoring shall be in accordance with TDH rules. Field notes shall be submitted with final typed report. Hold all samples for 90 days minimum.
- F. Bulk testing includes the examination of gathered samples using electron microscope or other approved methods to determine presence and percentage of asbestos. The testing agency, which must be a NVLAP certified lab, is to use the most economically permissible methods for determining the content of materials tested.
- G. The laboratory analysis logs shall report percentage, type and characteristics of the ACMs.
- H. Photographs (color) shall be taken for each bulk sample area and included in final report.
- I. The typewritten reports of each inspection or test shall include, but are not limited to:
 - 1. Date of issue;
 - 2. Project title and number;
 - 3. Name, address and telephone number of testing agency;
 - 4. Dates and location of samples or test areas of testing agency;
 - 5. Assignment of contiguous areas for bulk samples;
 - 6. Names of individuals making the inspection or test;
 - 7. Designation of the work and test method;
 - 8. Identification of the sample;
 - 9. Complete test data;
 - 10. Name and signature of laboratory analyst, NVLAP certification;
 - 11. Assessment of condition of asbestos containing materials; and
 - 12. Cost estimated and options for asbestos removal.

Addendum A (page 16)

- J. The asbestos consultant, asbestos inspector, air monitoring technician and laboratory shall be licensed by the TDH and proof of licensure submitted to the University of Houston.
- K. The asbestos laboratory shall also be accredited by NVLAP and proof of accreditation submitted to the University of Houston.
- L. Submit copies of the asbestos consultant's, asbestos inspector's and air monitoring technician's current physical, respirator training documentation and fit testing documentation.
- M. Prior to beginning work on a project, the asbestos consultant shall submit two copies of the following:
 - 1. Sampling procedures;
 - 2. Personnel protective equipment procedure;
 - 3. Field sampling forms;
 - 4. Lab analysis report;
 - 5. Chain of Custody;
 - 6. Salient logs;
 - 7. Laboratory quality control procedures (including last three PAT rounds);
and
 - 8. Coefficient of variation for each air analyst.
- N. Submit sampling and containment techniques.
- O. Submit surface and insulation repair technique(s) and material(s).
- P. Errors and omission insurance for the asbestos consultant(s), asbestos inspector(s), air monitoring technician(s) and asbestos laboratory shall be at least \$1,000,000 per occurrence.
- Q. Submit a sampling plan procedure for the project.

Addendum A (page 17)

R. The vendor shall give pricing for each asbestos service to include all labor and materials in the unit pricing. Venders should provide cost/sample for the following:

1. Bulk sample collection;
2. Bulk sample analysis (PLM);
3. Bulk sample analysis (PLM-point count);
4. Bulk sample analysis (TEM);
5. Air monitoring;
6. Air monitoring analysis (PCM);
7. Air monitoring analysis (TEM);
8. Job scope of work; and
9. Complete building survey.

5. OPERATION AND MAINTENANCE REQUIREMENTS

A. Training: Annual training shall be provided for all employees who may be exposed to any measurable airborne concentration of asbestos fibers during their work.

1. Type of Training

a. Worker

A UH employee that works with or in the following areas (not limited to the following list) requires worker training as defined in TDH regulations:

- Insulated piping;
- Ceiling or wall tiles;
- Air plenum;
- Floor tiles or mastic;

Addendum A (page 18)

- Lab tops;
- Mastic coated sinks;
- Wall joint compound jobs;
- Spray on material;
- Exterior waterproofing;
- Exterior roofing;
- Exterior roofing mastic;
- Vibration isolator;
- Fire doors with core;
- Doors with insulation;
- Asbestos jacketed lighting;
- HVAC mastic;
- HVAC insulated ducts; or
- HVAC black mastic connectors.

b. Supervisor

After a group from each department has received the worker training, a few from each department are required to become supervisors as defined in TDH regulations. An asbestos worker must work under the supervision of an asbestos supervisor.

c. Asbestos Awareness

This is a two-hour awareness designed to teach people how to identify an asbestos hazard and how to respond. This is mainly for custodians. A new custodian must have this class within 60 days of the date of hire.

Addendum A (page 19)

d. Respiratory Training

This is required every year prior to wearing a respirator.

e. Note: In order for an employee to keep a valid license they must attend a refresher course given by a licensed TDH trainer every year.

f. The following is a list of University of Houston departments that require training. Contact the Safety and Risk Management Department if you are not sure if your department requires training.

- Plumbing;
- Carpenter;
- Electrical;
- Utility Services;
- Residential Life Maintenance;
- HVAC;
- Telecommunications;
- Computer Department; and
- Key/Lock Shop.

2. The TDH required training programs include the following topics:

- a. Methods of recognizing asbestos.
- b. A review of the health effects associated with asbestos exposure.
- c. The relationship between smoking and asbestos exposure in producing cancer. Restrictions on eating, drinking, chewing gum, smoking, etc., shall be covered.

Addendum A (page 20)

- d. The quantity, location, manner of use, release and storage of asbestos and the specific nature of operations that could result in exposure to asbestos.
- e. The engineering controls and approved operating procedures associated with each job assignment.
- f. The specific operating procedure implemented to protect employees from exposure to asbestos including work practices, housekeeping, hygiene practices, emergency and cleanup procedures and required personal protective equipment.
- g. The purpose, use and limitations of respirators and protective clothing.
- h. The purpose and description of the medical surveillance program required by University of Houston and government regulations.
- i. A review of the University of Houston regulations governing the handling and use of ACMs, to include OSHA, EPA, and TDH regulations governing asbestos. A copy of the regulations shall be provided upon request to each employee.
- j. Respiratory protection training shall be conducted annually.
- k. The names, addresses and phone numbers of public health organizations that provide information, materials and/or conduct programs concerning smoking cessation.
- l. The requirement for posting signs and affixing labels and the meaning of the required legends for such signs.
- m. TDH licensed trainers will be used to fulfill requirements of this training.

Addendum A (page 21)**B. License Requirements****1. General Worker and Supervisor Licenses:**

- a. To perform work at the University of Houston an asbestos worker or supervisor must become licensed with the State of Texas. This is required since the University of Houston is a public access building. After completing the asbestos worker training and/or asbestos supervisor training the individual needs to contact the TDH to schedule a time to take the state exam to become licensed by the state.

2. University of Houston O&M Restricted TDH Company License:

- a. All of the University of Houston employees who work as asbestos workers or asbestos supervisors are limited to the type of work they can perform, since they are under the O&M Restricted TDH Company License. This means University of Houston employees can only perform O&M procedures if a member of university management holds the O&M Restricted TDH Company License.
- b. If the person who holds the University of Houston O&M Restricted TDH Company License leaves the university, asbestos O&M procedures performed by university licensed workers and the supervisor would have to cease until a new person is trained for that position and applies for the license.

C. Respiratory Protection

1. Respiratory protection shall be used when exposure exceeds the permissible exposure limit of 0.1 f/cc and during all glove bag removal jobs and/or during cleanup and disposal.

Addendum A (page 22)

2. Respiratory protection shall be used in accordance with the following table:

Airborne Asbestos Concentration	Required Respirator
Not in excess of 1 f/cc	Half face air purifying respirator with high efficiency filters (P-100)
Not in excess of 10 f/cc	Any powered-air purifying respirator (PAPR) with high efficiency filters or any continuous flow supplied air respirator
Not in excess of 100 f/cc	Full face pressure demand supplied air respirator
Greater than 100 f/cc	Full face pressure demand supplied air respirator with an auxiliary positive pressure self-contained breathing apparatus

3. Any employee who wants a powered air-purifying respirator for protection shall be provided one as long as it provides adequate protection.

D. Protective Clothing and Required Decontamination

1. Prior to Work
 - a. Disposable Coveralls with head, shoe and hand covers;
 - b. Protective Gloves under hand covers; and
 - c. Respirator with P-100 filter.
2. After Work
 - a. Properly remove coveralls by starting from top and rolling up as you proceed down.

Addendum A (page 23)

- b. Full Decontamination Area
 - Proceed into the shower and wash body and hair with respirator still on.
 - Remove filters and throw away in proper asbestos disposal bag.
 - Remove respirator and clean with soap and water.
 - Put on clean clothes.
 - Return to Melcher or Garrison Gym for a full shower.
 - c. No Initial Decontamination Area
 - Wipe body down with body wipes starting from the top down.
 - Remove filters and throw away in proper asbestos disposal bag.
 - Remove respirator and clean with a wipe.
 - Put on clean clothes.
 - Return to Melcher or Garrison Gym or shop for a full shower.
 - Fully clean respirator.
 - d. Wearing two disposable coveralls is not acceptable, since it does not provide acceptable decontamination.
- E. Monitoring
- 1. Monitoring shall be conducted in accordance with OSHA reference method for personal sampler and AHERA sampling method for area sampler.
 - 2. All operations with any potential for asbestos exposure shall be initially monitored to assess employee exposure.

Addendum A (page 24)

- a. Medical monitoring shall be conducted every six months for any operation where the employee exposure is at or above the action level.
- b. Monitoring can be discontinued where data shows exposures are statistically below the action level. A minimum of three samples taken at least two weeks apart where the upper confidence limit is below 0.5 the PEL is required for this determination.
- c. Monitoring shall be re-instituted when there has been a change in the job that may result in a change in exposure.
- d. The method specified in OSHA Reference method shall be used to determine exposure.
- e. Analysis of samples shall be by an American Industrial Hygiene Association (AIHA) accredited laboratory or by a laboratory that has instituted the quality assurance programs specified in OSHA Reference method.
- f. Affected employees shall be advised in writing of the exposure results, within 15 working days after receipt, either individually or by posting the results in an area where they can easily obtain the results.
- g. If the results are above the PEL, employees shall be advised of corrective actions being taken to reduce their exposure.
- h. Air sampling techniques and methods used by asbestos contractors shall comply with the procedures specified in the OSHA Reference method. All results shall be made available to the University of Houston Safety and Risk Management Department. The University of Houston may also conduct air sampling and audits to confirm compliance by the contractor.
- i. ACM removal from roofs requires area samples to be collected downwind and at ground level during asbestos removal to document that fiber levels were not elevated in publicly accessible areas. Personal air samples shall be collected from representative workers to meet the OSHA monitoring requirements.

Addendum A (page 25)

F. Operation and Maintenance Permit System

1. O&M permit (Addendum D) must be completed prior to work to be done in any building in which ACMs may be encountered as part of the O&M task. This applies to university employees as well as outside contractors. The university's Licensed Asbestos Consultant maintains the most current list of known asbestos and suspected asbestos restricted areas throughout the campus. All O&M functions that could involve contact with ACMs must be permitted through the university's Licensed Asbestos Consultant.
2. A copy of the O&M permit must be at the job site.

G. O&M General Requirements

1. Personnel exposures for asbestos related work shall be maintained below the PEL through engineering controls and work practices. Areas where ACMs are present, but involve no work, shall be kept at or below 0.01 f/cc.
2. As required by federal and state law, only TDH licensed contractors shall be utilized for work involving any ACM.
3. Employees shall not eat, drink, smoke, chew gum or tobacco in any work area in which there is a potential for asbestos exposure.

Note: This includes any area that had damaged or exposed ACM such as offices or other work areas.

4. Where feasible in process applications and during all demolition, removal and spill clean up jobs, ACMs shall be moistened in order to prevent the emission of airborne fibers.

Note: High-speed abrasive saws are prohibited.

5. If dry asbestos fibers must be handled, proper engineering controls shall be applied and employees handling asbestos shall wear the proper personal protective equipment defined in the Physical Plant Operating Procedure, Operating Instructions, or Project Design.
6. A medical surveillance program for all employees who may be exposed to airborne concentrations of asbestos fibers at or above the action level shall be maintained in accordance with TDH requirements.

Addendum A (page 26)

7. Records documenting asbestos monitoring, medical surveillance, and demolition and removal jobs shall be kept permanently.
8. Employees are required by the TDH to have a yearly physical.
9. University of Houston licensed workers cannot perform asbestos related operation and maintenance at University Business Park and any other properties leased by the University of Houston, since the O&M restricted license doesn't apply to these properties.

H. Asbestos Maintenance Program

All ACMs and their coverings shall be maintained in good condition by the Plant Operations through the asbestos maintenance program that includes:

1. An inventory of all ACMs and their location;
2. Periodic examination of all ACMs to detect deterioration;
3. Written procedures for handling ACMs during SSSD and renovation activities;
4. Written procedures for dealing with emergencies involving ACMs; and
5. Written procedures for disposal of ACMs.

I. Glove Bag Procedures for SSSD Work

1. The following equipment is required for performing glove bag removal jobs:
 - a. Appropriately sized glove bags of six-mil thick polyethylene or other plastic for the work to be performed;
 - b. Tape or seal glove bag;
 - c. Amended water or other wetting agents;
 - d. Airless sprayer or low-pressure sprayer (garden sprayer) for application of wetting agent;
 - e. Bridging encapsulation;

Addendum A (page 27)

- f. Tools suitable for removing ACM;
 - g. HEPA filter equipped vacuum; and
 - h. HEPA filter equipped respiratory protection
2. The following work practices shall be used when performing a glove bag removal job:
- a. Glove bags will be installed over the material to be removed and all openings sealed with tape. Bottom seam of bag is to be sealed with tape to prevent leaking from a defective or torn bag.
 - b. Equipment, which is insulated with ACMs may be wrapped in plastic and removed as one piece. Glove bags shall be used at points of disassembly.
 - c. All employees performing asbestos work must be trained in asbestos handling procedures, proper respirator and protective equipment use, exposure avoidance methods and be a licensed asbestos worker.
 - d. The regulated work area is posted with the required danger signs and roped off.
 - e. Employees in the regulated area must wear full body protective clothing and respirators.
 - f. ACM must be wetted prior to removal and kept wet during the removal process.
 - g. After the ACM has been removed, the surface of the remaining equipment must be thoroughly cleaned using a brush or other similar tool and wet wiped with a wetting agent until no traces of the ACM can be seen.
 - h. Any surface of ACMs that have been exposed must be encapsulated with bridging encapsulant to ensure that the surfaces do not release asbestos.

Addendum A (page 28)

- i. When the asbestos removal and encapsulation have been completed, a vacuum hose from the HEPA filtered vacuum cleaner must be inserted into the glove bag through the open port to remove any air in the bag that may contain asbestos fibers. When the air has been removed from the bottom of the bag, it should be squeezed, twisted, sealed and goose necked with tape to keep the ACMs safely in the bottom of the bag. Then, they must be placed in an additional asbestos disposal glove bag following the above mentioned procedures.
 - j. The glove bag can then be removed from the work surface, bagged in the second bag, labeled, and prepared for disposal.
 - k. The HEPA vacuum shall be used to clean up the work area. No dry sweeping or compressed air shall be permitted.
 - l. Personnel wearing the proper protective equipment shall decontaminate the HEPA vacuum after each job in the regulated area. Waste material shall be bagged, labeled and disposed of properly.
 - m. All asbestos contaminated waste shall be removed from the work site daily.
- J. Major Asbestos Removal Procedures
- University of Houston employees shall not perform asbestos removal greater than SSSD jobs.
- K. Clean Up
- Vacuum cleaners with a HEPA filter shall be used for cleaning the work area, equipment and protective clothing.
- The vacuum equipment shall be used and emptied in a manner that minimizes the re-entry of asbestos into the workplace.
1. Vacuum cleaners shall be cleaned and decontaminated after each use unless they are adequately sealed to prevent the release of asbestos and stored in a secure manner to prevent unauthorized use. They shall be labeled with danger asbestos labels.

Addendum A (page 29)

2. Compressed air or sweeping shall not be used to remove or disperse ACMs or dust.
3. After ACM is removed and bagged, the entire work area shall be cleaned until it is free of all visible asbestos dust. Clearance monitoring shall be performed.
4. Clearance samples shall be at or below 0.01 f/cc.
5. The asbestos consultant shall make the final visual inspection of any asbestos contaminated work area and shall approve job completion by signing the Asbestos Work Permit.
6. If the work area has not been properly decontaminated, the cleaning and air monitoring shall be repeated until the work area is in compliance.

L. Disposal

1. All asbestos waste and contaminated materials from abatement activities shall be disposed of in six mil. plastic bags, double bagged, one inside another. In case of spills outside the regulated work area, Plant Operations staff shall be notified immediately. Appropriate prompt action will be taken. All spills require clearance monitoring.
2. Equipment covered with ACMs, which have been completely wrapped in three layers of six-mil. plastic, may be disposed of as a package.

6. DEMOLITION/REMOVAL OF ASBESTOS BY CONTRACTOR

- A. The project designer/manager shall provide the Safety and Risk Management Department 30 days advance notice in writing that material containing asbestos or suspected asbestos material is to be removed or disturbed.
 1. The Notice of Demolition or Renovation – at least 30 days notice.
 2. Specific Job Specifications – 30 days.
 3. TDH notification – 10 working days.
- B. The information contained in Addendum B shall be provided to the contractor and asbestos consultants through standard contracting procedures.

Addendum A (page 30)

- C. A pre-abatement meeting will be held by FP&C with all occupants to discuss an asbestos abatement project 10 working days prior to the job. The project manager will take minutes regarding the job description and the schedule of the work and provide all attendees a copy.
- D. FP&C shall post a description of the job at all building entrances one day prior to the project with a removal date set for the day after the project completion.
- E. Any project manager in charge of an asbestos project (either demolition or renovation) must have Asbestos Project Designer training.
- F. The university's Licensed Asbestos Consultant must approve the asbestos abatement project design.
- G. The contractor performing asbestos demolition/removal shall submit a copy of the company's TDH license.
- H. Asbestos Survey taken to ascertain asbestos content shall be documented as part of the project files.
 - 1. Asbestos shall be assumed to be present until an asbestos survey report states otherwise.
 - 2. All renovations and demolitions require an asbestos survey.
 - 3. The survey should include the baseline air monitoring required prior to renovation and demolition.
- I. The contractor shall furnish the University of Houston with a plan for removal of ACMs.
- J. The asbestos waste must be disposed at a waste facility approved by the TNRCC
- K. Appropriate approvals and permits for the work and disposal shall be obtained prior to beginning work.
- L. The work in progress shall be monitored to assure that the contractor performs all work in accordance with all local, state and federal regulations, including OSHA.
- M. Monitoring shall be performed by the asbestos consultant as work progresses and results made available to the Safety and Risk Management Department.

Addendum A (page 31)

- N. The asbestos consultant shall assure that the contractor conducts the work as specified in the contract or purchase order. The contract shall contain a clause that permits the University of Houston to stop work if there is a violation of the contract.
- O. Visual inspections shall be performed in accordance with American Society of Testing Materials (ASTM) Standard E-1368.
- P. The asbestos consultant shall perform clearance monitoring on completion of the job and prior to resuming operations. The clearance monitoring results shall be submitted prior to removal of the containment area, re-occupancy, or within 24 hours of laboratory analysis. The final report must be submitted with 21 days of project completion.
- Q. Roofing ACM removal shall require asbestos trained workers, which have had a respirator physical and respirator training. The company does not have to be licensed but at least one person on-site must meet the OSHA requirements for a competent person. The workers shall wear disposable coveralls during asbestos containing roofing material removal. This is explained further in Addendum C.
- R. Any demolition of a property should include consideration for:
1. PCB light ballasts;
 2. Mercury fluorescent tubes;
 3. Freon recovery from air conditioning units;
 4. Water treatment chemical recovery from HVAC systems;
 5. Grease trap removal;
 6. Classification of construction debris (lead paint concerns);
 7. Chemical cleanouts;
 8. Disposal of household hazardous waste (paint and grease);
 9. Elevator shaft groundwater contamination; and
 10. Overall building structure.

Addendum A (page 32)

- S. Phase Projects
1. One contractor must perform all of the abatement work at one site. The site may contain more than one building, such as an office complex, military base, or university, but will have a single address. The total number of buildings that will be involved in the abatement must be listed in "Description of area" in Item #4 of the TDH Notification form to be filled out by the contractor. The amount of ACM that will be abated from all the buildings shall be combined and the total amount listed in Item #12 of the TDH Notification form.
 2. There shall not be more than 30 days between phases. If more than 30 days pass from the time of final air clearance from one phase to the start of the next phase, they are considered separate projects and a new, original notification must be submitted 10 working days before the next phase. All notification procedures including those for completion dates, amendments and cancellations will still be required.
 3. The notification form must state that the renovation will be a phased project. The appropriate block in Item #5 of the TDH Notification form on the current notification form must be marked. The abatement dates in Item #16 of the TDH Notification form will be the overall dates of the project (first start date and final completion date) and shall encompass no more than one calendar year. Do not submit an amendment for each phase of the project. Only amend the first and final dates as appropriate.
 4. Verbal communication must be made to the appropriate TDH regional inspector or local program inspector. Keep them informed of the period of time between phases and any other times when work is not being performed. If they cannot be reached, leave a message or call the central office in Austin. The regional office may want a fax in addition to a phone call.
 5. Failure to comply with this document may result in enforcement of 25 TAC §295.61.
7. ASBESTOS FLOOR TILE AND MASTIC
- A. Carpet Installation
1. It is university policy (and industry standard) that floor tiles containing asbestos shall be abated prior to carpet installation.

Addendum A (page 33)

2. In the situation that if only the mastic glue of the floor tiles contain asbestos there are two options regarding carpet installation:

- a. Velcro carpet to floor tile; or
- b. Remove the asbestos floor tile and mastic by TDH licensed contractors.

B. Bolted Down Seats/Desks

Removal of seats or desks bolted down into asbestos containing floor tiles or mastic requires a TDH licensed individual.

C. Resilient Floor Coverings Institute (RFCI)

It is the University of Houston's policy that RFCI methods are unacceptable and only full abatement will be used to remove asbestos floor tiles and mastic.

8. Charter School, Human Development Lab and Child Care Requirements

- A. All teachers/child care providers must attend asbestos awareness training.
- B. Every six months a visual inspection must be performed regarding the condition of ACM.
- C. Every three years a TDH licensed inspector must inspect the areas.
- D. Every year the three groups listed above must, by TDH law, notify the children's parents in writing if asbestos is present in the building.

Addendum B

Contractor Responsibilities in Asbestos Abatement Work

1. Contractor shall perform all work at the University of Houston involving asbestos in accordance with the requirements of all federal, state and local regulations.
2. Contractors shall obtain identification of ACM from the University of Houston, Facilities, Planning and Construction Department.
3. The contractor should not submit plans to do University of Houston asbestos work directly to any federal, state or local regulatory agency. University of Houston elects to have the notification sent by the contractor with prior review by the asbestos consultant. The University of Houston elects to have waste manifests completed by the Hazardous Waste Coordinator. The waste manifest, generator's US EPA ID No. is TXD042916627 and the state generator's ID No. is 71033.
4. TDH licensed contractors responsible for the transportation and disposal of asbestos waste shall be subject to monitoring by the University of Houston.
5. The contractor shall properly package all asbestos-containing waste.
6. The contractor shall submit prior to beginning work the following submittals:
 - a. A copy of the asbestos consultants reviewed TDH notifications;
 - b. The contractor's plan of work;
 - c. A roster of the registered asbestos workers and supervisors for the project;
 - d. Copies of the TDH asbestos worker's licenses;
 - e. Copies of the physician's written opinion of the asbestos physical examination with the past year;
 - f. Copies of respirator fit test results for each respirator to be used; and
 - g. Copies of prior TDH, TNRCC, EPA or OSHA violations.
7. The contractor shall submit a plan of work on their letterhead for asbestos removal with the bid to the asbestos consultant and the University of Houston. The plan must include the following information:
 - a. A copy of the contractor certification by the TDH to do asbestos work;

Addendum B (page 2)

- b. Names and addresses of persons who will do the work; and
 - c. Scheduled starting date and estimated completion date.
 - d. The procedures to be used in order to comply with the state and local regulatory agency asbestos standards. These procedures shall be used where large areas of ACM must be removed. Negative pressure enclosures will normally be required for these jobs. The major planning steps for a large job include:
 - 1. Planning the removal project;
 - 2. Assembling equipment and materials;
 - 3. Preparing the work area;
 - 4. Removing the asbestos material; and
 - 5. Cleaning the work area.
8. The consultant shall submit and perform:
- a. Description of the facility being demolished, renovated, encapsulated or salvaged, including the size, age, location, prior use of the facility and if the facility will be occupied during and after the work.
 - b. The nature of the planned demolition, renovation, encapsulation, or salvage operation and the methods to be used.
 - 1. Approximate square and linear footage of ACM to be removed.
 - 2. Clearance monitoring.
9. Contactors shall submit during the project:
- a. The daily sign-in/out roster for the asbestos workers and supervisors entering the containment area.
 - b. The list of supervisors for each day.
 - c. The daily personnel monitoring results.
 - 1. Prior to final payment the contractor shall submit copies of the notification of results for personnel monitoring received by each worker.

Addendum B (page 3)

2. Contractors must be insured or bonded against liability incurred during any demolition, removal, renovation, and abatement work of disposal involving ACMs.
 3. A negative pressure enclosure shall be constructed in accordance with OSHA work practices and engineering controls for major asbestos removal, renovation, and demolition operations. This includes the attached hygiene facilities and negative pressure equipment.
- d. The asbestos consultant prior to the start of the job shall confirm integrity and negative pressure
1. The work practices used in the removal include: controlled entry, employee exposure monitoring, proper protective clothing and equipment, training, procedures, clearance monitoring and waste disposal.
 2. The asbestos consultant on behalf of the University of Houston shall sign item #16 on the TDH Notification form of the waste manifest after reviewing it at the end of the project. The asbestos contractor shall return the green copy of the waste manifest to the project engineer no longer than 24 hours after the waste transporter had signed for the waste. The project engineer shall immediately forward the green copy of the manifest to the Hazardous Material Coordinator. The original signed copy of the waste manifest shall be returned to the University of Houston – Main Campus, 4211 Elgin, General Services Building, Area #17, Room 183, Houston, Texas 77204-1005.

10. Asbestos Waste Disposal

Contractors must dispose of asbestos waste at approved landfills as defined by the TNRCC

Addendum C

Removal of Non-Friable Asbestos Roofing Material

1. Before any roofing project begins, the material should be tested to confirm asbestos content of tar, felt, flashing and patching tar.
2. An initial asbestos surveys that indicates 1-2 percent asbestos should be further analyzed by the point counting method. If the original samples are not available; then three negative point counting samples must be obtained of the sample material and in the same location of the previously analyzed positive sample.
3. All ACM must comply with the OSHA worker protection rules and the EPA regulations prohibiting visible emissions.
4. OSHA requires personal air monitoring whenever asbestos is disturbed to confirm airborne fiber concentrations.
5. The University of Houston requires the hiring of an accredited company with accredited asbestos trained workers and supervisors to conduct removal. The workers must wear disposable coveralls and respirators, which in turn require medical examinations and respirator training. Double suiting is an acceptable practice while working with asbestos roofing materials. At least one person on-site must meet the OSHA requirement for a “competent person.”
6. Area monitoring samples shall be collected downwind and at ground level during asbestos removal to document that fiber levels were not elevated in publicly accessible areas.

Addendum D

Asbestos Operation and Maintenance Permit

Date: _____ Department: _____

Asbestos Supervisor: _____

Asbestos Worker(s):

Description of Work: _____

Date Work Will be Performed: _____

Permit Expires: _____

Personal Protective Equipment (check those that apply):

- | | | |
|---|--------------------------------------|--|
| <input type="checkbox"/> Respirators | <input type="checkbox"/> HEPA Vacuum | <input type="checkbox"/> Disposal Bags |
| <input type="checkbox"/> Protective Suits | <input type="checkbox"/> Glove Bags | <input type="checkbox"/> Filters |

REQUIRED APPROVALS

Signature and Date of Asbestos Operation and Maintenance Contractor (Restricted):

Signature and Date of University's Licensed Asbestos Consultant:

Addendum E

Notice of Demolition or Renovation

Date: _____

Project Manager: _____ Extension: _____

General Description of Work: _____

Building: _____

Asbestos Survey: YES NO

Lead Paint Survey: YES NO

Projected Date of Pre Bid Meeting: _____

Projected Date of Job: _____

Mail specification 30 days prior to start date.

Mail a copy of the TDH notification 10 working days prior to state date.