



WESTERN ENVIRONMENTAL & SAFETY TECHNOLOGIES LLC

“an environmental consulting firm”

Calipatria Unified School District

2/21/18

Asbestos Hazard Emergency Response Act (AHERA) 3-Year Re-inspection

Prepared By:

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Certified Asbestos Consultant
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Western Environmental & Safety Technologies LLC

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The assessments made within this 3-year report are based on original AHERA management plan documentation and also field assessments and assumption made by the WEST on-site certified inspector.

No bulk sampling was conducted as part of this re-inspection. All building materials located in the facilities listed within this report that are original building materials should be considered asbestos containing until proven otherwise through asbestos management plan records or current asbestos bulk sampling. Any planned renovation, modernization or demolition of any structures located within this school district should not commence until an extensive asbestos bulk sampling inspection is conducted of the building materials present at the school site whether listed within this plan or not. Asbestos bulk sampling and inspection services must be completed by State of California Certified personnel (Site Surveillance Technician or Certified Asbestos Consultant). All laboratory analysis and reporting must be completed by a licensed and certified laboratory facility.

7676 Hazard Center Drive Suite #500 • San Diego • California • 92108
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California • Arizona



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How to Manage Asbestos in School Buildings The AHERA Designated Person's Informational Guide



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AHERA Three Year Re-Inspection Plan

Every three years after implementation of a management plan, an accredited inspector must conduct a reinspection of all friable and non-friable known or assumed ACBM in every school building in order to determine if there has been any change in the condition of the ACBM. An accredited management planner must then review the re-inspection report to identify any new hazard potential and revise the management plan to address newly identified hazards. Based on the updated data, new response actions to address these hazards must be selected, and these actions must be carried out in a timely manner.

The re-inspection process presents an ideal time for an accredited inspector and management planner to address any problems found in the initial inspection report and management plan.

Inspector Responsibilities during the AHERA 3 Year Re-inspection

Under § 763.85(b) of the AHERA Rule, in conducting a re-inspection, the inspector must:

- Visually re-inspect and reassess the condition of all friable known or assumed ACBM.
- Visually inspect material that was previously considered non-friable and touch the material to determine whether it has become friable since the last inspection or re-inspection.
- Identify any homogeneous areas in which material has become friable since the last inspection or reinspection.
- Bulk samples may be collected and submitted for analysis for any homogeneous area of newly friable material that is already assumed to be ACBM.
- Perform a physical assessment, in accordance with § 763.88 of the AHERA Rule, of the condition of the newly friable material in areas where samples are collected and of newly friable materials in areas assumed to be ACBM.
- Reassess the condition of friable known or assumed ACBM previously identified.
- Record and submit the following information for inclusion in the management plan to the LEA designated person within 30 days of the re-inspection:

Required by AHERA

Date of the re-inspection, Name and signature of the person conducting the re-inspection State, accreditation number, and training provider name for any person conducting the re-inspection (copy of certificate is ideal) Exact locations where samples were collected during the re-inspection, Description of the manner used to determine sampling locations, Name and signature of each accredited inspector who collected the samples, State, accreditation number, and training provider name for each inspector who collected the samples (copy of certificate is ideal), Any assessments or reassessments made of friable material, Name and signature of the accredited inspector making the assessments, State accreditation number and training provider name for each inspector making the assessments (copy of certificate is ideal)

Management Planner Responsibilities - AHERA 3 Year Re-inspection

Once a re-inspection is completed, the management planner must:

- Review the results of the re-inspection. This includes reviewing the original inspection report, periodic surveillance records, and the completed re-inspection forms and report. The management planner should conduct school visits and gather other information so that he or she can make effective response action recommendations.
- Make written response action and preventive measure recommendations for each area of friable surfacing and miscellaneous ACBM and each area of TSI ACBM. The management planner should determine whether additional cleaning is necessary and, if so, specify how, when, and where to perform cleaning. The management planner should also include an implementation schedule for the recommended activities and make an estimate regarding the resources (cost, personnel, equipment, etc.) needed to conduct the activities.
- Review the adequacy of the Operations & Maintenance Program.
- The recommendations should include a record of the name, signature, State, accreditation number and training provider name for the management planner (copy of certificate is ideal) and the date on which the management planner submitted the recommendations.



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Signature Sheet

This school was re-inspected for all friable and non-friable ACM as required by the Asbestos Hazard Emergency Response Act (AHERA), 40 CFR 763.88. The re-inspection consisted of visual and tactile examination and assessment of all ACM in accessible areas of the school facility. Physical assessment data was obtained throughout the facility for all known homogenous areas and functional spaces for all materials deemed to be friable or likely to become friable. All facility re-inspections, taking samples, and physical assessments were conducted by an accredited inspector according to the requirements of AHERA, Section 763.88.

Inspector Certification - Responsibilities during the AHERA 3 Year Re-inspection

Under § 763.85(b) of the AHERA Rule, in conducting a re-inspection, I certify the following:

- Visually re-inspect and reassess the condition of all friable known or assumed ACM.
- Visually inspect material that was previously considered non-friable and touch the material to determine whether it has become friable since the last inspection or re-inspection.
- Identify any homogeneous areas in which material has become friable since the last inspection or reinspection.
- Perform a physical assessment, in accordance with § 763.88 of the AHERA Rule, of the condition of the newly friable material in areas where samples are collected and of newly friable materials in areas assumed to be ACM.
- Reassess the condition of friable known or assumed ACM previously identified.

David Christy / CAC# 92-0703

3/2/18

Date

Management Planner Responsibilities - AHERA 3 Year Re-inspection

Once a re-inspection is completed, the management planner must:

- Review the results of the re-inspection. This includes reviewing the original inspection report, periodic surveillance records, and the completed re-inspection forms and report. The management planner should conduct school visits and gather other information so that he or she can make effective response action recommendations.
- Make written response action and preventive measure recommendations for each area of friable surfacing and miscellaneous ACM and each area of TSI ACM. The management planner should determine whether additional cleaning is necessary and, if so, specify how, when, and where to perform cleaning. The management planner should also include an implementation schedule for the recommended activities and make an estimate regarding the resources (cost, personnel, equipment, etc.) needed to conduct the activities.
- Review the adequacy of the Operations & Maintenance Program.
- The recommendations should include a record of the name, signature, State, accreditation number and training provider name for the management planner (copy of certificate is ideal) and the date on which the management planner submitted the recommendations.

David Christy / CAC# 92-0703

3/2/18

Date



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WESTERN ENVIRONMENTAL & SAFETY TECHNOLOGIES LLC

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Outline of Firm

Firm Name: **Western Environmental & Safety Technologies**
Address: **7676 Hazard Center Drive, Suite #500
 San Diego, California 92108**

Telephone Number: **1-858-271-1842**
Fax Number : **1-858-271-1856**

E-mail Address: gowestdc@msn.com

Branch Office: **Flagstaff Arizona**

Year Established: **1995 (Celebrating our 23rd year of operation)**

Corporate Status: **General Partnership
 Limited Liability Corporation (LLC)**

Discipline: **Environmental Consultation, Laboratory Analysis, Training**

Insurance Carrier: **Leavitt Insurance Services**

Insurance Coverage: **General Liability \$3,000,000
 Contractors Pollution Liability \$3,000,000
 Professional Liability \$3,000,000 (Errors and Omissions)**

Service Sector: **Public, Private, Government**

Range of Firms Capabilities and Services

Asbestos Consultation (All Completed In-house)

Bulk Sampling / Air Sampling / Initial Surveys / Removal Monitoring / AHERA Consultation
 O&M Programs / Removal Specifications / Expert Witness

Lead Paint Consultation (Combination of Sub-contracted work and In-house)

Bulk Sampling (OSHA Related) / Air Sampling (OSHA Related) / XRF Sampling (Sub-contracted)
 Onsite Removal Supervision / Consultation / O&M Programs / Removal Specifications

Microbial Consultation (Combination of Sub-contracted work and In-house)

On-site Microbial Investigations / Surface Sampling / Air Sampling / Laboratory Sample Analysis (Sub-contracted)
 Onsite Removal Supervision / General Consultation / Removal Recommendations

Training (All Completed In-house)

Asbestos Awareness / Asbestos O&M Training (16 hour) / AHERA Worker Refresher Course
 AHERA Supervisor Refresher Course / AHERA Inspector Refresher Course / AHERA Management Planner
 Refresher Course / Respirator Fit Testing

Laboratory Testing (Combination of Sub-contracted work and In-house)

Asbestos Bulk Sampling (PLM) / Asbestos Air Sampling (PCM) / Asbestos Air Sampling (TEM)
 Lead Paint Sampling / Lead Air Sampling

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2018 AHERA Three Year Re-Inspection

Inspection Date: 2/21/18

District: Calipatria Unified School District

School: Grace Smith Elementary School

Number of Permanent Buildings: 5

Number of Modular Buildings: 0

(all modular buildings need “no asbestos paperwork”)

Newer Construction School Site? yes no

Explain: Office Building, 11-13, 16-17 are newer

Modernized School Site? yes no

This school site was assessed (3 Year Re-inspection) for all friable and non-friable ACBM as required by the Asbestos Hazard Emergency Response Act (AHERA), 40 CFR 763.88. The inspection consisted of visual and tactile examination and assessment of all ACBM in accessible areas of the school facility. Physical assessment data was obtained throughout the facility for all known homogenous areas and functional spaces for all materials deemed to be friable or likely to become friable.

General Asbestos Containing Building Material (ACBM) Permanent Buildings - Review / Condition				
Asbestos Materials Known or Assumed? yes <input checked="" type="checkbox"/> no <input type="checkbox"/>	Friable Materials Observed? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	Damaged Building Materials Observed? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	<1% Damaged Distributed <input checked="" type="checkbox"/> Localized <input type="checkbox"/>	Debris Observed? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
All Areas Accessed yes <input checked="" type="checkbox"/> no <input type="checkbox"/>	General Condition of Interior Bldg. Materials (good) 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> (poor)		General Condition of Exterior Bldg. Materials (good) 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> (poor)	

General Asbestos Containing Building Material (ACBM) Modular & Bungalow Buildings - Review / Condition				
Asbestos Materials Known or Assumed? yes <input type="checkbox"/> no <input type="checkbox"/>	Friable Materials Observed? yes <input type="checkbox"/> no <input type="checkbox"/>	Damaged Building Materials Observed? yes <input type="checkbox"/> no <input type="checkbox"/>	<1% Damaged Distributed <input type="checkbox"/> Localized <input type="checkbox"/>	Debris Observed? yes <input type="checkbox"/> no <input type="checkbox"/>
All Areas Accessed yes <input type="checkbox"/> no <input type="checkbox"/>	General Condition of Interior Bldg. Materials (good) 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> (poor)		General Condition of Exterior Bldg. Materials (good) 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> (poor)	

Notes – Asbestos Bulk Sampling and Assessments

The assessments made within this 3-year report are based on original AHERA management plan documentation, field assessments and assumption made by the WEST on-site certified inspector. No bulk sampling was conducted as part of this re-inspection. All building materials located in the facilities listed within this report that are original building materials should be considered asbestos containing until proven otherwise through asbestos management plan records or current asbestos bulk sampling. Any planned renovation, modernization or demolition of any structures located within this school district should not commence until an extensive asbestos bulk sampling inspection is conducted of the building materials present at the school site whether listed within this plan or not. Asbestos bulk sampling and inspection services must be completed by State of California Certified personnel (Site Surveillance Technician or Certified Asbestos Consultant). All laboratory analysis and reporting must be completed by a licensed and certified laboratory facility.

Notes – New Construction / Modernization

If listed above, the above listed school site may be of newer construction materials, or heavily modernized. Based on the new construction year built or the asbestos abatement activities conducted during a past modernization, asbestos containing building materials (ACBM) are considered to not be present at the listed school site. Please see district records for “non-asbestos” construction documents or asbestos removal documentation that would support the site to be deemed asbestos free.



Asbestos Hazard Emergency Response Act (AHERA) Record of Friable and Non-friable ACBM

School Name Grace Smith Elementary School	Date Reviewed 2/21/18
School Location Calipatria, Ca.	

-Important-

Each building and functional space with friable ACBM or friable assumed ACBM listed on this form requires completion of a Physical and hazard assessment of friable ACBM or friable assumed ACBM. Indicate location of material on blue print, diagram or narrative in square or lineal footage, and attach a copy (Sec. 763.93)

Line	Building Name and Functional Space	Check One			Check One			
		Surf.	TSI	Misc.	ACBM		Assumed ACBM	
					Friable	Non-Friable	Friable	Non-Friable
1..	All Original Bldgs. - Exterior Stucco and Overhangs	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	All Orig. Bldgs - Roofing Materials (Mastics)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.	All Orig. Bldgs - floor tile and flooring Mastics under carpet and newer floor tile	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	All Orig. Bldgs - Older Baseboard Mastic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.	All Orig. Bldgs - Original Fire Doors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6.	All Orig. Bldgs - wall and ceiling tile glue	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7.	All Orig. Bldgs - TSI - walls and attics	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8.	All Orig. Bldgs - Interior wall plasters	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9.	All Orig. Bldgs - Drywall joint comp.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Orig. Buildings Include - All Perm. buildings that are not placed on-site Modular	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Modular Buildings (assumed "No Asbestos" - need no asbestos paperwork from builder on manufacturer) New Construction Building: (assumed "No Asbestos" based on year built - please see School District for details)	Newer Construction Buildings Include: Office Building, Rooms 11-13 and 16-17						

The above list of building materials is known / assumed to be in place at this location and may be exposed or may be covered by non-asbestos newer building products. Please see district construction records for details of non-asbestos construction materials and past asbestos abatement records for material removal. If records cannot be verified, asbestos bulk sampling should be conducted for verification prior to disturbance of any building material.



Asbestos Hazard Emergency Response Act (AHERA) Physical and Hazard Assessment of Friable ACBM or Friable Assumed ACBM

School Name Grace Smith Elementary School	Phone Number		
School Location Calipatria, Ca.			
Building Name Original Buildings			
Functional Space Attics and Wall spaces (assumed in place - concealed)			
Type of Friable ACBM <input type="checkbox"/> Surfacing <input checked="" type="checkbox"/> TSI <input type="checkbox"/> Miscellaneous			
1. Condition of ACBM (Overall Rating)			
Check Appropriate Box <input checked="" type="checkbox"/> Good <input type="checkbox"/> Damaged <input type="checkbox"/> Significantly Damaged			
2. Potential for Disturbance			
Check Appropriate Box <input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High			
3. Hazard Assessment (Combine Ratings from items 1 and 2 and check appropriate box)			
Condition of ACBM	Potential for Disturbance		
	Low	Moderate	High
Good	1 <input checked="" type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
Damaged	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
Significantly Damaged	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>
4. Recommended Response Actions and Costs			
Response Action		Estimated Costs	
<input checked="" type="checkbox"/> A. Operations and Maintenance.....		\$1200 per year	
<input type="checkbox"/> B. Repair.....		\$	
<input type="checkbox"/> C. Encapsulation.....		\$	
<input type="checkbox"/> D. Enclosure.....		\$	
<input type="checkbox"/> E. Removal.....		\$	
Total Cost \$1200 Per Year			
5. Narrative of Recommended Response Actions		Schedule	
		Start	Completion
Operations and Maintenance program is required for the life of the building or until such time as all of the above listed asbestos building materials have been removed. Recommend for removal if the conditions change.		1988	Life

2018 AHERA Three Year Re-Inspection

Inspection Date: 2/21/18

District: Calipatria Unified School District

School: Calipatria High School

Number of Permanent Buildings:

Number of Modular Buildings:

(all modular buildings need “no asbestos paperwork”)

Newer Construction School Site? yes no

Explain: Mixed New and Old Construction

Modernized School Site? yes no

This school site was assessed (3 Year Re-inspection) for all friable and non-friable ACBM as required by the Asbestos Hazard Emergency Response Act (AHERA), 40 CFR 763.88. The inspection consisted of visual and tactile examination and assessment of all ACBM in accessible areas of the school facility. Physical assessment data was obtained throughout the facility for all known homogenous areas and functional spaces for all materials deemed to be friable or likely to become friable.

General Asbestos Containing Building Material (ACBM) Permanent Buildings - Review / Condition				
Asbestos Materials Known or Assumed? yes <input checked="" type="checkbox"/> no <input type="checkbox"/>	Friable Materials Observed? yes <input checked="" type="checkbox"/> no <input type="checkbox"/>	Damaged Building Materials Observed? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	<1% Damaged Distributed <input checked="" type="checkbox"/> Localized <input type="checkbox"/>	Debris Observed? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
All Areas Accessed yes <input checked="" type="checkbox"/> no <input type="checkbox"/>	General Condition of Interior Bldg. Materials (good) 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> (poor)		General Condition of Exterior Bldg. Materials (good) 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> (poor)	

General Asbestos Containing Building Material (ACBM) Modular & Bungalow Buildings - Review / Condition				
Asbestos Materials Known or Assumed? yes <input type="checkbox"/> no <input type="checkbox"/>	Friable Materials Observed? yes <input type="checkbox"/> no <input type="checkbox"/>	Damaged Building Materials Observed? yes <input type="checkbox"/> no <input type="checkbox"/>	<1% Damaged Distributed <input type="checkbox"/> Localized <input type="checkbox"/>	Debris Observed? yes <input type="checkbox"/> no <input type="checkbox"/>
All Areas Accessed yes <input type="checkbox"/> no <input type="checkbox"/>	General Condition of Interior Bldg. Materials (good) 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> (poor)		General Condition of Exterior Bldg. Materials (good) 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> (poor)	

Notes – Asbestos Bulk Sampling and Assessments

The assessments made within this 3-year report are based on original AHERA management plan documentation, field assessments and assumption made by the WEST on-site certified inspector. No bulk sampling was conducted as part of this re-inspection. All building materials located in the facilities listed within this report that are original building materials should be considered asbestos containing until proven otherwise through asbestos management plan records or current asbestos bulk sampling. Any planned renovation, modernization or demolition of any structures located within this school district should not commence until an extensive asbestos bulk sampling inspection is conducted of the building materials present at the school site whether listed within this plan or not. Asbestos bulk sampling and inspection services must be completed by State of California Certified personnel (Site Surveillance Technician or Certified Asbestos Consultant). All laboratory analysis and reporting must be completed by a licensed and certified laboratory facility.

Notes – New Construction / Modernization

If listed above, the above listed school site may be of newer construction materials, or heavily modernized. Based on the new construction year built or the asbestos abatement activities conducted during a past modernization, asbestos containing building materials (ACBM) are considered to not be present at the listed school site. Please see district records for “non-asbestos” construction documents or asbestos removal documentation that would support the site to be deemed asbestos free.



Asbestos Hazard Emergency Response Act (AHERA) Record of Friable and Non-friable ACBM

School Name Calipatria High School	Date Reviewed 2/21/18
School Location Calipatria, Ca.	

-Important-

Each building and functional space with friable ACBM or friable assumed ACBM listed on this form requires completion of a Physical and hazard assessment of friable ACBM or friable assumed ACBM. Indicate location of material on blue print, diagram or narrative in square or lineal footage, and attach a copy (Sec. 763.93)

Line	Building Name and Functional Space	Check One			Check One			
		Surf.	TSI	Misc.	ACBM		Assumed ACBM	
					Friable	Non-Friable	Friable	Non-Friable
1..	All four Original Bldgs. - Exterior Stucco and Overhangs	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	All 4 Orig. Bldgs - Roofing Materials (Mastics)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.	Cafeteria, Shop, Maintenance - Floor tile and flooring Mastics under carpet and newer floor tile (exposed in shop)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	All 4 Orig. Bldgs - Older Baseboard Mastic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.	All 4 Orig. Bldgs - Original Fire Doors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6.	All 4 Orig. Bldgs - wall and ceiling tile glue	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7.	All 4 Orig. Bldgs - TSI - walls and attics	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8.	All 4 Orig. Bldgs - Interior wall plasters	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9.	All 4 Orig. Bldgs - Drywall joint comp.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10.	Shop Building and Maintenance Building - Exterior Window Putty	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11.	All Orig. Bldgs. Roof Areas - Transite Vents	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11.	Cafeteria Building - Acoustic Ceiling Texture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Orig. Buildings Include - All Perm. buildings that are not placed on-site Modular	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Modular Buildings (assumed "No Asbestos" - need no asbestos paperwork from builder on manufacturer) New Construction Building: (assumed "No Asbestos" based on year built - please see School District for details)	<p>Newer Construction Buildings Include: All Buildings are new construction excluding the Cafeteria, Old Gym, Shop Buildings, Maintenance Building</p>						

The above list of building materials is known / assumed to be in place at this location and may be exposed or may be covered by non-asbestos newer building products. Please see district construction records for details of non-asbestos construction materials and past asbestos abatement records for material removal. If records cannot be verified, asbestos bulk sampling should be conducted for verification prior to disturbance of any building material.



Asbestos Hazard Emergency Response Act (AHERA) Physical and Hazard Assessment of Friable ACBM or Friable Assumed ACBM

School Name Calipatria High School		Phone Number	
School Location Calipatria, Ca.			
Building Name Original Buildings			
Functional Space Cafeteria, Old Gym, Shop, Maintenance - Attics and Wall spaces (assumed in place - concealed)			
Type of Friable ACBM <input type="checkbox"/> Surfacing <input checked="" type="checkbox"/> TSI <input type="checkbox"/> Miscellaneous			
1. Condition of ACBM (Overall Rating)			
Check Appropriate Box <input checked="" type="checkbox"/> Good <input type="checkbox"/> Damaged <input type="checkbox"/> Significantly Damaged			
2. Potential for Disturbance			
Check Appropriate Box <input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High			
3. Hazard Assessment (Combine Ratings from items 1 and 2 and check appropriate box)			
Condition of ACBM	Potential for Disturbance		
	Low	Moderate	High
Good	1 <input checked="" type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
Damaged	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
Significantly Damaged	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>
4. Recommended Response Actions and Costs			
Response Action		Estimated Costs	
<input checked="" type="checkbox"/> A. Operations and Maintenance.....		\$1200 per year	
<input type="checkbox"/> B. Repair.....		\$	
<input type="checkbox"/> C. Encapsulation.....		\$	
<input type="checkbox"/> D. Enclosure.....		\$	
<input type="checkbox"/> E. Removal.....		\$	
		Total Cost \$1200 Per Year	
5. Narrative of Recommended Response Actions		Schedule	
		Start	Completion
Operations and Maintenance program is required for the life of the building or until such time as all of the above listed asbestos building materials have been removed. Recommend for removal if the conditions change.		1988	Life



Asbestos Hazard Emergency Response Act (AHERA) Physical and Hazard Assessment of Friable ACBM or Friable Assumed ACBM

School Name Calipatria Unified School District	Phone Number		
School Location Calipatria, Ca.			
Building Name Cafeteria Building			
Functional Space Acoustic Ceiling Texture			
Type of Friable ACBM <input checked="" type="checkbox"/> Surfacing <input type="checkbox"/> TSI <input type="checkbox"/> Miscellaneous			
1. Condition of ACBM (Overall Rating)			
Check Appropriate Box <input checked="" type="checkbox"/> Good <input type="checkbox"/> Damaged <input type="checkbox"/> Significantly Damaged			
2. Potential for Disturbance			
Check Appropriate Box <input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High			
3. Hazard Assessment (Combine Ratings from items 1 and 2 and check appropriate box)			
Condition of ACBM	Potential for Disturbance		
	Low	Moderate	High
Good	1 <input checked="" type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
Damaged	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
Significantly Damaged	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>
4. Recommended Response Actions and Costs			
Response Action		Estimated Costs	
<input checked="" type="checkbox"/> A. Operations and Maintenance.....		\$1200 per year	
<input type="checkbox"/> B. Repair.....		\$	
<input type="checkbox"/> C. Encapsulation.....		\$	
<input type="checkbox"/> D. Enclosure.....		\$	
<input type="checkbox"/> E. Removal.....		\$	
		Total Cost \$1200 Per Year	
5. Narrative of Recommended Response Actions		Schedule	
		Start	Completion
Operations and Maintenance program is required for the life of the building or until such time as all of the above listed asbestos building materials have been removed. Recommend for removal if the conditions change.		1988	Life

2018 AHERA Three Year Re-Inspection

Inspection Date: 2/21/18

District: Calipatria Unified School District

School: District Office

Number of Permanent Buildings: 3

Number of Modular Buildings:

(all modular buildings need “no asbestos paperwork”)

Newer Construction School Site? yes no

Explain:

Modernized School Site? yes no

This school site was assessed (3 Year Re-inspection) for all friable and non-friable ACBM as required by the Asbestos Hazard Emergency Response Act (AHERA), 40 CFR 763.88. The inspection consisted of visual and tactile examination and assessment of all ACBM in accessible areas of the school facility. Physical assessment data was obtained throughout the facility for all known homogenous areas and functional spaces for all materials deemed to be friable or likely to become friable.

General Asbestos Containing Building Material (ACBM) Permanent Buildings - Review / Condition				
Asbestos Materials Known or Assumed? yes <input checked="" type="checkbox"/> no <input type="checkbox"/>	Friable Materials Observed? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	Damaged Building Materials Observed? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	<1% Damaged Distributed <input checked="" type="checkbox"/> Localized <input type="checkbox"/>	Debris Observed? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
All Areas Accessed yes <input checked="" type="checkbox"/> no <input type="checkbox"/>	General Condition of Interior Bldg. Materials (good) 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> (poor)		General Condition of Exterior Bldg. Materials (good) 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> (poor)	

General Asbestos Containing Building Material (ACBM) Modular & Bungalow Buildings - Review / Condition				
Asbestos Materials Known or Assumed? yes <input type="checkbox"/> no <input type="checkbox"/>	Friable Materials Observed? yes <input type="checkbox"/> no <input type="checkbox"/>	Damaged Building Materials Observed? yes <input type="checkbox"/> no <input type="checkbox"/>	<1% Damaged Distributed <input type="checkbox"/> Localized <input type="checkbox"/>	Debris Observed? yes <input type="checkbox"/> no <input type="checkbox"/>
All Areas Accessed yes <input type="checkbox"/> no <input type="checkbox"/>	General Condition of Interior Bldg. Materials (good) 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> (poor)		General Condition of Exterior Bldg. Materials (good) 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> (poor)	

Notes – Asbestos Bulk Sampling and Assessments

The assessments made within this 3-year report are based on original AHERA management plan documentation, field assessments and assumption made by the WEST on-site certified inspector. No bulk sampling was conducted as part of this re-inspection. All building materials located in the facilities listed within this report that are original building materials should be considered asbestos containing until proven otherwise through asbestos management plan records or current asbestos bulk sampling. Any planned renovation, modernization or demolition of any structures located within this school district should not commence until an extensive asbestos bulk sampling inspection is conducted of the building materials present at the school site whether listed within this plan or not. Asbestos bulk sampling and inspection services must be completed by State of California Certified personnel (Site Surveillance Technician or Certified Asbestos Consultant). All laboratory analysis and reporting must be completed by a licensed and certified laboratory facility.

Notes – New Construction / Modernization

If listed above, the above listed school site may be of newer construction materials, or heavily modernized. Based on the new construction year built or the asbestos abatement activities conducted during a past modernization, asbestos containing building materials (ACBM) are considered to not be present at the listed school site. Please see district records for “non-asbestos” construction documents or asbestos removal documentation that would support the site to be deemed asbestos free.



Asbestos Hazard Emergency Response Act (AHERA) Record of Friable and Non-friable ACBM

School Name District Office	Date Reviewed 2/21/18
School Location Calipatria, Ca.	

-Important-

Each building and functional space with friable ACBM or friable assumed ACBM listed on this form requires completion of a Physical and hazard assessment of friable ACBM or friable assumed ACBM. Indicate location of material on blue print, diagram or narrative in square or lineal footage, and attach a copy (Sec. 763.93)

Line	Building Name and Functional Space	Check One			Check One			
		Surf.	TSI	Misc.	ACBM		Assumed ACBM	
					Friable	Non-Friable	Friable	Non-Friable
1..	All Original Bldgs. - Exterior Stucco and Overhangs	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	All Orig. Bldgs. Roofing Materials (Mastics)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.	All Orig. Bldgs. Floor tile and flooring Mastics under carpet and newer floor tile	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	All Orig. Bldgs - Older Baseboard Mastic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.	All Orig. Bldgs - Original Fire Doors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6.	All Orig. Bldgs - wall and ceiling tile glue	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7.	All Orig. Bldgs - TSI - walls and attics	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8.	All Orig. Bldgs - Interior wall plasters	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9.	All Orig. Bldgs - Drywall joint comp.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10.	All Orig. Bldgs - Exterior Window Putty	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11.	All Orig. Bldgs. Roof Areas - Transite Vent Pipes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Orig. Buildings Include - All Perm. buildings that are not placed on-site Relos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Modular Buildings (assumed "No Asbestos" - need no asbestos paperwork from builder on manufacturer) New Construction Building: (assumed "No Asbestos" based on year built - please see School District for details)	Newer Construction Buildings Include: None						

The above list of building materials is known / assumed to be in place at this location and may be exposed or may be covered by non-asbestos newer building products. Please see district construction records for details of non-asbestos construction materials and past asbestos abatement records for material removal. If records cannot be verified, asbestos bulk sampling should be conducted for verification prior to disturbance of any building material.



Asbestos Hazard Emergency Response Act (AHERA) Physical and Hazard Assessment of Friable ACBM or Friable Assumed ACBM

School Name District Office	Phone Number		
School Location Calipatria, Ca.			
Building Name Original Buildings			
Functional Space Attics and Wall spaces (assumed in place - concealed)			
Type of Friable ACBM <input type="checkbox"/> Surfacing <input checked="" type="checkbox"/> TSI <input type="checkbox"/> Miscellaneous			
1. Condition of ACBM (Overall Rating)			
Check Appropriate Box <input checked="" type="checkbox"/> Good <input type="checkbox"/> Damaged <input type="checkbox"/> Significantly Damaged			
2. Potential for Disturbance			
Check Appropriate Box <input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High			
3. Hazard Assessment (Combine Ratings from items 1 and 2 and check appropriate box)			
Condition of ACBM	Potential for Disturbance		
	Low	Moderate	High
Good	1 <input checked="" type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
Damaged	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
Significantly Damaged	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>
4. Recommended Response Actions and Costs			
Response Action		Estimated Costs	
<input checked="" type="checkbox"/> A. Operations and Maintenance.....		\$1200 per year	
<input type="checkbox"/> B. Repair.....		\$	
<input type="checkbox"/> C. Encapsulation.....		\$	
<input type="checkbox"/> D. Enclosure.....		\$	
<input type="checkbox"/> E. Removal.....		\$	
Total Cost \$1200 Per Year			
5. Narrative of Recommended Response Actions		Schedule	
		Start	Completion
Operations and Maintenance program is required for the life of the building or until such time as all of the above listed asbestos building materials have been removed. Recommend for removal if the conditions change.		1988	Life



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Part 1	AHERA Three Year Re-Inspection Plan
Part 2	Signature / Certification Page
Part 3	WEST Credentials
Part 4	2018 AHERA Re-inspection Report
Part 5	2018 AHERA Management Plan Recommendations

Attachment 1

**How to Manage Asbestos in School Buildings
The AHERA Designated Person's Informational Guide**



Recommendations

Based on the 2018 AHERA re-inspection, the following recommendations are made:

Management Plans -- Each LEA must complete an asbestos management plan for each school under its authority. An accredited management planner must prepare the management plan based on the results of the inspection. In the management plan, the management planner recommends appropriate response actions, prepares cost estimates on the response actions, and schedules the response actions. Your existing management plan must be updated on a timely basis.

1. **Operations and Maintenance** -- The LEA must implement an operations and maintenance (O&M) program whenever any friable ACM is present or assumed to be present in a building under its authority. Where material identified as non-friable ACM or non-friable assumed ACM is about to become friable as a result of activities performed in the building, it must be treated as friable and thus must also be subject to an O&M program. EPA recommends that the LEA also manage non-friable ACM in their school buildings under an O&M program. **Continue to utilize the existing O & M Plan in your original Management Plan for all known or assumed asbestos materials found within your school district. This will include but is not limited to the materials assessed within this three year re-inspection.**
2. **The assessments made within this 3 year report are based on original AHERA management plan documentation and also field assessments and assumption made by the WEST on-site certified inspector. No bulk sampling was conducted as part of this re-inspection. All building materials located in the facilities listed within this report that are original building materials should be considered asbestos containing until proven otherwise through asbestos management plan records or current asbestos bulk sampling. Any planned renovation, modernization or demolition of any structures located within this school district should not commence until an extensive asbestos bulk sampling inspection is conducted of the building materials present at the school site whether listed within this plan or not. Asbestos bulk sampling and inspection services must be completed by State of California Certified personnel (Site Surveillance Technician or Certified asbestos Consultant). All laboratory analysis and reporting must be completed by a licensed and certified laboratory facility.**
3. Great care should be followed when removing carpets for replacement purposes. Asbestos floor tile may be present that was not known or identified. Asbestos floor tile may also be present under newer floor tile. Asbestos flooring should also be considered under all temporary walls, and all case work (book cases, cabinets, and sinks)
4. Any new construction and newer re-locatable buildings located at the schools may need additional “non-asbestos” paperwork for management plan records.
5. While the boiler and mechanical rooms show no asbestos pipe insulation, all walls and ceiling spaces should be considered to contain asbestos insulated pipes. Care should be used when accessing wall and ceiling spaces as to not inadvertently damage concealed asbestos insulation materials.
6. Around 7/1/2018, conduct AHERA 6-month periodic inspection.
7. Around 2/1/2021, conduct AHERA 3-year re-inspection.
8. **In addition to the common asbestos building materials found within School buildings, there are several additional building materials that are routinely showing up containing asbestos. These areas include exterior window putty, exterior wall plaster, Ceiling tile and wall tile mastics, wall board / ink board mastics, interior drywall mud, and interior wall plaster. All of these materials should also be considered asbestos containing until proven not to be asbestos containing based on historical sampling data or current asbestos sample analysis.**
9. Once ACM is identified or assumed to be present in a building, the LEA must provide an annual *written* notification to building occupants, employees, and parents on the locations of asbestos-containing building materials in the school buildings, the availability of the asbestos management plan, and recent and upcoming asbestos activities, such as abatement projects, re-inspections, etc.
10. Within 60 days of hire, maintenance and custodial staff who may work in a building that contains ACM must receive at least two hours of asbestos awareness training. Those members of the maintenance and custodial staff who conduct any activity that will disturb ACM must receive an additional 14 hours of training. Other state and local training requirements may apply.



11. **Warning Labels** - Under § 763.95 of the AHERA Rule, the LEA must attach a warning label immediately adjacent to any friable and non-friable ACBM and suspected ACBM that is located in routine maintenance areas (such as boiler rooms) at each school building. Such material includes friable ACBM that was responded to by a means other than removal (e.g., encapsulation) and ACBM for which no response action was carried out. The labels must be prominently displayed in readily visible locations, must be in print that is readily visible due to its large size or bright color, and must remain posted until the ACBM that is labeled is removed.

12. **Recordkeeping of Management Plans**

Under § 763.93(g) of the AHERA Rule, each LEA is required to keep in its administrative office a copy of the management plans for each school. The management plan must be available, without cost or restriction, for inspection by the public, including teachers, other school personnel and their representatives, and parents, as well as by representatives of EPA and the State.

In addition, each school is required to maintain in its administrative office a complete and updated copy of the management plan for that school. The school must make the plan available for inspection to those individuals listed above as well as to workers before work begins in any area of a school building.

It is the responsibility of the LEA designated person to ensure that complete and up-to-date records are maintained and included in the management plan. Section 763.94 of the AHERA Rule requires that the LEA maintain the list of records as outlined.

13. **Restrict Attic / Above Drop Ceiling Tile Access**

Due to the potential of friable asbestos materials, restrict access to only properly trained personnel, equipment with proper personal protective equipment.



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Attachment 1

How to Manage Asbestos in School Buildings The AHERA Designated Person's Informational Guide

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How to Manage Asbestos in School Buildings

The AHERA Designated Person's Informational Guide

Background

On October 22, 1986, Congress promulgated the Asbestos Hazard Emergency Response Act (AHERA), Public Law 99-519. AHERA mandated that EPA develop regulations to respond to asbestos in schools. On October 30, 1987, EPA promulgated the Asbestos-Containing Materials in Schools Rule (hereinafter referred to as the AHERA Rule), 40 CFR Part 763, Subpart E. This rule requires that all of the nation's nonprofit elementary and secondary schools, both public and private, inspect their school buildings for asbestos-containing building materials (ACBM), develop a plan to manage the asbestos for each school building, notify parents and staff regarding management plan availability, provide asbestos awareness training to school maintenance and custodial workers, and other requirements described in detail in this manual.

The governing authority responsible for AHERA compliance is the Local Education Agency (LEA). "Local Education Agency" means either any local educational agency as defined in Section 198 of the Elementary and Secondary Education Act of 1965 (often called school district), the owner of any private, non-profit elementary or secondary school building, or the governing authority of any school operated under the Defense Department's education system.

Scope and Purpose of AHERA

Broadly stated, AHERA requires that each Local Education Agency (LEA) perform inspections to identify asbestos-containing materials in each of the public and private elementary and secondary schools under its authority; develop, implement and update asbestos management plans; take appropriate response actions; safely maintain asbestos-containing building materials (ACBM); and comply with AHERA's recordkeeping requirements. The AHERA Rule outlines the general responsibilities of a LEA in § 763.84 and the specific duties of the LEA in the succeeding sections of the rule.

Responsibilities of the AHERA Designated Person

The responsibilities of the AHERA Designated Person include:

- ensure that all activities of anyone who conducts the following are carried out in accordance with the AHERA requirements: conduct inspections, re-inspections, periodic surveillance; develops, implements and updates management plans; and plans and implements asbestos-related activities (such as maintenance or removal);
- ensure that all custodial and maintenance employees are properly trained;
- ensure that all workers, building occupants, students, and their parents are notified annually about management plan availability and recent and upcoming asbestos-related activities;
- ensure that short-term workers who may come into contact with asbestos are provided information regarding the location of this asbestos;
- ensure that all warning labels are posted;
- consider any conflicts of interest that may arise when selecting accredited personnel to conduct asbestos-related activities.



AHERA Designated Person Required Training

AHERA requires that the DP be *adequately* trained to carry out his or her responsibilities. Due to the differing needs of school districts based on the size of the district and the amount and condition of the ACBM, AHERA does not list a specific training course or specific number of hours of training for the DP. Further, AHERA does not require the DP to be accredited. Specifically, the regulations note the training must include the following topics:

- health effects of asbestos;
- detection, identification and assessment of asbestos-containing building materials (ACBM);
- options for controlling asbestos-containing building materials;
- asbestos management programs.
- relevant Federal and State regulations concerning asbestos, including AHERA and its implementing regulations and the regulations of the Occupational Safety and Health Administration, the U.S. Department of Transportation, and the U.S. Environmental Protection Agency.

Specific Responsibilities of the LEA relating to the AHERA Program

Sections 763.85-763.99 of the AHERA Rule detail the specific responsibilities of the LEA. These responsibilities are listed below, followed by brief descriptions.

- **Inspections:** An accredited inspector must conduct inspections of each school building under the authority of the LEA. This involves visually inspecting buildings for friable and nonfriable ACBM, sampling such materials unless they are assumed to be ACBM, and having samples analyzed in accordance with the AHERA regulations. Only accredited laboratories may be used to perform bulk material sampling analyses.
- **Re-inspections:** An accredited inspector must conduct a reinspection of all friable and nonfriable known or assumed ACBM in each school building at least once every three years that a management plan is in effect. A management planner must review all three year inspection reports.
- **Assessment:** For each inspection and reinspection, an accredited inspector must provide a written assessment of all friable known or assumed ACBM in the school building.
- **Management Plans:** Each LEA must complete an asbestos management plan for each school under its authority. An accredited management planner must prepare the management plan based on the results of the inspection. In the management plan, the management planner recommends appropriate response actions, prepares cost estimates on the response actions, and schedules the response actions. The management plan must be updated on a timely basis.
- **Response Actions:** Based on the recommendations of the management planner, the LEA must select the appropriate response actions consistent with the assessment of the ACBM. The designated person must see to it that the response actions are carried out in a timely manner and in compliance with the AHERA requirements. "Timely manner" is not defined in the regulations but involves the joint development of a schedule for plan implementation by the management planner and the designated person. Only accredited laboratories may be used to perform final clearance air sample analyses.
- **Operations and Maintenance:** The LEA must implement an operations and maintenance (O&M) program whenever any friable ACBM is present or assumed to be present in a building under its authority. Where material identified as non-friable ACBM or non-friable assumed ACBM is about to become friable as a result of activities performed in the building, it must be treated as friable and thus must also be subject to an O&M program. EPA recommends that the LEA also manage non-friable ACBM in their school buildings under an O&M program.



• **Training:** AHERA requires that building inspectors, management planners, project designers, contractors/supervisors, and asbestos workers be accredited before they can perform asbestos-related activities. The AHERA regulations details specific training requirements for the designated person and for custodial and maintenance workers, although these individuals are not required to complete any EPA-approved courses or receive accreditation.

• **Notification:** The LEA must issue the following notifications regarding asbestos identified in its schools:
An annual notice to all workers and building occupants, or their legal guardians, of all inspections, re-inspections, and activities being conducted to control asbestos exposure, including periodic surveillance and asbestos removal, that are planned or in progress. This notification should be documented in the management plan.

An annual written notice informing parent, teacher, and employee organizations of the availability of the management plan for their review. A dated copy of this notice must be maintained as part of the management plan. A notice to short-term workers (e.g., telephone repair workers, utility workers, or exterminators) who may come into contact with asbestos in a school identifying the location of ACBM or assumed ACBM in the building.

This notification should be documented in the management plan.

A description of all notification processes must be maintained as part of the management plan. The Parent Teacher Association (PTA) or school newsletter may be used as a means to distribute the notifications to the students and their families.

• **Periodic Surveillance:** The LEA must conduct periodic surveillance in each building under its authority at least once every six months after a management plan is in effect. The periodic surveillance inspection report must be kept in the management plan.

• **Recordkeeping:** Records involving the inspection of and response to ACBM must be kept in a centralized location in the administrative office of both the school and the LEA.

EPA recommends keeping these records in the management plan for each school building and the overall management plan for all school buildings. Recordkeeping is the responsibility of the designated person. The following records must be kept:

Descriptions of preventive measures and response actions taken for friable and non-friable ACBM and suspected ACBM, Sampling information, Training information, Periodic surveillance information, Information on initial and additional cleaning performed, Information on operations and maintenance activities, including information on any maintenance activities disturbing friable ACBM, Notifications to parents, building occupants, and short-term workers, Information on any fiber-release episodes.

• **Warning Labels:** The LEA must attach a warning label immediately adjacent to any friable and nonfriable ACBM and suspected ACBM assumed to be ACBM located in routine maintenance areas (such as boiler rooms) at each school building.



General LEA Responsibilities relating to the AHERA Program

Under § 763.84 of the AHERA Rule, the LEA has the following general responsibilities:

- Ensure that the activities of any persons who perform inspections, re-inspections, and periodic surveillance, develop and update management plans, develop and implement response actions, and conduct operations and maintenance activities are in compliance with all of the AHERA requirements.
- Ensure that all custodial and maintenance workers are properly trained.
- Ensure that workers and building occupants or their legal guardians are notified at least annually about activities relating to ACBM.
- Ensure that short-term workers who may come in contact with asbestos in a school are provided the locations of ACBM and suspected ACBM assumed to be ACBM.
- Ensure that warning labels are properly posted.
- Ensure that management plans are available for inspection.
- Appoint a "designated person" to ensure proper implementation of the AHERA requirements.
- Ensure that the designated person receives adequate training to perform duties assigned.
- Consider whether any conflict of interest may arise among personnel undertaking activities related to the ACBM in a school or schools.

EPA Policy for Asbestos Control in Schools

EPA bases its policy for asbestos control in schools on the following premises:

- Although asbestos is hazardous, the risk of asbestos-related disease depends upon exposure to airborne asbestos fibers.
- Based upon available data, the average airborne asbestos levels in buildings seem to be very low. Accordingly, the health risk to most building occupants also appears to be very low.
- Removal is often not a building owner's best course of action to reduce asbestos exposure. In fact, an improper removal can create a dangerous situation where none previously existed.
- EPA only requires asbestos removal to prevent significant public exposure to airborne asbestos fibers during building demolition or renovation activities.
- Asbestos that has been identified will pose little risk if it is well maintained under an operations and maintenance program. Improper operations and maintenance also can cause dangerous situations. Therefore, EPA requires a proactive, in-place management program whenever ACBM is discovered and is not removed.

Conflicts of Interest relating to the AHERA Program

The AHERA Designated Person (school asbestos coordinator) should take into consideration any conflict of interest and determine whether it should influence their selection of contractors to accomplish asbestos related work in their schools. The AHERA Rule identifies several situations where a conflict of interest may arise. For example, the abatement contractor is not allowed to conduct final air sampling for clearance by TEM analysis (*See 40 CFR Part 763, Appendix A to Subpart E ((II)(B)(2))*). The group that determines whether an abatement site is acceptable for re-occupancy should not be the same (or a related group) that is conducting the abatement work. Similarly, if the LEA requires a management planner to sign a statement certifying that the management plan is in compliance with AHERA, then the LEA may not want the planner signing the statement to be the one who implements or will implement the plan. The LEA may have unique concerns regarding potential conflicts that should be discussed with and addressed by the designated person.



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Asbestos / General Information

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The History of Asbestos

The word "asbestos" is derived from the Greek language. The Greeks admired the "miracle mineral" because of its softness and flexibility and its ability to withstand heat. The Greeks used asbestos much like cotton, spinning and weaving it into cloth. Asbestos was not widely available anywhere in the world until the late 1800s, when major deposits were found in Canada. Thereafter, asbestos was used to make thermal insulation for boilers, pipes, and other high temperature applications, and was also used as a fireproofing and reinforcement material. During World Wars I and II, the military used asbestos extensively in ships and other applications. Commercial usages of asbestos in buildings increased greatly thereafter, but growing concerns about the health risks associated with asbestos exposure resulted in a voluntary reduction in the use of asbestos beginning in the 1970s.

Characteristics of Asbestos

Asbestos is comprised of a group of natural minerals. Unlike other minerals, however, the crystals of asbestos form long, thin fibers. Asbestos deposits are found throughout the world, but the primary sites of commercial asbestos production are Canada, Russia, and South Africa. Commercial mining of asbestos in the United States was halted in the 1980s.

Once extracted from the earth, asbestos-containing rock is crushed, milled (or ground), and graded. This produces long, thread-like fibers of material. What appears to the naked eye as a single fiber is actually a bundle of hundreds or thousands of fibers, each of which can be divided even further into tiny fibers (fibrils), invisible without the aid of a microscope.

Asbestos materials are divided into two groups --*serpentine* and *amphibole*. All asbestos in the serpentine group is called Chrysotile. This is the most common type of asbestos found in buildings in the United States, accounting for approximately 95 percent of the asbestos found in the nation's buildings. It is commonly known as "white asbestos" because of its natural color.

The amphibole group contains five types of asbestos. Amosite, the second most common type of asbestos found in buildings in the United States, is often referred to as "brown asbestos" for the color of the natural mineral. Crocidolite, or "blue asbestos" has been used in high-temperature insulation products and on chemical resistant surfaces, such as laboratory tables for chemistry and biology classes (upon occasion, the custodial staff will drill holes in table tops for new fixtures without realizing that the material may contain crocidolite. The remaining three types of asbestos in the amphibole group --Anthophyllite, Tremolite, and Actinolite -- are rare and have little commercial value. They are occasionally found as contaminants or minor constituents in asbestos-containing materials.

Uses of Asbestos

Asbestos has been used in thousands of products, largely because it is plentiful, readily available, cheap, strong, does not burn, conducts heat and electricity poorly, and is resistant to chemical corrosion. Products made with asbestos are often referred to as asbestos-containing materials (ACM).

Asbestos proved particularly useful in the construction industry. Building materials that contain asbestos are referred to as asbestos-containing building materials (ACBM). Commercial usage of asbestos products in the construction industry was most common from about 1945 to 1980. Some of the most common uses of ACBM include:



- **Fireproofing material** -- Usually spray-applied to steel beams used in construction of multi-story buildings to prevent structural members from warping or collapsing in the event of fire.
- **Insulation material** -- Usually spray-applied, trowel-applied, or manually installed after being preformed to fit surfaces such as pipes for thermal insulation and condensation control.
- **Acoustical or soundproofing material** -- Trowel- or spray-applied. May also be used for decoration. Asbestos was mixed with other materials and sprayed onto ceilings and walls to produce a soft, textured look.
- **Miscellaneous materials** -- Asbestos has been added to asphalt, vinyl, cement and other materials to make products like roofing felts, exterior siding and roofing shingles, wallboard, pipes for water supply, combustion vents, and flues for waste gases and heat.

Fibers in asbestos cement, asphalt, and vinyl materials are usually firmly bound into materials in good condition and typically will be released only if the material is damaged mechanically -- for example through drilling, cutting, grinding, or sanding. In addition, asbestos in roofing shingles and siding exposed to weathering may slowly deteriorate and has the potential to release fibers.

Examples of the more common ACBM found in schools are flooring, vinyl base, mastic, roofing materials, gaskets in heating and air-conditioning equipment, ceiling panels and tiles, wallboard, joint compound, plaster, pipe and boiler insulation, duct-wrap insulation, duct joint tape, duct vibration dampening cloth, fireproofing on structural members, fire brick for boilers, fire doors, acoustical spray-on, cement pipes, and panels.

Friable vs. Non-friable ACBM

Friable ACBM will release fibers into the air more readily than non-friable ACBM. Therefore, the AHERA Rule differentiates between friable and non-friable ACBM. The regulations define friable ACBM as material that may be crumbled, pulverized, or reduced to powder by hand pressure when dry. Friable ACBM also includes previously non-friable material when it becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure. *Undamaged non-friable ACBM should be treated as friable if any action performed on the material will make them friable.*

Categories of Asbestos-Containing Building Materials

EPA identifies three categories of ACBM (*See the definitions appearing in § 763.83 of the AHERA Rule*):

- **Surfacing Materials** -- Interior ACBM that has been sprayed on, troweled on, or otherwise applied to surfaces (structural members, walls, ceilings, etc.) for acoustical, decorative, fireproofing, or other purposes. This includes acoustical plaster, hard plasters (wall or ceiling), fireproofing insulation, spray-applied or blown-in thermal material, joint or patching compound (wall or ceiling), and textured paints or plasters.
- **Thermal System Insulation** -- Insulation used to control heat transfer or prevent condensation on pipes and pipe fittings, boilers, breeching, tanks, ducts, and other parts of hot and cold water systems; heating, ventilation, and air conditioning (HVAC) systems; or other mechanical systems. These insulation materials include pipe lagging, pipe wrap, HVAC duct insulation, block insulation, cements and mud's, and a variety of other products such as gaskets and ropes.
- **Miscellaneous Materials** -- Other, mostly non-friable products and materials found on structural components, structural members or fixtures, such as floor tile, ceiling tile, construction mastic for floor and ceiling materials, sheet flooring, fire doors, asbestos cement pipe and board, wallboard, acoustical wall tile, and vibration damping cloth. "Miscellaneous materials" do not include thermal system insulation or surfacing materials.



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AHERA

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Response Actions under the AHERA Program

In the management plan, the accredited management planner must recommend an appropriate response action (operations and maintenance, repair, encapsulation, enclosure, or removal) for all areas of thermal system insulation (TSI) and friable ACBM. The final decision on which action should be taken, however, rests with the LEA. Under AHERA, the response action to be taken must be "sufficient to protect human health and the environment." Once it is determined which response actions meet these criteria, the LEA may choose the action that is the "least burdensome."

AHERA identifies five possible response actions for managing asbestos in schools:

- **Operations and Maintenance (O&M) Program:** This is a program of work practices designed to maintain friable ACBM in good condition and ensure cleanup of asbestos fibers previously released. An effective O & M program can prevent further release by minimizing and controlling friable ACBM disturbance or damage.
- **Repair:** This involves returning damaged ACBM to an undamaged condition or to an intact state by replacing limited sections or patching damaged areas.
- **Encapsulation:** This involves the treatment of ACBM with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers. The encapsulant either creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulant). Both types of encapsulants are applied to the material surface using airless spray equipment at low pressure to reduce release of fibers during the application.
- **Enclosure:** This involves creating an airtight, impermeable, permanent barrier around ACBM to prevent the release of asbestos fibers into the air. The barrier is typically attached physically or sprayed on. For example, materials such as PVC or corrugated metal may be fastened around insulated piping, or a barrier may be constructed around asbestos fireproofing on structural members by spraying material that cures into a hard shell.
- **Removal:** This involves 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.

Project Design for Asbestos Response Actions

All persons who design response actions for schools or public and commercial buildings (including removal, encapsulation, enclosure, or repair -- other than small scale, short duration repairs) must be accredited as a project designer. A response action is defined by AHERA as a method that protects human health and the environment from friable ACBM.

Activities which create a high probability that ACBM will be damaged or weakened to such an extent that it would be rendered friable are also considered response actions.

Although a written design is not mandated, EPA cannot recommend them strongly enough.

To undertake a response action without the benefit of a written design plan to guide the work in progress is not only highly imprudent, but may unnecessarily expose the public to an asbestos fiber release and/or the building owner to certain liabilities. A written project design must be prepared by an accredited project designer. An accredited project designer is one who has received accreditation under AHERA by completing a prescribed training course for project designers and passing an exam.



AHERA Three (3) Year Re-inspection Introduction

Every three years after implementation of a management plan, an accredited inspector must conduct a reinspection of all friable and non-friable known or assumed ACBM in every school building in order to determine if there has been any change in the condition of the ACBM. An accredited management planner must then review the re-inspection report to identify any new hazard potential and revise the management plan to address newly identified hazards. Based on the updated data, new response actions to address these hazards must be selected, and these actions must be carried out in a timely manner.

The re-inspection process presents an ideal time for an accredited inspector and management planner to address any problems found in the initial inspection report and management plan.

Inspector Responsibilities during the AHERA 3 Year Re-inspection

Under § 763.85(b) of the AHERA Rule, in conducting a re-inspection, the inspector must:

- Visually re-inspect and reassess the condition of all friable known or assumed ACBM.
- Visually inspect material that was previously considered non-friable and touch the material to determine whether it has become friable since the last inspection or re-inspection.
- Identify any homogeneous areas in which material has become friable since the last inspection or reinspection.
- Bulk samples may be collected and submitted for analysis for any homogeneous area of newly friable material that is already assumed to be ACBM.
- Perform a physical assessment, in accordance with § 763.88 of the AHERA Rule, of the condition of the newly friable material in areas where samples are collected and of newly friable materials in areas assumed to be ACBM.
- Reassess the condition of friable known or assumed ACBM previously identified.
- Record and submit the following information for inclusion in the management plan to the LEA designated person within 30 days of the re-inspection:

Date of the re-inspection, Name and signature of the person conducting the re-inspection State, accreditation number, and training provider name for any person conducting the re-inspection (copy of certificate is ideal) Exact locations where samples were collected during the re-inspection, Description of the manner used to determine sampling locations, Name and signature of each accredited inspector who collected the samples, State, accreditation number, and training provider name for each inspector who collected the samples (copy of certificate is ideal), Any assessments or reassessments made of friable material, Name and signature of the accredited inspector making the assessments, State accreditation number and training provider name for each inspector making the assessments (copy of certificate is ideal)

Management Planner Responsibilities - AHERA 3 Year Re-inspection

Once a re-inspection is completed, the management planner must:

- Review the results of the re-inspection. This includes reviewing the original inspection report, periodic surveillance records, and the completed re-inspection forms and report. The management planner should conduct school visits and gather other information so that he or she can make effective response action recommendations.
- Make written response action and preventive measure recommendations for each area of friable surfacing and miscellaneous ACBM and each area of TSI ACBM. The management planner should determine whether additional cleaning is necessary and, if so, specify how, when, and where to perform cleaning. The management planner

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should also include an implementation schedule for the recommended activities and make an estimate regarding the resources (cost, personnel, equipment, etc.) needed to conduct the activities.

- Review the adequacy of the Operations & Maintenance Program.
- The recommendations should include a record of the name, signature, State, accreditation number and training provider name for the management planner (copy of certificate is ideal) and the date on which the management planner submitted the recommendations.

AHERA - 6 Month Periodic Surveillance

At least once every six months after a management plan is in effect, the LEA must conduct periodic surveillance in each building that contains ACBM or is assumed to contain ACBM. The surveillance does not have to be conducted by an accredited person, but it should be conducted either by the LEA designated person (if he or she is trained) or by someone who is appropriately trained on asbestos (such as a maintenance person).

Periodic surveillance involves a visual inspection of all areas that are identified in the management plan as ACBM or assumed ACBM. In evaluating each homogeneous area, the person conducting the surveillance must visually inspect all areas identified in the management plan as ACBM or suspected ACBM and record whether there are any changes in the condition of the material (including if there are no changes). The date of the surveillance, the name of the person conducting the surveillance, and any change in condition of the ACBM or assumed ACBM must be documented and included in the management plan within a reasonable amount of time, such as 30 days from the periodic surveillance.

Objectives of the O&M Program outlined in the AHERA Program

An O&M program consists of a set of procedures and practices for operating and maintaining a building to keep it as free of asbestos contamination as possible. The program should be designed specifically to address the ACBM present in the building involved.

An O&M program has three main objectives:

- Clean up existing contamination.
- Minimize future fiber release by controlling access to ACBM and instituting proper work practices.
- Properly maintain the ACBM until it is removed.

Since National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations require that friable and non-friable ACBM which is likely to become friable be removed from buildings before demolition, the O&M program is not a permanent solution. In addition, the asbestos NESHAP may regulate the removal of asbestos as part of a renovation. It is also not a means by which full-scale asbestos abatement can be accomplished. The intentional disturbance of ACBM should be limited to the repair or removal of small areas of significantly damaged ACBM or to small areas where removal is necessary to make maintenance or minor renovation activities easier. Some small scale, short duration activities may be subject to asbestos NESHAP requirements if enough ACBM will be disturbed during a calendar year. Larger abatement projects that require extensive planning and technical expertise may not be part of the AHERA O&M program. Limited encapsulation and enclosure could be used to enhance an O&M program by reducing the likelihood of contact with the ACBM, however.



Required Elements of An O&M Program

Under § 763.91 of the AHERA Rule, the LEA must ensure that the O&M program involve the following elements:

- Cleaning
- Specialized work practices and procedures for O&M activities disturbing friable ACBM
- Training
- Emergency Response Procedures

Cleaning Requirements under AHERA

All areas of a building where friable ACBM and suspected ACBM, or significantly damaged TSI ACBM is present must be cleaned at least once after the completion of the AHERA inspection. It must also be cleaned before the initiation of any response action (other than O&M activities or repair). The exception would be where the building had been cleaned using similar methods within the previous six months. The cleaning must include the following:

- HEPA-vacuuming or steam-cleaning all carpets
- HEPA-vacuuming or wet-cleaning all other floors and all other horizontal surfaces
- Disposing of all debris, filters, mopheads, and cloths in sealed, leak-tight containers

The management planner may also recommend that additional cleaning be performed. The methods and frequency of any additional recommended cleaning should be included in the management plan.

Specialized Work Practices and Procedures

The LEA must ensure that the following procedures are followed for any O&M activities disturbing friable ACBM:

- Restrict entry into the area by persons other than those necessary to perform the maintenance project.
- Post signs to prevent entry by unauthorized persons.
- Shut off or temporarily modify the air-handling system and restrict other sources of air movement.
- Use work practices or other controls, such as wet methods, protective clothing, HEPA vacuums, mini-enclosures, and glove bags, as necessary to inhibit the spread of any released fibers.
- Clean all fixtures or other components in the immediate work area.
- Place the asbestos debris and other cleaning materials in a sealed, leak-tight container.

Training Requirements under the AHERA Program

Within 60 days of hire, maintenance and custodial staff who may work in a building that contains ACBM must receive at least two hours of asbestos awareness training. Those members of the maintenance and custodial staff who conduct any activity that will disturb ACBM must receive an additional 14 hours of training. Other state and local training requirements may apply.

Emergency Response Procedures under the AHERA Program

As long as ACBM remains in a building, there is a risk of a fiber release episode. Custodial and maintenance workers should be aware of this and should always report any of the following occurrences to the LEA designated person:

- Any debris found on the floor or other horizontal surface
- Any water or physical damage to the ACBM
- Any other evidence of possible fiber release



There are two types of fiber release episodes: minor episodes and major episodes. The specific procedures that must be followed depend on which type of episode occurs.

Minor Fiber Release Episode

A minor fiber release episode consists of the falling or dislodging of three square or linear feet or less of friable ACBM. Section 763.91(f)(1) of the AHERA Rule requires that when such an event occurs, the LEA must ensure that:

- The debris is thoroughly saturated using wet methods
- The area is cleaned
- The asbestos debris is placed in a sealed, leak-tight container
- The area of damaged ACBM is repaired with such materials as asbestos-free spackling, plaster, cement, or insulation; sealed with latex paint or an encapsulant; or an appropriate response action is implemented as required by § 763.90 of the AHERA Rule

When a minor fiber release episode occurs, AHERA allows the designated person to assign an appropriately trained O&M in-house team to clean up the debris and make repairs as soon as possible. Note, however, that local regulations may be more stringent than the AHERA requirements.

Major Fiber Release Episode

A major fiber release episode consists of the falling or dislodging of more than three square or linear feet of friable ACBM. Section 763.91(f)(2) of the AHERA Rule requires that when such an episode occurs, LEA must ensure:

- Entry into the area is restricted and signs posted to prevent entry into the area by persons other than those necessary to perform the response action.
- The air-handling system is shut off or temporarily modified to prevent the distribution of fibers to other areas in the building.
- The response action for any major fiber release episode is designed by persons accredited to design response actions and conducted by persons accredited to conduct response actions.

After a response action is implemented to manage a major fiber release episode, the final air clearance requirements of AHERA must be met before the response action is considered complete.

Major and minor fiber-release episodes must be documented and included in the management plan regardless of whether the LEA uses in-house staff or an outside asbestos abatement contractor to implement an appropriate response action. If an outside contractor is used, be sure that the contractor's crew has been properly trained or certified before signing a contract.

Other Elements of an O&M Program

In addition to the elements required by § 763.91 of the AHERA Rule, other elements are either recommended or required by the rule or related regulations. These include:

- Notification
- Labeling
- Employee Protection and Medical Surveillance
- Maintenance and Renovation Permit System
- Special Work Practices for Maintenance Activities
- Special Work Practices for Renovation/Remodeling



Notification Requirements under the AHERA Program

Once ACM is identified or assumed to be present in a building, the LEA must provide an annual *written* notification to building occupants, employees, and parents on the locations of asbestos-containing building materials in the school buildings, the availability of the asbestos management plan, and recent and upcoming asbestos activities, such as abatement projects, re-inspections, etc. Other types of information to include in the notification are: what asbestos is and how it is typically used; the health effects associated with asbestos exposure; the type(s) of ACM present in the building; the location(s) of these materials; how individuals can avoid disturbing the ACM; how damage is recognized and to whom it should be reported; how custodial and maintenance personnel are dealing with these materials to prevent fiber release; the asbestos-related training for custodial and maintenance personnel; the steps that will be taken to protect the health and safety of building occupants; and the name and telephone number of the LEA designated person responsible for asbestos-related activities in the building.

Such a notification alerts affected parties to a potential hazard in the building. Building occupants, employees, and others who are aware of the presence of ACM are less likely to disturb the material and cause fiber release. Notification of building occupants, employees, parents and others is best accomplished through distributing written notices, which may be tailored to specific parties. A common practice is to publish the notification in the school's newsletter, which is distributed to school employees and parents. The designated person must document the notification process and maintain records of all notifications made.

Labeling Requirements under the AHERA Program

Under § 763.95 of the AHERA Rule, the LEA must attach a warning label immediately adjacent to any friable and non-friable ACM and suspected ACM that is located in routine maintenance areas (such as boiler rooms) at each school building. Such material includes friable ACM that was responded to by a means other than removal (e.g., encapsulation) and ACM for which no response action was carried out.

The labels must be prominently displayed in readily visible locations, must be in print that is readily visible due to its large size or bright color, and must remain posted until the ACM that is labeled is removed. The warning label must read:

**CAUTION: ASBESTOS. HAZARDOUS. DO NOT DISTURB
WITHOUT PROPER TRAINING AND EQUIPMENT.**

Unlike notification, labeling is not intended as a way to disseminate general information. Instead, it is a last line of defense to prevent unprotected individuals from unknowingly disturbing ACM.

Employee Protection & Medical Surveillance Programs

The OSHA Asbestos Standard for the Construction Industry and the EPA Worker Protection Rule explain when employees are required to wear a negative-pressure respirator and must be involved in a medical surveillance program (see also OSHA Asbestos Standard for General Industry). The purpose of a medical surveillance program is to determine whether or not an employee is healthy enough to wear a respirator and to detect any health changes in an employee's body resulting from working in asbestos-contaminated areas. Changes in health may indicate the onset of an asbestos-related disease.

In addition, any employee who works in an environment where fiber levels are at the permissible exposure limit or higher or who wears a negative-pressure respirator as part of his or her job must participate in a respiratory

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protection program. The only way to determine whether these fiber levels exist is to collect air samples during projects that disturb ACBM. In an O&M program, the use of negative-pressure respirators will make it necessary for most custodial and maintenance workers to participate in both the medical surveillance program and the respiratory protection program. Even if fiber levels are below the permissible exposure limit described above, it is strongly suggested that an LEA establish these programs and require that employees wear respirators any time they are likely to disturb ACBM.

Maintenance & Renovation Permit System – Working Around Asbestos

One of the most difficult tasks that the LEA designated person faces is minimizing accidental disturbances of ACBM during maintenance and renovation operations. One way that a designated person can control such disturbances is by establishing a permit system where all work orders or requests are processed through the designated person.

In a permit system, all requests for maintenance or renovation activities are given to the designated person before a work order to proceed is issued. The designated person then checks the management plan for information about the presence of ACBM where work is to be performed and physically inspects the area in question to make sure that the records reflect actual conditions. If no asbestos is present, the designated person can sign and issue the work order. If ACBM is present, the designated person can sign the work order and then either ensure that trained maintenance or renovation workers are properly equipped to handle the ACBM or dispatch an "emergency response" team to remove the ACBM. In situations where there are large amounts of ACBM, maintenance or renovation work that does not have to be done immediately should be postponed until the ACBM in the area can be removed by an accredited contractor. The permit system should be in place for all facility maintenance work conducted by the LEA staff, outside contractors, and outside short-term workers.

When outside contractors or short-term workers are likely to come into contact with ACBM in a school building, they must be notified of the locations of ACBM or suspected ACBM in the building. This notification should be documented. These workers should have documentation of appropriate training, should they disturb ACBM during their work.

Special Work Practices for Maintenance Activities

In buildings where ACBM is present, routine maintenance activities, such as work on light fixtures, plumbing fixtures and pipes, air registers, HVAC ducts, and other accessible parts of a building's utility systems, can disturb ACBM and raise levels of airborne asbestos. As a result, maintenance workers should be instructed not to perform any maintenance work that could disturb ACBM unless they are appropriately trained and use specific work practices. These work practices should be tailored to reflect the likelihood that an activity will disturb the ACBM and cause fibers to be released. In determining which work practices should be followed, activities should be placed in one of four categories:

- **Contact with ACBM Unlikely** -- In some buildings with ACBM, many routine maintenance activities can be conducted without contacting the ACBM. Changing a light bulb in a fixture that has asbestos-containing acoustical plaster nearby can usually be performed without jarring the fixture, for example. In such situations where contact with ACBM is unlikely, the only precaution other than normal care generally necessary is to ensure that respirators and a HEPA vacuum are available if needed. These do not have to be taken to the site of the project; they should just be available at a known location in the building.



When maintenance is performed in parts of the building that are free of ACBM, no special precautions are usually necessary. An exception would be work in an area containing no ACBM that causes vibrations to be transferred to a location where ACBM is present.

- **Accidental Disturbance of ACBM Possible** -- Where routine maintenance and repair activities are conducted on fixtures or system parts that are located near friable ACBM, maintenance workers may unintentionally disturb the ACBM and release asbestos fibers. Maintenance work on ventilation ducts in an air-handling room where asbestos fireproofing is on the structural beams could accidentally disturb the fireproofing, for example.

- **Disturbance of ACBM Intended or Likely** -- Some maintenance and repair activities will make ACBM disturbance almost unavoidable. Installing new sprinkler or piping systems will make it necessary to hang pipes from structural members or from the ceiling, and if the beams or ceilings are insulated with ACBM, the ACBM will be scraped away to install hangers. Similarly, pulling cables or wires through spaces with ACBM or ACBM debris is likely to dislodge pieces of the ACBM or disturb ACBM debris and dust. Any time ceiling tiles are moved to allow for entry into the space above a suspended ceiling, settled dust on top of the tiles will be recirculated into the air. If the beams or decking above the ceiling are covered with ACBM, the dust is likely to contain asbestos fibers.

A designated person should not allow such intentional disturbances of ACBM to proceed in an uncontrolled manner. The designated person should ensure that the elements required under § 763.91 of the AHERA Rule to be part of an O&M program are implemented effectively and that the regulatory requirements of the EPA Worker Protection Rule and the OSHA Asbestos Standard for the Construction Industry are followed.

- **A Large Amount of ACBM Will be Disturbed** -- If the maintenance work is part of general building renovation, federal regulations may require that ACBM be removed before the project begins. Even if smaller amounts of ACBM are to be disturbed, building owners should consider removing all ACBM from the area of the building where the maintenance work is planned. Typically, an outside abatement contractor would be hired for the removal project before the maintenance work begins. If the LEA decides to use its own staff to remove the ACBM, these workers must be fully trained and accredited in asbestos abatement.

Special Work Practices for Renovation/Remodeling

Building renovation or building system replacement can cause major disturbances of ACBM that are beyond the scope of school O&M programs. Moving walls, adding wings, and replacing heating or air conditioning systems are likely to involve breaking, cutting, or otherwise disturbing ACBM that may be present. It is highly recommended that ACBM that may be disturbed be removed before any of these activities are begun. The LEA may be required to remove the ACBM if the amount of ACBM that is likely to be disturbed exceeds the threshold amounts of 160 square feet or 260 linear feet established by the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations.

Although remodeling projects change the building structure less dramatically than renovation projects, disturbances of ACBM are still possible. When a remodeling project involves direct contact with ACBM (such as painting or wallpapering over ACBM), the O&M procedures described in § 763.91(d) of the AHERA Rule must be followed. If the work to be done will make the material friable, the work must either be limited to small-scale, short-duration or be treated as a response action.

Handling and Disposing of Asbestos Wastes

The amount and type of asbestos present both determine whether the LEA must notify EPA (or delegated states) and what procedures that the LEA must follow to control asbestos emissions. If the amount exceeds the regulatory threshold, then a written notification must be submitted ten working days prior to any asbestos stripping or removal operation or demolition operation. EPA regulations (along with state and local requirements) provide detailed instructions on the handling, transport, and disposal of asbestos materials. This includes emission control methods (such as wetting and leak proof wrapping), labels on the containers, recordkeeping and a trained representative on-site. Waste must be disposed of at a site meeting federal, state and local requirements. For a site in your area, contact the local public health department.

Specific Training Requirements as outlined within the AHERA Program

AHERA requires that LEAs employ accredited persons to perform most of the activities associated with asbestos management. Building inspectors, management planners, project designers, contractors/supervisors, and asbestos workers must all complete EPA- or State-approved courses that result in accreditation. The specific training requirements for each of these categories of workers are outlined in Appendix C to the AHERA Rule (the AHERA Model Accreditation Plan). The AHERA Rule also details specific training requirements for LEA designated persons and maintenance and custodial workers, although these individuals are not required to complete any EPA-approved courses or receive accreditation.

Designated Person Training

AHERA requires that the AHERA Designated Person be *adequately* trained to carry out his or her responsibilities. Due to the differing needs of school districts based on the size of the district and the amount and condition of the ACBM, AHERA does not list a specific training course or specific number of hours of training for the DP. Further, AHERA does not require the DP to be accredited. Specifically, the regulations note the training must include the following topics:

- health effects of asbestos;
- detection, identification and assessment of asbestos-containing building materials; • options for controlling asbestos-containing building materials; and
- asbestos management programs.
- Relevant Federal and State regulations concerning asbestos, including AHERA and its implementing regulations and the regulations of the Occupational Safety and Health Administration, the U.S. Department of Transportation, and the U.S. Environmental Protection Agency.

The training completed by the designated person must be documented by course name, dates, and hours of training. This documentation must be kept as a permanent part of the management plan.

To determine whether reviewing this document would satisfy the training requirements for the DP, school personnel should consult with the regional asbestos coordinator in the EPA Regional Office serving their state.

Maintenance and Custodial Workers Training Under The AHERA Program

The LEA must ensure that all maintenance and custodial staff who work in a building that contains ACBM receive a minimum of two hours awareness training, whether or not they are required to work with ACBM. New custodial and maintenance employees must be trained within 60 days after the commencement of employment.

The awareness training must include, but is not limited to:

- Information regarding asbestos and its various uses and forms



- Information on the health effects associated with asbestos exposure
- Locations of ACBM identified throughout each school building in which they work
- Information on how to recognize damaged, deteriorated, and delaminated ACBM
- The name and telephone number of the LEA designated person
- Information on the availability and location of the management plan

Staff that disturb ACBM must receive an additional 14 hours of training. Once this additional training is completed, attendees will be adequately trained to conduct small-scale, short-duration activities and/or minor fiber release episode cleanup and repair procedures. The additional training must include, but is not limited to:

- Descriptions of the proper methods for handling ACBM
- Information on the use of respiratory protection as contained in the EPA/NIOSH Guide to Respiratory Protection for the Asbestos Abatement Industry (September 1986) and other personal protection measures
- The provisions of the AHERA Rule relating to O&M activities (§ 763.91) and training and periodic surveillance (§ 763.92) as well as Appendices A-E of the Rule, EPA regulations contained in 40 CFR Part 763, subpart G, and in 40 CFR Part 61, Subpart M, and OSHA regulations
- Hands-on training in the use of respiratory protection, other personal protection measures, and good work practices

Maintenance and custodial worker training does not require EPA approval, although some States may have more stringent training requirements. It is recommended that the LEA check with its State on the training requirements for maintenance and custodial workers.

The completion of all training by maintenance and custodial workers must be documented.

Accredited Personnel

Under AHERA, LEAs may employ the following individuals only if they have completed EPA- or State-approved training courses, passed the exams, and received accreditation.

Building Inspectors -- Building inspectors must complete a minimum of three days (24 hours) of training. Training course information covers technical information needed to identify and describe ACBM and information needed to write an inspection report.

Management Planners -- Management planners must complete a two-day (16 hours) course after they have completed and passed the exam for the building inspector training described above. This course is an extension of the building inspector training and teaches how to develop a schedule (or plan) for implementation of response actions for hazards or potential hazards identified in the inspection report, how to develop an O&M plan, and how to prepare and update a management plan.

Project Designers -- Project designers must complete a three-day (24 hours) abatement project designer training course. The project designer course teaches how to design response actions and abatement projects. It also covers basic concepts of architectural design, engineering controls and proper work practices as required by the regulation.

Contractors/Supervisors -- Contractors/supervisors must complete a minimum of five days (40 hours) of training. The course teaches proper work practices and procedures and covers contractor issues such as legal liability,



contract specifications, insurance and bonding, and air monitoring. The course fulfills the OSHA "competent person" training requirement and the NESHAP "trained representative" requirement.

Asbestos Workers -- An asbestos worker must complete a minimum of four days (32 hours) of training. The course covers work practices and procedures, personal protective equipment, health effects of asbestos exposure, and other information critical to individuals who work in an abatement area with hazardous materials.

Update Training

All project designers, contractors/supervisor, and asbestos workers must complete a one day annual refresher training course for reaccreditation. Building inspectors must complete a half-day refresher course. Management planners must attend the half-day building inspector refresher course as well as a half-day management planner refresher course. Documentation of any annual training should be kept in the management plan.

Although not specifically required by the AHERA Rule, annual refresher/update training for maintenance workers is recommended. OSHA requires annual training.

Recordkeeping of Management Plans

Under § 763.93(g) of the AHERA Rule, each LEA is required to keep in its administrative office a copy of the management plans for each school. The management plan must be available, without cost or restriction, for inspection by the public, including teachers, other school personnel and their representatives, and parents, as well as by representatives of EPA and the State.

In addition, each school is required to maintain in its administrative office a complete and updated copy of the management plan for that school. The school must make the plan available for inspection to those individuals listed above as well as to workers before work begins in any area of a school building.

It is the responsibility of the LEA designated person to ensure that complete and up-to-date records are maintained and included in the management plan. Section 763.94 of the AHERA Rule requires that the LEA maintain the following records

Training Information

For each person required to be trained under §§ 763.92(a)(1) and (2) of the AHERA Rule (maintenance and custodial worker training), the LEA must provide:

- The person's name and job title
- The date that training was completed
- The location of the training
- The number of hours completed in the training

Periodic Surveillance Information

Each time that periodic surveillance is conducted under § 763.92(b) of the AHERA Rule, the LEA must record:

- The name of each person conducting the surveillance
- The date of the surveillance
- Any changes in the conditions of the materials being examined



Cleaning Information

Each time that cleaning, as required under § 763.91(c), is conducted, the LEA must record:

- The name of each person performing the cleaning
- The date of the cleaning
- The locations cleaned
- The methods used to perform the cleaning

Small-Scale, Short-Duration O&M Activity Information

Each time that O&M activities under § 763.91(d) of the AHERA Rule are performed, the LEA must provide:

- The name of each person performing the activity
- The start and completion date of the activity
- The locations where such activity occurred
- A description of the activity, including the preventive measures used
- If ACBM is removed, the name and disposal site of the ACBM

Information on O&M Activities Other Than Small-Scale, Short-Duration

Each time maintenance activities are performed that are not of small scale and short duration under § 763.91(e) of the AHERA Rule, the LEA must provide:

- The name and signature of each person performing the activity
- The State, accreditation number, and training provider name of each person performing the activity (a copy of a certificate is ideal)
- The start and completion dates of the activity
- A description of the activity, including preventive measures used
- If the ACBM is removed, the name and location of the ACBM storage or disposal site

Information on Fiber Release Episodes

For each fiber release episode occurring as the result of O&M activities, the LEA must 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
- If ACBM is removed, the name and location of the ACBM storage or disposal site

Information on Response Actions and Preventive Measures

For each preventive measure and response action taken for friable and nonfriable ACBM and friable and nonfriable suspected ACBM assumed to be ACBM, the LEA must provide:

- A detailed written description of the measure or action, including the method used
- The location where the measure or action was taken
- Reasons for selecting the measure or action
- The start and completion dates of the work
- If applicable, the names and addresses of all contractors involved with the work
- If applicable, the State, accreditation number, and training provider name of all contractors involved with the work (a copy of the certificate)
- If ACBM is removed, the name and location of the ACBM storage or disposal site



Air Sampling Information

In addition to the information required to be provided for each preventive measure and response action taken for friable and nonfriable ACBM and friable and nonfriable suspected ACBM assumed to be ACBM (*See above*), when air sampling is performed for final air clearance of response actions, the LEA must provide:

- The name and signature of any person collecting any air sample required to be collected at the completion of a response action
- The locations where samples were collected
- The date(s) of collection
- The name and address of the laboratory analyzing the samples
- The date(s) of analysis
- The results of the analysis
- The method of analysis
- The name and signature of the person performing the analysis
- A statement that the laboratory is NVLAP accredited or EPA approved

Additional Regulatory Agency’s Governing Asbestos

Although AHERA and its implementing regulations, the AHERA Rule, set out many of the responsibilities of the LEA, there are several other federal regulations that the LEA should be aware of when implementing an asbestos management program. These regulations include:

- National Emission Standards for Hazardous Air Pollutants (NESHAP)
- Occupational Safety and Health Administration (OSHA) Construction Industry Standard (29 CFR 1926.1101) and General Industry Standard (29 CFR 1910.1001)
- The EPA Worker Protection Rule (40 CFR § 763.121)
- Department of Transportation (DOT) regulations governing the transport and disposal of asbestos-containing materials (49 CFR Parts 171 and 172)

Each of these regulations is discussed in greater detail below. By following the requirements of these related regulations, the LEA can protect not only the people in its buildings from negative health effects but also may protect itself from legal liability. These regulations should be considered to establish minimum standards; going beyond these requirements may help keep buildings as safe as possible.

National Emission Standards for Hazardous Air Pollutants

The LEA (school district) must comply with the National Emission Standards for Hazardous Air Pollutants for Asbestos (NESHAP) regulations when removing asbestos materials. These regulations specify control requirements for most asbestos emissions, and include work practices to be followed to minimize the release of asbestos fibers during the handling, removal and disposal of asbestos waste materials. NESHAP regulations are frequently enforced by the State or Local Agencies.

A significant term, which is used through NESHAP, is Regulated Asbestos-Containing Materials (RACM). RACM is where the amount of friable asbestos-containing material equals or exceeds the threshold amount of 260 linear feet, 160 square feet, or 35 cubic feet.



Prior to the beginning work, an AHERA accredited inspector must inspect the facility for the presence of asbestos. The amount and type of asbestos present both determine whether the LEA must notify EPA (or delegated states) and what procedures that the LEA must follow to control asbestos emissions. If the amount exceeds the regulatory threshold, then a written notification must be submitted ten working days prior to any asbestos stripping or removal operation or demolition operation. The LEA must remove RACM from the facility that is to be demolished or renovated before any other activity begins that would break up, dislodge, or similarly disturb this material. The RACM must be handled in accordance with the asbestos NESHAP regulations, including properly labeling the waste. However, prior removal is not required if the RACM is in a condition that is excepted from prior removal, e.g., it is on a facility component that is encased in concrete or other similarly hard material and is adequately wet whenever exposed during demolition.

Of particular importance to the LEA are the standards for the demolition and renovation of facilities (40 CFR § 61.145) and for waste disposal for demolition and renovation operations (40 CFR § 61.150). The standard for asbestos waste disposal for demolition and renovation operations require that the LEA to: (1) discharge no visible emissions to the outside air during the collection processing, packaging, or transporting of any asbestos-containing waste material; (2) adequately wet the asbestos-containing waste material; (3) process the asbestos-containing waste material into nonfriable forms; or (4) use an alternative emission control and waste treatment method that has received prior approval by EPA or the delegated state.

As soon as possible, all asbestos-containing waste material must be taken to an asbestos waste disposal site or an EPA-approved site that converts regulated asbestos-containing material and asbestos-containing waste material into asbestos-free material as provided by law. If non-RACM will not be made friable during the disposal processes, it may be disposed of at a landfill that accepts normal building debris. Waste shipment records (WSRs), which are only required for RACM, must be maintained by the LEA and contain the information required by law. The WSRs must be retained for at least two years.

Occupational Safety and Health Administration

The Occupational Safety and Health Administration's (OSHA) Construction Industry Standard (29 CFR § 1926.1101) and General Industry Standard (29 CFR § 1910.1001) establish minimum standards for the protection of workers involved in asbestos-related work or employees exposed to asbestos-contaminated workplaces. OSHA regulations exclude federal, state, or local government employees (including public school employees) from its worker protection rules (except in states with OSHA approved programs).

However, EPA has promulgated Worker Protection Rules to cover these employees (see below). These standards include required work practices, engineering controls, permissible exposure limits, written programs for respiratory protection and medical surveillance, methods for compliance, hazard communication, housekeeping, competent person training and responsibilities, and required recordkeeping. Also included are demolition, removal, alteration, repair, maintenance (such custodial workers who clean vinyl asbestos tile floors), installation, clean-up of spills, transportation, disposal and storage of asbestos.

OSHA revised its standards on August 10, 1994. Significant changes to the standards included the following:

- PEL decrease to 0.1 f/cc; action level deleted;
- Asbestos Containing Material defined as material containing more than 1% asbestos (now consistent with EPA);
- Building owners are now covered and have specific duties to identify building materials and notify/communicate with others;

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- All asbestos work, regardless of exposure levels, requires at least basic controls and work practices, and exposure monitoring;
- Construction work is classified according to friability of the asbestos and hazardousness of the operation. Increasingly friable and hazardous operations require increasingly stringent engineering controls, work practices, protective equipment, training and monitoring; and
- Training requirements changed to correspond to EPA training.

Two programs are of particular importance to the LEA. OSHA requires establishment of a respiratory protection program (29 CFR § 1910.134) that is designed to protect persons, including the designated person and any employees, who do any work with ACM. The program requires that such persons be equipped with a respirator that provides adequate protection against asbestos. Further, the program must include written standard operating procedures governing the selection and use of respirators, selection of respirators based on the hazards to which workers are exposed, an instruction and training program in the proper use of respirators and its limitations, and requirements for the cleaning, disinfecting, inspecting, and storing of respirators. The written program must be on the job site when asbestos work is being conducted.

The second program is the medical surveillance program, which requires that every person who is assigned to work using a respirator must first have a medical examination to determine whether he or she is fit to work in a respirator. A written assurance to that effect signed by the examining physician is required and must be maintained with the employee's medical surveillance records. The employer must keep proof of a medical surveillance program on site where the asbestos work is being performed.

EPA Worker Protection Rule

The OSHA asbestos standards do not cover all state and local government employees. The EPA Worker Protection Rule (40 CFR § 763.121) extends the protection afforded by the OSHA standards to all state and local government employees who are engaged in asbestos abatement and who are not otherwise covered by OSHA or an OSHA-approved state plan.

Thus, when conducting asbestos abatement activities, an employee of a school district is either covered by the OSHA asbestos standards or that employee is protected by EPA's Worker Protection Rule.

Department of Transportation Regulations

Department of Transportation (DOT) regulations (49 CFR Parts 171 and 172) require that asbestos-containing materials be labeled as Class 9 hazardous materials and establish requirements relating to the shipment of ACM by air, rail or motor vehicles, including the type of packaging, labeling, shipping papers and placards required. The designated person is responsible for having the ACM properly transported from a site. The LEA is the generator of the waste product and maintains this responsibility during transportation and disposal. Disposal of asbestos waste also is subject to each state's solid waste regulations.



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Asbestos

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Health Effects Associated with Asbestos Exposure

The health effects associated with asbestos exposure have been studied for many years. Results of these studies show that inhalation (breathing in) of asbestos fibers leads to increased risk of developing several diseases. Exactly why some people develop these diseases remains a mystery, but it has been well demonstrated that most asbestos-related illnesses are dose-response related (*i.e.*, the greater the exposure to airborne asbestos fibers, the greater the risk of developing an illness).

Relative Hazards of Asbestos Exposure

Almost daily, we are exposed to some prevailing level of asbestos fibers in buildings or experience some existing level in the outdoor air. Some fibers that are inhaled remain in the lungs. Brief "bursts" of exposure, when added to the background level, increase the potential to cause or trigger the development of an asbestos related disease. These brief bursts of exposure occur in many ways. For example, when a carpenter drills a hole in an asbestos fire door without taking any precautions, an increased amount of asbestos may be released into the air. The more often these bursts of exposure occur, the greater the risk of breathing asbestos fibers.

People most at risk for this additional exposure are maintenance and construction workers who work on and disturb asbestos in buildings. This clearly demonstrates the need for an active asbestos policy and an ongoing operations and maintenance (O&M) plan for buildings that contain ACM.

It is important to recognize that the majority of people who have developed diseases because of asbestos exposures are former asbestos workers. These workers were frequently exposed to high levels of asbestos fibers each working day, with little or no protection. Today's asbestos maintenance workers and AHERA-trained asbestos abatement workers are trained to follow specific work practices and wear appropriate protection, including respirators, to minimize the risk of exposure. However, increased risk may occur when a worker who does not use a respirator or follow specific work practices disturbs any ACM.

The Respiratory System

The effects of asbestos exposure most often involve the lungs. Air breathed into the body passes through the mouth and nose, continuing into the windpipe. The windpipe divides into smaller and smaller tubes that end up in the lungs as air sacs called alveoli. It is in these air sacs that respiration occurs. Oxygen is absorbed into tiny blood vessels (or capillaries), and waste gases, such as carbon dioxide, pass out of the blood and are exhaled.

The body has several mechanisms to "filter" the air it breathes. First, large particles are removed in the nose and mouth. Many smaller particles are caught on the mucus-coated walls of the airway tubes. These airways have "hairy" linings (ciliate cells) that constantly propel mucus upward. Particles caught in the mucus are swept up into the back of the mouth. From here they are swallowed or expelled (spit out). Unfortunately, cigarette smoking temporarily paralyzes these hair-like cells, disabling one of the body's natural defenses against unwanted dust or fibers.

Despite natural bodily defenses, some dust particles inevitably reach the tiny air sacs in the lungs. When this occurs the human immune system dispatches large cells called macrophages to engulf the particles and "digest" them. These cells deposit a coating on the particles and may begin forming scar tissue around them. This is just another natural defense mechanism the body uses against unwanted debris in the lungs.



Asbestos-Related Diseases

If the body's defenses fail to control or remove asbestos fibers that enter the lungs, the risk of developing an asbestos-related disease increases. Asbestos-related diseases include asbestosis, lung cancer, mesothelioma, and other cancers.

- **Asbestosis** -- Asbestosis is a disease characterized by lung scarring. It reduces lung elasticity -- the ability to inhale and exhale in response to muscular contractions of the diaphragm -- and makes breathing very difficult. Asbestosis is most common among workers who have been exposed to large amounts of asbestos fibers over a period of time. It is a serious disease and, in those persons exposed to high levels of asbestos, can eventually lead to disability or death. All forms of asbestos are suspected to have the potential to cause asbestosis. Like all diseases associated with asbestos exposure, it may take many years for the disease to show up. The typical latency period for asbestosis is 15 to 30 years. Available data indicate that the frequency of occurrence of asbestosis rises and the disease worsens with increasing dust exposure. The Occupational Safety and Health Administration (OSHA) Asbestos Standards were developed to minimize the incidence of asbestosis among asbestos workers by reducing their exposure to asbestos.

- **Lung Cancer** -- As with asbestosis, there appears to be a dose-response relationship between asbestos exposure and lung cancer. In addition, lung cancer arising from asbestos exposure also has a latency period before development -- typically 30 years or longer. The risk of contracting lung cancer as a result of exposure to asbestos increases if the worker is a cigarette smoker. Cigarette smokers who are exposed to asbestos are over 50 times more likely to develop lung cancer than the normal, non-smoking population. As a result, a program to help workers stop smoking and an asbestos operations and maintenance program will help reduce the risk of lung cancer among asbestos maintenance workers.

- **Mesothelioma** -- Mesothelioma is a cancer that occurs in the chest cavity lining or in the lining of the abdominal (stomach) lining. This type of cancer spreads rapidly and is always fatal. Cases of mesothelioma have been found in people who have had a limited exposure to asbestos. The onset of this disease appears to be independent of smoking behavior but related to dose and to time from first known asbestos exposure. Mesothelioma tends to have a long latency period -- usually 30 to 40 years.

- **Other Diseases** -- Several other diseases seem to occur more frequently among people who have been exposed to asbestos. These include cancer of the esophagus, stomach, colon, and pancreas; pleural (fibrous) plaques; pleural thickening; and pleural effusion.

The risks of contracting any of these diseases make it extremely important that asbestos maintenance workers utilize proper work practices and respiratory protection.

Risks Associated with Low Exposure

While studies of asbestos workers and laboratory animals clearly reveal that asbestos is hazardous, the risks associated with low-level, non-occupational exposure (*i.e.*, an occupant of a building who is not actually disturbing the asbestos) have not been directly demonstrated. Estimating low-level risks from exposure data is not a straightforward process, and the validity of current methodologies is questionable.

Based on a thorough review of the literature available on the health effects of asbestos, the National Institute for Occupational Safety and Health (NIOSH) has concluded that there is no level below which the risks of contracting an asbestos-related disease are zero. This means that there is no established safe level of exposure to asbestos.



Glossary of Terms

Air erosion: the passage of air over friable ACM which may result in the release of asbestos fibers.

Asbestos: the asbestiform varieties of Chrysotile; crocidolite; amosite; anthophyllite; tremolite; and actinolite.

Asbestos-containing material (ACM): any material or product which contains more than 1 percent asbestos.

Asbestos-containing building material (ACBM): surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a school building.

Asbestos debris: pieces of ACM 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: 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 ACM in question may also indicate damage.

Damaged friable surfacing ACM: 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 ACM in question may also indicate damage.

Damaged or significantly damaged thermal system insulation ACM: 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; occasional water damage on the protective coverings/jackets; or exposed ACM ends or joints. Asbestos debris originating from the ACM in question may also indicate damage.

Encapsulation: the treatment of ACM 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: an airtight, impermeable, permanent barrier around ACM to prevent the release of asbestos fibers into the air.

EPA Worker Protection Rule: extends the protection afforded by OSHA to all employees in asbestos abatement who may have been excluded from protection by OSHA.

Fiber release episode: any uncontrolled or unintentional disturbance of ACM 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.



Friable asbestos-containing material (ACM): any material containing more than one percent asbestos which has been applied on ceilings, walls, structural members, piping, duct work, or any other part of a building, which when dry, may be crumbled, pulverized, or reduced to powder by hand pressure. Includes non-friable asbestos-containing 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.

Friable asbestos-containing building material (ACBM): any friable ACM that is in or on interior structural members or other parts of a school or public and commercial building.

Functional space: 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 mm in diameter or larger.

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

Inspection: an activity undertaken in a school building, or a public and commercial building, to determine the presence or location, or to assess the condition of, friable or non-friable asbestos-containing building material (ACBM) or suspected ACBM, whether by visual or physical examination, or by collecting samples of such material. This term includes re-inspections of friable and non-friable known or assumed ACBM which has been previously identified. The term does not include the following: (1) Periodic surveillance of the type described in 40 CFR 763.92(b) solely for the purpose of recording or reporting a change in the condition of known or assumed ACBM; (2) Inspections performed by employees or agents of Federal, State, or local government solely for the purpose of determining compliance with applicable statutes or regulations; or (3) Visual inspections of the type described in 40 CFR 763.90(i) solely for the purpose of determining completion of response actions.

Local education agency: (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 dependents' education system provided for under the Defense Dependents' Education Act of 1978 (20 U.S.C. 921, et seq.).

Major fiber release episode: any uncontrolled or unintentional disturbance of ACBM, resulting in a visible emission, which involves the falling or dislodging of more than 3 square or linear feet of friable ACBM.

Management Plan: a site-specific guidance document that the LEA designated person must follow in managing the ACBM present in a school building.

Minor fiber release episode: any uncontrolled or unintentional disturbance of ACBM, resulting in a visible emission, which involves the falling or dislodging of 3 square or linear feet or less of friable ACBM.

Miscellaneous ACM: other, mostly non-friable ACM, products and materials (found on structural components, structural members or fixtures) such as floor tile, ceiling tile, construction mastic for floor and ceiling materials, sheet flooring, fire doors, asbestos cement pipe and board, wallboard, acoustical wall tile, and vibration damping cloth. miscellaneous material that is ACM in a school building.

Miscellaneous material: 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: material in a school building which when dry may not be crumbled, pulverized, or reduced to powder by hand pressure.

Operations and maintenance program: 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: 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: 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: actions taken to reduce disturbance of ACBM or otherwise eliminate the reasonable likelihood of the material's becoming damaged or significantly damaged.

Public and commercial building: the interior space of any building which is not a school building, except that the term does not include any residential apartment building of fewer than 10 units or detached single-family homes. The term includes, but is not limited to: industrial and office buildings, residential apartment buildings and condominiums of 10 or more dwelling units, government-owned buildings, colleges, museums, airports, hospitals, churches, preschools, stores, warehouses and factories. Interior space includes exterior hallways connecting buildings, porticos, and mechanical systems used to condition interior space.

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

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

Routine maintenance area: 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: 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: (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: damaged friable miscellaneous ACM where the damage is extensive and severe.

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

Small-scale, short-duration activities (SSSD): tasks such as, but not limited to:(1) Removal of asbestos-containing insulation on pipes.(2) Removal of small quantities of asbestos-containing insulation on beams or above ceilings.(3) Replacement of an asbestos-containing gasket on a valve.(4) Installation or removal of a small section of drywall.(5) Installation of electrical conduits through or proximate to asbestos-containing materials.

SSSD can be further defined by the following considerations: (1) Removal of small quantities of ACM only if required in the performance of another maintenance activity not intended as asbestos abatement. (2) Removal of asbestos-containing thermal system insulation not to exceed amounts greater than those which can be contained in a single glove bag. (3) Minor repairs to damaged thermal system insulation which do not require removal. (4) Repairs to a piece of asbestos-containing wallboard. (5) Repairs, involving encapsulation, enclosure, or removal, to small amounts of friable ACM only if required in the performance of emergency or routine maintenance activity and not intended solely as asbestos abatement. Such work may not exceed amounts greater than those which can be contained in a single prefabricated mini-enclosure. Such an enclosure shall conform spatially and geometrically to the localized work area, in order to perform its intended containment function.

Surfacing ACM: interior ACM that has been sprayed on, troweled on, or otherwise applied to surfaces (structural members, walls, ceilings, etc.) for acoustical, decorative, fireproofing, or other purposes. surfacing material that is ACM.

Surfacing material: 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: 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: insulation used to control heat transfer or prevent condensation on pipes and pipe fittings, boilers, breeching, tanks, ducts, and other parts of hot and cold water systems; heating, ventilation, and air-conditioning (HVAC) systems; or other mechanical systems that is ACM.

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



Acronyms

ACM: Asbestos-Containing Material

ACBM: Asbestos-Containing Building Material

AHERA: Asbestos Hazardous Emergency Response Act

ASHARA: Asbestos School Hazard Abatement Reauthorization Act

DOT: Department of Transportation

EPA: Environmental Protection Agency

HEPA: High Efficiency Particulate Air

HVAC: Heating, Ventilation and Air-Conditioning

LEA: Local Education Agency

MAP: Asbestos Model Accreditation Plan

NESHAP: National Emission Standard for Hazardous Air Pollutants

NIOSH: National Institute of Occupational Safety and Health

O&M: Operations and Maintenance

OSHA: Occupational Safety and Health Administration

PCM: Phase Contrast Microscopy

PLM: Polarized Light Microscopy

SSSD: Small Scale, Short Duration

TEM: Transmission Electron Microscopy

TSI: Thermal System Insulation

VAT: Vinyl Asbestos Tile

VOC: Volatile Organic Compounds