Lindley Academy
900 Lindley Avenue
Philadelphia, Pennsylvania 19141

Asbestos Abatement Air Monitoring Report

MARCH 10, 2023

PREPARED FOR:

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VERTEX Project No: 86031

EXECUTIVE SUMMARY

In February 2023, The Vertex Companies, LLC (VERTEX) was retained by American Paradigm Schools to provide air monitoring and laboratory services in conjunction with an asbestos abatement project within Lindley Academy located on the 900 Lindley Avenue in Philadelphia, Pennsylvania.

The scope of work for this project entailed the removal of the following asbestos containing materials:

- Approximately 9 each of pipe fitting insulation within the closet next to the restroom of Classroom 110.
- Approximately 6 each of pipe fitting insulation within the fan room under the stage.

Abatement operations were performed by Pepper Environmental Services, Inc. on February 20, 2023; encompassing 1 work shift.

VERTEX provided full time air monitoring services which included asbestos abatement oversight and the collection of airborne asbestos samples before, during, and after the abatement project. This air monitoring program was conducted in accordance with the City of Philadelphia's Asbestos Control Regulations. Air monitoring was performed by VERTEX's licensed Asbestos Project Inspector.

PROJECT OVERSIGHT

VERTEX provided an air monitoring technician for on-site inspections of the asbestos project, which included:

(1) Monitoring the activities and work procedures of the removal contractor.
(2) Inspection of regulated work areas prior to abatement.
(3) Collection of air samples to determine compliance with applicable regulations.
(4) Performing visual inspection and clearance testing inside the regulated work areas.
(5) Verify the collection and removal of all designated asbestos containing materials that were removed.

RESULTS

1. Final airborne concentrations collected in the regulated work areas after abatement (final clearance samples) were below 0.01 F/cc, the City of Philadelphia clearance criteria for minor projects.

2. The airborne fiber concentration collected outside the regulated work areas (perimeter location) during removal operations were below 0.01 F/cc.

Please refer to the attached Table I PCM Air Sampling Results for a summary of the air sample results.

AIR MONITORING

Phase Contrast Microscopy (PCM) air samples were collected and analyzed in accordance with the National Institute of Safety and Health (NIOSH) Analytical Method #7400, "Asbestos Fibers in Air," using A counting rules. A segment of the collected sample filter is mounted on a slide, treated chemically to make the filter transparent, and then examined using a special microscope reticule and counting procedure with phase contrast illumination at 400 to 500 magnification. Any particle having a length to width (or aspect) ratio greater than 3:1, and a length of 5 micrometers (µm) or greater is counted as a fiber. PCM analysis does not distinguish between asbestos and non-asbestos fibers.

Air samples were collected by the high-volume method in which a pump is used to draw a volume of air through a membrane filter at a known rate. Typical sampling rates for final air testing are 10 Liters per minute (L/min) for approximately 800-1,800 Liters. Samples are collected in 25-millimeter (mm) cassettes containing a mixed cellulose ester (MCE) filter with a 0.8 µm-effective pore size for PCM analysis.

Final clearance air samples were analyzed by Phase Contrast Microscopy (PCM).

ABATEMENT METHODOLOGY

Abatement operations were performed by Commonwealth of Pennsylvania licensed asbestos abatement workers. All licensed workers donned proper personal protective (PPE) equipment, including but not limited to TYVEK® suits and NIOSH approved half-face air purifying respirators. These respirators have a protection factor of 10, capable of affording adequate protection where fiber levels do not exceed 1.0 F/cc.

Glovebag Removal

Critical barriers consisting of two layers of plastic sheeting were used to seal over all openings in the work area and prevent airborne asbestos from migrating to adjacent areas. Critical barriers were utilized to establish a secondary containment.

The pipe insulation removal process consisted of pre-wetting of the pipe insulation, taping the glovebag to the pipe, re-wetting of the asbestos insulation, cutting metal bands, removing the insulation, wetting the insulation in the glovebag, wet wiping of the pipe, followed by glovebag removal. A HEPA vacuum was utilized to establish negative pressure inside the glovebags prior to removal. All bags were double bagged for disposal as asbestos waste.

Following the completion of the abatement operations, all waste generated as part of the removal project was double-bagged and labeled for proper disposal. Asbestos waste was transported and disposed of at an EPA approved landfill.

Summary of PCM Air Sampling Results

VERTEX®

American Paradigm Schools Lindley Academy 900 Lindley Avenue Philadelphia, PA Vertex Project No. 86031				
Sample #	**Sample Location/Activity**	**Volume (L)**	**Fibers/ 100 Fields**	**Sample Result (F/cc)**
Date collected: 2/20/23 **Site Activity/Work Area: Glovebag Removal of Pipe Fitting Insulation / Closet Next to Restroom in Classroom 110**				
2.20.01	Baseline: Closet Next to Restroom in Classroom 110	902.5	2.5	<0.003
2.20.02	Baseline: Closet Next to Restroom in Classroom 110	902.5	6.5	0.004
2.20.03	Baseline: Closet Next to Restroom in Classroom 110	902.5	5	<0.003
2.20.04	Baseline: Closet Next to Restroom in Classroom 110	902.5	4	<0.003
2.20.05	Baseline: Closet Next to Restroom in Classroom 110	902.5	3	<0.003
2.20.06	Perimeter: Hallway outside Classroom 110	1108	4.5	<0.002
2.20.07	Perimeter: North wall of Classroom 110	1108	14	0.006
2.20.08	Work Area: Inside tent enclosure within the closet	617.5	23.5	0.029
2.20.20	Final: Closet Next to Restroom in Classroom 110	1235	1.5	0.003
2.20.21	Final: Closet Next to Restroom in Classroom 110	1235	2	<0.002
2.20.22	Final: Closet Next to Restroom in Classroom 110	1235	5	<0.002
2.20.23	Final: Closet Next to Restroom in Classroom 110	1235	4	<0.002
2.20.24	Final: Closet Next to Restroom in Classroom 110	1235	3	<0.002
2.20.09	Blank	-	0	-
2.20.10	Blank	-	0	-
Date collected: 2/20/23 **Site Activity/Work Area: Glovebag Removal of Pipe Fitting Insulation / Fan Room Under Stage**				
2.20.11	Baseline: Closet Next to Restroom in Classroom 110	902.5	5	<0.003
2.20.12	Baseline: Closet Next to Restroom in Classroom 110	902.5	4	<0.003
2.20.13	Baseline: Closet Next to Restroom in Classroom 110	902.5	6	0.003
2.20.14	Baseline: Closet Next to Restroom in Classroom 110	902.5	5	<0.003
2.20.15	Baseline: Closet Next to Restroom in Classroom 110	902.5	3.5	<0.003
2.20.16	Perimeter: Stage area	1075	5	<0.003
2.20.17	Work Area: East wall inside fan room area	1070	9.5	0.004
2.20.27	Final: Closet Next to Restroom in Classroom 110	1235	4.5	0.003
2.20.28	Final: Closet Next to Restroom in Classroom 110	1235	3	<0.002
2.20.29	Final: Closet Next to Restroom in Classroom 110	1235	6	0.002
2.20.30	Final: Closet Next to Restroom in Classroom 110	1235	5	<0.002
2.20.31	Final: Closet Next to Restroom in Classroom 110	1235	6	0.002
2.20.18	Blank	-	0	-
2.20.19	Blank	-	0	-
2.20.25	Blank	-	0	-
2.20.26	Blank	-	0	-