

NEEDHAM PUBLIC SCHOOLS

**AHERA
2021 THREE-YEAR
RE-INSPECTION REPORT
FOR
ADMINISTRATION BUILDING
1330 HIGHLAND AVENUE**

UNIVERSAL ENVIRONMENTAL CONSULTANTS
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CERTIFIED PERSONNEL INFORMATION

INSPECTOR INFORMATION

INSPECTOR NAME: Jason Becotte
CONSULTING FIRM: Universal Environmental Consultants
STATE OF ACCREDITATION: Massachusetts
ACCREDITATION NUMBER: AI-034963

I certify as an inspector that I have re-inspected the said building in accordance with AHERA regulations 40 CFR Part 763 Section 763.88.


INSPECTOR SIGNATURE: 

DATE: January 25, 2021

MANAGEMENT PLANNER INFORMATION

MANAGEMENT PLANNER NAME: Leonard Busa
CONSULTING FIRM: Universal Environmental Consultants
STATE OF ACCREDITATION: Massachusetts
ACCREDITATION NUMBER: AP-030673

I certify as a Management Planner that I have reviewed this re-inspection report for the said building in accordance with AHERA regulations 40 CFR Part 763 Section 763.88.

MANAGEMENT PLANNER SIGNATURE: 

DATE: January 28, 2021

DESIGNATED PERSON INFORMATION

NAME: _____

ADDRESS: _____

PHONE: _____

TRAINING FACILITY: _____

DATE OF TRAINING: _____

Signature of Designated Person

DESIGNATED PERSON (DP) ASSURANCES

In accordance with 40 CFR § 763.93(i) of the Environmental Protection Agency (EPA) Asbestos Containing Building Material (ACBM) in Schools regulation, the undersigned Local Education Agency (LEA) Designated Person (DP) hereby certifies that the following general responsibilities of the LEA under 40 CFR § 763.84 have been or will be met:

1. Ensure that the activities of any person, who perform inspections, re- inspections, and periodic surveillance, develop, and update management plans, and develop and implement response actions, including operations and maintenance, are carried out in accordance with Part 763, Subpart E.
2. Ensure that all custodial and maintenance employees are properly trained as required by Part 763, Subpart E and other applicable Federal and/or State regulations (e.g., the Occupational Safety and Health Administration asbestos standard for construction, the EPA worker protection rule, or applicable State regulations).
3. Ensure that workers and building occupants, or their legal guardians, are informed at least once each school year about inspections, response actions, and post-response action activities, including periodic re-inspection and surveillance activities that are planned or in progress.
4. Ensure that short-term workers (e.g., telephone repair workers, utility workers, or ex terminators) who may come in contact with asbestos in a school are provided information regarding the locations for ACBM and suspected ACBM assumed to be Asbestos Containing Materials (ACM).
5. Ensure that warning labels are posted in accordance with § 40 CFR 763.95.
6. Ensure that management plans are available for inspection and notification of such availability has been provided as specified in the management plan under § 40 CFR 763.93(g).
7. Designate a person to ensure that requirements under § 763.84 are properly implemented and ensure that the designated person receives adequate training to perform duties assigned under § 763.84. Such training shall provide, as necessary, basic knowledge of health effects of asbestos; detection, identification, and assessment of ACM; options for controlling ACBM; asbestos management programs; relevant Federal and State regulations concerning asbestos, including those in Part 763, Subpart E and those of the Occupational Safety and Health Administration and the U.S. Environmental Protection Agency.
8. Consider whether any conflict of interest may arise from the inter-relationship among accredited personnel and whether that should influence the selection of accredited personnel to perform activities under Part 763, Subpart E.

1.0 INTRODUCTION:

On October 22, 1986, President Reagan signed into law an amendment to the Toxic Substance Control Act requiring schools to determine the presence of asbestos containing building materials in all school buildings. That amendment, called the Asbestos Hazard Emergency Response Act (AHERA) required that all school buildings be visually inspected by accredited inspectors and that bulk samples of suspected materials are taken where the material was not assumed to be asbestos. It further required that management plans be created for each individual building and that the maintenance and custodial personnel receive training. The plan must be implemented, and the training must be completed by July 9, 1989. This document is the Asbestos Management Plan, which provides the means and the methods to effectively deal with asbestos containing building materials.

The AHERA regulation also requires that each school building be re-inspected every three years encompassing the following actions:

1. Visually re-inspect, and reassess, under 40 CFR Part 763 Section 763.88, the condition of all friable known or assumed ACBM.
2. Visually inspect material that was previously considered non-friable ACBM and touch the material to determine whether it has become friable since the last inspection or re-inspection.
3. Identify any homogeneous areas with material that has become friable since the last inspection or re-inspection.
4. For each homogeneous area of newly friable material that is already assumed to be ACBM, bulk samples may be collected and submitted for analysis in accordance with 40 CFR Part 763 Section 763.86 and 40 CFR Part 763 Section 763.87.
5. Assess, under 40 CFR Part 763 Section 763.88, the condition of the newly friable material in areas where samples are collected and newly friable materials in areas that are assumed to be ACBM.
6. Reassess, under 40 CFR Part 763 Section 763.88, the condition of friable known or assumed ACBM previously identified.

All findings in this re-inspection report must be included in the original AHERA Management Plan.

2.0 SUMMARY:

A. Inspection:

All known or assumed to be ACBM homogeneous areas were taken from the existing Management Plans and previous re-inspection reports or obtained during the inspection. Each of the ACBM homogeneous¹ areas found in the existing Management Plans were reviewed and reassessed by the accredited inspector licensed in the State of Massachusetts. The reassessment was conducted by physically examining the ACBM or suspect materials to determine friability and level of damage. These assessments can be found in the Inspection Spread Sheets, which also includes ACBM, which found to be physically damaged that might requires corrective actions.

B. Inspection Spread Sheets of Asbestos Containing Materials:

The assessment chart contains homogeneous areas', type of material, location of material, classification of ACBM, friability and AHERA Assessment as follows:

AHERA ASSESSMENT CATEGORIES

| | |
|-------------------|--|
| CATEGORY 1 | Damaged or significantly damaged thermal system insulation ACM |
| CATEGORY 2 | Damaged friable surfacing ACM |
| CATEGORY 3 | Significantly damaged friable surfacing ACM |
| CATEGORY 4 | Damaged or significantly damaged friable miscellaneous ACM |
| CATEGORY 5 | ACBM with potential for damage |
| CATEGORY 6 | ACBM with potential for significant damage |
| CATEGORY 7 | Any remaining friable ACBM or friable suspected ACBM |

C. LEA Responsibilities:

The following requirements must be implemented as part of the EPA AHERA regulations.

- The LEA must designate a person who will be responsible of all AHERA requirements. The DP must have the required training (8 hours) that has to be performed at an EPA approved training provider.
- All custodians must have required training (2 hours).
- Surveillance inspections of all Schools must be performed every six months by either a licensed asbestos inspector or the DP.
- All Schools must be inspected every three years and the Management Plans updated by a licensed asbestos inspector.
- Parents and teachers must be notified on a yearly basis of the presence of the AHERA Management Plans.
- Three year inspections of all Schools must be performed by a licensed asbestos inspector.

¹ Homogeneous Area: Classification type for materials of similar appearance and texture. That is, materials throughout the facility that appear to be the same are grouped as one homogeneous area.

3.0 GLOSSARY OF TERMS

ABIH

American Board of Industrial Hygiene

Abatement

Any work done to minimize asbestos hazards including removal, encapsulation, and enclosure

Acoustical Insulation

Insulation used for the control of sound

Acoustical Tile

A finishing material in a building usually found in the ceiling or walls for the purpose of noise control.

AIHA Accredited Laboratory

A certification given by the AIHA to an analytical laboratory that has successfully participated in the “Proficiency Analytical Testing” program for quality control as established by the National Institute for Occupational Safety and Health

Airborne Asbestos Analysis

Determination of the amount of asbestos fibers suspended in a given amount of air

Air Monitoring

The process of measuring the airborne fiber concentration of a specific quantity of air over a given amount of time

Air Plenum

Any space used to convey air in a building or structure, the space above a suspended ceiling is often used as an air plenum.

Air Sample

Sample of air taken for the purpose of determining a quantity of material found in the air.

Ambient Air

The surrounding air or atmosphere in a given area under normal conditions.

Approved Landfill

A site for the disposal of asbestos containing and other hazardous materials that are being removed

Asbestos

A generic name given to a number of naturally occurring hydrated mineral silicates that possess a unique crystalline structure, are incombustible in air, and are separable into fibers. Asbestos includes the Asbestiform varieties of Chrysotile (serpentine); Crocidolite (riebeckite); Amosite (cummingtonite-grunerite); Anthophyllite; and Actinolite.

Asbestos Abatement

Procedures to control fiber release from asbestos—containing materials in buildings.

Asbestos Exposure Assessment System

A decision tool which can be used to determine the extent of the asbestos hazard that exists in a building, and which can also be used to develop corrective actions.

Asbestos Fibers

Fibers greater than 5 microns long and a length to width ratio of at least 3:1, generated from an asbestos containing material.

Asbestos Standard

Refer to the OSHA requirements in the general industry standards regarding asbestos exposure (29 CFR 1910.1001), and EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) (40 CFR 61, subpart 14) or Asbestos Abatement Projects (40 CFR Part 763) applicable for public employees

Asbestosis

A non-malignant, progressive, irreversible lung disease caused by the inhalation of asbestos dust and characterized by diffuse fibrosis. This disease usually occurs after high level exposures.

Atmosphere Supplying Respirators

Respiratory protection devices which exclude workplace air altogether and provide clean air from some independent source.

Bid

A statement of the price at which a contractor will complete a given project

Bulk Sample

Physical sample of the material (i.e., piece of covering or ceiling material). This is in contrast to an air sample where the air itself is sampled for fibers. Bulk samples are taken to determine if a material contains asbestos

Cancer

A cellular tumor which normally leads to premature death of its host unless controlled.

Ceiling Concentration

The maximum allowable level of toxic material that can be present at any given point in time

CFM

Cubic feet per minute

Clean Area

The first stage of the decontamination enclosure system in which workers prepared to enter the work area.

Contract Specifications

A set of guidelines that a contractor must follow when conducting an asbestos abatement job.

DEP

Department of Environmental Protection

Dirty Area

Any area in which the concentration of airborne asbestos fibers exceeds 0.01-f/cc, or where there is visible asbestos residue.

| | |
|--|---|
| <u>DLS</u> | Department of Labor Standards |
| <u>Electron Microscopy</u> | A method of asbestos sample analysis which utilizes an electron beam to differentiate between fibers. |
| <u>EPA</u> | Environmental Protection Agency (Federal Agency) |
| <u>F/CC</u> | Fibers per cubic centimeters of air (a cubic centimeter is about the size of a sugar cube). |
| <u>Friable Asbestos</u> | Any materials that contain more than 1% asbestos by weight and can be crumbled, pulverized, or reduced to powder by hand pressure (i.e., asbestos pipe coverings, boiler casings, I-beam spray-on). |
| <u>Glove bag</u> | Plastic bag-type enclosure placed around asbestos-containing pipe lagging so that it may be removed without generating airborne fibers into the atmosphere. |
| <u>HEPA</u> | High Efficiency Particulate Air (Filter) |
| <u>MSDS</u> | Material Safety Data Sheet |
| <u>Negative Pressure</u> | An atmosphere created in a work area enclosure such that airborne fibers will tend to be drawn through the filtration system rather than leak out into the surrounding areas. The air pressure inside the work area is less than that outside the work area. |
| <u>Non-friable Asbestos</u> | Materials which contain mostly binder and do not generate dust under normal conditions. Note: non friable materials can become friable if cut, ground, sanded, etc. (i.e., floor tiles). |
| <u>Operations & Maintenance Plan</u> | Specific procedures and practices developed for the interim control of asbestos containing materials in buildings until it is removed. |
| <u>OSHA</u> | The Occupational Safety and Health Administration which was created by the Occupational Safety and Health Act of 1970; serves as the enforcement agency for safety and health in .the workplace environment. |
| <u>Transmission Electron Microscopy (TEM)</u> | A method of microscopic analysis which utilizes an electron beam that is focused onto a thin sample. As the beam penetrates (transmits) through the sample, the difference in densities produces an image on a fluorescent screen from which samples can be identified and counted. |

SOURCE:

Asbestos Policy & Procedure Manual, "Guidelines for Management and Maintenance Personnel" Massachusetts Division of Occupational Hygiene Asbestos Program.

4.0 RESOURCES REQUIRED FOR THE LEA

The following are estimated costs required to carry out re-inspections, operation and maintenance, periodic surveillance and training and all related costs.

The annual estimated cost is \$850.00.

5.0 RESOURCES REQUIRED TO-COMPLETE RESPONSE ACTIONS:

The following are estimated costs to properly remove and dispose of all ACBM, to properly remove or repair and dispose of damaged ACBM in the building in accordance with federal and state regulations. All abatement activities will be performed by Massachusetts licensed asbestos abatement contractors under the supervision of Massachusetts licensed asbestos project monitor. All asbestos abatement activities must be designed by a Massachusetts licensed asbestos designer. The estimated costs do not include replacement.

An EPA NESHAP regulation inspection must be performed should renovations or demolitions takes place. The listed costs do not apply since additional ACBM might be found on the exterior of the building and in concealed locations.

Various activities might be performed by in house trained personnel. Refer to the O&M Plan.

The estimated cost to remove and dispose of all accessible/damaged ACBM in the building is \$800.00. The estimated cost for design, construction monitoring, and air sampling is \$500.00.

6.0 OBSERVATIONS AND RECOMMENDATIONS:

A Massachusetts licensed asbestos inspector was on site to perform the AHERA Third Year Re-Inspection. Please refer to this page in conjunction with the spreadsheets located in section two of this report for information regarding the location, condition, and recommended response actions for ACBM located in the building. Refer to O&M Program for preventive measures.

- Pipe insulation was found to contain asbestos and found to be significantly damaged at the basement water heater room. The ACBM should be removed. Refer to O&M plan for recommended procedures.
- Refer to the original management plan and previous inspection reports for suspect materials previously sampled.

7.0 DATES FOR RECOMMENDED RESPONSE ACTIONS:

The damaged ACBM should be removed starting February 15, 2021 and completed by May 31, 2021.

8.0 MATERIALS FOUND NOT TO CONTAIN ASBESTOS

The following suspect materials were found not to contain asbestos:

12" x 12" vinyl floor tile.

12" x 12" vinyl floor tile Mastic.

Linoleum floor covering.

Linoleum floor covering mastic.

Record Keeping Review

| | LEA (Yes/No) | UEC (Yes/No) | Comments |
|--|--------------|--------------|--|
| Designated Person Statement: Is the report signed and also includes the LEA Designated Person information and training documentations. | _____ | No | The Designated Person was informed to complete and sign. |
| Training Documentation: Have all custodial and maintenance personnel received two-hour awareness training. | _____ | No | LEA was informed that training is required. |
| Annual Notifications: Has the LEA posted or provided the annual notifications. If so, how. | _____ | No | LEA was informed that Notifications is required. Copy is attached. Placing in the school's website is the best option. |
| Periodic Surveillance: Are dated copies in the plan for each 6-month surveillance inspection. | Yes | Yes | |
| Outside Contractors: Does the LEA notify outside vendors that asbestos is present? Method used. | _____ | No | LEA Shall use form found in the O&M Plan for Notifications. |
| Response Action Records: For any asbestos abatement in the last 3 years, are response action records included in the plan (Refer to the checklist or record). | _____ | No | LEA shall keep all logs within the AHERA Plan. |
| Bulk Sample Reports: Are laboratory reports included for any suspect ACM that is not assumed ACM? Does the chain of custody list type and location of the suspect material sampled? | Yes | Yes | |
| Management Plan/Third Year Re-Inspection Report: Is a copy located in each school office and the LEA office. | _____ | No | LEA shall place one copy at the office of the principal. |
| Warning Signs: Are warning signs posted in routine maintenance and storage areas where ACM is present. | _____ | No | LEA was informed that labels are required. |
| Architect Statement: Is the architect statement present for any new construction, renovation, or addition. | Yes | Yes | |

LEA DESIGNATED PERSON RESPONSIBILITY

The LEA shall be responsible for the following:

1. Arranging and coordinating training for all faculty and staff with annual updates for new personnel.
2. Arranging for abatement procedures called for in the abatement recommended actions.
3. Complying with all state, OSHA, or EPA rules or regulations regarding asbestos abatement activities.
4. Routine maintenance activities by in-house personnel.
5. Coordinating and overseeing work done by outside contractors if the possibility exists that ACBM can be disturbed by this work.
6. Establishment of a respiratory protection program for "Asbestos Maintenance" in accordance with OSHA recommendations.
7. Procurement and maintenance of specialized equipment and supplies needed for implementation of this plan.
8. Monitoring of all asbestos containing materials in the building.
9. Ensure that all asbestos waste generated at the school is packaged, transported, and disposed of in accordance with EPA requirements and that the necessary chain of custody documentation is maintained.
10. Warnings, notifications, and record keeping as outlined in U.S. EPA Regulations 40 CFR Part 763.
11. Maintenance of all medical records required by OSHA for any school employees involved in in-house repair or removal of ACBM.
12. Updating existing management program every six months.
13. Labeling Asbestos Containing Building Materials.

A. RESOURCES NEEDED:

EQUIPMENT:

- HEPA vacuum
- Half-face respirator
- Emergency repair tool kit
- Disposable type suits
- 6-mil polyethylene sheeting
- Asbestos labeled bags

SUPPORT PERSONNEL:

- Licensed Consultant
- Trained Maintenance Personnel

B. NOTIFICATION:

The LEA is responsible for informing all building occupants annually of the asbestos control program at the school. Notification serves two purposes: It alerts affected parties to a potential hazard in the building; and it provides basic information on avoiding the hazard. Building occupants, employees, and others who are aware of the presence of ACBM are less likely to disturb the material and cause fiber release. It is recommended to post in the school's web site.

C. PERIODIC SURVEILLANCE:

At least once every six months, the LEA or his/her designee will conduct periodic surveillance in each building that contains asbestos-containing thermal system insulation. Each person performing periodic surveillance shall:

1. Visually inspect all areas that have been identified as ACBM

2. Record the data of the surveillance, his or her name, and any changes in the condition of ACBM
3. Submit to the Asbestos Control Manager a copy of such a record or report for inclusion into the management plan or permanent asbestos file

D. RE-INSPECTION:

1. Re-inspection of friable and non-friable ACBM every three years
2. Inspection by an accredited inspector
3. Re-inspection shall include:
 - A. Visual re-inspection of all friable ACBM and newly friable ACBM
 - B. Re-assessment of all friable ACBM
 - C. Recheck all previously non-friable ACBM to determine if they have become friable
 - D. Identify newly friable materials
 - E. Collect and submit samples of newly friable ACBM if previously assumed to be ACBM
 - F. Assess under 763.88, newly friable ACBM
 - G. Reassess condition of previously identified friable ACBM
 - H. Record and submit:
 1. Re-inspection report
 2. Inventory of homogeneous areas. Exact sample site locations
 3. Description of manner used to determine sample site locations

E. RECORDKEEPING:

The O&M plan contains the specifications and forms for keeping records regarding any repair or removal work involving ACBM. The record keeping procedure assures that:

1. Major repair work carried out by outside contractor is documented
2. Minor repair work by qualified in-house worker is documented
3. Monitoring of remaining asbestos is recorded
4. Personnel records for training and medical monitoring are kept

In general, this record keeping system must track two types of data: data on the physical condition of the ACBM's and actions taken on those ACBM's; the data associated with the personnel involved with the asbestos management program.

Tracking of the ACBM's maybe thought of as the tracking of physical inventory. The condition of the material recorded at intervals (record of the inspection and surveillance), that recording of substantive changes in material status (removal, enclosure or encapsulation), various required reports to governing bodies (notices of abatement and disposal actions to the EPA) and the recording of a new audited inventory in the context of the 3-year re-inspection.

Personnel tracking require: identity; training; medical monitoring; and exposure of the individual to be recorded on a form (which is to be on file for a period of at least 30 years). The following record formats and descriptions are intended as generalized basic examples of the type of records required for daily use.

LIST OF REQUIRED RECORDKEEPING (763.94)

1. Records location
 - A. Removal records retention
 - B. Records as part of the management plan

2. For each preventive measure:
 - A. Detailed written description of measure or action including,
 1. Location of measure or action
 2. Methods used
 3. Reasons for selecting the measure of action
 4. Name and addresses of all contractors involved
 - B. Identification of person taking clearance air samples
 1. Locations where samples were collected
 2. Date of collection
 3. Name and address of analysis lab
 4. Date of analysis
 5. Method of analysis
 6. Name and signature of person performing the analysis
 7. Statement that lab meets 763 .90(1) (2) (ii)
3. For each person required to be trained under 763.92(a) (1) and (2):
 - A. Name and job title.
 - B. Date training completed
 - C. Location of training
 - D. Hours of training
4. For each periodic surveillance under 763 .91 (c):
 - A. Name of person performing surveillance
 - B. Date of surveillance
 - C. Any changes in the conditions of materials
5. For each cleaning under 763.91(d):
 - A. Name of each person performing cleaning
 - B. State and completion dates
 - C. Locations
 - D. Description of activity
 - E. Method of used
6. For each time an O&M activity is performed under 763.91(d):
 - A. Name of each person performing activity
 - B. State and completion dates
 - C. Locations
 - D. Description of activity
 - E. Measure used
 - F. Locations of storage/disposal site
7. For each time that a major asbestos activity under 763.9 1(a) is performed:
 - A. Name, signature, state of accreditation, number of persons performing activities.
 - B. Start and completion dates,
 - C. Locations and description of activity.
 - D. Methods used.
 - E. Location of storage disposal site.
 - F. Results of any air sampling analysis performed.
8. For each fiber release episode under 763.91(f):
 - A. Date and location of the episode,
 - B. Method of repair,
 - C. Preventive measures taken.
 - D. Name of each person performing work.
 - E. Location of storage/disposal site.

THIRD YEAR RE-INSPECTION SPREADSHEETS

The regulations require that this report provide a considerable quantity of specific data related to asbestos containing materials within buildings. The information contained in these spreadsheets provides a condensed, easy to use summary of much of that data. It indicates whether or not the various building materials contain asbestos. If they do, the spreadsheets indicate where the asbestos is located, what kind of asbestos it is, and most importantly, what actions are recommended to be taken. The measures include both scheduled action by asbestos abatement contractors as well as day to day activities by the building's custodial and maintenance personnel.

You should find these spreadsheets easy to use and very helpful. To assist you in its use, the following pages provide column by column explanations of the spreadsheets.

HOMOGENEOUS AREA:

This column defines the various homogeneous areas throughout the building. It is important that you understand the concept of a homogeneous area. It is really very simple. By definition a homogeneous area is one in which the materials, are evenly mixed and similar in appearance and texture throughout. All that means is that the materials appear to be the same. Therefore, during the survey, all the materials throughout the school that appeared to be the same were grouped into homogeneous areas. For example, a given building may have had a white, speckled 2' x 2' suspended ceiling in several of the classrooms. Therefore, one homogeneous area was described as 2' x 2' suspended ceiling and its area was comprised of every school classroom in which that suspended ceiling was present. Another example is hard joints on pipe insulation. Generally, hard, joints on pipe insulation are similar in texture and appearance. Therefore, all joints on a particular type of pipe were considered one homogeneous area.

As you can see a homogeneous area is just the means by which similar materials are grouped. The importance of the homogeneous area is that it provides a method to determine whether or not a material contains asbestos without having to sample every building material in every room. When homogeneous areas have been defined, representative samples of that material are taken and tested to determine whether or not they contain asbestos. Based on those test results, it can logically be presumed whether or not all the material in a given homogeneous area does or does not contain asbestos.

Turning to the spreadsheet you will see that in the first column each homogeneous area is assigned a number starting with 1. The number of homogeneous areas in each building will vary depending on how many types of building materials there are.

DESCRIPTION:

This column provides a brief description of what each homogeneous area is and lists all the areas within the building in which that material is present. For example, a description of one homogeneous area may be "Joint Insulation". Then under that description, will be a listing of all the rooms in the school in which that joint insulation is present.

SAMPLE NUMBER:

This column is for the sample number. The number is comprised of three numbers divided by dashes. The first number identifies the date the sample was taken. The second number identifies the each individual sample number taken in the specific building. For each homogeneous area, the sample numbers are listed only in the rooms where actual samples were taken. For all the other rooms within a homogeneous area where there is no sample number listed, there was no sample taken. However, because the materials are in the same homogeneous area, it is assumed that the materials are similar.

ASBESTOS TYPE:

If there is asbestos present, this column defines the percentage of asbestos and the type asbestos. These are defined by a number and a four letter abbreviation. The number is the percentage of asbestos and the four letter abbreviation represents the type of asbestos. In the lower left hand corner of each spreadsheet there is a legend

which explains what each abbreviation stands for. For example, CHRY stands for Chrysotile. If no asbestos was found in the sample, "0%" or "ND" is listed in the column. Please note that only the specific samples taken indicate the type and percentage of asbestos. For all other areas within a homogeneous area where no specific sample was taken, the material is either assumed positive or negative based on the results of the actual samples.

MATERIAL:

The next three columns describe the material by the following criteria:

Type:

This column identifies the type of material as "S" for Surfacing, "T" for Thermal or "M" for Miscellaneous. Surfacing materials include such items as acoustical spray, wall and ceiling plaster, and spray on fireproofing. Thermal materials include such items as hard joints, boiler insulation, and duct insulation. Miscellaneous materials include such items as suspended acoustical tile and vinyl floor tile.

Location:

This column places the location of the sample into two broad categories. Either "AC" for above ceiling or "BC" for below the ceiling;

Quantity:

This column represents the quantity of material present. In the case of pipe insulation the quantity is linear feet. In case of hard joints the quantity is for each joint.

FRIABILITY:

If a material contains asbestos, this column indicates whether the material is friable or non-friable. A friable material is one that contains 1% or more of asbestos by weight and can be crumbled, pulverized, or reduced to powder by hand pressure. Non-friable materials are all other types of asbestos containing materials.

It is important to remember that the danger of asbestos is when the fibers become airborne. Therefore, the friable asbestos is potentially more dangerous than the non-friable asbestos. In this column each material containing asbestos is defined by "F" for friable or "NF" for non-friable.

AHERA ASSESSMENT CATEGORIES:

This column indicates the assessments made in accordance with EPA guidelines.

RECOMMENDATIONS:

This column indicates the recommended action and dates to complete the work (if needed).

AHERA ASSESSMENT CATEGORIES

| | |
|-------------------|--|
| CATEGORY 1 | Damaged or significantly damaged thermal system insulation ACM |
| CATEGORY 2 | Damaged friable surfacing ACM |
| CATEGORY 3 | Significantly damaged friable surfacing ACM |
| CATEGORY 4 | Damaged or significantly damaged friable miscellaneous ACM |
| CATEGORY 5 | ACBM with potential for damage |
| CATEGORY 6 | ACBM with potential for significant damage |
| CATEGORY 7 | Any remaining friable ACBM or friable suspected ACBM |

| HOM. AREA | DESCRIPTION | SAMPLE NO. | % ASBESTOS & TYPE | MATERIAL | | | FRIABILITY | 2021 AHERA ASSESSMENT 40 CFR 763.88 | RESPONSE ACTION START/END DATES | SPECIAL CLEANING NEEDED | RECOMMENDATIONS REFER TO REPORT FOR DATES AND COST ESTIMATES |
|-----------|--|------------|-------------------------------|------------------|------------------|--------------------------------|------------|---|---------------------------------------|-------------------------------|---|
| | | | | TYPE | DAM | QUANTITY | | | | | |
| 1 | NEW LIGHT PINK 12"X 12" VINYL FLOOR TILE CUSTODIAN CLOSET | | PREVIOUSLY TESTED NEGATIVE | M | N | 60 SF | | | | | |
| 2 | NEW 12"X 12" GREY W/GREEN VINYL FLOOR TILE FIRST FLOOR MAIN CORRIDOR BASEMENT MAIN CORRIDOR FIRST FLOOR OFFICES BASEMENT OFFICES | | PREVIOUSLY TESTED NEGATIVE | M M M M | N N N N | TOTAL 7,500 SF | | | | | |
| 3 | MASTIC FOR GREY LINOLEUM FLOOR COVERING STAIRWELL #1 STAIRWELL #2 | | PREVIOUSLY TESTED NEGATIVE | M M | N N | 125 SF 125 SF | | | | | |
| 4 | BROWN LINOLEUM FLOOR COVERING BASEMENT STAIRWELL #1 BASEMENT STAIRWELL #2 | | PREVIOUSLY TESTED NEGATIVE | M M | N N | 100 SF 100 SF | | | | | |
| 5 | MASTIC FOR BROWN LINOLEUM FLOOR COVERING BASEMENT STAIRWELL #1 BASEMENT STAIRWELL #2 | | PREVIOUSLY TESTED NEGATIVE | M M | N N | 100 SF 100 SF | | | | | |

ASBESTOS TYPE
 CHRY Chrysotile
 AMOS Amosite
 ACTI Actinolite
 ANTH Anthophyllite
 CROC Crocidolite
 ND None Detected

QUANTITY
 SF Square Feet
 LF Linear Feet
 EA Each
 TO Total

NOTATIONS
 N No
 Y Yes
 ~ Material Inaccessible

TYPE OF MATERIAL
 M Miscellaneous
 S Surfacing
 T Thermal

- (1) Damaged or significantly damaged thermal system insulation ACM.
- (2) Damaged friable surfacing ACM.
- (3) Significantly damaged friable surfacing ACM.
- (4) Damaged or significantly damaged friable miscellaneous ACM.
- (5) ACBM with potential for damage.
- (6) ACBM with potential for significant damage.
- (7) Any remaining friable ACBM or friable suspected ACBM.

| Number | DESCRIPTION |
|--------|---|
| 1 | <p data-bbox="1597 294 1656 320" style="text-align: center;"><u>NOTES</u></p> <p data-bbox="267 374 1703 485">DAMAGED ACM WAS FOUND DURING A REINSPECTION. THE FOLLOWING NUMERICAL CONTENT NOTES ARE ONLY RECOMMENDATIONS ON HOW TO REPAIR THE DAMAGED NON-FRIABLE ASBESTOS CONTAINING MATERIALS ON A TEMPORARY MEASURE. PLEASE CONSULT A LICENSED ASBESTOS ABATEMENT CONTRACTOR TO PROPERLY REPAIR OR REMOVE BY THE INDICATED DATE SHOWN ON THE RESPONSE ACTION COLUMN OF THIS REPORT.</p> <p data-bbox="267 526 2374 586">*1 IF FLOOR TILES ARE DAMAGED OR LOOSE, COVER WITH A MATERIAL WHICH INCLUDES BUT IS NOT LIMITED TO CARPET, WOOD OR SIMILAR DURABLE MATERIAL AS AN INTERIM CONTROL MEASURE AS TO NOT CAUSE A TRIPPING HAZARD ON THE REMAINING FLOOR. USE A MATERIAL SUCH AS PAINTER'S TAPE TO SECURELY HOLD DOWN THE MATERIAL TO THE FLOOR WITHOUT FURTHER DAMAGING THE SURROUNDING ACM TILES.</p> <p data-bbox="267 616 2436 647">*2 IF MISSING TILES ARE PRESENT, A QUALIFIED TRAINED PERSON COULD ENCAPSULATE THE AREA USING A COMPOUND INCLUDING BUT NOT LIMITED TO A FLOOR LEVELER TO TEMPORARILY REPAIR THE CONDITION UNTIL A PERMANENT REPAIR OR REMOVAL CAN BE DONE.</p> <p data-bbox="267 677 2076 707">*3 IF MISSING TILES ARE PRESENT, A QUALIFIED TRAINED PERSON COULD INSTALL A NON ASBESTOS CONTAINING VINYL FLOOR TILE TO FIT IN THE PLACE OF A MISSING ABSBESTOS CONTAINING NON FRIABLE VINYL FLOOR TILE.</p> <p data-bbox="267 737 2132 768">*4 IF ASBESTOS CONTAINING JOINT COMPOUND IS DAMAGED, WE RECOMMEND TO COVER AREA WITH A NON ASBESTOS SPACKLING COMPOUND WITHOUT PERFORMING ANY SANDING OR ABRASION TO EXISTING ACM JOINT COMPOUND.</p> <p data-bbox="267 818 2573 883">2 ALL FRIABLE ASBESTOS CONTAINING MATERIAL INCLUDING BUT NOT LIMITED TO THERMAL INSULATION, CEILING TILE, ETC. SHALL ONLY BE REPAIRED OR REMOVED BY A LICENSED ABATEMENT CONTRACTOR PER AHERA REGULATIONS. FRIABLE ASBESTOS IS MATERIAL THAT CAN BE CRUMBLLED, PULVERIZED, OR REDUCED TO POWDER BY THE PRESSURE OF AN ORDINARY HUMAN HAND.</p> |

OPERATIONS AND MAINTENANCE PLAN ADMINISTRATION BUILDING

INTRODUCTION:

This operations and maintenance plan detail each type of repair, removal, or maintenance activity that is likely to be necessary to keep asbestos containing building materials in good condition.

All Personnel MUST have a minimum of 16-hours training to perform any repair or removal.

The following Asbestos Containing Building Material (ACBM) that is either, previously found, found, or assumed to contain asbestos:

- Pipe Insulation (Previously Found)

OBJECTIVE:

The three main objectives of an Operations and Maintenance (O&M) program are:

1. To clean up existing contamination
2. To minimize future fiber release by controlling access to asbestos containing building material (ACBM)
3. To maintain ACBM until it is eventually removed.

Since by law all but small quantities of ACBM must be removed from buildings before demolition, this O&M program is not a permanent solution. It is implemented as part of an overall asbestos management plan that has as its goal the elimination of asbestos exposure within the facility. The O&M program likewise is not a means by which full scale asbestos abatement is accomplished. Rather, intentional disruption of ACBM should be limited to repair or removal of small areas of significantly damaged ACBM, or small areas where removal is necessary to facilitate maintenance/renovation activities.

As long as ACBM remains in the building, the O&M plan must remain in effect. Unless the program is implemented properly, exposure of maintenance workers and building occupants may not decrease. ACBM may be disturbed by improper cleaning or repair methods. The O&M program should be established as soon as the presence of ACBM is confirmed or assumed to be present. It must address friable material as well as material about to become friable, such as transite board to be cut or drilled. The O&M includes a general set of procedures that apply to periodic inspection, building renovation, maintenance, cleaning, and work done to maintain the material in good condition.

Though an O&M program may initially seem the most cost-effective solution to an asbestos problem, there are many additional costs that must be taken into consideration. Money that could have been spent on removal must be spent on worker training, respirators, and health monitoring. These costs continue until the ACBM is removed. Asbestos removal is required during renovation or demolition.

Operation and Maintenance plans vary with the type of material present in the building. All maintenance activities are regulated under the EPA CFR 763.121 "Worker Protection Act", OSHA 29 CFR 1926.E Asbestos Construction Standard, or Section 19 of the Occupational Health and Safety Act. Worker protection and safety requirements are of major importance if workers are exposed to the material in any way. Workers must be fit tested and respiratory equipment maintained. Medical examinations are also required in order to work with asbestos. These projects involve only areas that include less than three square or linear feet. Any larger project MUST be performed by a licensed contractor. Be certain that the LEA is aware of all activities involving ACBM. All outside contractors must also be notified of the location of asbestos containing material. Building occupants and the parents of children must also be notified in writing. The following types of activities can be performed by in-house trained personnel:

- Normal maintenance HEPA vacuuming and wet wiping

- Repair or removal of pipe insulation.
- Removal of damaged vinyl asbestos tiles.
- Repair or removal of small quantities of ACM on beams or above ceiling.
- Replacement of gasket or valve.
- Installation or removal of small section of drywall.
- Installation of electrical conduits through or near ACM.
- Removal of small quantities of ACM for maintenance activities.
- Removal of material that can be contained in one glove bag.
- Minor repairs to asbestos containing wallboard.
- Small repairs that can be performed in a mini enclosure, including enclosure, encapsulation, and removal.

These activities must be used for maintenance or emergency repair, NOT just for removal. The following sections will explain how to perform each asbestos related activity. A sample form for documenting O&M activities is also included at the end of this section.

ORGANIZATIONAL STRUCTURE

The LEA Designated Person (DP) is responsible for the total implementation of this program and keeping the school board informed of all pertinent asbestos related activities. The DP is the main contact for any information on the asbestos control program. The responsibilities of the DP are included in this report.

NOTIFICATION OF OCCUPANTS

The DP is responsible for informing all building occupants, employees, parents, contractors, annually of the asbestos control program. Notification serves two purposes: it alerts affected parties to a potential hazard in the buildings, and it provides basic information on avoiding the hazard. Building occupants, employees, and others who are aware of the presence of ACM are less likely to disturb the material and cause fiber release. All new employees and building occupants during their initial orientation shall be informed of the asbestos control program and locations of ACM at this school.

LABELING

Labeling in areas where ACM is located is required in the case of thermal system insulation in mechanical rooms. Labeling is not intended as general information. It serves as a final line of defense to prevent unprotected individuals from disturbing ACM or entering areas where repair or renovation activities involving ACM are underway. Warning signs used in conjunction with small renovation or repair that involves the disruption of ACM should be posted at the entrances and around the perimeter of the project and in accordance with OSHA Asbestos Standard for the Construction Industry (29 CFR 1926.1101). Warning labels must be put on all asbestos containing thermal system insulation in mechanical rooms that say the following:

CAUTION
ASBESTOS HAZARDOUS
DO NOT DISTURB WITHOUT PROPER
TRAINING AND EQUIPMENT

All labels shall be prominently displayed in readily visible locations and shall remain posted until the ACM that is labeled is removed.

TRAINING

Training of service (custodial and maintenance) workers is one of the most important aspects of an effective O&M plan. Training serves to establish proper awareness and understanding of work practices that are vital to the success of the program. All service workers should receive at least two hours of general awareness training. This training session should include, at a minimum, all the information outlined in the notification section. Service personnel who conduct any activities that will result in the disturbance of ACM must receive 14 hours of additional training which should include cleaning techniques, appropriate practices for handling ACM, the proper use of personal protective equipment,

and hands on training. The training program should be conducted by the DP or a person trained in asbestos control.

RESPIRATORY PROTECTION

Any employer who requires or permits employees to wear a respirator must have a written respiratory protection program. This is required by OSHA in both of their asbestos standards (29 CFR 1910.1001 and 1926.1101) and respiratory regulations (29 CFR 1910.134). The written respiratory program establishes standard operating procedures for the use and maintenance of respiratory equipment. The OSHA regulations outline exactly what must be included in a written program. Minimum respiratory protection requirements include the use of a half-face HEPA filter negative pressure respirator. A higher degree of protection can be achieved using a full-face mask or a power-assisted air purifying respirator (PAPR). It is preferable to use the highest level of protection possible when dealing with asbestos. Every worker who uses a respirator must have a medical exam and be fit tested. Never attempt to disturb asbestos without using properly fitted protective equipment. Personal exposure monitoring is required for workers to ensure that air levels are within the legal limits.

MEDICAL SURVEILLANCE

Employers are required to institute a medical surveillance program for all employees who are assigned to wear a negative-pressure respirator. All examinations and procedures must be performed by or under the supervision of a licensed physician at no cost to the employee. The purpose of the medical surveillance program is to establish an employee's fitness to wear a respirator, and to detect any changes in the gastrointestinal and cardiopulmonary systems as a result of working in asbestos contaminated areas. The OSHA regulation outlines what is required in the medical surveillance program.

PREVENTIVE MEASURES

The purpose of this is to eliminate the possibility of any disturbance and/or fiber release due to unknown activities. At a minimum the following should be implemented:

1. Do not dry clean or sweep.
2. Do not cut, penetrate, sand, drill, break, nail into the ACBM.
3. Do not hang plants, pictures, wires from the ACBM.
4. Do not place items against the ACBM.
5. Do not replace light fixtures where ACBM, such as plaster, fireproofing and tiles is found.
6. Should ACBM becomes damaged, seal, isolate the area and notify the consultant.

DESIGN AND AIR CLEARANCE REQUIREMENTS:

The work (greater than 3 LF or 3 SF) must be designed a Massachusetts licensed asbestos abatement designer and clearance air sampling is performed by a Massachusetts licensed project monitor. The purpose of the design is to include but not limited to the following:

- Scope of work.
- Location of work.
- Method to be utilized.
- Type of clearance air sampling.
- Scheduling and other related information.

CLEANING PROCEDURES

The cleaning activities described in this section are necessary for many different types of ACBM. This section is referenced in the spread sheets for homogenous areas of friable asbestos containing surfacing material, friable thermal system insulation and friable miscellaneous materials. The following friable ACBM was found during the inspection.

- Pipe insulation at basement water tank room.

1. Initial Cleaning

Unless the building has been cleaned within the previous 6 months, all areas of a school building where friable ACBM, damaged or significantly damaged thermal system insulation ACM, or friable suspected ACBM assumed to be ACM are present shall be cleaned at least once after the completion of the inspection required by Sec. 763.85(a) and before the initiation of any response action, other than O&M activities or repair, according to the following procedures:

- a. Do not dry clean or sweep.
- b. HEPA-vacuum or steam-clean all carpets.
- c. HEPA-vacuum or wet-clean all other floors and all other horizontal surfaces.
- d. Dispose of all debris, filters, mop-heads, and cloths in sealed, leak-tight containers.

2. Periodic Cleaning

Custodial staff should perform a thorough cleaning a minimum of once every three months where friable ACBM might be found. HEPA vacuum or steam clean all carpets, wet mop all other floors, and wipe all other horizontal surfaces with damp cloths. Dispose of debris, filters, mop heads, and cloths in sealed plastic bags according to EPA regulations. Report the presence of debris observed near ACBM to the DP immediately. If debris accumulates, cleaning should be performed more often, and repair or removal should be completed to eliminate the hazard.

3. Emergency Procedures

If an emergency occurs, immediately notify the LEA, and restrict access to the area. Common emergencies include pipe leaks, boiler breakdowns, and water damage. Keep the phone number of a reliable local contractor for problems that may be larger than the in-house staff can handle. If you are not certain of the size or the extent of the damage, have a contractor and consultant look at it immediately.

4. Specialized Cleaning Procedures

Special cleaning practices should be followed in buildings with ACBM. Cleaning up existing asbestos contamination within a building is one of the primary objectives of the O&M program. Things not to do when cleaning asbestos containing materials:

- a. Do not sand backing material.
- b. Do not dust with a wire brush.
- c. Do not dry sweep floors.
- d. Do not use an ordinary vacuum to clean up asbestos debris.
- c. Do not use any method that might disturb the ACBM.

The following precautions should always be used when cleaning ACBM:

- All dusting and mopping of the ACBM must be conducted using "wet" cleaning techniques (mops or cloths dampened with water or dust suppressant) or with special vacuum cleaner's equipment with High Efficiency Particulate Air (HEPA) filters.
- Spray (mist) bottled of water or dust suppressant should be available and used to keep the mops and cloths damp.
- Cleaning materials (mop heads, cloths, etc.) should be washed after each cleaning, changed at regular intervals, and discarded as asbestos waste
- The materials should be placed in 6 mil plastic bags, the bags sealed and labeled:

"DANGER CONTAINS ASBESTOS FIBERS
AVOID
CREATING DUST
CANCER AND LUNG DISEASE HAZARD,"

And the bags deposited in an approved landfill. A disposal company could then transport the waste to an approved landfill periodically.

For each time that cleaning under Sec. 763.91(c) is performed, the local education agency shall record the name of each person performing the cleaning, the date of such cleaning, the locations cleaned, and the methods used to perform such cleaning.

MAINTENANCE FOR THERMAL INSULATION

Maintenance activities affecting asbestos containing thermal system insulation generally involve plumbing-type repairs. Frequently the ACBM must be removed to provide access to the valve, flange, or related system part needing maintenance. The extent of special work practices is tailor to reflect the likelihood that the ACBM will be disturbed and that asbestos fibers will be released. Four categories of potential disturbance are defined: (1) contact with ACBM is very unlikely, (2) accidental disturbance of ACBM is possible, (3) disturbance of ACBM is intended or likely - small disturbances (under three (3) feet of thermal system insulation), and (4) disturbance of ACBM is intended or likely large disturbances (greater than three (3) feet of thermal system insulation).

1. Contact with ACBM Unlikely

Repairs which can be performed without contacting or disturbing the ACBM require only normal care, good workmanship, and respirators. A HEPA vacuum should be available for use if required.

2. Accidental Disturbance of ACBM Possible

Maintenance tasks that involve no direct contact with ACBM may cause accidental disturbance. Vibrations created by maintenance activities in one part of a piping network will be transmitted to other parts. Vibrations could then cause fibers to be released from insulation which is exposed or not in good condition. If in doubt about the possibility of fiber release, thoroughly inspect the asbestos—containing material before undertaking the maintenance or repair work. Then, either correct the problem before starting, or assume that the maintenance work may cause accidental disturbance and fiber release. In this case, the following procedures should be used:

- a. Approval should be obtained from the DP before beginning work. The DP or supervisor should make an initial visit to the work site.
- b. The work should be scheduled after normal working hours, if possible, or access to the work area should be controlled: doors should be locked from the inside and signs posted to prevent unauthorized persons from entering the work area (e.g., MAINTENANCE WORK IN PROGRESS, DO NOT ENTER"). Note emergency exits must remain in operation.
- c. The air-handling system should be shut off or temporarily modified to prevent the distribution of any released fibers to areas outside the work site.
- d. A 6-mil polyethylene plastic drop cloth should be placed beneath the location of the maintenance work, extending at least 10 feet beyond all sides of the work site.
- e. Plastic sheets (6-mil polyethylene) should be cut and taped around any asbestos containing insulation which might be accidentally disturbed. The plastic should be misted with amended water before sealing with tape. Workers should wear full respiratory protection and protective clothing.
- f. After the maintenance work is completed, all tools, ladders, and other equipment should be HEPA-vacuumed or wiped with a damp cloth. Special care should be taken when removing the plastic from the insulation to minimize disturbance of ACBM dust or debris that may have fallen from the insulation.
- g. If any debris is apparent on the drop cloth, floor, or elsewhere, it should be HEPA-vacuumed.
- h. The plastic drop cloth should be wiped with a dampen cloth, carefully folded, and discarded as asbestos waste.
- i. All clothes, vacuum bags/filters, and other disposable materials should be discarded in sealed and labeled plastic bags as asbestos waste.
- j. Workers should HEPA-vacuum respirators and protective clothing at the work site. The clothing should then be discarded as asbestos waste. If the ACBM was disturbed during the course of the work, the workers should leave their respirators on, proceed to a shower room, shower with respirators on, and clean their respirators while in the shower.

3. Small Disturbance of ACBM Intended

Where less than 3 feet of asbestos containing thermal system insulation must be removed to maintain or repair the thermal system, the following procedures should be used:

- a. Approval should be obtained from the DP before beginning work. The DP or supervisor should make an initial visit to the work site.
- b. The work should be scheduled after normal working hours, if possible, or access to the work area should be controlled: doors should be locked from the inside and signs posted to prevent

unauthorized persons from entering the work area (e.g., "MAINTENANCE WORK IN PROGRESS, DO NOT ENTER"). Note, emergency exists must remain in operation.

- c. The air-handling system should be shut off or temporarily modified to prevent the distribution of any released fibers to areas outside the work site.
- d. Maintenance workers should wear at least air-purifying respirators with HEPA filters and protective clothing (suit, hood, and boots) in case of a fiber release accident.
- e. The asbestos containing thermal system insulation should be removed as necessary for the repairs, and the repairs made using standard glove bag techniques where possible (refer to the EPA publication: "Asbestos-in-Building Technical Bulletin: Abatement of Asbestos containing Pipe Insulation," 1986-2 and the OSHA Construction Industry Rule). Glove bags are fastened around the part to be repaired, the insulation is removed with knives and saws to make the part accessible, and the repairs are made using tools contained in the glove bag tool pouch.
- f. At the conclusion of the work, Maintenance workers should clean their clothing using a HEPA vacuum and wet wiping.
- g. All glove bags and any other used materials (including disposable clothing) should be discarded as asbestos waste, if the ACBM was disturbed during the course of the work; the workers should leave their respirators on, proceed to a shower room, shower with respirators on, and clean their respirators while in the shower.
- h. Non asbestos insulating material can be installed as necessary to replace insulation which was removed.

4. Large Disturbance of ACBM Intended

When more than 3 feet of asbestos containing thermal system insulation must be removed to maintain or repair the thermal system, this is considered to be a large-scale disturbance of ACBM, and glove bags are not feasible. With this situation an outside contractor should be hired for the removal project before the maintenance work begins.

If maintenance personnel are to conduct the asbestos removal, they must be thoroughly trained in removal techniques as required by OSHA. If the maintenance activities are likely to cause disturbance of ACBM on pipes, boilers, or ducts at sites other than just those undergoing repair (due to vibration, etc.), then the entire room or area must be isolated and large-scale asbestos removal procedures employed. These include construction of containment barriers and ventilation system: use of protective clothing, and "type C" respirators by workers; proper disposal of asbestos debris; and proper cleanup of the work site followed by clearance air monitoring.

PROCEDURES FOR FIBER RELEASE EPISODES

As long as ACBM remains in the building, a fiber release episode could occur. A fiber release episode is when the ACBM becomes damaged in such a way as to release asbestos fibers to the atmosphere. Knowing the procedures necessary to control a fiber release episode is essential in any building which contains ACBM. Reference to this section is recommended for all homogenous areas of asbestos containing friable surfacing material and thermal system insulation including pipe, joint, tank, duct, and boiler insulation, that are listed on the sp read sheets of section four. Building custodial and maintenance staff should refer to this section to prevent a fiber release episode and to be thoroughly prepared for procedures should one occur. Custodial and maintenance workers should report to the DP the presence of debris on the floor, water, or physical damage to the ACBM, or any other evidence of possible fiber release. Fiber release episodes can also occur during maintenance or renovation projects. The DP should assign a suitably trained in-house team to clean up debris and make repairs as soon as possible. For fiber release episodes of asbestos containing thermal system insulation the following procedures should be used.

1. Workers should wear at minimum air purifying respirators with HEPA filters.
2. Debris should be thoroughly saturated with water or amended water using a mister with a very fine spray. The debris should then be placed in a labeled 6-mil plastic bag for disposal and the floor should be cleaned with dampen cloths or a mop, or the debris can be collected with, a HEPA vacuum cleaner.
3. Read the HEPA vacuum manual to thoroughly understand its operation before using it. Ask the sales representative for a detailed demonstration of how to use the HEPA vacuum. Always empty

the vacuum under controlled conditions, remove the filter after dampening it and treat all waste as contaminated material. Misuse of a HEPA vacuum can cause a major contamination problem.

4. All debris and materials used in the cleanup should be discarded as asbestos waste.
5. Workers should vacuum their disposable suits, if used, before leaving the work site and discard them as asbestos waste.
6. The damaged ACBM should be repaired with asbestos-free spackling, plaster, cement, insulation, re-wettable fiberglass or sealed with latex paint or an encapsulant.
7. Each fiber release episode should be documented, and a report should be filed in this management plan or in the permanent asbestos file.

GLOVEBAG REMOVAL PROCEDURES FOR REPAIR OR MAINTENANCE

This section explains the proper procedures for glove bag removal of ACBM. All homogenous areas of asbestos containing pipe and joint insulation recorded on the spread sheets reference this section of the O&M plan. Custodial and maintenance personnel should review this section if glove bagging is necessary to access an area where repair or maintenance is required. Remember, glove bag removal involves only areas less than 3 square or linear feet and can be done only for maintenance purposes not for the sake of removal alone.

The work area must be secured according to the section on work area preparation. All persons not involved in the procedure must leave the site and warning signs must be posted. Try to perform the work when the building is unoccupied. Building occupants are very curious as to whether this type of operation could be harmful. The work area floor must be covered with plastic in case of breakage. Be generous with the plastic it is a lot less expensive to be cautious with protection than to clean up a contaminated area. The glove bag must fully cover the three feet or less to be removed, since the bag cannot be moved once it is in place. All tools such as wire cutters, bone saw, nylon brush and knife are to be placed in the pouch that is inside the bag. The tools are reached by using the gloves.

Inspect the work area and determine the location boundaries of the work to be accomplished. Be sure it is not over three feet! Cut the sides of the glove bag down far enough to place it over the pipe. Support the bottom of the glove bag to prevent the weight of the debris and water from causing the bag to leak or break. Always be as cautious as possible when dealing with asbestos.

Attach the top seam of the glove bag by taping with heavy duct tape. Use several different pieces overlapping each other instead of one long piece. Staple the tape at intervals of two or three inches. Fold the taped flap over on itself and tape again. Tape the bottom seam of the bag also. These precautions can prevent a costly and dangerous fiber release.

Tape the openings on each side of the glove bag where the pipes protrude. Put several layers of duct tape to ensure that there is no fiber release. The glove bag must then be smoke tested to ensure that there are no leaks. An aspirator bulb filled with smoke is inserted into an opening pre-cut by the manufacturer. The same opening will be used to insert a sprayer wand used to wet the material. If there is not opening on the glove bag, cut a small hole through a duct tape patch and insert the smoke tube. The duct tape patch ensures that the bag will not rip along that opening. Patch any area that leaks with duct tape. Upon insuring that the bag is air-tight, insert the spray wand and HEPA vacuum hose into either hole made by the manufacturer or self placed patched hole. Duct tape the equipment into the holes securely. The holes should be in the upper 1/3 of the bag so it is easy to wet the material. Use the best quality glove bags possible which will have reinforced entry holes for the smoke tube, spray wand, and HEPA-VAC hose. Some bags even have zippers, which eliminates the cutting section. Fold the taped flap over it itself and tape again. Tape the bottom seam of the bag also.

Completely wet the section of pipe to be removed, however, do not fill the glove bag with water. The solution used to wet the material must be "amended water". The solution can be obtained through asbestos supply companies (or soap can be used). The amended water ensures that the material is wetted as evenly as possible. Using a razor, knife, or bone saw, cut through to the pipe on both sides and remove the material as smoothly as possible. Use a retractable blade and always retract it when not in use being careful not to cut the bag open by mistake. A second person must keep the material

wet using the wand. Soak the bare pipe and hand clean is using the rags and nylon brush that are in the pouch contained within the bag. Threaded areas of pipes and joint areas require particular attention to clean.

Wash down the interior of the glove bag and pipe section one final time to ensure that all debris is at the bottom of the bag. Place all tools into the hand part of one of the gloves. Pull the glove inside out, seal it with duct tape and cut between the sealed areas. Re-tape the glove and place it in a bucket of water. Later, the glove may be untied, and the tools cleaned. Activate the HEPA vacuum and collapse the bag as much as possible. Do not collapse too much or the bag will be damaged. The HEPA vacuum should continue to run during the entire process of removing the glove bag.

Twist the glove bag closed and tape it shut. A disposal bag should be placed over the glove bag while it is still on the pipe. Carefully cut the glove bag from the pipe and place in the disposal bag. Dispose of properly as asbestos containing waste.

The ends of the pipe must be covered with re-wettable fiberglass. Cut a large enough piece to cover the area and dip it in a bucket of clean water. Wrap it around the end of the pipe and smooth until all openings are covered. Spray the bare pipe with encapsulant to lock down any remaining fibers. The pipe may be painted with heat resistant latex paint if desired.

REMOVAL OF ACBM

1. All removal or repair projects should be correctly and safely set up. These are minimum work practices required by state and federal law. Work may not be performed if the area exceeds three square or linear feet. You must have a contractor do the work if it exceeds these size limits. Refer back to this section whenever you plan to disturb asbestos containing material. The initial set up of any job that disturbs asbestos is as important as the actual removal itself. The following steps must be followed to ensure a safe project.
 - a. Restrict entry by physical isolation or scheduling to ensure unauthorized persons do not enter the area.
 - b. Post warning signs at all entrances to the site to prevent unauthorized entry.
 - c. Shut off air handling equipment or modify all air conditioning, heating, ventilation systems, etc. Restrict air movement (fans, windows).
 - d. Remove moveable objects and cover remaining items with plastic. Duct tape 6-mil plastic over any remaining surfaces and duct tape to provide an air-tight seal. Decontaminate any objects that have debris by wet-wiping and HEPA vacuuming.
 - e. Isolate the work area by sealing and taping vents, windows, air conditioners, ducts, drains, grills, windows, and doors etc. with plastic. If the building is occupied, the entrances to the work area must be sealed and caulked with plywood, gypsum board or a solid material. Plastic does not qualify as a critical barrier. Glove bag operations are exempt from this requirement. Ceramic tiles on floors, walls or ceiling that are impervious (no cracks, holes, fissures) need not be covered. If there is uncertainty regarding permeability, put up plastic.
 - f. Cover walls and ceilings with plastic sheeting with seams and joints sealed with duct tape to make an impervious barrier to the floor, ceiling, wall etc. Two layers of plastic are required for the floor and walls with an overlap of 12" on the wall. The wall covering must overlap the floor.
 - g. Ground fault circuit interrupters must always be used when working in a WET environment.
 - h. Clean fixtures and equipment in the work area using proper cleaning methods.
 - i. Properly dispose of all ACBM in properly labeled, leak proof containers.
2. Asbestos projects that involve less than 25 square or linear feet require the use of a change room that is used as the sole entrance and exit to the facility. Before leaving the removal area to enter the change room HEPA vacuum and wet wipe the protective clothing. All other equipment must be decontaminated by wet-wiping and HEPA vacuuming or by wrapping the material in two layers of 6 mil plastic or put in a drum with a locking lid. Glove bag operations are exempt from this requirement. Use of a changing room is applicable to removal of surface material where a glove bag cannot be used.
3. Read the HEPA vacuum manual to thoroughly understand its operation before using it. Ask the sales representative for a detailed demonstration of how to use the HEPA vacuum. Always empty

the vacuum under controlled conditions, remove the filter after dampening it and treat all waste as contaminated material. Misuse of a HEPA vacuum can cause a major contamination problem.

4. Any material that is enclosed must be clearly identified in the building records. The enclosure must be airtight wooden structures must be made with tongue and groove construction and caulked. Gypsum board seams must be taped. Drills and other tools should have a HEPA attachment and all electrical conduits, telephone lines, etc. must be moved so there is not reasoned to re-enter the area. If this cannot be accomplished, the area should not be contained. Any wrapped material such as a boiler or pipe must be labeled as asbestos. Suspended ceilings can not qualify as enclosure since it is not airtight.
5. Liquid Encapsulant must be applied with an airless sprayer and are not to be used on severely damaged or deteriorating surfaces.
6. Asbestos must be wet when it is disturbed in any way. The material must be wet enough to keep the dust down, but not wet enough to cause the water to leak out of the project area. A surfactant must be used, as this increases the ability of the water to penetrate the fibers. During the project, dispose of asbestos as it accumulates in double 6-mil labeled bags or drums with locking lids. Do not remove the material and leave it on the floor. When working at heights do not throw debris to the ground, have another individual put the debris in the disposal container.

DISPOSAL OF ASBESTOS WASTE

Proper disposal of asbestos containing material is an important procedure for the well being of the environment. This section of the O&M plan is referenced for all asbestos containing material that was sampled and all material assumed to be ACM that is recorded on the spread sheets. Always refer to this section when disposing of asbestos waste. All asbestos containing materials, waste, bags, and equipment (such as mop heads or air filters) must be disposed of in a labeled 6-mil polyethylene bag. The bag must be placed in a sealed impermeable container such as a drum. Water used for cleaning must be either filtered or placed in an impermeable container. A single drum may be used until it is full. The drum must be disposed of at a licensed landfill and a disposal receipt with the location obtained to prove that the waste was disposed of it legally. An interim storage area must be secured and locked with only trained personnel having access to it.

Transportation must be done in closed trucks (not rented) and the truck wet cleaned after each use. The easiest way to dispose of small amounts of asbestos is to accumulate it and have a licensed contractor remove it. Find a local company willing to provide this service to you.

In a secured and isolated storage is limited to 30-days. Contract the DEP for any questions.

OUTSIDE SERVICE CONTRACTORS

If any outside contractor is employed to do work where the ACM may be disturbed (such as periodic cleaning, major renovation, or pipe repairs), contracts with such companies should include provisions to ensure that the workers can and will follow appropriate work practices. The contractor should provide proof that his workers have been properly notified about ACM in the building where the work is to take place (***see contractor acknowledgement form at the end of this section***). For a major renovation or removal, the contractor should also provide copies of the respiratory protection, medical surveillance, and worker training documentation submitted to OSHA. Also, the contractor should provide historical air monitoring data with emphasis on projects similar to those likely to be encountered in the building for examples of previous projects.

PERIODIC SURVEILLANCE OF ACM

At least once every six (6) months, the DP or his designee will conduct periodic surveillance in each building that contains asbestos. Each person performing periodic surveillance shall:

1. Visually inspect all areas that have been identified as asbestos containing.
2. Record the data of the surveillance, any changes in the conditions of the ACM, and the name of the individual conducting the surveillance.
3. Submit to the DP a copy of such a record or report for inclusion into the management plan or permanent asbestos file.

The DP is responsible for compliance to this section. An example of the periodic surveillance form to be used is shown at the end of this section.

EQUIPMENT NEEDED

Every school should have on-site at least one HEPA vacuum cleaner to be used when needed. Also at least one half-mask air-purifying respirator for each worker who may be required to wear one will be needed. An asbestos emergency repair kit which contains the equipment and tools necessary for repair of damage asbestos containing insulation and asbestos disposal bags is also recommended. Disposable suits may also be needed for maintenance workers.

A written respirator program as well as a written medical monitoring plan must be kept, and all work must comply with the written programs.

RECORDKEEPING

All written records discussed in this Operations and Maintenance program should be maintained as part of this management plan.

OPERATIONS AND MAINTENANCE ACTIVITIES

BUILDING NAME: _____

ADDRESS: _____

ROOM NUMBER(s): _____

QUANTITY OF ACBM REMOVED OR REPAIRED: _____

ACTIVITY START DATE: _____ **ACTIVITY END DATE:** _____

DESCRIPTION OF METHOD(S) USED DURING O&M ACTIVITY:

PERSONNEL PERFORMING ACTIVITIES:

NAME: _____

SIGNATURE: _____ DATE: _____

NAME: _____

SIGNATURE: _____ DATE: _____

NAME: _____

SIGNATURE: _____ DATE: _____

STORAGE OR DISPOSAL SITE INFORMATION:

STORAGE / DISPOSAL SITE NAME: _____

ADDRESS: _____

*****NOTE: ATTACH ALL WASTE SHIPMENT RECORDS*****

CONTRACTOR ACKNOWLEDGEMENT FORM

PART A (To be completed by the LEA Designated Person)

No known Asbestos Containing Materials (ACM) will be impacted by the work required to be performed by the outside contractor(s).

ACM may be impacted by the work required to be performed by the outside contractor(s). The outside contractor(s) has been notified as to the types and locations of ACM present. Notification has also been made with respect to proper work procedures as included in the inspection report Operations and Maintenance Program.

LEA Designated Person: _____

Signature: _____ Date: _____

PART B (To be completed by the Outside Contractor(s))

As an Outside Contractor I acknowledge that I have been informed about the ACM in the area in which contract work will be performed and that the statement in Part A of the form is accurate to the best of my knowledge.

Name of Employee: _____

Company: _____

Address: _____

Telephone: _____

Signature: _____ Date: _____

EMPLOYEE TRAINING

| | |
|---------------------------------|--------------------------------|
| NAME: _____ | DATE: _____ |
| SIGNATURE: _____ | JOB TITLE: _____ |
| BUILDING: _____ | |
| TRAINING PROVIDER: _____ | COURSE TITLE: _____ |
| ADDRESS: _____ | COURSE LENGTH: _____ |
| _____ | CERTIFICATION NO: _____ |

| | |
|---------------------------------|--------------------------------|
| NAME: _____ | DATE: _____ |
| SIGNATURE: _____ | JOB TITLE: _____ |
| BUILDING: _____ | |
| TRAINING PROVIDER: _____ | COURSE TITLE: _____ |
| ADDRESS: _____ | COURSE LENGTH: _____ |
| _____ | CERTIFICATION NO: _____ |

| | |
|---------------------------------|--------------------------------|
| NAME: _____ | DATE: _____ |
| SIGNATURE: _____ | JOB TITLE: _____ |
| BUILDING: _____ | |
| TRAINING PROVIDER: _____ | COURSE TITLE: _____ |
| ADDRESS: _____ | COURSE LENGTH: _____ |
| _____ | CERTIFICATION NO: _____ |

| | |
|---------------------------------|--------------------------------|
| NAME: _____ | DATE: _____ |
| SIGNATURE: _____ | JOB TITLE: _____ |
| BUILDING: _____ | |
| TRAINING PROVIDER: _____ | COURSE TITLE: _____ |
| ADDRESS: _____ | COURSE LENGTH: _____ |
| _____ | CERTIFICATION NO: _____ |

AHERA RESPONSE ACTIONS RECORDS CHECKLIST

LOCAL EDUCATION AGENCY (LEA): _____

NAME OF SCHOOL: _____

ADDRESS: _____

DESIGNATED PERSON: _____

DESCRIPTION OF RESPONSE ACTION / PROJECT DESIGN:

- METHODS USED
- LOCATION OF RESPONSE ACTION
- START DATE
- COMPLETION DATE

PROJECT DESIGNER:

- NAME
- CERTIFICATION NUMBER

CONTRACTORS & WORKERS CONDUCTING ACTIVITY

- NAME
- ADDRESS
- CERTIFICATION NUMBER
- NAME / LOCATION OF STORAGE / DISPOSAL SITE

CLEARANCE DOCUMENTATION

- DATE VISUAL INSPECTION WAS CONDUCTED
- NAME OF PERSON PERFORMING VISUAL INSPECTION
- AIR SAMPLES COLLECTED AT COMPLETION OF RESPONSE ACTION USING AGGRESSIVE SAMPLING METHODS
- NAME, SIGNATURE AND CERTIFICATION NUMBER OF PROJECT MONITOR COLLECTING AIR SAMPLES
- DATE OF SAMPLE COLLECTION
- SAMPLE LOCATIONS
- AIR SAMPLES ANALYZED AT ACCREDITED LABORATORY
- LABORATORY NAME AND CERTIFICATION NUMBER
- ANALYSIS METHOD
 - PHASE CONTRAST MICROSCOPY (PCM)
 - TRANSMISSION ELECTRON MICROSCOPY (TEM)
- NAME AND SIGNATURE OF ANALYSTS
- RESULTS OF ANALYSIS (ATTACH LAB REPORT)

SMALL SCALE, SHORT DURATION OPERATIONS AND MAINTENANCE ACTIVITIES CHECKLIST

LOCAL EDUCATION AGENCY (LEA): _____

NAME OF SCHOOL: _____

ADDRESS: _____

ROOM NUMBER: _____

QUANTITIES OF ACM (Removed or Repaired): _____

DESIGNATED PERSON: _____

DATE OF ACTIVITY: _____

METHOD USED: _____

NAME OF PERSON(S) PERFORMING WORK/CLEANING:

(Name and Signature)

(Name and Signature)

(Name and Signature)

STORAGE OR DISPOSAL SITE: _____

(Address and Phone Number)

TITLE 40

PROTECTION OF ENVIRONMENT

CHAPTER I - ENVIRONMENTAL PROTECTION AGENCY (CONTINUED)

PART 763 - ASBESTOS

Subpart E - Asbestos-Containing Materials in Schools

Section

- 763.80 Scope and purpose.
- 763.83 Definitions.
- 763.84 General local education agency responsibilities.
- 763.85 Inspection and re-inspections.
- 763.86 Sampling.
- 763.87 Analysis.
- 763.88 Assessment.
- 763.90 Response actions.
- 763.91 Operations and maintenance.
- 763.92 Training and periodic surveillance.
- 763.93 Management plans.
- 763.94 Recordkeeping.
- 763.95 Warning labels.
- 763.97 Compliance and enforcement.
- 763.98 Waiver; delegation to State.
- 763.99 Exclusions.

Subpart E - Asbestos-Containing Materials in Schools

Source: 52 FR 41846, Oct. 30, 1987, unless otherwise noted.

Sec. 763.80 Scope and purpose

- (a) This rule requires local education agencies to identify friable and non-friable asbestos-containing material (ACM) in public and private elementary and secondary schools by visually inspecting school buildings for such materials, sampling such materials if they are not assumed to be ACM, and having samples analyzed by appropriate techniques referred to in this rule. The rule requires local education agencies to submit management plans to the Governor of their State by October 12, 1988, begin to implement the plans by July 9, 1989, and complete implementation of the plans in a timely fashion. In addition, local education agencies are required to use persons who have been accredited to conduct inspections, re-inspections, develop management plans, or perform response actions. The rule also includes recordkeeping requirements. Local education agencies may contractually delegate their duties under this rule, but they remain responsible for the proper performance of those duties. Local education agencies are encouraged to consult with EPA Regional Asbestos Coordinators, or if applicable, a State's lead agency designated by the State Governor, for assistance in complying with this rule.
- (b) Local education agencies must provide for the transportation and disposal of asbestos in accordance with EPA's "Asbestos Waste Management Guidance." For convenience, applicable sections of this guidance are reprinted as Appendix D of this subpart. There are regulations in place, however, that affect transportation and disposal of

asbestos waste generated by this rule. The transportation of asbestos waste is covered by the Department of Transportation (49 CFR part 173, subpart J) and disposal is covered by the National Emissions Standards for Hazardous Air Pollutants (NESHAP) (40 CFR part 61, subpart M).

Sec. 763.83 Definitions

For purposes of this subpart:

Act means the Toxic Substances Control Act (TSCA), 15 U.S.C. 2601, et seq.

Accessible, when referring to ACM, means that the material is subject to disturbance by school building occupants or custodial or maintenance personnel in the course of their normal activities.

Accredited or accreditation when referring to a person or laboratory means that such person or laboratory is accredited in accordance with section 206 of Title II of the Act. Air erosion means the passage of air over friable ACBM which may result in the release of asbestos fibers.

Asbestos means the asbestiform varieties of: Chrysotile (serpentine); Crocidolite (riebeckite); Amosite (cummingtonite-grunerite); Anthophyllite; Tremolite; and Actinolite. Asbestos-containing material (ACM) when referring to school buildings means any material or product which contains more than one percent (1%) asbestos.

Asbestos-containing building material (ACBM) means surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a school building. Asbestos debris means pieces of ACBM that can be identified by color, texture, or composition, or means dust, if the dust is determined by an accredited inspector to be ACM.

Damaged friable miscellaneous ACM means friable miscellaneous ACM which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or, if applicable, which has delaminated such that its bond to the substrate (adhesion) is inadequate or which for any other reason lacks fiber cohesion or adhesion qualities. Such damage or deterioration may be illustrated by the separation of ACM into layers; separation of ACM from the substrate; flaking, blistering, or crumbling of the ACM surface; water damage; significant or repeated water stains, scrapes, gouges, mars or other signs of physical injury on the ACM. Asbestos debris originating from the ACBM in question may also indicate damage.

Damaged friable surfacing ACM means friable surfacing ACM which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or which has delaminated such that its bond to the substrate (adhesion) is inadequate, or which, for any other reason, lacks fiber cohesion or adhesion qualities. Such damage or deterioration may be illustrated by the separation of ACM into layers; separation of ACM from the substrate; flaking, blistering, or crumbling of the ACM surface; water damage; significant or repeated water stains, scrapes, gouges, mars or other signs of physical injury on the ACM. Asbestos debris originating from the ACBM in question may also indicate damage.

Damaged or significantly damaged thermal system insulation ACM means thermal system insulation ACM on pipes, boilers, tanks, ducts, and other thermal system insulation equipment where the insulation has lost its structural integrity, or its covering, in whole or in part, is crushed, water-stained, gouged, punctured, missing, or not intact such that it is not able to contain fibers. Damage may be further illustrated by occasional punctures, gouges or other signs of physical injury to ACM; the protective coverings/jackets; or exposed ACM ends or joints. Asbestos debris originating from the ACBM in question may also indicate damage.

Encapsulation means the treatment of ACBM with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers, as the encapsulant creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulant).

Enclosure means an airtight, impermeable, permanent barrier around ACBM to prevent the release of asbestos fibers into the air. Fiber release episode means any uncontrolled or unintentional disturbance of ACBM resulting in visible emission. Friable when referring to material in a school building means that the material, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure, and includes previously non-friable material after such previously non-friable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure.

Functional space means a room, group of rooms, or homogeneous area (including crawl spaces or the space between a dropped ceiling and the floor or roof deck above), such as classroom(s), a cafeteria, gymnasium,

hallway(s), designated by a person accredited to prepare management plans, design abatement projects, or conduct response actions.

High-efficiency particulate air (HEPA) refers to a filtering system capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles 0.3 µm in diameter or larger.

Homogeneous area means an area of surfacing material, thermal system insulation material, or miscellaneous material that is uniform in color and texture.

Local education agency means:

(1) Any local educational agency as defined in section 198 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 3381).

(2) The owner of any nonpublic, nonprofit elementary, or secondary school building.

(3) The governing authority of any school operated under the defense dependent's education system provided for under the Defense Dependents' Education Act of 1978 (20 U.S.C. 921, et seq.).

Miscellaneous ACM means miscellaneous material that is ACM in a school building.

Miscellaneous material means interior building material on structural components, structural members or fixtures, such as floor and ceiling tiles, and does not include surfacing material or thermal system insulation.

Non-friable means material in a school building which when dry may not be crumbled, pulverized, or reduced to powder by hand pressure.

Operations and maintenance program means a program of work practices to maintain friable ACBM in good condition, ensure clean up of asbestos fibers previously released, and prevent further release by minimizing and controlling friable ACBM disturbance or damage.

Potential damage means circumstances in which:

(1) Friable ACBM is in an area regularly used by building occupants, including maintenance personnel, in the course of their normal activities.

(2) There are indications that there is a reasonable likelihood that the material or its covering will become damaged, deteriorated, or delaminated due to factors such as changes in building use, changes in operations and maintenance practices, changes in occupancy, or recurrent damage.

Potential significant damage means circumstances in which:

(1) Friable ACBM is in an area regularly used by building occupants, including maintenance personnel, in the course of their normal activities.

(2) There are indications that there is a reasonable likelihood that the material or its covering will become significantly damaged, deteriorated, or delaminated due to factors such as changes in building use, changes in operations and maintenance practices, changes in occupancy, or recurrent damage.

(3) The material is subject to major or continuing disturbance, due to factors including, but not limited to, accessibility or, under certain circumstances, vibration or air erosion.

Preventive measures means actions taken to reduce disturbance of ACBM or otherwise eliminate the reasonable likelihood of the material's becoming damaged or significantly damaged.

Removal means the taking out or the stripping of substantially all ACBM from a damaged area, a functional space, or a homogeneous area in a school building.

Repair means returning damaged ACBM to an undamaged condition or to an intact state so as to prevent fiber release.

Response action means a method, including removal, encapsulation, enclosure, repair, operations and maintenance that protect human health and the environment from friable ACBM.

Routine maintenance area means an area, such as a boiler room or mechanical room, that is not normally frequented by students and in which maintenance employees or contract workers regularly conduct maintenance activities.

School means any elementary or secondary school as defined in section 198 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 2854).

School building means:

(1) Any structure suitable for use as a classroom, including a school facility such as a laboratory, library, school eating facility, or facility used for the preparation of food.

- (2) Any gymnasium or other facility which is specially designed for athletic or recreational activities for an academic course in physical education.
- (3) Any other facility used for the instruction or housing of students or for the administration of educational or research programs.
- (4) Any maintenance, storage, or utility facility, including any hallway, essential to the operation of any facility described in this definition of "school building" under paragraphs (1), (2), or (3).
- (5) Any portico or covered exterior hallway or walkway.
- (6) Any exterior portion of a mechanical system used to condition interior space.

Significantly damaged friable miscellaneous ACM means damaged friable miscellaneous ACM where the damage is extensive and severe.

Significantly damaged friable surfacing ACM means damaged friable surfacing ACM in a functional space where the damage is extensive and severe.

Surfacing ACM means surfacing material that is ACM.

Surfacing material means material in a school building that is 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.

Thermal system insulation means material in a school 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.

Thermal system insulation ACM means thermal system insulation that is ACM.

Vibration means the periodic motion of friable ACBM which may result in the release of asbestos fibers.

Sec. 763.84 General local education agency responsibilities

Each local education agency shall:

- (a) Ensure that the activities of any persons who perform inspections, re-inspections, and periodic surveillance, develop and update management plans, and develop and implement response actions, including operations and maintenance, are carried out in accordance with subpart E of this part.
- (b) Ensure that all custodial and maintenance employees are properly trained as required by this subpart E and other applicable Federal and/or State regulations (e.g., the Occupational Safety and Health Administration asbestos standard for construction, the EPA worker protection rule, or applicable State regulations).
- (c) Ensure that workers and building occupants, or their legal guardians, are informed at least once each school year about inspections, response actions, and post-response action activities, including periodic re-inspection and surveillance activities that are planned or in progress.
- (d) Ensure that short-term workers (e.g., telephone repair workers, utility workers, or exterminators) who may come in contact with asbestos in a school are provided information regarding the locations of ACBM and suspected ACBM assumed to be ACM.
- (e) Ensure that warning labels are posted in accordance with Sec. 763.95.
- (f) Ensure that management plans are available for inspection and notification of such availability has been provided as specified in the management plan under Sec. 763.93(g).
- (g) (1) Designate a person to ensure that requirements under this section are properly implemented.
(2) Ensure that the designated person receives adequate training to perform duties assigned under this section.

Such training shall provide, as necessary, basic knowledge of:

- (i) Health effects of asbestos.
 - (ii) Detection, identification, and assessment of ACM.
 - (iii) Options for controlling ACBM.
 - (iv) Asbestos management programs.
 - (v) Relevant Federal and State regulations concerning asbestos, including those in this subpart E and those of the Occupational Safety and Health Administration, U.S. Department of Labor, the U.S. Department of Transportation and the U.S. Environmental Protection Agency.
- (h) Consider whether any conflict of interest may arise from the interrelationship among accredited personnel and whether that should influence the selection of accredited personnel to perform activities under this subpart.

Sec. 763.85 Inspection and re-inspections.

(a) Inspection.

- (1) Except as provided in paragraph (a)(2) of this section, before October 12, 1988, local education agencies shall inspect each school building that they lease, own, or otherwise use as a school building to identify all locations of friable and non-friable ACBM.
- (2) Any building leased or acquired on or after October 12, 1988, that is to be used as a school building shall be inspected as described under paragraphs (a) (3) and (4) of this section prior to use as a school building. In the event that emergency use of an un-inspected building as a school building is necessitated, such buildings shall be inspected within 30 days after commencement of such use.
- (3) Each inspection shall be made by an accredited inspector.
- (4) For each area of a school building, except as excluded under Sec. 763.99, each person performing an inspection shall:
 - (i) Visually inspect the area to identify the locations of all suspected ACBM.
 - (ii) Touch all suspected ACBM to determine whether they are friable.
 - (iii) Identify all homogeneous areas of friable suspected ACBM and all homogeneous areas of non-friable suspected ACBM.
 - (iv) Assume that some or all of the homogeneous areas are ACM, and, for each homogeneous area that is not assumed to be ACM, collect and submit for analysis bulk samples under Secs. 763.86 and 763.87.
 - (v) Assess, under Sec. 763.88, friable material in areas where samples are collected, friable material in areas that are assumed to be ACBM, and friable ACBM identified during a previous inspection.
 - (vi) Record the following and submit to the person designated under Sec. 763.84 a copy of such record for inclusion in the management plan within 30 days of the inspection:
 - (a) An inspection report with the date of the inspection signed by each accredited person making the inspection, State of accreditation, and if applicable, his or her accreditation number.
 - (b) An inventory of the locations of the homogeneous areas where samples are collected, exact location where each bulk sample is collected, dates that samples are collected, homogeneous areas where friable suspected ACBM is assumed to be ACM, and homogeneous areas where non-friable suspected ACBM is assumed to be ACM.
 - (c) A description of the manner used to determine sampling locations, the name and signature of each accredited inspector who collected the samples, State of accreditation, and, if applicable, his or her accreditation number.
 - (d) A list of whether the homogeneous areas identified under paragraph (a)(4)(vi)(B) of this section, are surfacing material, thermal system insulation, or miscellaneous material.
 - (e) Assessments made of friable material, the name and signature of each accredited inspector making the assessment, State of accreditation, and if applicable, his or her accreditation number.

(b) Re-inspection.

- (1) At least once every 3 years after a management plan is in effect, each local education agency shall conduct a re-inspection of all friable and non-friable known or assumed ACBM in each school building that they lease, own, or otherwise use as a school building.
- (2) Each inspection shall be made by an accredited inspector.
- (3) For each area of a school building, each person performing a re-inspection shall:
 - (i) Visually re-inspect, and reassess, under Sec. 763.88, the condition of all friable known or assumed ACBM.
 - (ii) Visually inspect material that was previously considered non-friable ACBM and touch the material to determine whether it has become friable since the last inspection or re-inspection.
 - (iii) Identify any homogeneous areas with material that has become friable since the last inspection or re-inspection.
 - (iv) For each homogeneous area of newly friable material that is already assumed to be ACBM, bulk samples may be collected and submitted for analysis in accordance with Secs. 763.86 and 763.87.
 - (v) Assess, under Sec. 763.88, the condition of the newly friable material in areas where samples are collected, and newly friable materials in areas that are assumed to be ACBM.

- (vi) Reassess, under Sec. 763.88, the condition of friable known or assumed ACBM previously identified.
- (vii) Record the following and submit to the person designated under Sec. 763.84 a copy of such record for inclusion in the management plan within 30 days of the re-inspection:
 - (a) The date of the re-inspection, the name and signature of the person making the re-inspection, State of accreditation, and if applicable, his or her accreditation number, and any changes in the condition of known or assumed ACBM.
 - (b) The exact locations where samples are collected during the re-inspection, a description of the manner used to determine sampling locations, the name and signature of each accredited inspector who collected the samples, State of accreditation, and, if applicable, his or her accreditation number.
 - (c) Any assessments or reassessments made of friable material, the name and signature of the accredited inspector making the assessments, State of accreditation, and if applicable, his or her accreditation number.
 - (d) General. Thermal system insulation that has retained its structural integrity and that has an undamaged protective jacket or wrap that prevents fiber release shall be treated as non-friable and therefore is subject only to periodic surveillance and preventive measures as necessary.

Sec. 763.86 Sampling

- (a) Surfacing material. An accredited inspector shall collect, in a statistically random manner that is representative of the homogeneous area, bulk samples from each homogeneous area of friable surfacing material that is not assumed to be ACM, and shall collect the samples as follows:
 - (1) At least three bulk samples shall be collected from each homogeneous area that is 1,000 ft² or less, except as provided in Sec. 763.87(c)(2).
 - (2) At least five bulk samples shall be collected from each homogeneous area that is greater than 1,000 ft² but less than or equal to 5,000 ft², except as provided in Sec. 763.87(c)(2).
 - (3) At least seven bulk samples shall be collected from each homogeneous area that is greater than 5,000 ft², except as provided in Sec. 763.87(c)(2).
- (b) Thermal system insulation.
 - (1) Except as provided in paragraphs (b) (2) through (4) of this section and Sec. 763.87(c), an accredited inspector shall collect, in a randomly distributed manner, at least three bulk samples from each homogeneous area of thermal system insulation that is not assumed to be ACM.
 - (2) Collect at least one bulk sample from each homogeneous area of patched thermal system insulation that is not assumed to be ACM if the patched section is less than 6 linear or square feet.
 - (3) In a manner sufficient to determine whether the material is ACM or not ACM, collect bulk samples from each insulated mechanical system that is not assumed to be ACM where cement or plaster is used on fittings such as tees, elbows, or valves, except as provided under Sec. 763.87(c)(2).
 - (4) Bulk samples are not required to be collected from any homogeneous area where the accredited inspector has determined that the thermal system insulation is fiberglass, foam glass, rubber, or other non-ACBM.
- (c) Miscellaneous material. In a manner sufficient to determine whether material is ACM or not ACM, an accredited inspector shall collect bulk samples from each homogeneous area of friable miscellaneous material that is not assumed to be ACM.
- (d) Non-friable suspected ACBM. If any homogeneous area of non-friable suspected ACBM is not assumed to be ACM, then an accredited inspector shall collect, in a manner sufficient to determine whether the material is ACM or not ACM, bulk samples from the homogeneous area of non-friable suspected ACBM that is not assumed to be ACM.

Sec. 763.87 Analysis

- (a) Local education agencies shall have bulk samples, collected under Sec. 763.86 and submitted for analysis, analyzed for asbestos using laboratories accredited by the National Bureau of Standards (NBS). Local education agencies shall use laboratories which have received interim accreditation for polarized light microscopy (PLM)

analysis under the EPA Interim Asbestos Bulk Sample Analysis Quality Assurance Program until the NBS PLM laboratory accreditation program for PLM is operational.

- (b) Bulk samples shall not be composited for analysis and shall be analyzed for asbestos content by PLM, using the "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" found at appendix E to subpart E of this part.
- (c)
 - (1) A homogeneous area is considered not to contain ACM only if the results of all samples required to be collected from the area show asbestos in amounts of 1 percent or less.
 - (2) A homogeneous area shall be determined to contain ACM based on a finding that the results of at least one sample collected from that area shows that asbestos is present in an amount greater than 1 percent.
- (d) The name and address of each laboratory performing an analysis, the date of analysis, and the name and signature of the person performing the analysis shall be submitted to the person designated under Sec. 763.84 for inclusion into the management plan within 30 days of the analysis. [52 FR 41846, Oct. 30, 1987, as amended at 60 FR 31922, June 19, 1995]

Sec. 763.88 Assessment

- (a)
 - (1) For each inspection and re-inspection conducted under Sec. 763.85 (a) and (c) and previous inspections specified under Sec. 763.99, the local education agency shall have an accredited inspector provide a written assessment of all friable known or assumed ACBM in the school building.
 - (2) Each accredited inspector providing a written assessment shall sign and date the assessment, provide his or her State of accreditation, and if applicable, accreditation number, and submit a copy of the assessment to the person designated under Sec. 763.84 for inclusion in the management plan within 30 days of the assessment.
- (b) The inspector shall classify and give reasons in the written assessment for classifying the ACBM and suspected ACBM assumed to be ACM in the school building into one of the following categories:
 - (1) Damaged or significantly damaged thermal system insulation ACM.
 - (2) Damaged friable surfacing ACM.
 - (3) Significantly damaged friable surfacing ACM.
 - (4) Damaged or significantly damaged friable miscellaneous ACM.
 - (5) ACBM with potential for damage.
 - (6) ACBM with potential for significant damage.
 - (7) Any remaining friable ACBM or friable suspected ACBM.
- (c) Assessment may include the following considerations:
 - (1) Location and the amount of the material, both in total quantity and as a percentage of the functional space.
 - (2) Condition of the material, specifying:
 - (i) Type of damage or significant damage (e.g., flaking, blistering, water damage, or other signs of physical damage).
 - (ii) Severity of damage (e.g., major flaking, severely torn jackets, as opposed to occasional flaking, minor tears to jackets).
 - (iii) Extent or spread of damage over large areas or large percentages of the homogeneous area.
 - (3) Whether the material is accessible.
 - (4) The material's potential for disturbance.
 - (5) Known or suspected causes of damage or significant damage (e.g., air erosion, vandalism, vibration, water).
 - (6) Preventive measures which might eliminate the reasonable likelihood of undamaged ACM from becoming significantly damaged.
- (d) The local education agency shall select a person accredited to develop management plans to review the results of each inspection, re-inspection, and assessment for the school building and to conduct any other necessary activities in order to recommend in writing to the local education agency appropriate response actions. The accredited person shall sign and date the recommendation, provide his or her State of accreditation, and, if

applicable, provide his or her accreditation number, and submit a copy of the recommendation to the person designated under Sec. 763.84 for inclusion in the management plan.

Sec. 763.90 Response actions

- (a) The local education agency shall select and implement in a timely manner the appropriate response actions in this section consistent with the assessment conducted in Sec. 763.88. The response actions selected shall be sufficient to protect human health and the environment. The local education agency may then select, from the response actions which protect human health and the environment, that action which is the least burdensome method. Nothing in this section shall be construed to prohibit removal of ACM from a school building at any time, should removal be the preferred response action of the local education agency.
- (b) If damaged or significantly damaged thermal system insulation ACM is present in a building, the local education agency shall:
 - (1) At least repair the damaged area.
 - (2) Remove the damaged material if it is not feasible, due to technological factors, to repair the damage.
 - (3) Maintain all thermal system insulation ACM and its covering in an intact state and undamaged condition.
- (c)
 - (1) If damaged friable surfacing ACM or damaged friable miscellaneous ACM is present in a building, the local education agency shall select from among the following response actions: encapsulation, enclosure, removal, or repair of the damaged material.
 - (2) In selecting the response action from among those which meet the definitional standards in Sec. 763.83, the local education agency shall determine which of these response actions protects human health and the environment. For purposes of determining which of these response actions are the least burdensome, the local education agency may then consider local circumstances, including occupancy and use patterns within the school building, and its economic concerns, including short- and long-term costs.
- (d) If significantly damaged friable surfacing ACM or significantly damaged friable miscellaneous ACM is present in a building the local education agency shall:
 - (1) Immediately isolate the functional space and restrict access, unless isolation is not necessary to protect human health and the environment.
 - (2) Remove the material in the functional space or, depending upon whether enclosure or encapsulation would be sufficient to protect human health and the environment, enclose or encapsulate.
- (e) If any friable surfacing ACM, thermal system insulation ACM, or friable miscellaneous ACM that has potential for damage is present in a building, the local education agency shall at least implement an operations and maintenance (O&M) program, as described under Sec. 763.91.
- (f) If any friable surfacing ACM, thermal system insulation ACM, or friable miscellaneous ACM that has potential for significant damage is present in a building, the local education agency shall:
 - (1) Implement an O&M program, as described under Sec. 763.91.
 - (2) Institute preventive measures appropriate to eliminate the reasonable likelihood that the ACM or its covering will become significantly damaged, deteriorated, or delaminated.
 - (3) Remove the material as soon as possible if appropriate preventive measures cannot be effectively implemented, or unless other response actions are determined to protect human health and the environment. Immediately isolate the area and restrict access if necessary to avoid an imminent and substantial endangerment to human health or the environment.
- (g) Response actions including removal, encapsulation, enclosure, or repair, other than small-scale, short-duration repairs, shall be designed and conducted by persons accredited to design and conduct response actions.
- (h) The requirements of this subpart E in no way supersede the worker protection and work practice requirements under 29 CFR 1926.58 (Occupational Safety and Health Administration (OSHA) asbestos worker protection standards for construction), 40 CFR part 763, subpart G (EPA asbestos worker protection standards for public employees), and 40 CFR part 61, subpart M (National Emission Standards for Hazardous Air Pollutants—Asbestos).
- (i) Completion of response actions.

- (1) At the conclusion of any action to remove, encapsulate, or enclose ACBM or material assumed to be ACBM, a person designated by the local education agency shall visually inspect each functional space where such action was conducted to determine whether the action has been properly completed.
- (2)
 - (i) A person designated by the local education agency shall collect air samples using aggressive sampling as described in appendix A to this subpart E to monitor air for clearance after each removal, encapsulation, and enclosure project involving ACBM, except for projects that are of small-scale, short-duration.
 - (ii) Local education agencies shall have air samples collected under this section analyzed for asbestos using laboratories accredited by the National Bureau of Standards to conduct such analysis using transmission electron microscopy (TEM) or, under circumstances permitted in this section, laboratories enrolled in the American Industrial Hygiene Association Proficiency Analytical Testing Program for phase contrast microscopy (PCM).
 - (iii) Until the National Bureau of Standards TEM laboratory accreditation program is operational, local educational agencies shall use laboratories that use the protocol described in appendix A to subpart E of this part.
- (3) Except as provided in paragraphs (i)(4), and (i)(5), of this section, an action to remove, encapsulate, or enclose ACBM shall be considered complete when the average concentration of asbestos of five air samples collected within the affected functional space and analyzed by the TEM method in appendix A of this subpart E, is not statistically significantly different, as determined by the Z-test calculation found in appendix A of this subpart E, from the average asbestos concentration of five air samples collected at the same time outside the affected functional space and analyzed in the same manner, and the average asbestos concentration of the three field blanks described in appendix A of this subpart E is below the filter background level, as defined in appendix A of this subpart E, of 70 structures per square millimeter (70 s/mm²).
- (4) An action may also be considered complete if the volume of air drawn for each of the five samples collected within the affected functional space is equal to or greater than 1,199 L of air for a 25 mm filter or equal to or greater than 2,799 L of air for a 37 mm filter, and the average concentration of asbestos as analyzed by the TEM method in appendix A of this subpart E, for the five air samples does not exceed the filter background level, as defined in appendix A, of 70 structures per square millimeter (70 s/mm²). If the average concentration of asbestos of the five air samples within the affected functional space exceeds 70 s/mm², or if the volume of air in each of the samples is less than 1,199 L of air for a 25 mm filter or less than 2,799 L of air for a 37 mm filter, the action shall be considered complete only when the requirements of paragraph (i)(3) or (i)(5), of this section are met.
- (5) At any time, a local education agency may analyze air monitoring samples collected for clearance purposes by phase contrast microscopy (PCM) to confirm completion of removal, encapsulation, or enclosure of ACBM that is greater than small-scale, short-duration and less than or equal to 160 square feet or 260 linear feet. The action shall be considered complete when the results of samples collected in the affected functional space and analyzed by phase contrast microscopy using the National Institute for Occupational Safety and Health (NIOSH) Method 7400 entitled "Fibers" published in the NIOSH Manual of Analytical Methods, 3rd Edition, Second Supplement, August 1987, show that the concentration of fibers for each of the five samples is less than or equal to a limit of quantization for PCM (0.01 fibers per cubic centimeter (0.01 f/cm³) of air). The method is available for public inspection at the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC, 20408, and the Non-Confidential Information Center (NCIC) (7407), Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Room B-607 NEM, 401 M St., SW., Washington, DC 20460, between the hours of 12 p.m. and 4 p.m. weekdays excluding legal holidays. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. The method is incorporated as it exists on the effective date of this rule, and a notice of any change to the method will be published in the Federal Register.

- (6) To determine the amount of ACBM affected under paragraph (i)(5) of this section, the local education agency shall add the total square or linear footage of ACBM within the containment barriers used to isolate the functional space for the action to remove, encapsulate, or enclose the ACBM. Contiguous portions of material subject to such action conducted concurrently or at approximately the same time within the same school building shall not be separated to qualify under paragraph (i)(5), of this section. [52 FR 41846, Oct. 30, 1987, as amended at 53 FR 12525, Apr. 15, 1988; 60 FR 31922, June 19, 1995; 60 FR 34465, July 3, 1995]

Sec. 763.91 Operations and maintenance

- (a) **Applicability.** The local education agency shall implement an operations, maintenance, and repair (O&M) program under this section whenever any friable ACBM is present or assumed to be present in a building that it leases, owns, or otherwise uses as a school building. Any material identified as non-friable ACBM or non-friable assumed ACBM must be treated as friable ACBM for purposes of this section when the material is about to become friable as a result of activities performed in the school building.
- (b) **Worker protection.** Local education agencies must comply with either the OSHA Asbestos Construction Standard at 29 CFR 1926.1101, or the Asbestos Worker Protection Rule at 40 CFR 763.120, whichever is applicable.
- (c) **Cleaning**
 - (1) **Initial cleaning.** Unless the building has been cleaned using equivalent methods within the previous 6 months, all areas of a school building where friable ACBM, damaged or significantly damaged thermal system insulation ACM, or friable suspected ACBM assumed to be ACM are present shall be cleaned at least once after the completion of the inspection required by Sec. 763.85(a) and before the initiation of any response action, other than O&M activities or repair, according to the following procedures:
 - (i) HEPA-vacuum or steam-clean all carpets.
 - (ii) HEPA-vacuum or wet-clean all other floors and all other horizontal surfaces.
 - (iii) Dispose of all debris, filters, mop-heads, and cloths in sealed, leak-tight containers.
 - (2) **Additional cleaning.** The accredited management planner shall make a written recommendation to the local education agency whether additional cleaning is needed, and if so, the methods and frequency of such cleaning.
- (d) **Operations and maintenance activities.** The local education agency shall ensure that the procedures described below to protect building occupants shall be followed for any operations and maintenance activities disturbing friable ACBM:
 - (1) Restrict entry into the area by persons other than those necessary to perform the maintenance project, either by physically isolating the area or by scheduling.
 - (2) Post signs to prevent entry by unauthorized persons.
 - (3) Shut off or temporarily modify the air-handling system and restrict other sources of air movement.
 - (4) Use work practices or other controls, such as, wet methods, protective clothing, HEPA-vacuums, mini-enclosures, glove bags, as necessary to inhibit the spread of any released fibers.
 - (5) Clean all fixtures or other components in the immediate work area.
 - (6) Place the asbestos debris and other cleaning materials in a sealed, leak-tight container.
- (e) **Maintenance activities other than small-scale, short-duration.**

The response action for any maintenance activities disturbing friable ACBM, other than small-scale, short-duration maintenance activities, shall be designed by persons accredited to design response actions and conducted by persons accredited to conduct response actions.

 - (f) **Fiber release episodes**
 - (1) **Minor fiber release episode.** The local education agency shall ensure that the procedures described below are followed in the event of a minor fiber release episode (i.e., the falling or dislodging of 3 square or linear feet or less of friable ACBM):
 - (i) Thoroughly saturate the debris using wet methods.
 - (ii) Clean the area, as described in paragraph (e) of this section.
 - (iii) Place the asbestos debris in a sealed, leak-tight container.

- (iv) Repair the area of damaged ACM with materials such as asbestos-free spackling, plaster, cement, or insulation, or seal with latex paint or an encapsulant, or immediately have the appropriate response action implemented as required by Sec. 763.90.
- (2) Major fiber release episode. The local education agency shall ensure that the procedures described below are followed in the event of a major fiber release episode (i.e., the falling or dislodging of more than 3 square or linear feet of friable ACBM):
 - (i) Restrict entry into the area and post signs to prevent entry into the area by persons other than those necessary to perform the response action.
 - (ii) Shut off or temporarily modify the air-handling system to prevent the distribution of fibers to other areas in the building.
 - (iii) The response action for any major fiber release episode must be designed by persons accredited to design response actions and conducted by persons accredited to conduct response actions.[52 FR 41846, Oct. 30, 1987, as amended at 65 FR 69216, Nov. 15, 2000]

Sec. 763.92 Training and periodic surveillance

(a) Training.

- (1) The local education agency shall ensure, prior to the implementation of the O&M provisions of the management plan, that all members of its maintenance and custodial staff (custodians, electricians, heating/air conditioning engineers, plumbers, etc.) who may work in a building that contains ACBM receive awareness training of at least 2 hours, whether or not they are required to work with ACBM. New custodial and maintenance employees shall be trained within 60 days after commencement of employment. Training shall include, but not be limited to:
 - (i) Information regarding asbestos and its various uses and forms.
 - (ii) Information on the health effects associated with asbestos exposure.
 - (iii) Locations of ACBM identified throughout each school building in which they work.
 - (iv) Recognition of damage, deterioration, and de-lamination of ACBM.
 - (v) Name and telephone number of the person designated to carry out general local education agency responsibilities under Sec. 763.84 and the availability and location of the management plan.
- (2) The local education agency shall ensure that all members of its maintenance and custodial staff who conduct any activities that will result in the disturbance of ACBM shall receive training described in paragraph (a)(1) of this section and 14 hours of additional training.

Additional training shall include, but not be limited to:

- (i) Descriptions of the proper methods of handling ACBM.
- (ii) Information on the use of respiratory protection as contained in the EPA/NIOSH Guide to Respiratory Protection for the Asbestos Abatement Industry, September 1986 (EPA 560/OPPTS-86-001), available from the Director, Environmental Assistance Division (7408), Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Room E-543B, 1200 Pennsylvania Ave., NW., Washington, DC 20460, Telephone: (202) 554-1404, TDD: (202) 544-0551 and other personal protection measures.
- (iii) The provisions of this section and Sec. 763.91, Appendices A, C, and D of this subpart E of this part, EPA regulations contained in 40 CFR part 763, subpart G, and in 40 CFR part 61, subpart M, and OSHA regulations contained in 29 CFR 1926.58.
- (iv) Hands-on training in the use of respiratory protection, other personal protection measures, and good work practices.
- (3) Local education agency maintenance and custodial staff who have attended EPA-approved asbestos training or received equivalent training for O&M and periodic surveillance activities involving asbestos shall be considered trained for the purposes of this section.

(b) Periodic surveillance.

- (1) At least once every 6 months after a management plan is in effect, each local education agency shall conduct periodic surveillance in each building that it leases, owns, or otherwise uses as a school building that contains ACBM or is assumed to contain ACBM.
- (2) Each person performing periodic surveillance shall:

- (i) Visually inspect all areas that are identified in the management plan as ACM or assumed ACM.
- (ii) Record the date of the surveillance, his or her name, and any changes in the condition of the materials.
- (iii) Submit to the person designated to carry out general local education agency responsibilities under Sec. 763.84 a copy of such record for inclusion in the management plan. [52 FR 41846, Oct. 30, 1987, as amended at 60 FR 34465, July 3, 1995; 65 FR 69216, Nov. 15, 2000]

Sec. 763.93 Management plans

- (a)(1) On or before October 12, 1988, each local education agency shall develop an asbestos management plan for each school, including all buildings that they lease, own, or otherwise use as school buildings, and submit the plan to an Agency designated by the Governor of the State in which the local education agency is located. The plan may be submitted in stages that cover a portion of the school buildings under the authority of the local education agency.
 - (2) If a building to be used as part of a school is leased or otherwise acquired after October 12, 1988, the local education agency shall include the new building in the management plan for the school prior to its use as a school building. The revised portions of the management plan shall be submitted to the Agency designated by the Governor.
 - (3) If a local education agency begins to use a building as a school after October 12, 1988, the local education agency shall submit a management plan for the school to the Agency designated by the Governor prior to its use as a school.
- (b) On or before October 17, 1987, the Governor of each State shall notify local education agencies in the State regarding where to submit their management plans. States may establish administrative procedures for reviewing management plans. If the Governor does not disapprove a management plan within 90 days after receipt of the plan, the local education agency shall implement the plan.
- (c) Each local education agency must begin implementation of its management plan on or before July 9, 1989, and complete implementation in a timely fashion.
- (d) Each local education agency shall maintain and update its management plan to keep it current with ongoing operations and maintenance, periodic surveillance, inspection, re-inspection, and response action activities. All provisions required to be included in the management plan under this section shall be retained as part of the management plan, as well as any information that has been revised to bring the plan up-to-date.
- (e) The management plan shall be developed by an accredited management planner and shall include:
 - (1) A list of the name and address of each school building and whether the school building contains friable ACM, non-friable ACM, and friable and non-friable suspected ACM assumed to be ACM.
 - (2) For each inspection conducted before the December 14, 1987:
 - (i) The date of the inspection.
 - (ii) A blueprint, diagram, or written description of each school building that identifies clearly each location and approximate square or linear footage of any homogeneous or sampling area where material was sampled for ACM, and, if possible, the exact locations where bulk samples were collected, and the dates of collection.
 - (iii) A copy of the analyses of any bulk samples, dates of analyses, and a copy of any other laboratory reports pertaining to the analyses.
 - (iv) A description of any response actions or preventive measures taken to reduce asbestos exposure, including if possible, the names and addresses of all contractors involved, start and completion dates of the work, and results of any air samples analyzed during and upon completion of the work.
 - (v) A description of assessments, required to be made under Sec. 763.88, of material that was identified before December 14, 1987, as friable ACM or friable suspected ACM assumed to be ACM, and the name and signature, State of accreditation, and if applicable, accreditation number of each accredited person making the assessments.
 - (3) For each inspection and re-inspection conducted under Sec. 763.85:
 - (i) The date of the inspection or re-inspection and the name and signature, State of accreditation and, if applicable, the accreditation number of each accredited inspector performing the inspection or re-inspection.

- (ii) A blueprint, diagram, or written description of each school building that identifies clearly each location and approximate square or linear footage of homogeneous areas where material was sampled for ACM, the exact location where each bulk sample was collected, date of collection, homogeneous areas where friable suspected ACBM is assumed to be ACM, and where non-friable suspected ACBM is assumed to be ACM.
 - (iii) A description of the manner used to determine sampling locations, and the name and signature of each accredited inspector collecting samples, the State of accreditation, and if applicable, his or her accreditation number.
 - (iv) A copy of the analyses of any bulk samples collected and analyzed, the name and address of any laboratory that analyzed bulk samples, a statement that the laboratory meets the applicable requirements of Sec. 763.87(a) the date of analysis, and the name and signature of the person performing the analysis.
 - (v) A description of assessments, required to be made under Sec. 763.88, of all ACBM and suspected ACBM assumed to be ACM, and the name, signature, State of accreditation, and if applicable, accreditation number of each accredited person making the assessments.
- (4) The name, address, and telephone number of the person designated under Sec. 763.84 to ensure that the duties of the local education agency are carried out, and the course name, and dates and hours of training taken by that person to carry out the duties.
 - (5) The recommendations made to the local education agency regarding response actions, under Sec. 763.88(d), the name, signature, State of accreditation of each person making the recommendations, and if applicable, his or her accreditation number.
 - (6) A detailed description of preventive measures and response actions to be taken, including methods to be used, for any friable ACBM, the locations where such measures and action will be taken, reasons for selecting the response action or preventive measure, and a schedule for beginning and completing each preventive measure and response action.
 - (7) With respect to the person or persons who inspected for ACBM and who will design or carry out response actions, except for operations and maintenance, with respect to the ACBM, one of the following statements:
 - (i) If the State has adopted a contractor accreditation program under section 206(b) of Title II of the Act, a statement that the person(s) is accredited under such plan.
 - (ii) A statement that the local education agency used (or will use) persons who have been accredited by another State which has adopted a contractor accreditation plan under section 206(b) of Title II of the Act or is accredited by an EPA-approved course under section 206 (c) of Title II of the Act.
 - (8) A detailed description in the form of a blueprint, diagram, or in writing of any ACBM or suspected ACBM assumed to be ACM which remains in the school once response actions are undertaken pursuant to Sec. 763.90. This description shall be updated as response actions are completed.
 - (9) A plan for re-inspection under Sec. 763.85, a plan for operations and maintenance activities under Sec. 763.91, and a plan for periodic surveillance under Sec. 763.92, a description of the recommendation made by the management planner regarding additional cleaning under Sec. 763.91(c)(2) as part of an operations and maintenance program, and the response of the local education agency to that recommendation.
 - (10) A description of steps taken to inform workers and building occupants, or their legal guardians, about inspections, re-inspections, response actions, and post-response action activities, including periodic re-inspection and surveillance activities that are planned or in progress.
 - (11) An evaluation of the resources needed to complete response actions successfully and carry out re-inspection, operations and maintenance activities, periodic surveillance and training.
 - (12) With respect to each consultant who contributed to the management plan, the name of the consultant and one of the following statements:
 - (i) If the State has adopted a contractor accreditations plan under section 206(b) of Title II of the Act, a statement that the consultant is accredited under such plan.
 - (ii) A statement that the contractor is accredited by another State which has adopted a contractor accreditation plan under section 206(b) of Title II of the Act, or is accredited by an EPA-approved course developed under section 206(c) of Title II of the Act.

- (f) A local education agency may require each management plan to contain a statement signed by an accredited management plan developer that such person has prepared or assisted in the preparation of such plan or has reviewed such plan, and that such plan is in compliance with this subpart E. Such statement may not be signed by a person who, in addition to preparing or assisting in preparing the management plan, also implements (or will implement) the management plan.
- (g)
 - (1) Upon submission of a management plan to the Governor for review, a local education agency shall keep a copy of the plan in its administrative office. The management plans shall be available, without cost or restriction, for inspection by representatives of EPA and the State, the public, including teachers, other school personnel and their representatives, and parents. The local education agency may charge a reasonable cost to make copies of management plans.
 - (2) Each local education agency shall maintain in its administrative office a complete, updated copy of a management plan for each school under its administrative control or direction. The management plans shall be available, during normal business hours, without cost or restriction, for inspection by representatives of EPA and the State, the public, including teachers, other school personnel and their representatives, and parents. The local education agency may charge a reasonable cost to make copies of management plans.
 - (3) Each school shall maintain in its administrative office a complete, updated copy of the management plan for that school. Management plans shall be available for inspection, without cost or restriction, to workers before work begins in any area of a school building. The school shall make management plans available for inspection to representatives of EPA and the State, the public, including parents, teachers, and other school personnel and their representatives within 5 working days after receiving a request for inspection. The school may charge a reasonable cost to make copies of the management plan.
 - (4) Upon submission of its management plan to the Governor and at least once each school year, the local education agency shall notify in writing parent, teacher, and employee organizations of the availability of management plans and shall include in the management plan a description of the steps taken to notify such organizations, and a dated copy of the notification. In the absence of any such organizations for parents, teachers, or employees, the local education agency shall provide written notice to that relevant group of the availability of management plans and shall include in the management plan a description of the steps taken to notify such groups, and a dated copy of the notification.
- (h) Records required under Sec. 763.94 shall be made by local education agencies and maintained as part of the management plan.
 - (i) Each management plan must contain a true and correct statement, signed by the individual designated by the local education agency under Sec. 763.84, which certifies that the general, local education agency responsibilities, as stipulated by Sec. 763.84, have been met or will be met.

Sec. 763.94 Recordkeeping

- (a) Records required under this section shall be maintained in a centralized location in the administrative office of both the school and the local education agency as part of the management plan. For each homogeneous area where all ACBM has been removed, the local education agency shall ensure that such records are retained for 3 years after the next re-inspection required under Sec. 763.85(b)(1), or for an equivalent period.
- (b) For each preventive measure and response action taken for friable and non-friable ACBM and friable and non-friable suspected ACBM assumed to be ACM, the local education agency shall provide:
 - (1) A detailed written description of the measure or action, including methods used, the location where the measure or action was taken, reasons for selecting the measure or action, start and completion dates of the work, names and addresses of all contractors involved, and if applicable, their State of accreditation, and accreditation numbers, and if ACBM is removed, the name and location of storage or disposal site of the ACM.
 - (2) The name and signature of any person collecting any air sample required to be collected at the completion of certain response actions specified by Sec. 763.90(i), the locations where samples were collected, date of collection, the name and address of the laboratory analyzing the samples, the date of analysis, the results of

the analysis, the method of analysis, the name and signature of the person performing the analysis, and a statement that the laboratory meets the applicable requirements of Sec. 763.90(i)(2)(ii).

- (c) For each person required to be trained under Sec. 763.92(a) (1) and (2), the local education agency shall provide the person's name and job title, the date that training was completed by that person, the location of the training, and the number of hours completed in such training.
- (d) For each time that periodic surveillance under Sec. 763.92(b) is performed, the local education agency shall record the name of each person performing the surveillance, the date of the surveillance, and any changes in the conditions of the materials.
- (e) For each time that cleaning under Sec. 763.91(c) is performed, the local education agency shall record the name of each person performing the cleaning, the date of such cleaning, the locations cleaned, and the methods used to perform such cleaning.
- (f) For each time that operations and maintenance activities under Sec. 763.91(d) are performed, the local education agency shall record the name of each person performing the activity, the start and completion dates of the activity, the locations where such activity occurred, a description of the activity including preventive measures used, and if ACBM is removed, the name and location of storage or disposal site of the ACM.
- (g) For each time that major asbestos activity under Sec. 763.91(e) is performed, the local education agency shall provide the name and signature, State of accreditation, and if applicable, the accreditation number of each person performing the activity, the start and completion dates of the activity, the locations where such activity occurred, a description of the activity including preventive measures used, and if ACBM is removed, the name and location of storage or disposal site of the ACM.
- (h) For each fiber release episode under Sec. 763.91(f), the local education agency shall provide the date and location of the episode, the method of repair, preventive measures or response action taken, the name of each person performing the work, and if ACBM is removed, the name and location of storage or disposal site of the ACM.

(Approved by the Office of Management and Budget under control number 2070-0091)

Sec. 763.95 Warning labels

- (a) The local education agency shall attach a warning label immediately adjacent to any friable and non-friable ACBM and suspected ACBM assumed to be ACM located in routine maintenance areas (such as boiler rooms) at each school building.

This shall include:

- (1) Friable ACBM that was responded to by a means other than removal.
- (2) ACBM for which no response action was carried out.
- (b) All labels shall be prominently displayed in readily visible locations and shall remain posted until the ACBM that is labeled is removed.
- (c) The warning label shall read, in print which is readily visible because of large size or bright color, as follows:
CAUTION:
ASBESTOS HAZARDOUS
DO NOT DISTURB WITHOUT PROPER
TRAINING AND EQUIPMENT.

Sec. 763.97 Compliance and enforcement

- (a) Compliance with Title II of the Act.
 - (1) Section 207(a) of Title II of the Act (15 U.S.C. 2647) makes it unlawful for any local education agency to:
 - (i) Fail to conduct inspections pursuant to section 203(b) of Title II of the Act, including failure to follow procedures and failure to use accredited personnel and laboratories.
 - (ii) Knowingly submit false information to the Governor regarding any inspection pursuant to regulations under section 203(i) of Title II of the Act.
 - (iii) Fail to develop a management plan pursuant to regulations under section 203(i) of Title II of the Act.

- (2) Section 207(a) of Title II of the Act (15 U.S.C. 2647) also provides that any local education agency which violates any provision of section 207 shall be liable for a civil penalty of not more than \$5,000 for each day during which the violation continues. For the purposes of this subpart, a "violation" means a failure to comply with respect to a single school building.
- (b) Compliance with Title I of the Act.
- (1) Section 15(1)(D) of Title I of the Act (15 U.S.C. 2614) makes it unlawful for any person to fail or refuse to comply with any requirement of Title II or any rule promulgated or order issued under Title II. Therefore, any person who violates any requirement of this subpart is in violation of section 15 of Title I of the Act.
- (2) Section 15(3) of Title I of the Act (15 U.S.C. 2614) makes it unlawful for any person to fail or refuse to establish or maintain records, submit reports, notices or other information, or permit access to or copying of records, as required by this Act or a rule thereunder.
- (3) Section 15(4) (15 U.S.C. 2614) of Title I of the Act makes it unlawful for any person to fail or refuse to permit entry or inspection as required by section 11 of Title I of the Act.
- (4) Section 16(a) of Title I of the Act (15 U.S.C. 2615) provides that any person who violates any provision of section 15 of Title I of the Act shall be liable to the United States for a civil penalty in an amount not to exceed \$25,000 for each such violation. Each day such a violation continues shall, for purposes of this paragraph, constitute a separate violation of section 15. A local education agency is not liable for any civil penalty under Title I of the Act for failing or refusing to comply with any rule promulgated or order issued under Title II of the Act.
- (c) Criminal penalties. If any violation committed by any person (including a local education agency) is knowing or willful, criminal penalties may be assessed under section 16(b) of Title I of the Act.
- (d) Injunctive relief. The Agency may obtain injunctive relief under section 208(b) of Title II of the Act to respond to a hazard which poses an imminent and substantial endangerment to human health or the environment or section 17 (15 U.S.C. 2616) of Title I of the Act to restrain any violation of section 15 of Title I of the Act or to compel the taking of any action required by or under Title I of the Act.
- (e) Citizen complaints. Any citizen who wishes to file a complaint pursuant to section 207(d) of Title II of the Act should direct the complaint to the Governor of the State or the EPA Asbestos Ombudsman, 1200 Pennsylvania Ave., NW., Washington, DC 20460. The citizen complaint should be in writing and identified as a citizen complaint pursuant to section 207(d) of Title II of TSCA. The EPA Asbestos Ombudsman or the Governor shall investigate and respond to the complaint within a reasonable period of time if the allegations provide a reasonable basis to believe that a violation of the Act has occurred.
- (f) Inspections. EPA may conduct inspections and review management plans under section 11 of Title I of the Act (15 U.S.C. 2610) to ensure compliance.

Sec. 763.98 Waiver; delegation to State

- (a) General.
- (1) Upon request from a State Governor and after notice and comment and an opportunity for a public hearing in accordance with paragraphs (b) and (c) of this section, EPA may waive some or all of the requirements of this subpart E if the State has established and is implementing or intends to implement a program of asbestos inspection and management that contains requirements that are at least as stringent as the requirements of this subpart E.
- (2) A waiver from any requirement of this subpart E shall apply only to the specific provision for which a waiver has been granted under this section. All requirements of this subpart E shall apply until a waiver is granted under this section.
- (b) Request. Each request by a Governor to waive any requirement of this subpart E shall be sent with three complete copies of the request to the Regional Administrator for the EPA Region in which the State is located and shall include:
- (1) A copy of the State provisions or proposed provisions relating to its program of asbestos inspection and management in schools for which the request is made.
- (2)

- (i) The name of the State agency that is or will be responsible for administering and enforcing the requirements for which a waiver is requested, the names and job titles of responsible officials in that agency, and phone numbers where the officials can be contacted.
 - (ii) In the event that more than one agency is or will be responsible for administering and enforcing the requirements for which a waiver is requested, a description of the functions to be performed by each agency, how the program will be coordinated by the lead agency to ensure consistency and effective administration in the asbestos inspection and management program within the State, the names and job titles of responsible officials in the agencies, and phone numbers where the officials can be contacted. The lead agency will serve as the central contact point for the EPA.
- (3) Detailed reasons, supporting papers, and the rationale for concluding that the State's asbestos inspection and management program provisions for which the request is made are at least as stringent as the requirements of this subpart E.
 - (4) A discussion of any special situations, problems, and needs pertaining to the waiver request accompanied by an explanation of how the State intends to handle them.
 - (5) A statement of the resources that the State intends to devote to the administration and enforcement of the provisions relating to the waiver request.
 - (6) Copies of any specific or enabling State laws (enacted and pending enactment) and regulations (promulgated and pending promulgation) relating to the request, including provisions for assessing criminal and/or civil penalties.
 - (7) Assurance from the Governor, the Attorney General, or the legal counsel of the lead agency that the lead agency or other cooperating agencies have the legal authority necessary to carry out the requirements relating to the request.
- (c) General Notice - hearing.
 - (1) Within 30 days after receipt of a request for a waiver, EPA will determine the completeness of the request. If EPA does not request further information within the 30-day period, the request will be deemed complete.
 - (2) Within 30 days after EPA determines that a request is complete, EPA will issue for publication in the Federal Register a notice that announces receipt of the request, describes the information submitted under paragraph (b) of this section, and solicits written comment from interested members of the public. Comments must be submitted within 60 days.
 - (3) If, during the comment period, EPA receives a written objection to a Governor's request and a request for a public hearing detailing specific objections to the granting of a waiver, EPA will schedule a public hearing to be held in the affected State after the close of the comment period and will announce the public hearing date in the Federal Register before the date of the hearing. Each comment shall include the name and address of the person submitting the comment.
 - (d) Criteria. EPA may waive some or all of the requirements of subpart E of this part if:
 - (1) The State's lead agency and other cooperating agencies have the legal authority necessary to carry out the provisions of asbestos inspection and management in schools relating to the waiver request.
 - (2) The State's program of asbestos inspection and management in schools relating to the waiver request and implementation of the program are or will be at least as stringent as the requirements of this subpart E.
 - (3) The State has an enforcement mechanism to allow it to implement the program described in the waiver request.
 - (4) The lead agency and any cooperating agencies have or will have qualified personnel to carry out the provisions relating to the waiver request.
 - (5) The State will devote adequate resources to the administration and enforcement of the asbestos inspection and management provisions relating to the waiver request.
 - (6) When specified by EPA, the State gives satisfactory assurances that necessary steps, including specific actions it proposes to take and a time schedule for their accomplishment, will be taken within a reasonable time to conform with applicable criteria under paragraphs (d) (2) through (4) of this section.
 - (e) Decision. EPA will issue for publication in the Federal Register a notice announcing its decision to grant or deny, in whole or in part, a Governor's request for a waiver from some or all of the requirements of this subpart E within 30 days after the close of the comment period or within 30 days following a public hearing, whichever is

- applicable. The notice will include the Agency's reasons and rationale for granting or denying the Governor's request. The 30-day period may be extended if mutually agreed upon by EPA and the State.
- (f) Modifications. When any substantial change is made in the administration or enforcement of a State program for which a waiver was granted under this section, a responsible official in the lead agency shall submit such changes to EPA.
 - (g) Reports. The lead agency in each State that has been granted a waiver by EPA from any requirement of subpart E of this part shall submit a report to the Regional Administrator for the Region in which the State is located at least once every 12 months to include the following information:
 - (1) A summary of the State's implementation and enforcement activities during the last reporting period relating to provisions waived under this section, including enforcement actions taken.
 - (2) Any changes in the administration or enforcement of the State program implemented during the last reporting period.
 - (3) Other reports as may be required by EPA to carry out effective oversight of any requirement of this subpart E that was waived under this section.
 - (h) Oversight. EPA may periodically evaluate the adequacy of a State's implementation and enforcement of and resources devoted to carrying out requirements relating to the waiver. This evaluation may include, but is not limited to, site visits to local education agencies without prior notice to the State.
 - (1) Informal conference. EPA may request that an informal conference be held between appropriate State and EPA officials when EPA has reason to believe that a State has failed to:
 - (i) Substantially comply with the terms of any provision that was waived under this section.
 - (ii) Meet the criteria under paragraph (d) of this section, including the failure to carry out enforcement activities or act on violations of the State program.
 - (2) EPA will:
 - (i) Specify to the State those aspects of the State's program believed to be inadequate.
 - (ii) Specify to the State the facts that underlie the belief of inadequacy.
 - (3) If EPA finds, on the basis of information submitted by the State at the conference, that deficiencies did not exist or were corrected by the State, no further action is required.
 - (4) Where EPA finds that deficiencies in the State program exist, a plan to correct the deficiencies shall be negotiated between the State and EPA. The plan shall detail the deficiencies found in the State program, specify the steps the State has taken or will take to remedy the deficiencies, and establish a schedule for each remedial action to be initiated.
 - (i) Rescission.
 - (1) If the State fails to meet with EPA or fails to correct deficiencies raised at the informal conference, EPA will deliver to the Governor of the State and a responsible official in the lead agency a written notice of its intent to rescind, in whole or part, the waiver.
 - (2) EPA will issue for publication in the Federal Register a notice that announces the rescission of the waiver, describes those aspects of the State's program determined to be inadequate, and specifies the facts that underlie the findings of inadequacy.

Sec. 763.99 Exclusions

- (a) A local education agency shall not be required to perform an inspection under Sec. 763.85(a) in any sampling area as defined in 40 CFR 763.103 or homogeneous area of a school building where:
 - (1) An accredited inspector has determined that, based on sampling records, friable ACBM was identified in that homogeneous or sampling area during an inspection conducted before December 14, 1987. The inspector shall sign and date a statement to that effect with his or her State of accreditation and if applicable, accreditation number and, within 30 days after such determination, submit a copy of the statement to the person designated under Sec. 763.84 for inclusion in the management plan. However, an accredited inspector shall assess the friable ACBM under Sec. 763.88.

- (2) An accredited inspector has determined that, based on sampling records, non-friable ACBM was identified in that homogeneous or sampling area during an inspection conducted before December 14, 1987. The inspector shall sign and date a statement to that effect with his or her State of accreditation and if applicable, accreditation number and, within 30 days after such determination, submit a copy of the statement to the person designated under Sec. 763.84 for inclusion in the management plan. However, an accredited inspector shall identify whether material that was non-friable has become friable since that previous inspection and shall assess the newly-friable ACBM under Sec. 763.88.
 - (3) Based on sampling records and inspection records, an accredited inspector has determined that no ACBM is present in the homogeneous or sampling area and the records show that the area was sampled, before December 14, 1987 in substantial compliance with Sec. 763.85(a), which for purposes of this section means in a random manner and with a sufficient number of samples to reasonably ensure that the area is not ACBM.
 - (i) The accredited inspector shall sign and date a statement, with his or her State of accreditation and if applicable, accreditation number that the homogeneous or sampling area determined not to be ACBM was sampled in substantial compliance with Sec. 763.85(a).
 - (ii) Within 30 days after the inspector's determination, the local education agency shall submit a copy of the inspector's statement to the EPA Regional Office and shall include the statement in the management plan for that school.
 - (4) The lead agency responsible for asbestos inspection in a State that has been granted a waiver from Sec. 763.85(a) has determined that, based on sampling records and inspection records, no ACBM is present in the homogeneous or sampling area and the records show that the area was sampled before December 14, 1987, in substantial compliance with Sec. 763.85(a). Such determination shall be included in the management plan for that school.
 - (5) An accredited inspector has determined that, based on records of an inspection conducted before December 14, 1987, suspected ACBM identified in that homogeneous or sampling area is assumed to be ACM. The inspector shall sign and date a statement to that effect, with his or her State of accreditation and if applicable, accreditation number and, within 30 days of such determination, submit a copy of the statement to the person designated under Sec. 763.84 for inclusion in the management plan. However, an accredited inspector shall identify whether material that was non-friable suspected ACBM assumed to be ACM has become friable since the previous inspection and shall assess the newly friable material and previously identified friable suspected ACBM assumed to be ACM under Sec. 763.88.
 - (6) Based on inspection records and contractor and clearance records, an accredited inspector has determined that no ACBM is present in the homogeneous or sampling area where asbestos removal operations have been conducted before December 14, 1987, and shall sign and date a statement to that effect and include his or her State of accreditation and, if applicable, accreditation number. The local education agency shall submit a copy of the statement to the EPA Regional Office and shall include the statement in the management plan for that school.
 - (7) An architect or project engineer responsible for the construction of a new school building built after October 12, 1988, or an accredited inspector signs a statement that no ACBM was specified as a building material in any construction document for the building, or, to the best of his or her knowledge, no ACBM was used as a building material in the building. The local education agency shall submit a copy of the signed statement of the architect, project engineer, or accredited inspector to the EPA Regional Office and shall include the statement in the management plan for that school.
- (b) The exclusion, under paragraphs (a) (1) through (4) of this section, from conducting the inspection under Sec. 763.85(a) shall apply only to homogeneous or sampling areas of a school building that were inspected and sampled before October 17, 1987. The local education agency shall conduct an inspection under Sec. 763.85(a) of all areas inspected before October 17, 1987 that were not sampled or were not assumed to be ACM.
 - (c) If ACBM is subsequently found in a homogeneous or sampling area of a local education agency that had been identified as receiving an exclusion by an accredited inspector under paragraphs (a) (3), (4), (5) of this section, or an architect, project engineer or accredited inspector under paragraph (a)(7) of this section, the local education agency shall have 180 days following the date of identification of ACBM to comply with this subpart E.



Asbestos Identification Laboratory

165 New Boston St., Ste 271
Woburn, MA 01801
781-932-9600

Web: www.asbestosidentificationlab.com
Email: mikemanning@asbestosidentificationlab.com

Batch: 3108



December 05, 2014

Ammar Dieb
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Project Number:

Project Name: Admin Bldg, Needham, MA

Date Sampled: 2014-12-02

Work Received: 2014-12-03

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

Dear Ammar Dieb,

Asbestos Identification Laboratory has completed the analysis of the samples from your office for the above referenced project.

The information and analysis contained in this report have been generated using the EPA /600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials. Materials or products that contain more than 1% of any kind or combination of asbestos are considered an asbestos containing building material as determined by the EPA. This Polarized Light Microscope (PLM) technique may be performed either by visual estimation or point counting. Point counting provides a determination of the area percentage of asbestos in a sample. If the asbestos is estimated to be less than 10% by visual estimation of friable material, the determination may be repeated using the point counting technique. The results of the point counting supersede visual PLM results. Results in this report only relate to the items tested. This report may not be used by the customer to claim product endorsement by NVLAP or any other U.S. Government Agency.

Laboratory results represent the analysis of samples as submitted by the customer. Information regarding sample location, description, area, volume, etc., was provided by the customer. Asbestos Identification Laboratory is not responsible for sample collection activities or analytical method limitations. Unless notified in writing to return samples, Asbestos Identification Laboratory discards customer samples after 30 days. This report shall not be reproduced, except in full, without the written consent of Asbestos Identification Laboratory.

- NVLAP Lab Code: 200919-0
- Massachusetts Certification License: AA000208
- State of Connecticut, Department of Public Health Approved Environmental Laboratory Registration Number: PH-0142
- State of Maine, Department of Environmental Protection Asbestos Analytical Laboratory License Number: LB-0078(Bulk) LA-0087(Air)
- State of Rhode Island and Providence Plantations Department of Health Certification: AAL-121

Thank you Ammar Dieb for your business.

Michael Manning
Owner/Director

Ammar Dieb
 Universal Environmental Consultants
 12 Brewster Road
 Framingham, MA 01702

Project Number:
Project Name: Admin Bldg, Needham, MA

Date Sampled: 2014-12-02
Work Received: 2014-12-03

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

| FieldID | Material | Location | Color | Non-Asbestos % | Asbestos % |
|---------|----------------------------------|------------------------------------|-------|-----------------|-----------------------|
| LabID | | | | | |
| 1 | New 12" Grey w/ Green Floor Tile | 2nd FL MC | multi | Non-Fibrous 100 | None Detected |
| 32763 | | | | | |
| 2 | New 12" Grey w/ Green Floor Tile | Bsmt CM | multi | Non-Fibrous 100 | None Detected |
| 32764 | | | | | |
| 3 | New 12" Light Pink Floor Tile | 1st FL Cust by Restroom | pink | Non-Fibrous 100 | None Detected |
| 32765 | | | | | |
| 4 | New 12" Light Pink Floor Tile | 1st FL Cust by Restroom | pink | Non-Fibrous 100 | None Detected |
| 32766 | | | | | |
| 5 | 9" Sea Green Floor Tile | Under Carpet, 1st FL Conference Rm | green | Non-Fibrous 98 | Detected Chrysotile 2 |
| 32767 | | | | | |
| 6 | Mastic #5 | Under Carpet, 1st FL Conference Rm | black | Non-Fibrous 100 | None Detected |
| 32768 | | | | | |
| 7 | 9" Sea Green Floor Tile | Under Carpet, 1st FL Conference Rm | green | Non-Fibrous 98 | Detected Chrysotile 2 |
| 32769 | | | | | |
| 8 | Mastic #7 | Under Carpet, 1st FL Conference Rm | black | Non-Fibrous 100 | None Detected |
| 32770 | | | | | |
| 9 | Grey Lino on Stairs & Landing | Stairwell #1 | gray | Non-Fibrous 97 | Detected Chrysotile 3 |
| 32771 | | | | | |
| 10 | Adhesive for #9 | Stairwell #1 | white | Non-Fibrous 100 | None Detected |
| 32772 | | | | | |
| 11 | Brown Leveler #9 | Stairwell #1 | brown | Non-Fibrous 98 | Detected Chrysotile 2 |
| 32773 | | | | | |
| 12 | Grey Lino on Stairs & Landing | Stairwell #2 | gray | Non-Fibrous 98 | Detected Chrysotile 2 |
| 32774 | | | | | |
| 13 | Adhesive #11 | Stairwell #2 | white | Non-Fibrous 100 | None Detected |
| 32775 | | | | | |
| 14 | Brown Leveler #11 | Stairwell #2 | brown | Non-Fibrous 98 | Detected Chrysotile 2 |
| 32776 | | | | | |

| FieldID | Material | Location | Color | Non-Asbestos % | Asbestos % |
|---------|-----------------|----------------------|-------|--------------------------|--|
| LabID | | | | | |
| 15 | Brown Lino | Bsmt Stairwell #1 | multi | Cellulose Non-Fibrous | 10 None Detected 90 |
| 32777 | | | | | |
| 16 | Adhesive #15 | Bsmt Stairwell #1 | brown | Non-Fibrous | 100 None Detected |
| 32778 | | | | | |
| 17 | Brown Lino | Bsmt Stairwell #2 | multi | Cellulose Non-Fibrous | 10 None Detected 90 |
| 32779 | | | | | |
| 18 | Adhesive #17 | Bsmt Stairwell #2 | brown | Non-Fibrous | 100 None Detected |
| 32780 | | | | | |
| 19 | Pipe Insulation | Bsmt Water Tank Room | gray | Cellulose Non-Fibrous | 15 Detected 20 Chrysotile 65 |
| 32781 | | | | | |
| 20 | Pipe Insul | Bsmt Water Tank Room | gray | Cellulose Non-Fibrous | 10 Detected 20 Chrysotile 70 |
| 32782 | | | | | |
| 21 | Pipe Insul | Bsmt Wtr Tank Room | gray | Cellulose Non-Fibrous | 10 Detected 20 Chrysotile 70 |
| 32783 | | | | | |

Friday 05 December
Analyzed by:

Michael Thumming

End of Report
Batch: 3108

Page 2 of 2

CHAIN OF CUSTODY

| |
|--|
| Universal Environmental Consultants |
| 12 Brewster Road |
| Framingham, MA 01702 |
| Tel: (508) 628-5486 - Fax: (508) 628-5488 |
| adie@uec-env.com |

Town/City: Needham, MA Building Name Admin Bldg

| Sample | Result | Description of Material | Sample Location |
|--------|--------|----------------------------------|--|
| 1 | | new 12" grey w/ green Floor tile | 2 nd FL. rm. |
| 2 | | new 12" grey w/ green Floor tile | Bsmt rm |
| 3 | | new 12" light Pink Floor tile | 1 st FL. cust rm by rest rm |
| 4 | | new 12" light Pink Floor tile | 1 st FL. cust rm by rest rm |
| 5 | | 9" SEA GREEN Floor tile | under carpet 1 st FL Conference rm. |
| 6 | | MASTIC # 5 | / |
| 7 | | 9" SEA GREEN Floor tile | / |
| 8 | | MASTIC # 7 | / |
| 9 | | Grey CIND ON STAIRS & Landing | STAIRWELL #1 |
| 10 | | Adhesive for #9 | " " |
| 11 | | Brown Leveler #9 | " " |
| 12 | | Grey CIND ON STAIRS & Landing | STAIRWELL #2 |
| 13 | | adhesive #11 | " " |
| 14 | | Brown Leveler #11 | " " |
| 15 | | Brown CIND | Bsmt STAIRWELL #1 |
| 16 | | adhesive #15 | " " " |
| 17 | | Brown CIND | Bsmt STAIRWELL #2 |
| 18 | | adhesive #17 | " " " |
| 19 | | Pipe insulation | Bsmt WATER TANK room |
| 20 | | Pipe insul. | " " " |

Reported By: [Signature] Date: 12-2-14 Due Date: 7-2-14
 Received By: [Signature] Date: 12/3/14

21 Pipe insul Bsmt WTR TANK room



ARDEX FEATHER FINISH®

Self-Drying, Cement-Based Finish Underlayment

Self-drying, finishing underlayment

**Provides a smooth surface prior to the installation of floor covering
over a variety of substrates**

A blend of Portland cement and other hydraulic cements

Exceptional bond strength

Easy to mix and apply

Mixes with water only

True featheredge

Superior coverage - up to 300 sq. ft. per bag*

Mold and mildew resistant

Install floor coverings in as little as 15 minutes

Interior use only



SystemOne™

ARDEX ENGINEERED CEMENTS
400 Ardex Park Drive
Aliquippa, PA 15001 USA
Tel: 724-203-5000
Toll Free: 888-512-7339
Fax: 724-203-5001
www.ardexamericas.com

ARDEX FEATHER FINISH®

Self-Drying, Cement-Based Finish Underlayment

Description and Usage

ARDEX FEATHER FINISH® is an underlayment formulated from a blend of Portland cement and other hydraulic cements that provides a smooth, permanent finish for a variety of substrates prior to the installation of today's demanding floor coverings, including sheet vinyl and VCT (vinyl composition tile). ARDEX FEATHER FINISH allows the installation of most types of floor covering in as little as 15 minutes over all types of interior concrete, masonry, wood, terrazzo, and ceramic and quarry tile - as well as properly prepared residues of cutback and other non-water-soluble adhesives on concrete - all without the need for priming or the use of a latex additive.

ARDEX FEATHER FINISH mixes with water only to a creamy, smooth consistency, for easy application. Engineered around a self-drying matrix, all of the mix water is chemically combined within the product itself. Using this unique technology, flooring installation problems associated with disbonding, crumbling, mold, mildew and staining are eliminated, thus preserving the floor manufacturer's full product warranty.

ARDEX FEATHER FINISH also may be used as an embossing filler when mixed with ARDEX P 82™ ULTRA PRIME. Please read the instructions under "Embossing Filler."

Substrate Preparation

For all of the substrates listed below, acid etching, adhesive removers, solvents and sweeping compounds are not acceptable means for cleaning the substrate. Substrate and ambient temperatures must be a minimum of 50°F (10°C) for the installation of ARDEX products. For more detailed information on substrate preparation, please refer to the ARDEX Substrate Preparation Brochure at www.ardexamericas.com.

CONCRETE: All concrete substrates must be solid, thoroughly clean and free of oil, wax, grease, asphalt, latex and gypsum compounds, curing compounds**, sealers and any contaminant that might act as a bond breaker. If necessary, mechanically clean the floor down to sound, solid concrete by shot blasting, grinding or similar. Over-watered, frozen or otherwise weak concrete surfaces must also be cleaned down to sound, solid concrete by mechanical methods. Acid etching, adhesive removers, solvents and sweeping compounds are not acceptable means for cleaning the substrate. Sanding equipment is not an effective method to remove curing and sealing compounds.

****NOTES ON CURING COMPOUNDS:** Test areas of ARDEX FEATHER FINISH can be installed and evaluated over concrete slabs that have been treated with either silicate or acrylic resin curing compounds. These compounds must be installed in strict accordance with the compound manufacturer's written recommendations. If a silicate type has been used, all residual salts must be removed. For instructions on priming concrete with acceptable curing compounds, please refer to the Priming section of this brochure.

Please be advised, however, that there are a number of curing compounds sold today that are wax- or petroleum-based emulsions. These are permanent bond breakers that must be removed completely prior to patching or leveling. Dissipating compounds must also be removed completely by mechanical means prior to installing any ARDEX material.

It is imperative to be able to determine the type of curing compound that was used before proceeding. Any curing compound that cannot be identified should be completely, mechanically removed.

ADHESIVE RESIDUES ON CONCRETE: ARDEX

FEATHER FINISH also can be installed over non-water-soluble adhesive residue on concrete only. The adhesive must first be tested to make certain it is not water-soluble. Water-soluble adhesives must be removed mechanically down to clean concrete. The existing adhesive also must be tested to verify that it does not interact with the new flooring adhesive, and the new flooring must be tested to ensure it is not susceptible to bleed through of the existing adhesive. If adhesive interaction and/or migration are a concern, install an ARDEX self-leveling material such as ARDEX K 15® Premium Self-Leveling Underlayment.

Non-water-soluble adhesives should be prepared to a thin, well-bonded residue using the wet-scraping technique as recommended by the Resilient Floor Covering Institute (www.rfci.com) to remove thick areas and adhesive build-up, as well as any areas that are weak or not well bonded to the concrete. Any existing patches below the adhesive must be removed completely.

OTHER NON-POROUS SUBSTRATES: ARDEX

FEATHER FINISH also can be applied over other clean, sound and solidly bonded non-porous substrates, including terrazzo, burnished concrete, epoxy coating systems, and ceramic and quarry tile. The substrate must be clean, including the complete removal of existing waxes and sealers, dust, dirt, debris and any other contaminant that may act as a bond breaker. Substrate preparation must be by mechanical means, such as shot blasting.

GYPHUM: ARDEX FEATHER FINISH can be installed over gypsum underlayments that are sound, solid, well bonded and properly primed. For instructions on priming gypsum underlayments, please refer to the Priming section below. The gypsum must be thoroughly clean and free of dirt, debris, sealers and any contaminant that might act as a bond breaker. If necessary, mechanically clean the floor down to sound, solid gypsum by shot blasting, grinding or similar.

Please be advised, however, that the fact remains that the substrate is gypsum, and therefore has inherent weakness. ARDEX FEATHER FINISH will provide a solid surface to which new flooring can bond, but cannot change the fact that a weak substrate lies below.

The wood subfloor must be constructed according to prevailing building codes and must be solid and securely fixed to provide a rigid base free of undue flex. Any boards exhibiting movement must be re-nailed. The surface of the wood must be clean and free of oil, grease, wax, dirt, varnish, shellac and any contaminant that might act as a bond breaker. If necessary, sand down to bare wood. A commercial drum sander can be used to sand large areas. Do not use solvents, strippers or cleaners. Vacuum all dust and debris. It is the responsibility of the installation contractor to ensure that the wood subfloor is thoroughly clean and properly anchored prior to the installation of any ARDEX material.

Some flooring manufacturers recommend a finish-grade wood underlayment be installed over the existing wood subfloor. If necessary, ARDEX FEATHER FINISH can be used to smooth fasteners and/or joints in the wood underlayment. Please note that the wood underlayment must be suitable for the installation of the specific floor covering and must be installed in accordance with the wood underlayment manufacturer's recommendations.

METAL: Metal substrates must be rigid, well supported, properly anchored, and free of undue flex and vibration. They must also be clean, including the complete mechanical removal of rust, corrosion and any contaminant that may act as a bond breaker. It is the responsibility of the installation contractor to ensure that this is so. To prevent rust from recurring, steel surfaces must be coated with an anticorrosive epoxy coating and allowed to dry thoroughly. The coating must be installed in strict accordance with the coating manufacturer's written recommendations and allowed to cure fully. Lead, copper and aluminum do not need to be coated with an anticorrosive coating.

NOTE ON ASBESTOS-CONTAINING MATERIALS: Please note that when removing existing flooring, any asbestos-containing materials should be handled and disposed of in accordance with applicable federal, state and local regulations.

For all of the above cases, acid etching, adhesive removers, solvents and sweeping compounds are not acceptable means for cleaning the substrate. Substrate and ambient temperatures must be a minimum of 50°F (10°C) for the installation of ARDEX products. For more detailed information on substrate preparation, please refer to the ARDEX Substrate Preparation Brochure at www.ardexamericas.com.

Recommended Tools

ARDEX T-2 Ring Mixing Paddle, mixing bucket, margin trowel, steel trowel, razor scraper, and a 1/2" (12 mm) heavy-duty drill (min. 650 rpm).

Priming

NOTE: ARDEX primers may require longer drying time with low surface temperatures and/or high ambient humidity. Do not install ARDEX FEATHER FINISH before the primer has dried thoroughly.

GYPSUM: If the substrate is a gypsum underlayment that will not be removed, double priming of the gypsum is necessary to consolidate what may be a dusty surface prior to installing ARDEX FEATHER FINISH. Make an initial application of ARDEX P 51™ PRIMER mixed with 3 parts water, and apply using a soft push broom. Do not leave any bare spots. Remove all puddles and excess primer. Allow thorough drying such that the film of primer does not re-emulsify in water (approximately 1 to 3 hours) before proceeding with the second application of ARDEX P 51 diluted 1:1 with water. Allow thorough drying to a clear, thin film (min. 3 hours, max. 24 hours).

NON-POROUS SUBSTRATES: ARDEX FEATHER FINISH will bond to some non-porous substrates, such as burnished concrete, terrazzo, and ceramic and quarry tile, without the use of a primer. Other non-porous substrates, such as epoxy coating systems and concrete treated with silicate compounds, must be primed with ARDEX P 82 ULTRA PRIME. Follow the mixing instructions on the container, and apply with a short-nap or sponge paint roller, leaving a thin coat of primer. Do not leave any bare spots. Brush off puddles and excess primer. ARDEX P 82 should be applied within 1 hour of mixing. Allow primer to dry to a thin, slightly tacky film (min. 3 hours, max. 24 hours).

NOTE: If an approved acrylic curing compound is used, test the surface for porosity. If the concrete is porous, no primer is needed. If it is non-porous, prime with ARDEX P 82.

METAL: Prime the prepared metal with ARDEX P 82 ULTRA PRIME. Follow the mixing instructions on the container, and apply with a short-nap or sponge paint roller, leaving a thin coat of primer. Do not leave any bare spots. Brush off puddles and excess primer. ARDEX P 82 should be applied within 1 hour of mixing. Allow primer to dry to a thin, slightly tacky film (min. 3 hours, max. 24 hours).

Joins and Cracks

Under no circumstances should ARDEX FEATHER FINISH be installed over any moving joints or moving cracks. All existing expansion joints, isolation joints and construction joints, as well as all moving cracks, must be honored up through the underlayment and flooring.

Please be advised that while dormant control joints and dormant cracks in the slab may be filled with a trowel-grade material such as ARDEX FEATHER FINISH prior to installing finish flooring, this filling is not intended to act as a repair method that will eliminate the possibility of joints and cracks telegraphing. ARDEX FEATHER FINISH is a non-structural material and is, therefore, unable to restrain movement within a concrete slab. This means that while some dormant joints and dormant cracks may not telegraph up into the finish flooring, cracks will telegraph in any area that exhibits movement, such as an active crack, an expansion or isolation joint, or an area where dissimilar substrates meet. We know of no method to prevent this telegraphing from occurring.

Mixing and Application

For one 10 lb. (4.5 kg) bag of ARDEX FEATHER FINISH, use 2 1/2 quarts (2.4 L) of clean water. Pour the water in the mixing container first, and then add the ARDEX FEATHER FINISH. For best results, mix with an ARDEX T-2 Ring Mixing Paddle and a 1/2" (12 mm) heavy-duty drill (min. 650 rpm). Mechanical mixing will produce a creamier, smoother consistency without the need for additional water. **DO NOT OVERWATER!** Additional water will weaken the compound and lower its strength. To mix smaller quantities by hand, use 2 parts of powder to 1 part of water by volume. Use a margin trowel and mix vigorously for 2 to 3 minutes. Just prior to application on the substrate, the mixture should be stirred again to ensure a creamy, smooth, lump-free consistency. The pot life of ARDEX FEATHER FINISH is approximately 15-20 minutes at 70°F (21°C). If stiffening or surface skinning occurs within this time, remix before using. **Do not add more water.**

After mixing, apply the ARDEX FEATHER FINISH to the substrate with the flat side of a steel trowel to obtain a solid mechanical bond before applying the desired thickness. Apply sufficient pressure to fill all defects and to feather the product onto the subfloor surface.

EMBOSSING FILLER: Existing felt-backed embossed residential sheet vinyl must be clean and free of any waxes or other dressings. The flooring must be solidly bonded, must be installed over a suitable substrate, and must not show any signs of moisture, mold, mildew or alkaline salts. Do not use embossing filler over cushioned-backed flooring that is thicker than 0.080", or over perimeter-bonded flooring.

To use ARDEX FEATHER FINISH as an embossing filler, mix one part of ARDEX P 82 Part A with one part of ARDEX P 82 Part B by volume and blend to a uniform consistency. Add two parts of ARDEX FEATHER FINISH by volume and mix as above.

For example, mix 1 cup (8 oz.) of ARDEX P 82 Part A with 1 cup of ARDEX P 82 Part B. Blend this to a uniform color and consistency, and then add 2 cups (16 oz.) of ARDEX FEATHER FINISH. For best results, mix the embossing filler with an ARDEX T-2 Ring Mixing Paddle and 1/2" heavy-duty drill to a creamy consistency, or use a margin trowel and mix vigorously for 2 to 3 minutes. Apply the filler to the prepared residential sheet vinyl with the flat side of a trowel in the thinnest possible layer to fill in the existing pattern. (Coverage of above mix is approx. 50 sq. ft., depending upon the depth of the embossing pattern.) If additional filling or smoothing is required after the pattern is filled, use ARDEX FEATHER FINISH mixed with water only.

The embossing filler blend will typically require 90 minutes of drying time prior to the installation of the new residential sheet vinyl. The surface is ready when a twist of a shoe does not affect the bond of the embossing filler. When dried, the surface of the filled vinyl is considered a non-porous substrate, and the adhesive should be selected accordingly.

Thickness of Application

ARDEX FEATHER FINISH can be installed from a true featheredge up to 1/2 in. (12.7 mm) over large areas. It can also be installed up to any thickness in small, well-defined areas, such as thresholds and birdbaths, as well as for height transitions. There is no minimum thickness requirement for this product. Use the least amount possible to attain the desired smoothness. The thickness of the application should be calculated based on the surface profile of the substrate and the specified tolerances of the floor covering.

Wear Surface

ARDEX FEATHER FINISH is not to be used as a permanent wear surface, even if coated or sealed. ARDEX FEATHER FINISH must be covered by a suitable floor covering material such as carpet, vinyl flooring, ceramic tile, etc. For resurfacing and leveling indoor concrete floors in warehouses, storage areas, hallways or other areas where a wear surface is required, use ARDEX SD-M™ DESIGNER FLOOR FINISH™.

Installation of Flooring

As soon as the ARDEX FEATHER FINISH can be worked on without damaging the surface (15-20 minutes), standard floor coverings such as ceramic tile, VCT, sheet vinyl and carpeting can be installed. If installing wood flooring, or, if high-performance adhesives will be used, such as epoxies or urethanes, please note that the ARDEX FEATHER FINISH must first be allowed to cure for 16 hours. All flooring adhesives that are compatible with concrete are compatible with ARDEX FEATHER FINISH.

Drying time is a function of jobsite temperature and humidity conditions, as well as the installation thickness. Low substrate temperatures and/or high ambient humidity will extend the drying time. Adequate ventilation and heat will aid drying.

It is important to note that many different types of adhesives are used to install floor coverings, and their absorbency into cementitious substrates can vary significantly. If it is found that the adhesive being used is drying more quickly over the ARDEX FEATHER FINISH than over adjacent concrete, we recommend that the surface of the underlayment be primed with ARDEX P 51 PRIMER diluted 1:3 with water. Allow the primer to dry thoroughly (1 to 3 hours), and proceed with the installation of the adhesive. The use of the primer will even out the open time of the adhesive without affecting the bond or the long-term performance.

Notes

FOR PROFESSIONAL USE ONLY.

This product is intended for interior use over dry substrates only. Do not use in areas of constant water exposure or in areas exposed to permanent or intermittent substrate moisture, as this may jeopardize the performance of the underlayment and the floor covering. This product is not a vapor barrier, and will allow free passage of moisture. **Follow the directives of the floor covering manufacturer regarding the maximum allowable substrate moisture content and test the substrate prior to installing ARDEX FEATHER FINISH.** Where substrate moisture exceeds the maximum allowed, ARDEX recommends the use of ARDEX Moisture Control Systems. For further information, please refer to the ARDEX Technical Brochures.

Always install an adequate number of properly located test areas, including the finish flooring, to determine the suitability of the products for the intended use. As floor coverings vary, always contact and rely upon the floor covering manufacturer for specific directives, such as maximum allowable moisture content, adhesive selection and intended end use of the product.

Never mix with cement or additives other than ARDEX-approved products. Observe the basic rules of concrete work. Do not install below 50°F (10°C) surface and air temperatures. Install quickly if the substrate is warm, and follow warm weather instructions available from the ARDEX Technical Service Department.

To preserve its freshness, ARDEX FEATHER FINISH must be protected from air while not in use. Protect unused material by removing the air from the bag and sealing tightly. Open and reseal as necessary.

Precautions

Carefully read and follow all precautions and warnings on the product label. For complete safety information, please refer to the Material Safety Data Sheet (MSDS) available at www.ardexamericas.com.

Technical Data According to ARDEX Quality Standards

All data based on a mixing ratio of 2 parts powder to 1 part water by volume at 70°F (21°C). Physical properties are typical values and not specifications.

| | |
|--------------------------|--|
| Mixing Ratio: | 2 1/2 quarts (2.4 L) of water per 10 lb. (4.5 kg) bag For smaller batches, use 2 parts powder to 1 part water by volume |
| *Coverage: | 16.7 sq. ft. per bag at 1/4" (1.5 sq. m at 6 mm) 33.3 sq. ft. per bag at 1/8" (3.09 sq. m at 3 mm) 100-300 sq. ft. (9.2-27.8 sq. m) per bag at a skim coat Coverage will vary depending on the texture of the surface being smoothed. |
| Install Flooring: | 15-20 minutes at 70°F (21°C) |
| VOC: | 0 |
| Packaging: | 10 lb. (4.5 kg) net weight bag |
| Storage: | Store in a cool, dry area. Do not leave bags exposed to sun. Protect unused material by removing air from bag and sealing tightly. |
| Shelf Life: | 9 months, if unopened |
| Warranty: | ARDEX Engineered Cements Standard Limited Warranty applies. Also eligible for the ARDEX/HENRY SystemOne™ Warranty when used in conjunction with select HENRY® Flooring Adhesives. |

Standard EXCELON®

Imperial® Texture • Imperial Texture Rave® • MultiColor™

Vinyl Composition Tile (VCT)



Market-leading performance, quality and durability in VCT products all from Armstrong, the industry leader in VCT for decades. Composed of 85% North American limestone and manufactured in three US locations, Armstrong® Imperial Texture is a responsible choice. Rave provides bold, eye-catching colors while MultiColor offers three base colors with four accent colors that coordinate with Imperial Texture. All three products are true through-pattern construction.

PRODUCT INFORMATION

| | |
|--------------------------------------|--|
| Construction | Vinyl Composition Tile |
| Product Line | Imperial Texture, Imperial Texture Rave, MultiColor |
| International Product Specifications | ASTM F 1066 Class 2 - Through Pattern, ISO 10595, Type II |
| Overall Thickness | 1/8 in. (3.2 mm); 3/32 in. (2.4 mm) - Imperial Texture only |
| Wear Layer Thickness | 1/8 in. (3.2 mm); 3/32 in. (2.4 mm) - Imperial Texture only |
| Finish | Fast Start Factory Finish |
| Installation | Full Spread Adhesives --S-515 High-Moisture, S-525 High-Moisture, S-700 Thin Spread, S-750 Premium |
| Maintenance Options | Polish |

PACKAGING

| | |
|------------------|-----------------------------------|
| Tile Sizes | 12 in. x 12 in. (305 mm x 305 mm) |
| Tiles Per Carton | 45 - 45 sq. ft. |
| Shipping Weight | 63 lbs. (28.6 kg) per carton |

PERFORMANCE

| | TEST METHOD | MINIMUM REQUIREMENT | PERFORMANCE VS. REQUIREMENT | |
|--------------------|----------------------------------|--------------------------------|---|------------------|
| ASTM F 1066 | Thickness | ASTM F 386 | Nominal ± 0.005 in. | Meets |
| | Size | ASTM F 2055 | ± 0.016 in. per linear foot | Exceeds |
| | Squareness | ASTM F 2055 | 0.010 in. max | Exceeds |
| | Indentation - One Minute | ASTM F 1914 | ≥ 0.006 in. to ≤ 0.015 in. | Meets |
| | Indentation at 115° F | ASTM F 1914 | < 0.032 in. | Exceeds |
| | Impact | ASTM F 1265 | No cracks beyond limit | Exceeds |
| | Deflection | ASTM F 1304 | 1.0 in. minimum | Exceeds |
| | Dimensional Stability | ASTM F 2199 | ≤ 0.024 in. per linear foot | Exceeds |
| | Chemical Resistance | ASTM F 925 | No more than slight change in surface dulling, attack or staining | Meets or Exceeds |
| | Resistance to Heat | ASTM F 1514 | ΔE ≤ 8 | Exceeds |
| Supplementary | Static Load Limit | ASTM F 970 | ≤ 0.005 in. | 125 psi |
| | Fire Test Data - Flame Spread | ASTM E 648 | 0.45 watt/cm ² or more Class I | Meets |
| | Fire Test Data - Smoke Evolution | ASTM E 662 | 450 or less | Meets |
| | Regional Materials | LEED® MR5.0 | Meets Guidelines | Meets |
| | Recycled Content | LEED MR4.0 | Meets Guidelines | Meets |
| | Certified Low Emitting Product | LEED EQ4.3 | Meets Guidelines | Meets |
| | Certified Low Emitting Adhesive | LEED EQ4.1 | Meets Guidelines | Meets |
| | Indoor Air Quality | FloorScore™ | Meets Certification Guidelines | Certified |
| Indoor Air Quality | CHPS 01350 | Meets Certification Guidelines | Certified | |
| NSF/ANSI 332 | Sustainability Assessment | Meets Certification Guidelines | Gold Level Certified | |

WARRANTY

5-Year Commercial Warranty when installed in accordance with Armstrong's Guaranteed Installation Systems manual, F-5061.

LINKS

Installation Instructions - www.armstrong.com/pdbupimages/200839.pdf

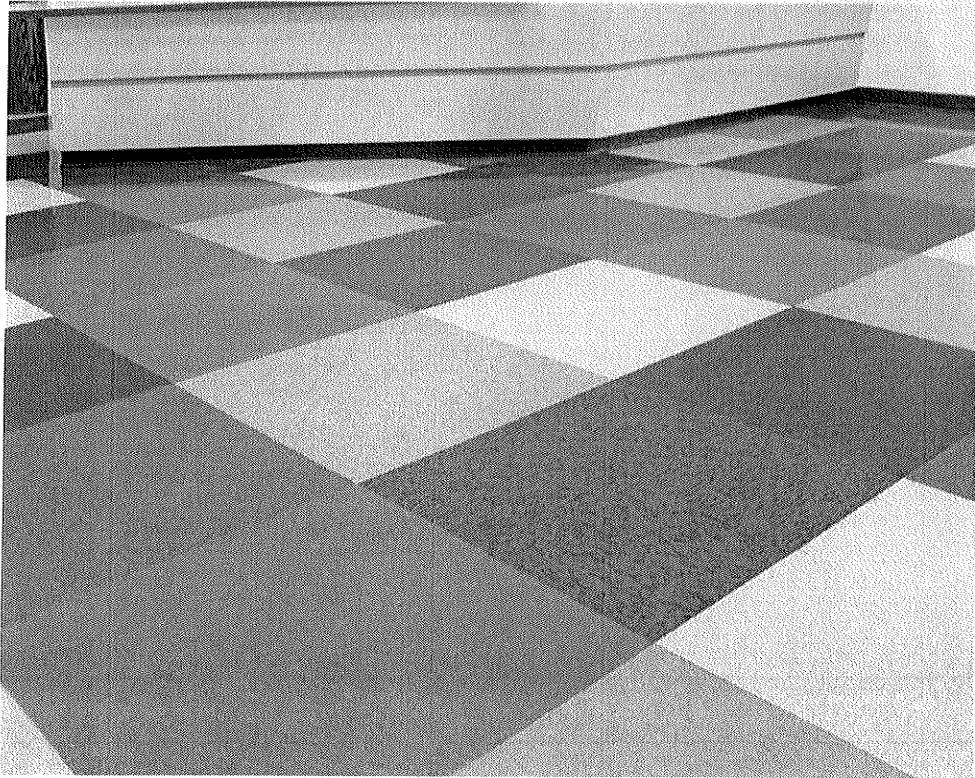
Maintenance Information - www.armstrong.com/pdbupimages/197969.pdf

View the full line - www.armstrong.com/commflooringna/products/vct

Email Techline - www.armstrong.com/commflooringna/contact_techline.jsp

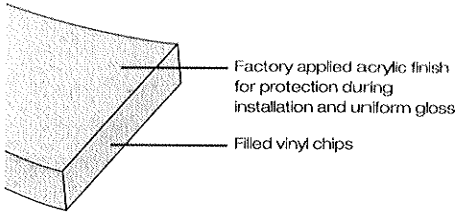
Standard EXCELON®

Imperial® Texture • Imperial Texture Rave® • MultiColor™
Vinyl Composition Tile (VCT)

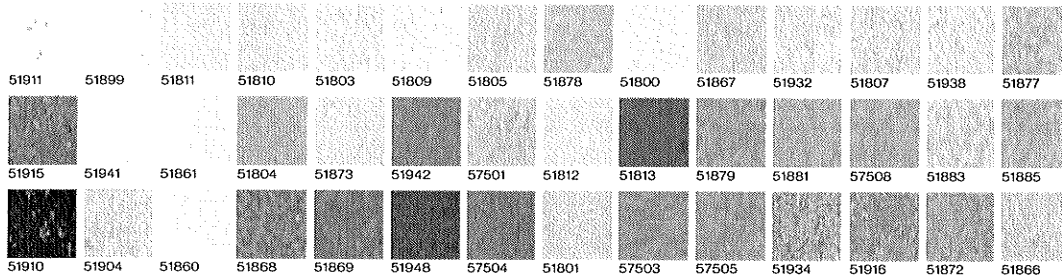


Sustainability Facts

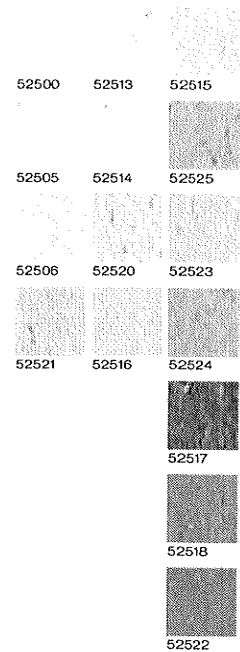
| | |
|---|--|
| Serving | As Served |
| Imperial Texture | |
| Certified to meet LEED® EQ Credit: Low Emitting Interiors | ✓ |
| Pre-Consumer Recycled Content | 18% |
| Regional Materials* | Kankakee, IL Southgate, CA Jackson, MS |
| Adhesives | |
| Certified to meet LEED® EQ Credit: Low Emitting Interiors | ✓ |
| FloorScore™ Certified to CDPH Standard Method V1.1-2010 | ✓ |
| Collaborative for High Performance Schools CHPS-IEQ2.2 & LABS-21 IEQ4.3 | ✓ |
| U.S. Green Building Council Member | ✓ |
| Canada Green Building Council Member | ✓ |
| NSF/ANSI 332 Gold Level Certified | ✓ |



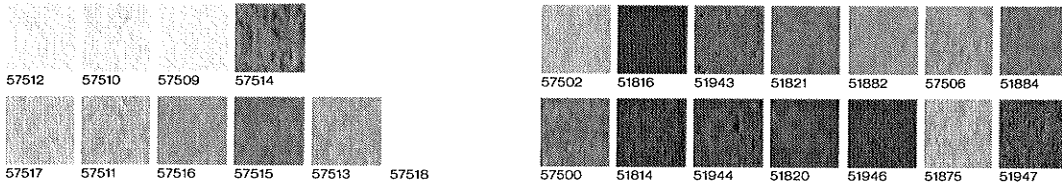
Imperial Texture



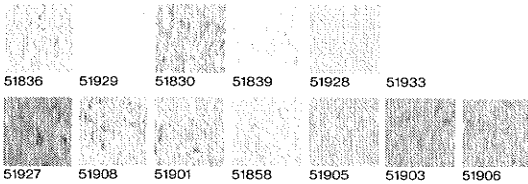
MultiColor



Imperial Texture Rave



Imperial Texture Classics



S-515 Clear Thin Spread Tile Adhesive

Adhesives \ Armstrong \ S-515 Clear Thin Spread Tile Adhesive

Installation

System: Vinyl Composition Tile Installation System

Use: Commercial, Residential

Products: **Vinyl Composition Tile:** ARTEFFECTS, Imperial Texture, MultiColor, Stonetex, Companion Square, Rave, Feature Tile/Strips, Civic Square
BioBased Tile: Migrations
Specialty: SAFETY ZONE
Residential Dry Back Tile: CleanSweep No-Wax, Urethane No-Wax, Vinyl No-Wax

Description

Type: Water-based/latex-resin

Color: Creamy yellow; dries clear (beige); contains visible taggants

Taggants: 50% Yellow and 50% Orange

Trowel: S-891 Notched Steel Trowel or S-892 Replaceable Blade Trowel;
fine notch: 1/32"D x 1/16"W x 5/64"A, U-notch trowel

Open Time: Until dry to touch; approximately 30 minutes or more

Working Time: 24 hours
NOTE: Working times vary based on job conditions, substrate, temperature, and humidity

Spread Rate: 350-400 sq ft/gal (33-37 sq m)

Removal: Removal from surface using a clean, white cloth
WET: Detergent and water
DRY: Mineral spirits

Advantages:

- 24-Hour Working Time (Ideal for large commercial installations)
- Dries Clear (Allows chalk lines to show through)
- Excellent Initial Grab
- Moisture and Alkali Resistant (Allows installation on all grade levels of concrete)
- Suitable for use with VCT and Safety Zone (not Migrations) over concrete slabs up to 90% internal relative humidity (RH) when measured in accordance with ASTM F 2170. "Standard Test Method for Determining Relative Humidity in Concrete Slabs Using *in-situ* Probes"
- Suitable for use with VCT and Safety Zone (not Migrations) over concrete slabs up to 7 lbs/1000 sq.ft./24 hrs moisture vapor emission rate (MVER) when measured in accordance with ASTM F 1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride"
- Can Be Used Over "Cutback" Adhesive Residue (Reduces subfloor preparation time) except when installing VCT or Safety Zone over high moisture slabs (80% - 90% internal relative humidity)
- Excellent Trowelability (Easy to use, easy to trowel)
- Freeze/thaw stable to 10° F (-12° C). Avoid low temperatures or multiple freeze-thaw cycles
- AGIS Guarantee (Included as part of the Armstrong Guaranteed Installation System when installing Armstrong VCT and BioBased Tile)

Shelf Life: One year if not opened

Available Units: Gallon (3.78 L) - Weight 36 lbs/ctn) (16.3 kg/ctn); 4 Gallon (15.4 L) - Weight (36 lbs) (14.5 kg)

VOC: VOC content: 49 g/L; calculated and reported, SCAQMD 1168

WARNING: **EYE AND SKIN IRRITANT.**
Read carefully other cautions on label.

SUBSTRATES: Will bond to all substrates listed below but refer to flooring installation system for specific installation recommendations:

- Concrete on all grade levels
- Existing asphalt "cutback" residue which is smooth with no ridges or puddles evident
- Suspended wood and wood underlayments
- Existing well-bonded resilient flooring; not perimeter-bonded or cushion-backed
- Ceramic tile, terrazzo, marble and polymeric-poured floors
- Properly mixed and applied powder underlayment and embossing levelers
- Primed, poured-in-place gypsum subfloors
- Radiant-heated subfloors where the surface temperature does not exceed 85° F (29° C)

DO NOT USE OVER: Concrete with excessive moisture and/or alkali; existing cushion-backed resilient flooring; substrates treated with fire-retardant chemicals, fungicides, preservatives, release agents, adhesive removers, sealers, curing compounds or other incompatible treatments

UPC INFORMATION: Gallon: 0-42369-11422-6
4 Gallons: 0-42369-07063-8

WEIGHT PER GALLON: 8.37 lbs

SHIPPING UNIT: Gallon: 4 gallons/ctn
4 Gal: 1 pail

QUANTITY PER PALLET: Gallon: 30 ctns
4 Gal: 48 pails

INSTALLATION TIPS: Refer to floor Installation System. Section of the F-5061

- Condition area to be installed, adhesive, and tile at 65° F (18° C) or above for 48 hours before, during, and for 48 hours after installation.
- Subfloor must be smooth, sound, dry, clean, and free of dirt, wax, polish, paint, and all other foreign matter which may interfere in a good bond, including curing agents and sealers.
- Moisture testing must be performed on all concrete slabs regardless of their age or grade level including areas where resilient flooring has already been installed. Moisture testing should be conducted with the area or building at service conditions, i.e. fully enclosed, weather-tight and with the permanent HVAC in operation. In general, moisture testing should be conducted on concrete surfaces that exhibit the final prepared stage before the installation of the flooring material and before installation of smoothing or leveling compounds.
- Moisture testing must be performed using at least one of the following methods:
 - Percent relative humidity (RH) in concrete slabs using the in-situ probe (ASTM F2170)
 - Moisture vapor emission rate (MVER) using anhydrous calcium chloride (ASTM F1869)
- Moisture and pH testing shall be documented, retained and comply with the following:

| Product | Maximum Internal Relative Humidity (%) | Maximum MVER (Pounds Per 1,000 ft ² Per 24 Hours) | pH |
|---|--|--|------|
| Vinyl Composition Tile: ARTEFFECTS, Imperial Texture, MultiColor, Stonetex, Companion Square, RAVE, Feature Tile/Strips Specialty: SAFETY ZONE | 90 | 7.0 | 5-11 |
| BioBased Tile: Migrations Residential Dry Back Tile: CleanSweep No-Wax, Urethane No-Wax, Vinyl No-Wax | 80 | 5.0 | 5-9 |

NOTE: On installations where both the Percent Relative Humidity and the Moisture Vapor Emission Rate tests are conducted, results for both tests shall comply with the allowable limits listed in the above table.

- Stir any liquid on the surface into the adhesive and full spread using the recommended trowel notching.
- Allow adhesive to set open until dry to the touch, approximately 30 to 90 minutes. When dry to the touch, the adhesive will be tacky with no transfer to fingers.
- Install and fit all tile within 24 hours. Working time will vary based on job conditions, substrate, temperature and humidity.
- Roll residential tile in both directions with a 100-pound roller. Do not roll Excelon tile.
- Remove wet adhesive residue using a clean, white cloth dampened with soapy water. Use mineral spirits for dried adhesive residue carefully following warnings on container.
- Do not wet wash or strip tile for at least five days after installation.

WARRANTY: See Armstrong Commercial Floors Warranty or Armstrong High-Moisture Warranty for Vinyl Composition Tile using S-515 as appropriate.

WARNING: Carefully read and follow all cautions and warnings on the product label. Refer to the Material Safety Data Sheet for additional product information.

Products

Arteffects
Imperial Texture
RAVE
MultiColor
Stonetex
Companion Square
Feature Tile/Strips
Migrations
Safety Zone
CleanSweep No-Wax (Dry Back)
Urethane No-Wax (Dry Back)
Vinyl No-Wax (Dry Back)