



OFFICE OF ENVIRONMENTAL HEALTH AND SAFETY
4807 Hampton Blvd. ♦ Hughes Hall Room 2061 ♦ Norfolk, Virginia 23529
Phone: (757) 683-4495 ♦ Fax: (757) 683-6025

*Occupational Safety & Health ♦ Environmental Health ♦ Laboratory Safety
Industrial Hygiene ♦ Radiation Safety ♦ Hazardous Waste ♦ Pollution Prevention*

ASBESTOS OPERATION & MAINTENANCE PROGRAM

Administered by

ENVIRONMENTAL HEALTH AND SAFETY OFFICE

Frank J. Dzapinka
Asbestos Program Coordinator
Office No.: (757) 683-4495

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I. Objective

The purpose of this plan is to ensure that all asbestos containing materials (ACM) are properly managed in-place, ensuring the safety of building occupants, visitors and maintenance/custodial employees by:

1. The survey, inventory and periodic reassessment of all suspect and known ACM. The purpose of the reassessment is to monitor the condition of ACM to ensure that ACM is maintained in an undamaged (non-hazardous) condition.
2. Ensuring that asbestos fibers that have been previously released are properly cleaned-up.
3. Training individuals who may encounter ACM during their normal work activities.
4. Developing work practices and procedures that will allow renovation, construction or emergency maintenance to be performed safely without exposing employees, building occupants, or members of the public to airborne asbestos fibers.

This program has been designed to comply with applicable state and federal regulations pertaining to asbestos. This program shall remain in force until all ACM has been removed from all university properties.

II. Responsibilities

The Asbestos Operations and Maintenance (O&M) Program is administered by the Environmental Health & Safety Office (EHSO). Frank Dzapinka is the Asbestos Program Coordinator (APC) for the university. In the event that Frank Dzapinka is not available, Doug Alexander may be contacted. The EHSO shall be responsible for administrative decisions regarding asbestos control and abatement at the university conducted by both in-house employees and contracted asbestos abatement firms. The APC shall perform and/or coordinate sampling of suspect ACM, monitor asbestos removal projects, periodically reassess suspect and known ACM, and review all proposed work to be conducted on all Old Dominion University (ODU) owned buildings requiring the disturbance of ACM. All asbestos-related records shall be maintained by the EHSO. Key departments participating in this program include, but are not limited to:

1. Facilities Management
 - Design and Construction
 - Work Management Center
 - Mechanical Division
 - Structural Division
 - Planning & Estimating
 - Office of Housing
2. Office of Computing and Communication Services (OCCS)

3. Risk Management
4. Webb Center Maintenance Personnel

III. Requirements

A. Training

The EHSO is responsible for determining the level of training required by employees and shall coordinate initial and refresher training for employees.

1. Awareness Training, Class IV Operations - This is the most basic level of training and is typically required for custodial and maintenance employees or any employee who comes in contact with but does not disturb asbestos-containing materials (ACM) in the course of their work. Initial training is 2 hours and annual refresher training is 1 hour. Workers/departments who shall receive Awareness Training include, but are not limited to the following:

- a) Housekeeping- Custodial, Construction Maintenance and Painters
- b) Housing - Custodial, Construction Maintenance and Painters
- c) Webb Center - Custodial, Construction Maintenance and Painters
- d) Office of Computing & Communication Services (OCCS) - Telecommunication and Networking Personnel
- e) Mechanical Division
 - Heating, Air Conditioning and Ventilation Personnel
 - Electricians
 - Plumbers
 - Preventive Maintenance Personnel
- f) Structural Division
 - Keys and Locks Personnel
 - Carpenters
 - Painters
 - Signs Personnel
- g) Design & Construction
 - Architects
 - Project Managers
 - Planners
 - Estimators

2. Class III Operations - This training is required for employees who will disturb or remove ACM, not to exceed one 60" x 60" bag of generated waste, in order to

perform their principal work. Initial training is 16 hours and annual refresher training is 2 hours. There are currently no staff members with this training.

3. In-House Asbestos Team – The in-house asbestos team was disbanded during the 2008 fiscal year. The APC is currently the only licenses asbestos supervisor on campus.

4. Non-University Personnel - Asbestos abatement contractors performing work for the university shall have EPA's MAP “Contractor/Supervisor” or “Worker” training and shall have the current Commonwealth of Virginia asbestos license. Departments requiring contracted asbestos abatement work shall coordinate work with the APC.

5. Training log of personnel and level of training is maintained under separate documentation. Contact EHSO for additional information.

B. Medical Surveillance Program

The EHSO maintains an Occupational Health Assurance Program in which a contracted occupational health care provider is used for medical surveillance services. The EHSO shall identify employees requiring medical surveillance.

1. For employees required to frequently wear negative pressure respirators (the APC only), an initial medical examination will be required to determine the ability to perform the work and use the equipment. The examination shall be performed by or under the supervision of a licensed physician.

2. These employees will be required to have an annual medical re-evaluation. Examinations or tests shall be performed as deemed necessary by the examining physician.

3. Employees shall also participate in the University’s Respiratory Protection and Personal Protective Equipment Programs.

C. Inspections and Periodic Surveillance

1. All buildings in which the initial building permit was issued before January 1, 1985, shall be inspected by a Virginia licensed Asbestos Inspector and Asbestos Management Planner prior to renovation/demolition work.

2. As specified in the Code of Virginia, 36-99.7, buildings in which the initial permit was issued after January 1, 1985 shall be exempt from an asbestos inspection. A signed statement may be provided by an architect or project engineer responsible for construction of the building or an accredited Inspector indicating that no asbestos containing building materials (ACBM) were specified as a building material, and to the best of his/her knowledge, no ACBM were used as a building material. In any circumstance where documentation is not available,

where there is conflicting information, or when there is any reason to suspect building materials may contain asbestos, notify the APC.

3. University personnel shall contact the APC when suspect asbestos containing materials will be disturbed in order to perform their intended work. The APC shall determine whether building materials are asbestos containing based on current documentation or shall collect bulk samples for laboratory analysis.

4. In-House and Contracted Asbestos Bulk Sampling – All asbestos bulk sampling shall be coordinated through the APC. If workload and scheduling permits, the APC shall perform the asbestos bulk sampling. If the APC is unable to perform asbestos bulk sampling, then the APC will contact and coordinate sampling with an asbestos consultant. Only the APC or a qualified consultant shall collect bulk samples. Samples shall be analyzed by a Virginia licensed asbestos analytical laboratory and shall be accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). The asbestos consultant shall submit reports to the APC, which detail the activities conducted as part of the inspection, lab results, and location of samples obtained, approximate quantities, and the delineation of identified ACM on floor plans.

D. Work Order Permit System

1. Each department, which includes but is not limited to Work Management Center, Office of Computing and Communications Services (OCCS), Office of Housing, and Facilities Management, that coordinates or conducts building repair, renovation or maintenance work shall delineate a chain-of-command and a departmental contact person(s) who will be responsible for:

- a) Requesting the sampling by the EHSO of suspect ACM that will be disturbed by the work
- b) Requesting a review by the EHSO of proposed work that is to be conducted in the vicinity of known or suspect ACM
- c) Distributing work orders that have been reviewed by the EHSO

2. The departmental contact will be provided with a building asbestos log for all buildings. The departmental contact person will use this information to review proposed work, review where all suspect materials have been sampled, and determine whether ACM or suspect ACM will not be disturbed. Any questions should be addressed to the APC.

E. Contractors Awareness Program

Contractors employed by the university shall be informed by the departmental project supervisor of the location of identified ACM in the work area to which they are assigned. Contractors shall, under no circumstances, damage or disturb suspect or known ACM unless they are appropriately trained and/or licensed to disturb or remove ACM.

The supervisors shall caution contractors that they shall not proceed with any change in the work that will require disturbance of a material which has not been previously tested. If a change in the scope of work becomes necessary, a new request form shall be submitted to the department in order to determine the potential disturbance of additional ACM.

It will be the responsibility of the contractor to provide asbestos awareness training and/or Class III operation training for their employees.

F. Notification

1. State & Federal Notification

State and Federal notification will be performed by the APC or the asbestos abatement contractor. Notification to the Virginia Department of Labor and Industry is required 20 days prior to the commencement of asbestos abatement work when the amount of ACM to be removed is greater than 10 linear feet or 10 square feet. Additionally, federal EPA shall be notified 10 days prior to the commencement of asbestos abatement work when the amount of ACM to be removed is greater than the National Emissions Standard for Hazardous Air Pollutants (NESHAP) thresholds limits of 260 linear feet, 160 square feet, or 35 cubic feet.

Notification to federal EPA is required for all buildings scheduled for demolition regardless of whether the amount of ACM is below the NESHAP thresholds or whether no friable asbestos will be impacted by the work.

State notification is not required, regardless of the quantity, for non-friable ACM that is in good condition and shall be removed intact.

2. Employee Notification

Every effort shall be made to notify in advance, employees who work in or adjacent to areas where asbestos activities will take place. For in-house and contracted asbestos abatement work, the APC shall send a written notice to the affected employees prior to abatement activities. Notifications shall be written and shall include information regarding the work to be performed, duration of the project, and the measures employed to minimize the potential for fiber release. The APC shall keep records of all written notifications.

G. Signs and Labeling of ACM

A labeling program will be implemented to identify known ACM in university buildings. The number and location of these signs or labels shall be sufficient to clearly identify ACM in routine maintenance areas. Labels shall conform to current OSHA standards.

Labeling in the form of posted warning signs or notices shall be used in areas where friable ACM is present, such as boiler rooms, and at entrances and around the perimeter of repair or renovation activities involving ACM. Reasonable precautions shall be taken to ensure that labels remain visible. During painting or other operations where labels will be hidden or covered, existing labels shall either be removed and new labels affixed after painting, or existing labels shall be otherwise protected. Signs shall read:



H. Standard In-House Work Practices and Procedures

For other than emergency response by the APC, asbestos abatement is no longer conducted by university personnel as of FY 2008.

I. Waste Management

Any asbestos waste generated by university personnel shall be placed in secure storage as determined by the APC until such time as it is removed by a licensed contractor or transporter.

Capital projects - The Project Manager shall ensure that provisions for proper asbestos waste handling, storage and disposal are included in the contract specifications.

J. Exposure Monitoring

1. Personal Air Samples for University Employees
 - a) The APC shall monitor and secure personal air samples for any asbestos related work performed. These samples shall be used to ensure that the 8-hour permissible exposure limit (PEL), 8-hour time weighted average (TWA) exposure and the excursion limit established by OSHA are not exceeded.
 - b) Sampling methodology and analysis shall conform to the requirements of 29 CFR 1926.1101.
2. Personal Air Sampling for Non-University Personnel
 - a) Asbestos abatement contractors shall be responsible for securing air samples for their own personnel to meet the requirements of 29 CFR

1926.1101.

K. Air Sampling during Asbestos Projects

1. General

a) Project monitors are required on asbestos abatement projects performed in buildings that are occupied or intended to be occupied upon completion of the asbestos project exceeding 260 linear feet, 160 square feet, or 35 cubic feet. The project monitor duties and functions are delineated in 18 VAC 15-20-455 and their responsibilities are in 18 VAC 15-20-456. The project monitor will perform a final visual inspection and will secure final clearance air samples using aggressive air sampling techniques (if required) as outlined in 1VAC30-110-10 through 1VAC30-110-80 of the Virginia Administrative Code.

b) The work area will be considered safe for re-occupancy if all final clearance air samples are less than 0.01 fibers per cubic centimeter (f/cc) of air sampled as determined by Phase Contrast Microscopy (PCM), or an average of 70 structures/mm² for all samples if analyzed by Transmission Electron Microscopy (TEM).

c) Aggressive air sampling will not be required to be performed if the work area is not contained and is not under negative pressure.

2. In-house and Capital Projects

a) The APC will provide project monitoring services for any in-house emergency projects.

b) The duties and functions of the project monitor as outlined in 18VAV 15-20-455, will include, but are not limited to, observing and monitoring the activities of an asbestos abatement contractor on asbestos projects to determine that proper work practices are used and that compliance with all federal, state and local laws and regulations is maintained. If services are contracted to an independent firm, the project monitor shall be licensed by the Commonwealth of Virginia as an asbestos project monitor. The project monitor will collect, at a minimum, environmental air samples during the asbestos project, perform visual inspections of the work area, and perform final visual inspections and aggressive final clearance air sampling. The number of air samples and the sampling methodology shall conform to current state requirements or shall be as directed by the APC..

c) The project monitor shall be on-site during all asbestos-related work activities.

3. Monitoring of Airborne Asbestos Fiber Concentrations in Buildings

a) The EHSO will make available to university employees, upon request, documentation of the background airborne asbestos fiber levels in university buildings. The EHSO will secure, if necessary, air samples to document the ambient exposure levels or may, if available, utilize existing records for this purpose.

L. Emergency Response Assistance

Any water or physical damage to ACM or PACM or any evidence of a possible asbestos fiber release shall be reported immediately to the APC. For asbestos emergencies outside of regular business hours, contact the APC through University Police Emergency at 683-4000. The APC shall evaluate the emergency and determine the appropriate corrective action that an asbestos abatement contractor will perform. The APC shall document all fiber release episodes.

M. Recordkeeping

The APC shall maintain records of all asbestos sampling and laboratory analyses. An asbestos log shall be maintained and amended as necessary by the APC. A list of ACM will be provided to departments for the purposes of maintaining the Work Permit System. The records shall be kept in an asbestos logbook at the EHSO. The APC shall also maintain all training records, all exposure monitoring records from in-house abatement activities, waste manifests, emergency response records, and building surveillance and inspection records.

The EHSO shall maintain records associated with related safety programs, such as Respiratory Protection and Personal Protective Equipment. Medical Surveillance records shall be maintained by the University's Occupational Health Care Provider. The physician's written opinion shall be maintained by the EHSO.

Capital Projects/In-House – Upon completion of contracted asbestos abatement activities, Planning and Construction shall provide EHSO with a copy of submittals, contract documents, project monitor's documentation, air monitoring results, and all other documentation related to the asbestos abatement.

APPENDIX A

IDENTIFIED ASBESTOS CONTAINING MATERIALS

BUILDING	ASBESTOS-CONTAINING MATERIALS (ACM)	LOCATION	COMMENTS
1555 W. 43 rd ST	linoleum	closets	
AFRICAN AMERICAN CENTER	9" floor tiles	Second floor beneath carpet	
	exterior siding	Second floor exterior	
ALFRIEND CHEMISTRY	9" floor tiles & associated mastic	various areas throughout building	
	Pipe elbows and fittings	various rooms and hallways	
	Fire doors	various locations	
BATTEN ARTS & LETTERS	white & brown sealant on HVAC ducts	consistent throughout building	
	joint compound on wallboard	consistent throughout building	
	window sill	consistent throughout building	
	door caulk	consistent throughout building	
	built up roof	9 story roof	
	flashing	9 & 3 story roofs	
	mastic on parapet wall	9 & 3 story roofs	
BENTHIC	9" floor tile and mastic	Left rear section of building	
EDUCATION BUILDING	floor tiles & associated mastic	various areas throughout building	<i>asbestos documentation incomplete; additional sampling and location verification required</i>
	plaster ceiling	various areas throughout building	
	ceiling tiles	various areas throughout building	
FILIPINO AMERICAN CENTER	Door caulk	West and north exterior doors	
	Floor tile and mastic	Director's office	
GRESHAM HALL & ANNEX	surfacing material on cinder block walls	throughout main bldg. & annex	<i>exterior sampling required</i>
	smooth & textured wall & ceiling plaster	throughout main bldg. & annex	
	joint compound on wallboard	throughout main bldg. & annex	
	mudded elbows	main bldg.- 3 rd floor, west wing mech. room	
	sealant/mastic on duct	consistent throughout building	
	floor tile mastic	annex only, 2 nd & 3 rd floors, laundry rooms	
	hot water heater insulation	annex only	
	cove base adhesive	throughout main bldg. only	
HUMAN RESOURCES I	linoleum	Front lobby	
HUMAN RESOURCES III	floor tile and mastic	Room 100-A	
BUILDING	ASBESTOS-CONTAINING MATERIALS (ACM)	LOCATION	COMMENTS

BUILDING	ASBESTOS-CONTAINING MATERIALS (ACM)	LOCATION	COMMENTS
HUGHES HALL	residual plaster ceiling at perimeter above drop ceiling tiles	South end of building- has been encapsulated	assume fire doors are asbestos containing;
	drop ceiling tiles with serpentine fissures	East end offices and rooms	
KAUFMAN ENGINEERING	black vent wrap sealant	East end offices and rooms	
	mudded pipe fittings and elbows	Throughout building	
	9" floor tiles	Various rooms in west end	
	12" floor tile and mastic	Throughout east end	
MILLS GODWIN JR. LIFE SCIENCE	cementitious panels (transite) at windows	assume throughout bldg.	
	12" tan floor tiles and mastic	assume throughout bldg.	
	floor tiles under carpet	assume throughout bldg.	
	red mastic on duct insulation wrap	assume throughout bldg.	
NAVY ROTC	Vent duct insulation and fire doors	Mechanical room	
	Cream/green floor tile	Room 101	
NUSBAUM APARTMENTS	12" brown floor tiles & mastic (under carpet and white floor tiles)	apartments 1-12 (1000 & 1004 49 th street)	roof inspection required.
	12" white floor tiles	apartments O-V (1010 49 th street)	
	brown floor tiles & mastic (under carpet and white floor tiles)	apartments O-V (1010 49 th street)	
	wallboard & joint compound, 2nd floor	apartments G-N (1011 49 th street)	
	brown floor tiles & mastic (under carpet and white floor tiles)	apartments G-N (1011 49 th street)	
	brown floor tiles & mastic (under carpet and white floor tiles)	apartments A-F (1000 48 th street)	
POWHATAN APARTMENTS	floor tile mastic	Powhatan I and II	
	cove base mastic	Powhatan I only	
	bottom later of white floor tile	Powhatan II only	
ROGERS HALL & ANNEX	joint compound on wallboard	various areas throughout building	
	carpet mastic	throughout main bldg.	
	ceiling and wall surfacing material	throughout main bldg. & annex	

BUILDING	ASBESTOS-CONTAINING MATERIALS (ACM)	LOCATION	COMMENTS
T/TAC	12" white floor tile	Throughout building	
UNIVERSITY AUDITOR	9" floor tile and mastic	2 nd floor beneath carpeting	

VISUAL ARTS BUILDING	Residual black mastic	1 st and 2 nd floor hallways	
WEBB CENTER	floor tile	men's room near loading dock	complete asbestos inspection documentation not available; confirmation sampling is required
	pipe insulation & mudded elbows	mechanical room, penthouse	
WHITEHURST HALL	floor tile mastic	tower B 2 nd floor laundry room, 1 st floor maintenance shop	
WRITING CENTER	Roof top unit flashing	roof	

The following buildings require additional asbestos sampling and/or a complete asbestos inspection to be performed.

BLDG. ID	BUILDING
0003	SPONG HALL
0051	ROLLINS HALL
0058	FACILITIES MGT
0055	KOCH HALL
0054	WEBB STUDENT CENTER
0019	PERRY LIBRARY
4300	MAG SCHOOL ART LAB
1335	MAG SCHOOL ADMIN
0033	ENG MOTORSPORTS
0009	PRETLOW PLANETARIUM

APPENDIX B

GLOSSARY / ACRONYMS

A. ACM

Asbestos Containing Materials.

B. Aggressive Method

Removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles, or disintegrates intact ACM.

C. Amended Water

Water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.

D. Asbestos

Chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered. For purposes of this standard, "asbestos" includes PACM, as defined below.

E. Asbestos Containing Materials (ACM)

Any material containing more than one percent asbestos.

F. APC

Asbestos Program Coordinator.

G. Building/Facility Owner

The legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place. For the purposes of this document, the "building /facility owner" is Old Dominion University.

H. Class I Asbestos Work

Activities involving the removal of TSI and surfacing ACM and PACM.

I. Class II Asbestos Work

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

J. Class III Asbestos Work

Repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.

K. Class IV Asbestos Work

Maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

L. Clean Room

An uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.

M. Competent Person

One who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f): in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92 (a)(2).

N. Critical Barrier

One or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

O. Decontamination Area

An enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

P. Demolition

The wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

Q. Disturbance

Activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. 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 which shall not exceed 60 inches in length and width.

R. EHSO

Old Dominion University's Environmental Health and Safety Office.

S. Employee Exposure

Exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

T. Equipment Room (change room)

A contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

U. Fiber

A particulate form of asbestos, 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

V. Friable

Material that when dry, may be crumbled, pulverized or reduced to powder by hand pressure and includes previously nonfriable materials after such previously nonfriable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure.

W. Glovebag

Not more than a 60 x 60 inch impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which material and tools may be handled.

X. High-Efficiency Particulate Air (HEPA) Filter

A filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.

Y. Homogeneous Area

An area of surfacing material or thermal system insulation that is uniform in color and texture.

Z. Industrial Hygienist

A professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

AA. Intact

The ACM has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.

BB. NVLAP

National Voluntary Laboratory Accreditation Program.

CC. Negative Initial Exposure Assessment

A demonstration by the employer, which complies with the criteria in paragraph (f)(2)(iii) of this section, that employee exposure during an operation is expected to be consistently below the PELs.

DD. PACM

"Presumed asbestos containing material".

EE. Presumed Asbestos Containing Material

Thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to paragraph (k)(5) of 29 CFR 1926.1101.

FF. Project Designer

A person who has successfully completed the training requirements for an abatement project designer established by 40 U.S.C. Sec. 763.90(g).

GG. 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; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit.

HH. Removal

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

II. Renovation

The modifying of any existing structure, or portion thereof.

JJ. Repair

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

KK. Surfacing Material

Material that is sprayed, 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, and other purposes).

LL. Surfacing ACM

Surfacing material which contains more than 1% asbestos.

MM. TSI

Thermal System Insulation

NN. Thermal system insulation

ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

OO. Thermal System Insulation ACM

Thermal system insulation which contains more than 1% asbestos.

APPENDIX C

REGULATIONS

The following are asbestos and asbestos-related regulations:

A. Federal Regulations

1. 29 CFR 1910.1001 –General Industry Asbestos Standard
2. 29 CFR 1926.1101 – OSHA Asbestos Construction Standard
3. 40 CFR 763 –AHERA, “Asbestos-Containing Materials in School Buildings”
4. 40 CFR 61 Subpart M –NESHAP
5. 29 CFR 1910.134, Respiratory Protection Standard
6. 29 CFR 1910.1200, Hazard Communication Standard

B. State Regulations

1. Code of Virginia
 - a. Title 2.2, Chapter 11, Section 1162–1164
 - b. Title 36, Chapter 6, Section 99.7
 - c. Title 40.1, Chapter 3.2, Asbestos Notification
 - d. Title 40.1, Chapter 3.3, Virginia Asbestos NESHAP Act
 - e. Title 54.1, Chapter 5, Asbestos, Lead, and Home Inspection Contractors and Workers
2. Virginia Administrative Code
 - a. 18VAC15-20, Virginia Asbestos Licensing Regulations
 - b. 16VAC25-20, Regulation Concerning Licensed Asbestos Contractor Notification, Asbestos Project Permits, and Permit Fees
 - c. 16VAC25-30, Regulations for Asbestos Emissions Standards for Demolition and Renovation Construction Activities and the Disposal of Asbestos-Containing Construction Wastes
 - d. 16VAC25-30, Department of Professional and Occupational Regulation
 - e. 1VAC30-110-10 through -80, Aggressive Air Sampling Standards to be Utilized in Final Clearance Inspections for Asbestos Projects in Local Education Agencies and Public Colleges and Universities in the Commonwealth of Virginia
 - f. 9VAC20-80-640, Asbestos Containing Wastes Materials

APPENDIX D

STANDARD IN-HOUSE WORK PRACTICES AND PROCEDURES

Note: All procedures prescribed herein have been excerpted in part or in whole from OSHA 29 CFR 1926.1101 which is the source document for asbestos work procedures. The OSHA instruction should be consulted and adhered to at all times during asbestos work. These practices and procedures remain in this plan for reference use only. Asbestos abatement is no longer performed by university personnel as of FY2008.

I. HYGIENE FACILITIES AND PROCEDURES

A. Isolation of Work Area

To prevent contamination, the work area where asbestos work is to be performed must be isolated from the rest of the building in order to protect occupants and the environment. Based on occupancy in the area adjacent to the asbestos work, the following procedures shall be utilized:

1. Unoccupied Areas - Areas such as equipment rooms, attics, pipe chases, etc., will require critical barriers over doorways, windows, ventilation, tunnel accesses, etc., to isolate the area from the rest of the building. Critical barriers will be constructed using a double layer of 6-mil poly. Barrier tape will be put up to identify the work area, and the regulated area will be carefully smoke tested and maintained under negative pressure for the duration of the job.
2. Occupied Areas - The area involved will be evacuated. Coordinate this with the supervisor of the affected area. Critical barriers will be installed using a double layer of 6-mil poly.. Movable items will be cleaned with a HEPA-filtered vacuum and wet wiped to remove any asbestos containing dust, and moved out of the functional area. Non-movable items will be sealed with 6-mil plastic and sealed to the floor with duct tape to prevent contamination. If the area cannot be evacuated, then a separate work area can be constructed using double 6-mil plastic and the necessary support frame.

B. Protective Clothing and Personal Protective Equipment

When performing asbestos work, in house employees shall wear:

1. half-face, negative pressure, air purifying, respirators as required by the EHSO's Respiratory Protection Program (respirators will be required for all phases of preparation for removal, repair, or cleaning where damaged ACM is present),
2. disposable whole-body clothing with hood and boots (ankles will be taped when needed to take up slack and reduce the chance of tripping),
3. gloves for hand protection,
4. hardhats (where required),
5. safety shoes or rubber boots (as required), and
6. hearing protection (where required).

C. Tools & Materials

Tools and materials required for asbestos operations include but are not limited to:

1. knives,
2. brushes,
3. wire cutters,
4. bone saw for cutting around pipe insulation,
5. HEPA vacuum,
6. scrapers,
7. mastic remover,
8. smoke tubes and aspirator bulbs,
9. rags or paper towels,
10. duct tape,
11. glovebags,
12. hand sprayer or spray bottle with amended water,
13. 6-mil plastic film
14. portable shower

D. Personnel Decontamination

As required, a three-chamber personnel decontamination unit will be constructed on site. This unit shall consist of a clean room, shower area, and equipment (dirty) room separated by airlocks made of double poly sheets. Wastewater must be filtered through a medium that is capable of removing suspended particles of a diameter greater than or equal to 5 microns. Filtered wastewater must be discharged into public sanitary sewer systems. Discharge of filtered water onto surface soil, asphalt, concrete, or any other porous surface shall not be permitted. Employees shall always enter and exit the asbestos regulated area using the following procedure:

1. Decontamination Procedures - Entry

- a. Remove street clothing in the clean room or clean area and store in designated area.
- b. Put on protective clothing and respiratory protection before leaving the clean room or clean area.
- c. Pass through the shower and equipment (dirty) room to enter the regulated area.

2. Decontamination Procedures - Exit

- a. Employees will remove their disposable suit in the dirty room and, with their respirator on, proceed to the shower.
- b. Employees will shower and remove the respirator after they have washed themselves and the exterior of the respirator. Cartridges will be disposed of as contaminated waste.
- c. Employees will proceed to the clean room and put on street clothing.

3. Decontamination Procedures – 2-Chamber Mini-Enclosure

- a. Employees will wear two disposable suits.
- b. When exiting enclosure, remove outer suit in work area and place in a plastic bag.
- c. Enter air lock.
- d. Wet wipe respirator, HEPA inner suit and wash hands with clean water.
- e. Remove respirator and place in a clean plastic bag.

E. Mini-Enclosure

The majority of anticipated asbestos work to be performed by in-house employees can be performed utilizing a mini-enclosure. A mini-enclosure can be portable or can be made by lining a closet with a double layer of 6-mil poly.

1. Establish the work area so that unauthorized entry is prevented. Construct a two-compartment work area utilizing wood framing. Install two layers of 6-mil poly sheeting to structural members and two layers 6-mil poly sheeting to the floor. Seal all edges to wall, ceiling, and floor surfaces with duct tape.
2. Seal with duct tape all penetrations such as pipes, electrical conduit, or ducts.
3. Install triple 6-mil polyethylene flaps at both doorways. Place a portable sprayer with clean water, disposable towels, and pre-labeled disposal bag in the air lock.
4. Post warning signs on the outside of the containment area.
5. Utilize the HEPA vacuum by extending the hose into the mini-enclosure area for general vacuuming, establishing of a slight negative pressure, and cleaning of disposable suit.
6. Accumulate all loose materials for disposal and place in plastic asbestos bags. Adequately wet clean all wall, floor, tool, and equipment surfaces. The amount of friable ACM which may be removed within a mini-enclosure shall be limited to 10 square feet or linear feet of material.

II. STANDARD WORK PRACTICES & PROCEDURES

A. Cleanup Procedures

Only employees who have OSHA Class III or EPA Model Accreditation Plan (MAP) “Contractor/Supervisor” or “Worker” training will perform asbestos cleanup. The following procedures shall be followed:

1. The area must be secured to prevent entry by unauthorized personnel. Functional areas will be locked and signs posted on all entries and exits. In hallways, sections at a time may be secured with barrier tape and signage. If possible, this procedure will be performed when the building is unoccupied.
2. Equipment to be used will include a HEPA vacuum, mops, a mop bucket, mist sprayer, muslin cloth, ladders and 6-mil plastic.
3. Employees will wear protective disposable suits and respirators. Personal and area air monitoring shall be performed by the APC or by other qualified personnel.
4. Starting at the entry way of the work area or the area to be cleaned, a clean area will be established by HEPA vacuuming the floor, then wet wiping it with a mop. This area will be of sufficient size to accommodate two people decontaminating and changing clothing as needed. A layer of 6-mil plastic will be laid and taped on the floor.
5. All movable items in the work area that can be decontaminated will be HEPA vacuumed and wet wiped, and then handed to an employee who has remained in the designed clean area, who will pass the item to the outside. Non-movable items will have to be vacuumed and wet wiped as they will remain in the area.
6. Attached fixtures, such as drinking fountains and fan coil units, will have to be cleaned on the interior as well as the exterior.
7. Ceilings that do not contain asbestos will be cleaned first with the HEPA vacuum. Also, the tops of light fixtures will be HEPA vacuumed and wet wiped. Be sure power has been turned off before cleaning lights or wall outlets.
8. Walls that do not contain asbestos will then be HEPA vacuumed and wet wiped.
9. The floors will be cleaned last and will be HEPA vacuumed and wet wiped. After HEPA vacuuming, if carpeted, the carpet will be steam cleaned. If tiled, floor will be washed thoroughly and wiped dry.
10. All excess, unfiltered water used will be collected and disposed of as contaminated waste.

11. Following completion of work, the cloth used to cover the mop head, and all rags used in the cleaning will be placed in disposable bags and disposed of as contaminated waste.
12. All equipment is to be cleaned and/or bagged and passed out of the work area. Plastic used to contain the clean area will be disposed of as contaminated waste.
13. Employees will then follow personal decontamination procedures.
14. If deemed necessary, collect air clearance samples and have them analyzed.
14. The area can then be opened to the public and items previously removed from the room can be returned.

B. Repair/Removal of Asbestos Containing Vinyl Floor Tile & Associated Mastic

Whenever possible, floor tile will be left in place. If removal of floor tile is necessary, it will be done so that it will not become friable, or subjected to sanding, grinding, cutting or abrading. If floor tile must be subjected to sanding, grinding, cutting or abrading or will become friable during removal, a licensed asbestos abatement contractor will be hired to perform removal under appropriate abatement conditions.

Non-friable floor tile removal will be done in accordance with the procedures for Class II removal found in 29 CFR 1926.1101 and will include the following:

1. If available, a current negative exposure assessment (within 12 months of the project) consisting of air monitoring of similar projects indicating that the PEL and excursion limit are not anticipated to be exceeded may be utilized. Otherwise, air monitoring will be performed by the APC or by a contracted air monitoring firm
2. All floor tile removal will be conducted in a regulated area, demarcated and with limited access.
3. All floor tile removal will be supervised by a competent person, defined as one who has met the requirements for an asbestos “Contractor/Supervisor” as defined by this program.
4. All employees performing floor tile removal shall have received either Class I or Class III asbestos training in accordance with the EPA MAP .
5. Floor tile will be wetted with amended water or by using a detergent (dish-washing liquid at one tablespoon per gallon) and water mixture.
6. Tiles will be removed intact wherever possible.

7. Rough spots on asbestos containing adhesive may be scraped using wet methods and/or mastic remover with a blade or putty knife, but must not be sanded.
8. Asbestos-containing flooring or its backing shall not be sanded. Sanding of adhesive containing asbestos may be done only by a licensed asbestos abatement contractor under full containment.

C. Stripping Asbestos-Containing Floor Tiles

1. Avoid stripping floors. Stripping of floors should be done as infrequently as possible. No more than once a year is recommended.
2. Only personnel who have received Asbestos Awareness Training shall perform stripping on asbestos containing floors.
3. Strip floors while wet. The floor should be kept adequately wet during the stripping operation. Do not perform dry stripping. Prior to machine operation, an emulsion of chemical stripper in water is commonly applied to the floor with a mop to soften the wax or finish coat. After stripping and before application of the new wax, the floor should be thoroughly cleaned, while wet.
4. Run machine at slow speed. If the machine used to remove the wax or finish coat has variable speeds, it should be run at slow speed (175-190 rpm) during the stripping operation.
5. Select the least abrasive pad possible. EPA recommends that the machine be equipped with the least abrasive pad possible to strip wax or finish coat from asbestos-containing floors.
6. Do not over strip floors. Stop stripping when the old surface coat is removed. Overstripping can damage the floor and may cause the release of asbestos fibers. Do not operate a floor machine with an abrasive pad on unwaxed or unfinished floors.

Note: Improperly removing asbestos-containing floor covering could result in the release of high levels of asbestos.

The above guidelines were developed by the U.S. Environmental Protection Agency in consultation with asbestos control professionals and several flooring material and floor care product manufacturers to reduce any possible exposure to asbestos fibers.

D. Disturbance of Asbestos Containing Ceiling Tiles

1. If work is to be performed in an office or area where occupant access is easily restricted, the entrance to the area must be properly posted with asbestos "**DANGER**" signs and no persons allowed entrance while work is underway. In other areas, i.e.,

hallways, an opaque barrier (dark polyethylene) must be erected to restrict access to the work area. This barrier is to be posted as above.

2. Floors and immovable objects below the affected tiles are to be covered with 6-mil polyethylene prior to starting work.
3. HVAC should be shut down and/or supply and exhaust vents should be covered, where feasible.
4. Workers must have a minimum of 16-hour Operations and Maintenance training from an EPA accredited training facility. Workers must wear respirators (half or full face), with HEPA filter cartridges, and disposable tyvek suits while performing work and clean-up.
5. A HEPA (high efficiency particulate air) vacuum must be used to vacuum all tiles before they are removed. If possible, the top of the tile adjoining one that is to be displaced should be vacuumed before the affected tile is placed on it. This will avoid contamination of the underside of the affected tile. All tiles left in place, across which cable, etc., will be dragged, must also be vacuumed (extension nozzles are available for this purpose). In addition, any equipment and the work area around it located above the drop ceilings must be HEPA vacuumed prior to working on the equipment.
6. Upon completion of work, all tiles are to be replaced in their original position. Gaps due to damaged/missing tiles are to be covered with dark polyethylene sheeting until suitable replacement tiles are obtained. Any generated waste shall be placed in asbestos disposal bags. Disposal shall be coordinated with the EHSO or Facilities Management.
7. All floor polyethylene sheeting, polyethylene sheeting covering immovable objects and barrier polyethylene (where applicable) is to be HEPA vacuumed and/or wet-wiped before it is taken up.
8. Area and/or personal air samples will be taken during the work. The samples will be taken by the APC or by qualified personnel.

E. Small Scrapes for Drilling on Asbestos Containing Wall/Ceiling Surfacing Material

Surfacing material found on some walls and ceilings on the campus has been determined to contain small amounts of asbestos. Where the need arises to drill into this material in order to mount shelves or other similar circumstance, the following protocol must be followed.

1. These procedures must be carried out by personnel trained, at a minimum, in Class III asbestos work.
2. Locate the areas on the wall where drilling is to occur. Delineate the areas surrounding these locations. This can be up to approximately one square foot of area space.

3. Spray the area to be removed thoroughly with amended water.
4. Wearing gloves, carefully scrape the surfacing layer into a sealed plastic bag.
5. Wipe the area with a damp cloth. Dispose of the cloth in the plastic bag.
6. Remove the gloves and place them in the sealed plastic bag for disposal.
7. Spray the area with a clear penetrating encapsulant.
8. These procedures will apply only to drilling or power tools of any sort utilized to penetrate the painted, textured surface. Smooth penetrating objects such as nails utilized to hang pictures will not require any special or extraordinary protocol be used.

