HUNTER, INC.
ENVIRONMENTAL SCIENCES

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ASBESTOS MANAGEMENT PLAN

FOR

Haverhill High School
Monument Street
Haverhill, MA

Prepared By:

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

Draft Report Dated:
November 2, 1988

Final Report Dated:
April 28, 1989

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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:

- A description of inspections conducted before December 14, 1987 and response actions and preventive measures based on these inspections.

- The date of the inspection (or reinspection) on which the Management Plan is based and, the credentials of the inspector.

- 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.

- A description of the manner used to determine sampling locations and the name, signature and credentials of the inspector who took the samples.

- A copy of laboratory results and the credentials of the laboratory.

- 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:

- The identity of the LEA's designated asbestos coordinator and a description of the designated person's training.

- The recommendations for response actions made by the management planner and the management planner's credentials.

- 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.

- A statement that the LEA has used, and will use, accredited persons for inspections and response actions.

- 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).

- Plans for: periodic reinspections, operations and maintenance activities and periodic surveillance.

- 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.

- 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.

- An evaluation of the resources needed for response actions, reinspections, operations and maintenance, periodic surveillance and training.

- Additional information on the credentials of each consultant contributing to the Management Plan.

- At the option of the LEA, a statement by the management planner that the plan is in compliance with the applicable AHERA regulations.

- 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.

- A certification by the LEA's designated asbestos coordinator that the LEA's responsibilities have been met or will be met.

I. ASBESTOS COORDINATOR'S APPOINTMENT AND CERTIFICATIONS OF COMPLIANCE

The LEA has designated the following individual under 40 CFR Part 763.84(g.) as its asbestos coordinator. This individual will be referred to elsewhere in the Management Plan as the "designated person."

Designated under 40 CFR Part 763 & 763.84(g.):

FULL NAME: Daniel Sweeney

OFFICE ADDRESS: 4 Summer Street, Haverhill, MA 01830

OFFICE TELEPHONE: (508) 374-2355

COURSES ATTENDED	DATE	HOURS
Tufts Inspectors Course	April 10-12, 1989	24
Tufts Management Planners	April 13-14, 1989	16

The Haverhill School District will use accredited persons for all asbestos related work as approved under section 206(b) of Title II of the AHERA Act. The following information will be required; individuals' name and address, social security number, employer, course taken, date, state of accreditation and the accreditation number as well as the name and address of the training entity.

Signed: Daniel Sweeney

Certification by Designated Person:

I, Daniel Sweeney, [insert name of designated person] certify as correct and true that the general local education agency responsibilities as stipulated by section 763.84 of 40 CFR Part 763, have all been or will be complied with to the best of my ability.

Signed: Daniel Sweeney Date: May 5, 1989

HUNTER, INC.
ENVIRONMENTAL SCIENCES

10 Lewis Street
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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:

Thermal System Insulation	Surfacing Material	Miscellaneous Materia
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 curtain
Pipe insulation	except concrete like materials	Lab gloves
Pipe joint valve		Roofing fells
Fitting elbow insulation		Vibration Isolator
Breeching insulation		Linoleum
Duct insulation		

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.

Thomas A. Emmon

(SIGNATURE)

V.P. Lab Director

(TITLE)

MASS. STATE CERTIFICATION # AA000033

EPA # 1373, NVLAP #1560

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 31, 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:

- 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.

- 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.

- 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.

- 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

WORK AREAS	SCHEDULE START	SCHEDULE FINISH	REASON FOR CHOICE
Pipe Fittings	7/1/90	6/1/92	B
Plaster			
Auditorium Foyer	7/1/90	6/1/92	B
Vibration Isolaters			
(White)			
H Wing Boiler Rm. K Wing Computer Rm. Central Supply Duct Room & Supply Room B Boiler House	7/1/90	6/1/92	B

REMOVAL - Continued...

Tank Room			
Tank Covering	7/1/90	6/1/92	B
Pipe Covering	7/1/90	6/1/92	B
Welding Curtain	7/9/89	9/1/90	B
Fire Blanket	7/9/89	9/1/90	B
Loose Linoleum Sheeting	7/9/89	9/1/90	B
M Wing (M-12)			

2. ENCLOSURE/CONTAINMENT

WORK AREAS	SCHEDULE START	SCHEDULE FINISH	REASON FOR CHOICE
Boiler House			
Boiler Covering	7/1/90	6/1/92	B
Breeching	7/1/90	6/1/92	B
Pipe Fittings	7/1/90	6/1/92	B

ENCLOSURE/CONTAINMENT - Continued...

3. ENCAPSULATION

WORK AREAS	SCHEDULE START	SCHEDULE FINISH	REASON FOR CHOICE

ENCAPSULATION - Continued...

4. OPERATIONS AND MAINTENANCE

WORK AREAS	SCHEDULE START	SCHEDULE FINISH	REASON FOR CHOICE
Boiler House			
Headers	7/9/89	Indefinite	D
Generator Muffler & Exhaust Train	7/9/89	Indefinite	D
Pool Boiler Room			
Breeching	7/9/89	Indefinite	D
Floor Tile (9"x9")	7/9/89	Indefinite	D
H Wing Boiler Room			
Vibration Isolater (White)	7/9/89	Indefinite	D
Generator Muffler & Exhaust Train	7/9/89	Indefinite	D
Foyer Ceiling Panels			
Around Entire Building	7/9/89	Indefinite	D
Auditorium			
Fire Curtain	7/9/89	Indefinite	D
Electrical Insulation			
Auditorium	7/9/89	Indefinite	D

OPERATIONS AND MAINTENANCE - Continued...

Transite Pipe: Photography Lab	7/9/89	Indefinite	D
Transite Hoods H Wing (110, 112, 114, 116)	7/9/89	Indefinite	D
Transite Chalkboards (Rooms 5 -19)	7/9/89	Indefinite	D
Transite Drying Rock: H Wing (104, 107, 107A, 115, 119)	7/9/89	Indefinite	D

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.

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:

- Information regarding asbestos and its various forms and uses.
- Information on related health effects.
- Locations of ACBM identified throughout the building in which the employee works.
- Recognition of damage, deterioration, and delamination of ACBM.
- 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.

XV. 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) Door to Main Office _____ of the Haverhill High 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.

Haverhill School District

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

NOTICE TO ALL BUILDING OCCUPANTS Form AA003

Federal and Massachusetts laws require that every school b inspected for asbestos. In accordance with EPA regulations an Massachusetts "Right To Know" Law, this school has been inspecte for asbestos containing material and the building occupants must b notified as to the presence of asbestos. The existence of friabl asbestos within a school constitutes an imminent health hazard.

Asbestos-Containing Material Is Present In

HAVERHILL HIGH SCHOOL
Name of School

Building No. N/A Address: 137 Monument Street, Haverhill, MA 01832

A record of the inspection report, diagrams of the location(s) of any asbestos-containing materials, and other pertinent information contained in the school's asbestos Management Plan is available for review in:

HAVERHILL HIGH SCHOOL — Building
Principal's Office — Room

For further information, please contact the designated AHER Coordinator:

Daniel Sweeney at (508) 374-2355
Name Phone #

Assistant Director of Public Buildings 5/5/89
Title Date

Daniel Sweeney
Signed

Haverhill School District

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 _____

Haverhill School District

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:_____ DATE:_____
Designated Person

Copies to:_____

_____

_____

_____

Form AA006

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 representataive?
____ 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...

AIR MONITORING DOCUMENTATION

ROOM NUMBER	SAMPLE CODE	LABORATORY	TIME	VOLUME	RESULTS F/CC

Signed: _____ Date: _____

Name: _____ Title: _____

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 _____

Form AA007

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...

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

_____

_____

9. AIR MONITORING DOCUMENTATION

ROOM NUMBER	SAMPLE CODE	LABORATORY	TIME	VOLUME	RESULTS F/CC

Signed: _____ Date: _____

Name: _____ Title: _____

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: _____

_____

_____

FIBER RELEASE EPISODE REPORT Form AA008

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

_____

_____

2. To whom was the episode verbally reported to?_____

_____

3. Was the episode a minor or major release?_____

If a major release occurred, was the area immediately sealed off? ____Yes ____No If not, please explain why:

_____

_____

4. The release episode was reported by:_____

on:_____(date),_____(time).

5. Describe the episode and include the source of contamination:

_____

_____

_____

_____

6. The ACM was_____/ was not_____ cleaned up according to approved procedures. Describe the cleanup:

_____

_____

7. Was air monitoring initiated? ____Yes ____No Date:_____

Was clearance given? ____Yes ____No Date:_____
Please attach a copy of the air monitoring report to this sheet.

SIGNED:_____ _____
Designated Person Date

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

REASSESSMENT OF ACM (PERFORMED DURING PERIODIC SURVEILLANCE)

Form AA010

Building:_____ Floor:_____ Room:_____

Various types of asbestos-containing material:

Surfacing: Sprayed-on____ Troweled-on____

Location: Ceilings & Walls____ Structural Member____

Thermal Insulation: Boiler____ Breeching____ Fitting____

Pipe____ Tank____

Miscellaneous: Tile____ Wallboard____ Transite____

Other_____

- ASSESSMENT FACTORS -

1. Percent Damaged:_____
2. Type of Damage: air erosion____ water____ vandalism____ vibration____ temperature____
3. Exposed Surface Area: none_____ less than 10%_____ 10% & over__
4. Activity & Movement: none_____ limited_____ moderate_____ high__
5. Accessibility: not____ locked doors____ accessible____
6. Dispersion of Fibers: no air____ moderate____ high____
7. Friability: non-friable____ friable____
8. Any Change in Room Use Since Previous Assessment?
   _____yes _____no

AA010 Continued...

9. Other Observations (including condition of the encapsulation or enclosure, if any):_____

_____

_____

SIGNED:_____ DATE:_____
Evaluator

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

PREVIOUS ABATEMENT WORK PERFORMED

Form AA012

PROJECT NUMBER:_____ BUILDING NO._____

CONTRACTOR:_____

ADDRESS: _____

_____

_____

ARCHITECT/ENGINEER:_____

ENVIRONMENTAL FIRM:_____

WORK ZONES	START UP DATE	COMPLETION DATE	AIR SAMPLE RESULTS

Haverhill School District

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: HAVERHILL HIGH 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

Daniel Sweeney
Signed

5/5/89
Date

Daniel Sweeney
Name

Assistant Director of Public Buildings
Title

WORKERS PERSONAL
AIR MONITORING DOCUMENTATION

Form AA014

NAME:_____

TITLE:_____

DEPARTMENT:_____

DATE OF HIRE:_____

AIR MONITORING DOCUMENTATION

ROOM NUMBER	SAMPLE CODE	LABORATORY	TIME	VOLUME	RESULTS F/CC

Signed:_____ Date:_____

Name:_____ 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

HAVERHILL HIGH SCHOOL

Attachment B

Form AA016

Employee Training

Name	Title	Date/Location/# of Hours in Traini
Francis Hastings	Sr. Custodian	April 27, 1988 Haverhill High School 2½ hours

This form will remain in the Management Plan.

APPENDIX A

1988 INSPECTION REPORT

AHERA
ASBESTOS INSPECTION REPORT

Prepared For:

Haverhill High School
Monument Street
Haverhill, Massachusetts 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 31, 1988

Haverhill High School

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NOTE: Due to individual school size and data, the pages between each Appendix are not numbered.

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Haverhill High School

Asbestos Inspection

- Introduction -

Hunter, Inc. has been retained by the Haverhill School District to perform an asbestos inspection at the Haverhill High School located on Monument Street in Haverhill, Massachusetts.

Ms. Nancy Paszko was designated the AHERA Program Coordinator by the Haverhill School District.

The inspection was performed on August 25, 1988 by Hunter'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 Appendix G.

The inspection was conducted in two phases.

Phase I:

- Initial pre-inspection of the building
- A review of existing drawings.
- A review of previous asbestos surveys and asbestos abatement records.
- 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:

- The plotting of suspect asbestos-containing homogeneous areas.

- The collection and analysis of bulk samples of building materials within each homogenous area, in accordance with AHERA protocols.

The inspection found the following homogeneous friable asbestos-containing materials that present a possible health hazard from exposure to asbestos fibers:

A. Areas Sampled & Found to be Asbestos

1. Pipe Fittings - Original Construction

Rooms: Central storage old kitchen, central supply duct room, custodial closet central area C-wing, boy's bathroom, custodian's closet, S-wing, theater storage, girl's bathroom A-wing behind stage, hall, custodian's closet, M-wing, tank room in gym, crawl spaces under entire original construction, main boiler house, F-wing custodian's closet

2. Plaster - Auditorium Foyer

3. Vibration Isolators

Rooms: Computer room K-wing, A-1, boiler house, H-wing boiler room, central supply duct room, central supply room B

4. Tank covering - Tank room

B. Areas Assumed to be Asbestos

1. Boiler Covering - Main Boiler House

2. Breeching - Main Boiler House

3. Pipe fittings - Tank room

The following homogeneous areas were identified as containing non-friable asbestos:

A. Areas Sampled & Found to be Asbestos

1. Pipe Fittings - Original Construction

Rooms: Pipe chase custodian closet C-wing, above ceiling F-wing, pipe chase in custodian closet F-wing, S-wing & M-wing, above ceiling lower K-wing hall & offices, custodial room A-wing at pipe tunnel access, above ceilings A-wing halls, above ceiling bathrooms in A-wing, custodial closet S-wing, duct room 2nd floor A-wing, old kitchen central

storage, boys bath C-wing, hall F-wing, boy's bath F-wing, K-26, A-19, A-20, A-15, A-10, A-11, NW corner of K-wing book storage closet, A-9, auditorium catwalk, boy's bathroom M-wing, main boilerhouse

2. 9 x 9 Floor Tile - Original Construction

   Rooms: M-wing, C-wing, L-wing, K-wing, F-wing, S-wing, A-wing (Auditorium & A-9, A-11, A-15, A-21) & Gym halls & offices

3. Insulation on Generator Muffler

   H-wing boiler room

4. Breeching on Boiler

   Pool boiler room

5. Cement-like Panel

   Foyer ceiling overhangs outside around entire building

6. Headers

   Main boiler house

Miscellaneous asbestos-containing materials were determined to be present in:

A. <u>Sampled & Found to be Asbestos</u>

   1. Welding Curtain - Room A-14

   2. Paper backing to Congoleum Sheeting - Room M-12

B. <u>Assumed to be Asbestos</u>

   1. Fire Blanket - Room K-27

   2. Auditorium Fire Curtain - Auditorium

   3. Asbestos cord covering on stage lights in auditorium

C. Miscellaneous Non-Friable Areas

1. Transite pipe - main boiler house, photo lab

2. Muffler insulation on generator - main boiler house

3. Transite in hoods - Rooms: 110, 112, 114, 116

4. Transite chalkboards - Rooms: 5-19

5. Transite drying racks - Rooms: 104, 107, 107A, 115, 119

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.

1.2 Areas which were inaccessible and therefore not inventoried were:

Vertical concrete block pipe chases: M,C,F,L, & K wings, Rooms: L-5 storage, music office, uniform storage, A1, A8 in A-wing, & home-economics office.

1.3 This survey did not evaluate internal boiler linings or gaskets. Before any work is scheduled on any of the boilers, samples of linings and gaskets should be analyzed for asbestos content.

1.4 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.

1.5 Since asbestos floor tiles are non-friable unless damaged, and testing each type of floor tile in a building can be costly, <u>all</u> 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.

1.6 Fire doors may be filled with ACM as a fire retardant. Take the necessary precautions or have bulk samples analyzed before cutting, drilling or otherwise affecting the original integrity of the door.

1.7 The roofing materials may contain asbestos. Analyze core samples of roofing felts, tar or shingles before any roof renovations begin.

1.8 Brake shoes and other friction materials found in elevators, cars, and trucks may contain asbestos. Precautions should be taken when servicing these types of machinery until any ACM is replaced with asbestos-free parts.

1.9 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.

1.10 Equipment that operates at high temperature such as kilns, muffle furnaces, flood and arc lights may be insulated with asbestos-containing materials such a 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.

1.11 Fire curtains found in auditoriums and fire blankets often contain asbestos. All fire curtains and blankets should be assumed to be asbestos-containing until tested and found to be otherwise.

1.12 Laboratory equipment and furnishings that must be resistant to heat and chemical reactivity are often made from asbestos cement (transite). Chalk boards, lab hoods, benches, sinks and drains fall into this category. Unless tested and found not to contain asbestos, all such furnishings should be handled with care.

2.0 BUILDING DESCRIPTION

The Haverhill High School, located in Haverhill, Massachusetts was constructed in 1963 with an addition in 1975. Original construction was the A,S,K,F,M,L, and C-wings, gymnasium and what is now central supply. The 1975 addition is the library, cafeteria, kitchen and new science classrooms (H-wing).

Original Construction:

Heat for the original part of the school is supplied by boilers located in a separate boiler house. Piping is fibrous glass with hard, asbestos-containing cement protecting pipe fittings and elbows. The interior finish is primarily painted concrete block walls with a small amount of plaster on metal lath in the lower K-wing and auditorium. Floors are vinyl asbestos tile, wall-to-wall carpet over vinyl tile or bare concrete. Ceilings are exposed "Tectum" with 2' x 4' acoustic tile ceilings in the corridors and offices in the lower K-wing.

New Addition:

Heating for the new addition (H-wing) is provided by two oil-fired boilers located under the cafeteria. Piping is fibrous glass with hard, asbestos-free cement protecting pipe fittings and elbows. The muffler and exhaust train for the emergency generator is covered with asbestos-containing cement as is the breeching for the boilers. The covering for the water tank is fibrous glass.

The interior finish for the new addition is painted concrete block walls, 2' x 4' acoustic tile ceilings and vinyl tile floors.

Swimming Pool:

Heat for the pool area is provided by an oil-fired boiler located in a separate boiler room. Piping is fibrous glass with hard, asbestos-free cement protecting pipe fittings & elbows. Breeching for the boiler is covered with asbestos-containing cement.

Interior finish for the pool area is painted concrete block, and acoustic tile suspended ceiling. Plaster ceilings in the boiler room were similar to those in the H wing boiler room.

Homogeneous areas were determined to be:

- 9" vinyl asbestos tile floors - original construction
- 12" vinyl tile floors - new addition, repairs in C-wing
- 12" cellotex acoustic tile - A-wing
- 2' x 4' acoustic tile ceilings - throughout school
- Exposed "Tectum" ceilings - original construction
- Hard asbestos-containing pipe fittings - original construction
- Tank covering - tank room
- Hard asbestos-free pipe fittings - new addition, pool building
- Breeching - H-wing
- Breeching - Pool building, Main Boiler House
- Muffler and exhaust train - H-wing generator, main boiler generator
- Roof drain pipe covering - original construction
- Textured plaster ceiling - Auditorium foyer & entrance
- Foyer ceiling - kitchen foyer, K-wing lower patio
- Smooth plaster ceiling - K-wing lower, auditorium
- Rough plaster ceiling - H-wing boiler, pool building boiler
- Vibration isolators (white) - central supply, room B and duct room, K-wing computer room, main and H-wing boiler room
- Vibration isolators (black) - above auditorium, gym locker room, N & S gyms
- Fire brick - throughout original construction
- Gypsum board - H-wing stairwells

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.)

AREA SIZE	REQUIRED SAMPLE QUANTITY
o Less than or Greater than 1000 square feet	3
o Less than or equal to 5000 square feet	5

o	Greater than 5000 square feet	7

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 Hunter's 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: Hunter's 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 August 25, 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 01% 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.

- An independent consultant 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.

- An independent consultant 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.

BOILERS; MAIN BOILER HOUSE
Total Square Feet of Material: 1000 SF
This room contained friable boiler insulation, categorized as damaged or significantly damaged thermal insulation. The damage (cracking and water damage), was moderate over 10% of the area, apparently caused by water. It is accessible to maintenance personnel and has moderate potential for future disturbance.
"3 HB SMITH BOILERS."

BREECHING; MAIN BOILER HOUSE
Total Square Feet of Material: 690 SF
This room contained friable breeching insulation, categorized as damaged or significantly damaged thermal insulation. The damage (cracking and flaking) was moderate over 10% of the area, apparently caused by deterioration. It is accessible to maintenance personnel and has moderate potential for future disturbance.

PIPE FITTINGS; CRAWL SPACES
Total Linear Feet of Material: 350 LF
These rooms contained friable pipe joints and elbow insulation, categorized as damaged or significantly damaged thermal insulation. The damage (water leakage and tears) was heavy over 25% of the area. It is accessible to maintenance personnel and has moderate potential for future disturbance.
"DEBRIS NEEDS TO BE CLEANED UP AND DAMAGED AREAS NEED TO BE EITHER REPAIRED OR THE INSULATION REMOVED."

PIPE FITTINGS; TANK ROOM;
Total Linear Feet of Material: 89 LF
This room contained friable pipe joints and elbow insulation, categorized as damaged or significantly damaged thermal insulation. The damage (crushing and delamination) was heavy over 25% of the area, apparently caused by abuse. It is accessible to maintenance personnel and has moderate potential for future disturbance.
"DEBRIS AND BATTERED ELBOWS, DEBRIS NEEDS TO BE REMOVED OR REPAIRED AND REINSULATED."

PIPE FITTINGS; MAIN BOILER HOUSE
Total Linear Feet of Material: 151 LF
Sample Numbers HH 08, HH 07, HH 06 & HH 09 contained 43, 40 & 30% asbestos. This room contained friable pipe joints and elbow insulation, categorized as damaged or significantly damaged thermal insulation. Crushing was moderate over 1% of the area, apparently caused by water. It is accessible to maintenance personnel and has moderate potential for future disturbance.
"HH 08 FROM 10 INCH LINE BY STAIRS ELBOW. HH 07 FROM 6 INCH STEAM LINE BY STAIRS. HH 06 FROM 3 INCH WATER LINE BY BASE OF STAIRS. HH 09 FROM 2 INCH WATER LINE BY STAIRS. ELBOWS CLOSE TO CW 198 NEED TO BE REMOVED AND CLEANED UP. SAMPLE HH 07 TESTED NEGATIVE FOR ASBESTOS CONTENT."

PIPE FITTINGS, ORIGINAL CONSTRUCTION; NORTHEAST END OF M WING IN HALL - ELBOW TO HEATING UNIT
Total Linear Feet of Material: 1 LF
This room contained friable pipe joints and elbow insulation, categorized as damaged or significantly damaged thermal insulation. The damage (crushing and delamination) was heavy over 100% of the area, apparently caused by abuse. It is accessible to all occupants, and has high potential for future disturbance.
"NEEDS TO BE REMOVED OR REPAIRED."

PIPE FITTINGS, ORIGINAL CONSTRUCTION; THEATRE STORAGE
Total Linear Feet of Material: 41 LF
This room contained friable pipe joints and elbow insulation, categorized as damaged or significantly damaged thermal insulation. The damage (exposed material and cracking) was heavy over 5% of the area, apparently caused by deterioration. It is accessible to all occupants, and has high potential for future disturbance.

PIPE FITTINGS, ORIGINAL CONSTRUCTION; CUSTODIAL CLOSET C WING CENTER AREA
Total Linear Feet of Material: 12 LF
This room contained friable pipe joints and elbow insulation, categorized as damaged or significantly damaged thermal insulation. The damage (punctures and cracking) was heavy over 20% of the area, apparently caused by abuse. It is accessible to maintenance personnel and has moderate potential for future disturbance.

PIPE FITTINGS, ORIGINAL CONSTRUCTION; DUCT ROOM - CENTRAL SUPPLY
Total Linear Feet of Material: 9 LF
This room contained friable pipe joints and elbow insulation, categorized as damaged or significantly damaged thermal insulation. The damage (crushing and delamination) was heavy over 20% of the area, apparently caused by deterioration. It is accessible to maintenance personnel and has moderate potential for future disturbance.

WATER TANK; TANK ROOM
Total Square Feet of Material: 540 SF
Sample Number HH 05 contained 65% asbestos. This room contained friable tank insulation, categorized as damaged or significantly damaged thermal insulation. The damage (jacket damage and tears) was heavy over 15% of the area, apparently caused by abuse. It is accessible to maintenance personnel and has moderate potential for future disturbance.
"SAMPLE HH 05 FROM TANK ROOM NEXT TO GYM. MUST BE PATCHED."

EPA Category 2: Damaged friable surfacing ACM.

PLASTER CEILING; AUDITORIUM ENTRANCEWAY
Total Square Feet of Material: 2500 SF
Sample Numbers HH 23, HH 24 & HH 25 contained 03, 02 & 2% asbestos. This room contained friable ceiling plaster, categorized as damaged surfacing ACM. Gouging was light over 5% of the area, apparently caused by abuse. It is accessible to all occupants, and has high potential for future disturbance.
"SAMPLE HH 23 FROM GROUND FLOOR HALLWAY CEILING OUTSIDE AUDITORIUM, NORTHWEST CORNER HALL. SAMPLE HH 24 FROM 1ST FLOOR CEILING BY EAST EXIT. SAMPLE HH 25 1ST FLOOR CEILING BY WEST EXIT."

EPA Category 4: Damaged or significantly damaged friable miscellaneous ACM.

WELDING CURTAIN; A WING ROOM A 14
Total Square Feet of Material: 8 SF
Sample Number HH 89 contained 70% asbestos. This room contained friable material, categorized as damaged or significantly damaged friable miscellaneous ACM. Delamination was light over 1% of the area, apparently caused by deterioration. It is accessible to all occupants, and has high potential for future disturbance.

EPA Category 5: ACBM with potential for damage.

BREECHING; POOL BOILER ROOM
Total Square Feet of Material: 80 SF
Sample Number HH 16 contained 30% asbestos. This room contained non-friable breeching 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.

FLOOR TILE 9 X 9, ORIGINAL CONSTRUCTION; M WING, C WING, L WING, K WING, F WING, S WING, A WING (AUDITORIUM & A 9 - 11, A 15 - 21) & GYM HALLS AND OFFICES
Total Square Feet of Material: 100000 SF
Sample Numbers HH 52 & HH 28 contained 2% 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 HH 52 FROM K WING BROWN 9 X 9 FLOOR TILE 2ND FLOOR HALLWAY WEST HALL OUTSIDE K 14. SAMPLE 28 TESTED NEGATIVE FOR ASBESTOS CONTENT. TAKEN FROM A WING GREY 9 X 9 FLOOR TILE AUDITORIUM ENTRANCE."

FOYER CEILING PANELS, CEMENT LIKE; OUTSIDE KITCHEN, K WING LOWER
Total Square Feet of Material: 2850 SF
Sample Number HH 63 contained 10% asbestos. This room 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.
"SAMPLE HH 63 WAS TAKEN FROM THE CAFETERIA FOYER."

GENERATOR MUFFLER; MAIN BOILER HOUSE
Total Square Feet of Material: 44 SF
This room contained non-friable breeching 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.
"MUFFLER COVERING AND DRAIN IN GENERATOR ROOM."

GENERATOR MUFFLER; H WING BOILER ROOM
Total Square Feet of Material: 85 SF
Sample Number HH 41 contained 25% asbestos. This room contained non-friable breeching 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 HH 41 FROM EMERGENCY GENERATOR EXHAUST INSULATION."

HEADERS; MAIN BOILER HOUSE
Total Square Feet of Material: 84 SF
This room contained non-friable header 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.

PIPE FITTINGS, ORIGINAL CONSTRUCTION; SEE COMMENTS FOR LOCATIONS
Total Linear Feet of Material: 236 LF
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 all occupants, and has high potential for future disturbance. Encapsulation, isolation, or labeling might eliminate the likelihood of undamaged ACM from becoming significantly damaged. "OLD KITCHEN CENTRAL STORAGE, BOYS LAVATORY C WING, HALL F WING, BOYS LAVATORY F WING, K 26, NORTHWEST CORNER OF K WING BOOK STORAGE CLOSET, A 19, BAND ROOM A 20, A 15, A 10, A 11, A 6, 2ND FLOOR GIRLS LAVATORY A WING, A 9 CLOSET, AUDITORIUM CATWALK AREA, 2ND FLOOR BOYS LAVATORY A WING, M WING, & S WING. MINOR JACKET DAMAGE IN OLD KITCHEN, IN S. WING BOY'S LAVATORY & A WING GIRL'S LAVATORY."

PIPE FITTINGS, ORIGINAL CONSTRUCTION; SEE COMMENTS FOR LOCATIONS
Total Linear Feet of Material: 228 LF
Sample Numbers HH 11, HH 14, HH 20, HH 27, HH 31, HH 34, HH 38, HH 39, HH 40, HH 57, HH 59 & HH 77 contained 70, 30, 60 & 50% 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.
"PIPE CHASE IN CUSTODIAN CLOSET, C WING, ABOVE CEILING F WING, PIPE CHASE IN CUSTODIAL CLOSET IN F WING, PIPE CHASE IN CUSTODIAL CLOSET IN S WING, ABOVE CEILINGS LOWER K WING HALL AND OFFICES, CUSTODIAL ROOM A WING AT PIPE TUNNEL ACCESS, ABOVE CEILINGS A WING HALLS, ABOVE CEILING BATHROOMS IN A WING, CUSTODIAL CLOSET AND PIPE CHASE S WING, DUCT ROOM 2ND FLOOR A WING, ABOVE CEILING IN OFFICES IN A 6, PIPE CHASE IN CUSTODIANS CLOSET M WING. SAMPLE HH 14 TAKEN FROM TUNNEL BELOW OFFICE AREA INSULATION FOR PIPE CONDUIT. HH 38 FROM F WING CUSTODIANS ROOM DOMESTIC WATER

LINE ELBOW. SAMPLE HH 57 FROM M WING CUSTODIANS ROOM DOMESTIC WATER LINE ELBOW. SAMPLE HH 59 COLLECTED FROM THE S - WING, 1 " PIPE ELBOW, CUSTODIANS CLOSET. THE FOLLOWING SAMPLES TESTED NEGATIVE FOR ASBESTOS CONTENT - SAMPLE HH 11 FROM TELEPHONE ROOM BY OFFICE AREA, 6 INCH STEAM LINE ELBOW. SAMPLE HH 20 FROM GYM WING CUSTODIANS CLOSET, NORTHWEST HALL, 6 INCH ELBOWS. HH 27 FROM A WING A 11 STOREROOM, 3 INCH PIPE ELBOW. SAMPLE HH 31 FROM A WING 2ND FLOOR UTILITY CLOSET, WEST HALLWAY, 6 INCH PIPE. SAMPLE HH 34 FROM C WING CUSTODIANS CLOSET, 3 INCH PIPE ELBOW. HH 39 FROM F WING, FROM VALVE HWC 26 (WATER LINE) 35 FEET NORTH OF SOUTH END OF WEST PERIMETER TUNNEL. HH 40 FROM UNDER F WING T JOINT STEAM LINE 4 FEET NORTH OF SOUTH END OF WEST PERIMETER TUNNEL. SAMPLE HH 77 FROM SOUTHEAST END M WING IN HALL, ELBOW TO HEATING UNIT."

TRANSITE; MAIN BOILER HOUSE
Total Linear Feet of Material: 2 LF
This room contained non-friable breeching 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.
"3 INCH PIPE TO OIL FIRED HOT WATER TANK."

TRANSITE CHALK BOARDS; ROOMS 5 - 19
Total Square Feet of Material: 120 SF
These rooms contained non-friable chalkboards, 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.

TRANSITE DRYING RACKS; ROOMS 119, 115, 107A, 104 & 107
Total Square Feet of Material: 60 SF
These rooms contained non-friable drying racks, 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.

TRANSITE LINING HOODS; ROOMS 116, 112, 114 & 110
Total Square Feet of Material: 100 SF
These rooms contained non-friable hoods, 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.

TRANSITE PIPE; PHOTO LAB IN LIBRARY
Total Linear Feet of Material: 2 LF
This room contained non-friable drain pipe, 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. Encapsulation, isolation, or labeling might eliminate the likelihood of undamaged ACM from becoming significantly damaged.

VIBRATION ISOLATORS - WHITE; BOILER HOUSE, H WING BOILER ROOM, CENTRAL SUPPLY DUCT ROOM & CENTRAL SUPPLY ROOM B, COMPUTRE ROOM K WING, ROOM A-1
Total Square Feet of Material: 36 SF
Sample Numbers HH 74 & HH 65 contained 70 & 80% asbestos. 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 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 HH 74 FROM H WING BOILER ROOM. SAMPLE HH 65 FROM CENTRAL SUPPLY ROOM B."

EPA Category 7: Any remaining friable ACBM or friable suspected ACBM.

CORD ON STAGE LIGHTS; CATWALK ABOVE AUDITORIUM
Total Linear Feet of Material: 50 LF
This room contained friable electrical insulation categorized as friable suspected ACBM. 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.

FIRE BLANKET; ROOM K 27
Total Material: 1 BLANKET
This room contained friable fire blanket categorized as any friable ACBM or friable suspected ACBM. 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.

FIRE CURTAIN; AUDITORIUM
Total Square Feet of Material: 800 SF
This room contained friable fire curtain categorized as any remaining friable ACBM or friable suspected ACBM. 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.

PAPER BACKING TO CONGOLEUM SHEETING; ROOM M 12
Total Square Feet of Material: 24 SF
Sample Number HH 71 contained 20% asbestos. This room contained friable loose material in storage, categorized as any remaining friable ACBM or friable suspected ACBM. The material is presently undamaged, however, it is accessible to all occupants, and has high potential for future disturbance.
"LOOSE LINOLEUM PROBABLY USED FOR MESSY PROJECTS IN THE KINDERGARTEN CLASSROOM HAS FRIABLE ASBESTOS PAPER AS ITS BACKING MATERIAL. SINCE THIS FRIABLE ACM IS EXPOSED, THE LINOLEUM SHOULD BE REMOVED FROM THE CLASSROOM."

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.

COVERS TO SINKS; IN LAB DESKS K 28
Total Square Feet of Material: 12 SF
Sample Number HH 85 tested negative for asbestos content. This room contained non-friable covers which did not contain asbestos.

ACOUSTICAL PANELS ON WALLS; AUDITORIUM
Sample Number HH 01 tested negative for asbestos content. This room contained non-friable wall panels which were determined to be non-asbestos.

BREECHING; H WING BOILER ROOM
Total Square Feet of Material: 200 SF
Sample Numbers HH 75 & HH 43 tested negative for asbestos content. This room contained non-friable breeching insulation, which was determined to be non-asbestos.
"SAMPLE HH 75 FROM # 2 HB SMITH BREECHING. HH 43 FROM BREECHING."

CEILING & WALL PLASTER; AUDITORIUM & K WING LOWER
Total Square Feet of Material: 5364 SF
Sample Numbers HH 03, HH 02, HH 04, HH 80, HH 82 & HH 83 tested negative for asbestos content. This room contained non-friable ceiling plaster, which was determined to be non-asbestos.
"SAMPLE HH 03 FROM CEILING PLASTER SOUTHWEST CORNER. SAMPLE HH 83 FROM CEILING CLOSET IN NURSES OFFICE. SAMPLE HH 82 FROM ELECTRICAL ROOM, OFFICE AREA. SAMPLE HH 80 FROM MAINTENANCE ROOM BETWEEN K WING (LOWER) AND A WING. SAMPLE HH 02 FROM WALL PLASTER EAST ENTRANCE; SAMPLE HH 04 FROM WALL PLASTER CENTER SOUTH WALL."

CEILING PLASTER; H WING & POOL BOILER ROOMS
Total Square Feet of Material: 1800 SF
Sample Numbers HH 86, HH 42, HH 81 & HH 17 tested negative for asbestos content. These rooms contained non-friable ceiling plaster, which was determined to be non-asbestos.
"SAMPLE HH 86 TAKEN FROM THE NORHTEAST CORNER, WEST OF DOOR. SAMPLE HH 42 FROM ABOVE THE DOOR TO OUTSIDE. SAMPLE HH 81 FROM NORTHEAST CORNER, EAST OF DOOR. SAMPLE HH 17 WAS TAKEN FROM THE POOL BOILER ROOM."

CEILING TILE 1 X 1; A WING BAND STOREROOM
Sample Number HH 29 tested negative for asbestos content. This room contained non-friable ceiling tile, which was determined to be non-asbestos.

CEILING TILE 2 X 4; SEE COMMENTS FOR LOCATION
Sample Numbers HH 67, HH 50, HH 54, HH 55, HH 56, HH 46, HH 36, HH 10, HH 12, HH 13, HH 15, H 18 & HH 60 tested negative for asbestos content. These rooms contained non-friable ceiling tile, which was determined to be non-asbestos.
"SAMPLE HH 67 FROM 2 X 4 KITCHEN CEILING TILE. SAMPLE HH 50 FROM K WING CORRIDOR OUTSIDE K 20. HH 54 M WING BY BOYS LAVATORY, DARK 2 X 4 CEILING TILE. HH 55 FROM M WING OUTSIDE BOYS LAVATORY, LARGE HOLES 2 X 4 CEILING. HH 56 FROM M WING OUTSIDE BOYS LAVATORY, SMALL HOLES 2 X 4 CEILING. HH 46 FROM H WING 1ST FLOOR CUSTODIANS ROOM BY SCIENCE WING, 2 X 4 CEILING TILES. HH 36 FROM F WING SOUTH HALLWAY, 2 X 4 CEILING OUTSIDE ELECTRIC ROOM. HH 10 FROM OFFICE AREA EAST STAIRWELL 2 X 4 CEILING TILE, SMALL HOLES. HH 12 OFFICE AREA EAST STAIRWELL TILE WITH GREATEST NUMBER OF HOLES. HH 13 OFFICE AREA EAST STAIRWELL LEAST NUMBER OF HOLES. HH 15 FROM POOL WATER TREATMENT ROOM, TILES WITH SMALL FISSURES. HH 18 FROM POOL WEST HALLWAY OUTSIDE STORAGE ROOM, LARGE FISSURES. HH 60 FROM S WING CEIING OUTSIDE CUSTODIANS CLOSET."

FLOOR TILE 12 X 12, ADDITION; ROOMS CAFETERIA, KITCHEN, H WING AND ROOMS IN INDUSTRIAL ARTS ADDITION IN A WING AND HALLWAYS IN THESE AREAS.
Sample Numbers HH 66, HH 69 & HH 47 tested negative for asbestos content. These rooms contained non-friable floor tiles, which was determined to be non-asbestos.
"SAMPLE HH 66 FROM 12 X 12 OFF WHITE FLOOR TILE IN H WING HALL, EAST BY CENTRAL SUPPLY. HH 69 FROM 12 X 12 GREY ROOM 107, CENTER OF ROOM. SAMPLE HH 47 FROM 12 X 12 TAN H WING 1ST FLOOR HALLWAY OUTSIDE LIBRARY."

FLOOR TILE 12 X 12 ORIGINAL CONSTRUCTION; C WING
Sample Numbers HH 70 & HH 58 tested negative for asbestos content. This room contained non-friable floor tiles, which was determined to be non-asbestos.
"SAMPLE HH 70 FROM BLACK 12 X 12 BY OUTSIDE ENTRANCE BETWEEN C WING AND S WING. SAMPLE HH 58 FROM HALFWAY BETWEEN S AND C WINGS 12 INCH COMPOSITE TILE REPAIR."

GYM & C WING INSULATION
Sample Numbers HH 35 & HH 22 tested negative for asbestos content. These rooms contained non-friable insulation, which was determined to be non-asbestos.
"SAMPLE HH 35 WAS TAKEN FROM INSULATION BETWEEN BEAM AND CINDER BLOCKS OUTSIDE CUSTODIANS CLOSET; SAMPLE HH 22 WAS TAKEN FROM CUSTODIANS CLOSET, MATERIAL BETWEEN DECK & WALL"

GYM DIVIDER; GYM
Sample Number HH 19 tested negative for asbestos content. This room contained non-friable wall board which was determined to be non-asbestos.
"SAMPLE TAKEN FROM SOUTH GYM DIVIDER."

GYPSUM BOARD; STAIRWELLS H WING
Sample Number HH 64 tested negative for asbestos content. This room contained friable wall plaster which was determined to be non-asbestos.

LAB COUNTER TOP; ROOM K 32
Sample Number HH 51 tested negative for asbestos content. This room contained non-friable counter top, which was determined to be non-asbestos.

PIPE FITTINGS, LATER ADDITION; H WING
CAFETERIA AND KITCHEN, POOL, AND A WING ROOMS 1 - 5 AND 12 - 14
Sample Numbers HH 61, HH 44, HH 68, HH 73 & HH 45 tested negative for asbestos content. These rooms contained non-friable pipe joints and elbow insulation, which was determined to be non-asbestos.
"HH 61 FROM CAFETERIA C 1 ABOVE SUSPENDED CEILING NORTHWEST CORNER SAMPLE HH 44 FROM H WING BOILER ROOM, BELOW HOT WATER TANK 2 INCH PIPE ELBOW. HH 68 TAKEN FROM ROOM 112 H WING ABOVE CEILING SOUTHWEST CORNER. HH 73 FROM H WING BOILER ROOM DAMAGED ELBOW ABOVE HOT WATER TANK. HH 45 FROM H WING 1ST FLOOR STOREROOM B ELBOW 3 INCH SUPPLY TO HVAC."

POOL PIPE FITTINGS, POOL BOILER ROOM
Sample Numbers HH 88, HH 90 & HH 91 tested negative for asbestos content. This room contained friable pipe joints and elbow insulation, which was determined to be non-asbestos.
"SAMPLE HH 88 FROM HOT WATER BOILER ROOM CIRCULATION PUMP ELBOW. HH 90 FROM BUCKET CLEANING ROOM IN GIRLS LOCKER ROOM - ELBOW BY DOOR. HH 91 ELBOW ABOVE SUSPENDED CEILING IN STATIONARY BIKE ROOM IN BOYS LOCKER ROOM SOUTHWEST CORNER."

PYROBAR BRICK; NORTHEAST CORNER C WING BY EXIT
Sample Number HH 87 tested negative for asbestos content. This room contained non-friable fire brick, which was determined to be non-asbestos.

ROOF DRAINS; A WING, C WING HALL, F WINGS, L WINGS, M WING, S WING, ROOM L8 & GYM
Total Square Feet of Material: 16 LF
Sample Numbers HH 79, HH 72 & HH 76 tested negative for asbestos content. These rooms contained non-friable pipe joints and elbow insulation, which was determined to be non-asbestos.
"SAMPLE HH 79 WAS TAKEN FROM C WING HALL; SAMPLE HH 76 WAS TAKEN FROM ABOVE SUSPENDED CEILING HALL, L-WING; SAMPLE HH 72 WAS TAKEN FROM DRAIN PIPE INSULATION ABOVE SUSPENDED CEILING."

SOAPSTONE LAB BENCH; ROOM 106A
Total Square Feet of Material: 10 SF
Sample Number HH 62 tested negative for asbestos content. This room contained non-friable material stored in it's original carton, which was determined to be non-asbestos.

TECTUM; SEE COMMENTS FOR SAMPLE LOCATIONS
Total Square Feet of Material: 200,000 SF
Sample Numbers HH 30, HH 32, HH 33, HH 37, HH 48 & HH 49 tested negative for asbestos content. These rooms contained non-friable ceiling tile, which was determined to be non-asbestos.

"SAMPLE HH 30 FROM A WING 2ND FLOOR UTILITY CLOSET, WEST CORRIDOR CEILING. HH 32 A WING 2ND FLOOR STOREROOM EAST HALLWAY. HH 33 C WING CEILING OUTSIDE CUSTODIANS CLOSET. HH 37 F WING CUSTODIANS CLOSET CEILING MATERIAL. HH 48 L WING ROOM L 12 CEILING. HH 49 FROM K WING ROOM K 20 CEILING."

VIBRATION ISOLATORS - BLACK; ABOVE AUDITORIUM, GYM LOCKER ROOMS & NORTH AND SOUTH GYMS
Sample Number HH 78 tested negative for asbestos content. These rooms contained non-friable duct insulating material, which was determined to be non-asbestos.
"SAMPLE HH 78 FROM BLACK VIBRATION ISOLATOR ABOVE AUDITORIUM, ON CATWALK."

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
B Burns
C Cuts
D Delaminated
F Flaking
P Puncture
CB Crumbling
T Tears
WL Water Leak
A Abrasion
M Movement
CR Crushed
O Other
BR Broken
E Exposed Ends
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 Deterioration
W Water
UD Undamaged

ACCESS:
(ACCESSIBILITY & POTENTIAL FOR FURTHER DISTURBANCE)

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

TY OF INS	RM CD	SAMPLE NO	RES +,-	%___	MAT F/N EPA CD DES	TY DAMAGE % DAMGD SEV DMG APP CAUSE ACCESS APPROX QTY SQ FT APPROX QTY LN FT	FS	
100C	PIPE FITINGS, ORIGINAL CONSTRUCTION; SEE COMMENTS FOR LOCATIONS	HH 11, HH 14, HH 20, HH 27, HH 31, HH 34, HH 38, HH 39, HH 40, HH 57, HH 59 & HH 77	POS	70, 30, 60 & 50% N	5	UD AM 226 LF		PIPE CHASE IN CUSTODIAN CLOSET, C WING, ABOVE CEILING F WING. PIPE CHASE IN CUSTODIAL CLOSET IN F WING, PIPE CHASE IN CUSTODIAL CLOSET IN S WING, ABOVE CEILINGS LOWER K WING HALL AND OFFICES, CUSTODIAL ROOM A WING AT PIPE TUNNEL ACCESS, ABOVE CEILINGS A WING HALLS, ABOVE CEILING BATHROOMS IN A WING. CUSTODIAL CLOSET AND PIPE CHASE S WING. DUCT ROOM 2ND FLOOR A WING, ABOVE CEILING IN OFFICES IN A 6, PIPE CHASE IN CUSTODIANS CLOSET M WING. SAMPLE HH 14 TAKEN FROM TUNNEL BELOW OFFICE AREA INSULATION FOR PIPE CONDUIT. HH 38 FROM F WING CUSTODIANS ROOM DOMESTIC WATER LINE ELBOW. SAMPLE HH 57 FROM M WING CUSTODIANS ROOM DOMESTIC WATER LINE ELBOW. SAMPLE HH 59 COLLECTED FROM THE S - WING. 1 " PIPE ELBOW, CUSTODIANS CLOSET. THE FOLLOWING SAMPLES TESTED NEGATIVE FOR ASBESTOS CONTENT - SAMPLE HH 11 FROM TELEPHONE ROOM BY OFFICE AREA, 6 INCH STEAM LINE ELBOW. SAMPLE HH 20 FROM GYM WING CUSTODIANS CLOSET, NORTHWEST HALL, 6 INCH ELBOWS. HH 27 FROM A WING A 11 STOREROOM, 3 INCH PIPE ELBOW. SAMPLE HH 31 FROM A WING 2ND FLOOR UTILITY CLOSET, WEST HALLWAY, 6 INCH PIPE. SAMPLE HH 34 FROM C WING CUSTODIANS CLOSET, 3 INCH PIPE ELBOW. HH 39 FROM F WING, FROM VALVE H&C 26 (WATER LINE) 35 FEET NORTH OF SOUTH END OF WEST PERIMETER TUNNEL. HH 40 FROM UNDER F WING T JOINT STEAM LINE 4 FEET NORTH OF SOUTH END OF

TY OF INS	RM CD	SAMPLE NO	RES +,-	%___	MAT F/N	EPA CD	DEG	TY DAMAGE	% DAMGD	SEV DMG	APP	CAUSE	ACCESS	APPROX QTY SQ FT	APPROX QTY LN FT	/S
100C	PIPE FITTINGS; CRAWL SPACES				F	1	D	ML,T	25%	HV	ML		AM		350 LF	DEBRIS NEEDS TO BE CLEANED UP AND DAMAGED AREAS NEED TO BE EITHER REPAIRED OR THE INSULATION REMOVED.
100C	PIPE FITTINGS; MAIN BOILER HOUSE	HH 08, HH 07, HH 06 & HH 09	POS	43, 40 & 30%	F	1		CR	01%	MD	M		AM		151 LF	HH 08 FROM 10 INCH LINE BY STAIRS ELBOW. HH 07 FROM 6 INCH STEAM LINE BY STAIRS. HH 06 FROM 3 INCH WATER LINE BY BASE OF STAIRS. HH 09 FROM 2 INCH WATER LINE BY STAIRS. ELBOWS CLOSE TO CW 198 NEED TO BE REMOVED AND CLEANED UP. SAMPLE HH 07 TESTED NEGATIVE FOR ASBESTOS CONTENT.
100C	PIPE FITTINGS; TANK ROOM;				F	1		CR,DL	25%	HV	A		AM		89 LF	DEBRIS AND BATTERED ELBOWS, DEBRIS NEEDS TO BE REMOVED OR REPAIRED AND REINSULATED.
100C	POOL PIPE FITTINGS, POOL BOILER ROOM	HH 88, HH 90 & HH 91	NEG		F	NA		UD					AM			SAMPLE HH 88 FROM HOT WATER BOILER ROOM CIRCULATION PUMP ELBOW. HH 90 FROM BUCKET CLEANING ROOM IN GIRLS LOCKER ROOM - ELBOW BY DOOR. HH 91 ELBOW ABOVE SUSPENDED CEILING IN STATIONARY BIKE ROOM IN BOYS LOCKER ROOM SOUTHWEST CORNER.
100C	ROOF DRAINS; C WING CALL, F WINGS, L WINGS, M WING & ROOM L 8	HH 79, HH 72 & HH 76	NEG		N	NA		UD					AD	16 LF		SAMPLE HH 79 WAS TAKEN FROM C WING HALL; SAMPLE HH 76 WAS TAKEN FROM ABOVE SUSPENDED CEILING HALL, L-WING; SAMPLE HH 72 WAS TAKEN FROM DRAIN PIPE INSULATION ABOVE SUSPENDED CEILING.
100C	ROOF DRAINS; CATWALK AREA ABOVE AUDITORIUM AND STAGE, A-13, A WING 2ND FLOOR E HALL STORAGE, CENTRAL SUPPLY OFFICE-STORAGE, ABOVE SUSPENDED CEILINGS WING HALLS, BOYS LOCKER ROOM GYM AND GIRLS LOCKER ROOM GYM				N	5		UD					AD			

TY OF INS	RM CD	SAMPLE NO	RES +,-	%	MAT F/N	EPA CD	DEG	TY DAMAGE	% DAMGD	SEV DAMG	APP CAUSE	ACCESS	APPROX QTY SQ FT	APPROX QTY LN FT	COMMENTS
100C	PIPE FITINGS, ORIGINAL														WEST PERIMETER TUNNEL. SAMPLE HH 77 FROM SOUTHEAST END N WING IN HALL, ELBOW TO HEATING UNIT.
100C	PIPE FITTINGS, LATER ADDITION ELBOW PIPE INSULATION; H WING CAFETERIA AND KITCHEN, POOL, AND A WING ROOMS 1 - 5 AND 12 - 14	HH 61, HH 44, HH 68, HH 73 & HH 45	MEG		N	NA		UD				AM			HH 61 FROM CAFETERIA C 1 ABOVE SUSPENDED CEILING NORTHWEST CORNER SAMPLE HH 44 FROM H WING BOILER ROOM, BELOW HOT WATER TANK 2 INCHE PIPE ELBOW. HH 68 TAKEN FROM ROOM 112 H WING ABOVE CEILING SOUTHWEST CORNER. HH 73 FROM H WING BOILER ROOM DAMAGED ELBOW ABOVE HOT WATER TANK. HH 45 FROM H WING 1ST FLOOR STOREROOM B ELBOW 3 INCH SUPPLY TO HVAC.
100C	PIPE FITTINGS, ORIGINAL CONSTRUCTION; NORTHEAST END OF N WING IN HALL - ELBOW TO HEATING UNIT				F	1		CR,DL	100%	HV	A	AD		1 LF	NEEDS TO BE REMOVED OR REPAIRED.
100C	PIPE FITTINGS, ORIGINAL CONSTRUCTION; DUCT ROOM - CENTRAL SUPPLY				F	1		CR,DL	20%	HV	D	AM		9 LF	
100C	PIPE FITTINGS, ORIGINAL CONSTRUCTION; THEATRE STORAGE				F	1		E,CK	05%	HV	D	AD		41 LF	
100C	PIPE FITTINGS, ORIGINAL CONSTRUCTION; CUSTODIAL CLOSET C WING CENTER AREA				F	1		P,CK	20%	HV	A	AM		12 LF	
100C	PIPE FITTINGS, ORIGINAL CONSTRUCTION; SEE COMMENTS				N	5		UD				AD		236 LF	OLD KITCHEN CENTRAL STORAGE, BOYS LAVATORY C WING, HALL F WING, BOYS LAVATORY F WING, K 26, NORTHWEST CORNER OF K WING BOOK STORAGE CLOSET, A 19, BAND ROOM A 20, A 15, A 10, A 11, A 6, 2ND FLOOR GIRLS LAVATORY A WING, A 9 CLOSET, AUDITORIUM CATWALK AREA, 2ND FLOOR BOYS LAVATORY A WING, N WING, & S WING. MINOR JACKET DAMAGE IN OLD KITCHEN, IN S. WING BOY'S LAVATORY, & GIRLS LAVATORY A - WING.

TY OF INS	RM CD	SAMPLE NO	RES +,-	%	MAT F/N	EPA CD DEG	TY DAMAGE	% DAMGD	SEV DAMG	APP CAUSE	ACCESS	APPROX QTY SQ FT	APPROX QTY LN FT	
200A	BOILERS; MAIN BOILER HOUSE				F	1	CK,WL	10%	MD	W	AM	1000 SF		3 HB SMITH BOILERS.
200B	BREECHING; H WING BOILER ROOM	HH 75 & HH 43	NEG		N	NA	UD				AM	200 SF		SAMPLE HH 75 FROM A 2 HB SMITH BREECHING. HH 43 FROM BREECHING. SAMPLE MAY HAVE BEEN REPAIR.
200B	BREECHING; MAIN BOILER HOUSE				F	1	CK,FL	10%	MD	D	AM	690 SF		
200B	BREECHING; POOL BOILER ROOM	HH 16	POS	30%	N	5	UD				AM	80 SF		
200B	GENERATOR MUFFLER; H WING BOILER ROOM	HH 41	POS	25%	N	5	UD				AM	85 SF		SAMPLE HH 41 FROM EMERGENCY GENERATOR EXHAUST INSULATION.
200B	GENERATOR MUFFLER; MAIN BOILER HOUSE				N	5	UD				AM	44 SF		MUFFLER COVERING AND DRAIN IN GENERATOR ROOM.
200B	TRANSITE; MAIN BOILER HOUSE				N	5	UD				AM		2 LF	3 INCH PIPE TO OIL FIRED HOT WATER TANK.
200C	WATER TANK; TANK ROOM	HH 05	POS	65%	F	1	JD,T	15%	HV	A	AM	540 SF		SAMPLE HH 05 FROM TANK ROOM NEXT TO GYM. MUST BE PATCHED.
200D	HEADERS; MAIN BOILER HOUSE				N	5	UD				AM	84 SF		
300A	CEILING TILE 1 X 1; A WING BAND STOREROOM	HH 29	NEG		N	NA	UD				AO			
300A	CEILING TILE 2 X 4; SEE COMMENTS FOR LOCATION	HH 67, HH 50, HH 54, HH 55, HH 56, HH 46, HH 36, HH 10, HH 12, HH 13, HH 15, H 18 & HH 60	NEG		N	NA	UD				AO			SAMPLE HH 67 FROM 2 X 4 KITCHEN CEILING TILE. SAMPLE HH 50 FROM K WING CORRIDOR OUTSIDE K 20. HH 54 M WING BY BOYS LAVATORY, DARK 2 X 4 CEILING TILE. HH 55 FROM M WING OUTSIDE BOYS LAVATORY, LARGE HOLES 2 X 4 CEILING. HH 56 FROM M WING OUTSIDE BOYS LAVATORY, SMALL HOLES 2 X 4 CEILING. HH 46 FROM H WING 1ST FLOOR CUSTODIANS ROOM BY SCIENCE WING, 2 X 4 CEILING TILES. HH 36 FROM F WING SOUTH HALLWAY, 2 X 4 CEILING OUTSIDE ELECTRIC ROOM. HH 10 FROM OFFICE AREA EAST STAIRWELL 2 X 4 CEILING TILE, SMALL

TY OF INS	RM CD	SAMPLE NO	RES +,-	%	MAT F/N EPA CD DE	TY DAMAGE % DAMGD SEV DMG APP CAUSE ACCESS APPROX QTY SQ FT APPROX QTY LN FT	
300A	CEILING TILE 2 X 4; SEE						HOLES. HH 12 OFFICE AREA EAST STAIRWELL TILE WITH GREATEST NUMBER OF HOLES. HH 13 OFFICE AREA EAST STAIRWELL LEAST NUMBER OF HOLES. HH 15 FROM POOL WATER TREATMENT ROOM, TILES WITH SMALL FISSURES. HH 18 FROM POOL WEST HALLWAY OUTSIDE STORAGE ROOM, LARGE FISSURES. HH 60 FROM S WING CEILING OUTSIDE CUSTODIANS CLOSET.
300A	FOYER CEILING PANELS, CEMENT LIKE; OUTSIDE KITCHEN, K WING LOWER	HH 63	POS	10%	N 5	UD	AD 2850 SF
300A	TECTUM; SEE COMMENTS FOR SAMPLE LOCATIONS	HH 30, HH 32, HH 33, HH 37, HH 48 & HH 49	NEG		N NA	UD	AD 200,000 SF SAMPLE HH 30 FROM A WING 2ND FLOOR UTILITY CLOSET, WEST CORRIDOR CEILING. HH 32 A WING 2ND FLOOR STOREROOM EAST HALLWAY. HH 33 C WING CEILING - OUTSIDE CUSTODIANS CLOSET. HH 37 F WING CUSTODIANS CLOSET CEILING MATERIAL. HH 48 L WING ROOM L 12 CEILING. HH 49 FROM K WING ROOM K 20 CEILING.
300B	CEILING & WALL PLASTER; AUDITORIUM & K WING LOWER	HH 03, HH 02, HH 04, HH 80, HH 82 & HH 83	NEG		N NA	UD	AD 5364 SF SAMPLE HH 03 FROM CEILING PLASTER SOUTHWEST CORNER. SAMPLE HH 83 FROM CEILING CLOSET IN NURSES OFFICE. SAMPLE HH 82 FROM ELECTRICAL ROOM, OFFICE AREA. SAMPLE HH 80 FROM MAINTENANCE ROOM BETWEEN K WING (LOWER) AND A WING. SAMPLE HH 02 FROM WALL PLASTER EAST ENTRANCE; SAMPLE HH 04 FROM WALL PLASTER CENTER SOUTH WALL.
300B	CEILING PLASTER; H WING & POOL BOILER ROOMS	HH 86, HH 42, HH 81 & HH 17	NEG		N NA	UD	AM 1800 SF SAMPLE HH 86 TAKEN FROM THE NORHTEAST CORNER, WEST OF DOOR. SAMPLE HH 42 FROM ABOVE THE DOOR TO OUTSIDE. SAMPLE HH 81 FROM NORTHEAST CORNER, EAST OF DOOR. SAMPLE HH 17 WAS TAKEN FROM THE

TY OF INS	RM CD	SAMPLE NO	RES +,-	%	MAT F/N	EPA CD	DES	TY DAMAGE	% DAMGD	SEV DAMG	APP	CAUSE	ACCESS	APPROX QTY SQ FT	APPROX QTY LN FT	IS
300B	CEILING PLASTER; H WING & POOL BOILER ROOM.															
300B	PLASTER CEILING; AUDITORIUM ENTRANCEWAY	HH 23, HH 24 & HH 25	POS	03, 02 & 02%	F	2		BG	05%	LT	A		AD	2500 SF		SAMPLE HH 23 FROM GROUND FLOOR HALLWAY CEILING OUTSIDE AUDITORIUM. NORTHWEST CORNER HALL. SAMPLE HH 24 FROM 1ST FLOOR CEILING BY EAST EXIT. SAMPLE HH 25 1ST FLOOR CEILING BY WEST EXIT.
400A	GYM DIVIDER; GYM	HH 19	NEG		N	NA		UD					AD			SAMPLE TAKEN FROM SOUTH GYM DIVIDER.
400B	GYPSUM BOARD; STAIRWELLS H WING	HH 64	NEG		F	NA		UD					AD			
500A	FLOOR TILE 12 X 12 ORIGINAL CONSTRUCTION; C WING	HH 70 & HH 58	NEG		N	NA		UD					AD			SAMPLE HH 70 FROM BLACK 12 X 12 BY OUTSIDE ENTRANCE BETWEEN C WING AND S WING. SAMPLE HH 58 FROM HALFWAY BETWEEN S AND C WINGS 12 INCH COMPOSITE TILE REPAIR.
500A	FLOOR TILE 12 X 12, ADDITION; ROOMS CAFETERIA, KITCHEN, H WING AND ROOMS IN INDUSTRIAL ARTS ADDITION IN A WING AND HALLWAYS IN THESE AREAS.	HH 66, HH 69 & HH 47	NEG		N	NA		UD					AD			SAMPLE HH 66 FROM 12 X 12 OFF WHITE FLOOR TILE IN H WING HALL, EAST BY CENTRAL SUPPLY. HH 69 FROM 12 X 12 GREY ROOM 107, CENTER OF ROOM. SAMPLE HH 47 FROM 12 X 12 TAN H WING 1ST FLOOR HALLWAY OUTSIDE LIBRARY.
500A	FLOOR TILE 9 X 9, ORIGINAL CONSTRUCTION; K WING, C WING, L WING, K WING, F WING, S WING, A WING (AUDITORIUM & A 9 - 11, A 15 - 21) & GYM HALLS AND OFFICES	HH 52 & HH 28	POS	02%	N	5		UD					AD	100000 SF		SAMPLE HH 52 FROM K WING BROWN 9 X 9 FLOOR TILE 2ND FLOOR HALLWAY WEST HALL OUTSIDE K 14. SAMPLE 28 TESTED NEGATIVE FOR ASBESTOS CONTENT. TAKEN FROM A WING GREY 9 X 9 FLOOR TILE AUDITORIUM ENTRANCE.
600C	VIBRATION ISOLATORS - BLACK; ABOVE AUDITORIUM, GYM LOCKER ROOMS & NORTH AND SOUTH GYMS	HH 78	NEG		N	NA		UD					AD			SAMPLE HH 78 FROM BLACK VIBRATION ISOLATOR ABOVE AUDITORIUM, ON CATWALK.
600C	VIBRATION ISOLATORS - WHITE; BOILER HOUSE, H WING BOILER ROOM, CENTRAL SUPPLY DUCT ROOM & CENTRAL SUPPLY ROOM B,	HH 74 & HH 65	POS	70 & 80%	N	5		UD					AM	36 SF		SAMPLE HH 74 FROM H WING BOILER ROOM. SAMPLE HH 65 FROM CENTRAL SUPPLY ROOM B.

TY OF INS	% CD	SAMPLE NO	RES +,-	%	MAT F/N	EPA CD	DEB	TY DAMAGE	% DAMGD	SEV DAMG	APP CAUSE	ACCESS	APPROX QTY SQ FT	APPROX QTY LN FT		TS
500C	COMPUTRE ROOM K WING, ROOM A-1															
700A	SOAPSTONE LAB BENCH; ROOM 106A	HH 62	NEG		N	NA		UD				AM	10 SF			
700B	PAPER BACKING TO CONGOLEUM SHEETING; ROOM M 12	HH 71	POS	20%	F	7		UD				AO	24 SF			
800A	ACOUSTICAL PANELS ON WALLS; AUDITORIUM	HH 01	NEG		N	NA		UD				AO				
800A	CORD ON STAGE LIGHTS; CATWALK ABOVE AUDITORIUM				F	7		UD				AO		50 LF		
800A	COVERS TO SINKS; IN LAB DASKS K 28	HH 85	NEG		N	5		UD				AO	12 SF			
800A	FIRE BLANKET; ROOM K 27				F	7		UD				AO		1 BLANKET		
800A	FIRE CURTAIN; AUDITORIUM				F	7		UD				AO	800 SF			
800A	GYM & C WING INSULATION	HH 35 & HH 22	NEG		N	NA		UD				AO				SAMPLE HH 35 WAS TAKEN FROM INSULATION BETWEEN BEAM AND CINDER BLOCKS OUTSIDE CUSTODIANS CLOSET; SAMPLE HH 22 WAS TAKEN FROM CUSTODIANS CLOSET, MATERIAL BETWEEN DECK & WALL
800A	LAB COUNTER TOP; ROOM K 32	HH 51	NEG		N	NA		UD				AO				
800A	PYROBAR BRICK; NORTHEAST CORNER C WING BY EXIT	HH 87	NEG		N	NA		UD				AM				
800A	TRANSITE CHALK BOARDS; ROOMS 5 - 19				N	5		UD				AO	120 SF			
800A	TRANSITE DRYING RACKS; ROOMS 119, 115, 107A, 104 & 107				N	5		UD				AO	60 SF			
800A	TRANSITE LINING HOODS; ROOMS 116, 112, 114 & 110				N	5		UD				AO	100 SF			
800A	TRANSITE PIPE; PHOTO LAB IN LIBRARY				N	5		UD				AO		2 LF		
800A	WELDING CURTAIN; A WING ROOM A 14	HH 89	POS	70%	F	4		DL	01%	LT	D	AO	8 SF			

RM L	SAMPLE NO	RES +,-	%	MAT F/N	TY OF INS	EPA CD	DEG	Y DAMAGE	% DAMGD	SEV DAMG	APP CAUSE	ACCESS	APPROX QTY SQ FT	APPROX QTY LN FT	IS
ACOUSTICAL PANELS ON WALLS; AUDITORIUM	HH 01	NEG		N	800A	NA		UD				AD			
BOILERS; MAIN BOILER HOUSE				F	200A	1		CK,WL	10%	MD	W	AM	1000 SF		3 HB SMITH BOILERS.
BREECHING; H WING BOILER ROOM	HH 75 & HH 43	NEG		N	200B	NA		UD				AM	200 SF		SAMPLE HH 75 FROM # 2 HB SMITH BREECHING. HH 43 FROM BREECHING. SAMPLE MAY HAVE BEEN REPAIR.
BREECHING; MAIN BOILER HOUSE				F	200B	1		CK,FL	10%	MD	D	AM	690 SF		
BREECHING; POOL BOILER ROOM	HH 16	POS	30%	N	200B	5		UD				AM	80 SF		
CEILING & WALL PLASTER; AUDITORIUM & K WING LOWER	HH 03, HH 02, HH 04, HH 80, HH 82 & HH 83	NEG		N	300B	NA		UD				AD	5364 SF		SAMPLE HH 03 FROM CEILING PLASTER SOUTHWEST CORNER. SAMPLE HH 83 FROM CEILING CLOSET IN NURSES OFFICE. SAMPLE HH 82 FROM ELECTRICAL ROOM. OFFICE AREA. SAMPLE HH 80 FROM MAINTENANCE ROOM BETWEEN K WING (LOWER) AND A WING. SAMPLE HH 02 FROM WALL PLASTER EAST ENTRANCE; SAMPLE HH 04 FROM WALL PLASTER CENTER SOUTH WALL.
CEILING PLASTER; H WING POOL BOILER ROOMS	& HH 86, HH 42, HH 81 & HH 17	NEG		N	300B	NA		UD				AM	1800 SF		SAMPLE HH 86 TAKEN FROM THE NORHTEAST CORNER, WEST OF DOOR. SAMPLE HH 42 FROM ABOVE THE DOOR TO OUTSIDE. SAMPLE HH 81 FROM NORTHEAST CORNER, EAST OF DOOR. SAMPLE HH 17 WAS TAKEN FROM THE POOL BOILER ROOM.
CEILING TILE 1 X 1; A WING BAND STOREROOM	HH 29	NEG		N	300A	NA		UD				AD			
CEILING TILE 2 X 4; SEE COMMENTS FOR LOCATION	HH 67, HH 50, HH 54, HH 55, HH 56, HH 46, HH 36, HH 10, HH 12, HH 13, HH 15, H 18 & HH 60	NEG		N	300A	NA		UD				AD			SAMPLE HH 67 FROM 2 X 4 KITCHEN CEILING TILE. SAMPLE HH 50 FROM K WING CORRIDOR OUTSIDE K 20. HH 54 M WING BY BOYS LAVATORY. DARK 2 X 4 CEILING TILE. HH 55 FROM M WING OUTSIDE BOYS LAVATORY, LARGE HOLES 2 X 4 CEILING. HH 56 FROM M WING OUTSIDE BOYS

HM CL	SAMPLE NO	RES +,-	%	MAT F/N	TY OF INS	EPA CD	DEG	Y DAMAGE	% DAMGD	SEV DAMG	APP CAUSE	ACCESS	APPROX QTY SQ FT	APPROX QTY LN FT	TS
CEILING TILE 2 X 4; SEE	HH 67, HH 50, HH 54, HH														LAVATORY, SMALL HOLES 2 X 4 CEILING. HH 46 FROM H WING 1ST FLOOR CUSTODIANS ROOM BY SCIENCE WING, 2 X 4 CEILING TILES. HH 36 FROM F WING SOUTH HALLWAY, 2 X 4 CEILING OUTSIDE ELECTRIC ROOM. HH 10 FROM OFFICE AREA EAST STAIRWELL 2 X 4 CEILING TILE, SMALL HOLES. HH 12 OFFICE AREA EAST STAIRWELL TILE WITH GREATEST NUMBER OF HOLES. HH 13 OFFICE AREA EAST STAIRWELL LEAST NUMBER OF HOLES. HH 15 FROM POOL WATER TREATMENT ROOM, TILES WITH SMALL FISSURES. HH 18 FROM POOL WEST HALLWAY OUTSIDE STORAGE ROOM, LARGE FISSURES. HH 60 FROM S WING CEILING OUTSIDE CUSTODIANS CLOSET.
CORD ON STAGE LIGHTS; CATWALK ABOVE AUDITORIUM				F	800A	7		UD				AO		50 LF	
COVERS TO SINKS; IN LAB DASKS K 28	HH 85	NEG		N	800A	5		UD				AO	12 SF		
FIRE BLANKET; ROOM K 27				F	800A	7		UD				AO		1 BLANKET	
FIRE CURTAIN; AUDITORIUM				F	800A	7		UD				AO	800 SF		
FLOOR TILE 12 X 12 ORIGINAL CONSTRUCTION; C WING	HH 70 & HH 58	NEG		N	500A	NA		UD				AO			SAMPLE HH 70 FROM BLACK 12 X 12 BY OUTSIDE ENTRANCE BETWEEN C WING AND S WING. SAMPLE HH 58 FROM HALFWAY BETWEEN S AND C WINGS 12 INCH COMPOSITE TILE REPAIR.
FLOOR TILE 12 X 12, ADDITION; ROOMS CAFETERIA, KITCHEN, H WING AND ROOMS IN INDUSTRIAL ARTS ADDITION IN A WING AND HALLWAYS IN THESE AREAS.	HH 66, HH 69 & HH 47	NEG		N	500A	NA		UD				AO			SAMPLE HH 66 FROM 12 X 12 OFF WHITE FLOOR TILE IN H WING HALL, EAST BY CENTRAL SUPPLY. HH 69 FROM 12 X 12 GREY ROOM 107, CENTER OF ROOM. SAMPLE HH 47 FROM 12 X 12 TAN H WING 1ST FLOOR HALLWAY OUTSIDE LIBRARY.
FLOOR TILE 9 X 9, ORIGINAL CONSTRUCTION; H	HH 52 & HH 28	POS	02%	N	500A	5		UD				AO	100000 SF		SAMPLE HH 52 FROM K WING BROWN 9 X 9 FLOOR TILE

RM L	SAMPLE NO	RES +,-	%	MAT F/N	TY OF INS	EPA CD	DEG	TY DAMAGE	% DAMGD	SEV DAMG	APP CAUSE	ACCESS	APPROX QTY SQ FT	APPROX QTY LN FT		ITS
WING, C WING, L WING, K WING, F WING, S WING, A WING (AUDITORIUM & A 9 - 11, A 15 - 21) & GYM HALLS AND OFFICES	HH 52 & HH 28															2ND FLOOR HALLWAY WEST HALL OUTSIDE K 14. SAMPLE 28 TESTED NEGATIVE FOR ASBESTOS CONTENT. TAKEN FROM A WING GREY 9 X 9 FLOOR TILE AUDITORIUM ENTRANCE.
FOYER CEILING PANELS, CEMENT LIKE; OUTSIDE KITCHEN, K WING LOWER	HH 63	POS	10%	N	300A	5		UD			AD		2850 SF			
GENERATOR MUFFLER; H WING BOILER ROOM	HH 41	POS	25%	N	200B	5		UD			AM		85 SF			SAMPLE HH 41 FROM EMERGENCY GENERATOR EXHAUST INSULATION.
GENERATOR MUFFLER; MAIN BOILER HOUSE				N	200B	5		UD			AM		44 SF			MUFFLER COVERING AND DRAIN IN GENERATOR ROOM.
GYM & C WING INSULATION	HH 35 & HH 22	NEG		N	800A	NA		UD			AD					SAMPLE HH 35 WAS TAKEN FROM INSULATION BETWEEN BEAM AND CINDER BLOCKS OUTSIDE CUSTODIANS CLOSET; SAMPLE HH 22 WAS TAKEN FROM CUSTODIANS CLOSET, MATERIAL BETWEEN DECK & WALL
GYM DIVIDER; GYM	HH 19	NEG		N	400A	NA		UD			AD					SAMPLE TAKEN FROM SOUTH GYM DIVIDER.
GYPSUM BOARD; STAIRWELLS H WING	HH 64	NEG		F	400B	NA		UD			AD					
HEADERS; MAIN BOILER HOUSE				N	200D	5		UD			AM		84 SF			
LAB COUNTER TOP; ROOM K 32	HH 51	NEG		N	800A	NA		UD			AD					
PAPER BACKING TO CONGOLEUM SHEETING; ROOM K 12	HH 71	POS	20%	F	700B	7		UD			AD		24 SF			
PIPE FITINGS, ORIGINAL CONSTRUCTION; SEE COMMENTS FOR LOCATIONS	HH 11, HH 14, HH 20, HH 27, HH 31, HH 34, HH 38, HH 39, HH 40, HH 57, HH 59 & HH 77	POS	70, 30, 60 & 50%	N	100C	5		UD			AM			228 LF		PIPE CHASE IN CUSTODIAN CLOSET, C WING, ABOVE CEILING F WING, PIPE CHASE IN CUSTODIAL CLOSET IN F WING, PIPE CHASE IN CUSTODIAL CLOSET IN S WING, ABOVE CEILINGS LOWER K WING HALL AND OFFICES, CUSTODIAL ROOM A WING AT PIPE TUNNEL ACCESS, ABOVE CEILINGS A WING HALLS, ABOVE CEILING

RM L	SAMPLE NO	RES +,-	%	MAT F/N TY OF INS EPA CD DEG	Y DAMAGE % DAMGD SEV DAMG APP CAUSE ACCESS APPROX QTY SQ FT APPROX QTY LN FT	ATS
PIPE FITINGS, ORIGINAL	HH 11, HH 14, HH 20, HH					BATHROOMS IN A WING, CUSTODIAL CLOSET AND PIPE CHASE S WING. DUCT ROOM 2ND FLOOR A WING. ABOVE CEILING IN OFFICES IN A 6, PIPE CHASE IN CUSTODIANS CLOSET M WING. SAMPLE HH 14 TAKEN FROM TUNNEL BELOW OFFICE AREA INSULATION FOR PIPE CONDUIT. HH 38 FROM F WING CUSTODIANS ROOM DOMESTIC WATER LINE ELBOW. SAMPLE HH 57 FROM M WING CUSTODIANS ROOM DOMESTIC WATER LINE ELBOW. SAMPLE HH 59 COLLECTED FROM THE S - WING, 1 " PIPE ELBOW, CUSTODIANS CLOSET. THE FOLLOWING SAMPLES TESTED NEGATIVE FOR ASBESTOS CONTENT - SAMPLE HH 11 FROM TELEPHONE ROOM BY OFFICE AREA, 6 INCH STEAM LINE ELBOW. SAMPLE HH 20 FROM GYM WING CUSTODIANS CLOSET, NORTHWEST HALL, 6 INCH ELBOWS. HH 27 FROM A WING A 11 STOREROOM. 3 INCH PIPE ELBOW. SAMPLE HH 31 FROM A WING 2ND FLOOR UTILITY CLOSET, WEST HALLWAY, 6 INCH PIPE. SAMPLE HH 34 FROM C WING CUSTODIANS CLOSET, 3 INCH PIPE ELBOW. HH 39 FROM F WING, FROM VALVE HWC 26 (WATER LINE) 35 FEET NORTH OF SOUTH END OF WEST PERIMETER TUNNEL. HH 40 FROM UNDER F WING T JOINT STEAM LINE 4 FEET NORTH OF SOUTH END OF WEST PERIMETER TUNNEL. SAMPLE HH 77 FROM SOUTHEAST END M WING IN HALL, ELBOW TO HEATING UNIT.
PIPE FITTINGS, LATER ADDITION ELBOW PIPE INSULATION; H WING -- CAFETERIA AND KITCHEN, POOL, AND A WING ROOMS 1 - 5 AND 12 - 14	HH 61, HH 44, HH 68, HH 73 & HH 45	NEG	N	100C NA	LD	AM	HH 61 FROM CAFETERIA C I ABOVE SUSPENDED CEILING NORTHWEST CORNER SAMPLE HH 44 FROM H WING BOILER ROOM, BELOW HOT WATER TANK 2 INCHE PIPE ELBOW.

RM	SAMPLE NO	RES +,-	%	MAT F/N	TY OF INS	EPA CD	DES	Y DAMAGE	% DAMGD	SEV DAMG	APP CAUSE	ACCESS	APPROX QTY SQ FT	APPROX QTY LN FT	L	TS	
PIPE FITTINGS, LATER	HH 61, HH 44, HH 68, HH																HH 68 TAKEN FROM ROOM 112 H WING ABOVE CEILING SOUTHWEST CORNER. HH 73 FROM H WING BOILER ROOM DAMAGED ELBOW ABOVE HOT WATER TANK. HH 45 FROM H WING 1ST FLOOR STOREROOM B ELBOW 3 INCH SUPPLY TO HVAC.
PIPE FITTINGS, ORIGINAL CONSTRUCTION; NORTHEAST END OF M WING IN HALL - ELBOW TO HEATING UNIT				F	100C	1		CR,DL	100%	HV	A	AD		1 LF			NEEDS TO BE REMOVED OR REPAIRED.
PIPE FITTINGS, ORIGINAL CONSTRUCTION; DUCT ROOM - CENTRAL SUPPLY				F	100C	1		CR,DL	20%	HV	D	AM		9 LF			
PIPE FITTINGS, ORIGINAL CONSTRUCTION; THEATRE STORAGE				F	100C	1		E,CK	05%	HV	D	AD		41 LF			
PIPE FITTINGS, ORIGINAL CONSTRUCTION; CUSTODIAL CLOSET C WING CENTER AREA				F	100C	1		P,CK	20%	HV	A	AM		12 LF			
PIPE FITTINGS, ORIGINAL CONSTRUCTION; SEE COMMENTS				N	100C	5		UD				AD		236 LF			OLD KITCHEN CENTRAL STORAGE, BOYS LAVATORY C WING, HALL F WING, BOYS LAVATORY F WING, K 26, NORTHWEST CORNER OF K WING BOOK STORAGE CLOSET, A 19, BAND ROOM A 20, A 15, A 10, A 11, A 6, 2ND FLOOR GIRLS LAVATORY A WING, A 9 CLOSET, AUDITORIUM CATWALK AREA, 2ND FLOOR BOYS LAVATORY A WING, M WING, & S WING. MINOR JACKET DAMAGE IN OLD KITCHEN, IN S. WING BOY'S LAVATORY, & GIRLS LAVATORY A - WING.
PIPE FITTINGS; CRAWL SPACES				F	100C	1	D	ML,T	25%	HV	WL	AM		350 LF			DEBRIS NEEDS TO BE CLEANED UP AND DAMAGED AREAS NEED TO BE EITHER REPAIRED OR THE INSULATION REMOVED.
PIPE FITTINGS; MAIN BOILER HOUSE	HH 08, HH 07, HH 06 & HH 09	POS	43, 40 & 30%	F	100C	1		CR	01%	MD	W	AM		151 LF			HH 08 FROM 10 INCH LINE BY STAIRS ELBOW. HH 07 FROM 6 INCH STEAM LINE BY STAIRS. HH 06 FROM 3 INCH WATER LINE BY BASE

RM L	SAMPLE NO	RES +,-	%	MAT F/N	TY OF INS	EPA CD	DEG	Y DAMAGE	% DAMGD	SEV DAMG	APP CAUSE	ACCESS	APPROX QTY SQ FT	APPROX QTY LN FT	L	TS	
PIPE FITTINGS; MAIN	HH 08, HH 07, HH 06 & HH																OF STAIRS. HH 05 FROM 2 INCH WATER LINE BY STAIRS. ELBOWS CLOSE TO CW 198 NEED TO BE REMOVED AND CLEANED UP. SAMPLE HH 07 TESTED NEGATIVE FOR ASBESTOS CONTENT.
PIPE FITTINGS; TANK ROOM;				F	100C	1		CR,DL	25%	HV	A	AM		89 LF			DEBRIS AND BATTERED ELBOWS, DEBRIS NEEDS TO BE REMOVED OR REPAIRED AND REINSULATED.
PLASTER CEILING; AUDITORIUM ENTRANCEWAY	HH 23, HH 24 & HH 25	POS	03, 02 & 02%	F	300B	2		GG	05%	LT	A	AO	2500 SF				SAMPLE HH 23 FROM GROUND FLOOR HALLWAY CEILING OUTSIDE AUDITORIUM, NORTHWEST CORNER HALL. SAMPLE HH 24 FROM 1ST FLOOR CEILING BY EAST EXIT. SAMPLE HH 25 1ST FLOOR CEILING BY WEST EXIT.
POOL PIPE FITTINGS, POOL BOILER ROOM	HH 88, HH 90 & HH 91	NEG		F	100C	NA		UD				AM					SAMPLE HH 88 FROM HOT WATER BOILER ROOM CIRCULATION PUMP ELBOW. HH 90 FROM BUCKET CLEANING ROOM IN GIRLS LOCKER ROOM - ELBOW BY DOOR. HH 91 ELBOW ABOVE SUSPENDED CEILING IN STATIONARY BIKE ROOM IN BOYS LOCKER ROOM SOUTHWEST CORNER.
PYROBAR BRICK; NORTHEAST CORNER C WING BY EXIT	HH 87	NEG		N	800A	NA		UD				AM					
ROOF DRAINS; C WING CALL, F WINGS, L WINGS, M WING & ROOM L 8	HH 79, HH 72 & HH 76	NEG		N	100C	NA		UD				AO	16 LF				SAMPLE HH 79 WAS TAKEN FROM C WING HALL; SAMPLE HH 76 WAS TAKEN FROM ABOVE SUSPENDED CEILING HALL, L-WING; SAMPLE HH 72 WAS TAKEN FROM DRAIN PIPE INSULATION ABOVE SUSPENDED CEILING.
ROOF DRAINS; CATWALK AREA ABOVE AUDITORIUM AND STAGE, A-13, A WING 2ND FLOOR E HALL STORAGE, CENTRAL SUPPLY OFFICE-STORAGE, ABOVE SUSPENDED CEILINGS WING HALLS, BOYS LOCKER ROOM GYM AND GIRLS LOCKER ROOM				N	100C	5		UD				AO					

RM	SAMPLE NO	RES +,-	%	MAT F/N	TY OF INS	EPA CD	DEG	TY DAMAGE	% DAMGD	SEV DAMG	APP CAUSE	ACCESS	APPROX QTY SQ FT	APPROX QTY LN FT	NTS
GYM															
SOAPSTONE LAB BENCH; ROOM 106A	HH 62	NEG		N	700A	NA		UD				AM	10 SF		
TECTUM; SEE COMMENTS FOR SAMPLE LOCATIONS	HH 30, HH 32, HH 33, HH 37, HH 48 & HH 49	NEG		N	300A	NA		UD				AD	200,000 SF		SAMPLE HH 30 FROM A WING 2ND FLOOR UTILITY CLOSET, WEST CORRIDOR CEILING. HH 32 A WING 2ND FLOOR STOREROOM EAST HALLWAY. HH 33 C WING CEILING OUTSIDE CUSTODIANS CLOSET. HH 37 F WING CUSTODIANS CLOSET CEILING MATERIAL. HH 48 L WING ROOM L 12 CEILING. HH 49 FROM K WING ROOM K 20 CEILING.
TRANSITE CHALK BOARDS; ROOMS 5 - 19				N	800A	5		UD				AD	120 SF		
TRANSITE DRYING RACKS; ROOMS 119, 115, 107A, 104 & 107				N	800A	5		UD				AD	60 SF		
TRANSITE LINING HOODS; ROOMS 116, 112, 114 & 110				N	800A	5		UD				AD	100 SF		
TRANSITE PIPE; PHOTO LAB IN LIBRARY				N	800A	5		UD				AD		2 LF	
TRANSITE; MAIN BOILER HOUSE				N	200B	5		UD				AM		2 LF	3 INCH PIPE TO OIL FIRED HOT WATER TANK.
VIBRATION ISOLATORS - BLACK; ABOVE AUDITORIUM, GYM LOCKER ROOMS & NORTH AND SOUTH GYMS	HH 78	NEG		N	600C	NA		UD				AD			SAMPLE HH 78 FROM BLACK VIBRATION ISOLATOR ABOVE AUDITORIUM, ON CATWALK.
VIBRATION ISOLATORS - WHITE; BOILER HOUSE, H WING BOILER ROOM, CENTRAL SUPPLY DUCT ROOM & CENTRAL SUPPLY ROOM B, COMPUTRE ROOM K WING, ROOM A-1	HH 74 & HH 65	POS	70 & 80%	N	600C	5		UD				AM	35 SF		SAMPLE HH 74 FROM H WING BOILER ROOM. SAMPLE HH 65 FROM CENTRAL SUPPLY ROOM B.
WATER TANK; TANK ROOM	HH 05	POS	65%	F	200C	1		JD,T	15%	HV	A	AM	540 SF		SAMPLE HH 05 FROM TANK ROOM NEXT TO GYM. MUST BE PATCHED.
WELDING CURTAIN; A WING ROOM A 14	HH 89	POS	70%	F	800A	4		DL	01%	LT	D	AD	8 SF		

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's 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

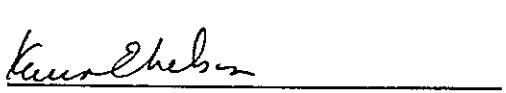
APPENDIX E

- Laboratory Test Results -

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
4/6/88		Haverhill	1 Auditorium Accoustical Panel Eastwall	80% Cellulose 20% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	2 Auditorium, wall plaster, East entrance	Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	3 Auditorium, ceiling plaster, S.W. corner	Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	4 Auditorium wall plaster center South wall	Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	5 Tank room next to gym, water tank insulation	15% Amosite 50% Chrysotile 35% Non-Fibrous	Homogeneous, friable non-layered
"		"	6 Boiler room 3" water line by base of stairs elbow	40% Chrysotile 10% Mineral wool	Homogeneous, friable non-layered
"		"	7 Boiler room 6" steamline by stairs elbow	30% Mineral Wool 70% Non-Fibrous No asbestos detected	Heterogenous, friable non-layered

Collected by:

Analyst: 

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
4/5/88		Haverhill	8 Boiler room 10" line by stairs elbow	2-4% Amosite 40% Chrysotile 58% Non-Fibrous	Homogeneous, friable non-layered
"		"	9 Boiler room 2" waterline stairs elbow	30% Chrysotile 10% Mineral Wool 60% Non-Fibrous	Homogeneous, friable non-layered
"		"	10 Office area E. stairwell 2 x 4 ceiling tile smallest size holes	15% Mineral Wool 30% Cellulose 55% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	11 Telephone room by office area. 6" steam line elbow	10% Mineral Wool 90% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	12 Office area, E. stairwell 2 x 4 ceiling tile greatest # holes	15% Mineral Wool 30% Cellulose 55% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	13 Office area E. stairwell 2 x 4 ceiling tile. Least # of holes	15% Mineral Wool 30% Cellulose 55% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered

Collected by: _____ Analyst: _____

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
4/5/88		Haverhill	14 Tunnel below office area insulation for pipe conduit by T.V. studio	40% Amosite 30% Chrysotile 30% Non-Fibrous	Homeogeneous, friable non-layered
"		"	15 Pool water treatment room. 2 x 4 suspended ceiling. Small vermiculations	15% Mineral wool 30% Cellulose No asbestos detected	Homogeneous, friable non-layered
"		"	16 Pool boiler room breeching	30% Chrysotile 10% Mineral wool 60% Non-Fibrous	Homogeneous, friable non-layered
"		"	17 Pool boiler room ceiling	Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	18 Pool west hallway outside storage room 2 x 4 ceiling tile. Large vermiculations	15% Mineral Wool 30% Cellulose 55% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	19 Back Gym divider	80% Cellulose 20% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered

Collected by: _____ Analyst: _____

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

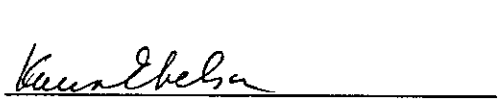
Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
4/5/88		Haverhill	20 Gym wing custodians closet N.W hall 6" steamline elbow	10% Mineral Wool 90% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	21 Gym Wing custodians room N.W hallway ceiling above beams	60% Cellulose 40% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	22 Gym wing custodians closet N.W hallway material between deck & hall	95% Cellulose 5% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	23 A-wing ground floor hallway ceiling outside auditorium N.W corner hall	2-4% Chrysotile 96-98% Non-Fibrous	Homogeneous, friable non-layered
"		"	24 A-wing 1st floor ceiling by E. exit	1-3% Chrysotile 97-99% Non-Fibrous	Homogeneous, friable non-layered
"		"	25 A-wing 1st floor ceiling by W. exit	1-3% Chrysotile 97-99% Non-Fibrous	Homogeneous, friable non-layered
"		"	26 A-bldg. room 111 storeroom insulation	30% Amosite 4-6% Chrysotile 54-56% Non-Fibrous 10% Cellulose	Homogeneous, friable non-layered

Collected by: _____ Analyst: _____

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
4/5/88		Haverhill	27 A-bldg. room 111 storeroom 3" pipe elbow	10% Mineral Wool 40% Cellulose 50% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	28 A-bldg. Grey 9"x9" floor tile, auditorium entrance	Non-Fibrous No asbestos detected	Homogeneous,non-friable non-layered
"		"	29 A-bldg. Band storage room 1"x1" ceiling tile	10% Mineral Wool 20% Cellulose 70% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	30 A-bldg 2nd floor utility closet W. corridor ceiling	75% Cellulose 25% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	31 A-bldg. 2nd floor utility closet W. hallway elbow 6" pipe	10% Mineral Wool 90% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	32 A-bldg. 2nd floor storeroom E hallway	15% Mineral 30% Cellulose 55% Non-Fibrous No asbestos detected	Homogeneous, fraible non-layered

Collected by:

Analyst: 

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
4/6/88		Haverhill	33 C-wing ceiling outside custodian's closet	75% Cellulose 25% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	34 C-wing custodians closet, 3" pipe elbow	10% Mineral Wool 90% Non-Fibrous No asbestos detected	Homogeneous, fraible non-layered
'		"	35 C-wing insulation between beam and cinderblocks outside closet	80% Cellulose 20% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	36 F-wing S. hallway 2 x 4 ceiling tile outside electrical room	15% Mineral Wool 30% Cellulose 55% Non-Fibrous	Homogeneous, friable non-layered
"		"	37 F-wing custodians closet ceiling material	75% Cellulose 25% Non-Fibrous No asbestos detected	Heterogeneous, fraible non-layered
"		"	38 F-wing custodians room domestic water elbow	30% Chrysotile 10% Mineral wool 5% Cellulose 55% Non-Fibrous	Homogeneous, friable non-layered

Collected by: _____ Analyst: _____

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES 3506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
4/7/88		Haverhill	39 F-wing from valve HWC 26 (waterline)^ 35' N. of S. end of west perimeter tunnel	15% Mineral wool 85% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	40 T-joint steamline 4' N. of S. end of west perimeter tunnel F. wing	15% Mineral Wool 85% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	41 H-wing boiler room emergency generator exhaust (same on Tank 3'x8')	25% Chrysotile 75% Non-Fibrous	Homogeneous, friable non-layered
"		"	42 H-wing boiler room ceiling	Non-Fibrous No asbestos detected	Homogeneous, fraible non-layered
"		"	43 H-wing boiler room breeching	5% Mineral Wool 10% Cellulose No asbestos detected	Homogeneous, friable non-layered
"		"	44 H-wing boiler room Waneer Tank 2" pipe elbow	10% Mineral Wool 10% Cellulose No asbestos detected	Homogeneous, friable non-layered

Collected by: _____ Analyst: _____

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
4/7/88		Haverhill	45 H-wing, 1st floor storeroom B elbow 3" supply to HVAC unit	10% Mineral Wool 30% Cellulose 60% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	46 H-wing 1st floor custodians room by science wing 2 x 4 ceiling tile	15% Mineral Wool 30% Cellulose 55% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	47 H-wing 1st floor hallway 12" floor tile outside library	Non-Fibrous No asbestos detected	Homogeneous,non-friable non-layered
"		"	48 L-wing room L-12 ceiling	70% Cellulose 30% Non-Fibrous No asbestos detected	Heterogeneous, friable non-layered
"		"	49 K-wing room K-20 ceiling	70% Cellulose 30% Non-Fibrous No asbestos detected	Heterogeneous, friable non-layered
"		"	50 K-wing 2 x 4 ceiling west corridor outside k-20	15% Mineral Wool 30% Cellulose 55% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered

Collected by: _____ Analyst: _____

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
4/7/88		Haverhill	51 K-wing room K-32 lab counter top	Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	52 K-wing brown 9" floor tile. 2nd floor hallway W. hall outside K-14	1-3% Chrysotile 99-97% Non-Fibrous	Homogeneous, non-friable non-layered
"		"	53. M-wing Teacher's restroom ceiling	70% Cellulose 30% Non-Fibrous No asbestos detected	Heterogeneous, friable non-layered
"		"	54 M-wing by boys lavoratory 2 x 4 ceiling tile	15% Mineral Wool 30% Cellulose 55% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	55 M-wing outside boy's room 2 x 4ceiling tile, large holes	15% Mineral Wool 30% Cellulose 55% Non-Fibrous No asbestos detected	Homogenous, friable non-layered
"		"	56 M-wing outside boys room 2 x 4 ceiling tile, small holes	15% Mineral Wool 30% Cellulose 55% Non-Fibrous No asbestos detected	Homogeneous, friable non-layered

Collected by: _____ Analyst: _____

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
4/7/88		Haverhill	57 M-wing custodians room Domestic water line elbow	60% Chrysotile 40% Non-Fibrous	Homogeneous, friable non-layered
"		"	58 Hallway between S&C wings 12" composite tile	Non-Fibrous No asbestos detected	Homogeneous, friable non-layered
"		"	59 S-wing 1" pipe elbow custodians closet 2 x 4 tile	50% Chrysotile 10% Cellulose 40% Non-Fibrous	Homogeneous, friable non-layered
"		"	60 S-wing ceiling outside custodians closet 2 x 4 tile	70% Cellulose 30% Non-Fibrous No asbestos detected	Heterogeneous, friable non-layered

Collected by: _____ Analyst: _____

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
8/25/88	9/88-97B	Haverhill	73	40% Fiberglass 60% Non-Fibrous No asbestos detected	Grey Fibrous
"	9/88-98B	"	74	70% Chrysotile 20% Synthetic 10% Non-Fibrous	Grey Fibrous
"	9/88-99B	"	75	45% Fiberglass 15% Cellulose 40% Non-Fibrous No asbestos detected	Grey Fibrous
"	9/88-100B	"	78	90% Cellulose 10% Non-Fibrous No asbestos detected	Tan Fibrous
"	9/88-101B	"	79	50% Fiberglass 5% Cellulose 45% Non-Fibrous No asbestos detected	Grey Fibrous
"	9/88-102B	"	80	5% Cellulose 95% Non-Fibrous No asbestos detected	Whtie 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 : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
8/25/88	9/88-103B	Haverhill	81	Non-Fibrous No asbestos detected	White Particulate
"	9/88-104B	"	82	Non-Fibrous No asbestos detected	White Particulate
"	9/88-105B	"	83	Non-Fibrous No asbestos detected	White Particulate
"	9/88-106B	"	84	15% Cellulose 5% Fiberglass 80% Non-Fibrous No asbestos detected	White Particulate
"	9/88-107B	"	85	80% Fiberglass 20% Non-Fibrous No asbestos detected	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.

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
8/25/88	9/88-108B	Haverhill	86	Non-Fibrous No asbestos detected	White Particulate
"	9/88-109B	"	87	15% Cellulose 85% Non-Fibrous No asbestos detected	White Particulate with Fibers
"	9/88-110B	"	88	60% Fiberglass 40% Non-Fibrous No asbestos detected	Grey Fibrous
"	9/88-111B	"	89	70% Chrysotile 20% Synthetic 10% Non-Fibrous	Grey Fibrous
"	9/88-112B	"	90	5% Cellulose 50% Fiberglass 45% Non-Fibrous No asbestos detected	Grey Fibrous
"	9/88-113B	"	91	5% Cellulose 50% Fiberglass 45% Non-Fibrous No asbestos detected	Grey 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.

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
8/23/88	9/88-52B	Haverhill	61	5% Cellulose 40% Fiberglass 55% Non-Fibrous No asbestos detected	Grey Particulate with Fibers
"	9/88-53B	"	62	Non-Fibrous No asbestos detected	Grey Particulate
"	9/88-54B	"	63	10% Chrysotile 5% Synthetic 85% Non-Fibrous	Grey and White Particulate and Fibrous material
"	9/88-55B	"	64	10% Cellulose 40% Fiberglass 50% Non-Fibrous No asbestos detected	Grey Particulate with Fibers
"	9/88-56B	"	65	80% Chrysotile 5% Synthetic 15% Non-Fibrous	White twisted fibers
"	9/88-57B	"	66	5% Synthetic 10% Cellulose 85% Non-Fibrous No asbestos detected	White 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 : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
8/23/88	9/88-58B	Haverhill	67	40% Cellulose 40% Fiberglass 85% Non-Fibrous No asbestos detected	Grey Fibrous
"	9/88-59B	"	68	20% Cellulose 40% Fiberglass 60% Non-Fibrous No asbestos detected	Grey Fibrous
"	9/88-60B	"	69	5% Cellulose 95% Non-Fibrous No asbestos detected	White Particulate
"	9/88-61B	"	70	5% Cellulose 95% Non-Fibrous No asbestos detected	Black Particulate
"	9/88-62B	"	71	20% Chrysotile 30% Cellulose 50% Non-Fibrous	Grey 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.

BULK SAMPLE ANALYSIS FOR : HAVERHILL HIGH SCHOOL (HES #506)

Date Collected	Hunter Sample #	Client	Sample Identification	Composition (Percent)	Comments
8/23/88	9/88-62B	Haverhill	72	60% Fiberglass 40% Non-Fibrous No asbestos detected	Grey Fibrous
"	9/88-64B	"	76	10% Cellulose 50% Fiberglass 40% Non-Fibrous No asbestos detected	Grey Fibrous
"	9/88-64B	"	77	30% Cellulose 40% Fiberglass 30% Non-Fibrous No asbestos detected	Grey Fibrous and Tan Woven Covering

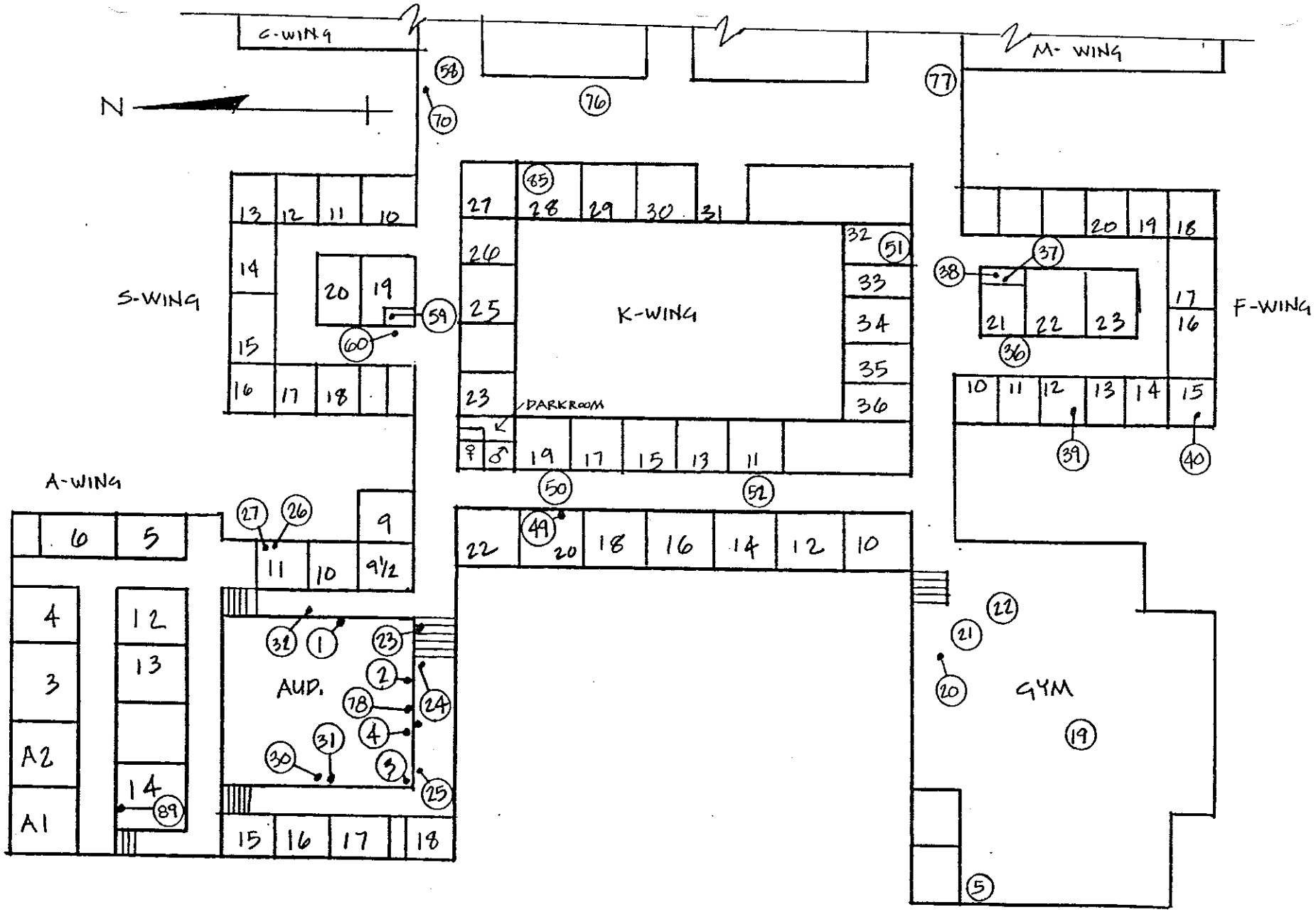
Collected by: _____ Analyst: _____

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

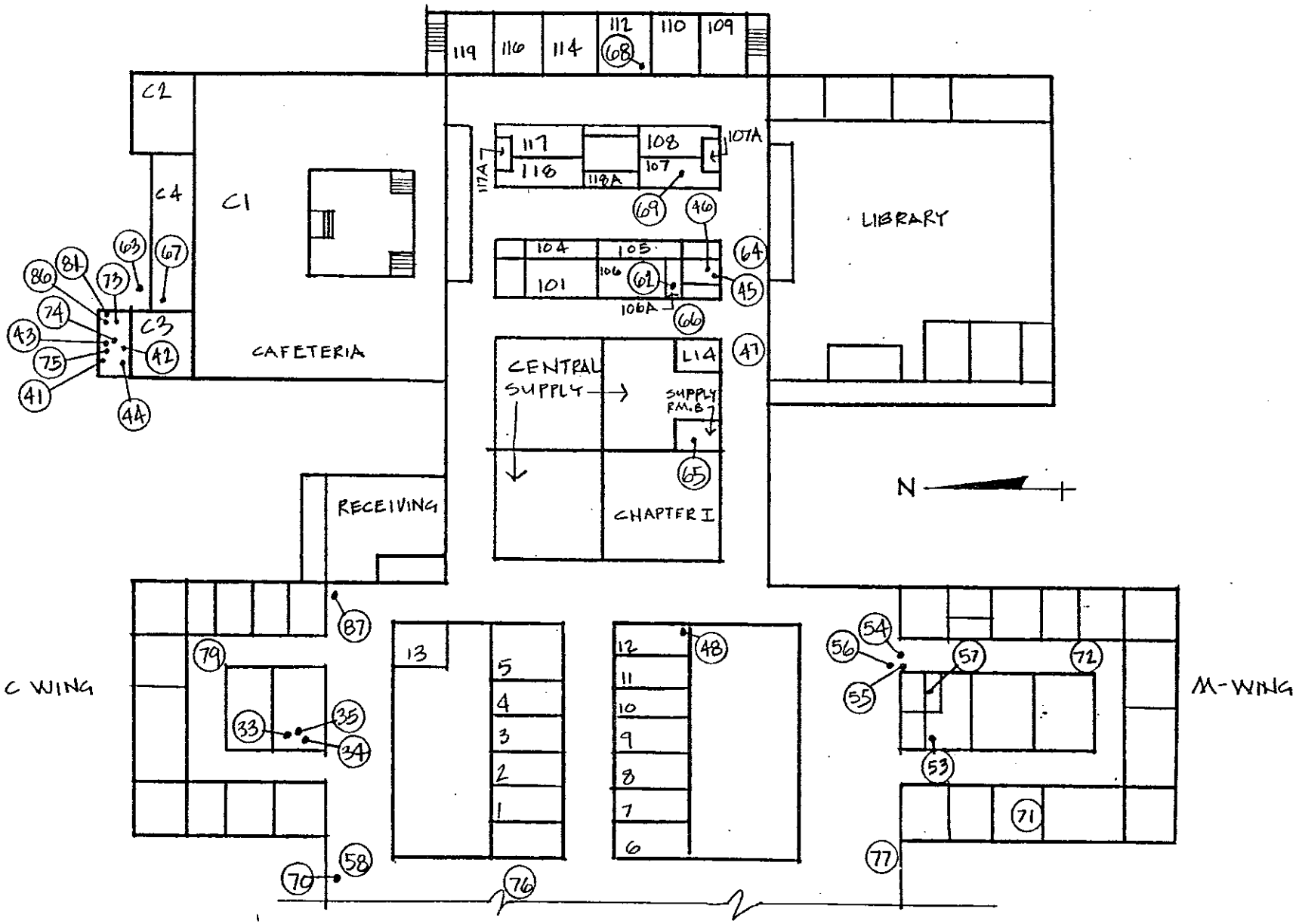
- Drawings -

HAVERHILL
HIGH

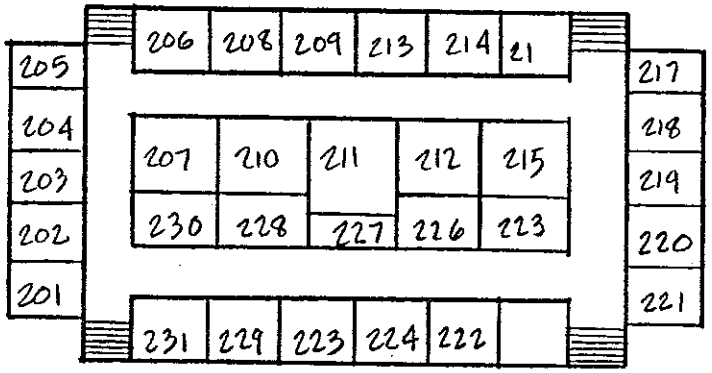


FLOOR PLAN, MAIN LEVEL

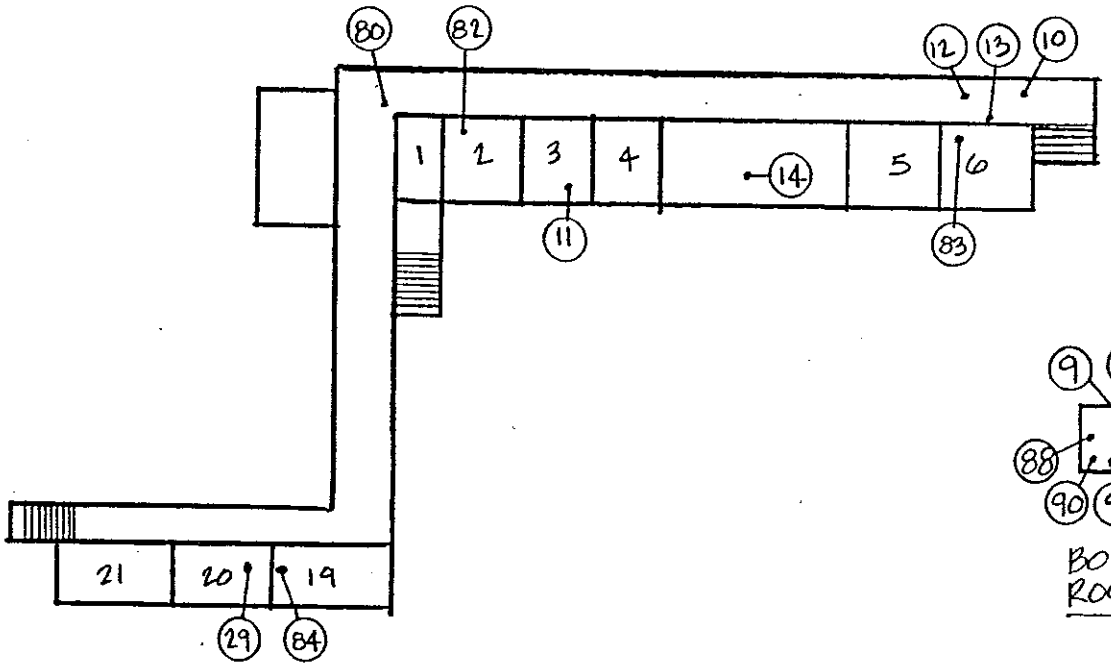
HAVERHILL HIGH SCHOOL



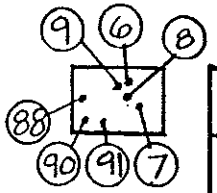
FLOOR PLAN, MAIN LEVEL



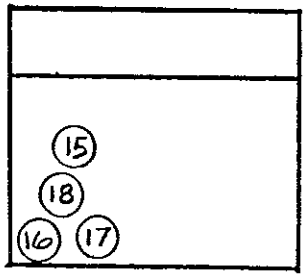
UPPER LEVEL PLAN SCIENCE WING



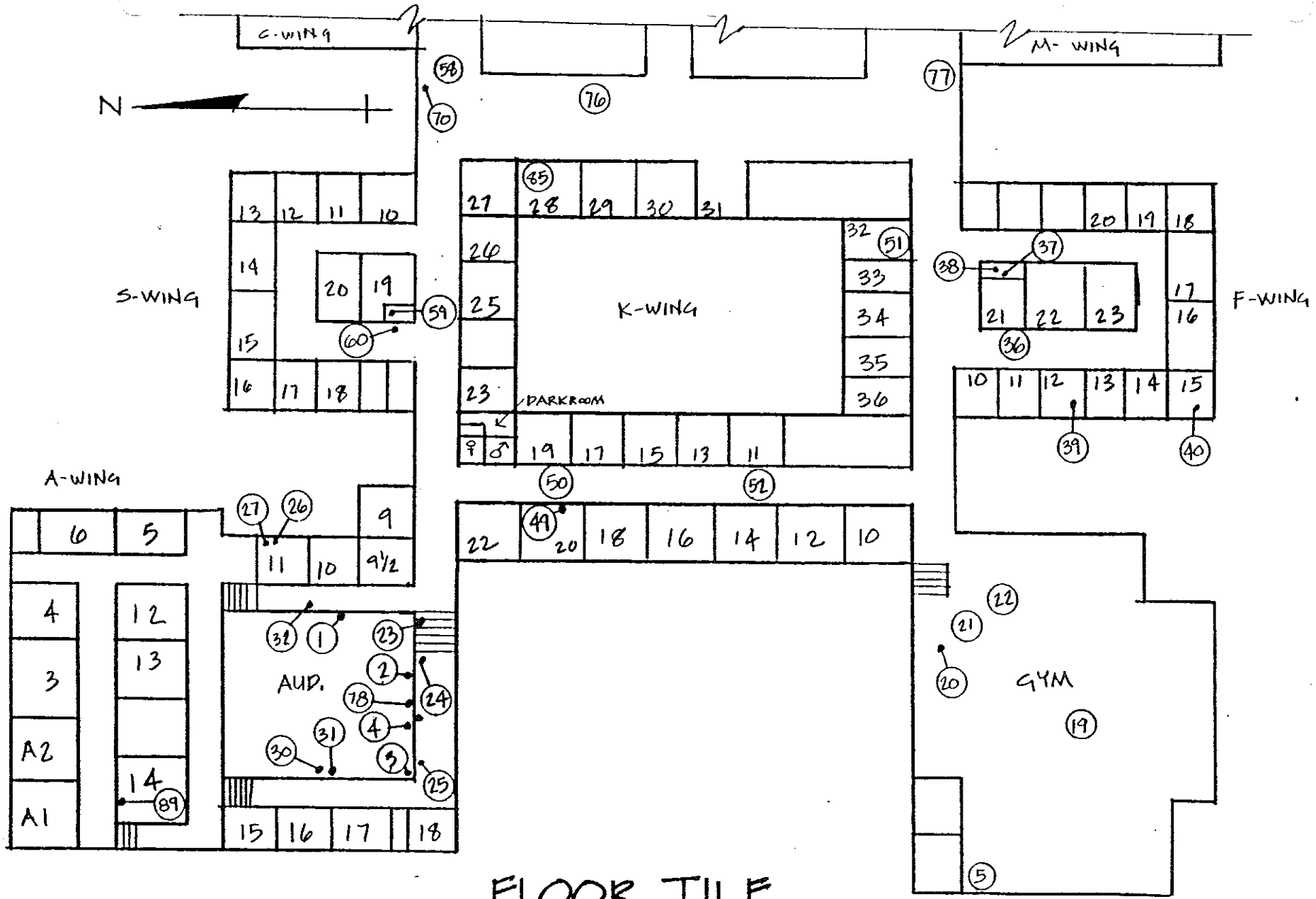
LOWER LEVEL PLAN A-WING/C-WING



BOILER ROOM



POOL AREA

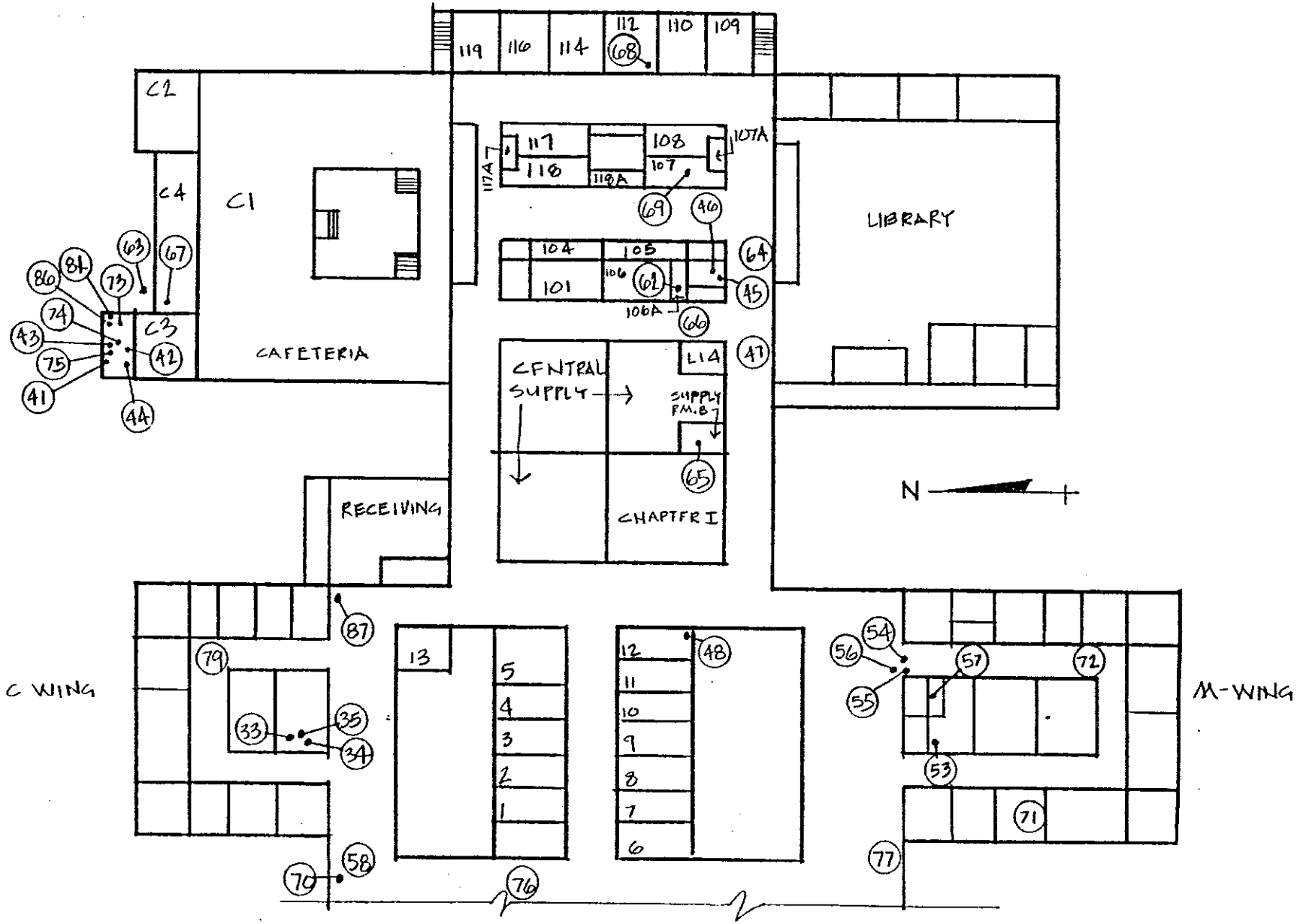


FLOOR TILE

□ = NON-FRIABLE

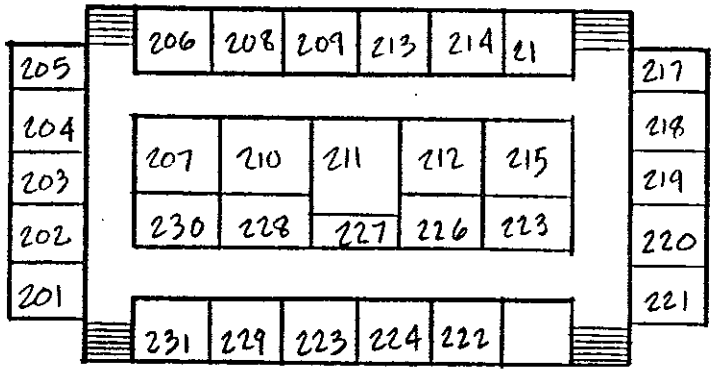
FLOOR PLAN, MAIN LEVEL.

HAVERHILL HIGH SCHOOL

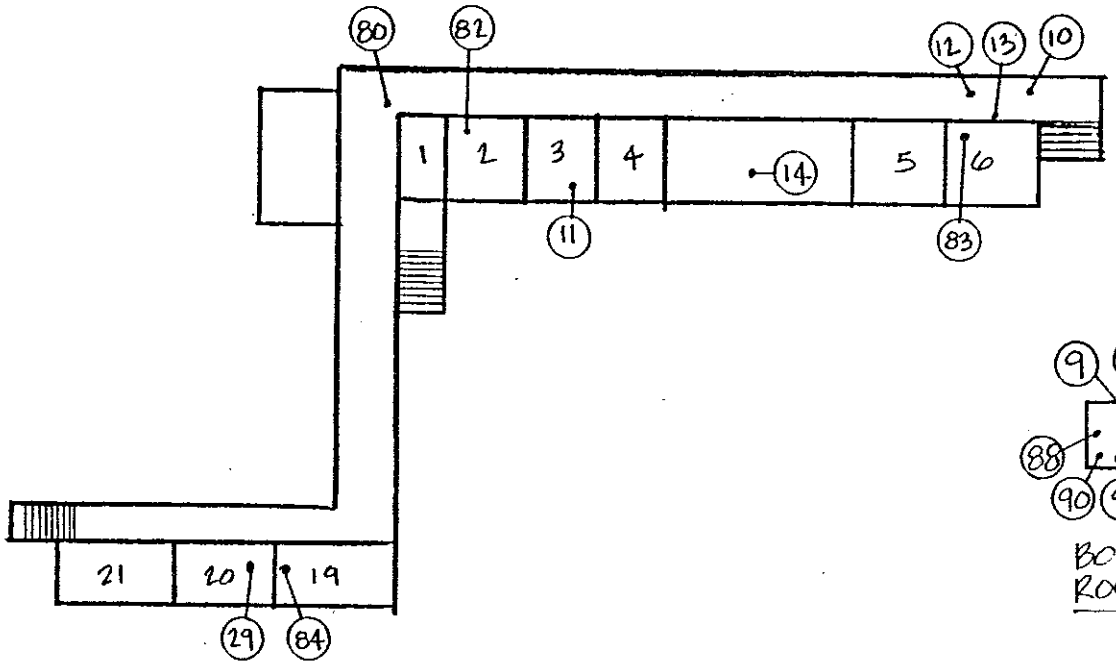


FLOOR PLAN, MAIN LEVEL

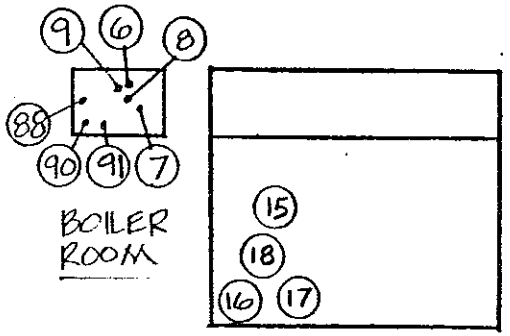
FLOOR TILE



UPPER LEVEL PLAN SCIENCE WING



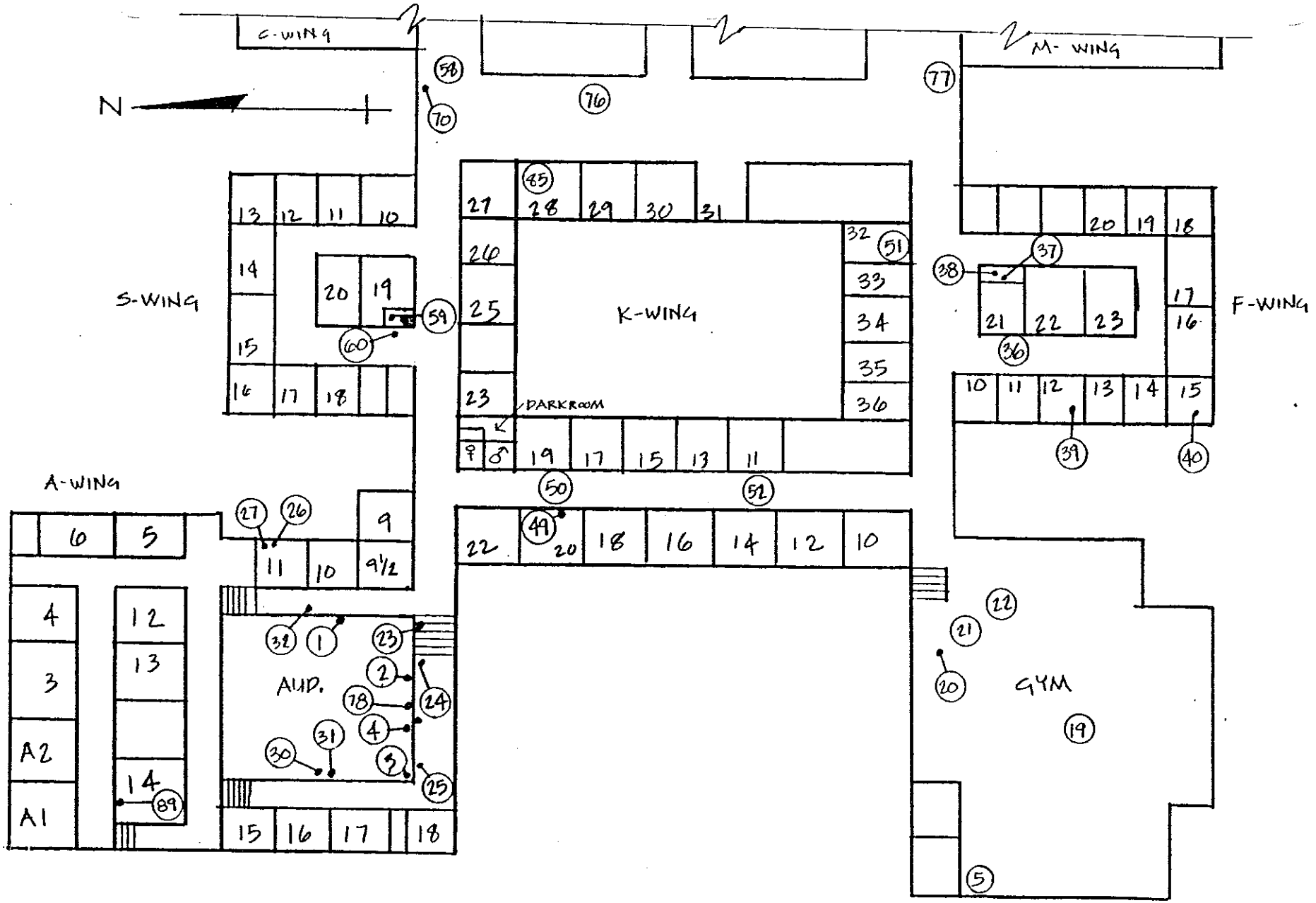
LOWER LEVEL PLAN A-WING/E-WING



BOILER ROOM

POOL AREA

FLOOR TILE



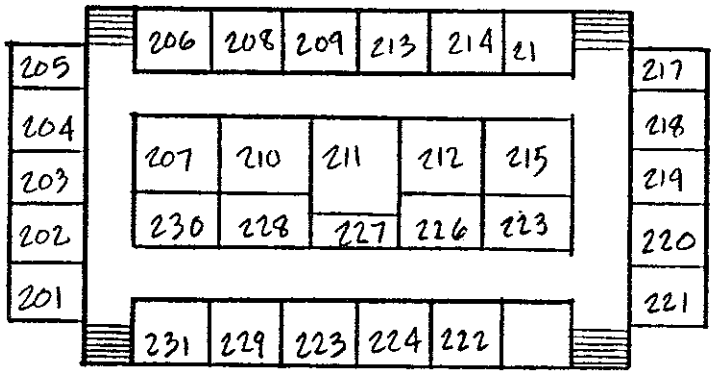
FLOOR PLAN, MAIN LEVEL

THERMAL SYSTEM INSULATION (T.S.I.)

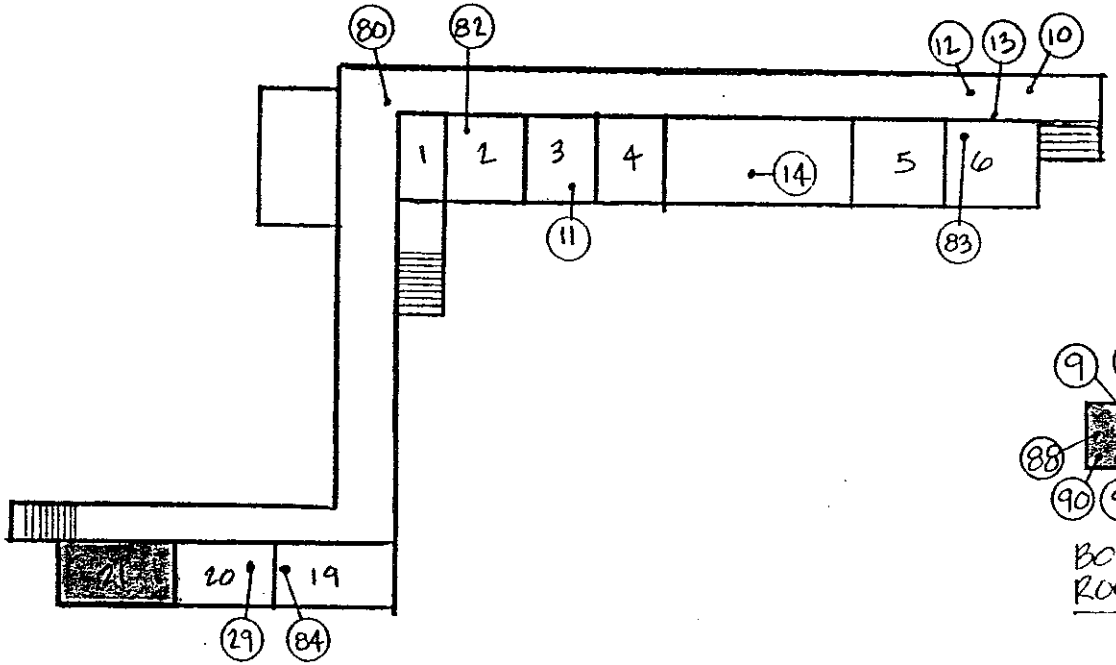
▩ = FRIABLE
□ = NON-FRIABLE

TSI-1 of 3

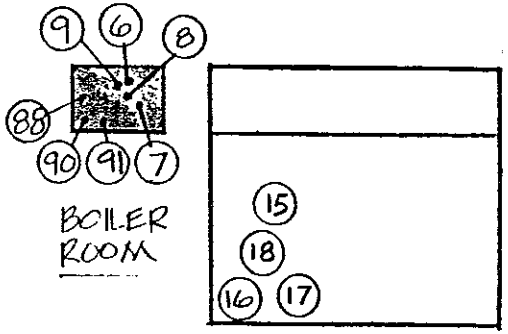
HAVERHILL HIGH SCHOOL



UPPER LEVEL PLAN SCIENCE WING



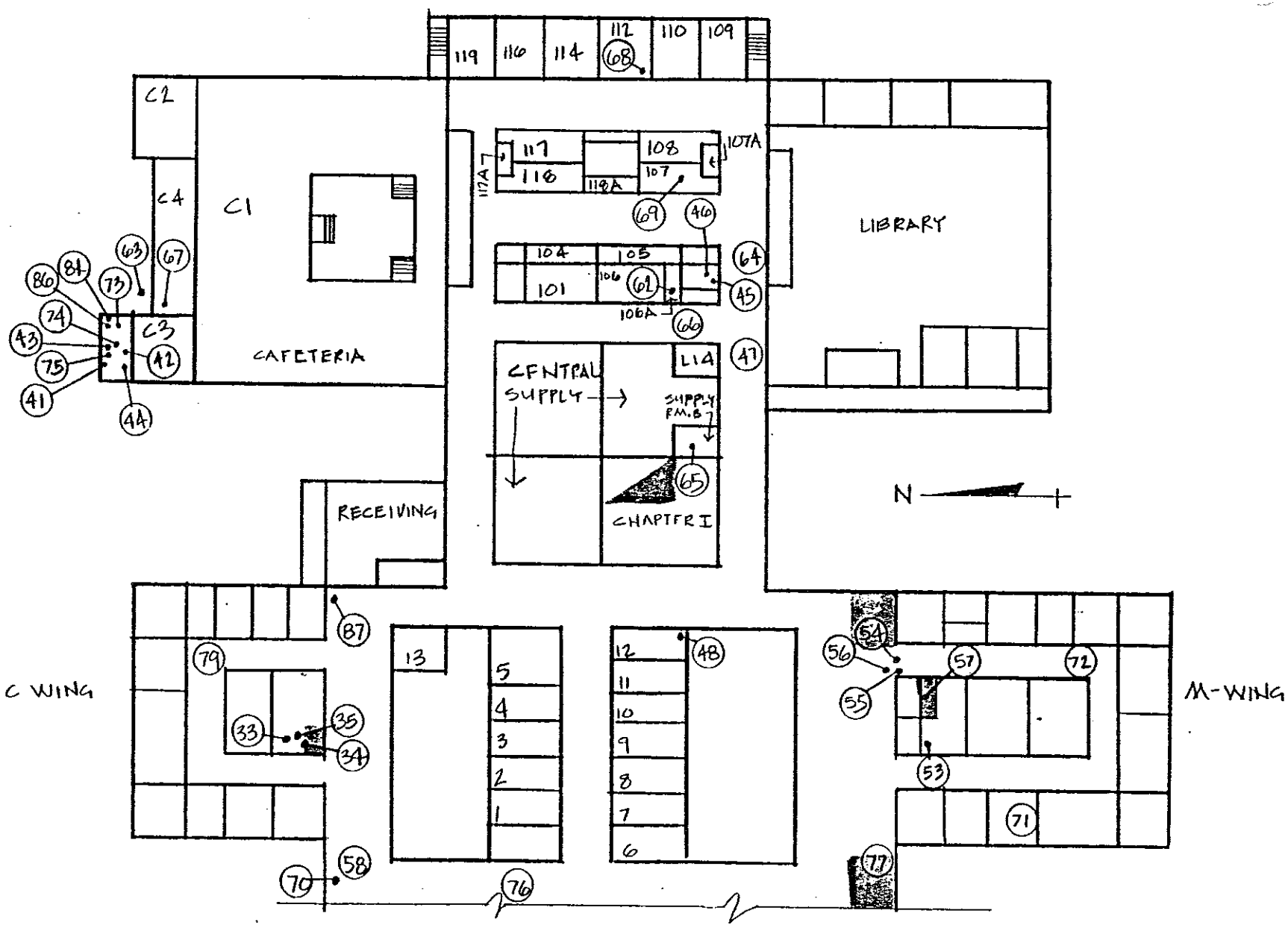
LOWER LEVEL PLAN A-WING/E-WING



POOL AREA

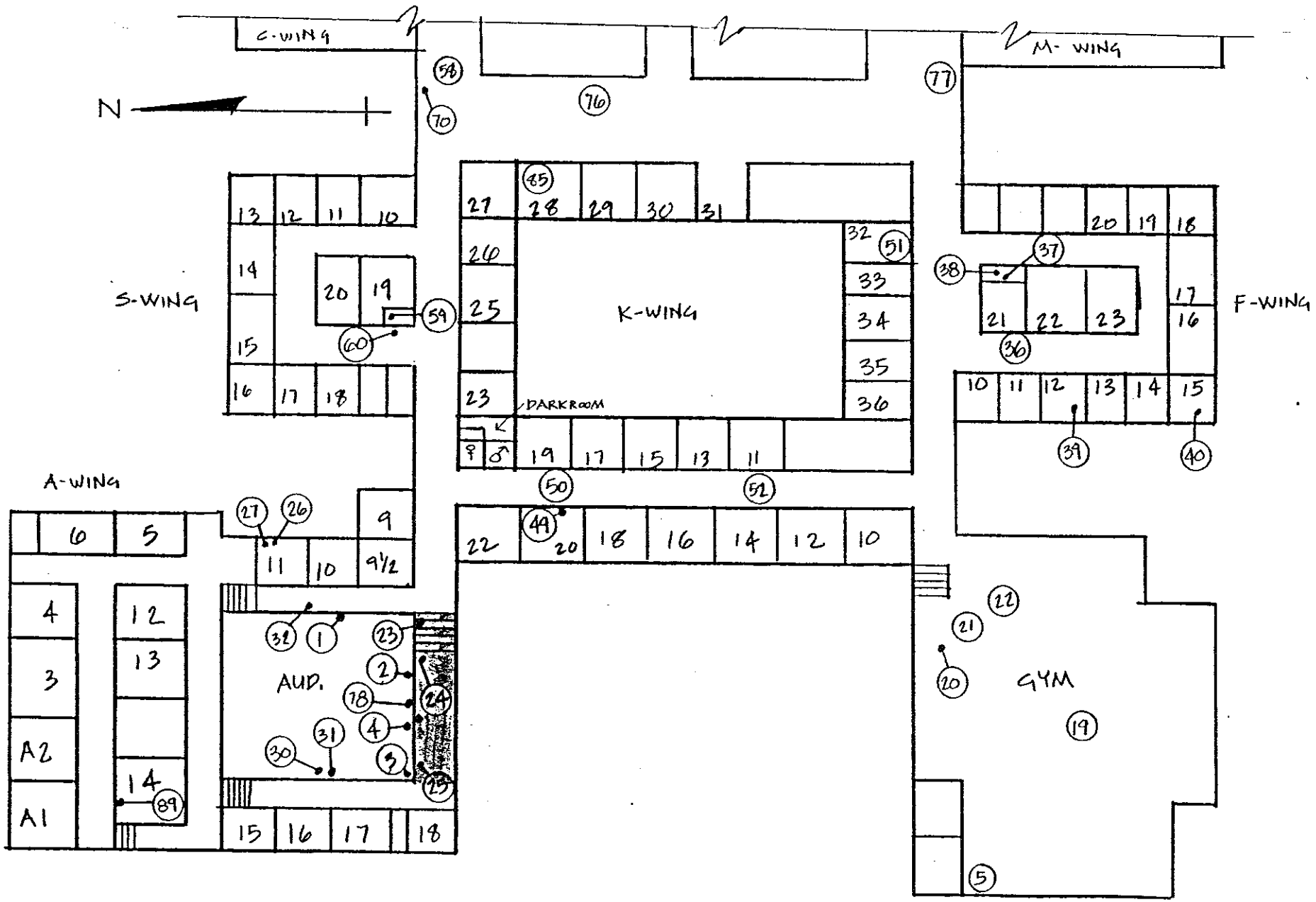
T.S.I.

#TSI-2 OF 3



FLOOR PLAN, MAIN LEVEL

T.S.1.



FLOOR PLAN, MAIN LEVEL

CEILING PLASTER

▒ = FRIABLE #C-1 OF 1

HAVERHILL HIGH SCHOOL

APPENDIX G

- Glossary -

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.

APPENDIX B

PREVIOUS INSPECTION REPORTS
(December 14, 1987)

Haverhill Public Schools

SCHOOL ADMINISTRATION OFFICES
FOUR SUMMER STREET
HAVERHILL, MASSACHUSETTS 01830

Mr. Warren E. Thuotte, Superintendent
Mrs. Nancy A. Paszko, Administrative Assistant

September 15, 1986

TO: Thomas Dondero

FROM: Warren E. Thuotte, Superintendent of Schools WET.

SUBJECT: Division of Occupational Hygiene
Report on Asbestos Conditions - Haverhill High School
Consentino School

Would you please check the conditions reported in the attached letter and then advise us as to what correcting can be done so that I can notify the Division of abatement work and also notify the Board of Health?

M
Enclosure
cc: M. Wrenn
D. Harrington

cc Mr. Krenn, Mr. Harrington
Mr. Dondero
+ return

RECEIVED
HAVERHILL
PUBLIC SCHOOLS
SEP 9 12 39 PM '86

The Commonwealth of Massachusetts

Executive Office of Labor

RICHARD LEVINE
Director

Department of Labor and Industries
Division of Occupational Hygiene
1001 Watertown Street
West Newton 02165

In Your Reply
Refer to File

87A-0085

September 4, 1986

Mr. Warren E. Thuotte
Superintendent Haverhill Public Schools
4 Summer Street
Haverhill, MA 01830

Dear Mr. Thuotte,

On August 15, 1986 an engineer from the Massachusetts Division of Occupational Hygiene Asbestos Program abraised the current condition of the asbestos containing spray-on ceiling material at the High School and Consentino Elementary School in Haverhill, MA.

The asbestos containing material exists in the Main Foyer on the first and second floor ceilings outside the Auditorium at the High School. The second floor creates a balcony which is open over the first floor. At the Consentino Elementary School spray-on asbestos material was applied to the I-beams. A permanent suspended ceiling conceals the material throughout the Corridors, classrooms, Cafetorium and Library. This office visited the Consentino Elementary School to check the integrity of the permanent suspended ceiling.

The above stated schools were last surveyed in June 1985 (please refer to file number 85-996). The High School was placed in a one year review category. The spray-on ceiling material at the High School was found to be in good condition at that time. It was recommended that a control be instituted to minimize the potential of asbestos fiber release. In 1985 the Consentino Elementary School Cafetorium side wall material was tested and found to be nonasbestos. The Consentino Elementary School had been completely surveyed previously (please refer to file number 84-417).

The following sections of this report will describe observations from the August 15 walk through survey and recommendations to further minimize existing asbestos exposure hazard in each school individually. It is important to note that the presence of asbestos does not in itself pose an exposure risk. The exposure potential depends on many factors including accessibility, friability or ease of crumbling, presence in the air plenum, the percent composition of asbestos, and its physical placement in relation to HVAC system. The potential risk arises when asbestos fibers

become airborne and can subsequently enter the respiratory system. If the asbestos containing material is in good condition and firmly bound, the asbestos fibers cannot be released into the ambient air. The condition of other forms of asbestos containing materials at the High School and Consentino Elementary School will also be addressed.

OBSERVATIONS - HIGH SCHOOL

The asbestos containing ceiling material in the Main Foyer area is in overall good condition. The ceiling is too high to receive contact damage. The building had a new roof installed in 1985. No water damage was noted.

A small area of delamination was noted in front of the A-wing doorway. Previous patching due to former water damage is evident. The immediate ceiling areas at the A-Wing doorway and Home Economics Wind doorway have sustained contact damage. Both areas measure approximately seven by three feet and are accessible to students.

Other forms of asbestos containing materials were observed in the Fire Alarm Control Room, the Old and New Boiler Room and in Room A19-Music Room. These areas were designated on an internal memo from Principal Michael Wrenn dated March 1983. A copy of the memo was given to DOH during the visit.

Pipe lagging in the Fire Alarm Control Room is in overall good condition. Asbestos wrapped pipes extend from the Fire Alarm Control Room throughout the tunnel system of the school. Items being stored just inside the tunnels were observed resting against the asbestos wrapped pipes.

The Old Boiler Room houses three asbestos encased boilers and breeching. Localized cracking of the casing material was noted. Overall the material is well painted and maintained.

The New Boiler Room was built in 1973 and houses two uncovered boilers and an uncovered water tank. All pipe lagging and breeching material is in good condition.

The only material observed in Room A19-Music Room that is suspect to contain asbestos is the acoustical peg board. Sixteen three by three foot squares and four three by two foot rectangular framed units of peg board are suspended from the painted ceiling. The hanging acoustical units are out of reach and all in good condition. The material is nonfriable and poses no exposure hazard unless cut or broken. No pipes were noted in the room.

RECOMMENDATIONS - HIGH SCHOOL

The asbestos containing ceiling materials outside the A-Wing and Home Economics Wing in the Main Foyer area should be encapsulated with a sealant coat. The material should not be brushed on but rather applied with an airless sprayer to keep fiber release to a minimum.

The wrapped pipes in the Fire Alarm Control Room and just inside the tunnels should be protected from contact damage. Items should not be stored against the asbestos pipe lagging.

The cracking on the boiler casings and breeching observed in the Old Boiler Room should be filled with a patching compound then protected with latex paint.

OBSERVATIONS - CONSENTINO ELEMENTARY SCHOOL

The integrity of the permanent suspended ceiling at the Consentino Elementary School was checked throughout the Corridors and in the following Classrooms 9, 10, 12, 13, 15, 17 and the Library on the first floor and Classrooms 24, 25, 26, 27, 28, 29, 40, 41, 42 and the Art Room on the second floor. Every tenth tile was missing along the Corridors due to the recently completed installation of a fire alarm system. Tiles were specifically noted as missing in the 5th and 6th Grade Corridor outside the elevator and display cabinet. Approximately fifteen to twenty tiles were removed.

Tiles are missing in Rooms 27 and 28 due to a former roof leak. The spray-on asbestos containing material is clearly visible on the I-beams under the suspended ceiling. The material is grey, fluffy and unevenly distributed over the I-beams.

The Band Room is off of the Cafetorium. Two rows of the suspended ceiling tiles were observed along two walls. No suspended ceiling was noted in the kitchen.

The Boiler Room houses two uncovered boilers. The breeching and rear five covering has been patched with duct tape. Presently the duct tape patches are in acceptable condition.

RECOMMENDATIONS - CONSENTINO ELEMENTARY SCHOOL

All suspended ceiling tiles should be replaced as soon as possible throughout the Corridors and Classrooms. This office recommends that a NIOSH approved half-face reusable respirator fitted with cartridges approved for asbestos dust be worn. Caution should be taken when replacing the tiles so as not to disturb the spray-on material.

Duct tape dries out over time and should be considered only a temporary repair. Rewettable fiberglass cloth should be used to seal off the exposed areas of the breeching and rear flue of the Boilers. Coating the rewettable fiberglass cloth with latex paint produces an airtight hard seal.

AMENDED EPA RULING

On July 12, 1985 the Environmental Protection Agency (EPA) put into effect new temporary regulations, 40 CFR, Part 763, dealing with asbestos abatement projects involving the use of public employees. Violations of these regulations are subject to stiff fines or imprisonment. A final version of the regulations were released April 25, 1986.

In view of the severity of fines that may be imposed and the impending Massachusetts Regulations on asbestos, the Massachusetts Secretary of Labor has recommended that no state employee should take part in any routine removal, encapsulation or containment of asbestos material involving more than three linear or square feet. The announcement of the Secretary of Labor specifically addresses state employees. However, it may be to the advantage of your public entity to seriously consider the recommendation of the Secretary.

If you are in doubt about the definition of abatement, please call this office for clarification.

Public employees chosen to perform abatement work must comply with all requirement of the new EPA regulations. A copy of these regulations is included within this report. The first section of the regulations deals with basic definitions and concepts. The latter section deal with the actual rulings themselves.

Two options exist for public sector asbestos abatement work. One is that all work involving asbestos be performed by private firms covered by OSHA, EPA, and state regulations. The second is that work is performed using public employees in strict conformity with the EPA regulations or state recommendations is working with less or equal to three square/linear feet of asbestos.

Please note the lack of an asbestos hazard at the time of the survey does not mean that the EPA School Notification Rule can be overlooked. Please refer to the 1982 EPA ruling for posting and notification requirements.

Please notify this office in writing of planned or completed abatement projects which were recommended in this report so that we can update our files as necessary.

If you have any questions or concerns please feel free to contact me at 969-7177, extension 19.

Sincerely,

Julie C. Jones

Julie C. Jones
Industrial Hygiene Engineer

Approved:

Richard Levine
Director

JCJ/cj

Enclosure

cc: Mr. Daniel Harrington
Mr. Michael J. Wrenn
Board of Health

RECEIVED
HAVERHILL
PUBLIC SCHOOLS
SEP

CITY OF HAVERHILL
MASSACHUSETTS 01830-5882

BOARD OF HEALTH
City Hall, 4 Summer Street
Room 208

Tel. 374-2325
374-2326

September 10, 1986

Mr. Warren E. Thuotte
Superintendent Haverhill Public Schools
4 Summer Street
Haverhill, Massachusetts 01830

Dear Mr. Thuotte:

The Board of Health has received a copy of the letter which was sent to you from the Department of Labor and Industries, Division of Occupational Hygiene on September 4, 1986.

We would appreciate a copy of the report that you will be sending to the Dept. of Labor and Industries concerning the planned or completed abatement projects which were recommended in the report.

Very truly yours,

Albert R. Rizzotti
Chairman

ARR:cjd

The Commonwealth of Massachusetts
Executive Office of Labor
Department of Labor and Industries
Division of Occupational Hygiene
1001 Watertown Street
West Newton 02165

RICHARD LEVINE
Director

In Your Reply
Refer to File
88B-0050

RECEIVED
HAVERHILL
PUBLIC SCHOOLS
AUG 25 12 36 PM '87

August 20, 1987

Mr. Warren E. Thuotte
Superintendent of Schools
Haverhill Public Schools
4 Summer Street
Haverhill, MA 01830

Dear Mr. Thuotte:

On August 5, 1987 the Consentino and Haverhill High School were reviewed to assess the current condition of asbestos-containing spray-on materials in their buildings. This annual review is conducted through a Legislative mandate because medical evidence suggests that individuals exposed to asbestos fibers may be vulnerable to environmentally induced cancers.

It is important to note that the presence of asbestos does not in itself pose an exposure risk. The exposure potential depends on many factors including accessibility, friability, or ease of crumbling condition, presence in air plenum, and percent composition of asbestos. The potential risk arises when asbestos fibers become airborne and can subsequently enter the respiratory system. If the asbestos-containing material is in good condition and firmly bound, the asbestos fibers cannot be released into the ambient air.

Sample No.	Location	% Result
88B-0219	Consentino, pipe elbow, below tank	No asbestos detected
88B-0220	High School, hot water casing	35-45% amosite asbestos
88B-0221	High School, pipe elbow tank room	5-10% chrysotile asbestos

High School

The troweled on acoustical ceiling in the main foyer appeared to be in very good condition, and was reportedly encapsulated with two coats of latex paint. At this point no abatement of this ceiling is needed however it should remain in the one year review category.

The Electric Room is the entrance to the below ground service tunnels, that contain fiberglass coverings and hard cementitous elbows, which

appear in fair condition

The boiler room in this facility is in a separate building. The three boilers are painted and patched and in excellent condition. The boiler flue breeching has three cracked areas that should be filled and patched with boiler plaster and rewettable fiberglass cloth. The pipe covers are mostly fiberglass with hard (probably asbestos-containing) elbows most of which are in very good condition. Any minor nicks should be sealed with rewettable fiberglass and painted with latex paint.

The hot water storage tank room is generally locked and inaccessible to occupants except the maintenance workers. The two tanks have significant damage and delamination of the asbestos-containing covering. The pipe covers are generally fiberglass with hard (asbestos-containing) elbows. The hot water tank casing must be either repaired or removed by a competent asbestos abatement contractor.

Consentino Elementary School

The boiler room in this school was very clean and well maintained. The hot water tank and two boilers are steel jacketed and is in excellent shape. Minor spot damage was noted on a horizontal pipe elbow below the hot water tank. The elbow material was not asbestos but should still be repaired with boiler plaster and covered with rewettable fiberglass cover.

The generator room has an asbestos-containing exhaust flue insulation in excellent condition.

The electric room has corrugated asbestos pipe cover in good condition however avoid storing equipment near the pipe covers.

The classrooms and connectors throughout the rest of the schools have either fiberglass pipe covers or no asbestos-containing insulation. However, an asbestos-containing fireproof spray-on is found on many of the structural steel I beams under the tongue and groove ceilings throughout the building. In a number of rooms, roof leaks have caused water damage and these tiles have been removed, they are:

1. Food Lab
2. Auditorium
3. First floor Teachers Lounge
4. Classrooms 40, 41, 30, 34
5. Computer Room
6. Second floor Faculty Lounge
7. Library
8. First floor corridor across from Shop Area

In the above listed areas numbers 8, 7, 6, 5 the spray-on fireproofing was observed above the missing tiles. No delamination or debris was observed at this time. Replacement of the leaking roof is the first priority and is reportedly scheduled to begin in August of 1987. If the roof is not completed by the commencement of the school year, the missing tiles must be enclosed over with 6 mil plastic to prevent further contact damage to the fireproofing which may cause delamination.

Upon completion of the roof, all missing ceiling tiles must be replaced to ensure the continued enclosure of the fireproofing material. The condition of the fireproofing will continue to be monitored on an annual basis.

Reminders on Asbestos

Any work with asbestos in the school system by public employees must be done only in accordance to guidelines in the Worker Protection Rule 1986.

The 1982 EPA Asbestos in Schools Rule posting and recordkeeping requirements are still in effect and EPA enforcement policy is strict. Another federal law called AHERA for Asbestos Hazard Emergency Response.

Act of 1986, Public Law 99-519, requires the EPA to develop more regulations to extend the existing requirements of the 1982 school rule, its final rules will be issued October 17, 1987. It will require periodic reinspections by accredited inspectors, warning labels, written management, and response action plans as well as use of only licensed accredited workers for asbestos abatement.

Towards this end the Commonwealth has enacted legislation for asbestos contractor licensing whose work practices will be in effect by mid September 1987, and licenses will be issued by April of 1988.

If you have any questions or concerns, please feel free to contact me at 969-7177.

Sincerely,

Arthur Pennesi

Arthur Pennesi
Industrial Hygiene Engineer

Approved:

Richard Levine
Director

AP/ml

CC: Board of Health
City Hall, 4 Summer Street, Haverhill, MA 01830

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 ACBM 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.

ADVANTAGES	DISADVANTAGES
Encapsulation	
Reduces asbestos fibers from material	Not recommended for material other than material adequately adhered to substrate
Initial costs may be lower than removal program	Asbestos remains and must be included in O&M
Does not require replacement of material	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

Haverhill High School

Monument Street

Haverhill, MA 01830

NAME: C. R. Coe

COMPANY: Hunter, Inc.

ADDRESS: 10 Lewis Street
Lincoln, Ma. 01733

SIGNATURE _____ DATE 11/2/88

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.

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 $5480.00 per year.

Functional	Response Action
A. Pipe fittings: Original construction	P, then O&M or R

Cost:

1. Repair 413 LF x $5-10/LF = $2065-4130
2. Removal 877 LF x $15-25/LF = $13155-21925

Pipe fittings were heavily damaged in central supply, theater storage; M-wing hall, C-wing custodian's closet and all crawl spaces. All thermal system insulation must be maintained in non-friable condition. In some areas such as the crawl spaces, removal rather than repair is the necessary control method since much of the insulation has lost its cohesiveness and repair may not be effective. The condition of any remaining insulation must be monitored in an ongoing O&M program until it is eventually removed.

B. Plaster: Auditorium Foyer — R

Cost:

1. Removal 2500 SF x $15-25/SF = $37500-62500

As a minimum, the asbestos-containing textured plaster should be repaired as soon as possible. Since much of this plaster has been damaged by the students, damage will no doubt continue as long as there is material to abuse. Any plaster low enough to be reached by students should be removed and the condition of any remaining plaster should be monitored in an ongoing O&M program.

C. Vibration isolators (white): H-wing boiler room, K-wing computer room, central supply duct room and supply room B, boiler house — O&M

Cost:

1. Removal 36 SF x $15-25/SF = $540-900

The vibration isolators are undamaged and their condition need only be monitored through an ongoing O&M program.

D. Tank Room

1.	Tank covering	P, then O&M
2.	Pipe covering	P, then O&M or R

Cost:

1. Tank covering

Repair 540 SF x $5-10/SF = $2700-5400
Removal 540 SF x $15-25/LF = $8100-13500

2. Pipe covering

Repair 89 LF x $5-10/LF = $445-890
Removal 89 LF x $15-25/LF = $1335-2225

The tank jacket was torn and fittings were crushed. All thermal system insulation must be maintained in non-friable condition. As a minimum, the tank covering and fittings must be patched and debris must be removed. Once the insulation is repaired, its condition must be monitored through the O&M program until its eventual removal.

E. Boiler House

1.	Boiler covering	P, then O&M
2.	Breeching	P, then O&M
3.	Headers	O&M
4.	Generator muffler and exhaust train	O&M
5.	Pipe fittings	P, then O&M

Cost:

1. Boiler covering

Repair 1000 SF x $5-10/SF = $5000-10000
Removal 1000 SF x $15-25/SF = $15000-25000

2. Breeching

Repair 690 SF x $5-10/SF = $3450-6900
Removal 690 SF x $15-25/SF = $10350-17250

3. Pipe fittings

Repair 2 LF x $5-10/LF = $10-20
Removal 151 LF x $15-25/LF = $2265-3775

Since all thermal insulation must be maintained in non-friable condition, cracks in the boiler and breeching should be patched, and the crushed elbows near CW198 should be removed. Once the remaining asbestos-containing insulation is repaired, its condition must be monitored in an ongoing O&M program.

F. Pool boiler room

1.	Breeching	O&M

Since the breeching is undamaged, its condition need only be monitored in the O&M program.

G. Floor tile (9" x 9") O&M

Since the floor tile, 9" x 9", is generally undamaged and poses a minimal risk, its condition need only be monitored through the O&M program.

H. H-wing boiler room
   1. Vibration isolator (white) O&M
   2. Generator muffler and exhaust train O&M

Both the vibration isolator and generator muffler are undamaged and their condition need only be monitored through the O&M program.

I. Foyer ceiling panels:
   Around entire building O&M

These heavy, dense panels, located outside doorways and along the K-wing lower patio, are not directly exposed to the weather and are in very good condition. Since there is no delamination and the panels are not friable, their condition need only be monitored in the O&M program.

Miscellaneous Materials

A. Welding curtain: A-wing R

This folded welding curtain, located in the metals shop, is friable and should be replaced with a non-asbestos welding curtain.

B. Auditorium fire curtain:
   Auditorium O&M

The auditorium fire curtain appears to be undamaged, and since future damage is unlikely and it is not accessible to students, its condition need only be monitored in the O&M program.

C. Electrical insulation:
   Auditorium O&M

The exposed insulation on stage lighting adjacent to the catwalk over the auditorium is currently undamaged. Since it is not accessible to students and it is not likely to be damaged, its condition need only be monitored in the O&M program.

D. Fire blanket: K-wing (K-27) R

This friable fire blanket, stored in a metal, wall-hung can, is readily accessible and the blanket could be abused. Since there are replacement fire blankets available that do not contain asbestos, this blanket should be replaced. Until the blanket is removed, its condition and proper storage should be monitored in an O&M program.

E. Loose linoleum sheeting:
M-wing (M-12) R

Loose linoleum sheeting, apparently used in the kindergarten for messy projects, has a backing of asbestos paper. This paper is friable and the loose sheet should be removed from the classroom.

F. Transite pipe:
Photography laboratory O&M

Since this pipe is undamaged, its condition need only be monitored in an O&M program.

G. Transite hoods:
H-wing (110,112,114,116) O&M
Transite chalkboards:
(Rooms 5-19) O&M
Transite drying rack:
H-wing (104,107,107A,115,119) O&M

These asbestos-cement products are undamaged, non-friable and their condition need only be monitored in an O&M program.

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	OPTIONAL
Disposable (Tyvek) Coveralls	Flexible Bone Saws
Disposable (Tyvek) Hoods	Large HEPA Wet/Dry Vacuum
Disposable (Tyvek) Booties	Filters & Bags For Vacuum
Disposable Gloves	Negative HEPA Air Unit
Half Mask Respirator	Filters For Negative Air
Respirator HEPA Filter	Unit
Cartridges	PAPR (Personal Air
Small HEPA Wet/Dry Vacuum	Purifying Respirator)
Filters and Bags For Vacuum	Personal Decon Chamber
44" x 60" Glove Bags	w/Shower
Labelled Waste Disposal Bags	Airless Sprayer
6 Mil Poly Plastic (1 roll)	Personal Air Monitoring
3" x 5" Asbestos Warning Labels	Pump
Danger Asbestos Signs	High Volume Air Pump
Danger Asbestos Barrier Tape	Air Sampling Cassettes
Duct Tape	Moveable Scaffold
Penetrating Encapsulant	Extension Cords
Surfactant (Wetting Agent)	OSHA Approved Ground Fault
Small Hand Spray Bottle	Circuit Interruption (GFCI)
Spray Adhesive	
Utility Knife	
Wet and Apply Lag Cloth	
Leaktight Resealable Barrels	
Smoke Tubes	
Flashlights, UL Approved Extension Cords	

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 secured to the duct tape and sealed airtight.

c. The glovebag seal shall be subject to and pass a smoke test as follows:

- Aspirate the contents of a smoke tube through the water port access of bag.
- 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 ACBM 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 st 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.

Haverhill School District

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 _____

Haverhill School District

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

REASSESSMENT OF ACM (PERFORMED DURING PERIODIC SURVEILLANCE) Form AA010

Building:_____ Floor:_____ Room:_____

Various types of asbestos-containing material:

Surfacing: Sprayed-on____ Troweled-on____

Location: Ceilings & Walls____ Structural Member____

Thermal Insulation: Boiler____ Breeching____ Fitting____

Pipe____ Tank____

Miscellaneous: Tile____ Wallboard____ Transite____

Other_____

- ASSESSMENT FACTORS -

1. Percent Damaged:_____
2. Type of Damage: air erosion____ water____ vandalism____ vibration____ temperature____
3. Exposed Surface Area: none____ less than 10%____ 10% & over__
4. Activity & Movement: none____ limited____ moderate____ high__
5. Accessibility: not____ locked doors____ accessible____
6. Dispersion of Fibers: no air____ moderate____ high____
7. Friability: non-friable____ friable____
8. Any Change in Room Use Since Previous Assessment? _____yes _____no

AA010 Continued...

9. Other Observations (including condition of the encapsulation or enclosure, if any):_____

_____

_____

SIGNED:_____ DATE:_____

Evaluator

Haverhill School District

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