



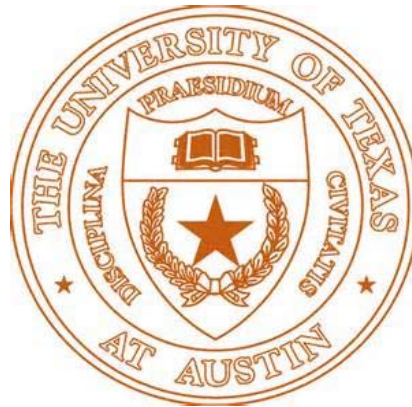
**THE UNIVERSITY OF TEXAS AT AUSTIN
Asbestos Operations & Maintenance Program
Environmental, Health and Safety
P.O. Box 7729
Austin, Texas 78713**

**EFFECTIVE DATE:
December 03, 2014**

Prepared By:

A handwritten signature in blue ink, which appears to read "James L. Wichman", is written over a horizontal line.

**James L. Wichman
DSHS Individual Asbestos Consultant
License No. 10-5464**



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DEFINITIONS AND ACRONYMS

1. **ACBM** – Asbestos-Containing Building Material means any surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a building.
2. **ACM** – Asbestos-Containing Material means any material or product, which contains greater than 1% asbestos.
3. **AHERA** – Asbestos Hazard Emergency Response Act.
4. **ARL** – Applied Research Laboratory
5. **Asbestos Operations and Maintenance Supervisor (Restricted)** – A trained and licensed employee who may conduct O&M activities (Class III) but is restricted to small-scale, short-duration work practices and engineering controls for tasks that result in the disturbance, dislodgment, or removal of asbestos in the course of performing repairs, maintenance, renovation, installation, replacement, or cleanup operations.
6. **Asbestos Supervisor** – An individual who is in direct charge of and responsible for the personnel, practices, and procedures of an asbestos abatement activity or project.
7. **Category I non-friable asbestos-containing material (ACM)** - Asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than one percent asbestos.
8. **Category II Non-Friable ACM** - Any material, excluding Category I non-friable ACM, containing more than one percent asbestos.
9. **Child-Occupied Facilities** - A building, or portion of a building, is defined as a child-occupied facility when visited regularly by the same child, under 6 years of age, on at least two different days within any week, provided that each day's visit lasts at least 3 hours and the combined weekly visits last at least 6 hours, and the combined annual visits last at least 60 hours.
10. **Class I Asbestos Work** – Activities involving the removal of thermal system insulation (TSI) and surfacing ACM and presumed ACM.
11. **Class I Asbestos Worker** – Class I workers are abatement workers who have received appropriate training and may conduct projects which involve the removal of thermal system insulation (TSI) and surfacing ACM and presumed ACM.
12. **Class II Asbestos Work** – Activities involving the removal of ACM that is not TSI 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.
13. **Class II Asbestos Worker** – Class II workers are abatement workers who have received appropriate training and may conduct projects which involve the removal of any ACM or presumed ACM that is not TSI or surfacing material. These materials include, but are not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

- 14. Class III Asbestos Work** – Repair and maintenance operations, where ACM, including TSI and surfacing ACM and Presumed Asbestos-Containing Material (PACM), is likely to be disturbed. This also includes asbestos inspection activities.
- 15. Class III Asbestos Worker** – Class III workers are abatement workers who have received appropriate training and may conduct repair and maintenance operations, where ACM” including TSI and surfacing ACM and Presumed Asbestos-containing Material (PACM), is likely to be disturbed in limited quantities such as work which would be conducted within one glove–bag or material which would fit within one disposal bag. These workers would also include personnel conducting asbestos inspections.
- 16. Class IV Asbestos Work** – Maintenance and custodial activities during which employees contact but do not disturb ACM or PACM or involve activities to cleanup dust, waste and debris resulting from Class I, II and III activities.
- 17. Class IV Asbestos Worker** – Class IV workers would be general maintenance and custodial workers who have received Asbestos Awareness Training and might be tasked with work which involves contact with but no disturbance of ACM or PACM. These workers would not be tasked with cleanup of dust, waste and/or debris resulting from Class I, II and III activities.
- 18. DHFS** – Division of Housing and Food Service
- 19. Disturbance** – Activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag and that shall not exceed 60 inches in length and width.
- 20. DSHS** – Texas Department of State Health Services
- 21. EHS** –Environmental, Health & Safety
- 22. Eight (8) Hour Time Weighted Average (TWA)** – The employee’s average exposure based on an eight (8) hour work shift. Sampling should be from a minimum of seven (7) hours.
- 23. Emergency** – An emergency is an unexpected or unplanned asbestos incident, which, if not immediately attended to, presents a public health or safety hazard, and is necessary to protect equipment from damage, or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by non-routine failures of equipment. This term does not include immediate renovations resulting solely from a lack of adequate planning for foreseeable asbestos abatement activity.
- 24. Encapsulation** – The treatment of ACBM with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers.
- 25. Enclosure** – An airtight, impermeable, permanent barrier around ACBM to prevent the release of asbestos fibers into the air.

- 26. Excursion Limit** – Airborne fiber concentrations of asbestos shall not exceed 1.0 f/cc of air as averaged over a 30-minute sampling period. These samples should be collected during anticipated peak exposure.
- 27. Friable ACM** – Material that, when dry, can be crumbled, crushed, pulverized or reduced to powder by hand pressure and includes damaged non-friable materials. This is a material that is no longer intact.
- 28. HEPA** – High efficiency particulate air filter that is capable of filtering 99.97% of the particulates of 0.3 µm in diameter from the air.
- 29. Intact** – This means that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.
- 30. ITS** – Information Technology Services
- 31. Negative Exposure Assessment (NEA)** – Demonstration by the employer that the employee exposures will be below the PEL as documented by the objective data, historical data, or current monitoring data.
- 32. Major Fiber Release Episode** – Any disturbance of ACM, resulting in a visible emission, that involves the falling or dislodging of more than three (3) square feet, three (3) linear feet, or seventy-five hundredths (0.75) cubic foot of friable ACM.
- 33. Minor Fiber Release Episode** – Any disturbance of ACM, resulting in a visible emission, that involves the falling or dislodging of less than three (3) square feet, three (3) linear feet, or seventy-five hundredths (0.75) cubic foot of friable ACM.
- 34. Miscellaneous Material** – Interior building material on structural components, structural members, or fixtures, such as flooring materials, ceiling tiles and does not include surfacing or thermal system insulation.
- 35. Non-friable** – material that when dry may not be crumbled, pulverized or reduced to powder by hand pressure. Refer to the definition of intact.
- 36. OFPC** – University of Texas System’s Office of Facilities Planning and Construction
- 37. Operations & Maintenance (O&M)** – Asbestos Operations and Maintenance: Specific procedures and practices developed for the interim control of asbestos-containing materials in buildings until it is removed.
- 38. PACM** – Presumed Asbestos-Containing Materials are surfacing, thermal system insulation, or miscellaneous building materials that are of a character typically known to be asbestos-containing and as such are presumed to be such by visual assumption by a licensed inspector rather than analytical determination.
- 39. PEL** – Permissible exposure limit of less than 0.1 fibers per cubic centimeter (f/cc) of air over an 8-hour time weighted average.
- 40. PMCS** – Project Management and Construction Services

41. Presumed Asbestos-Containing Material (PACM) -

1. Thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.
2. The assumption of asbestos-containing building material (for renovations) in a public building must be made by a DSHS licensed inspector.
3. If a survey cannot be performed before demolition or renovation is started due to the building being structurally unsound and unsafe to enter, all material must be presumed to contain asbestos and must be treated as ACBM.

42. Regulated asbestos-containing material (RACM) - (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

43. Regulated Area – An area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; a work area within which airborne concentrations of asbestos exceed or there is a reasonable possibility they may exceed the permissible exposure limit.

44. Regulated Asbestos-Containing Material (RACM) – Material that is (a) friable, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or (d) Category II non-friable ACM that has or has a high probability of becoming crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of the demolition or renovation operations.

45. Removal – All operations where ACM and/or PACM are taken out or stripped from structures or substrates, and include demolition operations.

46. Repair – Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.

47. Resilient Floor Covering Institute (RFCI) – RFCI's Recommended Work Practices are a defined set of instructions addressed to the task of removing all resilient floor covering structures whether or not they contain asbestos.

48. Response Action – A method including removal, enclosure, encapsulation, repair, Asbestos O&M that protects human health and the environment from friable ACBM.

49. Small-Scale, Short-Duration Projects (SSSD) - Removal of small quantities** of asbestos-containing material only if required in the performance of another maintenance activity not intended as asbestos abatement. Tasks such as, but not limited to, the removal of small sections of asbestos-containing insulation on pipes; removal of small quantities of asbestos-containing insulation on beams or above ceilings; the replacement of an asbestos-containing gasket on a valve; installation or removal of a small section of drywall; or installation of electrical conduits through or proximate to asbestos-containing materials.

Small-scale, short-duration activities can be further defined as the following.

- (A) Removal of small quantities of asbestos-containing material only if required in the performance of another maintenance activity not intended as asbestos abatement.
- (B) Removal of asbestos-containing thermal system insulation not to exceed amounts greater than those which can be contained in a single glove bag.
- (C) Minor repairs to damaged thermal system insulation which do not require removal.
- (D) Repairs to a piece of asbestos-containing wallboard.
- (E) Repairs, involving encapsulation, enclosure, or removal, to small amounts of friable asbestos-containing building material 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 which can be contained in a single prefabricated mini-containment. Such a containment shall conform spatially and geometrically to the localized work areas, in order to perform its intended containment function.

**The asbestos reporting unit of 160 square feet or 260 linear feet or 35 cubic feet of asbestos containing material is not the measurement used to determine SSSD Projects.

50. Surfacing Material – Materials that are sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

51. Suspect Asbestos-Containing Material – Building materials such as surfacing materials, thermal system insulation, or numerous miscellaneous building materials which are found in or on interior and exterior structural members or other parts of a building which are of a character that were known or suspected to have been manufactured with asbestos.

52. TSI – Thermal System Insulation – Materials in a building applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain, or water condensation, or for other purposes.

53. UEM – Utilities and Energy Management

54. UT – The University of Texas at Austin

O & M SCOPE:

This Operations and Maintenance (O&M) Plan applies to small-scale, short-duration projects or activities (repairs, maintenance, renovation, installation, replacement, or cleanup of building materials or equipment) which contain asbestos and as defined by the Texas Department of State Health Services (DSHS). This definition is also provided within this document.

Pre-Renovation 10-Working Day State Notification Scope:

Projects requiring a 10-Working Day Notification to the Texas Department of State Health Services (DSHS) prior to beginning any work include any of the following:

1. Projects that exceed the threshold quantities of 160 square feet, 260 linear feet, or 35 cubic feet; or
2. A scheduled or routine renovation project, regardless of size, must notify DSHS with a 10-working day notification before any work can commence; or
3. Any work NOT defined as a small-scale short-duration (SSSD) activity or NOT an emergency, as defined within the definitions section of this document.

1.0 INTRODUCTION

The Asbestos Operations and Maintenance (O&M) Program is a set of practices and procedures applied to building cleaning, maintenance, construction, renovation and general operation in order to maintain campus buildings. Buildings referred to in this document are University of Texas at Austin (UT) owned property. The Asbestos Operations and Maintenance Program applies to the University of Texas System Office of Facilities Planning and Construction (OFPC) and all UT departments, including but not limited to Facilities Services, Project Management and Construction Services (PMCS), Utilities and Energy Management (UEM), Division of Housing and Food Service (DHFS), Information Technology Services (ITS), and any contractors performing O&M activities on campus. This O&M Plan applies to small-scale, short-duration activities as defined by the Texas Department of State Health Services (DSHS). For questions on other projects contact Environmental Health and Safety (EHS). The goal at UT is to: 1) manage the asbestos-containing materials (ACM) in UT buildings to ensure that exposures to personnel and the environment are minimized and are below the permissible exposure limit (PEL); 2) ensure that all removal and disposal of ACM complies with all local, state, and federal regulations; and 3) maintain records of surveys, monitoring activities, maintenance activities involving ACM, waste disposal, and personnel exposure. This program is administered by the office of EHS. The following individuals oversee the program:

- University (EHS) Asbestos Consultant, or their designee, herein referred to as Asbestos Consultant
- Industrial Hygienist- Environmental Health and Safety
- University (PMCS) Abatement Supervisor—Supervisor of the PMCS Abatement Shop, herein referred to as Abatement Supervisor
- Asbestos Consultant (DHFS) - Division of Housing and Food Service

The O&M Program has been developed for use by personnel who are appropriately trained and licensed (UT and outside contractor personnel) and who's work involves the potential disturbance of ACM; and custodial and maintenance personnel who will not disturb asbestos but will be required to work in close proximity to ACM.

Abatement Project Design/Specifications prepared by a DSHS-licensed Asbestos Consultant are required if the project will involve the disturbance of greater than 160 square feet, 260 linear feet or 35 cubic feet of asbestos, these are not O&M projects.

In addition to O&M activities being within the small-scale, short-duration definition, projects must also meet the definition of operations and maintenance work.

Appropriately trained and licensed personnel may conduct large-scale Class I and/or Class II abatement activities; O&M activities (Class III) involving asbestos-containing materials (ACM) restricted to small-scale, short-duration activities, according to 40 CFR Part 763, Subpart E, Appendix B; and emergency repair operations involving ACM that were not planned, but result from a sudden, unexpected event.

Class IV employees (maintenance, custodial, staff members) may work in close proximity to or contact asbestos-containing building materials (ACBM) during routine cleaning or maintenance activities provided that the activity does not create a disturbance of the ACM.

UT Elementary School is a K-12 school and therefore has its own O&M Plan which should be referred to when performing work within those facilities.

2.0 COMMUNICATIONS

Employees, students, and staff who occupy UT facilities may request information regarding the presence of ACM in a building or facility by contacting EHS. The employees and outside contractors who may come into contact or disturb asbestos-containing materials or presumed asbestos-containing materials should be informed of the location of potential ACM for three reasons: (1) Federal and State law requires that employees be informed of potential hazards which exist in their workplace; (2) it alerts affected parties to a potential hazard in their vicinity; and (3) informed persons are less likely to unknowingly disturb the material and cause fibers to be released into the air.

This communication should be documented and will allow personnel to correctly deal with and control the ACM. Communication should contain the following information:

- a. that ACM is potentially present in the facility.
- b. that an O&M Program is being implemented.
- c. the condition of the ACM.
- d. that asbestos is a health hazard only if it is disturbed and becomes airborne.
- e. location of the ACM (if known).
- f. directive not to disturb the ACM.
- g. whom to contact concerning ACM.
- h. whom to contact to report any damage to identified ACM.

Communication may be accomplished in several different ways;

- a. written notification to employees and outside contractors.
- b. two-hour awareness training for employees and/or other concerned parties.
- c. work permit disclosure to outside contractors (i.e. plumbers, carpenters, electricians, etc.).
- d. inclusion of specific language in outside contractor service contracts.

3.0 TRAINING

A. Class IV Worker Awareness Training: Two-hour annual awareness training is required for all employees who perform Class IV asbestos work. Class IV asbestos work includes maintenance and custodial activities during which employees contact but do not disturb ACM or PACM. New custodial and maintenance employees employed by UT must receive two-hour awareness training within 90 days of their employment start dates; and annually thereafter. Questions or concern should be directed to the Asbestos Consultant or Facilities Services safety personnel. The supervisors are responsible for ensuring that new hires are scheduled for the initial course and annually thereafter. Class IV work includes the potential for contacting ACM without creating a disturbance.

The 2-Hour Asbestos Awareness Training Course includes the following topics:

- Asbestos forms and uses
- Health effects from asbestos exposure
- Examples of materials located on campus
- Hazard communication – training and signs/label requirements
- How to recognize friable asbestos
- Recognizing damage and deterioration of ACM
- Precautions to prevent or minimize personnel exposure
- Housekeeping requirements
- Floor care

Class IV employees (maintenance, custodial, staff members) may come into contact with an asbestos-containing building material (ACBM) during routine cleaning or maintenance activities provided that the activity does not create a disturbance of the ACM. Any suspect materials identified during the activity as identified in Appendix A, shall be treated as ACM until sampling data can be provided. If the suspect material is damaged or delaminating from the substrate, isolate the area and contact your supervisor and/or EHS. If the event occurs after normal business hours, the employee shall report to their supervisor.

- B. Class III Worker Training:** Employees engaged in Class III asbestos work including repair and routine maintenance operations, where ACM (including roofing, flooring, walls, ceiling tiles, pipe insulation, and surfacing material) can be disturbed but shall not exceed the amount that can be contained in one glove bag or one waste bag (60" x 60" in size) in one eight-hour shift.

Employees who hold Asbestos Operations and Maintenance Supervisor (Restricted) licenses receive an initial 16-hour training provided by a DSHS-licensed Training Provider and attend an annual 8-hour refresher each year.

Asbestos Inspector personnel receive an initial 24-hour training provided by a DSHS-licensed Training Provider and attend an annual 4-hour refresher each year.

- C. Class I and II Worker/Supervisor Training (PMCS Abatement Shop Personnel):** Class I and II Worker Training includes: instruction in the removal of TSI, surfacing material, PACM, and all other materials considered not intact.

These employees shall receive an initial 40-hour Asbestos Supervisor Training Course provided by a DSHS-licensed Training Provider and attend an annual refresher each year.

All abatement activities will be performed by properly trained and licensed personnel.

- D. Asbestos Training Records:** Each department is responsible for ensuring that all asbestos professionals complete all required training to maintain their license.

E. Departmental Responsibilities for Class I-IV Work:

1. PMCS Abatement Shop – Abatement shop personnel are the only UT employees authorized to perform Class I and Class II work at the University. The PMCS Abatement Shop will operate as the Asbestos Supervisor for UEM, DHFS, ARL, and PMCS abatement activities, including PMCS-contracted open order labor abatement contractor.
2. UEM personnel perform only Class III work and Class IV work.
3. ARL personnel perform only Class III work and Class IV work.
4. DHFS personnel only perform Class III and Class IV work.
5. EHS personnel only perform Class III Inspection work.
6. ITS, Facilities Services – Personnel only perform Class IV work

F. Asbestos Licensure:

All asbestos professionals are required to have annual asbestos training, medical examination, and respirator fit testing. If any of these requirements is allowed to lapse from the annual requirement, the individual's licensure is in suspension and they cannot perform any asbestos related activities until the situation is corrected.

4.0 RESPONSIBILITIES OF ALL UT DEPARTMENTS

- A. Will annually provide EHS a list of all licensed asbestos professionals.
- B. Ensure that employees designated to perform Class I and II activities attend the appropriate initial and annual refresher course required to perform specific Class I or II work. Ensure that employees designated to perform Class III work attend the 16-Hour Asbestos Operations and Maintenance Course and refresher prior to performing any asbestos-related activities. Ensure that new hires designated as Class IV employees attend the Asbestos Awareness Initial Course.
- C. Ensure that Class IV employees within Facilities Services, PMCS, DHFS, UEM, and ARL attend the annual Asbestos Awareness Refresher Course.
- D. Each department is required to ensure that a 10-working day notification to DSHS is submitted for all non-O&M abatement projects and all departments shall provide EHS with anticipated quantities of ACM to be removed during O&M activities conducted during the next calendar year by December 01 of each year.

- E.** The facility engineer, architect, project manager, construction coordinator, or estimator shall, in coordination with EHS, research whether the building materials that will be impacted by any construction project contain asbestos. If ACM will be impacted by the renovation/work activity, the engineer, architect, project manager, coordinator, or estimator will be responsible for determining if scheduled projects can be performed by in-house PMCS Abatement Shop personnel or contracted to an outside asbestos abatement contractor.
- F.** Manifests and documentation for PMCS Abatement Shop projects will be sent to and retained by PMCS Abatement Shop with copies sent to the Asbestos Consultant.
- G.** Manifests and documentation for all other projects will be sent to and retained by the Asbestos Consultant.

5.0 RESPONSIBILITIES OF PROJECT MANAGERS

- A.** All construction, demolition, and renovation projects shall include an asbestos inspection to assess the presence of ACM and the potential for disturbance during the work phases of the project. An inspection may include EHS checking the database for previous sampling data, a licensed inspector assuming the material is asbestos-containing, or a licensed inspector collecting samples for laboratory analysis.
- B.** The asbestos inspection report and subsequent project design specifications shall be submitted to the Asbestos Consultant and third party asbestos consultant for review prior to bidding projects. Any submittals shall include review of project descriptions and drawings.
- C.** Renovation plans can originate from PMCS, UEM, or OFPC.
- D.** The Project Manager or facilitator of the project shall provide EHS with a copy of the asbestos inspection report, the project design specification, and the air monitoring plan prior to the start of the project.
- E.** If the project occurs in a building containing ACM, but does not disturb the ACM, the Construction Manager or Project Manager will inform the contractor of the location of known asbestos and the hazards associated with the asbestos exposure. The contractor is responsible for informing his/her employees as well as any subcontractor(s) and will ensure that all applicable regulatory requirements are met.

6.0 RESPONSIBILITIES OF SUPERVISORS

- A.** If PMCS is not involved with the project, the supervisor or manager of that project shall contact EHS in order to determine whether the materials to be impacted by the work contain asbestos and amend the planned work accordingly. If no information is available, contact EHS to collect samples of the suspect materials. The shop supervisor shall not allow any employee who has not received the required training to perform any tasks or activities associated with the disturbance of ACM.
- B.** In the event of an emergency or when a work order is not issued within a timely manner, or where building materials become damaged, the supervisor will request EHS' licensed asbestos professionals to assume the material is ACM unless it is documented as a non-asbestos-containing material, or as one of the following non-suspect materials: The following materials are considered non-suspect materials: glass, metals, brick, fiberglass, pressed wood, rubber, and concrete. While concrete itself does not contain asbestos there are similar looking materials that do; such as gunite, found in pools, and magnesite. In addition, there is a potential for asbestos-containing waterproofing to be located between layers of concrete slabs. If you are uncertain, contact EHS to request an inspection prior to any disturbance. CMU block is a suspect material because asbestos-containing vermiculite insulation has been found as fill in the void space.
- C.** The supervisors will be responsible for recognizing potential asbestos hazards and reporting the hazards to the Abatement Supervisor or Asbestos Consultant.
- D.** Ensure that buffers used for stripping floor wax from asbestos-containing flooring are operated below 300 RPM. Wet methods and low abrasion floor pads may also be used if the equipment cannot be operated at the lower RPM level. Periodic inspections of housekeeping practices may be performed by EHS to ensure that these requirements are followed.
- E.** In the event of an emergency where building materials become damaged, the supervisor will request the EHS licensed asbestos professionals to assume the material as ACM unless it is documented as a non-asbestos-containing material. In order to determine whether the material has been sampled and whether it is an asbestos-containing material, call EHS. Refer to Appendix A for a list of suspect ACM. The following materials are considered non-suspect materials: glass, metals, fiberglass, pressed wood, rubber, or concrete.

In the event a damaged suspect building material is encountered, the employees shall perform the following:

- Isolate the area,
- Place a sign directly outside of the isolated area with similar terminology, "Danger-Asbestos Hazard, Do Not Enter",

- If feasible, turn off the Heating, Ventilation and Air Conditioning (HVAC) equipment supplying the area,
- Do not perform any cleanup activities,
- Call the PMCS Abatement Shop Supervisor or EHS.

7.0 RESPONSIBILITIES OF THE EHS ASBESTOS CONSULTANT

The Asbestos Consultant shall provide support by performing the following tasks:

- A.** Conduct inspections or delegate the responsibility to conduct an inspection to an asbestos consultant or inspector upon request to determine the presence of ACM prior to the disturbance of the materials. The inspection information shall be provided to the authorized individual requesting the information within a timeframe established between EHS and the requestor.
- B.** The condition of the material and the complexity of the project shall determine which response option to utilize to control or eliminate the potential hazards. The control options include the following:
 - Removal
 - Encapsulation
 - Enclosure
 - Repair
 - Maintain under the Asbestos Operations and Maintenance Program
- C.** Update the asbestos database with the inspection, abatement specifications with floor plans, and abatement closeout documentation as required, this may be delegated to asbestos inspector.
- D.** Conduct area or personnel monitoring of projects involving the disturbance of ACM. Routinely inspect asbestos abatement activities being performed on campus by the various shops or vendors and document the site inspections. Maintain records of air monitoring data.
- E.** Annually review the Asbestos Operations and Maintenance Plan and incorporate any changes or additions to the program.
- F.** Respond to all calls or complaints concerning asbestos-containing materials. All complaints and the measures taken to correct the problem shall be documented in writing.

8.0 RESPONSIBILITIES OF AN ASBESTOS INSPECTOR

The asbestos inspector shall support the Asbestos Consultant by performing the following tasks:

- A.** Conduct inspections upon request to determine the presence of ACM prior to the disturbance of the materials. The inspection information shall be provided to the authorized individual requesting the information within a timeframe established between EHS and the requestor.

- B. Report upon the condition of the material in order that the Asbestos Consultant may determine an appropriate response option to utilize to control or eliminate the potential hazards.
- C. Update the asbestos database with the abatement specifications with floor plans, and abatement closeout documentation as required.
- D. Assist in maintaining records of bulk sampling data.

9.0 RESPONSIBILITIES OF THE ABATEMENT SUPERVISOR

- A. Upon determination of the condition of the ACM material and the complexity of the project, the Abatement Supervisor or Asbestos Consultant shall determine which response option to utilize to control or eliminate the potential hazards.
- B. Ensure that trained competent personnel are assigned to the project.
- C. Coordinate with the EHS asbestos professionals concerning air monitoring requirements.
- D. Ensure the asbestos waste is properly disposed in 6-mil polyethylene bags with the proper National Emission Standard for Hazardous Air Pollutants (NESHAP) waste generator label and Danger labeling requirements. Bags will be transported to the asbestos waste dumpster located in the Facilities Complex in coordination with the PMCS Abatement Shop and the dumpster manifest will be updated to include the new waste.
- E. Bags generated under O&M work and shop-managed projects will be transported to the asbestos waste dumpster located in the Facilities Complex in coordination with the PMCS Abatement Shop and the dumpster manifest will be updated to include the new waste. Additional dumpsters may be placed in other locations, should the PMCS Abatement Shop deem necessary. Any additional dumpsters will be managed by the PMCS Abatement Shop and subject to the same requirements. Transportation of bags must be in compliance with U.S. Department of Transportation regulations.
- F. Manifests and documentation relating to generated waste shall be retained by the PMCS Abatement Shop with copies sent to the Asbestos Consultant.

10.0 NOTIFICATION TO DSHS

10.1 Emergency Abatement Projects

1. Contact the Asbestos Consultant, during normal business hours Monday through Friday, immediately with the reported incident and isolate the area. Incidences that would be considered “emergency” would include the falling or dislodging of friable asbestos or the disturbance of any damaged or significantly damaged friable ACM.
2. If the incident occurs after hours, contact UT Police Department at (512) 471-4441. The call will be forwarded to the EHS on-call staff and/or an EHS responder.

3. If feasible, turn off the Heating, Ventilation and Air Conditioning (HVAC) equipment supplying the area.
4. Place a sign directly outside of the isolated area with similar terminology, "Danger- Asbestos Hazard, Do Not Enter".
5. If the material is determined to contain asbestos, EHS and/or the Abatement Supervisor will implement the necessary corrective measures to control or eliminate the hazard.
6. EHS will provide a written report summary within two business days after the incident. This report will be copied to the Abatement Supervisor.
7. Under circumstances where buildings may be damaged (high winds, tornadoes, hurricanes, fires, explosions) which may require immediate actions for cleanup and it is known that no ACM has been disturbed, then proceed with clean-up. If ACM is known or highly suspected, contact EHS to assist in determining the proper course of action.

10.2 Projects Requiring A 10-Working Day Notification to DSHS

1. Projects that exceed the threshold quantities of 160 square feet, 260 linear feet, or 35 cubic feet; or
2. A scheduled or routine renovation project, regardless of size, must notify DSHS with a 10-working day notification before any work can commence; or
3. Any work NOT defined as a small-scale short-duration (SSSD) activity or NOT an emergency, as defined within the definitions section of this document.

Contractors can submit the 10-working day notification to DSHS with an electronic copy sent to the EHS Asbestos Consultant. The first day of work will be the 11th calendar day after the postmarked date. The postmarked date is the date stamped by the US Postal Service or by hand delivery to DSHS or electronic sent time.

11.0 RESPONSIBILITIES OF UEM & ARL

UEM & ARL personnel shall perform only Class III work. Class III asbestos work includes repair and routine maintenance operations where ACM (including roofing, flooring, walls, ceiling tiles, pipe insulation, and surfacing material) can be disturbed, but shall not exceed the amount that can be contained in one glove bag or one waste bag (60" x 60" in size) in one eight-hour shift.

- A.** Upon determination of the condition of the ACM material and confirmation the project meets the definition of Class III work, EHS asbestos professionals or UEM or ARL asbestos professionals shall determine which response option to utilize to control or eliminate the potential hazards.

- B.** Coordinate with the EHS asbestos professionals concerning air monitoring requirements.
- C.** Ensure the asbestos waste is properly packaged, labeled, and transported to the asbestos waste dumpster located in the Facilities Complex in compliance with all federal regulations.
- D.** Documentation relating to the generated waste shall be retained by the PMCS Abatement Shop with copies sent to the Asbestos Consultant.

12.0 RESPONSIBILITIES OF ITS DEPARTMENT

- A.** ITS Department shall contact EHS to determine whether the materials to be impacted by the work contain asbestos and amend the work order accordingly. If no information is available, EHS shall collect samples or provide the ITS Department with approved third party asbestos inspectors of the suspect materials. The project supervisor will not allow any employee to perform any tasks or activities associated with the disturbance of ACM.
- B.** The project supervisor will be responsible for recognizing potential asbestos hazards and reporting the hazards to the Abatement Supervisor or Asbestos Consultant.

13.0 RESPONSIBILITIES OF DHFS AND ANY OTHER DEPARTMENT

DHFS, or other departments' personnel shall perform only Class III work. DHFS, or other departments', personnel that have RFCI training and can conduct Class III asbestos work which is restricted to the repair and routine maintenance operations where ACM flooring can be disturbed. The asbestos-containing material is limited to the removal of resilient floor covering and adhesives, and does not apply to any other asbestos-related activity, nor does the training or experience gained from such practices qualify for any other asbestos-related activity.

In order to use the RFCI method, the following conditions must be met: the flooring material must not become friable, or made into RACM, it must remain intact, and is not sanded, ground, mechanically chipped, drilled, abraded, cut, or sawed.

If the floor covering materials and/or adhesives have been sanded, ground, mechanically chipped, drilled, abraded, cut, or sawed prior to the start of the project, then the Abatement Shop, or a qualified third party abatement contractor must be contacted for the abatement.

With appropriate licensure, DHFS personnel can conduct inspections or delegate the responsibility to conduct an inspection to an asbestos consultant or inspector to determine the presence of ACM prior to the disturbance of the materials. The inspection information shall be provided to DHFS and an electronic copy provided to EHS.

- A.** Upon determination of the condition of the ACM material and confirmation the project meets the definition of Class III work, EHS asbestos professionals or DHFS asbestos professionals shall determine which response option to utilize to control or eliminate the potential hazards.
- B.** Coordinate with the EHS asbestos professionals concerning air monitoring requirements.
- C.** Ensure the asbestos waste is properly packaged, labeled, and transported to the asbestos waste dumpster located in the Facilities Complex in compliance with all federal regulations.
- D.** Documentation relating to the generated waste shall be retained by the PMCS Abatement Shop with copies sent to the Asbestos Consultant.

14.0 INSPECTION OF CLASS I AND II ASBESTOS WORK PERFORMED BY AN OUTSIDE CONTRACTOR

Class I and II asbestos work conducted on campus by outside abatement contractors may be periodically inspected by EHS. EHS may inspect Class I and II removal projects by periodically participating in the pre-work containment visual inspections, conducting periodic site visits, and participating in the final visual inspection prior to clearance testing.

The Project Management Team shall ensure that:

- A.** All construction, demolition, and renovation projects shall include an asbestos inspection to assess the presence of ACM and the potential for disturbance during the work phase of the project. During an inspection, EHS may check their database for previous sampling data, assume the material contains asbestos, or collect samples for laboratory analysis.
- B.** The asbestos inspection report and subsequent abatement project design specifications shall be submitted to the Asbestos Consultant or third party asbestos consultant for review prior to bidding the project. The submittal shall include review of project descriptions and/or drawings submitted to EHS.
- C.** The Project Manager or facilitator of the project shall provide EHS with a copy of all asbestos inspection reports and abatement project design specifications prior to the start of the project.

If the project occurs in a building containing ACM, but does not disturb the ACM, the Construction Manager or Project Manager will inform the contractor of the location of known asbestos and the hazards associated with the asbestos exposure. This must occur before the start of the project. The contractor is responsible for informing his/her employees as well as any subcontractor and ensures that all applicable regulatory requirements are met.

15.0 INSPECTION PROCEDURES IN CHILD-OCCUPIED FACILITIES

Inspections in child-occupied facilities should be conducted after hours or when the facility is not occupied. EHS and the Director of the facility will be notified prior to inspections for all inspections conducted by an outside asbestos consulting company.

UT Elementary School is a K-12 category school and therefore has its own O&M Plan, which should be referred to when performing work within those facilities.

16.0 MAINTENANCE PROCEDURES FOR CHILD-OCCUPIED FACILITIES

Maintenance and abatement activities should be conducted after hours or when the facility is not occupied in child-occupied facilities. If abatement will occur when the building is occupied, EHS and the Director of the facility shall be notified ahead of time.

17.0 GENERAL MAINTENANCE PROCEDURES

Employees performing Class IV maintenance activities that result in contact with ACM (but no disturbance) or employees performing maintenance activities in close proximity to friable asbestos must adhere to the following guidelines:

- Do not drill holes in or saw ACM
- Do not sand, grind, cut, or abrade ACM. Do not use high speed buffers on floor tile
- Do not install partitions or dividers in such a way that they will damage the floor tile, ceiling tiles, or plaster ceiling
- The preferred method is not glue products such as rolled sheet flooring, carpeting, or any other product to asbestos floor tile

- Do not use an ordinary vacuum to clean friable ACM debris. Class IV workers including custodial and maintenance staff employees should report any minor fiber release episode to their supervisor immediately. The supervisor will be responsible for contacting the PMCS Abatement Shop Supervisor or EHS for cleanup of the debris. Cleanup operations involving ACM should only be performed by an individual trained and licensed for asbestos related work.
- Removal of ACM should only be conducted by appropriately trained and licensed Class I or II Asbestos Abatement personnel or Class III O&M Restricted licensed and trained personnel.
- Ensure that the asbestos waste is properly packaged, labeled, and transported to the asbestos waste dumpster located at the Facilities Complex in compliance with all federal regulations.
- Documentation of waste must be submitted to the Abatement Supervisor.

When maintenance activities are required which may involve the disturbance of asbestos-containing materials, the work shall be conducted by appropriately trained and equipped employees of UT-Austin or contracted to an approved DSHS-licensed Asbestos Abatement Contractor.

When any outside contractor (electrician, HVAC, etc.) performs work that may involve the disturbance of ACM identified in the building, the person responsible for the project that hired the contractor must inform the contractor of the presence of ACM. The person responsible for the project will inform the contractor of the hazards associated with potential asbestos exposure. Confirming the location and quantity of ACM which may be impacted by a project will include a review of the asbestos building inspection documents by the Asbestos Consultant or third party asbestos consultant. The responsible department shall inform the building occupants of the project and the measures being taken to protect against airborne fiber release. The outside contractor is responsible for informing and ensuring his/her employees and any subcontractors that all applicable regulatory requirements are met

All contractors, vendors, and service providers who may potentially disturb asbestos, will contact their University point of contact to verify that there is no asbestos or it has been abated prior to commencing work.

18.0 RECORD KEEPING

A. Training records

Each department that employs asbestos licensed professionals must keep valid and current training, medical evaluation, respiratory fit testing, and licensure documentation to be readily available for EHS or regulatory review. All records must be kept for the length of employment plus 30 years.

B. Asbestos Waste Manifests

Asbestos waste manifests must be kept a minimum of three years, by the departments generating the waste or the managing department, and all departments must follow procedures as documented on the EHS webpage. EHS must receive a copy of all asbestos generated waste manifests.

19.0 EMPLOYEE NEGATIVE EXPOSURE ASSESSMENT (NEA) AND MONITORING

As per the DSHS regulations, each employer who has a workplace or work operation shall perform monitoring to determine accurately the airborne concentrations of asbestos to which employees may be exposed. These must be breathing zone air samples representative of an 8 hour time weighted average and 30 minute short term exposures. The following work operations require exposure monitoring:

- Glove bag removal of TSI
- Clean-up of damaged friable ACM (TSI or surfacing material) that has fallen to the floor or other horizontal surfaces
- Repair and/or removal of small amounts of surfacing ACM for maintenance activities or construction activities
- Removal of drywall, tape, and spackling compounds
- Removal and/or replacement of ceiling tiles
- Removal of window glazing
- Repair and/or removal of damaged transite material
- Repair, removal, or disturbance of insulation within fire doors (unless the entire door component is being removed and disposed of properly)
- Repair and/or removal of roofing materials with the exception of flashing, coatings, adhesives, and mastics
- Repair and/or removal of other miscellaneous materials as required by EHS

If a department wants to request a variance from the exposure monitoring requirement, EHS must provide written authorization for the deviation.

20.0 EMPLOYEE COMPLAINTS

- A.** Concerns relating to potential asbestos exposure filed by building occupants shall be reported to EHS and follow the procedures set forth in the Asbestos Medical Monitoring Investigation Procedure. A copy of this document is located on the EHS website.
- B.** Current employees with an asbestos exposure where asbestos levels are determined by EHS to be at or above the Total Weighted Average (TWA) and/or an employee who experiences a one-time fiber release incident will have the opportunity to have the incident investigated and documented by EHS and be evaluated by HealthPoint Occupational Health Program (OHP).
- C.** Once EHS is contacted by an individual regarding a potential asbestos exposure, the EHS investigator will gather as much preliminary information regarding the suspected exposure as possible. Unless the individual wishes to remain anonymous, the employee's supervisor will be contacted to assist with the collection of information
- D.** An EHS asbestos professional may conduct a site inspection, perform area sampling, and perform a detailed interview as part of the investigation of the reported incident.
- E.** A written report of the investigation conducted by EHS will be reviewed by the Assistant Director for Campus & Occupational Safety and may be reviewed by the Director of EHS.

21.0 REVISIONS

Comment	Date
Added Executive Summary, Clarification of Presumed Asbestos-Containing Material (PACM) and who can make the assumption, Clarified the Definition of SSSD, Clarified Section 10.0, B	07-25-2017
[Reserved]	
[Reserved]	
[Reserved]	
[Reserved]	
[Reserved]	
[Reserved]	
[Reserved]	
[Reserved]	
[Reserved]	

APPENDIX A

APPENDIX A

The following list of building materials or replacement parts are considered suspect asbestos-containing materials and include but are not limited to:

Surfacing Materials:	Miscellaneous Material:
- acoustical plaster;	- damp proofing
- decorative plaster/stucco;	- door insulation;
- fireproofing insulation;	- ductwork flexible fabric connections;
- joint compound;	- electrical panel partitions;
- spackling compounds;	- electrical cloth/electrical wiring insulation;
- spray applied insulation;	- elevator, car, truck brake shoes;
- textured paint/coating.	- elevator equipment panels;
- Thermal System Insulation:	- fire blankets/curtains;
- boiler insulation;	- fire damper;
- breaching insulation;	- fire doors;
- fireproofing;	- fireproofing applied to exterior of high voltage cables
- HVAC duct insulation;	- flexible fabric joints (vibration isolation cloth);
- HVAC gaskets;	- floor backing;
- pipe insulation;	- gaskets and gasket material;
- taping compounds (thermal);	- gypsum wallboard;
- thermal paper products;	- heating and electrical ducts;
- valve packing.	- incandescent recessed fixtures;
- Miscellaneous Material:	- laboratory fume hoods (non-metallic & non-glass parts);
- adhesives/mastics;	- laboratory oven gaskets;
- asphalt/vinyl floor tile;	- laboratory table tops;
- base flashing;	- laboratory thermal gloves;
- blown-in insulation;	- packing materials;
- caulking/putties;	- packing or rope (penetrations through floors or walls);
- ceiling tiles/lay-in ceiling panels;	- reinforced roof flashing sheet;
- cement-insulating panels;	- roofing felt;
- cement pipes;	- roof flashing (plastic cement for sheet metal work);
- cement wallboard/siding;	- roofing paint;
- chalkboards;	- roofing shingles/tiles;
- construction mastic;	- vermiculite insulation inside CMU
- cooling tower baffles or louvers;	- vinyl sheet flooring/vinyl wall coverings;
- cooling tower fill;	

APPENDIX B

APPENDIX B

Regulatory Agency Guidance

- a. Texas Department of State Health Services (DSHS)
25 TAC 295

<http://www.dshs.state.tx.us/asbestos/rules.shtm>

- b. AHERA

<http://www2.epa.gov/asbestos/asbestos-laws-and-regulations>

- c. EPA

<http://www2.epa.gov/asbestos/asbestos-laws-and-regulations>

<http://www.gpo.gov/fdsys/pkg/CFR-2011-title40-vol31/pdf/CFR-2011-title40-vol31-part763-subpartG.pdf>

APPENDIX C

APPENDIX C

OPERATIONS AND MAINTENANCE PROGRAM BEST PRACTICES

Special Cleaning Procedures:

All trained and licensed personnel must follow the special cleaning procedures outlined in this section for any building with surfacing ACM, damaged or significantly damaged thermal system insulation ACM, or friable suspected ACBM assumed to be ACM. If these practices are not followed, cleaning may re-suspend previously settled fibers.

If ACM is confined to a single room or area, using these practices in this area is sufficient.

If the building contains only non-friable ACM, if all the ACM is isolated behind airtight barriers, or if thermal system insulation is completely enclosed by protective jackets in good repair, the special cleaning practices is not needed.

Cleaning Procedures

- a. Schedule the work after normal working hours (nights or weekends), if possible, and strictly control access to the work area. Lock doors from the inside and post the following signs to prevent unauthorized persons from entering the work area.

**DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY**

- b. Shut off and seal all openings of the air-handling system in the affected area to prevent the distribution of any released fibers to areas outside the work site.
- c. Do not use dry brooms, mops, and dust cloths.
- d. HEPA-vacuum all curtains, books, upholstered furniture, carpets, and other irregular surfaces with a HEPA-vacuum cleaner.
- e. Wet-mop all non-carpeted floors and wet-wipe or HEPA-vacuum all other horizontal surfaces such as the tops of light fixtures and file cabinets with damp cloths.
- f. Use spray (mist) bottles of water or a dust suppressant to keep the mops and cloths damp.
- g. Following the manufacturer's instructions, remove HEPA filters from the vacuum cleaners. Workers are required to wear at a minimum half-face reusable air-purifying respirators with p100 filters and should mist the filters with water as they are removed.
- h. Wipe all ladders, mops, buckets, vacuum cleaners, and all cleaning equipment with damp cloths when the cleaning is finished. Discard cleaning materials (mop heads, cloths, and HEPA filters) as asbestos waste. Place them in a 6-mil polyethylene bag labeled as follows:

**DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST**

- j. Seal the bag and place it in a second labeled 6-mil bag. Seal the second bag.
- k. Ensure that the asbestos waste is properly packaged, labeled, and transported to the asbestos waste dumpster located at the Facilities Complex in compliance with all federal regulations.
- l. Documentation of waste must be submitted to the Abatement Supervisor.

Special Maintenance Work Practices

Normal maintenance activities can disturb ACM. Maintenance workers will not conduct any maintenance work in a manner that may disturb ACM. The EHS Asbestos Consultant has established a management system for maintenance work to ensure that proper procedures are employed whenever there is a possibility of disturbing ACM or asbestos fibers.

There are two circumstances covered by the special work practices:

- (1) Contact with the ACM is very unlikely
- (2) Accidental disturbance of ACM is possible.

Contact with ACM Unlikely

In some buildings with ACM, many routine maintenance activities can be conducted without contacting the ACM. For example, changing light bulbs in a fixture on a ceiling with asbestos-containing acoustical plaster can usually be performed without jarring the fixture or otherwise disturbing the ACM. (The top of the fixture should have been wet-cleaned previously to remove settled fibers. In these situations, few precautions other than normal care are needed. Where maintenance is performed in parts of the building free of ACM, no special precautions are required. An exception would be work causing vibration at a distant location where ACM may be present. If an accidental fiber release occurs, immediately notify the EHS Asbestos Consultant and institute the appropriate fiber release control procedures.

Accidental Disturbance of ACM Possible

Any and all ACM removed shall be removed only by DSHS licensed personnel working under a licensed supervisor or licensed Contractor.

When routine maintenance and repair work on light fixtures, plumbing fixtures and pipes, air registers, HVAC ducts, and other accessible parts of a building utility system is required and these fixtures or system parts are near friable ACM, maintenance work may unintentionally disturb the ACM and release asbestos fibers.

The following procedures should be used if accidental disturbance of ACM, or dust and debris containing asbestos fibers, is possible:

- a. Schedule the work after normal working hours (nights or weekends), if possible, and strictly control access to the work area. Lock doors from the inside and post the following signs to prevent unauthorized persons from entering the work area.

**DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY**

- b. Shut off and seal all openings of the air-handling system in the affected area to prevent the distribution of any released fibers to areas outside the work site.
- c. Remove all movable objects from the work area.
- d. Cover all objects that cannot be moved with two layers of 6-mil polyethylene plastic sheeting.
- e. Place a 6-mil polyethylene plastic drop cloth beneath the location of the maintenance work, extending at least 10 feet beyond all sides of the work site. Alternatively, position a rectangular enclosure constructed of 6-mil plastic on a frame underneath the maintenance area to inhibit the spread of fibers from fallen ACM. Mist the ACM in the vicinity of the maintenance work lightly with amended water - a combination of a surfactant and water. Use a mister that produces a very fine spray. Be sure that the electrical system is shut off before spraying around any electrical conduits or fixtures.
- f. After the maintenance work is completed, if there is no visible debris on the plastic, remove all the plastic and dispose as normal waste.
- g. If, during the maintenance work, an accidental fiber release occurs, immediately notify the EHS Asbestos Consultant and institute the appropriate fiber release control procedures

Small-Scale, Short-Duration Projects

These projects include the following:

- a. Removal of small quantities of asbestos-containing materials only if required in the performance of another maintenance activity not intended as asbestos abatement.
- b. Removal of asbestos-containing thermal system insulation not to exceed amounts greater than those which can be contained in a single glove bag.
- c. Minor repairs to damaged thermal system insulation which do not require removal.
- d. Repairs to a piece of asbestos-containing wallboard.
- e. Repairs, involving encapsulation, enclosure or removal, to small amounts of friable asbestos-containing material only if required in the performance of emergency or routine maintenance activity and not intended solely as asbestos abatement. The work cannot exceed amounts greater than those which can be contained in a single glove bag.

Acceptable Removal Techniques

All personnel engaged in small-scale, short-duration projects must use the following asbestos removal techniques either singularly or in combination depending on the situation.

- a. Glove bags.
- b. Mini-enclosures.
- c. Encapsulation of asbestos materials.
- d. Enclosure of asbestos materials.

Glove Bags

When using glove bags, personnel must have the following materials available.

- a. Polyethylene glove bags and 6-mil asbestos disposal bags labeled as follow:

**DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST**

- b. Sealing tape.
- c. Amended water or other wetting agent.
- d. Airless sprayer.
- e. Bridging encapsulant.
- f. Tools including razor knives, tin snips and wire brushes.
- g. HEPA vacuum cleaner.
- h. HEPA-equipped dual cartridge respirator.
- i. Tyvek disposable suits.
- j. Cloths/Disposable towels.
- k. 6-mil polyethylene sheeting.

Glove Bag Procedures

All glove bag removal will be done by two-person teams. Personnel utilizing glove bags must use the following procedures when removing asbestos.

- a. Schedule the work after normal working hours (nights or weekends), if possible, and strictly control access to the work area. Lock doors from the inside and post the following signs to prevent unauthorized persons from entering the work area.

**DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY**

In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

- b. Shut off and seal all openings of the air-handling system in the affected area to prevent the distribution of any released fibers to areas outside the work site.
- c. HEPA vacuum or wet-wipe all objects in the work area.
- d. Remove all movable objects from the work area.
- e. Cover all objects that cannot be moved with two layers of 6-mil polyethylene plastic sheeting.
- f. Place a sheet of 6-mil polyethylene beneath the work area and extending 10 feet to either side of it.
- g. All workers must put on a disposable suit and a respirator before beginning any work with the glove bag.
- h. Install the glove bag, utilizing the following procedures, so that it completely covers the pipe or other structure where asbestos work will be done.
 - 1. Cut the sides of the glove to fit the sides of the pipe.
 - 2. Attach the glove bag to the pipe by folding the open edges together and sealing securely with tape.
 - 3. Seal all openings and the bottom seam securely with tape.
- i. Using the airless sprayer, thoroughly wet the asbestos to be removed with amended water. Spray the water through the port provided in the glove bag.
- j. Once the asbestos is wet, begin removing it using the appropriate tools and the following procedures.
 - 1. Remove any outer covering such as canvas or wire mesh.
 - 2. If the asbestos beneath the covering is dry, the worker not inside the glove bag should thoroughly re-spray it with the amended water before removal begins.
 - 3. Remove the wetted asbestos.
- k. After the asbestos is removed, thoroughly clean the pipe with a wire brush and wet-wipe it until all traces of asbestos have been removed.
- l. Encapsulate any exposed asbestos edges remaining after the removal with the bridging encapsulant.
- m. Insert the HEPA vacuum nozzle into the glove bag through the hose port and evacuate the bag as much as possible.
- n. Before removing the hose, squeeze the bag tightly, twist and seal with tape as close to the top as possible.
- o. Remove the vacuum hose from the bag.
- p. Remove the glove bag from the pipe. One of the workers should hold the vacuum hose next to the top of the bag while the other strips the tape holding it to the pipe.
- q. Place the sealed glove bag into the 6 mil polyethylene bag.
- r. Vacuum the disposable suits, remove them and place them in the 6mil bag along with the glove bag. Wet-wipe the respirators and put the wiping materials in the 6 mil polyethylene bag.
- s. Seal the 6mil bag and dispose as directed by EHS.
- t. If, during the maintenance work, an accidental fiber release occurs, immediately notify the EHS Asbestos Consultant and institute the appropriate fiber release control procedures.

Mini-enclosures

For those areas where a glove bag is too small or the wrong shape, workers will use mini-enclosures to remove the asbestos.

Mini-enclosure Procedures

All mini-enclosure removal will be done by two-person teams according to the following procedures:

- a. Schedule the work after normal working hours (nights or weekends), if possible, and strictly control access to the work area. Lock doors from the inside and post the following signs to prevent unauthorized persons from entering the work area.

**DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY**

In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

- b. Shut off and seal all openings of the air-handling system in the affected area to prevent the distribution of any released fibers to areas outside the work site.
- c. Construct the mini-enclosure as follows:
 1. HEPA vacuum or wet-wipe all objects in the work area.
 2. Remove all movable objects from the work area.
 3. Cover all objects that cannot be moved with two layers of 6-mil polyethylene plastic sheeting.
 4. Seal all windows, ventilation openings etc., with two layers of 6-mil polyethylene.
 5. Cover each wall in the area being enclosed with two layers of 4-mil polyethylene. Fasten the sheeting to the wall with spray adhesive and duct tape.
 6. Cover the floor with two layers of 6-mil polyethylene sheeting. Seal the plastic floor covering to the wall covering, 12 inches above the floor, with spray adhesive and duct tape.
 7. Seal any penetrations such as pipes or electrical conduits with tape.
 8. Construct a small change room (approximately 3 feet square) contiguous to the mini-enclosure. The walls, floor and ceiling must be two layers of 6-mil polyethylene fastened to 2 x 4 inch lumber with staples, tape and spray adhesive. The change room must have no leaks and must have an air lock opening into the abatement area and an air lock for entering from the outside.
- d. The worker going into the mini-enclosure must put on a disposable suit and a respirator before beginning any work.

- e. Whenever a worker leaves the mini-enclosure area, he/she should, while in the change room, vacuum the disposable suit, remove it and place it in a 6mil bag. He/she should also wet-wipe the respirator and put the wiping materials in the 6-mil polyethylene bag.
- f. Attach the nozzle of a HEPA vacuum cleaner to the change room. This will provide some negative pressure to the mini-enclosure.
- g. Using the airless sprayer, thoroughly wet the asbestos to be removed with amended water.
- h. Once the asbestos is wet, begin removing it using the appropriate tools and the following procedures.
 - 1. Remove any outer covering such as canvas or wire mesh.
 - 2. If the asbestos beneath the covering is dry, thoroughly re-spray it with the amended water before removal begins.
 - 3. Remove the wetted asbestos.
- i. After the asbestos is removed, thoroughly clean the pipe or area with a wire brush and wet-wipe it until all traces of asbestos have been removed.
- j. Encapsulate any exposed asbestos edges remaining after the removal with encapsulant.
- k. Place the removed asbestos in a properly labeled 6-mil polyethylene plastic bag. Seal the bag, wet-wipe it and put it in the change room.
- l. Encapsulate the plastic on the walls and floor of the mini-enclosure. After the encapsulant has dried, remove the plastic and put it in a properly labeled 6-mil polyethylene plastic bag. Seal the bag, wet-wipe it and put it in the change room.
- m. When the work is complete, a properly trained and licensed air monitoring technician will use aggressive sampling to test the air for asbestos fibers before the area is occupied again. Collect air samples and analyze them according to NIOSH 7400 protocol, counting rules A, Phase-contrast Microscopy (PCM) as amended. Permit entry into the area only if no sample is reported greater than 0.01 fibers per cubic centimeter (f/cc) by the analysis report from the licensed laboratory.
- n. After the mini-enclosure has been cleared, place each bag in the change room in a second 6-mil, properly labeled, polyethylene bag. Seal the bags and put them outside the change room.
- o. Remove the HEPA vacuum and the plastic from the change room. Place the plastic in the plastic bag with the disposable suits. Seal the bag and place it in a second bag, similar to the first and seal the second bag.
- p. Dispose of all asbestos waste as directed by EHS. When the work is done, complete an Operations and Maintenance Activities Report and submit it to EHS.
- q. If, during the maintenance work, an accidental fiber release occurs, immediately notify the EHS Asbestos Consultant and institute the appropriate fiber release control procedures.

Enclosure

Enclosure Procedures

If the EHS Asbestos Consultant decides to enclose an area with asbestos-containing material, personnel will use the following procedures.

- a. Obtain approval from the EHS Asbestos Consultant before beginning work. The EHS Asbestos Consultant or the appropriate supervisor will make an initial visit to the work site.
- b. Schedule the work after normal working hours (nights or weekends), if possible, and strictly control access to the work area. Lock doors from the inside and post the following signs to prevent unauthorized persons from entering the work area.

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In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

- c. Shut off and seal all openings of the air-handling system in the affected area to prevent the distribution of any released fibers to areas outside the work site.
- d. Remove all movable objects from the work area.
- e. Cover all objects that cannot be moved with two layers of 6-mil polyethylene plastic sheeting.
- f. Place a 6-mil polyethylene plastic drop cloth beneath the location of the maintenance work, extending at least 10 feet beyond all sides of the work site.
- g. Remove all electrical conduits, telephone lines, recessed lights and pipes from the area being enclosed. If this cannot be done without disturbing the asbestos, then the material should be removed and not enclosed.
- h. Use only new construction materials.
- i. Construct a structure that is impact resistant and airtight.
- j. Build the walls from tongue-and groove boards, boards with spine joints or gypsum boards with taped seams. Lay-in ceilings are not airtight and are not adequate enclosures.
- k. Caulk all joints between the walls of the enclosure and the ceiling.
- l. Use only tools that are equipped with HEPA-filtered vacuums.
- m. If, during the maintenance work, an accidental fiber release occurs, immediately notify the EHS Asbestos Consultant and institute the appropriate fiber release control procedures.

Procedures for Fiber Release Episodes

UT personnel and contractors must report to the EHS Asbestos Consultant the presence of debris on the floor, water or physical damage to the ACM, or any other evidence of possible fiber release. Fiber release episodes can also occur during maintenance or renovation projects. Depending on the size of the release, the EHS Asbestos Consultant will either call an abatement contractor or assign a suitably trained in-house team to clean up the debris and make repairs as soon as possible. To facilitate rapid clean-up, the EHS Asbestos Consultant will contact the Abatement Shop.

Minor Fiber Release Episodes

Personnel can deal with minor fiber release episodes (less than three linear feet or three square feet of insulation), using the following procedures

- a. Notify the EHS Asbestos Consultant. The EHS Asbestos Consultant will make an initial visit to the site and contact the Abatement Shop.
- b. The Abatement Shop will isolate the area as soon as possible after the ACM debris is discovered. If the area can be sealed by doors, lock them from the inside (escape corridors must remain in operation) and post the following signs to prevent unauthorized personnel from entering the area.

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In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

- c. All workers should, at a minimum, wear air-purifying respirators with HEPA filters.
- d. Thoroughly saturate the debris with water or amended water using a mister with a very fine spray. Place the debris in two labeled, sealed 6-mil plastic bags for disposal as disposal section. Vacuum the area where the debris fell with a HEPA vacuum cleaner and clean the floor with damp cloths or a mop.
- e. Clean the surrounding area using the special cleaning procedures.
- f. Discard all debris with the cleaning materials.
- g. Workers should vacuum their disposable suits before leaving the work site and wet-wipe face, hands and exterior respirators. They should then discard the suits as asbestos waste and put on clean disposable suits, proceed to a shower room, shower with their respirators on, and clean their respirators while in the shower.
- h. Dispose all asbestos waste as directed by the EHS Asbestos Consultant.
- i. After the clean-up is complete, repair the damaged area with asbestos-free building materials.

Major Fiber Release Episodes

If more than three square feet or three linear feet of insulation delaminates or is dislodged from its substrate, the episode is major. A large breach in a containment barrier for a maintenance or abatement project is also a major episode. Employees will follow the following procedures for a major fiber release episode

- a. Notify the EHS Asbestos Consultant. The EHS Asbestos Consultant should make an initial visit to the work site and contact the Abatement Shop to mobilize as soon as possible. The Abatement Shop will isolate the area as soon as possible after the ACM debris is discovered. If the area can be sealed by doors, lock them from the inside (escape corridors must remain in operation) and post the following signs to prevent unauthorized personnel from entering the area.

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In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

- b. Shut off or temporarily modify the air-handling system to prevent the distribution of fibers from the work site to other areas of the building. If possible, seal doors, windows, and air registers with 6-mil plastic sheets and tape.
- c. Have licensed asbestos consultant design the response action and a fully qualified, licensed asbestos abatement contractor remove and dispose of the asbestos waste.
- d. When the work is complete, a properly trained and licensed air monitoring technician will use aggressive sampling to test the air for asbestos fibers before the area is occupied again. Collect air samples and analyze them according to NIOSH 7400 protocol, counting rules A, Phase-contrast Microscopy (PCM) as amended. Permit entry into the area only if no sample is reported greater than 0.01 f/cc by the analysis report from the licensed laboratory.

After the area has been cleared, provide the sampling information to the EHS Asbestos Consultant.

Small Scale Floor Tile Removal

Personnel must use the following procedures to remove small quantities of any ACM floor tile or mastic.

- a. Obtain approval from the EHS Asbestos Consultant before beginning work. The EHS Asbestos Consultant or the appropriate supervisor will make an initial visit to the work site.
- b. Schedule the work after normal working hours (nights or weekends), if possible, and strictly control access to the work area. It is recommended that no ACM be removed while area/room is occupied. The removal shall be planned to be done during non-duty hours. Lock doors from the inside and post the following signs to prevent unauthorized persons from entering the work area.

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In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

- c. The removal of the flooring materials will be done strictly following the most current version of the Resilient Floor Covering Institute (RFCI) work practices for removal of flooring materials.
- d. Do not cut, sand, break or scrape the tile or the mastic. Whenever the floor tile begins to become RACM (breaking into many small pieces), work should immediately stop and call the Abatement Shop to remove the floor tile using full containment procedures.
- e. Using the RFCI methods for removal of floor tiles does not require the use of respirators or protective clothing.
- f. If a tile breaks, vacuum it with a HEPA vacuum cleaner and wet-wipe the tile and surrounding area.
- g. Remove the mastic using a low VOC solvent with a medium coarse pad.
- h. Place all tiles and materials such as wiping cloths in a properly labeled 6-mil polyethylene plastic bag.
- i. After the work is complete, HEPA vacuum the disposable suit and place it in the bag with the tiles. Wet-wipe all tools and respirators.
- j. Seal bag containing waste and place it in a second labeled 6-mil polyethylene bag. Seal the second bag and dispose of them as directed by EHS.

Asbestos-Containing Ceiling Tile

Removing a ceiling tile can cause the edges of the tile to scrape against the supporting grid work cause a release of asbestos fibers. As such, asbestos-containing ceiling tiles should not be removed unless absolutely necessary. The following procedures cover small-scale removal of tiles.

Small Scale Ceiling Tile Removal

Personnel must use the following procedures to remove small quantities of any ACM ceiling tile.

- a. Obtain approval from the EHS Asbestos Consultant before beginning work. The EHS Asbestos Consultant or the appropriate supervisor will make an initial visit to the work site.
- b. Schedule the work after normal working hours (nights or weekends), if possible, and strictly control access to the work area. Lock doors from the inside and post the following signs to prevent unauthorized persons from entering the work area.

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In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

- c. Place a layer of 6-mil polyethylene under the tiles to be removed.
- d. Place ladder, amended water sprayer, cleaning cloths, and any other required equipment onto the plastic.
- e. All persons removing tile(s) must wear proper respiratory protection and disposable coveralls. Place them on a plastic also along with an extra set of coveralls for each person.
- f. Attach walls of 4-mil plastic to the grid work around the tile(s) to be removed. Do not tape plastic to the ceiling tile.
- g. Seal all walls at the corners to provide an enclosure. Make a slit in the wall of the enclosure for access. Attach a piece of plastic over the slit on the outside wall of the enclosure to act as flap.
- h. Attach a vacuum hose (from a HEPA filtered vacuum), of sufficient length to reach the ceiling, through the wall of the enclosure and start vacuum.
- i. Enter enclosure and ensure flap covers slit. Put on disposable coveralls and respirator.
- j. Position the ladder beneath the first tile to be removed.
- k. Spray the bottom of the tile with amended water. Slightly raise each edge of the ceiling tile and spray amended water onto the supporting grid work.
- l. Bring the end of the vacuum hose to a position near the first edge of the tile to be raised. While slowly raising the tile, move the hose along the edge being raised. Continue to vacuum the edges of the tile while slowly releasing the tile from the grid work.
- m. Bring the tile to a vertical position so that it may be taken down through the grid work without scraping the edges.
- n. Subsequent tiles may be removed using similar procedures. The edges, however, should be sprayed from above to thoroughly saturate them before attempting to move them.
- o. If the tiles will be discarded, place them in properly labeled 6-mil polyethylene plastic bags and seal the bags. Otherwise, stack them neatly for reuse.
- p. Perform the necessary maintenance operation.
- q. If the asbestos tiles are to be reused, reinstall them using the reverse of procedures used to remove them.
- r. Vacuum and wet-wipe everything inside the enclosure including the inner surface of the walls, and the exterior surface of the respirator and coveralls.
- s. Have each person inside the enclosure put on the extra set of coveralls.
- t. Detach the walls from the grid work and lower onto the plastic. Gather up the plastic from the walls and place into properly labeled 6-mil polyethylene plastic bags.
- u. Remove all equipment from the floor covering and wet-wipe and vacuum it again. Place the floor covering in the bag with the wall plastic.
- v. HEPA vacuum the disposable suits and place them in a properly labeled 6-mil polyethylene plastic bag. Wet-wipe all equipment and respirators.

- w. Seal all the polyethylene bags and place them in second labeled bags. Seal the bags and dispose as directed by the EHS.

Wall Repair and Cutting

Personnel will use the following procedures to cut into any walls not positively identified as non-asbestos.

- a. Obtain approval from the EHS Asbestos Consultant before beginning work. The EHS Asbestos Consultant or the appropriate supervisor will make an initial visit to the work site.
- b. Schedule the work after normal working hours (nights or weekends), if possible, and strictly control access to the work area. Lock doors from the inside and post the following signs to prevent unauthorized persons from entering the work area.

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In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

- c. Place a layer of 6-mil polyethylene under the wall to be cut.
- d. All persons cutting the wall must wear proper respiratory protection and disposable coveralls.
- e. Thoroughly wet the area to be cut.
- f. Cut the area with a saw that is equipped with a HEPA filtered vacuum.
- g. After the area is cut, seal all edges with an encapsulant and vacuum the area with a HEPA vacuum.
- h. Place all waste, including the plastic, in properly labeled 6-mil polyethylene plastic bags.
- i. HEPA vacuum the disposable suits, and then place them in the plastic bag.
- j. Wet-wipe all equipment and respirators.
- k. Seal the polyethylene bag and place it in a second labeled bag. Seal the bag and dispose as directed by the EHS Asbestos Consultant.