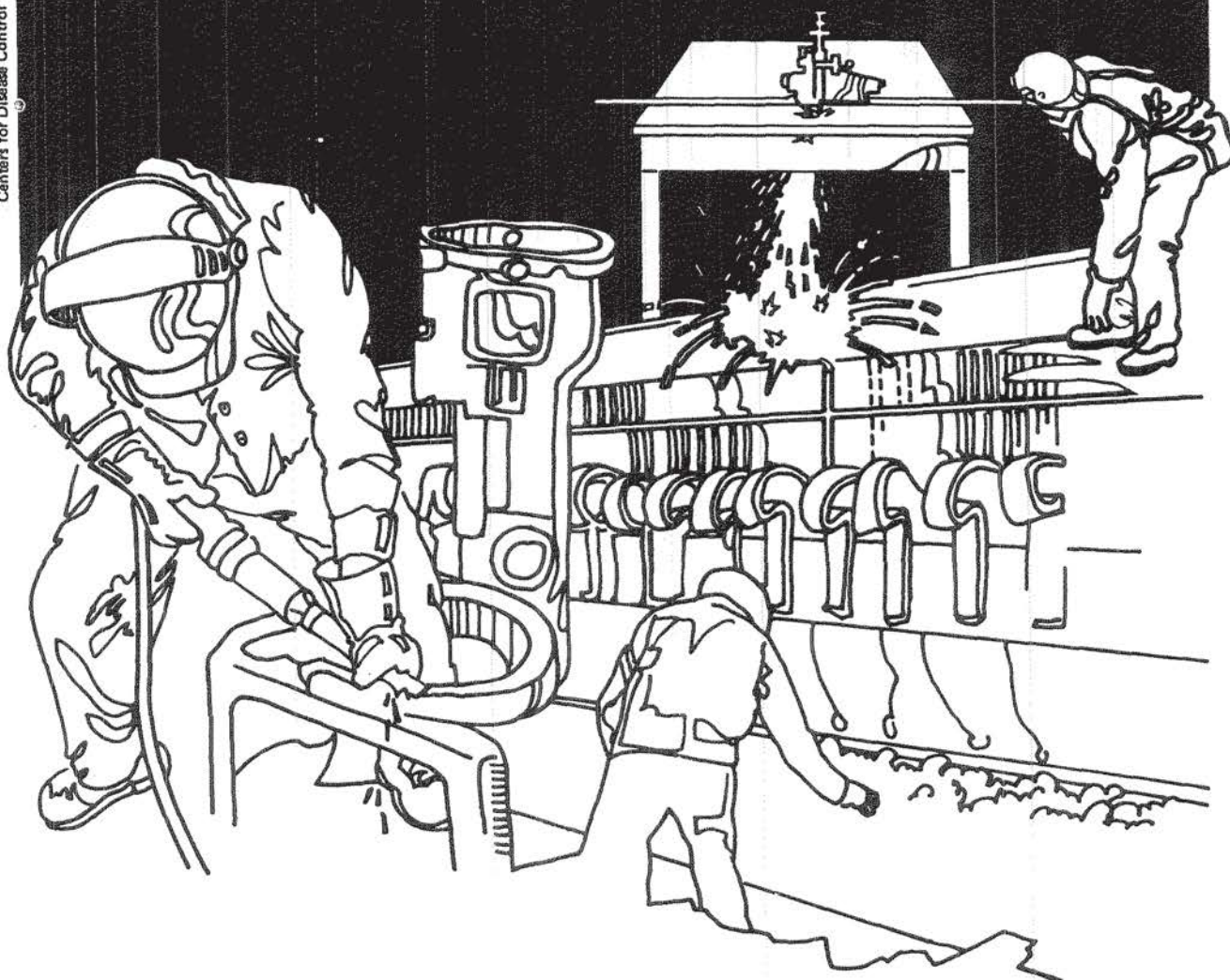


NIOSH



Health Hazard Evaluation Report

HETA 83-112-1309
SAINT FRANCIS HIGH SCHOOL
MORGANTOWN, WEST VIRGINIA

PREFACE

The Hazard Evaluations and Technical Assistance Branch of NIOSH conducts field investigations of possible health hazards in the workplace. These investigations are conducted under the authority of Section 20(a)(6) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 669(a)(6) which authorizes the Secretary of Health and Human Services, following a written request from any employer or authorized representative of employees, to determine whether any substance normally found in the place of employment has potentially toxic effects in such concentrations as used or found.

The Hazard Evaluations and Technical Assistance Branch also provides, upon request, medical, nursing, and industrial hygiene technical and consultative assistance (TA) to Federal, state, and local agencies; labor; industry and other groups or individuals to control occupational health hazards and to prevent related trauma and disease.

Mention of company names or products does not constitute endorsement by the National Institute for Occupational Safety and Health.

HETA 83-112-1309
MAY 1983
SAINT FRANCIS HIGH SCHOOL
MORGANTOWN, WEST VIRGINIA

NIOSH INVESTIGATOR:
L. Piacitelli

I. SUMMARY

A health hazard evaluation was conducted by the National Institute for Occupational Safety Health (NIOSH) on January 21, 1983 at Saint Francis High School, Morgantown, West Virginia. NIOSH was requested by the school principle to conduct a survey at the school to identify areas where asbestos may be present.

Asbestos was found in insulating materials used in the boiler room and on some of the pipes on the 1st floor. Most of the material was in good condition and would not produce measureable exposures if not disturbed or handled in any way. Asbestos was also present in a friable material used on some ceilings and on the walls above the lockers. The friable material was encapsulated with paint and in good condition.

On the basis of this evaluation, NIOSH recommends that the asbestos containing material above the lockers be removed due to its accessibility and friable nature. Proper removal procedures are listed in Appendix 1 (1,2). These procedures must be followed in order to prevent an exposure problem.

KEYWORDS: SIC 8211 school, asbestos

II. BACKGROUND

The following information is abstracted from the Environmental Protection Agency Regulation, Asbestos; Friable Asbestos-Containing Materials in Schools; Identification and Notification as set forth in Title 40, Part 763 of the Code of Federal Regulations:

Exposure to asbestos fibers can result in numerous, serious and irreversible diseases. Asbestos has been widely used in building materials for fireproofing, thermal and acoustical insulation and decoration. The potential for release of fibers from these materials depends in part upon the characteristics of the material that contains the asbestos fibers. Soft, crumbly materials tend to release fibers more easily than do hard, cementitious materials. The soft, crumbly material is defined as friable; material that when dry may be crumbled, pulverized or reduced to powder by hand pressure. Asbestos fibers are extremely durable, and their size and shape permit them to remain airborne for long periods of time. Fibers become suspended in the air by disturbance of the friable asbestos-containing materials or deterioration causing the material to release fibers, and by resuspension of previously released fibers that have settled onto floors and other surfaces.

III. HEALTH EVALUATION CRITERIA

Inhalation of asbestos dust can result in serious and irreversible diseases.

Asbestos is a carcinogen. It has been causally associated with lung cancer, a rare cancer of the chest and abdominal lining called mesothelioma and cancers of the esophagus, stomach, colon and other organs.⁽¹⁾

Inhalation also causes asbestosis, a non-malignant, progressive, irreversible lung disease caused by the inhalation of asbestos dust.⁽²⁾

There is typically a period of many years between initial exposure and the appearance of asbestos related disease. Available data show that the lower the exposure, the lower the risk of developing asbestosis and cancer. Excessive cancer risks, however, have been demonstrated at all fiber concentrations studied to date. Evaluation of all available human data provides no evidence for a threshold or "safe" level of asbestos exposure.⁽³⁾

IV. METHODS AND MATERIALS

A complete survey of the school building was conducted. Bulk samples were collected from possible sources of asbestos containing materials. Polarized light microscopy was used for determination of asbestos content. The samples were collected and analyzed in accordance with EPA regulations (40 CFR Part 763).

V. RESULTS AND RECOMMENDATIONS

Friable asbestos containing material has been used on some of the ceilings throughout the school, and on the walls above the lockers. This material is encapsulated with paint. The paint acts as a sealant to prevent fiber release. The friable material is in good condition and well bonded to the ceilings and walls. However, the friable material above the lockers is very accessible to contact damage. The paint is not effective at preventing fiber release when damaged. It is recommended that the friable material be removed from this area. Removal of the material must follow stringent work practices to prevent a greater exposure problem than it seeks to eliminate.

Both the Occupational Safety and Health Administration (OSHA) and EPA have regulations for the removal of asbestos containing material. The OSHA regulations are contained in the Code of Federal Regulations, Title 29, Part 1910. The EPA regulations are contained in Title 40, Part 61 of the Code of Federal Regulations (copies are enclosed). Asbestos stripping procedures are outlined in Appendix 1.^(1,2) Removal of this friable material is a permanent solution to the problem.

The friable material on the ceiling is not as accessible and can remain in place as long as it is routinely inspected for deterioration and damage. Maintenance, repair or renovation work that disturbs the friable material must be conducted following proper work procedures to reduce or eliminate the risk of asbestos exposure. Appendix 2 contains guidelines to be followed when the insulation is disturbed.^(1,2) When the material begins to deteriorate and pull away from the ceiling it will have to be removed to control exposure. It might be advantageous to remove the friable material from the ceiling at the same time it is removed from above the lockers because of the rigorous work practices that must be followed. (Appendix 1)

Most of the asbestos containing insulation used on pipes and in the boiler room are in good condition and by virtue of their location are not likely to sustain damage. Damaged insulation needs corrective action. If the amount of damage is small, the material should be well wrapped and sealed to prevent fiber release. Repair activities must follow the guidelines in Appendix 2. If replacement is indicated, the procedures in Appendix 1 must be followed. A non-asbestos substitute must be utilized for replacement.

Individual sample results are listed in Appendix 3. No samples were taken in the gym area because there were no insulation materials.

EPA has certain requirements that schools must meet. These requirements are listed in Title 40, Part 763 of the Code of Federal Regulations (enclosed).

VI. REFERENCES

1. Asbestos Containing Materials in School Buildings: A Guidance Document. Parts 1 & 2. United States Environmental Protection Agency. Publication No. EPA-450/2-78-014.
2. Michaels, L., Chrssick, S., Asbestos, Properties, Applications and Hazards. Vol 1, John Wiley and Sons, 1979.
3. Workplace Exposure to Asbestos. DHHS (NIOSH) Publication No. 81-103, 1980.

VIII. AUTHORSHIP AND ACKNOWLEDGEMENTS

Report Prepared By: Laurie Piacitelli
Industrial Hygienist
Environmental Investigations
Branch
Division of Respiratory
Disease Studies
National Institute for
Occupational Safety and Health
Morgantown, West Virginia

Originating Office: Mining Hazard Evaluation and
Technical Assistance Program
Division of Respiratory
Disease Studies
National Institute for
Occupational Safety and Health
Morgantown, West Virginia

Report Typed By: Ann Stanley
Secretary Typist
Health Hazard Evaluations
Branch

IX. DISTRIBUTION AND AVAILABILITY OF REPORT

Copies of this report are currently available upon request from NIOSH Division of Standards Development and Technology Transfer, 4676 Columbia Parkway, Cincinnati, Ohio 45226. After 90 days, the report will be available through the National Technical Information Service (NTIS), 5285 Port Royal, Springfield, Virginia 22161. Information regarding its availability through NTIS can be obtained from NIOSH Publications Office at the Cincinnati address. Copies of this report have been sent to:

1. Saint Francis High School
2. NIOSH Regional Office III

For the purpose of informing affected employees, copies of this report shall be posted by the employer in a prominent place accessible to the employees for a period of 30 calendar days.

APPENDIX 1(1,2)

ASBESTOS STRIPPING PROCEDURES

1. Notify EPA of intention to remove, demolish or renovate asbestos at least 20 days prior to commencement (40 CFR 61-11(d)).
2. Survey the job and draw up an operational plan considering:
 - a) The means for sealing off the work area.
 - b) Method of transporting asbestos waste from the work area, through the barriers to transportation.
 - c) Identify locations and provisions for change of rooms, toilet, and showering facilities.
 - d) Choice of protective equipment. (29 CFR 1910.134)
 - e) Contamination control procedures.
 - f) Identification of sanitary land fill.
 - g) Ventilation openings, drains, etc., to be sealed or filtered.
 - h) Water and electrical services.
 - i) Monitoring facilities and frequency of sampling.
 - j) Identification of the equipment to be covered/removed.
 - k) Provisions for maintenance.
 - l) Security system.
3. Air sampling to determine background fiber levels.
4. Begin operation by removing designated equipment. Cover remaining equipment and hard to clean surfaces with PVC or polyethelene sheet. Seal openings, such as windows, doors, ventilation systems, etc.
5. Seal off the area with PVC or polyethelene sheet. Overlap joints and heat seal or tape. If the area to be stripped is large, it should be compartmentalized. Access into the work zone must be through an air lock system which may be incorporated into the changing and washing facilities. The work area should be kept below atmospheric pressure with an exhaust fan equipped with an absolute filter. Floors should also be covered.
6. The barrier, air lock system should be constructed so that the worker passes from the work zone into successively cleaner areas, e.g., work zone to vacuum area to asbestos clothing change room to shower room to personal clothing change room to external unrestricted area.

7. Asbestos removal: Water spraying with respraying as required if dust occurs during removal of the material by dislodgement and scraping. The water should be ammended with a wetting agent. Dry stripping requires EPA approval. (40 CFR 61.22(d)(ii)).
8. Air sampling inside and outside the work zone should be conducted to insure that the barriers are effective and to confirm the suitability of the respirators.
9. The asbestos stripped should be caught and not allowed to fall to the floor, if possible. Asbestos should be bagged and labeled according to OSHA regulations using 6 mil or heavier plastic bags. The use of 55 gallon drums is strongly recommended as a secondary containment for the bags. Material should not be allowed to accumulate and none should be left unbarrelled at the end of the day. Bags and drums must be wiped down before removal.
10. All of the surfaces should be washed down or vacuumed after stripping and removal is completed. Work should progress from the top to the bottom.
11. It is virtually impossible to remove all of the asbestos and once the stripping is completed, but before the barriers are removed, the surfaces should be coated with a sealant. An emulsion type paint is acceptable.
12. Air sampling should be performed before removal of the barriers and thereafter over an extended period of time to insure that effective control has been provided.
13. Dismantel the barriers and dispose in a landfill.

APPENDIX 2^(1,2)

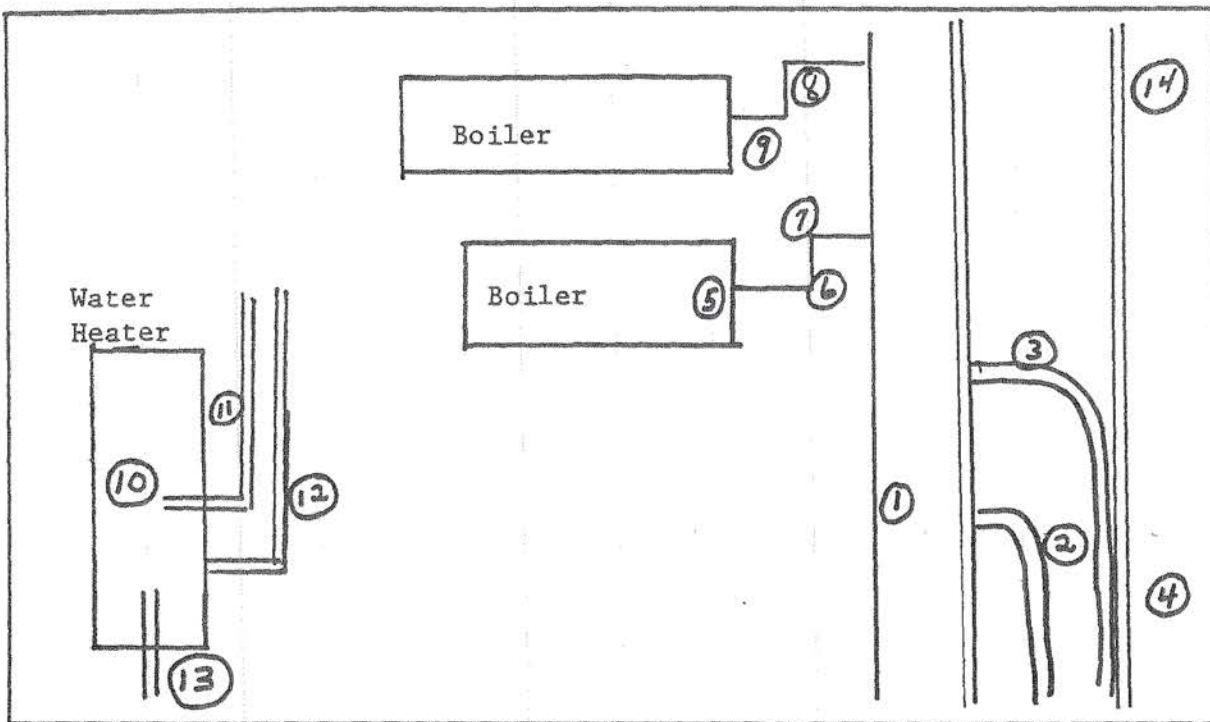
GUIDELINES FOR REDUCING ASBESTOS EXPOSURE

1. The ventilation system should be turned off and remain off until the work is completed and the area has been cleaned.
2. Whenever asbestos containing material must be handled, an approved respirator should be worn. (29 CFR 1910.134)
3. Make sure that only those persons who are necessary for the job are in the area.
4. Place a plastic drop cloth below the work area.
5. Spray the asbestos containing material with water before it is disturbed.
6. Put all the asbestos removed into a heavy plastic bag, label it and send to the landfill.
7. After the job is completed, clean all the ladders and tools used with a wet cloth.
8. Roll up the dropcloth carefully and put it in a plastic bag. Discard the bag.
9. Clean the floor below the work area with a wet mop.
10. Put the mop head and the cloth used to clean the ladders in a plastic bag while they are still wet, seal the bag, and discard it.

APPENDIX 3

Sample Results

Boiler Room Samples. See diagram.



1	Asbestos	
2	Asbestos	
3	Asbestos	
4	Asbestos	
5	NONE	
6	NONE	
7	NONE	
8	NONE	
9	NONE	
10	Asbestos	
11	Asbestos	
12	Asbestos	
13	Asbestos	
14	Asbestos	
15	Ceiling sample outside boiler room	Asbestos
16	Cafeteria ceiling	Asbestos
17	Women's bathroom ceiling	Asbestos
18	Room 103 ceiling sample	Asbestos
19	Library ceiling sample	Asbestos
20	Insulation on steam pipe	Asbestos

	Weight Room	
21	Steam pipe insulation in office area of weight room	NONE
22	Pipe insulation	Asbestos
23	Pipe insulation	Asbestos
24	Cold water pipe insulation	Asbestos
	Locker Room	
25	Pipe insulation	NONE
26	Pipe insulation	NONE
	3rd Floor	
27	Ceiling-hallway	Asbestos
28	Friable material above lockers	Asbestos
29	Untreated ceiling	NONE
30	Room 305 ceiling material	Asbestos
	2nd Floor	
31	Ceiling sample	Asbestos

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
CENTERS FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
ROBERT A. TAFT LABORATORIES
4676 COLUMBIA PARKWAY, CINCINNATI, OHIO 45226

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

Third Class Mail



POSTAGE AND FEES PAID
U.S. DEPARTMENT OF HHS
HHS 396