



10 Lewis Street
P.O. Box 284
Lincoln, MA 01773
617-259-0800
FAX #617-259-1355

ASBESTOS MANAGEMENT PLAN

FOR

John Greenleaf Whittier Middle School
256 Concord Street
Haverhill, MA 01830

Prepared By:

HUNTER, INC.
Environmental Sciences
10 Lewis Street
Lincoln, Massachusetts 01773

Draft Report Dated:
October 19, 1988

Final Report Dated:
April 28, 1989



CITY OF HAVERHILL

MASSACHUSETTS 01830-5875

AUDITING DEPARTMENT

Room 106 - City Hall

(508) 374-2306

Fax (508) 521-4348

WILLIAM J. KLUEBER

City Auditor

May 5, 1989

To Whom It May Concern:

The City of Haverhill will float a Bond Issue to complete work required by AHERA Regulations as outlined in the Management Report. The recommendations of Hunter Environmental, Inc. will be carried out during a three-year period, beginning July 9, 1989.

William J. Klueber
WILLIAM J. KLUEBER

Director of Finance

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INTRODUCTION

The Management Plan is an ongoing system. It is altered after each reinspection, every operations and maintenance activity, and at the completion of all response actions.

In addition to the plan itself, AHERA requires the maintenance of records associated with various sections of the plan. The records will be maintained in a centralized location in the administrative offices of the school and of the Local Educational Agency ("LEA").

These records will be referred to in the Management Plan as the "associated records" and will constitute a part of this Management Plan.

The Haverhill School District is a local educational agency ("LEA") within the meaning of the Asbestos Hazard Emergency Response Act ("AHERA"). AHERA requires each LEA to prepare a Management Plan for each school building, submit it for approval by October 12, 1988 (unless an extension has been applied for by that date), and maintain copies in both the school district's administrative office and the school building to which it applies.

Each Management Plan must provide:

- o A description of inspections conducted before December 14, 1987 and response actions and preventive measures based on these inspections.
- o The date of the inspection (or reinspection) on which the Management Plan is based and, the credentials of the inspector.
- o A diagram or written description of each school building identifying the location and square or linear footage of:
 - a) Homogeneous areas where material was sampled for asbestos-containing material ("ACM") with locations of samples and details of the sample collection.
 - b) Homogeneous areas where friable suspected asbestos-containing building material ("ACBM") is assumed to be ACM.
 - c) Homogeneous areas where non-friable ACBM is assumed to be ACM.
- o A description of the manner used to determine sampling locations and the name, signature and credentials of the inspector who took the samples.

- o A copy of laboratory results and the credentials of the laboratory.
- o Assessments classifying all ACBM and suspected ACM according to the EPA seven category classification code, and the credentials of the person who made the assessments.

Each plan must also provide:

- o The identity of the LEA's designated asbestos coordinator and a description of the designated person's training.
- o The recommendations for response actions made by the management planner and the management planner's credentials.
- o A detailed description of preventive measures and response actions to be taken for any friable ACBM including locations of such materials, reasons for selecting these measures and a time table for implementing them.
- o A statement that the LEA has used, and will use, accredited persons for inspections and response actions.
- o A detailed description by diagram, or in writing, of any ACBM or suspected ACBM assumed to be ACM, which remains in the school once response actions have been taken (to be updated as these are completed).
- o Plans for: periodic reinspections, operations and maintenance activities and periodic surveillance.
- o The recommendations made by the management planner, regarding extra cleaning after the initial post-inspection cleaning of areas, where friable ACBM or damaged thermal system insulation has been identified, and the LEA's response to that recommendation.
- o A description of the plan and the steps taken to inform workers, building occupants or their guardians about inspections, planned response actions and periodic reinspection and surveillance.
- o An evaluation of the resources needed for response actions, reinspections, operations and maintenance, periodic surveillance and training.
- o Additional information on the credentials of each consultant contributing to the Management Plan.
- o At the option of the LEA, a statement by the management planner that the plan is in compliance with the applicable AHERA regulations.

- o A description of the steps taken to notify in writing, parent, teacher and employee organizations of the availability of the Management Plan and a dated copy of such notification. In the absence of such organizations, the steps taken to notify the groups in question including dated copies of written notifications.
- o A certification by the LEA's designated asbestos coordinator that the LEA's responsibilities have been met or will be met.



All State Abatement Professionals, inc.

60 Railroad Street
Haverhill, MA 01835

508-975-ASAP
Fax: 508-374-5336

ASBESTOS PROPOSAL

April 6, 1995

City of Haverhill
Attn: Frank DiStefano
4 Summer Street
Haverhill, MA 01831

Re: Asbestos Abatement @ Whittier School

Dear Frank:

This proposal is submitted in accordance with your invitations to provide quotation for asbestos abatement and decontamination services.

The undersigned, having examined carefully the site upon which the work is to be performed and having become familiar by the investigation with the various conditions which may affect the work, agrees to furnish all materials, to perform all labor, to furnish all equipment and otherwise to do all the things necessary to complete, in a competent and workmanlike manner, the contracted work, in strict accordance with EPA, OSHA, State and Local Regulations to your complete satisfaction and acceptance for work covering the following scope of work:

A. SCOPE OF WORK:

The scope of work includes asbestos abatement services as follows:

1. Preparation and isolation of work area.
2. Installation of engineering controls and decontamination system.
3. Removal of approximately 100 square feet of VAT from 8 locations.
4. Decontamination of all surfaces.
5. Encapsulation of all surfaces with lock-down encapsulation.
6. Final air clearance testing
7. Disposal of all asbestos debris.

B. SPECIAL CONDITIONS:

Owner will provide the following:

- Supply all electrical and water requirements.
- Relocate all movable items not contaminated from work area.

Contractor will provide the following:

- Make all necessary notifications to all local, state and federal regulations.
- Do all work during a mutually agreed upon schedule to least disrupt day to day activities.

C. CLOSE-OUT DOCUMENTATION:

Upon completion of the work specified, documentation for the completed project will be submitted to the owner. This documentation is a crucial element in the assurance against any legal entanglements or litigation's. This comprehensive package is a standard service provide by *ASAP* which ensures the total completion of all contracted work.

D. PRICE:

- Price is based on doing work on a mutually agreed upon schedule.
- Price reflects one million dollars of occurrence asbestos insurance and general liability insurance and statutory required worker's compensation insurance.
- Price includes all OSHA required air samples.
- Price includes final air clearance testing.

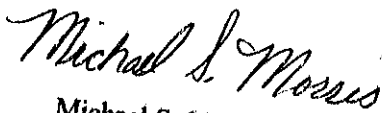
Project Cost: Total cost to perform the scope of work is as specified:

Asbestos Abatement Services:.....	\$1,080.00
Air Monitoring services performed by an independent firm.....	\$ 450.00
Total Project Cost:.....	\$1,530.00

E. TERMS: Net 30 days.

Thank you for the opportunity to be of service to you. If you have any questions or need any additional information, please feel free to contact me at (508) 975-*ASAP*.

Sincerely,



Michael S. Morris
Vice President/Sales

ACCEPTED BY: _____ DATE: _____



10 Lewis Street
P.O. Box 284
Lincoln, MA 01773
617-259-0800
FAX #617-259-1355

MEMORANDUM

TO: Massachusetts Department of Labor & Industries
FROM: Hunter, Inc.
SUBJECT: AHERA Management Plans - Corrections, Additions
DATE: April 12, 1989

- Statement that laboratory meets the applicable requirements of 763.87 (a). See attachment A.
- Recordkeeping - name and signature of any person collecting any air sample required at the completion of the action. See Section VII Response Actions, B, 4.
- Employee Training which has occurred since December 14, 1987. See attachment B.
- Note revised forms AA006, AA007
- Homogeneous ACM/ACBM areas are categorized as follows:

<u>Thermal System Insulation</u>	<u>Surfacing Material</u>	<u>Miscellaneous Material</u>
Boiler coverings	Sprayed-on fireproofing	Floor tiles
Water tank covering	Friable acoustical plaster	Ceiling tiles
Compressors	Friable decorative plaster	Transite
Air handling	Textured wall/ceiling surfaces,	Stage curtains
Pipe insulation	except concrete like materials	Lab gloves
Pipe joint valve		Roofing felts
Fitting elbow insulation		Vibration
Breeching insulation		Isolator
Duct insulation		Linoleum

A. Thermal System Insulation

- at least 3 bulk samples from each area
- at least 1 bulk sample from patched areas < 6 linear or square feet.

- sufficient number of samples from each insulated mechanical system to determine whether material is ACM
- B. Surfacing Material - friable
- at least 3 bulk samples from each area \leq 1000 square feet
 - at least 5 bulk samples for area $>$ 1000 square feet and \leq 5000 square feet
 - at least 7 bulk samples for area $>$ 5000 square feet
- C. Friable/Non-Friable Miscellaneous Material
- sufficient number to determine whether material is ACM
- D. For Non Friable Suspected ACBM
- sufficient number to determine whether material is ACM

STATEMENTS AND CERTIFICATIONS

USE OF ACCREDITED LABORATORY

ALL BULK SAMPLES COLLECTED WERE ANALYZED BY THE MICROSCOPY LABORATORY OF HUNTER, INC., 10 LEWIS STREET, LINCOLN, MASSACHUSETTS 01773. THE LABORATORY MEETS ALL REQUIREMENTS OF 40 CFR 763.87.

ALL SAMPLES TAKEN FROM THE SUSPECT MATERIALS WERE ANALYZED FOR ASBESTOS CONTENT BY PLM USING THE "INTERIM METHOD FOR THE DETERMINATION OF ASBESTOS IN BULK INSULATION SAMPLES" APPENDIX A, SUBPART F, 40 CFR PART 673.



(SIGNATURE)

V.P. Lab Director

(TITLE)

MASS. STATE CERTIFICATION # AA000033

EPA # 1373, NVLAP #1560

DEPARTMENT OF INSPECTIONS & HEALTH REGULATIONS

City Hall, 4 Summer Street

FAX: 1-508-521-4348

HEALTH AND ENVIRONMENTAL DIVISION
Board of Health 508-374-2325
508-374-2430
Conservation 508-374-2334



BUILDING/ZONING ENFORCEMENT DIVISION
Building Inspector 508-374-2338
Gas/Plumbing 508-374-2341
Sealer of Wgt./Measures 508-374-2341
Wire Inspector 508-374-2341

CITY OF HAVERHILL
MASSACHUSETTS 01830-5882

THEODORE A. PELOSI, JR.
MAYOR

18 November 1993

Mr. Jerry Quatrale
Principal Concord Street School
John Greenleaf Whittier
RE: Asbestos Abatement In Boiler Room

Mr. Quatrale,

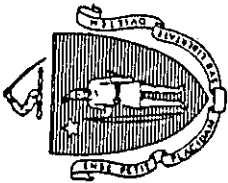
I was notified of a problem relating to asbestos in the boiler room of your building on November 16, 1993. The second boiler has apparently developed a small pressure leak in the boiler jacket, which caused water to penetrate the asbestos covering on the boiler.

The asbestos material became extremely heavy after being water logged, and pulled away from the boiler. Public property was notified and responded by hiring a fully licensed asbestos abatement company to remove all the loose asbestos material and repair the remaining material so as to be secure. As I write this letter arrangements are being made to do the work as described on Saturday, November 20, 1993. This will in no way affect the students or personnel as the area will be tested by air monitoring. Hopefully all will proceed as scheduled and school should be in session on Monday next.

Sincerely,

E.H. Dufresne
E.H. Dufresne
Asbestos Co Ordinator
Public Schools

DEP Waiver # 9311905
John McCulley
Fax Addendum



THE COMMONWEALTH OF MASSACHUSETTS
Department of Labor and Industries

ASBESTOS ABATEMENT PROGRAM

CERTIFICATION FOR ANALYTICAL SERVICES

In accordance with 453 CMR 6.04

Certificate No. A A 000033

is issued by the Commissioner of the Department of Labor and Industries to:

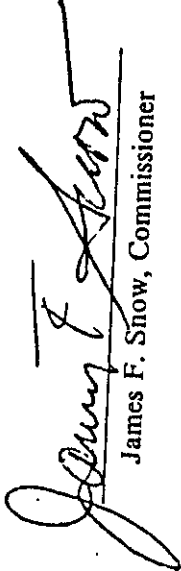
HUNTER, INC.
P.O. BOX 284
LINCOLN

MA 01773

for the purpose of providing analytical services as specified in Form CAAS.

This license is valid for a period of one (1) year.

from 06/29/88 to 06/29/89


James F. Snow, Commissioner

II. GLOSSARY

"Abatement Project Designer" - A person who determines how asbestos abatement work should be conducted and who prepares for the abatement project, plans, designs, procedures, scope of work or other substantive direction or criteria.

"Action Level" - An airborne concentration of asbestos, 0.1 fibers per cubic centimeter of air calculated as an 8 hour TWA (time weighted average). This is the required level at which employee training, air monitoring and medical surveillance is needed. (OSHA 29 CFR)

"Amended Water" - Tap water to which a non-sudsing surfactant is added.

"ACBM" - Asbestos-containing building materials.

"ACM" - Asbestos-containing material and means any material containing more than one percent asbestos.

"AHERA" - The acronym for the federal law and regulations that require local education agencies to identify friable and non-friable asbestos-containing material (ACM) in public and private elementary and secondary schools. "AHERA" itself stands for "Asbestos Hazard Emergency Response Act."

"Asbestos" - Any naturally occurring hydrated mineral silicate separable into commercially usable fibers, including chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthophyllite and actinolite.

"Asbestos Abatement Worker" - A person not acting as a foreperson or supervisor who performs asbestos abatement work.

"Asbestos Abatement Project Monitor" - A person who functions as the on-site representative of the facility owner or other persons by over-seeing the activities of the asbestos contractor.

"Asbestos Contaminated Objects" - Any objects which have been contaminated by asbestos or ACM.

"Baseline Monitoring" - A measurement or determination of airborne asbestos fiber concentration inside the work area and outside work area prior to starting abatement activities.

"DLI" - The Massachusetts Department of Labor and Industry.

"Disturb" - Any action taken which may alter, change or stir, such as, but not limited to the removal, encapsulation, enclosure or repair of ACM.

"Emergency Asbestos Project" is an asbestos abatement project resulting from an unforeseeable, sudden and unplanned event. This includes operations required by non-routine equipment failures.

"Encapsulant" - Spraying of ACM with a sealant, using an airless sprayer to reduce the tendency of the material to release fibers. Two types of encapsulant are commonly used, bridging (surface binding) and/or penetrating.

"Enclosure/Containment" - The covering or wrapping of friable ACM in, under, or behind air-tight barriers.

"EPA" - The U.S. Environmental Protection Agency.

"Fiber" - A particulate form of asbestos, tremolite, anthophyllite or actinolite, 5 micrometers or longer with a length to diameter ratio of at least 3 to 1. (OSHA definition)

"Fibrous" - Spongy, fluffy, composed of long strands of fibers.

"Friable" - Capable, when dry of being crumbled, pulverized or reduced to powder by hand pressure. (EPA definition) A further definition by the Mass. DLI is the characteristic of friability shall apply to the asbestos material and is not influenced or affected by coverings, coatings, or other means of separating asbestos materials by hand.

"Functional Space" - A room, group of rooms, or homogeneous areas (including crawl spaces on the space between a dropped ceiling and the floor or roof deck above) such as classroom(s), a cafeteria, gymnasium or hallway(s), designated by a person accredited to prepare management plans, design abatement projects or conduct response actions.

"High Efficiency Particulate Air (HEPA) Filter" - A filter capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger. (OSHA definition)

"Homogeneous" - Similar in appearance, color and texture. (EPA AHERA definition)

"Incidental Exposure" - Occupational exposure to asbestos fibers caused to oneself by disturbing ACM during the performance of one's job, except during the performance of an asbestos project or minor project.

"Isolation Barrier" - The construction of partitions, the placement of solid materials, and the plasticizing of apertures to seal off the work place from surrounding areas and to contain asbestos fibers in the work area.

"Log" - An official record of all activities involving the disturbance of ACM or asbestos fibers that occurred during each day.

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

"NIOSH" - The National Institute for Occupational Safety and Health.

"OSHA" - The Occupational Safety and Health Administration.

"PEL" - Permissible Exposure Limit. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.2 fibers per cubic centimeter of air as an 8 hour time weighted average (TWA). (OSHA definition)

"PCM" - Phase Contrast Microscopy is used for measuring concentrations of airborne asbestos fibers. It will be gradually phased out for the analysis of final air clearance samples for all but small asbestos projects. (See "TEM" below) The acceptable release criterion using this method is less than 0.01 f/cc, the acceptable and EPA recommended analytical method is by NIOSH 7400.

"PLM" - Polarized Light Microscopy is used in the analysis of bulk samples, this method identifies particle properties such as, color, morphology, surface texture, reflectivity and refractivity.

"Personal Exposure Monitoring" - The taking of an air sample on an asbestos handler, or a person exposed to asbestos fibers to be in compliance with OSHA rules and regulations regarding worker protection and exposure to asbestos fibers.

"Protective Clothing" - Disposable clothing for covering head, hand, foot and full body; this shall also include hard hats, protective eye goggles, gloves and rubber boots.

"Regulation 453 CMR 6.00" - The Massachusetts regulation governing the removal, containment, or encapsulation of asbestos, effective 11/30/87, with the required licensing and certificates effective May 2, 1988.

"Renovation" - Means the modifying of any existing structure, or portion thereof where exposure to asbestos or ACM may result. (OSHA definition)

"Repair" - Corrective action using specified work practices; e.g. glove bag, plastic tent procedures, etc. to minimize and control the likelihood of fiber release from minor damaged areas of ACM. A further definition from the AHERA law means returning once damaged ACBM to an undamaged condition, or to an intact state to prevent fiber release. OSHA defines repair in 29 CFR 1926.58 to mean overhauling, rebuilding, reconstructing or reconditioning of structures or substrata where asbestos, or ACM is present.

"Replacement Material" - Any material used to replace ACM that contains no asbestos fibers.

"Risk" - The likelihood of developing a disease as a result of exposure to a contaminant.

"Small-Scale, Short Duration Activities" - Those activities that involve the disturbance of three square feet or three linear feet of ACM. (EPA definition. Please see pages 41894 and 41895 of the Final AHERA Rules and Regulations.)

"Spot Repair" - The removal, enclosure or encapsulation of asbestos or ACM, where such activity may involve or disturb less than three square feet or three linear feet of ACBM or ACM. (DLI definition)

"Surfactant" - A chemical added to water to allow for easy penetration of ACBM in preventing fiber release.

"TEM" - Transmission Electron Microscope (Microscopy) used for measuring concentrations of airborne asbestos fibers. This method of analysis, although much more expensive than PCM, will be phased in for final air clearance of all projects over 160 square ft or 260 linear ft within the next two years.

"Work Area" - Designated rooms, spaces, or areas of the building or structure where asbestos abatement activities take place.

III. GOVERNMENTAL AGENCIES CONCERNED WITH ASBESTOS

Massachusetts Department of Environmental Quality
Engineering
Laurel Jenny Carlson, Program Development
Division of Air Quality
One Winter Street, Eighth Floor
Boston, MA. 02108 (617) 292-5630

Phone #'s

DEQE Regional Office:

Metro Boston.....(617) 727-5194
Southeast.....(617) 727-1440
Central.....(617) 792-7653
West.....(413) 785-5327

Massachusetts Department of Labor and Industry
Frank Kramarz, Project Engineer
Division of Occupational Hygiene
Asbestos Program
1001 Watertown Street
West Newton, MA. 02165 (617) 727-3982 or 1932

EPA Asbestos Coordinator
Alison Roberts
EPA Region One
JFK Federal Building
Boston, MA. 02202 (617) 565-3275

EPA NESHAPS Regional Coordinator
Donald Dahl, Regional Coordinator
EPA Region One
JFK Federal Building
Room 2311
Boston, MA. 02203 (617) 565-3266

IV. INSPECTIONS CONDUCTED BEFORE DECEMBER 14, 1987

Inspections performed before December 17, 1987 were reviewed by the inspector who prepared the inspection report set forth in Appendix A. Copies of these previous reports are set forth in Appendix B to this Management Plan. These provide, to the extent available the dates of each inspection, diagrams or written descriptions of the square or linear footage of areas sampled for ACM locations or samples and dates of their collection as well as laboratory documentation of sampling results and dates of analyses.

V. RESPONSE ACTIONS OR PREVENTIVE MEASURES TAKEN BEFORE INITIATING MANAGEMENT PLAN

The LEA had taken the following abatement projects or preventive measures prior to the initiation of this Management Plan.

N/A

Descriptions of these projects are set forth on copies of Form AA012 appearing in Appendix B to this report and contain, to the extent available, the names and addresses of all removal contractors and removal consultants involved, start and completion dates of the work, and results of any air samples analyzed during and upon completion of the work.

VI. SUMMARY OF 1988 INSPECTION REPORT

An inspection report was prepared on October 19, 1988 by C. R. Coe, an AHERA accredited inspector certified to conduct inspections in Massachusetts under Massachusetts State Accreditation number I00133.

The inspection report provided:

- o A written description of each school building that identifies clearly each location and the approximate square or linear footage of homogeneous areas where material was sampled for ACM, the exact locations where each bulk sample was collected, the date of collection, homogeneous areas where friable suspected ACBM is assumed to be ACM and areas where non-friable suspected ACBM is assumed to be ACM.
- o A description of the manner used to determine sampling locations, the name, state of accreditation, state accreditation number and signature of each inspector collecting samples.
- o A copy of the analyses of bulk samples collected and analyzed, the name and address of the laboratory that analyzed them, a statement that the laboratory meets the applicable AHERA requirements and the name and signature of the person performing the analysis.
- o A description of the assessments required to be made under AHERA of all ACBM and suspected ACBM assumed to be ACM, the name, signature, state of accreditation and accreditation number of each person making the assessments.

A copy of the inspection report appears as Appendix A to this Management Plan. A written description that identifies the location and dates of samples taken, and homogeneous areas containing friable and non-friable suspected ACBM assumed to be ACM, is found in Appendix A of the inspection report.

VII. RESPONSE ACTIONS

A. GENERAL

AHERA regulations state that the response actions chosen for other than small scale/short duration repairs, must be designed and conducted by persons accredited to design and conduct response actions. Massachusetts DLI Regulation 453 CMR 6.07 requires the services of certified Abatement Project Designers who meet the requirements set forth in 453 CMR 6.07.

B. CONDUCTING RESPONSE ACTIONS

1. The LEA will incorporate into the Management Plan a record of asbestos removal contractors, abatement project designers and asbestos abatement project monitors involved in response actions undertaken after the submission of the Management Plan, and their accreditation.
2. Future response actions will comply with the permit system governing work performed involving asbestos. Application forms for such permits are provided in section XV of this Management Plan.
3. All worker documentation is included in the associated records.
4. The LEA will incorporate into the associated records for any future response actions, all air monitoring and sample documentation, including the name and signature of each person collecting air samples, location where taken, date of collection, name and address of laboratory, date of analysis, results, methods, name and signature that the laboratory meets AHERA and Massachusetts requirements.
5. The LEA will incorporate into the associated records for any future response actions, all related disposal documentation including hauling permits and signed chain of custody sheets.
6. For any future response actions, the LEA will incorporate into the associated records copies of all notification documentation. The required notification, typically will be sent by the removal contractor to EPA Air Pollution Control-Region I; DEQE, Northeast Regional Office; and DLI - Asbestos Control Technical Service, Division of Industrial Safety.

7. The LEA will incorporate all other submittals required by project specifications in the associated records.

C. RESPONSE ACTION CHOSEN

At the end of Appendix D, Response Actions, the accredited Management Planner has put in writing his or her recommendations for the appropriate response actions. Included with the recommendations are the data, the certification numbers and the management planner's signature. These recommendations were submitted to the designated person. The LEA has considered these recommendations and adopted them or the alternatives shown for the reasons indicated below. In all cases, the selection was made only after a determination that all the alternatives under consideration would protect public health and the environment.

The following legend has been used to show the reasons for the choices made:

- A - The selected action is required by applicable law.
- B - To avoid the cost and inconvenience of long-term O & M.
- C - To avoid the possibility of future damage.
- D - The cost of the selected action compared favorably with the costs of possible alternative actions.
- E - Other reasons: (An explanation is provided by the LEA at the conclusion of this section).

1. REMOVAL

<u>WORK AREAS</u>	<u>SCHEDULE START</u>	<u>SCHEDULE FINISH</u>	<u>REASON FOR CHOICE</u>
Classrooms			
Roof Drains			
(Gym, Home Ec., Storage Area, Duct Rm. 68, Kitchen)	7/1/90	6/1/92	B
Pipe Chases and Crawl Spaces			
Pipe Covering and Hard Fittings	7/1/90	6/1/92	B

OPERATIONS AND MAINTENANCE - Continued...

D. OTHER REASONS FOR SELECTING THE CHOSEN RESPONSE ACTIONS, INDICATED BY AN "E" IN THE COLUMN "REASON FOR CHOICE" ARE SET FORTH BELOW.

NOTE: All areas will be treated under Operation and Maintenance prior to and subsequent to response action as long as asbestos (ACBM) exist.



Commonwealth of Massachusetts
Asbestos Notification Form — ANF-001

719273

A Asbestos Abatement Description

INSTRUCTIONS

1. All sections of this form must be completed in order to comply with the Department of Environmental Protection notification requirements of 310 CMR 7.15 (ten working days prior notification is required of any abatement project) and the Department of Labor and Industries notification requirements of 453 CMR 6.12 (ten days prior notification is required of ANY abatement project greater than three linear or square feet).

2. Submit Original Form To: Commonwealth of Massachusetts Asbestos Program P.O.B. 120087, Boston, MA 02112-0087

3. This form may be used for notifying the U.S. Environmental Protection Agency Region I of asbestos demolition/renovation operations subject to NESHAPS (40 CFR Subpart M).

For Official Use Only
Notification #
Received Date
Receiver
Permit Approved/Denied
Decision Date

1. Facility location: WHITTIER SCHOOL 256 CONCORD ST.
Name: HAVERHILL Address: 01830 508 374-5782
City/Town: Zip code Telephone
5 CLASS ROOMS
What is the worksite location? building name, #, wing, floor, room
2. Is the facility occupied? [X] Yes [] No
3. Asbestos Contractor: AIR QUALITY EXPERTS, INC. 40 LOWELL RD., UNIT 1
Name Address
SALEM, NH 03079 603-894-6465
City/Town Zip code Telephone
AC 000167 WRITTEN
DLI License # Contract Type (written/oral)
4. On-Site Project Supervisor/Foreman: CHRISTOPHER THOMPSON SF07797
Name DLI Certification #
5. Project Monitor: FINAL CLEARANCE ANALYSIS AA000085
Name DLI Certification #
6. Asbestos Analytical Lab: SAME
Name DLI Certification #
7. Project start date 06/23/97 end date 06/27/97 specific work hours (Mon.-Fri.) 7-5 (Sat. Sun.)
8. What type of project is this? (circle one): demolition repair renovation other (explain)
9. Describe the asbestos abatement procedures to be used (circle): glove bag enclosure full containment cleanup
encapsulation disposal only other (explain)
10. Is the job being conducted [] indoors [] outdoors?
11. Total amount of each type of Asbestos Containing Materials (ACM) to be handled on pipes or ducts (linear ft.) or other surfaces (square ft.) 4500 to be removed, enclosed or encapsulated:
linear/square feet
boiler, braaching, duct, tank surface coatings
thermal, solid core pipe insulation
corrugated or layered paper pipe insulation
insulating cement
spray-on fireproofing
trowel/sprayer coatings
cloths, woven fabrics
transite board, wall board
other (please describe): V.A.T. M.A.S.T.I.C. 4500
12. Describe the decontamination system(s) to be used: FULL CONTAINMENT
13. Describe the containerization/disposal methods to comply with 310 CMR 7.15 and 453 CMR 6.14(2)(g): NET REMOVAL INTO 6MIL POLY ASBESTOS LABELED BAGS
14. For Emergency Asbestos Abatement Operations, the DEP and DLI officials who evaluated the emergency:
Name of DEP Official Title
Name of DLI Official Title
15. Do prevailing wage rates apply as per M.G.L. c. 149, § 26, 27, or 27A - F to this project? [X] Yes [] No

NOTIFICATION OF DEMOLITION AND RENOVATION

PROJECT ID: _____ POSTMARK: _____ DATE RECEIVED: _____ NOTIFICATION: _____

TYPE OF NOTIFICATION (O-ORIGINAL R-REVISED C-CANCELLED): _____ WPR Notice: _____

FACILITY INFORMATION (IDENTIFY OWNER, REMOVAL CONTRACTOR, AND OTHER OPERATOR)

OWNER NAME: CITY OF HAVERHILL

ADDRESS: 4 Summer St.

CITY: HAVERHILL STATE: MA ZIP: 01830

CONTACT: MRS. BURDELL TEL: 508-374-2309

REMOVAL CONTRACTOR: AIR QUALITY EXPERTS, INC.

ADDRESS: 40 LOWELL RD, #1

CITY: SALEM STATE: NH ZIP: 03079

CONTACT: MAUREEN THOMPSON TEL: 603-894-6448

OPERATOR: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

CONTACT: _____ TEL: _____

TYPE OF OPERATION (D-DEMO O-ORDERED DEMO R-RENOVATION EMER.RENOVATION): R

IS ASBESTOS PRESENT (YES/NO): yes

FACILITY DESCRIPTION (INCLUDE BUILDING NAME, NUMBER AND FLOOR OR ROOM NUMBER)

BLDG NAME: WHITTIER SCHOOL

ADDRESS: 256 CONCORD ST

CITY: HAVERHILL STATE: MA COUNTY: 01830

SITE LOCATION: 5 CLASSROOMS

BUILDING SIZE: 45,000 NUM OF FLOORS: 2 AGE IN YEARS: 10 YEARS

PRESENT USE: _____ PRIOR USE: _____

PROCEDURE, INCLUDING ANALYTICAL METHOD, IF APPROPRIATE, USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL:

PLM

VII. APPROXIMATE AMOUNT OF ASBESTOS, INCLUDING:

1. REGULATED ACM TO BE REMOVED 2. CATEGORY I ACM NOT REMOVED 3. CATEGORY II ACM NOT REMOVED	TYPICAL THICKNESS TO BE REMOVED	NONFRIABLE ASBESTOS MATERIAL NOT TO BE REMOVED		INDICATE UNIT OF MEASUREMENT USED	
		CAT I	CAT II	UNIT	UNIT
PIPES				Ln Ft:	Ln m:
SURFACE AREA <u>TILE & MASTIC</u>	<u>4500</u>			Sq Ft: <u>X</u>	Sq m:
VOL RACK OFF FACILITY COMPONENT				Cu Ft:	Cu m:

VIII. SCHEDULED DATES ASBESTOS REMOVAL (MM/DD/YY) START: 6/23/97 COMPLETE: 6/27/97

IX. SCHEDULED DATES DEMO/RENOVATION (MM/DD/YY) START: 6/23/97 COMPLETE: 6/27/97

NOTIFICATION OF DEMOLITION AND RENOVATION (continued)

X. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION WORK, AND METHOD(S) TO BE USED.
 REMOVE 4500 SF VAT AND MASTIC BY WHOLE PIECE + SOLVENT.

XI. DESCRIPTION OF WORK PRACTICES AND ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE DEMOLITION AND RENOVATION SITE:
 WET REMOVAL - MANDATED WATER INTO 4 MIL DOUBLE POLY BAGS UNDER FULL CONTAINMENT.

XII. WASTE TRANSPORTER #1
 Name: AIR QUALITY EXPERTS, INC.
 Address: 40 LOWELL RD #1
 City: SALEM State: NH Zip: 03079
 Contact Person: MAUREEN THOMPSON Telephone: 603 894 6466

WASTE TRANSPORTER #2
 Name: J.O.B. ROLLOFF
 Address: PO BOX 6037
 City: CHELSEA State: MA Zip: 02150
 Contact Person: JOE BERNIER Telephone: 617 387 1495

XIII. WASTE DISPOSAL SITE
 Name: TURNKEY LANDELL
 Location: 90 ROCHESTER NECK RD.
 City: ROCHESTER State: NH Zip: 03330
 Telephone: 603 330 0217

XIV. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, PLEASE IDENTIFY THE AGENCY BEING ORDERED.
 Name: Title:
 Authority:
 Date of Order (MM/DD/YY): Date Ordered to Begin (MM/DD/YY):

XV. FOR EMERGENCY RENOVATIONS
 Date and Hour of Emergency (MM/DD/YY):
 Description of the Sudden, Unexpected Event:
 Explanation of how the event caused unsafe conditions or would cause equipment damage or an unreasonable financial burden:

XVI. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR PREVIOUSLY NONFRIABLE ASBESTOS MATERIAL BECOMES CRUMBLING, PULVERIZED, OR REDUCED TO POWDER. A/E/A WILL BE IMMEDIATELY CONTAINED, EPA + ALL OTHER AGENCIES WILL BE NOTIFIED

XVII. I CERTIFY THAT AN INDIVIDUAL TRAINED IN THE PROVISIONS OF THIS REGULATION (29 CFR PART 61, SUBPART M) WILL BE ON-SITE DURING THE DEMOLITION OR RENOVATION AND THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION DURING NORMAL BUSINESS HOURS. (Required 1 year after promulgation)
 Signature of Owner/Operator: Christopher Thompson Date: 5/23/97

XVIII. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT.
 Signature of Owner/Operator: Christopher Thompson Date: 5/23/97

DEPARTMENT OF INSPECTIONS & HEALTH REGULATIONS

City Hall, 4 Summer Street

FAX: 1-508-521-4348

HEALTH AND ENVIRONMENTAL DIVISION

Board of Health

508-374-2325

508-374-2430

Conservation

508-374-2334



BUILDING/ZONING ENFORCEMENT DIVISION

Building Inspector

508-374-2338

Gas/Plumbing

508-374-2341

Sealer of Wgt./Measures

508-374-2341

Wire Inspector

508-374-2341

CITY OF HAVERHILL

MASSACHUSETTS 01830-5882

THEODORE A. PELOSI, JR.
MAYOR

August 12, 1993

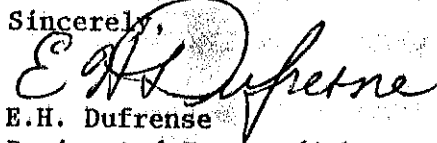
Mr. Joseph Paparella
Mass. Department of Environmental Protection
RE: Whittier School, Concord Street,
Haverhill, MA

D.E.P. File #9308969

Dear Sir:

This letter is a follow up to our telephone conversation on July 9, 1993. You requested the name and business address of the Asbestos Abatement Contractor at the Whittier School located on Concord Street in Haverhill, MA. The name of the company is Sencam Inc., the address is 140 Marston Street, Lawrence, MA, business telephone is (508) 683-7767. They will be removing approximately 2 square feet of cementitious type asbestos material four inches thick. This material is located under a return condensation water tank in the boiler room of the school. The material is totally saturated with water leaking from the tank making the removal process relatively easy. If you have any questions regarding this matter please call me at my office, area code (508) 374-2342, I am at this number from 8-9 A.M. and 3-4 P.M. five days a week.

Sincerely,


E.H. Dufrense

Designated Person (Asbestos)

DEPARTMENT OF INSPECTIONS & HEALTH REGULATIONS

City Hall, 4 Summer Street

FAX: 1-508-521-4348

HEALTH AND ENVIRONMENTAL DIVISION
Board of Health 508-374-2325
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CITY OF HAVERHILL
MASSACHUSETTS 01830-5882

THEODORE A. PELOSI, JR.
MAYOR

August 12, 1993

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Mass. Department of Environmental Protection
RE: Whittier School, Concord Street,
Haverhill, MA

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This letter is a follow up to our telephone conversation on July 9, 1993. You requested the name and business address of the Asbestos Abatement Contractor at the Whittier School located on Concord Street in Haverhill, MA. The name of the company is Sencam Inc., the address is 140 Marston Street, Lawrence, MA, business telephone is (508) 683-7767. They will be removing approximately 2 square feet of cementitious type asbestos material four inches thick. This material is located under a return condensation water tank in the boiler room of the school. The material is totally saturated with water leaking from the tank making the removal process relatively easy. If you have any questions regarding this matter please call me at my office, area code (508) 374-2342, I am at this number from 8-9 A.M. and 3-4 P.M. five days a week.

Sincerely,


E.H. Dufrense
Designated Person (Asbestos)

VIII. OPERATIONS AND MAINTENANCE PROGRAM

- A. The O&M program's objective is to minimize fiber release and exposure to building occupants, while limiting the areas of potential liability. This can be accomplished by cleaning existing contamination and controlling access to friable or potentially friable asbestos. The procedures for establishing and carrying out the O&M program are set forth in Appendix E: Operations and Maintenance Manual. Each worker will be provided with a copy of the manual. O&M procedures are not sufficient for ACM that is severely damaged or located in certain areas, such as those that are especially vulnerable to such damage. All O&M activities to be performed will be documented and included in the associated records.
- B. The following factors are to be considered in implementing the O&M program:
1. Adherence to the EPA "Worker Protection Rule" 40 CFR Part 763, effective March 27, 1987: This rule applies major provisions of OSHA's regulation Occupational Exposure to Asbestos.
 - a. The LEA must report to the EPA Regional Asbestos Coordinator and the DLI at least 10 days before the LEA begins abatement of more than 3 linear or 3 square feet of friable asbestos material.
 - b. This law protects all employees in the building from occupational exposure to airborne asbestos. Provisions of this law allow for:

Employee Personal Air Monitoring: Must be taken on those employees who are or may reasonably expect to be exposed to airborne concentrations at or above the action level. Monitoring does not have to be performed, if the LEA has historical documentation or has sufficient objective data that demonstrates asbestos can not be released in airborne concentrations at or above the action level.

Regulated Areas: Access must be limited in areas where the PEL is exceeded.

Respiratory Protection: Respirators must be used in maintenance and repair activities, emergencies, and in situations where engineering controls and work practices preventing fiber release are not feasible.

Protective Clothing: Includes coveralls, head covering, gloves and foot covering.

Hygiene Facilities and Practices: Employer shall provide clean change rooms and shower facilities for areas where employee exposure to airborne asbestos is deemed high.

Communications of Hazards: Warning signs must be posted at all regulated areas.

Housekeeping: Surfaces must be kept free of asbestos containing dust, waste and debris. Any spills must be cleaned as soon as possible by wet cleaning or vacuuming. HEPA-filtered vacuums will be used for vacuuming. Asbestos waste shall be disposed of in sealed, impermeable bags or containers. See Cleaning, Section X.

Medical Surveillance: A recorded medical surveillance program shall be instituted for employees exposed to airborne concentrations of asbestos at or above the action level. Medical exams will be given to an employee prior to assignment to an occupation where there is exposure to airborne asbestos. A licensed physician knowledgeable in the requirements of this rule will be used. Use Form AA001 for documentation.

Recordkeeping: Accurate records of all monitoring will be kept for at least 30 years.

2. Training: Prior to any repairs or O&M activities involving the disturbance of ACM, all workers must undergo the respective training as discussed in Section IX Training.
3. Cleaning: Initial (and subsequent) cleaning utilizing HEPA vacuuming and wet methods is discussed in Section X Cleaning and in Appendix D: Operations and Maintenance Manual.

C. Accredited persons will be used for any projects that are not small in scale or of short duration.

1. An accredited project designer shall design any projects larger than small scale.
2. The persons conducting the response action will be accredited.

D. Fiber Release Episodes, See Section XIII

1. Minor release episodes can be handled by the O&M personnel. Major fiber release episodes involve O&M only so far as to have the O&M personnel post signs, restrict access and shut down the HVAC system.

E. Cost Considerations For O&M

The following elements have been taken into consideration in estimating O&M costs:

1. Initial purchases of supplies and equipment.
2. Training fees, including estimate of payroll expense for trainees, expendable supplies used in training, and increase in salaries or fringe benefits of employees who perform O&M activities.
3. Clerical costs for the upkeep of the records on all O&M activities. These include cost of supervision, inspection and management of clerical staff.
4. Medical surveillance for O&M employees.
5. Cost of the actual repair work performed.
6. Professional fees, including consultants' fees and legal expenses.
7. Air monitoring, including the cost of sample analysis and sampling equipment.

IX. TRAINING

A. There are three levels of training for worker personnel. The appropriate level for an individual depends upon the nature of his or her work.

1. Training for all custodians and maintenance workers involved in cleaning or simple building maintenance.

a) A yearly 2 hour awareness program.

b) Every new employee must have the awareness training within 60 days of his or her hiring date.

c) Training for each employee shall include, but not be limited to, the following:

o Information regarding asbestos and its various forms and uses.

o Information on related health effects.

o Locations of ACBM identified throughout the building in which the employee works.

o Recognition of damage, deterioration, and delamination of ACBM.

o Name, address, and phone numbers of the school's designated person, plus the availability and location of the Management Plan.

2. Training for maintenance workers involved in general building maintenance and more complex tasks that will result in the disturbance of ACBM including repairs of ACBM or conduct of O&M small scale/short duration projects:

a. The EPA AHERA training regulations require a 14 hour course, plus the two hour awareness training.

- b. The 14 hour course will include, but not be limited to the requirements of paragraph (a)(1) of section 763.92 of the AHERA document. These requirements are:
 - o Descriptions of the proper methods of handling ACBM.
 - o Information on the use of respiratory protection, as well as other personal protective measures.
 - o The provisions of sections 763.91, and 763.92 of AHERA, Appendixes A, B, C, D, of the Subpart E of AHERA, EPA 40 CFR Part 763 and in 40 CFR Part 61, Subpart M and OSHA regulations in 29 CFR 1926.58. These items are covered in this section, section VIII Operations and Maintenance Program and in the O&M Manual.
 - o Hands on training in the use of respirators, personal protection and good work practices.
 - c. Massachusetts 453 CMR requires a two day training course with a minimum of 4 hours hands on training. If approved by the DLI, the same course can meet the requirements of both the EPA AHERA and the DLI.
3. Training for workers who may conduct asbestos abatement (removal, enclosure & encapsulation) greater than O&M small scale/short duration activities:
- a. To work on asbestos abatement projects involving 3 linear on square feet or more, the workers must obtain EPA accredited Asbestos Abatement Workers training (a three day course) and/or training for asbestos abatement workers required under 453 CMR.

B. Additional Training

1. Any abatement project that is designed by an accredited project designer must be supervised by an accredited on-site supervisor to oversee the abatement workers. The supervision this person must take an EPA accredited 4 day Asbestos Abatement Contractor's and Supervisor's course as required by AHERA.

AHERA requires at least one supervisor be present at the work site at all times when work is in progress.

C. Retraining

1. EPA accredited asbestos workers and supervisors are required to receive a one day refresher course every year to obtain recertification. State licensed asbestos abatement workers and asbestos associated project workers are required to undergo one day retraining to obtain renewal of State certification.
2. All workers will undergo updated retaining programs when it is deemed necessary by the LEA. These programs will be offered to respective personnel to maintain state of the art work practices, to introduce new equipment, and at any other times when new ideas or products are introduced.

X. CLEANING

A. Initial Cleaning

1. Unless the building has been cleaned using equivalent methods within the previous 6 months, all areas of a school building where friable ACBM, damaged or significantly damaged thermal system insulation ACM or friable suspected ACBM assumed to be ACM are present shall be cleaned at least once after the completion of the accredited inspection and before the initiation of any response action, other than O&M repairs or activity, according to the following procedures:
 - a. HEPA vacuum or steam clean all carpets.
 - b. HEPA vacuum or wet clean all other floors or other horizontal surfaces.
 - c. Dispose of all debris, filters, mop heads and cloths in sealed leak-tight containers.

B. Additional Cleaning

1. The accredited management planner shall make a written recommendation to the LEA on whether additional cleaning is necessary, and if so, the methods and frequency of such cleaning.

Note: All abatement activities will include a precleaning of the contaminated areas. This pre-requisite is in conformance with the EPA and AHERA, and will be written into all specifications prepared by the accredited designer. This precleaning will also be performed before any Small-Scale or Short Duration Activities.

XI. SURVEILLANCE/REINSPECTION

A. Periodic Surveillance

1. Scheduled surveillance will be performed every six months, Form AA010 will be used.
2. The 2 hour awareness training includes the training of personnel to recognize changes in the condition of ACBM or ACM, and to report it to the appropriate supervisor.
3. During the scheduled surveillance, a review of training procedures and protocol will be conducted. This will include notice of any changes in the "state of the art" in the asbestos industry.
4. Non-scheduled surveillance is an ongoing event and all maintenance and custodial personnel are trained in the correct procedures.

B. Reinspection

A reinspection of conditions of all ACBM and ACM located in this building by an EPA accredited inspector, is scheduled every three years. The next scheduled reinspection will be performed in July of 1991.

XII. RENOVATION/SMALL SCALE ABATEMENT INVOLVING OUTSIDE PERSONNEL

A. Contractor License

1. No outside contractor shall engage in an asbestos project unless such contractor has a valid asbestos contractor's license issued by the State of Massachusetts.

B. Worker Documentation

1. All workers involved in the disturbance of asbestos containing materials in the course of their scheduled work, must have certified training to handle asbestos.
 - a. The training course attended must be approved by the State of Massachusetts, as well as the EPA.
 - b. Appropriate asbestos abatement workers' certificates and worker documentation must accompany the Contractor Permit Request Form AA006.

C. Permit System

1. The contractor must obtain a Contractor Permit Request, Form AA006 and submit it to the school's Designated Person. Accompanying the permit request must be the contractor's asbestos contractor's license and the supervisor's and worker's asbestos abatement certificates. Also, the contractor must submit the supervisor's and worker's EPA accreditation documentation.
 - a. The contractor must also submit the name of the environmental firm being used for taking air samples and the name of the lab being used for the analytical, as well as the Massachusetts DLI lab certification number. Massachusetts requires separate certification for air sample analysis and bulk sample analysis. Further documentation can be required.
 - b. The workers must also submit a copy of their signed medical release form when working with asbestos and a copy of their respirator fit test documentation.

2. Upon submitting and reviewing the permit request, a work permit will be given on Form AA007 or the request will be denied.
3. At the completion of the work performed, the Designated Person will complete an Evaluation of Renovation/Small Scale Abatement Work, Form AA011 and include it in the record.

XIII. FIBER RELEASE EPISODES

A. Minor Fiber Release Episode

1. A minor release episode is defined as one that involves less than 3 square ft or 3 linear ft of ACM or ACBM. The worker discovering the release must fill out Form AA009.
2. In the event of a minor release, trained workers must immediately don respirators and disposable clothing, thoroughly saturate the debris using wet methods, place the debris in appropriately labeled bags and clean the floor and all affected surfaces by wet mopping and/or HEPA vacuuming. Discard all asbestos debris in appropriate labeled leak-tight containers (including the disposable clothing), and then proceed to a shower.

The area of damage should be patched using appropriate precautions and methods or immediately have an appropriate response action implemented as required in Appendix D of this document.

3. Air monitoring - personal air samples will be taken on all workers involved in the cleanup of the debris. Final air samples will be taken in each area where a fiber release has occurred. PCM can be used, unless TEM is required. PCM analytical procedures shall be used in accordance with the NIOSH 7400 method. Note: Although Mass. 453 CMR allows the use of NIOSH Method P&CAM 239 the EPA AHERA does not.
4. Once the release has been handled, the Designated Person will fill out Form AA008, the Fiber Release Episode Report.

B. Major Fiber Release Episode

1. In the event of a major fiber release (such as the falling or dislodging of more than 3 square or 3 linear feet or a breach in an abatement containment), the air handling units must immediately be modified or shut down to the affected area, all openings to the area must be sealed off and the area should be provided negative air pressure using HEPA filtration, if available. Warning signs must then be posted and access restricted to the area.

2. The discoverer will fill out a Fiber Release Notification, Form AA009 and submit it to the Designated Person.
3. Photographs may be taken of all measures performed to ensure the safety of building occupants and for documentation.
4. An appropriate response action must be designed by an accredited project designer, and the response action must be conducted by accredited persons. This work will include all necessary air sampling and analysis. The work performed must adhere to all applicable laws, including state and federal notifications and the acquisition of a project number, if needed.
5. Upon completion of the cleanup, response action, and the final air clearance, the Designated Person will fill out Form AA011.

XIV. RECORDKEEPING/UPDATING THE MANAGEMENT PLAN

A. Records

Personal air monitoring records and medical monitoring records for employees must be maintained for the duration of employment plus 30 years. For each homogeneous area where all ACBM has been removed, records will be retained for 3 years after the next reinspection required under AHERA regulation 763.85 (b) (1).

B. Drawings

Drawings which accompanied the initial inspection report will be revised to reflect abatement activities performed. Drawings that have been revised will be sent to all building workers.

C. Updating Assessment Codes

The codes will be revamped as response activities are completed.

D. Reinspections

All appropriate forms and documentation for surveillance and reinspections will be included in the Management Plan files.

E. Additional Documentation

1. Descriptions of all response actions performed. The documentation will include, but not be limited to the information described in Section VII of this report at paragraph B, subparagraphs 1 through 7.
2. All fiber release documentation and forms.
3. Any asbestos related photographs and videos taken by school personnel or the schools representatives.
4. All documentation of air sampling taken within the building. This includes the personal air samples taken of the schools personnel.
5. All personnel training and retraining documentation and certifications, including that of outside personnel.

6. All disposal documentation and chain of custody sheets for removal of asbestos containing materials from the building.
7. Copies of the notifications given to the building occupants and/or their guardians.
8. Documentation of all the meetings conducted in reference to asbestos within the building.
9. Any correspondence related to asbestos and this building.
10. All requests for work permits and copies of the permits issued.

F. Resubmission of the Management Plan to the State

1. A revised Management Plan will be resubmitted to the state annually.
2. A copy of the resubmitted Management Plan will be included in the records.

G. Publications to be Kept On File

The LEA will retain copies of the following publications in the associated records which should be readily accessible to the designated person.

1. These publications are required by the EPA 1982 "Asbestos In Schools Rule" (40 CFR Part 763);
 - a. One copy of Asbestos Containing Material School Buildings: A Guidance Document, Parts I (March 1979 and 2 June 1984) or Guidance for Controlling Asbestos Containing Material in Buildings (EPA 560/5-85-024), referred to as the Purple Book.
 - b. Copies of EPA form 7730-2(6-82), Guide For Reducing Asbestos Exposure.
2. The management planner recommends that the LEA also have one copy of 453 CMR 6.00 "The Removal, Containment or Encapsulation of Asbestos". It is available from the State Bookstore, Room 116, State House, Boston, MA. 02133 at a cost of \$4.40, plus \$1.60 postage. Make check payable to the Commonwealth of Massachusetts.

NOTIFICATION

A. AHERA requires that the Management Plan include a description of steps taken to notify workers, building occupants or their legal guardians about inspections, reinspections, response actions, and post response action activities, including periodic reinspection and surveillance activities that are planned or are in the process of being completed. The following steps have been, or will be, implemented by the LEA:

1. Upon completion of the building's inspection report, a written public notification, Form AA003, was given to the PTA, all workers and building occupants or their legal guardians.
Dated: May 5, 1989

In addition, the notification Form AA003 is posted in room(s) Bulletin Board Main Corridor

_____ of the Whittier School
_____.

2. Notification forms are given for all scheduled response actions and reinspections. Copies of these are retained in the records.
3. All other non-scheduled surveillance, response actions and post response activities are documented within the Management Plan.

B. Availability of the Management Plan.

1. A written notification, Form AA013, addressed to parent, teacher, and employee organizations was mailed to the organization on May 5, 1989.

2. An optional public awareness seminar discussing the Management Plan and related asbestos concerns has been scheduled on:
_____ at _____
_____ in the _____.

- a. Documentation of the public meeting will be incorporated into the Management Plan records.

- b. The awareness program may cover, but not be limited to:
1. Defining asbestos and its uses.
 2. Health affects associated with exposure.
 3. What types of ACBM and ACM are present in the building.
 4. The exact locations of the materials.
 5. How to avoid disturbing ACM.
 6. How to recognize and report damages.
 7. How custodial and maintenance personnel are dealing with the materials to prevent fiber release.
 8. What will be done periodically and over the long run to protect the health and safety of building occupants. Including the list of the response actions selected.
 9. A question and answer period.

XVI. FORMS

The 15 forms that are referred to in the text of this Management Plan are on the following pages.

In addition, copies of the special forms that pertain to the O&M Program are included with the O&M Manual.

DOCUMENTATION FOR ASBESTOS WORKER

Form AA001

I. Worker's Name: _____

Address: _____

Signature: _____

II. Medical Exam & Pulmonary Function Tests

Physician's OK to Work Using Respirator: (Date) _____

Physician's Name & Address: _____

III. Respirator Fit Test

Date of Negative/Positive Pressure Test Instruction: _____

Qualitative Fit Test: Date: _____ Testing Agent: _____

Type of Respirator: _____

Tester's Name & Title: _____

IV. Worker's Training On Asbestos

Type of Training: _____

AA001 Continued...

V. Previous Abatement Work Performed:

VI. I verify this information to be correct;

Signature

Title

Date

ASBESTOS DISPOSAL DOCUMENTATION

Form AA002

Owner or Operator of Landfill _____

Name _____ Phone (____) _____

Address _____

City _____ State _____ Zip _____

Name of Landfill _____

Address _____

City _____ State _____ Zip _____

Generator of Hazardous Material _____

Generator's Address _____

City _____ State _____ Zip _____

School Representatives Signature _____

Date Turned Over To Hauler/Transporter _____

Hauler _____ Address _____

City _____ State _____ Zip _____

Hauler Permit Numbers _____ License Plate _____

Hauler Representatives Signature _____

Approximate Volume of Asbestos Transported _____

Type of Containers _____

AA002 Continued...

Asbestos Containers Labeled? _____Yes _____No

I certify to the best of my knowledge that the above statements are true and that this landfill is approved by the appropriate governmental agencies for the disposal of asbestos. The asbestos-containing material will be covered with 6 inches of non-asbestos fill within 24 hours of acceptance.

Landfill Owner-Operator _____

Signature

_____ Date

PERMIT REQUEST FORM FOR MAINTENANCE WORK Form AA004

1. Address, building, and room number(s) or description of area where work is to be performed:

2. Requested starting date:_____ Anticipated finish:_____

3. Description of work:

4. Description of any asbestos containing material that might be affected, if known (include location and type):

5. Name and telephone of supervisor:_____

Submit this work permit request to the designated AHERA Coordinator.

AA004 Continued...

NOTE: A permit request number must be submitted for all maintenance work whether or not asbestos containing material might be affected. A permit number must be received before any work can proceed.

Permit Request No. _____

Granted ___ Yes ___ No

Initial _____

WORK PERMIT FOR IN-HOUSE
MAINTENANCE/RENOVATION

Form AA005

PERMIT NUMBER _____

1. Exact location of area involved (including building number, room number, location within room, etc.):

2. Description of work involved:_____

3. Start Date:_____ Anticipated Finish Date:_____

4. Approximate amount of ACM present (not to exceed 3 square/linear ft):

5. Asbestos control methods to be used (i.e. glovebag, HEPA vacuum, wet methods, etc.):

6. Protective equipment to be used (respirator, coveralls, etc.):

7. Air monitoring to be performed (sample number, location, etc.):

8. Work to be performed by (list all workers):_____

AA005 Continued...

9. Work to be supervised by: _____

SIGNED: _____
 Designated Person

DATE: _____

Copies to: _____

CONTRACTOR PERMIT REQUEST FOR
REPAIR/RENOVATION WORK

NAME: _____ DATE: _____
COMPANY: _____ TEL.: _____
ADDRESS: _____

MASSACHUSETTS STATE ASBESTOS HANDLING LICENSE NUMBER:

1. Exact location of area involved (including building number, room number, location within room, etc.):

2. Description of work involved: _____

3. Starting Date: _____
Anticipated Finish Date _____

4. Has work been approved by a school representative?
____ Yes ____ No

5. P.O. Number: _____

6. Does the personnel assigned to the work have asbestos worker training and a respirator fit test?
____ Yes ____ No

Does the supervisor have EPA certification?
____ Yes ____ No

NOTE: If yes to the above question, please supply appropriate documentation.

7. Name of environmental firm to be used for air sampling:
_____ DOH Lab Accreditation No. _____

AA006 Continued...

Submit this work permit request to the designated AHERA Coordinator.

NOTE: A permit request number must be submitted for all outside contractor work, whether or not asbestos-containing material might be affected. A permit number must be received before any work can proceed.

Permit Request No. _____

Granted ____ Yes ____ No

Initial _____

CONTRACTOR PERMIT FOR
REPAIR/RENOVATION WORK

PERMIT NUMBER _____

1. Exact location of area involved (including building number, room number, location within room, etc.):

2. Description of work involved: _____

3. Is the disturbance of ACM likely: _____ Yes _____ No
If no, complete #5 and sign the bottom of second page.

4. Description of the ACM that might be affected, if known (location and type):

5. Start Date: _____

Anticipated Finish Date: _____

6. Approximate amount of ACM present (not to exceed 3 square/linear ft):

7. Asbestos control methods to be used (i.e. glovebag, HEPA vacuum, wet methods, etc.):

AA007 Continued...

10. Work to be performed by (list all workers): _____

11. Work to be supervised by: _____

12. If asbestos workers are sub-contracted from a different company please supply appropriate documentation and attach to the work permit request form.

NAME OF COMPANY: _____ PHONE: _____

ADDRESS: _____

NOTE: Remember to fill out and submit all disposal documentation. Wear badges with PERMIT NUMBER at all times when on the property.

SIGNED _____
Designated Person Date

Copies to: _____

WORKER ASBESTOS FIBER RELEASE EPISODE NOTIFICATION Form AA009

1. Location of Release: _____

2. Has the area been sealed off? ____YES ____NO

3. Who has been notified? _____

How were they notified? _____

WORKERS SIGNATURE: _____ DATE: _____

Please submit this notification to the Designated Person

EVALUATION OF RENOVATION/REPAIR WORK INVOLVING ACM

Form AA011

PERMIT NO. _____

1. Location of work zone: _____

2. Were outside personnel involved? ____Yes ____No

If yes, contractor's name: _____

3. Description of work: _____

4. Date(s) of work: _____

Evaluation of work practices employed to minimize the disturbance of asbestos:

Evaluation of work practices employed to contain released fibers and to clean up the work area:

Evaluation of equipment and procedures used to protect workers:

Asbestos Waste Handling: Number of Bags: _____
Number of Barrels: _____

Results of Air Monitoring: Sample ID #: _____ f/cc _____

AA011 Continued...

Attach Copies of Air Sample Summary _____

Sheets and Disposal Documentation _____

SIGNED: _____ DATE: _____
Designated Person

NOTIFICATION OF AVAILABILITY
OF THE ASBESTOS MANAGEMENT PLAN

Form AA013

In accordance with the EPA 'Asbestos Hazard Emergency Response Act' of 1986 (AHERA), notification is being given of the availability of the asbestos Management Plan for this building. Copies are available for the cost of duplication.

The building name is: WHITTIER SCHOOL
The building number is: N/A

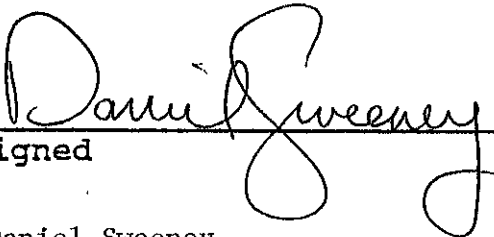
A record of the Management Plan and other related records are available for review in:

Principal's Office Room

Times available for review: Monday-Friday, 10:00 a.m. - 2:00 p.m.

For further information please contact the Designated Person

Name: Daniel Sweeney Phone: (508) 374-2355


Signed

Daniel Sweeney

Name

5/5/89

Date

Assistant Director of
Public Buildings

Title

DOCUMENTATION OF INITIAL
OR ADDITIONAL CLEANING

Form AA015

DATE: _____

AREAS CLEANED: _____

PERSONNEL: _____

METHODS USED: _____

WERE THESE AREAS CLEANED PREVIOUSLY: YES _____ NO _____

COMMENTS: _____

Submit This Completed Form To The Designated Person

WHITTIER SCHOOL

Attachment B

Form AA016

Employee Training

<u>Name</u>	<u>Title</u>	<u>Date/Location/# of Hours in Training</u>
Fred Stuart	Sr. Custodian	April 27, 1988 Haverhill High School 2½ hours

This form will remain in the Management Plan.

APPENDIX A
1988 INSPECTION REPORT

ASBESTOS INSPECTION REPORT
AHERA

Prepared For:

John Greenleaf Whittier Middle School
256 Concord Street
Haverhill, MA 01830

Prepared By:

HUNTER, Inc.
Environmental Sciences
10 Lewis Street
Lincoln, Massachusetts 01773

Inspector's Signature: _____

C. R. Coe

Inspector's Accreditation #: I00133

Date of Report: October 19, 1988

John Greenleaf Whittier Middle School

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John Greenleaf Whittier Middle School

Asbestos Inspection

- Introduction -

Hunter, Inc. has been retained by the Haverhill School District to perform an asbestos inspection at the John Greenleaf Whittier Middle School located at 256 Concord Street in Haverhill, MA.

Ms. Nancy Paszko, Director of Business Administration, has been named as the designated person by the Haverhill School District.

The inspection was performed on September 28, 1988 by Hunter, Inc.'s Industrial Hygienist, C. R. Coe, Massachusetts State Accreditation #I00133.

The purpose of this inspection is to identify Asbestos-Containing Building Materials (ACBM) and Asbestos-Containing Materials (ACM) within the building in compliance with the United States Environmental Protection Agency's Asbestos Hazard Emergency Response Act. (40 CFR Part 763 AHERA). In order to accurately understand the terminology used in this report, a glossary of terms as defined by The Environmental Protection Agency (EPA) is provided in the Management Plan.

The inspection was conducted in two phases.

Phase I:

- o Initial pre-inspection of the building
- o A review of existing drawings.
- o A review of previous asbestos surveys and asbestos abatement records.
- o A meeting with the local education agency (LEA) and building and maintenance personnel to collect background building construction information, and arrange access to all areas being inspected.

Upon receipt of the preceding information, new drawings were generated (when necessary) and all pertinent information was reviewed.

Phase II:

- o The plotting of suspect asbestos-containing homogeneous areas.
- o The collection and analysis of bulk samples of building materials within each homogenous area, in accordance with AHERA protocols.

Samples were collected in the following homogeneous areas and found to contain friable asbestos:

Pipe covering and hard fittings:	Boiler room
Boiler and tank covering:	Boiler room
Pipe insulation:	Rooms 23,25,58,68,107,108,121,122,- locker rooms, gymnasium and crawlspaces

The following homogeneous areas were assumed to contain friable asbestos:

Header and breeching covering:	Boiler room
Vibration isolator (white):	Boiler room
Vibration isolator (black):	Rooms 107, 108, 43,58,68 and gym
Roof drains:	Throughout the school

Samples were collected in the following homogeneous areas and found to contain non-friable asbestos:

Locker rooms:	Transite ceilings
Floor tile:	Throughout the school

1.0 GENERAL STATEMENTS CONCERNING ASBESTOS INSPECTIONS IN PUBLIC AND PRIVATE SCHOOLS

- 1.1 The homogeneous areas within this building that have an EPA Assessment Code of either 1, 2, 3, 4 or 7 require immediate attention. Plans and specifications should be designed and implemented as soon as possible, for the abatement of this material.

Note - The following areas were inaccessible and therefore not inventoried:

- a. Crawlspace, west side Building C
- b. Pipe chase Room 107
- c. Room 29

- 1.2 This survey did not evaluate internal boiler linings or gaskets. Before any work is scheduled on the boiler, samples of linings and gaskets should be analyzed for asbestos content.
- 1.3 This inspection cannot accurately determine all ACM that may be present in or behind walls, ceilings, and floors. Review all existing heating and plumbing plans before starting any renovation projects. Make access holes in floors, walls, and ceilings, if necessary, to determine the location of ACM that may remain. This review must be conducted by properly trained personnel. Bulk samples should be analyzed prior to any renovation work where workers may come in contact with suspect ACM. Bulk sampling analysis must be performed by an accredited laboratory.
- 1.4 Since asbestos floor tiles are non-friable unless damaged, and testing each type of floor tile in a building can be costly, all floor tiles were not analyzed. Because samples of several types and colors of vinyl floor tiles were analyzed and found to be ACM, all were assumed to be ACM. Tiles, the glue-on backing, and the underlying felt paper must be sampled for asbestos content prior to any operations involving drilling, cutting, sanding or removal.
- 1.5 The roofing materials may contain asbestos. No core samples were taken due to the relation of the material to the structure. Obtain core samples before any roof renovations are undertaken, and analyze the materials in the core sample for asbestos content.

- 1.6 Certain other materials such as, but not limited to paint, varnish, tape, ceramic tiles, and portland cement have been known to contain asbestos. Be aware that cutting, sanding, drilling or removal of these materials may release asbestos fibers.
- 1.7 Equipment that operates at high temperature such as kilns, muffle furnaces, flood and arc lights may be insulated with asbestos-containing materials such as block, panels, fabric, braid or gasket. No samples were collected as the action of collecting the samples would violate the integrity of the insulation. Any plans requiring the renovation or removal of these items should be preceded by the analysis of any suspect materials.

2.0 BUILDING DESCRIPTION

The John Greenleaf Whittier School located in Haverhill, Massachusetts was built in 1957 of heavy frame construction. The roof is supported by wood plank resting on wood and steel beams resting on concrete block, weight-bearing walls. Floors are poured concrete slab on earth and concrete slab on concrete beams resting on concrete piers.

Heat is supplied by two oil-fired Fitzgibbons boilers located in a basement boiler room. The boilers and the hot water tank are covered with asbestos-containing covering. Associated piping is covered with both hard insulation and corrugated paper ("air cell") with fittings and elbow insulated with cement.

The ceilings are primarily exposed wood planks and 1' x 1' "Cellotex" acoustic tile. The E-wing hallway has a 2' x 4' dropped acoustic tile ceiling and the locker room ceilings have 4' x 8' painted transite panels. Walls are primarily concrete block with a small amount of sheet rock. Floors are covered with 9" x 9" and 12" x 12" vinyl tile over the concrete slab.

Homogeneous areas were determined to be:

Pipe covering and roof drain insulation:	Throughout the school
Pipe fittings:	Throughout the school
Boiler, tank, header and breeching covering:	Boiler room
White vibration isolators:	Boiler room
Black vibration isolators:	Rooms 43,58,68,107,108,gym
Transite ceilings:	Locker rooms and kitchen
Vinyl floor tile:	Throughout the building
Ceiling tile (1' x 1'):	Throughout the school
Ceiling tile (2' x 4'):	E-wing corridor

3.0 SAMPLING LOCATION PROTOCOL / METHODS

The inspection procedures consisted of a visual evaluation of exposed building materials in order to locate and identify ACM. Where suspect materials were encountered, bulk samples were collected in accordance with the following AHERA protocols.

3.1 Friable Surfacing Materials

3.1.1 Location

Friable surfacing materials are sampled in the following manner:

- a) Each homogeneous area is sketched to scale.
- b) The sketch is divided into nine sections of approximately equal area.
- c) A core sample of the material is taken as close to the center of a section as possible. The number of sections and the methods for selecting those to be sampled is described under the heading, 3.1.2 Quantity.

3.1.2 Quantity

The minimum quantity of bulk samples to be taken is determined by the following table. These are the number of samples required by AHERA to determine if a friable surfacing material does not contain asbestos. Fewer samples are necessary to determine that a material does contain asbestos. No sampling is required if the material is assumed to be asbestos.

(The section that each required sample is taken from is selected from the choice of nine in the subject area.)

	<u>AREA SIZE</u>	<u>REQUIRED SAMPLE QUANTITY</u>
o	Less than or Equal to 1000 square feet	3
o	Less than or equal to 5000 square feet	5

3.2 Thermal System Insulation

a) Location

Each functional part of the thermal system is classified into a homogeneous area. For each homogeneous area, samples are collected from several diverse areas of the building.

b) Quantity

Three samples are collected from each homogeneous area. Fewer samples are required if the material is determined to be asbestos containing.

One sample is collected from each patched area of six feet or less if not assumed to be asbestos containing.

3.3 Miscellaneous and Non-Friable Materials

These materials are located by a thorough room-to-room investigation of the building. The asbestos inspector, in making his own determination, sampled in a quantity sufficient to determine the presence or absence of asbestos.

3.4 Sampling and Analytical Methods

Sample bags were sequentially numbered and randomly utilized during the actual survey. Samples were sent to the laboratory with a random numbering sequence to prevent analytical bias.

Samples were transmitted directly to the Hunter, Inc. laboratory and analyzed by Polarized Light Microscopy in accordance with the Environmental Protection Agency (EPA) "Interim Method for the Determination of Asbestiform Minerals in Bulk Insulation Samples." NOTE: HES laboratory is a successful participant in the EPA Interim Asbestos Bulk Sample Quality Assurance Program.

Transfer of samples was documented by utilizing a chain of custody signature system for all laboratory analysis. Hunter's Quality Assurance Program is contained in Appendix C.

3.5 Drawings

Drawings are shown in Appendix F and show specific sampling locations, room numbers, and other pertinent information. Existing room numbers were used, where applicable; arbitrary numbers were assigned to rooms without numbers.

4.0 SURVEY DATA / HAZARD ASSESSMENT

Appendix A shows inspection information grouped according to EPA assessment codes and rooms. Included in each description is a written hazard assessment performed by Hunter's Industrial Hygienist, C. R. Coe, on September 28, 1988.

At the end of each description are significant field notes that pertain to each particular area.

Additional information can be found in the attached drawings (Appendix F).

NOTE: All asbestos concentrations are shown in relative percentages. The EPA defines ACM as materials with a concentration of greater than 1% asbestos.

4.1 The following summarizes the required EPA codes.

EPA REQUIRED ASSESSMENT CODES

- #1 = Damaged or significantly damaged thermal system insulation ACM.
- #2 = Damaged friable surfacing ACM.
- #3 = Significantly damaged friable surfacing ACM.
- #4 = Damaged or significantly damaged friable miscellaneous ACM.
- #5 = ACBM with potential for damage.
- #6 = ACBM with potential for significant damage.
- #7 = Any remaining friable ACBM or friable suspected ACBM.
- * EPA - Non-Asbestos (NA)
- * The last category of this section was used to identify areas sampled which did not contain asbestos.

5.0 DISCUSSION / RECOMMENDATIONS

The following factors were assessed to determine the appropriate EPA assessment code.

- a. Accessibility
- b. Potential for contact with the material
- c. Quantity of the asbestos-containing material
- d. Composition of the ACM
- e. Size of the population exposed
- f. Likelihood of continual exposure
- g. Pedestrian traffic and adjacent room use
- h. Vibration and air movement
- i. Planned future use of the area(s).

The information shown in Appendix A and B shows specific details regarding these assessments. Based on the EPA assessment codes assigned, AHERA requires specific response actions be implemented to address ACM and ACBM.

The Local Education Agency (LEA) shall select and implement the appropriate response actions in a timely manner consistent with the assessments given in this report. The response actions selected shall be sufficient to protect human health and the environment.

The LEA may select the action that is the least burdensome method. In determining which are least burdensome, the LEA may consider local circumstances, including occupancy and use patterns within the school building, and its long and short term economic concerns.

5.1 The following is a summary of the response actions required under AHERA:

- 5.1.1 EPA Assessment Code #1: If damaged or significantly damaged thermal insulation ACM is present, (EPA Code #1), the LEA must:
- a) Repair the damage, or remove the damaged material if not feasible to repair.
 - b) Maintain all undamaged thermal system insulation.
- 5.1.2 EPA Assessment Codes #2 and #4: If damaged friable surfacing ACM or damaged friable miscellaneous ACM, (EPA codes #2 & #4) the LEA must:
- a) Remove
 - b) Enclose
 - c) Encapsulate, or
 - d) Repair the material in question
- 5.1.3 EPA Assessment Codes #3 and #4: If significantly damaged friable surfacing ACM or friable miscellaneous ACM is present (EPA Codes #3 & #4), the LEA must either:
- a) Immediately isolate and restrict access, unless isolation is not necessary.
 - b) Remove the ACM from the functional space, unless encapsulation or enclosure is sufficient.
- 5.1.4 EPA Assessment Code #5: If ACBM or ACM has potential for damage, (EPA Code #5) the LEA must:
- a) Institute an O&M program.
- 5.1.5 EPA Assessment Code #6 and #7: If any ACBM or ACM has potential for significant damage, (EPA Code #6 & #7), the LEA must either:
- a) Implement an O&M program and institute preventative measures to eliminate likelihood that the ACM or its cover will become significantly damaged.

- b) Remove the material expeditiously, if preventative measures are not possible; isolate and restrict access if necessary to prevent an imminent and substantial endangerment.

5.2 Additional AHERA Requirements

In addition, AHERA regulations require the LEA to take the following actions:

- 5.2.1 Ensure that all inspections and re-inspections are carried out by accredited personnel.
- 5.2.2 Ensure that all custodial and maintenance personnel are properly trained in asbestos hazards.
- 5.2.3 Notify workers, building occupants, and parents of students of AHERA activities.
- 5.2.4 Notify outside contractors of asbestos in buildings.
- 5.2.5 Post Asbestos Warning labels in routine maintenance areas.
- 5.2.6 Notify building occupants that inspection reports and management plans are available for inspection.
- 5.2.7 Designate a person to ensure AHERA requirements are implemented and provide for adequate training to that person.

5.3 Massachusetts Asbestos Regulations

Stringent laws govern asbestos abatement activities in the state of Massachusetts. See Appendix D for additional applicable legal standards. The laws include the following:

- 5.3.1 Massachusetts State Law (453 CMR 6.00) requires certification of all persons involved in asbestos abatement activities.

5.3.2 Any employee whose work may require the disturbance of ACM (i.e, plumbers, maintenance workers, etc.) should receive proper training in asbestos work techniques. Massachusetts State Law requires two-day mandatory training for affected individuals.

5.4 General Recommendations

The following recommendations pertain to asbestos removal projects.

- o An Accredited Asbestos Abatement Project Designer should develop a plan or specification to ensure that asbestos is removed in a safe and proper manner. At a minimum, these specifications should include an effective asbestos removal plan, a thorough health and safety plan, reference to applicable legal standards, necessary regulatory notifications, adequate insurance requirements and proper bidding procedures.
- o An Accredited Asbestos Abatement Project Monitor should monitor the asbestos removal. At a minimum, monitoring activities should include air sampling (before, during and after), inspection of contractor work practices and the maintenance of a daily monitoring log to thoroughly document removal activities.

6.0 CONCLUSION

ACM and ACBM are located throughout the facility in the areas identified. Hunter, Inc. recommends that these asbestos containing materials be addressed in a safe and proper manner in accordance with AHERA regulation and any other applicable state, federal, or local asbestos regulations.

APPENDIX A

- Survey Data and Hazard Assessments -

This Appendix classifies the ACBM and ACM in the school according to the seven EPA classification code numbers and gives the reasons for the classifications assigned. Where appropriate, applicable language from the field reports is quoted.

EPA Category 1: Damaged or significantly damaged thermal insulation.

BOILER COVERING; BOILER ROOM

Total Square Feet of Material: 680 SF

Sample Numbers WH 08 & WH 31 contained 80 & 35% asbestos. This room contained friable boiler insulation, categorized as damaged or significantly damaged thermal insulation. The damage, jacket damage and gouges, was heavy over 40% of the area, apparently caused by abuse. It is accessible to maintenance personnel and has moderate potential for future disturbance.

"TWO FITZGIBBONS BOILERS. SAMPLE WH 08 TAKEN FROM REAR OF # 1 BOILER AT LARGE GOUGE. SAMPLE WH 31 WAS TAKEN FROM # 2 BOILER. LADDER IS LEANING UP AGAINST BOILERS, CAUSING DAMAGE."

BREECHING COVERING; BOILER ROOM

Total Square Feet of Material: 244 SF

This room contained friable breeching insulation, categorized as damaged or significantly damaged thermal insulation. The damage, cracking and delamination, was heavy over 5% of the area, apparently caused by deterioration. It is accessible to maintenance personnel and has moderate potential for future disturbance.

"NEEDS TO BE REPAIRED."

HEADER COVERING; BOILER ROOM

Total Linear Feet of Material: 40 LF

This room contained friable headers insulation, categorized as damaged or significantly damaged thermal insulation. The damage, gouges and tears, was moderate over 1% of the area, apparently caused by abuse. It is accessible to maintenance personnel and has moderate potential for future disturbance.

HOT WATER TANK COVERING; BOILER ROOM

Total Square Feet of Material: 226 SF

Sample Numbers WH 09 & WH 30 contained 50% asbestos. This room contained friable tank insulation, categorized as damaged or significantly damaged thermal insulation. The damage, punctures and gouges, was moderate over 5% of the area, apparently caused by abuse. It is accessible to maintenance personnel and has moderate potential for future disturbance.

PIPE INSULATION - AIRCELL AND HARD FITTINGS; BOILER ROOM

Total Linear Feet of Material: 38 LF

Sample Numbers WH 06, WH 13, WH 16 & WH 34 contained 40, 25, 40 & 30% asbestos. This room contained friable pipe insulation, categorized as damaged or significantly damaged thermal insulation. The damage, exposed material and crushed material, was heavy over 40% of the area, apparently caused by abuse. It is accessible to maintenance personnel and has moderate potential for future disturbance.

"SAMPLE WH 06 FROM AIRCELL NEXT TO CIRCULATION PUMP NEXT TO WATER TANK. WH 13 FROM ELBOW FROM FRONT OF HOT WATER TANK. WH 16 FROM ELBOW NEXT TO VALVE # 1. SAMPLE WH 34 FROM AIRCELL."

PIPE INSULATION-AIRCELL; ROOM 68

Total Linear Feet of Material: 30 LF

This room contained friable pipe insulation, categorized as damaged or significantly damaged thermal insulation. Exposed insulation material was found over 10% of the area. It is accessible to all occupants, and has high potential for future disturbance.

PIPE INSULATION PIPE CHASE; ROOMS 108, 107, 122 & 121

Total Linear Feet of Material: 190 LF

These rooms contained friable pipe insulation, categorized as damaged or significantly damaged thermal insulation. The damage, punctures and jacket damage, was heavy over 5% of the area, apparently caused by deterioration. It is accessible to maintenance personnel and has moderate potential for future disturbance.

PIPE INSULATION; BOYS LOCKER ROOM, ROOMS 58, 108 & GYM

Total Linear Feet of Material: 186 LF

These rooms contained friable pipe insulation, categorized as damaged or significantly damaged thermal insulation. The damage, crushing was heavy over 5% of the area, apparently caused by abuse. It is accessible to all occupants, and has high potential for future disturbance.

"BOYS LOCKER ROOM, JACKET INTACT, INSULATION CRUSHED UNDERNEATH; ROOM 58, EXPOSED ENDS; ROOM 108 PUNCTURES, GYM JACKET DAMAGE."

PIPE INSULATION; CRAWL SPACES UNDER BUILDING A, B, D & E

Total Linear Feet of Material: 5500 LF

These rooms contained friable pipe insulation, categorized as damaged or significantly damaged thermal insulation. The damage, crushing and exposed insulation, was heavy over 80% of the area, apparently caused by maintenance. It is accessible to maintenance personnel and has moderate potential for future disturbance.

"CRAWL SPACES ARE IN VERY POOR CONDITION. MOST INSULATION HAS COME OFF THE PIPE AND IS LAYING ON THE FLOOR. DIRT IS HEAVILY CONTAMINATED WITH DEBRIS. DAMAGE HAS BEEN CAUSED BY

DETERIORATION DUE TO AGE, HUMIDITY AND A HIGH WATER TABLE WHICH SEEPS INTO THE AREA. THE CRAWL SPACE UNDER BUILDING C IS INACCESSIBLE."

ROOF DRAIN INSULATION ROOM 60 HOME ECONOMICS STORAGE, GYM STORAGE A & B, ROOM 68 DUCT ROOM & ROOM 71 KITCHEN

Total Linear Feet of Material: 56 LF

These rooms contained friable pipe insulation, categorized as damaged or significantly damaged thermal insulation. The damage, tears and delamination, was heavy over 5% of the area, apparently caused by abuse. It is accessible to all occupants, and has high potential for future disturbance.

"EVEN THOUGH THE JACKET IS INTACT THE INSULATION IS CRUSHED UNDERNEATH IN GYM STORAGE B. IN THE DUCT ROOM (68) DAMAGE IS DUE TO INSTRUMENTS BEING STORED UP AGAINST INSULATION."

EPA Category 5: ACBM with potential for damage.

FLOOR TILE 9 X 9; ROOMS 1 - 16, 20, 60 - 665, 67, 68, 25, 26, 27, 28, 30, 36, 34, 37, 38, 51, 52, 55 46 - 48

Sample Numbers WH 25, WH 17 & WH 11 contained 5% asbestos. These rooms contained non-friable floor tiles, categorized as ACBM with potential for damage. The material is presently undamaged, however, it is accessible to all occupants, and has high potential for future disturbance.

"SAMPLE WH 25 GREY 9 X 9, WAS TAKEN FROM ROOM 36. WH 11, TAN 9 X 9 WAS TAKEN FROM ROOM 10. WH 17, LIGHT TAN 9 X 9, WAS TAKEN FROM ROOM 63."

PIPE INSULATION; ROOM 23 & 25 BASEMENT (BLOCK AND AIRCELL)

Total Linear Feet of Material: 55 LF

Sample Number WH 14 contained 40% asbestos. These rooms contained non-friable pipe joints and elbow insulation, categorized as ACBM with potential for damage. The material is presently undamaged, however, it is accessible to maintenance personnel and has moderate potential for future disturbance. Encapsulation, isolation, or labeling might eliminate the likelihood of undamaged ACM from becoming significantly damaged.

"SAMPLE WH 14 WAS TAKEN FROM STEAM LINES AT HANGER, IN ROOM 25."

TRANSITE; GIRLS AND BOYS LOCKER ROOMS & KITCHEN

Sample Number WH 12 contained 75% asbestos. These rooms contained non-friable ceiling panels categorized as ACBM with potential for damage. The material is presently undamaged, however, it is accessible to all occupants, and has high potential for future disturbance.

VIBRATION ISOLATOR, WHITE; BOILER ROOM
Total Square Feet of Material: 14 SF
This room contained friable duct insulating material, categorized as ACBM with potential for damage. The material is presently undamaged, however, it is accessible to maintenance personnel and has moderate potential for future disturbance.

VIBRATION ISOLATORS, CNAVAS, BLACK; ROOMS 107, 108, 68, 58, 43 & GYM
Total Square Feet of Material: 45 SF
These rooms contained non-friable duct insulating material, categorized as ACBM with potential for damage. The material is presently undamaged, however, it is accessible to all occupants, and has high potential for future disturbance.

EPA Category 6: ACBM with potential for significant damage.

PIPE INSULATION; ROOM 107, GIRLS LOCKER ROOM
Total Linear Feet of Material: 31 LF
This room contained non-friable pipe insulation, categorized as ACBM with potential for significant damage. The material is presently undamaged, however, it is accessible to all occupants, and has high potential for future disturbance. Encapsulation, isolation, or labeling might eliminate the likelihood of undamaged ACM from becoming significantly damaged.

ROOF DRAIN INSULATION; BOYS AND GIRLS LOCKER ROOM OFFICES, MUSIC ROOM, INDUSTRIAL ARTS STORAGE A, AUDITORIUM STAGE & AUDITORIUM
Total Linear Feet of Material: 120 LF
These rooms contained non-friable pipe insulation, categorized as ACBM with potential for significant damage. The material is presently undamaged, however, it is accessible to all occupants, and has high potential for future disturbance. Encapsulation, isolation, or labeling might eliminate the likelihood of undamaged ACM from becoming significantly damaged.
"ROOF DRAIN INSULATION IN AUDITORIUM IS BEHIND WOOD PANELS AND IS INACCESSIBLE. MAY BE DAMAGED UNDERNEATH."

EPA Category: Not asbestos.

The following areas were determined by either visual inspection or by sampling not to contain asbestos. No preventative measures need be taken. The assessments are included here as supplemental information.

CEILING TILE 2 X 4; EAST WING HALLWAY
Total Square Feet of Material: 1200 SF
Sample Number WH 02 tested negative for asbestos content. This room contained friable ceiling tiles, which were determined to be non-asbestos.
"SAMPLE TAKEN FROM STORED MATERIALS IN MAINTENANCE CLOSET ROOM 20A."

CEILING TILES 1 X 1;
Sample Number WH 10 tested negative for asbestos content. These rooms contained friable ceiling tiles, which were determined to be non-asbestos.
"SAMPLE TAKEN FROM ADMINISTRATION WING HALLWAY."

FLOOR TILE 12 X 12; HALLWAYS 17 - 19 & 32
Sample Numbers WH 05, WH 01 & WH 07 tested negative for asbestos content. These rooms contained non-friable floor tiles, which were determined to be non-asbestos.
"SAMPLE WH 05 LIGHT GREEN 12 X 12, WAS TAKEN FROM THE MAIN ENTRANCE HALL. WH 01, DARK GREEN 12 X 12, WAS TAKEN FROM ROOM 33A, GUIDANCE COUNSELORS OFFICE. WH 07, TAN COMPOSITE 12 X 12, WAS TAKEN FROM ROOM 18."

STAGE CURTAIN; CAFETERIA
Sample Number WH 33 tested negative for asbestos content. This room contained non-friable fabric which was determined to be non-asbestos.

WINDOW CURTAIN; CAFETERIA
Sample Number WH 32 tested negative for asbestos content. This room contained non-friable fabric which was determined to be non-asbestos.

APPENDIX B
- Field Data -

- Key -

RM CD = HOMOGENEOUS AREA & ROOM CODES

SAMP NO. = SAMPLE NUMBERS

RES +, -:

(RESULTS, NEGATIVE/POSITIVE & PERCENT ASBESTOS, IF POSITIVE)

NEG = Negative test result

POS = Positive test result

MAT F/N

(MATERIAL - FRIABLE/NON-FRIABLE)

F - Friable, may be reduced to powder with hand pressure

N - Non-friable

TY OF INS:

(TYPE OF INSULATION)

100-Pipe Insulation A:Inline B:Pre-Form C:Joints & Elbows
200-Heat Plant A:Boiler B:Breeching C:Tank D:Headers
300-Ceiling A:Tiles B:Plaster C:Subsurface
400-Wall A:Board B:Plaster C:Subsurface
500-Floor A:Tiles B:Subsurface C:Dirt
600-Duct Insulation A:Inside Duct B:Outside Duct
C:Duct Material
700-In storage A:In Original Carton B:Loose Material
800-Miscellaneous (SEE COMMENTS IN EACH RECORD)
900-Sprayed-On A:Acoustic B:Thermal C:Fireproofing

EPA CD:

(EPA REQUIRED ASSESSMENT CODES FOR ACM'S)

1. Damaged or significantly damaged thermal insulation
 2. Damaged friable surfacing ACM
(L - Localized D - Distributed)
 3. Significantly damaged friable surfacing ACM
 4. Damaged or significantly damaged friable misc. ACM
 5. ACBM with potential for damage
 6. ACBM with potential for significant damage
 7. Any remaining friable ACBM or friable suspected ACBM.
- NA Not Asbestos

DEG (L/D)

(EXTENT OF DEGRADATION - LOCAL OR DISTRIBUTED)

L = Localized damage
D = Distributed damage

TY DAMAGE:

(TYPE OF DAMAGE)

JD Jacket Damage	WL Water Leak
B Burns	A Abrasion
C Cuts	M Movement
DL Delaminated	CR Crushed
FL Flaking	O Other
P Puncture	BR Broken
CB Crumbling	E Exposed Ends
T Tears	CK Cracking

% DAMAGD & SEV DAMG:

(PERCENT DAMAGED & SEVERITY OF DAMAGE)

LT Light
MD Mod.
HV Heavy

APP CAUSE:

(APPARENT CAUSE OF DAMAGE)

C Original
R Renovation
A Abuse
M Maintenance
V Vandalism
U Unknown
O Other
D Deteriora-
tion
W Water
UD Undamaged

ACCESS:

(ACCESSIBILITY & POTENTIAL FOR FURTHER DISTURBANCE)

AO Accessible to Occupants	ER Expected repairs or renovation
AM Accessible to Maintenance	VI Vibration
HM Housekeeping & Maintenance	NA Not Accessible

SAMPLE NO. RES. MAT. F/M. E/P. (L/D) TY. DAMAGE. 1. DAMAGED SEV. DINGS APP. CAUSE ACCESS APPROX. QTY. 50 FT. APPROX. QTY. LN. FT. COMMENTS.

1000	PIPE INSULATION - AIRCELL AND HARD FITTINGS; BOILER ROOM	WH 06, WH 13, WH 16 & WH 34	40, 25, 40 & 30X F	E, CR	40X	HV	A	PH	38 LF	SAMPLE WH 06 FROM AIRCELL NEXT TO CIRCULATION PUMP NEXT TO WATER TANK. WH 13 FROM ELBOW FROM FRONT OF HOT WATER TANK. WH 11 FROM ELBOW NEXT TO VALVE # 1. SAMPLE WH 34 FROM AIRCELL.	
1000	PIPE INSULATION AIRCELL; ROOM 68			F	1	E	10X	HV	C	AO	30 LF
1000	PIPE INSULATION PIPE CHASE; ROOMS 108, 107, 122 & 121			F	1	P, JD	5X	HV	D	PH	190 LF
1000	PIPE INSULATION; BOYS LOCKER ROOM, ROOMS 58, 108 & 67M			F	1	CR	5X	HV	A	AO	186 LF
1000	PIPE INSULATION; CRAM SPACES UNDER BUILDING A, B, D & E			F	1	CR, E	80X	HV	N	PH	5500 LF
1000	PIPE INSULATION; ROOM 107, GIRLS LOCKER ROOM			N	6	UD					31 LF
1000	ROOF DRAIN INSULATION ROOM 60 HOME ECONOMICS STORAGE, GYM STORAGE A & B, ROOM 68 DUCT ROOM & ROOM 71 KITCHEN			F	1	T, DL	5X	HV	A	AO	56 LF
1000	ROOF DRAIN INSULATION; BOYS AND GIRLS LOCKER ROOM OFFICES, MUSIC ROOM, INDUSTRIAL ARTS STORAGE A, AUDITORIUM STAGE & AUDITORIUM			N	6	UD					120 LF

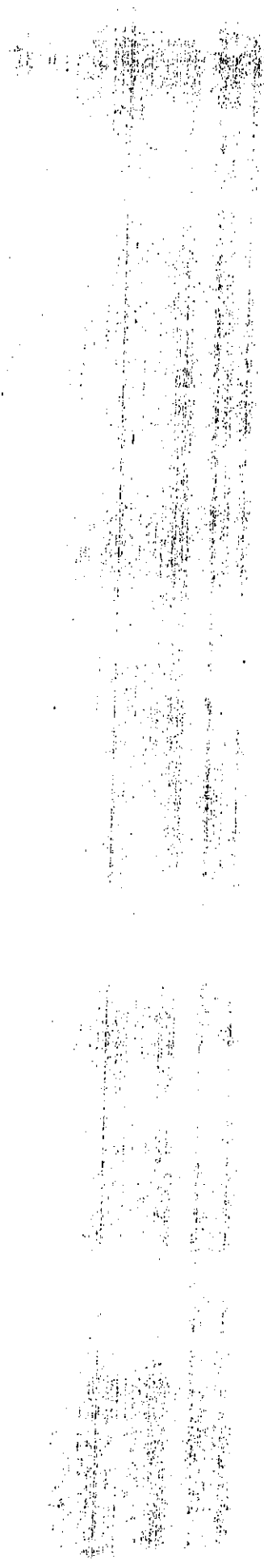
BOYS LOCKER ROOM, JACKET INTRICT, INSULATION CRUSHED UNDERNEATH; ROOM 58, EXPOSED ENDS; ROOM 108 PUNCTURES, GYM JACKET DAMAGED.

CRAM SPACES ARE IN VERY POOR CONDITION. MOST INSULATION HAS COME OFF THE PIPE AND IS LAYING ON THE FLOOR. DIRT IS HEVILY CONTAMINATED WITH DEBRIS. DAMAGE HAS BEEN CAUSED BY DETERIORATION DUE TO AGE, HUMIDITY AND A HIGH WATER TABLE WHICH SEEPS INTO THE AREA. THE CRAM SPACE UNDER BUILDING C IS IMPACCESSIBLE.

EVEN THOUGH THE JACKET IS INTACT THE INSULATION IS CRUSHED UNDERNEATH IN GYM STORAGE B. IN THE DUCT ROOM (68) DAMAGE IS DUE TO INSTRUMENTS BEING STORED UP AGAINST INSULATION.

ROOF DRAIN INSULATION IN AUDITORIUM IS BEHIND WOOD ON WALLS AND IS IMPACCESSIBLE. MAY BE IMPAGED UNDERNEATH.

TY OF INS	IN CD	SAMPLE NO	RES 4	%	MAT F/A EPA	(L/D)	TY DAMAGE	% DOWNG	SEV DANG	APP CHLOR	ACCESS	APPROX QTY	SO FT	APPROX QTY	LN FT	COMMENTS
800A	TRASHITE; GIRLS AND BOYS LOCKER ROOMS & KITCHEN	WH 12	POS	75%	N	5	UD								40	
800A	WINDOW CURTAIN; DEFETERIA	WH 32	NEB		N	10	UD								40	



APPENDIX C

- Quality Assurance Program -

Quality Assurance Program

The Laboratory at Hunter, Inc. maintains a quality assurance and quality control program in order to ensure accuracy and precision in analytical procedures.

This program is in accordance with guidelines recommended by NVLAP (National Voluntary Laboratory Accreditation Procedure). Approximately 10% of the samples tested at the Hunter, Inc. laboratory are used in the quality assurance / quality control program. Intra-laboratory replicates (multiple analyses by a single analyst), Intra-laboratory duplicates (multiple analysts on one sample, and lab blank analyses are performed regularly. Hunter's Laboratory participates semi-annually in a round-robin with 8 other local laboratories and is also a successful participant in the EPA/RTI bulk proficiency testing program.

Bulk material samples are logged-in upon arrival at the laboratory. The chain-of-custody form accompanying the samples is completed and the samples are prepared for analysis. Multiple sub-samples are prepared according to the nature of the sample. After analysis is complete, the remainder of the sample is archived.

APPENDIX D

- Applicable Legal Standards -

Applicable Legal Standards

Occupational Safety and Health Administration (OSHA)

- a. Title 29 Code of Federal Regulations Section 1910.1001 (as amended) - General Industry Standard for Asbestos.
- b. Title 29 Code of Federal Regulations Section 1910.134 - General Industry Standard for Respiratory Protection.
- c. Title 29 Code of Federal Regulations Section 1926.58 (as amended) - Construction Industry.
- d. Title 29 Code of Federal Regulations Section 1910.20 - Access to Employee Exposure and Medical Records.
- e. Title 29 Code of Federal Regulations Section 1910.1200 - Hazard Communication.

Environmental Protection Agency (EPA)

- a. Title 40 Code of Federal Regulations Part 61 Subparts A and M - National Emission Standard for Asbestos (NESHAPS).
- b. Title 40CFR part 763 (amended) Subpart E, Asbestos Containing Materials in Schools
- c. Title 40CFR Part 763, Subpart G, Toxic Substances; Asbestos Abatement Projects

Massachusetts Department of Environmental Quality Engineering (DEQE)

- a. 310 Code of Massachusetts Regulations (CMR) 7.0- Air Pollution Control
- b. 310 CMR 30.000 - Hazardous Waste
- c. 310 CMR 18.00, 19.00 - Solid Waste

Massachusetts Department of Labor and Industries

- a. 453 CMR 6.00 - The Removal, Containment or Encapsulation of Asbestos

APPENDIX E

- Laboratory Test Results -

BULK SAMPLE ANALYSIS FOR : WHITTIER SCHOOL, HAVERHILL, MA (HES #506)


Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
9/28/88	10/88-14B	Haverhill	1	Cellulose Fibers in Non-Fibrous Matrix, No asbestos detected	Green Particulate with Fibers
"	10/88-15B	"	2	40% Cellulose 40% Fiberglass 20% Non-Fibrous No asbestos detected	Tan Fibrous
"	10/88-16B	"	5	Cellulose Fibers in Non-Fibrous Matrix, No asbestos detected	Green Particulate with Fibers
"	10/88-17B	"	6	40% Chrysotile 30% Cellulose 30% Non-Fibrous	Tan Fibrous
"	10/88-18B	"	7	Cellulose Fibers in Non-Fibrous Matrix, No asbestos detected	Grey Particulate
"	10/88-19B	"	8	40% Amosite 40% Chrysotile 20% Non-Fibrous	White, Fine-Grained Particulate with Fibers
"	10/88-20B	"	9	10% Crocidolite 40% Amosite 20% Non-Fibrous	Grey, Fine-Grained Particulate with Fibers

Collected by:  _____ Analyst:  _____

Note: Samples are retained for one year after the date of analysis. They can be retained beyond that time at the client's request.

BULK SAMPLE ANALYSIS FOR : WHITTIER SCHOOL, HAVERHILL, MA (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
9/28/88	10/88-21B	Haverhill	10	40% Cellulose 40% Fiberglass 20% Non-Fibrous No asbestos detected	Tan Fibrous
"	10/88-22B	"	11	5% Chrysotile 95% Non-Fibrous	Brown Particulate with Fibers
"	10/88-23B	"	12	75% Chrysotile 25% Non-Fibrous	Grey Fibrous
"	10/88-24B	"	13	25% Chrysotile 30% Fiberglass 45% Non-Fibrous	Grey Particulate with Fibers
"	10/88-25B	"	14	40% Amosite 60% Non-Fibrous	White, Fine-Grained Particulate with Fibers
"	10/88-26B	"	16	20% Chrysotile 20% Amosite 30% Fiberglass 30% Non-Fibrous	Grey Particulate with Fibers
"	10/88-27B	"	17	5% Chrysotile 95% Non-Fibrous	Grey Particulate

Collected by:  ----- Analyst: 

Note: Samples are retained for one year after the date of analysis. They can be retained beyond that time at the client's request.

BULK SAMPLE ANALYSIS FOR : WHITTIER SCHOOL, HAVERHILL, MA (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
9/28/88	10/88-62B	Haverhill	25	5% Chrysolite 10% Cellulose 85% Non-Fibrous	Black Particulate

Collected by: 

Analyst: 

Note: Samples are retained for one year after the date of analysis. They can be retained beyond that time at the client's request.

BULK SAMPLE ANALYSIS FOR J. GREENLEAF WHITTIER SCHOOL, HAVERHILL, MA

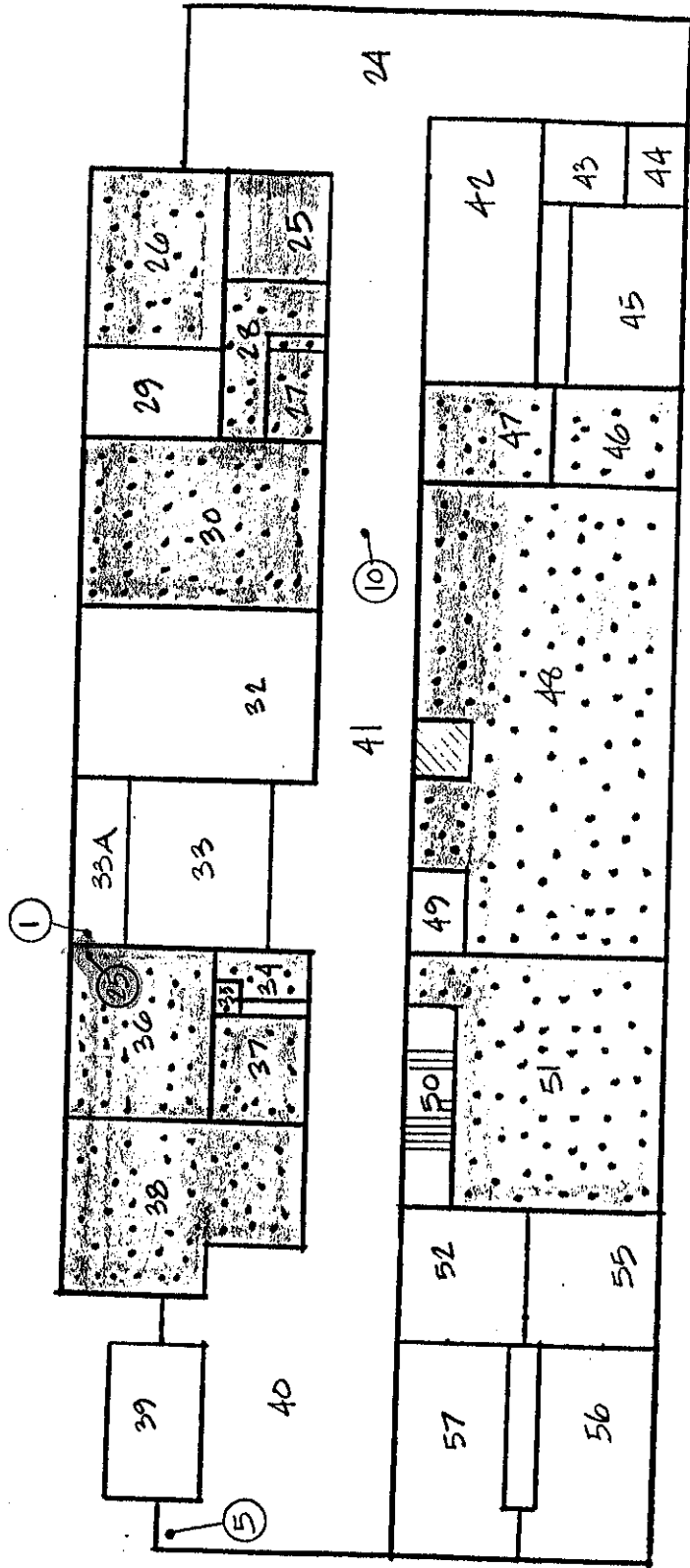
Date Received	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments	Date Analyzed
10/15/87	10/87-63(B)	Haverhill	30 Boiler room Water tank	30% Chrysotile 20% Amosite 50% Non-fibrous	Grey with White, Particulate With fibers Visible	10/20/87
"	10/87-64(B)	"	31 Boiler room Boiler	15% Amosite 20% Chrysotile 65% Non-fibrous	Grey with White, Particulate With fibers Visible	"
"	10/87-65(B)	"	32 Cafeteria Window curtain	100% Non-Asbestos Fibers	Blue fibrous Material with White covering	"
"	10/87-66(B)	"	33 Cafeteria Stage curtain	100% Non-Asbestos Fibers	Red fibrous Material with White covering	"
"	10/87-67(B)	"	34 Boiler room Pipe insulation	30% Chrysotile 40% Cellulose 30% Non-fibrous	Tan fibrous	"

Collected by: 

Analyst: 

Note: Samples are retained for one year after the date of analysis. They can be retained beyond that time at the client's request.

APPENDIX F
- Drawings -



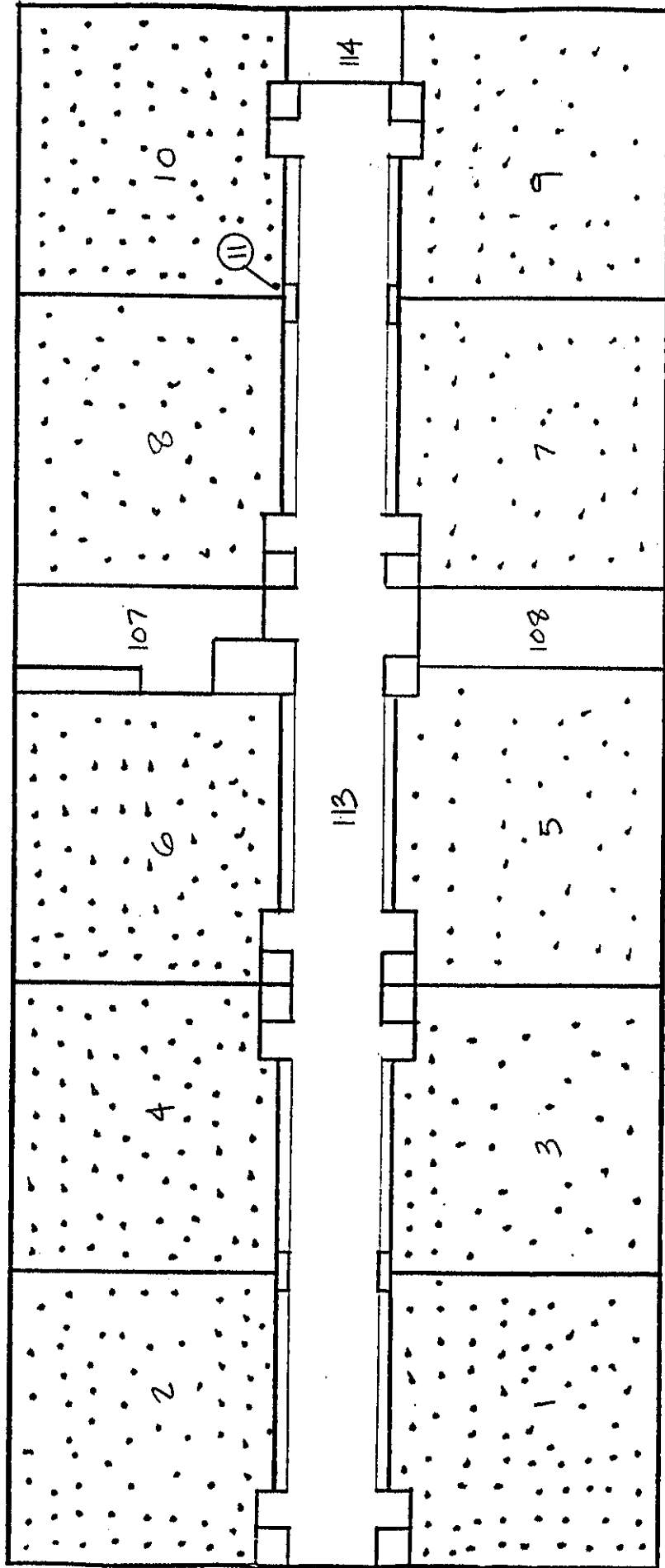
FLOOR PLAN BLDG B

FLOOR TILE

SAMPLE & FOUND TO CONTAIN ASBESTOS

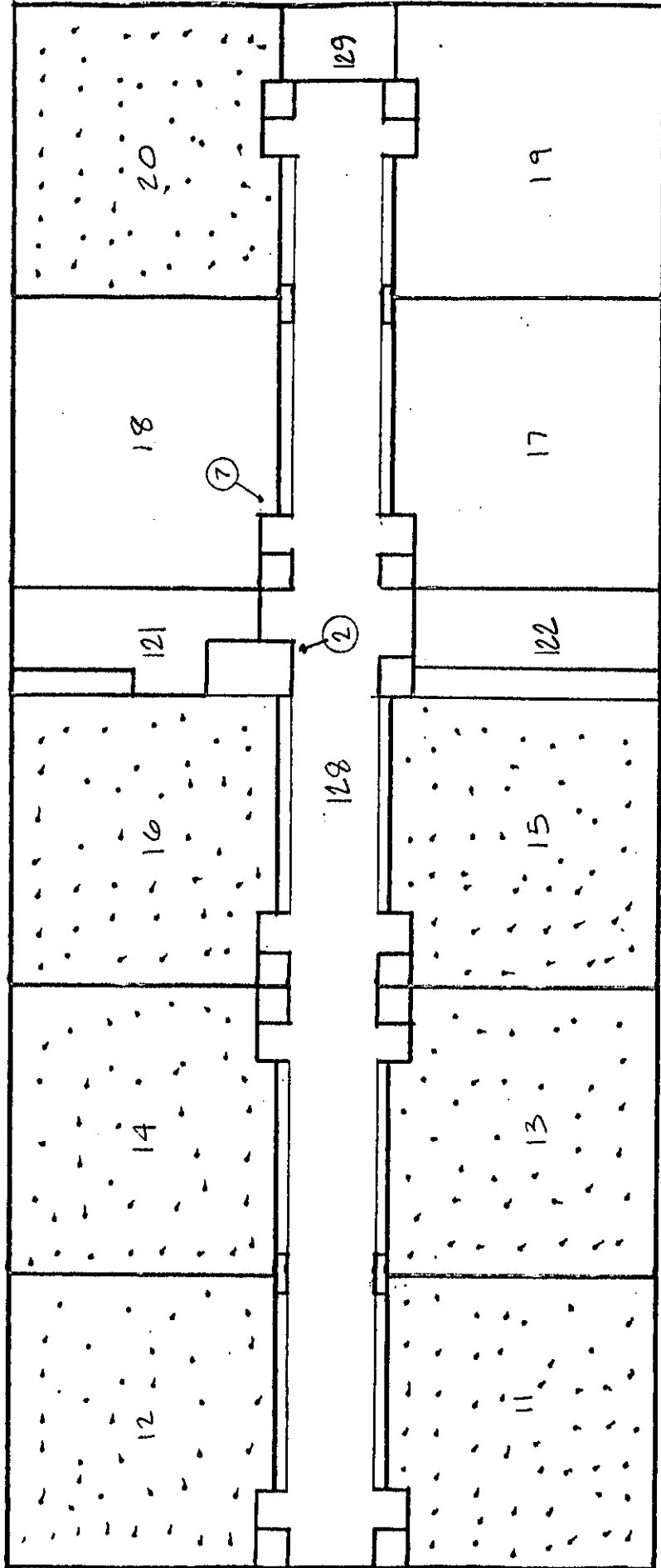
- FRIABLE
 - NON-FRIABLE

F-1 OF 4



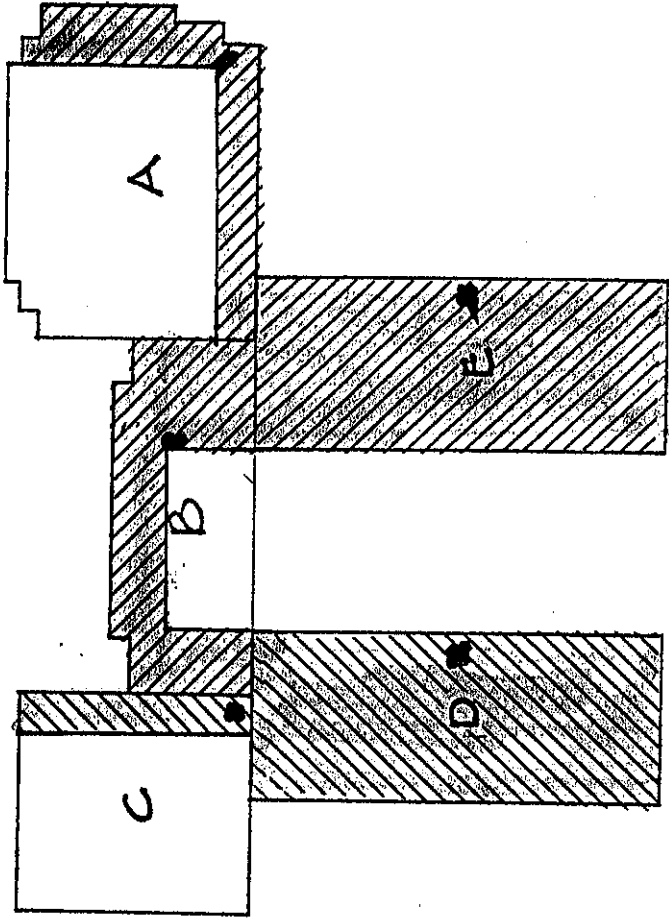
FLOOR PLAN BLD'G 'D'

FLOOR TILE
F-3 OF 4





FLOOR PLAN BLDG 'E'

FLOOR TILE



CRAWL SPACES  ← ACCESS

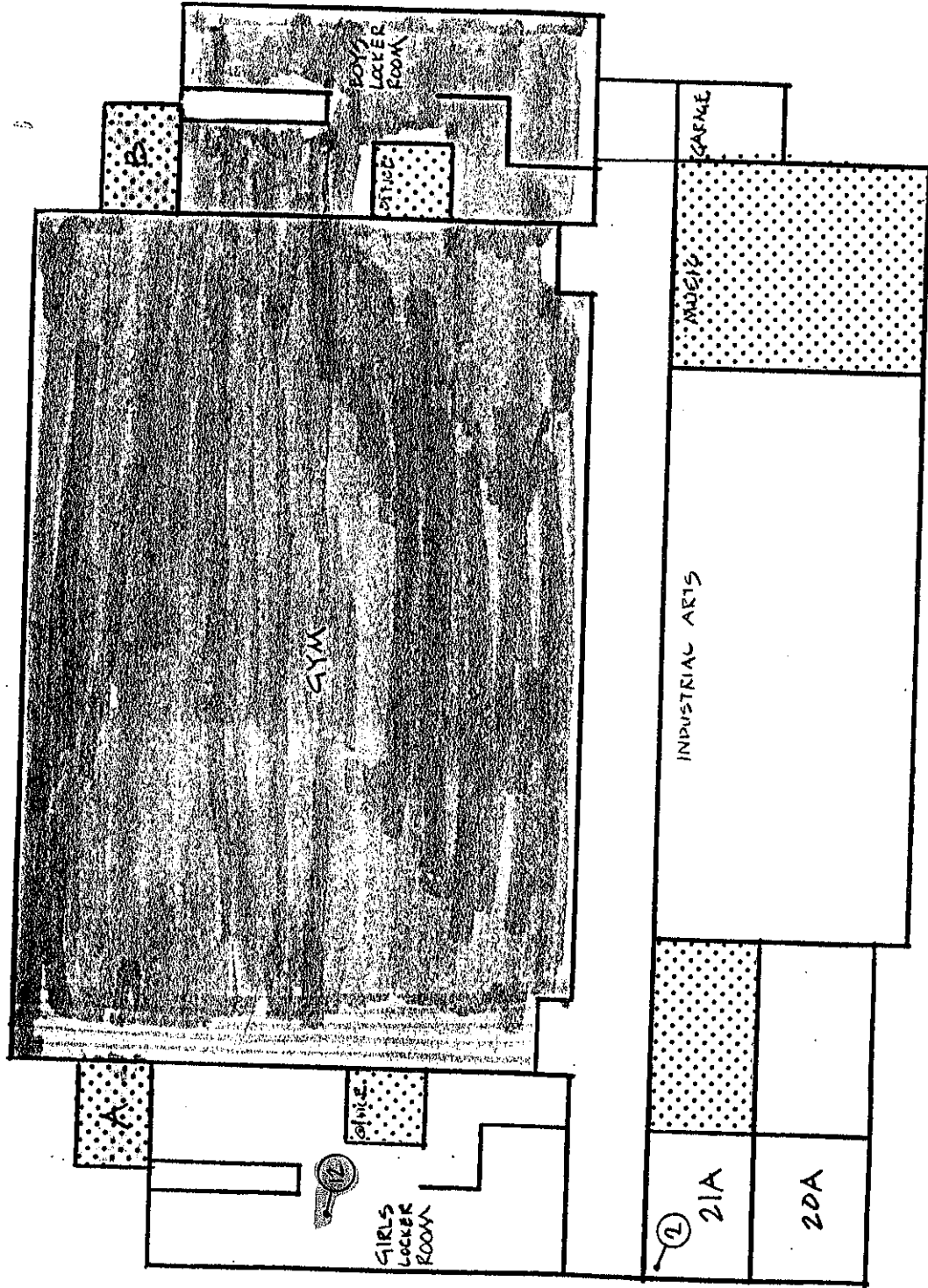
THERMAL SYSTEM INSULATION

SAMPLED & FOUND TO CONTAIN ASBESTOS
 - FRIABLE
 - NON-FRIABLE

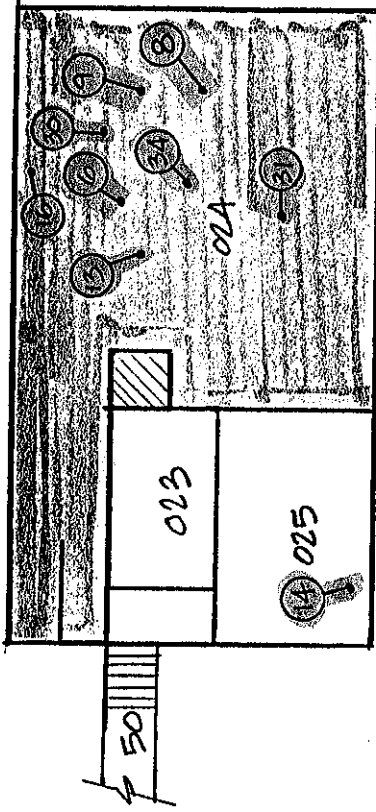
WHITTIER SCHOOL

ROOF DRAIN INSULATION

ASSUMED TO CONTAIN ASBESTOS
 FRIABLE  - NON-FRIABLE



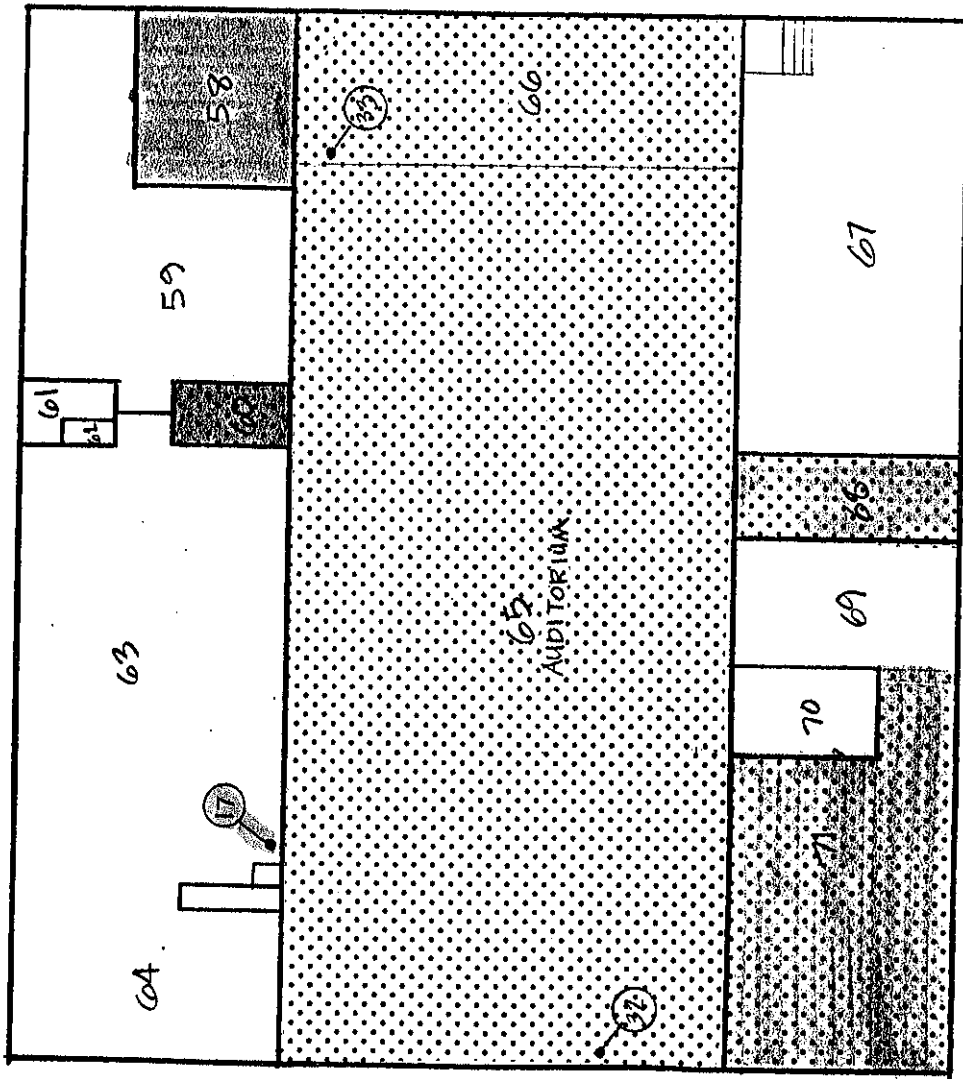
FLOOR PLAN BLD'G 'A' T.S.I.



BASEMENT BLDG B

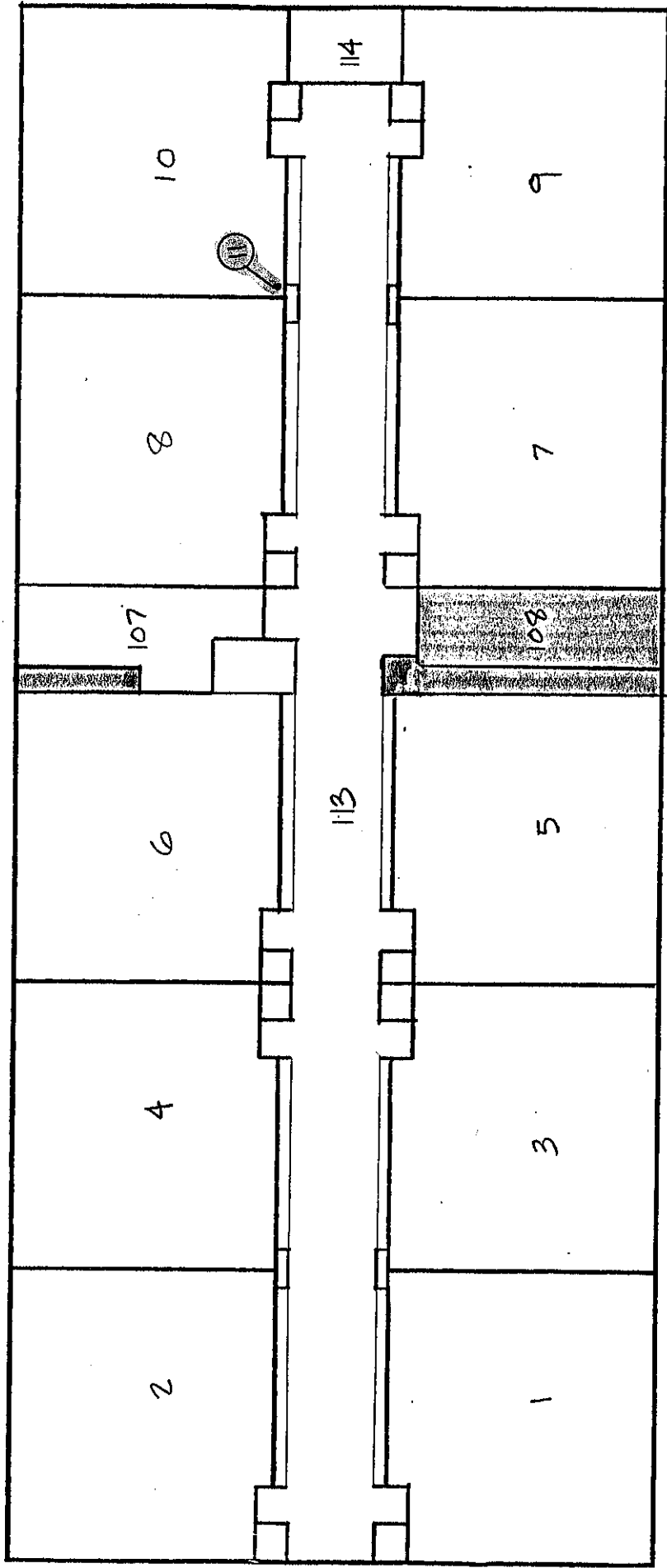
T.S.I.

TSI-30FC



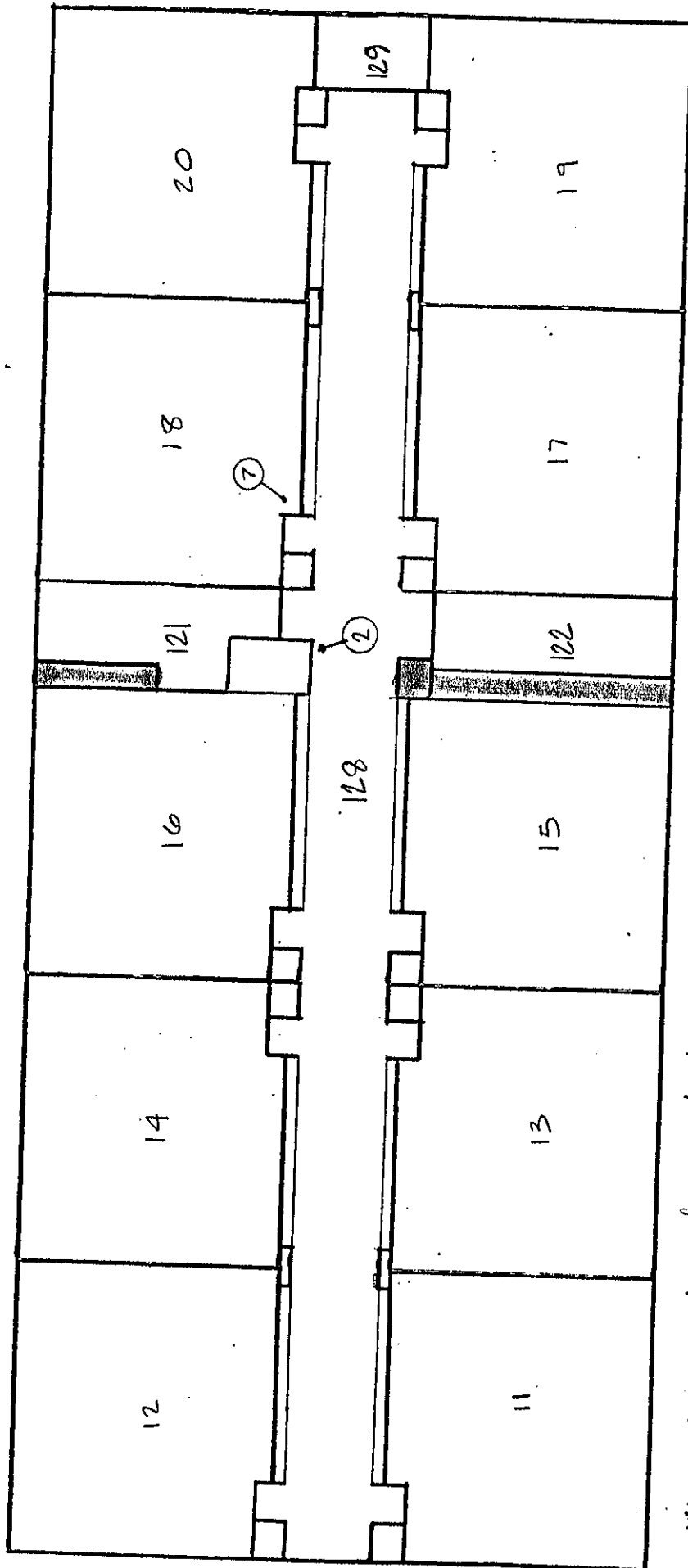
FLOOR PLAN BLD'G 6

T.S.I.



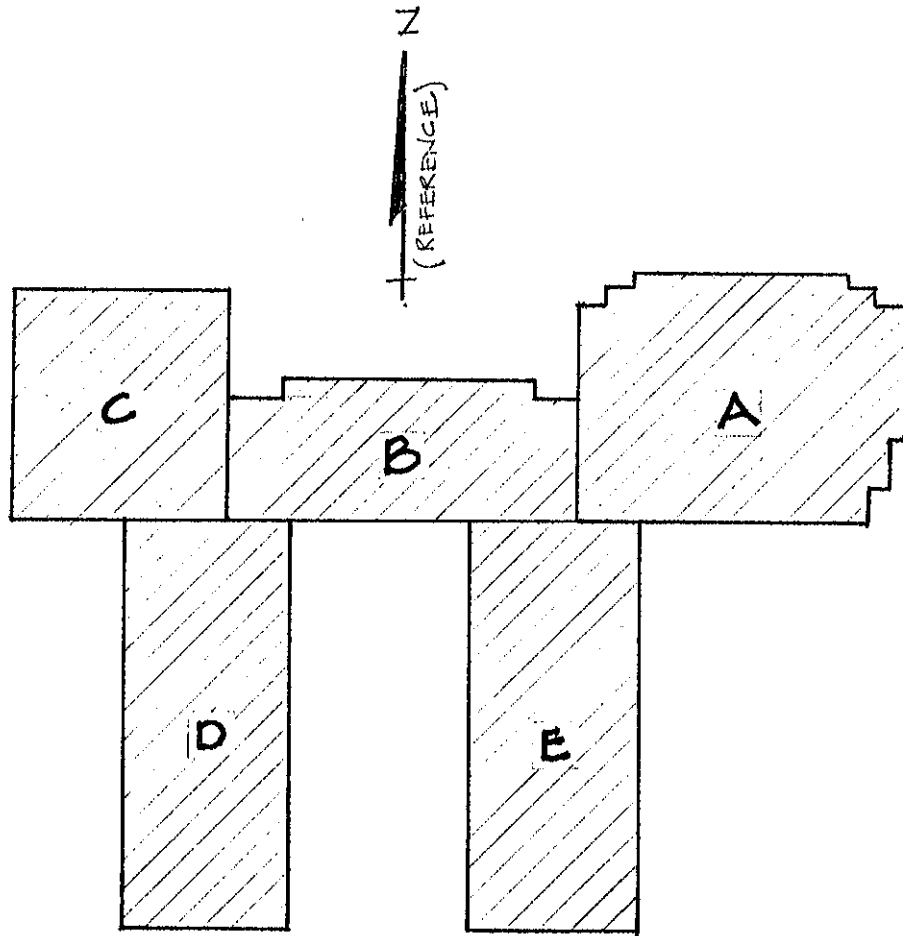
FLOOR PLAN BLD'G 10

T.S.I.



FLOOR PLAN BLD'G 'E'

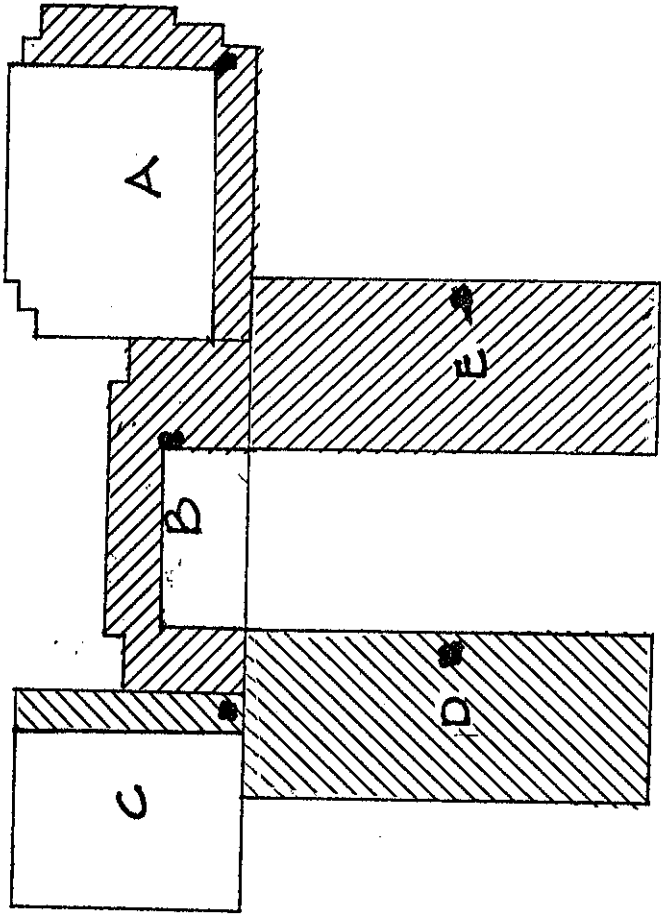
T.S.I.




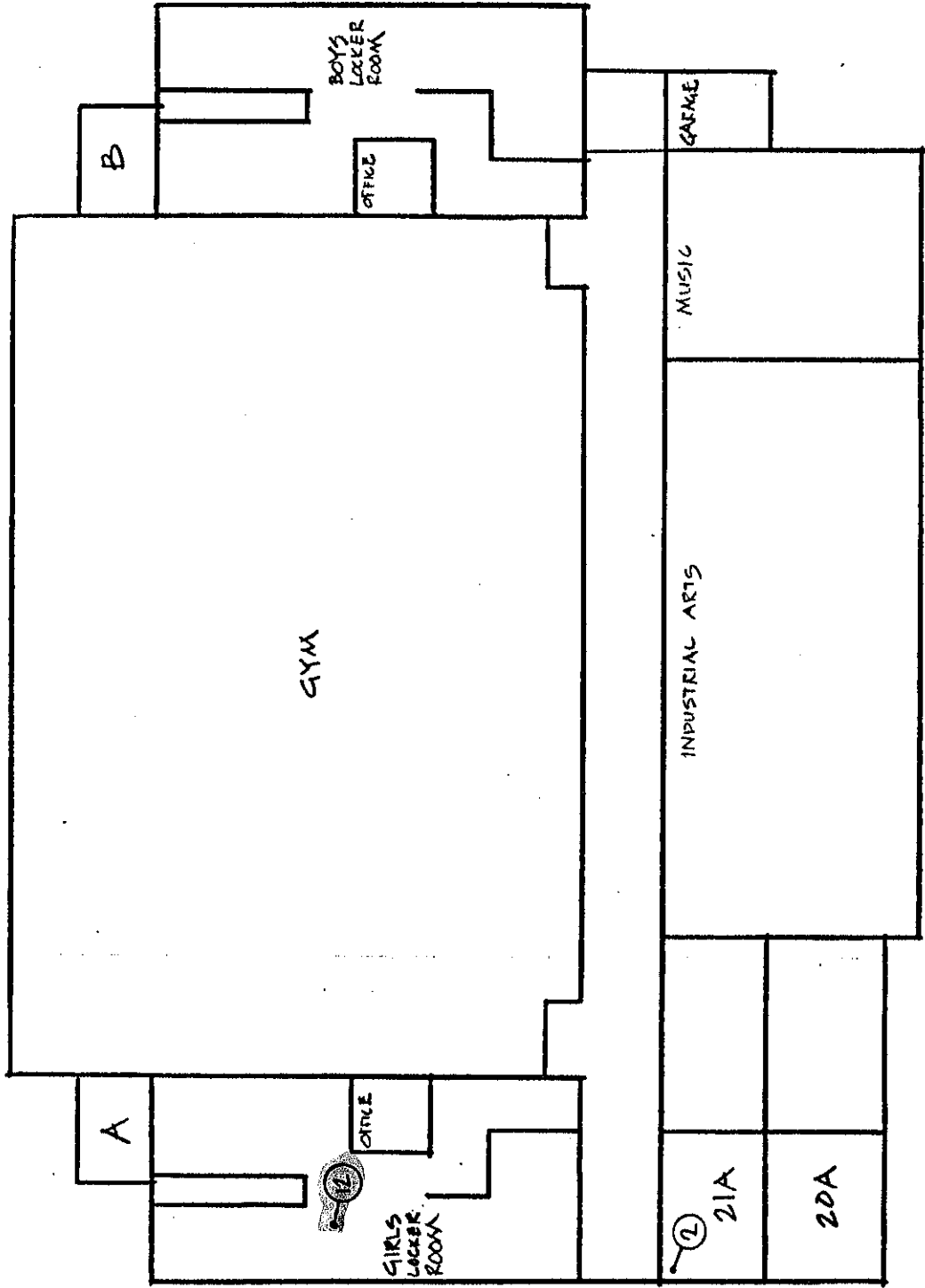
KEY PLAN

WHITTIER SCHOOL

#A-1 OF 3

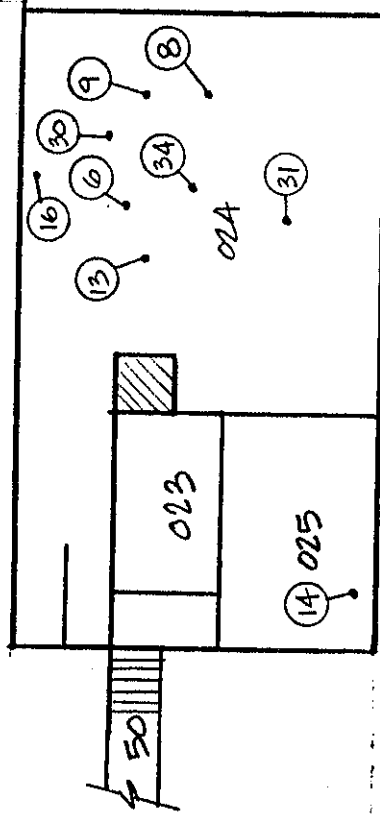


CRAWL SPACES  ACCESS

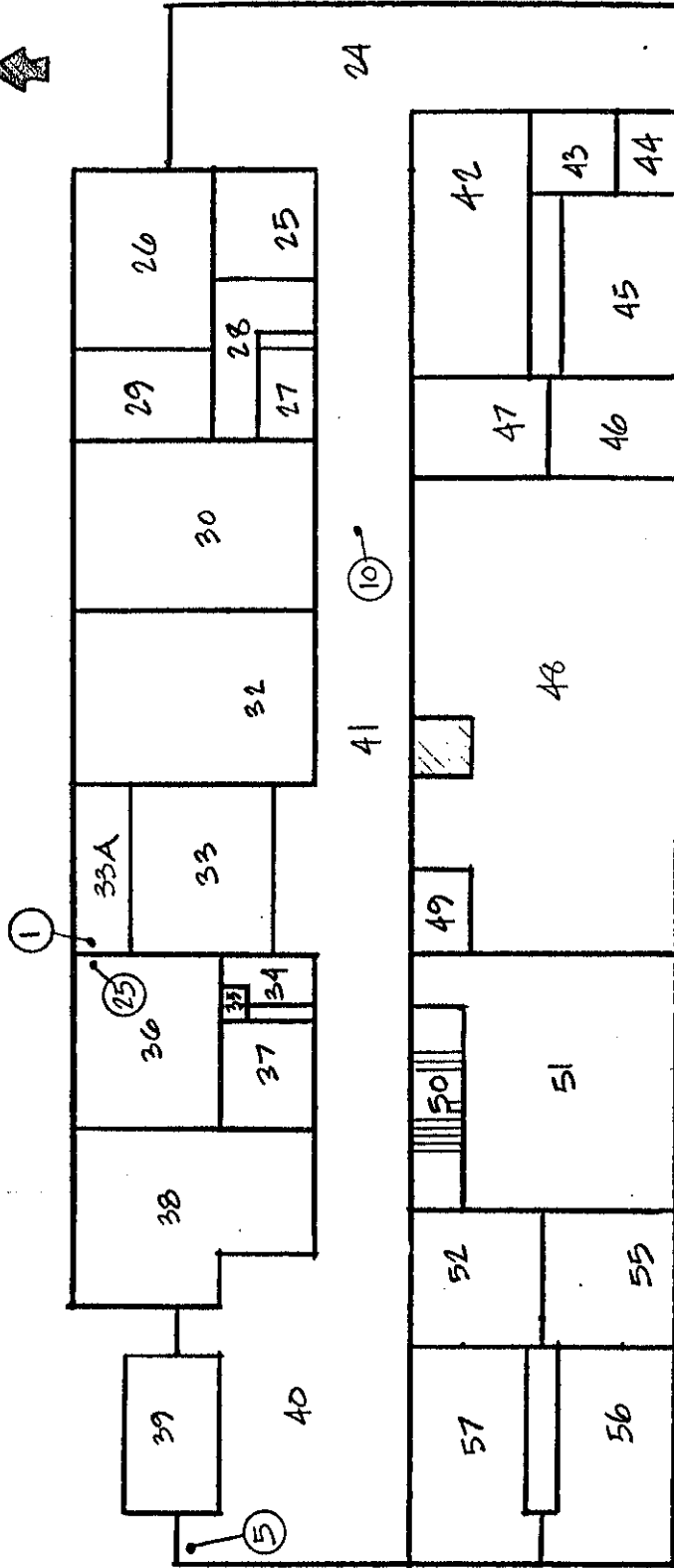


FLOOR PLAN BLDG 'A'

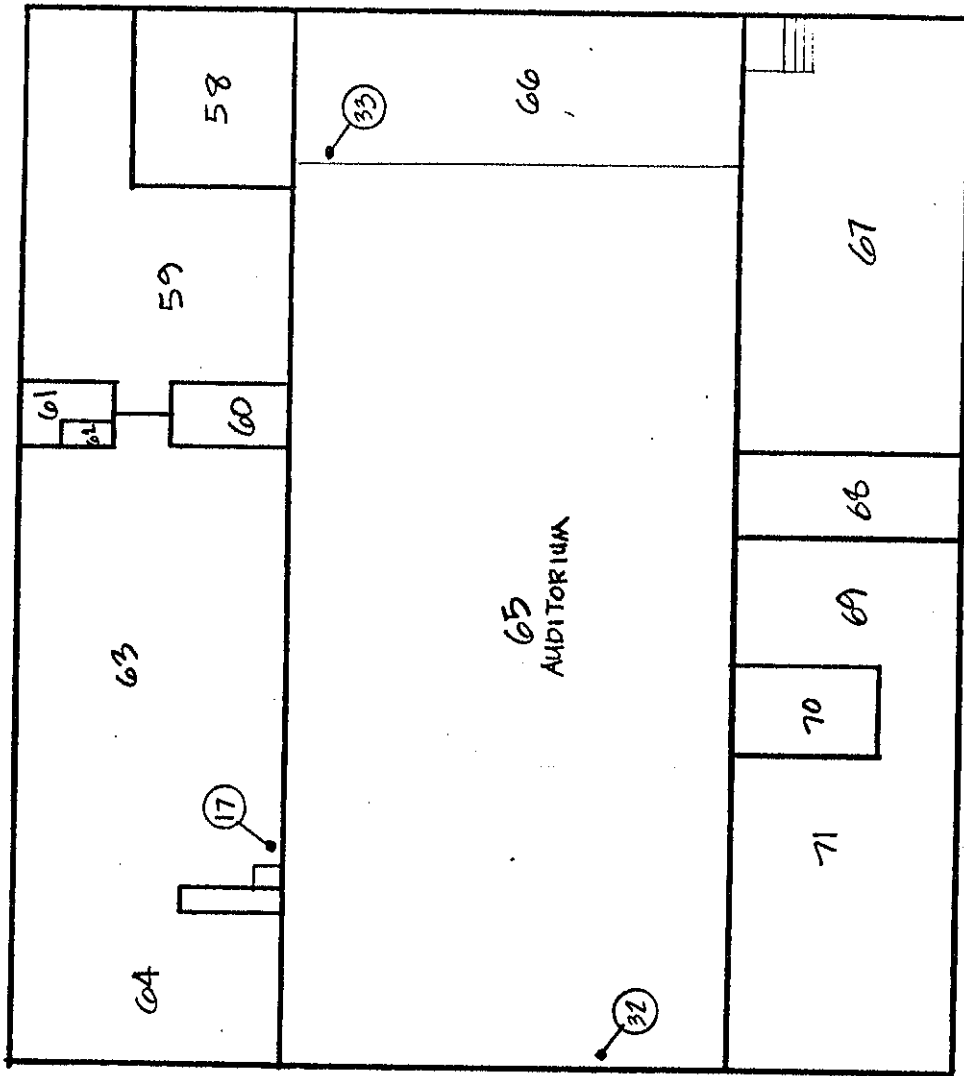
WHITTIER SCHOOL



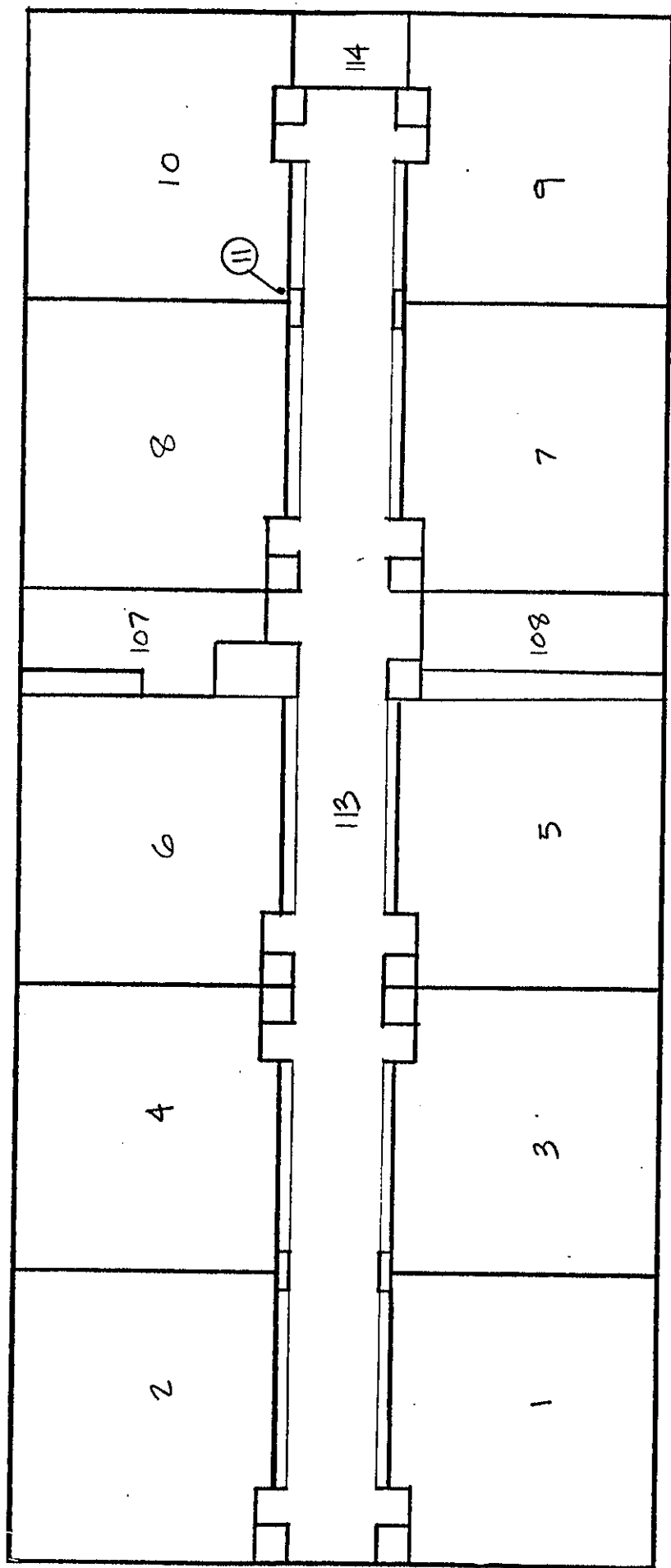
BASEMENT BLDG B



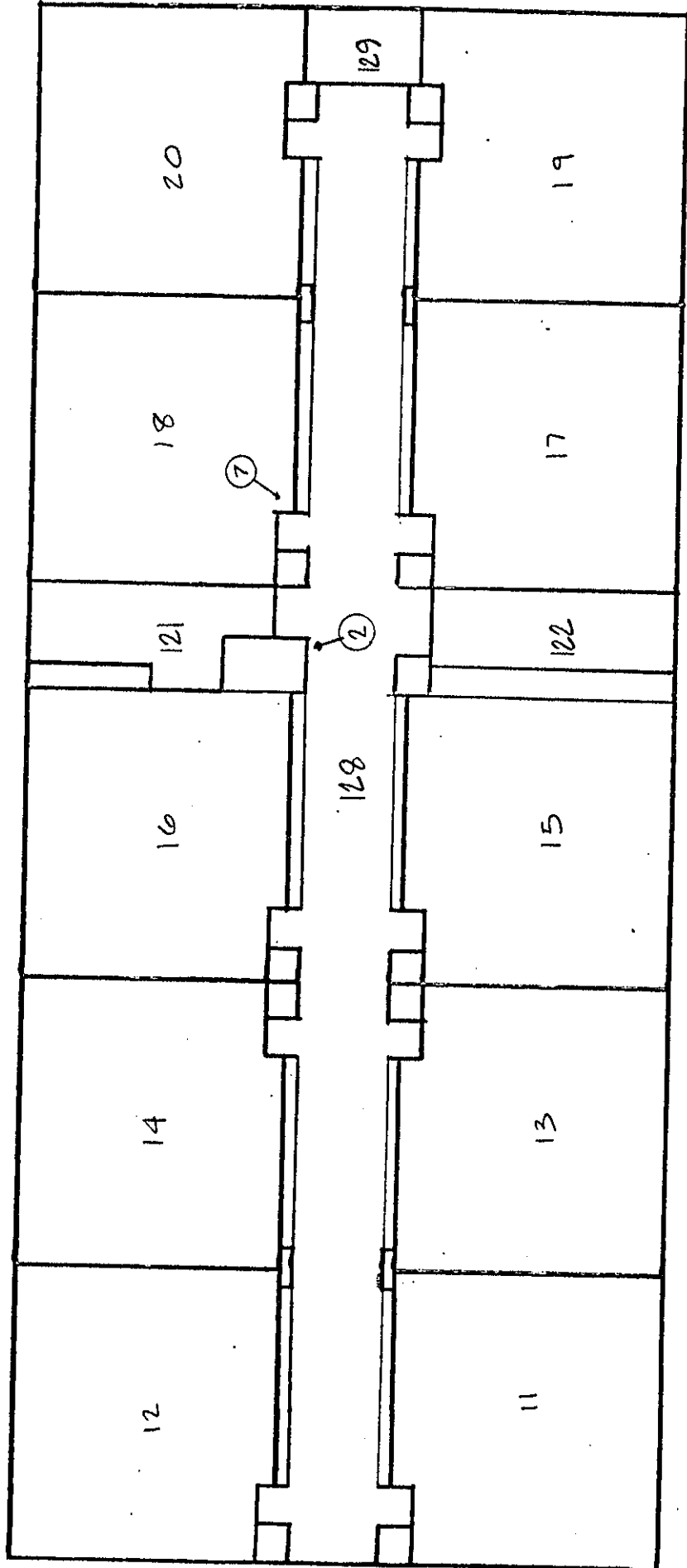
FLOOR PLAN BLD'G B



FLOOR PLAN BLD'G 'C'



FLOOR PLAN BLD'G 'D'



FLOOR PLAN BLD'G 'E'

APPENDIX B
PREVIOUS INSPECTION REPORTS
(December 14, 1987)

APPENDIX C

**RESPONSE ACTIONS OR PREVENTATIVE MEASURES
TAKEN BEFORE PREPARATION OF MANAGEMENT PLAN**

APPENDIX D
RESPONSE ACTIONS

RESPONSE ACTIONS

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I. OVERVIEW

A. Objectives

1. The school district (LEA) must select and implement in a timely manner the appropriate response actions consistent with the EPA Assessment Codes found in this appendix.
2. The response actions selected shall be sufficient to protect human health and the environment.
3. The LEA may select the action that is the least burdensome method. In determining which is least burdensome, the LEA may consider local circumstances including occupancy and use patterns within the school building, and its economic concerns, long and short term. The LEA may prioritize the areas needing response actions.
4. The requirements of AHERA in no way supersede the worker protection and work practice requirements of any other OSHA or EPA rules and regulations.

B. Response Action Definitions

1. Removal

- a. Removal, as its name suggests, is the complete taking out or stripping of damaged ACM from a damaged area, a functional space, or a homogeneous area in a school building.
- b. Removal offers the only permanent solution for ridding the building of its asbestos. Spot removals may be performed if damage is localized or minor.
- c. No building may be demolished without first removing all asbestos containing materials.

- d. During removal, containment barriers, worker protection, and wet removal methods are necessary for all types of asbestos. Note: amosite will not absorb water or water with traditional wetting agents, therefore will not "wet."

2. Enclosure/Containment

- a. Enclosure involves construction of an airtight impermeable barrier on walls and ceilings around the ACBM to prevent the release of asbestos fibers into the air. NOTE: The EPA states that no enclosure will be totally airtight. The practices recommended are only designed to greatly reduce air movement across the enclosure boundary.
- b. Containment barriers are erected after all lines and equipment that need servicing have been removed from behind the enclosure barrier.

3. Encapsulation

- a. Encapsulation means the treatment of ACBM with a material that surrounds or embeds asbestos fibers in an adhesive matrix in order to prevent the release of fibers. An encapsulant may create a membrane over the surface (bridging encapsulant) or penetrate the material and bind its components together (penetrating encapsulant).
- b. Encapsulation also refers to the spraying of ACM with a sealant. The sealant should bind together the asbestos fibers and other material components and offer some resistance to impact.
- c. Encapsulation should only be used on a cohesive material that adheres well to its substrate.
- d. Containment barriers are needed during the application, as well as worker protection. Airless sprayer should be used for the application.

4. Repair and O&M

- a. Repair means returning damaged ACBM to an undamaged condition or to an intact state so as to prevent fiber release. Once the repair is completed, an O&M Program is instituted for the corresponding area.
- b. An O&M Program is designed to maintain the good condition of the ACBM by a program of work practices where the type and condition of ACBM do not require removal, encapsulation or enclosure.
- c. O&M is designed to clean up fibers previously released, prevent future release by minimizing ACBM disturbance or damage, and monitor the condition of the ACBM.
- d. The O&M program's effectiveness depends upon the school's organizational structure, the employee's integrity and most importantly the commitment of the people involved.

II. ASSESSMENT CODES AND CONDITION OF THE ACM

A. EPA has formulated a 7 category numerical assessment code depending on the type and condition of ACM.

#1. Damaged or significantly damaged thermal system insulation ACM.

#2. Damaged friable surfacing ACM.

#3. Significantly damaged friable surfacing ACM.

#4. Damaged or significantly damaged friable miscellaneous ACM.

#5. ACBM with potential for damage.

#6. ACBM with potential for significant damage.

#7. Any remaining friable ACBM or friable suspected ACBM.

* EPA - Non-asbestos (NA)

* The last category of this section was used to identify areas sampled which did not contain asbestos.

B. In applying EPA's category code, it is necessary to understand the following EPA definitions:

1. Damaged ACBM: That material which has deterioration, delamination, water damage, lacks cohesion, is blistered, crumbling, gouged, marred heavily, abraded, or in any way has lost its structural integrity over more than 1% but less than 10 % of the surface area if the damage is evenly distributed or less than 25%, if the damage is localized in one area of the homogeneous area.

2. Significantly Damaged ACBM: That material which has deterioration, delamination, water damage, lacks cohesion, is blistered, crumbling, gouged, marred heavily, abraded, or in any way has lost its structural integrity over at least 10% of the surface area if the damage is evenly distributed or at least 25% if the damaged is localized.

3. Good Condition ACBM: ACBM with no visible damage or deterioration.

4. ACBM with potential for damage: Pertains to circumstances in which:
 - a. Friable ACBM is in an area regularly used by building occupants, including maintenance workers.
 - b. 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 O&M practices, changes in occupancy or recurrent damage.

5. ACBM with potential for significant damage: Pertains to circumstances in which:
 - a. Friable ACBM is in an area regularly used by building occupants, including maintenance.
 - b. Indications show 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 O&M practices, changes in occupancy or recurrent damage.
 - c. 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.

C. In applying EPA's category code, the person making the assessment must consider the following factors:

1. Accessibility
2. Potential for contact with the material
3. Quantity of the asbestos containing material
4. Composition of the ACM
5. Size of the population exposed
6. Likelihood of continual exposure
7. Pedestrian traffic and adjacent room use
8. Vibration and air movement
9. Planned future use of the area(s)

III. RESPONSE ACTION SELECTION

- A. The selection of response actions is guided by the minimum requirements imposed by AHERA.
1. If damaged or significantly damaged thermal insulation ACM is present, (EPA code #1) the LEA must:
 - a. At least repair the damage, or remove the damaged material if not feasible to repair.
 - b. Maintain all undamaged thermal system insulation.
 2. If damaged friable surfacing ACM or damaged friable miscellaneous ACM, (EPA codes #2 & #4) the LEA must:
 - a. Select removal, enclosure, encapsulation or repair.
 3. If significantly damaged friable surfacing ACM or friable miscellaneous ACM, (EPA codes #3 & #4) the LEA must:
 - a. Immediately isolate and restrict access, unless isolation is not necessary to protect human health and the environment.
 - b. Remove the ACM from the functional space, unless encapsulation or enclosure is sufficient.
 4. If ACBM or ACM has potential for damage, (EPA code #5) the LEA must:
 - a. At least institute an O&M program.
 5. If any ACBM or ACM has potential for significant damage, (EPA code #6) the LEA must:
 - a. Implement an O&M program, institute preventative measures to eliminate likelihood that the ACM or its cover will become significantly damaged.
 - b. Remove expeditiously, if preventative measures not possible, isolate and restrict access, if necessary.

IV. ADVANTAGES AND DISADVANTAGES OF THE RESPONSE ACTIONS

ADVANTAGES

DISADVANTAGES

Removal

Eliminates asbestos source
Eliminates need for
special O&M program

Can be used in most
situations

One time cost expenditure

Replacement with a
Porous surfaces also may
require encapsulation

Improper removal may
raise fiber levels

School owns the asbestos
and is responsible even
at the disposal site

Enclosure

Reduces exposure in an
area outside enclosure

Initial costs may be
lower than for removal

Usually does not require
replacement of material

Disturbance is unlikely

No enclosure can be made
absolutely airtight

Fiber release continues
behind the enclosure

Utilities, etc. will
need relocation from
behind the enclosure

O&M must be performed for
these areas

Periodic surveillance
required

Repair of damaged
enclosure necessary

Potential liability for
future release remains
Long term costs could be
higher than removal

If larger than small
scale/short duration, has
to have project design

ADVANTAGES

DISADVANTAGES

Encapsulation

Reduces asbestos fibers from material

Initial costs may be lower than removal program

Does not require replacement of material

Not recommended for material other than material adequately adhered to substrate

Asbestos remains and must be included in O&M

Delamination of the material may take place

Damaged material required repairs

Encapsulated surface is difficult to remove

Previously encapsulated materials may have to be re-encapsulated

Long term costs may be higher than for removal

Project will need an accredited designer and accredited personnel performing the work

Material will still have to be removed when and if the building is demolished

V. MANAGEMENT PLANNER'S RECOMMENDATIONS

- A. On the following page is a copy of the Management Planner Response Action Recommendations form the accredited management planner will use in making his/her written recommendations.
1. As required by law, the document is dated and signed with the planner's accreditation number. A signed copy will be given to the designated person for inclusion in the school's records.
 2. The response actions are for each functional space within the school as defined by the management planner.
 3. Abbreviations are as follows; R = Removal, E = Encapsulation, C = Enclosure/Containment, O&M = Operation and Management.
 4. All response actions are based on the criteria as set forth in this Appendix B, Response Actions.

VI. SUMMARY

- A. Conclusion of Any Response Actions to Remove, Enclose or Encapsulate ACBM
1. A person designated by the LEA shall visually inspect each functional space where such actions took place to determine if the action was properly completed.
 2. The LEA shall designate a person to perform air monitoring for clearance at the end of each response action, except those deemed small scale/short duration projects.
 3. Air samples taken shall be analyzed by a lab accredited by State of Massachusetts. TEM analysis shall be utilized for clearance air sampling unless otherwise noted.

MANAGEMENT PLANNER RESPONSE ACTION RECOMMENDATIONS
FOR

John Greenleaf Whittier Middle School

256 Concord Street

Haverhill, MA 01830

NAME: C. R. Coe
COMPANY: Hunter, Inc.
ADDRESS: 10 Lewis Street
Lincoln, Ma. 01733

SIGNATURE



DATE

10/19/88

Accredited Course: Asbestos Management Planning Training

State of Accreditation: Massachusetts

Training Provided By: Institute for Environmental
Education

EPA Certificate #: 73304-104

State Certificate #: MP 00073

Date of Certification: 4/26/88

In the text that follows, the abbreviations below have been used:

P = PATCH OR REPAIR
R = REMOVAL
E = ENCAPSULATION
C = CONTAINMENT/ENCLOSURE
O&M = OPERATIONS AND MAINTENANCE

Note: Response Actions are not designated for non-friable ACM, as defined in AHERA. But all ACM must be incorporated into an Operations and Maintenance (O&M) program.

John Greenleaf Whittier Middle School

Evaluation of the resources needed to complete the response action appear in the following recommendations. These are intended as general guidance only and not to be substituted for traditional bidding procedures. They are based on estimated removal costs of \$15-\$25 per linear foot or square foot. Encapsulation or enclosure is estimated to cost two-thirds of the cost of removal. Patch and repair costs are estimated at \$5-\$10 per square or linear foot. Cost estimates for non-removal alternatives do not include costs of ongoing O&M. O&M is estimated to cost \$4830.00 per year.

Functional Space

Response Action

- | | |
|----------------------------------------|-------------|
| A. Boiler room | |
| 1. Pipe covering and hard fittings | P, then O&M |
| 2. Boiler, breeching and tank covering | P, then O&M |
| 3. Header covering | P, then O&M |
| 4. Vibration isolator | O&M |

Cost:

1. Pipe covering and hard fittings
Repair 38 LF x \$5-10/LF = \$190-380
Removal 38 LF x \$15-25/LF = \$570-950
2. Tank covering
Repair 226 SF x \$5-10/SF = \$1130-2260
Removal 226 SF x \$15-25/SF = \$3390-5650
3. Boiler covering
Repair 680 SF x \$5-10/SF = \$3400-6800
Removal 680 SF x \$15-25/SF = \$10200-17000
4. Header covering
Repair 40 LF x \$5-10/LF = \$200-400
Removal 40 LF x \$15-25/LF = \$600-1000
5. Breeching
Repair 244 SF x \$5-10/SF = \$1220-2440
Removal 244 SF x \$15-25/SF = \$3660-6100

All thermal insulation must be maintained in non-friable condition and therefore, as a minimum, all the insulation in the boiler room must be repaired. Once it is repaired, its condition must be monitored through an ongoing O&M program until it is removed. Any insulation that has lost its cohesiveness and cannot be successfully repaired, must be replaced with asbestos-free insulation.

The vibration isolator located at the fan in the boiler room is in good condition and need only be monitored in the O&M program.

B. Classrooms

1. Floor tile O&M
2. Roof drains P, then O&M or R

Cost:

Roof drain
Repair 56 LF x \$5-10/LF = \$280-560
Removal 56 LF x \$15-25 LF = \$840-1400

Floor tile throughout the school is in generally good condition and its condition need only be monitored through an O&M program until its eventual removal.

Roof drains are located throughout the school. Damage was found in the gymnasium, home economic storage areas, duct room (room 68) and in the kitchen. All thermal system insulation must be maintained in non-friable condition. These damaged roof drains should be repaired and those located in storage rooms where repeated contact is a factor, should be protected with an enclosure made of sheet metal or plywood. An alternative would be to remove the insulation. Until this insulation is removed, its condition must be monitored through an ongoing O&M program.

C. Locker rooms, kitchen

1. Transite ceilings O&M

Panels of transite were used as ceiling treatment in the locker rooms and kitchen. It is in good condition, undamaged and sealed with paint. The condition of this asbestos-containing material need only be monitored through an ongoing O&M program until it is eventually removed.

D. Pipe chases and crawl spaces

1. Pipe covering and hard fittings P, then O&M or R

Cost:

Repair 190 LF x \$5-10/LF = \$950-1900
Removal 5500 LF x \$15-25/LF = \$82500-137500

Pipe covering in pie chases was primarily in good condition and only needs occassional repair. Pipe covering in the crawl spaces is in poor condition. High humidity under the building has rotted the canvas covering of much of the insulation and it has fallen from the pipe.

Since the insulation has lost its cohesiveness and successful repair is unlikely, it should be removed. Anyone entering the area should take care not to disturb either covering which is loosely hanging from pipes or that which is lying on the ground. Care should also be taken not to track debris into the school.

APPENDIX E
OPERATIONS AND MAINTENANCE MANUAL

OPERATIONS AND MAINTENANCE

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INTRODUCTION

The Operations and Maintenance (O&M) Program's objective is to minimize asbestos fiber release and the exposure to these fibers by the building occupants, while limiting the potential for liability. The O&M program is designed to educate the employees and supervisors that may handle or become exposed to asbestos fibers during the course of their daily activities. The employee needs to realize that in order to accomplish the O&M program's goals, the control of asbestos fiber release is the first step before a more permanent response action, such as removal or enclosure, is taken.

O&M procedures are not sufficient for asbestos-containing material that is significantly damaged or in certain building locations. Often too, ACM that has potential for significant damage can not be handled under an O&M program. O&M programs are not designed for the performance of any projects greater than the small scale/short duration activities described in this manual.

The employees handling of asbestos raises two concerns;

- 1) How to clean up fibers previously released?
- 2) How to avoid ACM disturbances?

The answers to both of these concerns are outlined in this manual.

Employer/employee relations are of the utmost importance in making the O&M program work. It is important to understand the chain of command involved in all decision making and to follow it. On the next page of this manual is an organizational tree to assist in understanding the chain of command.

The final point of this introduction is to stress that the burden of having a successful O&M program rests on you, the school district employee. The individual with overall responsibilities for the program's success is the school district's designated asbestos coordinator.

NAME: _____

ADDRESS: _____

PHONE: _____

I. ESTABLISHING THE OPERATIONS AND MAINTENANCE PROGRAM

A. Notifications

1. All workers must be notified or informed at least once each school year about inspections, response actions and post response action activities, including surveillance activities.
2. Each worker should be given a copy of all building drawings depicting the locations and types of ACBM (Asbestos Containing Building Material) and suspected ACBM, with this manual.
3. You should be notified where the Management Plan is available for viewing.

B. Training

1. If you handle asbestos, you must have at least the 2 hour awareness training required of all custodians and maintenance personnel, plus a 14 hour asbestos training course. The Massachusetts DLI requires you to be a certified Asbestos Associated Project Worker.
2. If you are involved in removing, enclosing, or encapsulating more than 3 linear or 3 square feet of ACM you must successfully complete an approved training course and be certified as an asbestos abatement worker.
3. Any project over 3 linear or 3 square feet, must be designed by an accredited project designer, and must involve fully accredited personnel in all other related phases.

C. Medical Surveillance

1. A recorded medical surveillance program shall be instituted for employees exposed to airborne concentrations of asbestos at or above the action level of 0.1 f/cc. Medical exams will be given to an employee prior to assignment to an occupation where there is exposure to airborne asbestos. A licensed physician knowledgeable in the requirements of this rule will conduct the exam. Form AA001 will be used for documentation.
2. An employee must be given a medical exam within 10 days of the thirtieth day of exposure to asbestos.

3. Every subsequent year after the initial exam, the employee must be given another exam.
4. The employee will be provided a copy of the report from the physician within 30 days of the exam.

D. Equipment/Supplies List

1. Listed below is equipment recommended for an O&M program, with an optional list provided.

RECOMMENDED

Disposable (Tyvek) Coveralls
 Disposable (Tyvek) Hoods
 Disposable (Tyvek) Booties
 Disposable Gloves
 Half Mask Respirator
 Respirator HEPA Filter
 Cartridges
 Small HEPA Wet/Dry Vacuum
 Filters and Bags For Vacuum
 44" x 60" Glove Bags
 Labelled Waste Disposal Bags
 6 Mil Poly Plastic (1 roll)
 3" x 5" Asbestos Warning Labels
 Danger Asbestos Signs
 Danger Asbestos Barrier Tape
 Duct Tape
 Penetrating Encapsulant
 Surfactant (Wetting Agent)
 Small Hand Spray Bottle
 Spray Adhesive
 Utility Knife
 Wet and Apply Lag Cloth
 Leaktight Resealable Barrels
 Smoke Tubes
 Flashlights, UL Approved Extension Cords

OPTIONAL

Flexible Bone Saws
 Large HEPA Wet/Dry Vacuum
 Filters & Bags For Vacuum
 Negative HEPA Air Unit
 Filters For Negative Air
 Unit
 PAPR (Personal Air
 Purifying Respirator)
 Personal Decon Chamber
 w/Shower
 Airless Sprayer
 Personal Air Monitoring
 Pump
 High Volume Air Pump
 Air Sampling Cassettes
 Moveable Scaffold
 Extension Cords
 OSHA Approved Ground Fault
 Circuit Interruption (GFCI)

E. Protocol and Procedures

1. The importance of your filling out the forms provided, and adhering to the guidelines given in this manual, cannot be over stressed.
2. The tackling of the O&M program has to be a team effort and will not succeed without your cooperation. Follow the chain of command and report all changes in the condition of the ACM and fiber releases as soon as possible.

3. Note and document any discoveries of additional suspected ACM. Perform visual inspections of the ACM in your building as frequently as possible. Condition yourself to look for changes in the condition of the ACM.
4. Read this manual and the pamphlets provided on asbestos thoroughly. Know what to do in case of emergency, who to contact, how to seal off an area, etc.
5. Recordkeeping is your responsibility. Be familiar with all the forms you are required to fill out. Maintain a daily log of all activities performed in and around areas containing asbestos.
 - a. Forms you are responsible for filling out:
 - Form AA004 - Permit Request Form For Maintenance Work
 - Form AA009 - Worker Asbestos Fiber Release Episode Notification
 - Form AA010 - Reassessment Of ACM (Performed During Periodic Surveillance)
 - Form AA015 - Documentation of Cleaning

F. Pamphlets Available

1. "Asbestos Worker Health Alert" OSHA Publication No. 3069, 1980
2. "Health Hazards of Asbestos" OSHA Publication No. 3040, 1979
3. "Asbestos in Buildings" Guidance for Service and Maintenance Personnel EPA Publication No. 560/5-85-018, July 1985
4. "Asbestos Waste Management Guidance" EPA Publication No. 530-SW-85-007, May 1985
5. Other sources for information are the "Asbestos Information Catalog" from the Source Finders Information Corporation and the appointed designee of your school district, who by law has to have on hand other asbestos related publications as noted in the Management Plan.

II. PERSONAL PROTECTION REQUIREMENTS

- A. It should be ensured that all employees working in or around asbestos are wearing proper personal protective equipment and are trained in its use.
1. Protective clothing will be provided and worn by all individuals inside the work place who may be exposed to asbestos as a result of abatement activities, cleaning, conducting repairs, or any other O&M activities involving asbestos.
 2. Protective clothing shall meet the following:
 - a. Disposable clothing including head, hand, foot, and full body protection shall be provided by the school district in sufficient size and quantity.
 - b. Hard hats, protective eyewear, gloves, rubber boots, and/or other footwear shall be provided when required. Safety shoes and hard hats should be in accordance with ANSI z89.1 (1969) and ANSI z41.1 (1967).
 - c. Non-disposable clothing can be used but must be laundered in accordance with OSHA 29 CFR 1926.58. Contaminated clothing shall be sealed in impermeable bags and bags must be appropriately labeled.
- B. Personal Air Monitoring
1. Personal air monitoring should be conducted during the first full day of activity involving the disturbance of asbestos, this is to accurately determine the airborne concentration of asbestos to which the worker may be exposed.
 2. Additional personal samples should be taken when the type of material or the location changes.
 3. Samples should be taken in such frequency and pattern as to represent with reasonable accuracy the level of exposure to the workers. Because of the small size of the school's workforce involved with asbestos, every worker must take personal air samples on himself. A rotation should be established for all employees.

4. The laboratory performing the analysis will use Phase Contrast Microscopy. Analytical procedures will be in accordance with the NIOSH 7400 Method for the analysis the air samples.
5. When taking the sample, place the cassette within 6 inches of your breathing zone. All workers must undergo hands on training in taking personal air samples.
6. Employees must be notified within 15 days of the school receiving results of any monitoring.

C. Personal Hygiene

1. There shall be no smoking, eating, drinking or chewing of gum or tobacco while wearing a respirator.
2. A clean change room, and shower area should be provided if the employees are to be performing removal of asbestos.

D. Postings

1. A copy of the EPA Regulations For Asbestos, 40 CFR 61 Subparts A and M, a copy of OSHA Asbestos Regulations, 29 CFR 1926.58 and a list of telephone numbers for local hospital, fire department and the appointed designee should be posted at each work site or in the clean room.
2. A copy of Massachusetts Regulation 453 CMR 6.00 pertaining to asbestos should also be made available.
3. The workers shall post signs to all approaches to work areas, including internal doorways that provide access to the work area. The signs must bear the following information:

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

RESPIRATORS AND PROTECTIVE CLOTHING

ARE REQUIRED IN THIS AREA

E. Respiratory Protection requirements

1. Employees shall be provided with respirators approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH). The respirator cartridges used must also be NIOSH approved high efficiency particulate air filtration cartridges, (HEPA). The cartridges for asbestos work are color-coded purple or magenta, are labelled "TC21C" and specifically state that they are appropriate for asbestos fibers.
2. The respirator shall be worn by all individuals inside the work area and during any repairs or disturbances of ACM.
3. Employees shall be provided with personally issued and individually marked respirators. No alterations to the respirator shall be made.
4. Each employee must be qualitatively or quantitatively fit tested by an Industrial Hygienist. This fit test should be conducted during your training.
5. When donning a respirator the employee shall perform the negative and positive air pressure fit test, as described in your training.
6. When cleaning the respirator after each use, disassemble completely and thoroughly wash .
7. Respirators not in use must be hung in a dry place.

III. CLEANING

- A. Use Form AA015 to document all cleaning performed in areas that contain ACM debris or dust.
 - 1. A thorough initial cleaning must be performed after the accredited inspection report is completed and before any response actions can take place.
 - 2. Employees must at least wear their respirators while performing the cleanings.
 - 3. All cleaning should encompass either wet mopping/wiping and/or HEPA vacuuming. Carpeting should be steam cleaned with HEPA filtered vacuum cleaners.
 - 4. All irregular surfaces such as curtains, books, furniture, and carpeting should be cleaned.
 - 5. Other surfaces, such as walls, non-carpeted floors, light fixtures, equipment housing, handling ducts (exterior), file cabinets, etc. should be cleaned using mops or rags that are wetted with amended water. Dispose of the mopheads and rags properly.
- B. Additional Or Periodic Cleaning
 - 1. Periodic cleaning may be instituted on a daily or weekly basis depending upon the amount of ACM, the level of contamination and if a response action other than O&M is planned in the near future.
 - 2. Do not use dry brooms, mops, dust cloths or standard vacuum cleaners. To do so would only launch asbestos fibers into the air and assist in suspending them in the air.

IV. LABELING

- A. You must attach a warning label immediately adjacent to any friable and non-friable ACBM identified in the inspection report, that is located in routine maintenance areas (such as boiler rooms). This includes:
1. Friable ACBM that was responded to by a means other than removal.
 2. ACBM for which no response action was carried out.
- B. All labels must be prominently displayed until the ACBM that is labeled is removed.
1. The label shall read:

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

RESPIRATORS AND PROTECTIVE CLOTHING

ARE REQUIRED IN THIS AREA

V. FIBER RELEASE EPISODES

A. Emergency Response Procedures

1. Report all presence of debris, water or physical damage to ACM.
2. Use Form AA009, the Worker Asbestos Fiber Release Episode Notification to report all new spills.

B. Minor Fiber Release Episode

1. The following procedures must be undertaken in the event of a release episode that can be described by the falling or dislodging of 3 square or linear feet or less of friable ACBM.
 - a. Thoroughly saturate the debris by using wet methods.
 - b. Clean the area as described in Cleaning Section A, paragraphs 1 thru 5.
 - c. Place the asbestos debris in a sealed, airtight container.
 - d. Repair the area of damaged ACM with materials such as asbestos free spackling, plaster, cement, or insulation, or seal with latex paint or an encapsulant, or immediately have the appropriate response action implemented, as described in the Management Plan.

C. Major Fiber Release Episode

1. The following procedures must be ensured, in the event of a major fiber release, that is described as the falling or dislodging of more than 3 square or linear feet of friable ACBM.
 - a. Restrict entry into the area and post signs to prevent entry into the area other than by trained personnel.
 - b. Shut off or temporarily modify the HVAC system to prevent the incursion or distribution of asbestos fibers into other areas of the building.

- c. The response action for any major fiber release must be designed by an accredited project designer, and any of the response activities must be performed by accredited and properly trained personnel.
- d. An example of major fiber release would be the explosion of a boiler or furnace with ACBM covering. This type of emergency will call for immediate evacuation of the building, alerting the fire department and emergency personnel that the affected area contains asbestos, and, if possible, sealing off the area and shutting down the HVAC system in this area.

VI. SMALL SCALE/SHORT DURATION ACTIVITIES

- A. The following tasks are examples of small scale/short duration activities:
- a. Removal of asbestos containing insulation on pipes.
 - b. Removal of small quantities of ACM insulation on beams or above ceilings.
 - c. Replacement of an asbestos containing gasket on a valve.
 - d. Installation or removal of a small section of drywall.
 - e. Installation of electrical conduits through or proximate to ACM.
 - f. Removal of small quantities of ACM only if required in the performance of another maintenance activity, not intended as asbestos abatement.
 - g. Minor repairs to damaged thermal system insulation which do not require removal.
 - h. Repairs to a piece of asbestos-containing wallboard.
 - i. Repairs involving encapsulation, enclosure, or removal to small amounts of friable ACM.

Small scale/short duration activities should only take place if required in the performance of emergency or routine maintenance activity and not intended solely as asbestos abatement. Such work cannot exceed amounts that can be contained in a single mini-enclosure.

B. Preparation of the Work Area

All work involving the disturbance of asbestos should be scheduled during times when the areas will not be occupied or after school hours.

1. Remove all moveable objects from the work area and decontaminate if necessary using wet methods and HEPA vacuuming. Decontaminate and completely encase with 6 mil plastic all non-moveable objects in the affected work area.

This includes all floors, and walls.

2. Wet methods should be used constantly throughout the small scale/short duration project.
 - a. Amended water or another wetting agent should be applied by means of an airless sprayer to minimize ACM disturbance.
 - b. ACM must be wetted from the beginning of the operation and continually throughout the work period, to ensure that any dry ACM exposed during the course of the work is wet and remains wet until final disposal.
 - c. Dry removal may be performed only when working on live steam lines or around electrical equipment or wiring.

C. Removal By Glove Bag

1. The following products or materials should be used:
 - a. Profo-bag or similar bag polyethylene (7) mil bag for removal of pipe covering on horizontal lines.
 - b. Safe-T-Strip or similar (7) mil PVC bag for removal of valves, T-section Y-sections, and vertical pipes. Use the Safe-T-Strip bag that is appropriate for the particular job. Selection of sized, pre-cut bags will depend on diameter of pipe.
2. Tools/equipment needed are; bone saw, tin snips, utility knife with retractable blade, wire cutters, bucket for washing tools, disposable suit, boots, head cover, gloves (rubber) for handling debris, dual-cartridge HEPA-filtered respirator, scrub brush - stiff bristle nylon, Asbestos danger signs, 2-3 towels, HEPA vacuum, latex spray paint (high temp) or bridging encapsulant, and a negative air unit.

3. Preparation

- a. Work area shall be placarded with signs that conform to OSHA standard. Warning tape may be used across doorways. In some areas, physical barriers will be needed to keep unauthorized visitors out of the work area.
- b. Work areas: Moving of equipment, tools, supplies, and stored materials which can be performed without disturbing asbestos- contaminating materials will be performed by qualified workers. These materials will only have to be moved if they obstruct the pipework to be cleaned.
- c. Shut off all sources of heat for pipes, i.e. boiler or steamline header. Where heat cannot be shut off, protective sleeve between bag and pipe must be used. Live steam lines may not be glove bagged.
- d. All badly fractured sections of pipe covering shall be temporarily encapsulated in polyethylene sheeting and taped to prevent release of asbestos fibers while work is done on adjacent sections of pipe.
- e. Maintain emergency and fire exits from work area, or establish alternative exits satisfactory to fire department.

4. Asbestos Abatement Work Shall Not Commence Until:

- a. Arrangements have been made for disposal of waste.
- b. Tools, equipment, and material waste receptors are on hand.
- c. All other preparatory steps have been taken.
- d. Signs are displayed in all areas where access to asbestos removal area is possible.

- e. Proof is provided that all workers have been given medical examination as described in EPA and OSHA Regulations.
- f. The appointed designee has been notified of intention to proceed and has inspected and approved equipment and procedures.
- g. Emergency shower procedures will be worked out so that in the event of a glove bag failure, workers will shower.
- h. Provide a Micro Trap or comparable HEPA exhaust unit in the work area, in case of emergency spill.

5. Asbestos Removal

- a. The pipe insulation diameter worked shall not exceed one half the bag working length.
- b. Duct tape shall be placed securely around the pipe insulation to form a smooth seal. The glove bag shall then be secured to the duct tape and sealed airtight.
- c. The glovebag seal shall be subject to and pass a smoke test as follows:
 - o Aspirate the contents of a smoke tube through the water port access of bag.
 - o After twist sealing the access port, the bag shall be squeezed gently and checked for any leakage points which shall be taped airtight.
- d. In-line pipe insulation shall be cut back a minimum of six (6) inches on both sides of each fitting.

NOTE: The following two general procedures address the two most commonly used glove bag brands: Profo-bag and Safe-T-Strip. When using a particular brand of glove bag,

incorporate the manufacturer's instructions into your work procedure.

6. Safe-T-Strip Procedure

- a. Open zipper. Place all tools required to remove the insulation in the tool pouch. Wrap Safe-T-Strip onto the pipe and close zipper.
- b. Seal sides of glove bag around pipe by attaching and tightening cloth straps around pipe and bag.
- c. Do not use Safe-T-Strip directly on pipe hotter than 165 F. Protective collar may be purchased from distributor and used with bag on pipes up to 200 F.
- d. Insert wetting nozzle in its porthole opening and seal with duct tape.
- e. Insert HEPA vacuum nozzle in its porthole and seal with duct tape.
- f. Two-Person Operation: One person inserts hand in glove bag sleeves and removes insulation. Second person operates sprayer and vacuum.

One Person Operation: One person must alternate between cutting and spraying procedures to control fiber release.

- g. Cut ends of pipe using bone or a flexible wire saw. Placement of end cut should be six inches in from the end of the bag.
- h. If lagging has metal jacket, this will have to be removed by cutting with tin snips first, then fold back edges so bag will not be cut. Place metal in bottom of bag.
- i. Cut insulation along the bottom of the pipe to the two ends. Spray insulation where cut with water, gently remove insulation, and place in bottom of bag.

- j. Wash pipe with water and rub clean.
- k. Wet down the top of the bag, pipe ends and dampen insulation at the bottom of bag.
- l. If additional sections of pipe insulation are removed, loosen straps and slide bag over next section to be removed. Tighten straps and repeat stripping procedure.
- m. When bag has reached capacity or all insulation has been removed from that pipe, place all tools in one gloved hand, pull the hand out, invert and twist hand to create a separate pouch.
- n. Cut between the bag and the pouch and place the tool pouch in the next glove bag or into a bucket of water.
- o. Remove water wand and turn on HEPA vacuum and collapse bag. Note: Turn on vacuum for a second or two, otherwise motor can be damaged.
- p. Twist bag below tool pouch and seal with duct tape.
- q. Place bottom of glove bag into 6 mil disposal bag (labeled).
- r. Remove all tape, unzip and fold bag carefully into disposal bag.
- s. Seal any remaining open ends of insulation with high temp., high % resin latex paint (paint should have about 25 solid resin) or bridging encapsulant and wettable cloth wrap or lagging.
- t. Wet, wipe, and/or vacuum pipe and immediate area. Check for any visual contamination.
- u. If no contamination has occurred and work was not done in a suspected or known contaminated space, worker may remove disposable suit and place in disposal bag.

- v. Wipe outside of respirator with wetted cloth. Remove cartridges and place cartridges in labeled disposal bag. Place respirator in a second bag and follow respirator cleaning procedures.
- w. If contamination has occurred, worker will don a second disposable suit over first suit and proceed to designated emergency shower. While under the shower, disposable suit will be removed first, then the respirator.

7. Profo-Bag Procedure

- a. Size the glove bag to fit the pipe. Side of bag may be slit to accommodate large diameter pipes.
- b. Do not use glove bag on pipes hotter than 130 F. Glove bagging will not be permitted on live steam lines.
- c. Place removal tools in pouch.
- d. Attach the glove bag over the section of insulation to be removed. Fold open edges together and seal with staples, then duct tape. Place staples at one inch intervals.
- e. Perform smoke test to test integrity of seal.
- f. Cut open the water port of the glove bag, insert spray nozzle, and seal opening.
- g. Cut open vacuum porthole, insert HEPA vacuum nozzle and seal opening around nozzle.
- h. Two Person Operation: One person inserts hands in glove bag sleeves and removes pipe insulation. Second person operates sprayer and vacuum.

One Person Operation: One person must alternate between cutting and spraying procedures to control fiber release.

- i. Cut ends of pipe using bone or a flexible wire saw. Placement of end cuts should be 6 inches from ends of bag.
- j. If lagging has a metal jacket, this will have to be removed by cutting with tin snips first, then fold back edges so bag will not be cut. Place metal in bottom of bag.
- k. Cut insulation along the bottom of the pipe to the two ends.
- l. Spray insulation where cut with water, gently remove insulation and place in bottom of the bag.
- m. Wash pipe with water and rub clean.
- n. Wet down the top of the bag, pipe ends and dampen insulation at bottom of the bag.
- o. Wash off tools. Place all tools in one gloved hand, pull the hand out, invert and twist hand to create a separate pouch.
- p. Cut between the bag and the pouch and place the tool pouch in the next glove bag or into a bucket of water.
- q. Remove water want and turn on HEPA vacuum and collapse bag. NOTE: Turn vacuum on for a second or two, otherwise motor can be damaged.
- r. Twist bag just below tool pouch and seal with duct tape.
- s. Place bottom of glove bag into 6 mil disposal bag (labeled).
- t. Remove all tape and staples and fold bag carefully into disposal bag.
- u. Seal any remaining open ends of insulation with high temperature, high % resin latex paint (paint should have about 25% resin) or bridging encapsulant and wettable cloth wrap.

- v. Wet, wipe, and/or vacuum pipe and immediate area. Check for any visual contamination.
- w. If no contamination has occurred and work was not done in a suspected or known contaminated space, worker may remove disposable suit and place in disposal bag.
- x. Wipe outside of respirator with wetted cloth. Remove cartridges and place in labeled disposal bag. Place respirator in a second bag and follow respirator cleaning procedures.
- y. If contamination has occurred, worker will put on a second disposal suit over first suit and proceed to designated emergency shower. While under the shower, disposable suit will be removed first, then respirator.

8. Cleanup

- a. As the work progresses, and to prevent exceeding available storage capacity on site, remove sealed and labeled asbestos waste and dispose of authorized disposal area.
- b. All containers of asbestos waste shall be removed from the school building to an authorized disposal area or removed to a designated area for storage until removal by a licensed hauler may be accomplished.
- c. A final check shall be carried out by the supervisor or the designated person to determine that no dust or debris remains on surfaces.

D. Removal By Mini-enclosure

- 1. In some instances, such as removal of asbestos from a small ventilation system or a short length of duct, a mini-enclosure can be built.

2. The enclosure should be built of 6 mil polyethylene plastic sheeting and can be small enough to restrict entry to the work area to one worker.
3. For example, a mini-enclosure can be built in a small closet.
4. The enclosure is constructed by:
 - a. Affixing plastic sheeting to the walls with spray adhesive and duct tape.
 - b. Sealing any penetrations into the work area such as windows, pipe penetrations, and electrical conduits. The sealing may be done by stuffing the holes with fiberglass, taping the holes, or by placing plastic over the opening and sealing.
 - c. Cover the floor and walls with plastic and seal the plastic covering the floor to the plastic covering the walls.
 - d. Constructing a small change room, approximately 3 feet square made of 6 mil poly, attached to a frame of 2 x 4 wood studs. All constructed doorways, should be doubled layered flaps with weighted bottoms.
 - e. A shower should be made available in case of a breach in the enclosure or if a major spill occurs with workers in the vicinity.
 - f. Hook up a HEPA vacuum to the enclosure to create a negative air situation inside the enclosure and change room. Smoke test the enclosure before entering.
5. The change room should be adjacent to the mini-enclosure and is necessary to allow the worker to HEPA vacuum off and remove his protective clothing before leaving the work area.
 - a. The employee must wear his respirator at all times while inside the enclosure. The worker should keep his respirator on until he can wash his face and wet down the cartridges.
 - b. Use wet methods as describe at the start of this section.

6. Make sure all necessary tools and equipment are on hand before entering the enclosure.
7. All employees must be trained in proper O&M procedures before attempting the use of any type of mini-enclosure.
8. Clean all equipment and surfaces when work is completed. Spray encapsulant on the interior of the plastic sheeting. When plastic is dry remove the plastic folding inward and dispose of as asbestos waste.

E. Removal of Entire Structures

1. Removal of an entire pipe may be more productive easier and more cost effective than stripping the ACM from the pipe.
2. Before cutting such a pipe, make sure the line is shut down and drained.
3. The asbestos insulation must be double wrapped with 6 mil poly plastic and securely sealed with duct tape or the equivalent. Each layer should be individually taped and sealed.
4. If a pipe is completely insulated it may be necessary to glove bag the sections where the cutting will take place.
5. When the section of pipe is cut and lowered it must be labeled with the appropriate danger stickers and disposed of in accordance with all applicable laws governing asbestos.
6. NOTE: When changing bags and filters of HEPA vacuums; do this under negative air enclosure. It may be necessary to construct a negative air enclosure for this purpose. Mist the air and the bag/filter with amended water. Place the waste in a labeled disposal bag and dispose of as asbestos-containing waste.

F. Containment/Enclosure

1. The decision to enclose rather than remove is one made by the school district and is incorporated into the Management Plan.

2. A solid airtight structure should be built around the ACM pipe covering or structure to prevent the release of asbestos fibers into area adjoining the enclosure and to prevent casual disturbance during future maintenance activities. NOTE: The EPA does not recognize that any enclosure can be made absolutely air tight.
3. The enclosure should be of impact resistant new construction materials.
 - a. Walls should be made of tongue and groove boards, boards with spine joints or gypsum boards having taped seams.
 - b. The underlying structure must be able to support the enclosure.
 - c. All joints between the walls and ceiling of the enclosure should be caulked or sealed.
 - d. Suspended ceilings with laid in panels do not provide airtight enclosures and should not be used.
 - e. During the installation of the enclosure, powered tools must be equipped with HEPA filtered vacuums.
4. Before constructing the enclosure, all electrical conduits, telephone lines, computer lines, recessed lights, and pipes, etc. should be removed from the area that is to be enclosed so as to prevent having to access the enclosed area after the enclosure is in place.
 - a. If such lines, etc. cannot be moved, the response action should be removal and not enclosure.
5. Conduct cleaning as outlined previously, before undertaking the enclosing of the area.

VII. WASTE HANDLING/DISPOSAL

- A. During the transportation of the containerized waste there must be no visible emissions to the air.
1. Transportation is defined as all activities from the receipt of the waste at the work site to the unloading of the containers at the disposal site.
 2. All waste must be properly wetted and containerized in an airtight, leaktight container.
 3. The disposal Form AA002 must accompany all waste generated at the school. Each person must sign the document including the generator (school rep) the transporter, and the disposal site rep. Each entity involved in the disposal must keep a copy of the disposal document for its records.
 4. The containers must have the appropriate labels and be free of any contamination on the outside of the container.
 5. No transporter of the waste should accept material that is not properly containerized.
- B. The Massachusetts DEQ has adopted EPA's National Emission Standards for Hazardous Air Pollutants, Title 40 CFR Part 61, "NESHAPS", governing air emissions and disposal of asbestos waste.

VIII. PERIODIC SURVEILLANCE/EXAMINATION

- A. At least every six months the school district will have a scheduled surveillance of all areas containing ACBM or materials suspected to be ACBM,
 - 1. Use Form AA010 for the recording of your observations, use one form for each room or area.
 - 2. Each worker performing the surveillance should be especially aware of further damage to the ACBM than what was reported previously, any change in room use and the discovery of additional ACBM not noted in drawings or the inspection report.
 - 3. Visually inspect all areas that are identified in the Management Plan.
 - 4. Submit all your findings to the designated person.

- B. Non-scheduled Surveillance
 - 1. All employees should be aware of any changes in ACBM.
 - 2. Surveillance should be performed every time you look at ACBM or enter an area with ACBM. It is up to you to be the first ones to notice any differing conditions or changes in the ACBM.

X. PROHIBITED ACTIVITIES

A. These are routine maintenance activities that are prohibited when ACM is involved:

1. Do not drill holes in asbestos containing materials.
2. Do not hang plants or pictures on structures that contain or are covered with ACM.
3. Do not sand VAT floors.
4. Do not damage ACM while moving furniture or equipment.
5. Do not install drapes, curtains or dividers in such a way that they damage ACM.
6. Do not dust, floors ceilings, moldings or other surfaces in asbestos contaminated environments with a dry brush, cloth or broom.
7. Do not use an ordinary vacuum to clean up asbestos containing debris.
8. Do not remove ceiling tiles below ACM without wearing the proper respiratory protection, clearing the area of other people, and observing asbestos removal waste disposal procedures.
9. Do not remove ventilation system filters dry.
10. Do not shake ventilation system filters.

X. NECESSARY FORMS

- A. See the following pages for the forms that are your responsibility to fill out or to keep in your files.

PERMIT REQUEST FORM FOR MAINTENANCE WORK Form AA004

1. Address, building, and room number(s) or description of area where work is to be performed:

2. Requested starting date:_____ Anticipated finish:_____

3. Description of work:

4. Description of any asbestos containing material that might be affected, if known (include location and type):

5. Name and telephone of supervisor:_____

Submit this work permit request to the designated AHERA Coordinator.

AA004 Continued...

NOTE: A permit request number must be submitted for all maintenance work whether or not asbestos containing material might be affected. A permit number must be received before any work can proceed.

Permit Request No. _____

Granted ___ Yes ___ No

Initial _____

WORKER ASBESTOS FIBER RELEASE EPISODE NOTIFICATION Form AA009

1. Location of Release: _____

2. Has the area been sealed off? ____YES ____NO

3. Who has been notified? _____

How were they notified? _____

WORKERS SIGNATURE: _____ DATE: _____

Please submit this notification to the Designated Person

Haverhill School District

PERIODIC SURVEILLANCE

Form AA010

1. Building: _____

2. Date of Surveillance: _____

3. Name of person conducting surveillance: _____

4. Did you visually inspect all areas that are identified in the Management Plan as asbestos-containing building materials? yes _____ no _____

5. Is there any change in the condition of these materials since the last periodic surveillance? yes _____ no _____

Comments: _____

DOCUMENTATION OF INITIAL
OR ADDITIONAL CLEANING

Form AA015

DATE: _____

AREAS CLEANED: _____

PERSONNEL: _____

METHODS USED: _____

WERE THESE AREAS CLEANED PREVIOUSLY: YES _____ NO _____

COMMENTS: _____

Submit This Completed Form To The Designated Person