

I. **INSPECTION PROTOCOL**

A. **PROCEDURES**

Building inspections are conducted by teams of at least two (2) accredited inspectors for bulk sample collection and documentation of building materials. Prior to the actual inspection, maps, schematics, or drawings will be reviewed to determine the age and layout of the buildings and the location and nature of mechanical systems. After determining the different construction and remodeling dates of the buildings, the sampling strategy will be determined by the survey team utilizing the AHERA guidelines. Construction and remodeling dates are important in the determination of the homogeneity of suspect materials. The following inspection process is followed:

PRELIMINARY

1. Review all of existing data including: inspections, management plans and abatement records for each school in a school district.
2. Input the data into a format for the survey team to utilize onsite.

ONSITE INSPECTIONS

1. Identify the building by name or number.
2. Identify the homogeneous areas of suspect asbestos-containing building materials (ACBM) to be sampled, taking into consideration the appearance and history of installation of materials.
3. Determine from any previous inspection data if the suspect material was sampled and whether asbestos content was determined.
4. Assign a homogeneous material number to each suspect material.
5. Follow EPA-AHERA bulk sampling guidelines. (See "Sampling Protocol")
6. Indicate on the maps, drawings, or schematics the locations where bulk samples are taken.
7. Collect bulk samples of suspect building materials, assign a unique identification number and indicate the location of each sample.
8. Determine all locations and square or linear footage of the material and assess its friability by touch.
9. Photograph those areas which have damaged or friable asbestos-containing building materials (ACBM), particularly friable thermal system insulation.
10. Assess the condition of the ACBM for damage, friability and potential for disturbance. Assign a hazard ranking based on these parameters.

The ranking scheme is as follows:

Significantly Damaged (poor condition);

High potential for damage: 7

Damaged (fair condition); High potential for damage: 6

Moderate potential for damage: 5

Low potential for damage: 4

Not Damaged (good condition); High potential for damage: 3

Moderate potential for damage: 2

Low potential for damage: 1

The assessments are used by the management planner to make recommendations for abatement actions in the management plan.

These actions may include the following:

A. Removal

B. Management of ACBM in place.

(1) Repair

(2) Encapsulation

(3) Enclosure

(4) Operations and Maintenance Program

11. Survey all areas of a building including subfloors and attic spaces.
12. Utilize NIST/NVLAP accredited laboratories for analyses of bulk samples.
13. Provide the client with complete report of the findings for each survey project. This report will contain the documentation of the inspection data.

14. Provide updated cost estimates for Operations and Maintenance activities and abatement.
15. Provide a draft management plan to each district for review and comment.
16. During our inspections where particularly hazardous conditions exist, we issue "Notices of Action Taken". This involves isolating given areas where substantial suspect asbestos debris is noted or where there is an imminent possibility of asbestos contamination. If the analysis of these materials shows no asbestos content, re-occupancy is allowed. In other instances the isolation continues or the situation is abated.
17. Inaccessible attics which may contain pipe or duct ACM are identified in our inspection reports where possible. In some cases we have found ACM on pipes and ducts where the systems in walls have been abandoned and there is no clue that the material might be there. Therefore, it is extremely important to inform any employee, serviceman or contractor that the walls or ceilings may contain these materials and, if encountered, work shall stop in the area until the material is abated or it is decided the material can be avoided.
18. All routine maintenance areas which contain asbestos materials are posted with yellow and black warning labels which state:



"CAUTION: ASBESTOS. HAZARDOUS. DO NOT DISTURB WITHOUT PROPER TRAINING AND EQUIPMENT." The AHERA regulations require that these signs remain posted. You must check each maintenance area to be sure that these signs have not been removed. Enclosed you will find extra labels for your use. AHERA requires that they be posted adjacent to any friable or non-friable ACBM located in boiler rooms, fan rooms, water heater rooms or any other room which contains asbestos and is frequented by maintenance or custodial personnel. The labels do not have to be posted in hallways, classrooms, offices (unless custodial), auditoriums, library or other general access areas.

B. CLASSIFICATION OF HOMOGENEOUS MATERIALS

There are three (3) general classifications of building materials. These are surfacing materials, thermal system insulation and miscellaneous materials.

SURFACING MATERIALS

Those materials that are sprayed, troweled or otherwise applied to surfaces, such as acoustic plaster on walls and ceilings, fireproofing on structural members and other applications for other purposes.



THERMAL SYSTEM INSULATION (TSI)

Materials applied to pipes, fittings, boilers, breaching, tanks, ducts or other components to prevent heat transfer, condensation or for other purposes.

MISCELLANEOUS MATERIALS

Interior building materials on structural components, structural members or fixtures, such as floor and ceiling tiles, linoleum, and drywall. It also includes transite products such as paneling, siding and pipe. TRANSITE MATERIALS are asbestos/cement products commonly found at boilers, heaters, furnaces (as pipe) and above and below windows and doors and in heating rooms (as paneling). MISCELLANEOUS MATERIALS include those building materials other than surfacing and TSI.

C. NEW BUILDINGS

All new buildings, i.e., buildings added to a site after the original AHERA inspection, are inspected if the district cannot provide certification as indicated in 40 CFR Part 1763, Subpart E, Section 763.99 (a) (7) "Exclusions", (AHERA).

D. DISCLAIMERS

In some situations ACBM may be present in locations where it cannot be found nor would it be anticipated. Two accidental discoveries at other districts have made this apparent.

One situation involved an abandoned section of pipewrap under nearly two feet of blown-in insulation in an attic. Another involved finding a "dumpsite" in a subfloor crawl space where several sections of pipe insulation had been thrown into a hole and covered with dirt. Although these were unusual situations, there have probably been some ACM materials that have gone undetected for similar reasons.

II SAMPLING PROTOCOL

A. EXEMPTIONS

Several materials have been exempted from evaluation by EPA. Some of these materials commonly contain asbestos but were specifically eliminated from the sampling or

identification requirements. Following is a list of these exempted items.

An asterisk is listed by each of those which sometimes contain asbestos.

| | |
|------------------------------|--------------------------------------|
| Blackboards* | Glass |
| Brake shoes* | Kiln bricks/cement* |
| Bunsen burner pads* | Lab gloves* |
| Chemical counter, Desk Tops* | Plastic (PVC) |
| Cinderblock | Pressed wood (panels & tiles) |
| Concrete | Rubber |
| Curtains* | Steel/Metal |
| Exterior roofing materials* | Stored items* (tiles, gaskets, etc.) |
| Fiberglass | Wall or ceiling carpet |
| Fire Blankets* | Wood |

B. ASSUMED MATERIAL

There are several materials which are well known to contain asbestos.

One type of TSI, known as aircell, always contains asbestos.

Transite materials (asbestos/cement) products always contain asbestos. Transite is found as paneling (flat, corrugated or perforated) and as flue pipe. Asbestos is sometimes used as gasket material. These materials are classified as ACBM without sampling. Firedoors are not sampled as that would require damaging the door. Nor do we assume them to contain asbestos unless they are so labeled by the manufacturer.

In locations where carpet is present, Entek, Inc. assumes vinyl floor tile to be present under the carpet unless the district personnel accompanying our inspection team can verify otherwise.

Similarly, many portable classrooms are constructed with drywall behind "tagboard" on walls. Entek, Inc. assumes drywall to be present behind these tagboard walls. Our inspection of building materials does not include "destructive" sampling.

C. IDENTIFIED MATERIALS

Identified materials are those that are sampled. They are identified as positive or negative for asbestos. In areas where multiple samples are collected from one homogeneous material, if one sample contains more than 1% asbestos, then all of the homogeneous material must be considered to contain asbestos. For this reason, when the first or second sample in a group contains more than 1% asbestos, the subsequent analyses of the duplicate samples are not necessarily performed.

D. SAMPLING METHODOLOGY

Where friable surfacing materials are encountered, the following sampling protocol is followed.

1. The homogeneous sampling area is divided into nine (9) equal areas.
2. Random numbers are taken from a source (EPA's Sampling Strategy Booklet).
3. Three (3) samples are collected at or near the center of the selected areas which totaled less than 1,000 square feet, five for 1,000 to 5,000 square feet, and seven or more for friable homogeneous areas greater than 5,000 square feet.

Where non-friable samples are collected, the following sampling protocol is followed:

1. Surfacing - three or more samples are collected, generally in non-conspicuous locations from each homogeneous material.
2. TSI - three or more samples taken from homogeneous materials.
3. Miscellaneous - one or more samples are taken from miscellaneous materials in a manner sufficient to determine the asbestos content of each homogeneous material.

The guidelines we apply for sampling homogeneous areas of miscellaneous material is as follows:

| | |
|------------------------|-------------------|
| 0 - 300 Square Feet: | One (1) sample |
| 301 - 600 Square Feet: | Two (2) samples |
| 601 and over: | Three (3) samples |



This schemes is, we feel, "sufficient to determine" the asbestos content of these miscellaneous materials.

III. QUALITY CONTROL

Entek, Inc. utilizes a number of quality assurance measures to assure the inspections are correct and complete. The following procedures will be taken to assure quality of inspections.

1. A management planner or inspector will review existing inspection and management plan documents for pre-planning of the inspection. Specific items examined will be existing SP-1A architectural drawings or other schematics showing all building locations at a given site. Construction dates will be evaluated to establish potential similar construction materials for homogeneity.
2. Previously identified and assumed ACBM will be listed for each building as homogeneous material areas prior to the on-site inspection.
3. During the re-inspections all spaces will be inspected and floors, walls, ceilings, subfloors and other specific building materials will be identified for each space. The spaces will be given numerical identifiers both on the map and as a "field" of the inspection data.
4. A management planner other than the inspector will check that all spaces in all buildings are accounted for in the inspection report. Any discrepancies will be resolved by revisiting the site, if necessary.



5. The management planner will review the number of samples collected for accuracy in terms of the quantity, type and condition of the suspect materials to assure that the AHERA sampling protocol is met.

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GLOSSARY OF TERMS

AHERA GLOSSARY

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

ACCREDITED or **ACCREDITATION** refers to a person or laboratory and means that such a person or laboratory is accredited in accordance with Section 206 of Title II of the Act.

ASBESTOS means the asbestiform varieties of: Chrysotile (serpentine); Crocidolite (riebeckite); amosite (cummingtonite-grunerite); anthophyllite; tremolite; and actinolite.

ASBESTOS-CONTAINING BUILDING MATERIAL (ACBM) means surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a building.

ASBESTOS-CONTAINING MATERIAL (ACM) means any material or product which contains more than 1 percent asbestos.

ASBESTOS-CONTAINING CONSTRUCTION MATERIAL means any manufactured construction material which contains more than 1/10 of 1% asbestos by weight.

ASBESTOS DEBRIS means pieces of ACBM that can be identified by color, texture, or fiber content as originating from adjacent ACBM.

CLASS I ASBESTOS WORKS means activities involving the removal of TSI and surfacing ACM and PACM.

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

CLASS III ASBESTOS WORK means repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.

CLASS IV ASBESTOS WORK means maintenance and custodial activities during which employees contract but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

DAMAGED FRIABLE MISCELLANEOUS ACM means friable miscellaneous ACM which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or, if applicable, which has delaminated such that its bond to the substrate (adhesion) is inadequate, or which, for any other reason, lacks fiber cohesion or adhesion qualities.

DAMAGED FRIABLE SURFACING ACM means friable surfacing ACM which has deteriorated or sustained physical injury such that the internal structure of the material is inadequate or which has delaminated such that its bond to the substrate (adhesion) is inadequate, or which, for any reason, lacks fiber cohesion or adhesion qualities.

DAMAGED OR SIGNIFICANTLY DAMAGED THERMAL SYSTEM INSULATION ACM means thermal system insulation ACM on pipes, boilers, tanks, ducts, and other thermal system insulation equipment where the insulation has lost its structural integrity, or its covering, in whole or in part, is crushed, waterstained, gouged, punctured, missing, or not intact such that it is not able to contain fibers.

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

ENCLOSURE means the construction of an airtight, impermeable, permanent barrier around ACBM to control the release of asbestos fibers into the air.

FIBER RELEASE EPISODE means any uncontrolled or unintentional disturbance of ACBM resulting in visible emission.

FRIABLE means that the material, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure.

FUNCTIONAL SPACE means a room, group of rooms, or homogeneous area (including 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 particulate. HEPA filter media is challenged using monodispersed particles 0.3 micrometers in diameter.

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

LOCAL EDUCATION AGENCY means:

- (1) Any local educational agency as defined in section 198 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 3381).
- (2) The owner of any nonpublic, nonprofit elementary or secondary school building, and
- (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.).

MISCELLANEOUS ACM means miscellaneous material that is ACM other than materials identified as TSI or surfacing.

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

NON-FRIABLE means material which, when dry, may not be crumbled, pulverized, or reduced to powder by hand pressure.

OPERATIONS AND MAINTENANCE PROGRAM means a program of training, work practices, and periodic surveillance to maintain friable ACBM in good condition, ensure cleanup of asbestos fibers previously released, and prevent further release by minimizing and controlling friable ACBM disturbance or damage.

PACM means "presumed asbestos containing material".

POTENTIAL DAMAGE means circumstances in which:

- 1) Friable ACBM is in an area regularly used by building occupants, including maintenance personnel, in the course of their normal activities, and
- 2) There are indications that there is a reasonable likelihood that the material or its covering will become damaged, deteriorated, or delaminated due to factors such as changes in building use, changes in operations and maintenance practices, changes in occupancy, or recurrent damage.

POTENTIAL SIGNIFICANT DAMAGE means circumstances in which:

- 1) Friable ACBM is in an area regularly used by building occupants, including maintenance personnel, in the course of their normal activities
- 2) There are indications that there is a reasonable likelihood 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, and
- 3) The material is subject to major or continuing disturbance, due to factors including, but not limited to, accessibility.

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

REMOVAL means taking out substantially all ACBM from a damaged area, a functional space, or a homogeneous area in a building.

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

RESPONSE ACTION means a method, including removal, encapsulation, enclosure, repair, operations and maintenance, that protects human health and the environment from friable ACBM.

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

SCHOOL means any elementary or secondary school as defined in section 98 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 2854)

SCHOOL BUILDING means:

- 1) Any structure suitable for use as a classroom, including a school facility such as a laboratory, library, school eating facility, or facility used for the preparation of food.
- 2) Any gymnasium or other facility which is specially designed for athletic or recreational activities for an academic course in physical education.

- 3) Any other facility used for the instruction or housing of students or for the administration of education or research programs.
- 4) Any maintenance, storage, or utility facility, including any hallway, essential to the operation of any facility described in this definition under paragraphs (1), (2), or (3) of this definition.
- 5) Any portico or covered exterior hallway or walkway, and
- 6) Any exterior portion of a mechanical system used to condition interior space.

SIGNIFICANTLY DAMAGED FRIABLE MISCELLANEOUS ACM means damaged friable miscellaneous ACM where the damage is extensive and severe.

SIGNIFICANTLY DAMAGED FRIABLE SURFACING ACM means damaged friable surfacing ACM in a functional space where the damage is extensive and severe.

STATE means a State, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the Northern Marianas, the Trust Territory of the Pacific Islands, and the Virgin Islands.

STRUCTURAL MEMBER means any load-supporting member of a building, such as beams and load-supporting walls, or any non-loading-supporting member, such as ceilings and non-load-supporting walls.

SURFACING ACM means surfacing material that is ACM.

SURFACING MATERIAL means material in a building that is sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

THERMAL SYSTEM INSULATION means material in a building applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain, or water condensation, or for other purposes.

THERMAL SYSTEM INSULATION ACM means thermal system insulation that is ACM.



ENTEK, INC. ABBREVIATIONS

| | |
|-----------------------|-----------------------------|
| <u>ACT:</u> | Acoustic ceiling/wall tile |
| <u>B-I-I:</u> | Blown-In-Insulation |
| <u>BLR:</u> | Boiler |
| <u>DRY:</u> | Drywall |
| <u>FCP:</u> | False Ceiling Panel |
| <u>HTR:</u> | Heater |
| <u>LINO:</u> | Linoleum |
| <u>MISC:</u> | Miscellaneous |
| <u>PW:</u> | Pipewrap |
| <u>S-O-C:</u> | Sprayed-On Ceiling |
| <u>S-O-W:</u> | Sprayed-On Wall |
| <u>SURF:</u> | Surfacing |
| <u>T-O-C:</u> | Troweled-On Ceiling |
| <u>T-O-W:</u> | Troweled-On Wall |
| <u>TSI:</u> | Thermal System Insulation |
| <u>VFT:</u> | Vinyl Floor Tile |
| <u>HOMO #:</u> | Homogeneous Material Number |