

Asbestos Analysis Report

For

St. Marys Elementary School
Number 5 Jefferson Street
Alexandria, Kentucky 41001

SURVEY AND ANALYSIS CONDUCTED BY:
Dennis Roberts

DATE OF SURVEY:
January 9, 1981

REPORT WRITTEN BY:
Dennis Roberts

DATE OF REPORT:
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Industry-wide Studies Branch
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BACKGROUND AND SURVEY METHODS

In December, 1980, Mr. Tom Holtz, President of the St. Marys Parish Council, brought to the attention of the National Institute for Occupational Safety and Health (NIOSH) the possibility of asbestos being in the insulating material at St. Marys Elementary School in Alexandria, Kentucky.

On January 9, 1981, Dennis Roberts (NIOSH) met with Mr. Tom Holtz at St. Marys Elementary School and collected bulk samples of the ceiling insulation material at several locations for asbestos analysis. Samples were collected where roof leaks had occurred and deterioration of the insulation had begun.

ANALYTICAL METHODS

The samples collected were analyzed on a transmission electron microscope at 17,000 magnification to determine the type of any fibrous asbestos material present. When fibers were observed Selected Area Electron Diffraction (SAED) was performed to identify the mineral crystalline structure. Energy Dispersive X-Ray Analysis was then utilized to characterize the elemental composition thereby confirming the SAED identification. Following confirmation of the presence of fibrous asbestos, a sample of the bulk insulation was observed with a Binocular, Stereo-optical Microscope at 10 magnification and the percentage of fibrous mineral in the insulation was estimated.

RESULTS AND CONCLUSIONS

The analytical results are shown in the attached table. The four samples that were collected in classrooms and hallways were positive by both analytical methods for fibrous chrysotile asbestos. The quantity of fibrous asbestos in the insulation was estimated to be greater than ten percent. The insulation at two locations, room 7A and the ceiling of the hallway leading to the gymnasium, was excessively friable due to roof leakage.

RECOMMENDATIONS

Based on these findings, it is recommended that St. Marys Elementary School consider the development of a plan to either remove, replace, or seal in place the insulation material containing chrysotile asbestos fibers. In order to determine which plan to undertake, the insulation should be thoroughly examined to assess its friable condition. If excessive friability does not exist, a resealing operation would correct the problem. However, if the deterioration of the insulation sealant was brought about by a leaky roof, abuse in easy access areas such as doorways or stairwells, or other circumstances that could be reoccurring, the asbestos should be removed. To insure that a proper assessment is made of the potential asbestos exposure the U.S. E.P.A. Document "Asbestos Containing Materials in School Buildings" should be followed.

Removal operations that may be necessary should be performed in adherence to applicable EPA and OSHA guidelines as well as any pertinent city ordinances for the removal and disposal of asbestos insulation, and for the protection of workers performing asbestos removal operations.

REFERENCES

1. Zumwalde, R.D., and Dement, J.M. (1977). Review and Evaluation of Analytical Methods for Environmental Studies of Fibrous Particulate Exposures. DHHS (NIOSH) Publication No. 77-204.
2. Interim Method for the Determination of Asbestiform Minerals in Bulk Insulation Samples. U.S. EPA, Office of Pesticides and Toxic Substances.
3. Asbestos Containing Materials in School Buildings: A Guidance Document. U.S. EPA, Office of Toxic Substances, Washington, D.C. 20460.

BULK SAMPLE ANALYSES

SAMPLE LOCATION	TEM and SAED	% ASBESTOS IN BULK SAMPLE BY SOA
Hallway Ceiling Leading* to Gymnasium	Fibrous Chrysotile Confirmed	>10%
Room 7A Ceiling*	Fibrous Chrysotile Confirmed	>10%
Hallway Ceiling Near Room 2B	Fibrous Chrysotile Confirmed	>10%
Chapel Ceiling	Fibrous Chrysotile Confirmed	>10%
Gymnasium Ceiling	Asbestos Not Detected	0%
Pipe Insulation (Boys Restroom)	Asbestos Not Detected	0%

TEM - Transmission Electron Microscopy

SAED - Selected Area Electron Diffraction

SOA - Stereo-Optical Analysis

* - The ceiling insulation at these locations were water damaged and excessively friable.