



**VIA ELECTRONIC MAIL**

May 16, 2024

US0024227.4767

Robert J. Glass, PhD  
Superintendent of Schools  
Bedford Central School District  
632 South Bedford Road  
Bedford, NY 10506

**SUBJECT: IEQ Assessment, Fox Lane Gymnasium Building**

Dear Dr. Glass:

WSP USA Inc. (WSP) is pleased to provide Bedford Central School District (BCSD) with this letter report summarizing the results of our assessment of potential air quality and surface contamination at the Fox Lane Gymnasium Building, 632 S Bedford Road, Bedford, NY 10506. This assessment was performed in response to complaints of odors, black soot particulate, and carbon monoxide exposure associated with boiler maintenance performed inside the boiler room of the gymnasium building on Friday April 26, 2024. The maintenance operations were performed in response to a small flue fire which occurred on Monday April 8, 2024. The flue is located on the exterior west roof of the building and was associated boiler #1.

This letter summarizes results of a limited visual assessment, air quality testing and surface tape-lift sampling performed in select areas of the Fox Lane Gymnasium building on April 28, 2024, by Joseph Kapp, CIH, CSP. Access to the Fox Lane Gymnasium was provided by Dennis Rankin, BCSD Facilities Director. Asbestos air and bulk sampling was also performed by WSP and the report for the asbestos sampling is provided separately.

## EXECUTIVE SUMMARY

Based on our laboratory sampling results, elevated levels of surface soot particulate was present in the boiler room and low amounts of surface soot was detected on office desks and other areas of the gymnasium building. The source of the soot particulate in the areas outside of the boiler room could not be confirmed from the analysis but the particles found on surfaces resembled the morphology of the particulate found in the boiler room. Due to the ongoing boiler maintenance work, the source of the soot may be related to this work activity. The surface concentrations of soot outside of the boiler room were considerably lower than the boiler room, and some were typical of normal background conditions. The measured airborne dust concentrations were within acceptable limits. No carbon monoxide was detected and levels of total volatile organic compounds were within acceptable background ranges.

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While airborne exposure concentrations cannot be extrapolated from surface contamination, evidence of surface contamination can sometimes indicate or confirm a source of contamination. Complaints of possible soot deposition on desks in the gymnasium offices was reported by occupants. However, no records of when the last cleaning of desks and other surfaces was performed in these areas could be provided. Therefore, it is not possible to confirm with certainty that these deposits were related exclusively to the recent flue fire event or boiler maintenance activities. The laboratory results indicate that the indicator particles were not from wildfires or a structure fire. No smoke or fire odors were present at the time of the survey nor were there visible indications of smoke or structural fire residue. No smoke or fire residue odors were reported by the laboratory.

Soot, Ash and Char are normal background contaminants in our work and home environments from combustion byproducts related to for example the combustion of heating fuel such as #2 fuel oil used for building boilers, natural gas in our stoves, wood stoves, vehicles exhaust (gasoline and diesel), industrial emissions, and wildfire smoke which can be common sources of exposure. Carbon monoxide is also a combustion byproduct associated with these sources.

Regarding assessing possible carbon monoxide exposure, WSP can only comment on what conditions were on the day of the assessment which was conducted 2 days after the boiler maintenance work was completed, and more than 2 weeks after the fire event had occurred. At the time of our assessment, and when the boilers were not in operation and the gymnasium was not in use, carbon monoxide concentrations were not detected. Additional monitoring would have to be conducted for carbon monoxide concentrations at a time that would be more representative of normal occupancy and use.

## BACKGROUND AND SCOPE OF WORK

The purpose of the assessment was to perform an investigation in response to complaints and concerns regarding four or five school gymnasium employees who were reportedly exposed to carbon monoxide on April 26 and had reported elevated blood carbon monoxide concentrations. On April 8, 2024, there was a flue fire associated with boiler #1 and there were reports of odors and air quality concerns. Due to these concerns, building maintenance performed an inspection of the flue chase in a closet of the main gymnasium, and found a milk crate which had started to melt leaning against the boiler flues. The crate was removed and the plastic burning odor subsided. The gymnasium building is a two story brick structure. The gymnasiums (main and small) are on the 2nd floor. The boiler room, locker rooms, gym teacher offices and garage are on the 1st floor. There are two entrances, one on the west side which accesses the 1st floor and one on the east side which accesses the 2nd floor. An interior main stairwell runs from the 1st floor to the gyms on the 2nd floor. There are two boilers servicing the gymnasium, boiler #1 and boiler #2 which burn #2 fuel oil (diesel fuel).

At the time of the fire, the local fire department arrived and performed an inspection with an infrared heat detector and inspected the area and building for fire concerns and performed a flue chain clean-out of both flues and the fire in flue #1 was extinguished. The boilers were turned off. The flue fire was thought to be associated with accumulation of soot inside the flue. The fire was reportedly isolated to the flue for boiler #1 and occurred outside the building in the flue, not inside the boiler room or the building itself. Several days later, a cooling trend occurred and on April 24 boiler #2 was turned on to provide heat for the building.

On Friday April 26, 2024, a boiler maintenance contractor was performing boiler maintenance work in the boiler room. The contractor was cleaning the boilers and the exterior flues. To do so, the contractor was reportedly operating a diesel truck and a gasoline generator to operate vacuum equipment. The diesel truck was reported to be running more or less continuously and the generator intermittently. The truck and generator were positioned directly outside the boiler room door on the west side of the building next to the main entrance to the gymnasium building. The vacuum equipment was used to collect soot and debris during the boiler maintenance work. There are two doors associated with the boiler room. One on the exterior west wall of the building and one leading from the boiler room into the interior ground floor hallway of the building. The exterior boiler door was reportedly kept open during the maintenance activities to allow contractor access for



entry and for equipment. The boiler door to the ground floor hallway was kept closed. The boilers were not operating during the maintenance work.

At the time of the maintenance work on April 26, 2024, several gym employees reported complaints of soot and odors. At least one of the teachers reported to the school nurse complaining of symptoms related to carbon monoxide exposure. The poison control center was notified. An ambulance arrived and transported the employee to the hospital and was subsequently released later that day. Also on that afternoon, multiple fire departments arrived and performed various tests including tests for carbon monoxide. No elevated carbon monoxide levels were apparently reported.

In response to these events, on Sunday April 28, 2024, WSP performed a visual walkthrough through of portions of the gymnasium building. Air monitoring was performed using real-time dust monitor to measure airborne dust particles (measured as  $PM_{2.5}$ ,  $PM_{10}$ , and total particulate matter (TPM)) and a real-time 5-gas monitor was used to measure carbon monoxide (CO), total volatile organic compounds (TVOCs), Oxygen ( $O_2$ ), combustible gas (% LEL), and hydrogen sulfide ( $H_2S$ ). We also collected forensic tape-lift samples from surfaces in the boiler room, hallway, locker-rooms, gym offices, gymnasium bleachers and air handling equipment to determine characteristics of settled dust particles.

## SAMPLING METHODOLOGY

To document general indoor environmental quality (IEQ) conditions at the time of the assessment, we sampled multiple locations in the complaint area, non-complaint areas and an outdoor location for general IEQ parameters which included temperature, percent relative humidity, carbon monoxide (CO; parts per million [ppm]), total volatile organic compounds (TVOCs; parts per billion [ppb]), and airborne particulate matter ( $PM_{2.5}$ ,  $PM_{10}$ , Total Particulate Matter (TPM) in micrograms per cubic meter [ $\mu g/m^3$ ]).

### Visual Inspection

The areas were visually inspected for indicators of fire, soot, and air quality concerns associated with complaints and conditions discussed prior to the survey.

### Real-Time Direct-read Sampling

Airborne dust concentrations were measured using a hand-held Lighthouse model 3016 IAQ Monitor to measure  $PM_{2.5}$ ,  $PM_{10}$ , and TPM. A hand-held 5-Gas RKI model GX-6000 was used to measure ambient concentrations of CO, TVOCs,  $O_2$ ,  $H_2S$ , and % LEL. Both instruments were field calibrated at the time of the survey.

For screening purposes, the TVOC guideline is based on a LEED criterion of  $500 \mu g/m^3$  (218 ppb, as isobutylene). Industry consensus suggests that using a TVOC concentration limit as a standard for indoor air is not practicable because a relationship between concentration and health effects has not been established. Therefore, our comparison value of 218 ppb merely serves as a point at which more in-depth investigation may be warranted. Taking measurements is complimentary to visual observations, IEQ expertise and industry best practices.

### Tape Lift and Source Samples

WSP collected tape lift samples of dusts throughout the facility to compare dusts on surfaces to black soot like material observed in the boiler room. Tape lift samples were collected using EMSL tape lift microscope slides (product ID 8708315). The tape lifts were removed from a plastic case and the tape-lift backing was removed exposing the tape. Each tape lift was pressed onto a single surface to collect settled particulate, lifted from the sampling surface. The tape lift was immediately placed tape surface down onto the microscope slide and the slide was secured into individual plastic slide holding cases which snap closed. The slides were labeled and secured in a plastic zip-lock bag. The slide cases were shipped under chain of custody to Environmental Analysis Associates, Inc. (EAA) laboratory in Bay City, MI for Combustion By-Products (surface fire residue) & dust analysis using optical light microscopy.



Soot is produced as a condensation byproduct of incomplete combustion and can be emitted by natural gas-fueled appliances, cooking activities, and vehicles, structure fires, and industrial processes. Microscopic soot depositional patterns can be useful for diagnosing origin. Char can originate from cooking, home heating fires, structure fires, wildfires, and agricultural fires. Some char particles retain the structure of the burned fuel and can be used for diagnosing their origin. Ash is a light-colored mineral salt remains when all the original fuel is burned away.

#### Photolog

A photolog is provided below as an enclosure to the report.

## RESULTS AND OBSERVATIONS

Based on our visual assessment, black soot like material presumably from the boiler maintenance work was observed on boiler equipment and the floor in the boiler room. Eleven surface tape-lift samples were collected in the gymnasium building. The three surface tape-lift results collected in the boiler room contained elevated soot concentrations. Considerably lower soot concentrations were detected in the boys locker room, the girls locker room (office #109 desk), the 1<sup>st</sup> floor air handler room (fan belt guard/cover) and the vinyl floor tile outside the boiler room in the main hallway. Two samples (boys locker room desk and AHU vent in the main gym) contained soot particles within typical background concentrations. No soot was detected in the sample collected from the top seat of the gym bleacher.

No CO was detected in the sampled areas of the gym building. The direct-read airborne particulate (dust) readings were below outdoor concentrations and within recommended guidelines. Levels of TVOCs were also within normal indoor ranges. The laboratory results indicate that the indicator particles were not from wildfires or a structure fire and no fire residue odor were reported by the laboratory. No smoke or fire odors were present at the time of the survey nor were there visible indications of smoke or structural fire residue. The laboratory results reported aciniform soot which consists of black/brown carbonaceous particle clusters that are most often the result of organic or fossil fuel combustion.

The building heating ventilation and air conditioning (HVAC) system was operating during the assessment. The amount of outside air supplied by the HVAC system was not confirmed but the outside dampers operate on an economizer system. There are outside air supply intakes on the roof in the center of the building which were not accessible during the survey. The boiler flues are situated on a lower roof behind the air intakes, but at least 30 feet away. We did not evaluate the potential for drift or air intake from the boiler flue exhaust and the air intakes on the upper roof. From our observations the flue exhaust stacks are more than 30 feet horizontally and vertically away from the nearest air intakes. If wind and conditions are favorable, there may be a potential for some flue exhaust to migrate into the building air intakes. A recommendation for a flue exhaust evaluation is provided in the recommendation section.

During the assessment it was noted that the bottom edge of the boiler room door leading to the interior hallway was not sealed by a door sweep. This opening of approximately one-half (1/2) inch may allow particulate, gases and air to flow out of the boiler room into the hallway based on air pressure differentials. The bottom edge of the boiler door leading to the outside had a small visible gap under half of the door. The door was also not effectively sealed with a door sweep. The building HVAC system operates throughout the building but not in the boiler room. Combustion air for the boiler room is provided by a manual louver vent on the west wall of the boiler room. The air vent was secured in the open position by a chain and hook at the time of the survey which created a slightly positive pressure in the boiler room relative to the hallway. A smoke test at the bottom of the door leading from the boiler room to the hallway indicated that air was moving under the door from the boiler room into the hallway. The boiler room door to the outside on the west wall was closed at the time of the survey, but reportedly open on Friday April 26, 2024 when the contractor was performing maintenance. It is not known if the door leading to the hallway was sealed when the maintenance were performed or what the conditions were relative to air movement.



Based on placards in the boiler room, the boilers were built in 1983 and the boilers appeared to be in poor service condition indicated by obvious visual soot accumulation on the exterior flue stacks outside the building and reported by building engineers and the fire department when the flue fire occurred. Accumulation of soot is associated with incomplete combustion often associated with not enough oxygen or makeup air being supplied to the burners. A boiler combustion test can determine more specific causes for the soot accumulation. A combustion test can also quantify carbon monoxide production. The flues exit via piping the building horizontally on the west wall and then vertically up behind the brick façade through an open pipe chase and exit through a lower roof and extend approximately 10-15 feet above the sloped roof line. The condition and integrity of the flue pipes was not evaluated as part of this assessment.

The air sampling results are provided in Table 1 and the Tape-Lift sample summary results are provided in Table 2 below. The laboratory results of the Tape-Lift samples are provided as an Enclosure this report.

**Table 1: IEQ Parameter Testing Results – April 28, 2024**

Sample Location	Time	T (°F)	RH (%)	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	PM <sub>10</sub> (µg/m <sup>3</sup> )	TPM (µg/m <sup>3</sup> )	TVOC (ppb)	CO (ppm)	O <sub>2</sub> (%)	H <sub>2</sub> S and LEL
<b>Recommended IEQ Value or Range, as applicable*</b>		<b>67-82</b>	<b>≤ 65</b>	<b>≤ 35</b>	<b>≤ 150</b>	<b>15,000</b>	<b>218</b>	<b>9</b>	<b>19.5-23</b>	<b>Detection</b>
<b>Exterior – outside South Entrance</b>	14:30	75	49.9	11.00	37.15	44.55	0	0	20.9	ND
<b>Boiler Room**</b>	14:35	70	40	5.97	34.66	42.52	70	0	20.9	ND
<b>Hallway-outside girls locker room</b>	14:45	65	45.7	3.24	12.70	17.79	28	0	20.9	ND
<b>Boys locker room-office area</b>	14:53	65	44.6	1.11	1.89	2.59	90	0	20.9	ND
<b>Room 100-Coach Miller office (women’s LR)</b>	14:49	66	43.4	3.21	21.79	44.8	62	0	20.9	ND
<b>Girls locker room, Rm 109 - Offices</b>	14:56	66.0	43.1	1.09	6.42	15.21	0	0	21.2	ND
<b>Gymnasium (main)-center of room</b>	15:04	66.5	46.3	2.63	5.24	5.94	0	0	20.9	ND
<b>Gymnasium (main) - at air intake in equipment closet</b>	15:12	65.5	47.2	2.87	7.04	9.81	0	0	20.9	ND
<b>Gymnasium (small) Room 204, center of room</b>	15:17	65	47.8	2.76	6.40	9.17	1	0	20.9	ND
<b>Air Handler Room, ground floor, Room 113 at AHU #3</b>	16:58	65	46.5	3.80	19.31	28.09	0	0	20.9	ND

\*Recommended limits/ranges based on NY PESH, ASHRAE, EPA and industry standards.

\*\*Boiler room-Exterior air vent (louver) was in fully open position and secured by a chain in the open position.

ND: Non-detect. Hydrogen sulfide (H<sub>2</sub>S) and the Lower Explosive Limit (LEL) were non-detect in all locations.



**Table 2: Tape Lift Sampling Results – April 28, 2024**

Sample Number	Sample Location	Fire/Combustion Particle Concentration				Other Constituent Concentration	Fire Combustion Particles Detected
		Total Area % Classification Range	Soot	Char	Ash	Inorganics and Bioaerosols %	Large Particles
1-BR	Top of boiler #1 (black soot visible)	<b>66.0</b> (Elevated)	65.5	0.5	ND	34	Yes-Soot
2-BR	Reset switch box boiler #1 (black soot visible)	<b>33.1</b> (Elevated)	32.1	1.0	ND	66.9	Yes-Soot
3-BR 2	Vent duct at rear of boiler #2 (black soot visible)	<b>59.9</b> (Elevated)	58.1	1.8	ND	40.1	Yes-Soot
4-Boys LR Desk	Boys Locker Room desk #1 (no visible soot/dust)	0.3 (Typical-low < 1%)	0.3	ND	ND	99.7	No
5-Boys LR Desk 2	Boys Locker Room desk #2 (visible dust, not cleaned, no soot visible)	<b>4.6</b> (Atypical 3-10x background)	3.2	1.4	ND	95.4	Yes-Soot (isolated)
6-Boys LR-exterior of locker	Top of locker #447 (visible dust, no soot visible)	<b>4.5</b> (Atypical 3-10x background)	4.5	ND	ND	95.5	Yes-Soot (isolated)
7-AH Room 113 (*)	Air handler room #113-fan belt guard #3 (black dust visible)	<b>5.5</b> (Atypical 3-10x background)	3.9	1.6	ND	94.5	Yes-Soot (isolated)
8-Girls LR, Rm 109	Girls locker room, Office 109, 2 <sup>nd</sup> desk (no visible dust)	1.1 (Typical-upper background ≥ 1-3%)	1.1	ND	ND	98.9	No
9-AHU Vent-Gym (*)	AHU Vent-Main Gym closet, SE corner of gym (no visible dust or soot)	0.6 (Typical-low < 1%)	0.4	0.2	ND	99.4	No
10-Gym bleacher	Main Gym bleacher-top seat (no visible dust or soot)	ND (Typical-low < 1%)	ND	ND	ND	100	No
11-Hall floor o/s Boiler Room	Hall floor (vinyl tile) outside boiler room (no visible dust or soot accumulation)	<b>3.4</b> (Atypical 3-10x background)	3.4	ND	ND	96.6	Yes-Soot (isolated)

Footnotes and Abbreviations

BR = Boiler Room, AHU = Air handling unit, HVAC = Heating, ventilation, air-conditioning.

Bolded values indicate greater than typical background (low).

Classification ranges: elevated, atypical, typical are based on historical background data from buildings not suspected of fire/combustion particle impacts.

Constituent Concentrations: Inorganics (cellulose/synthetic/fiberglass, mineral dust/soil) Bioaerosols (mold, pollen, dander/skin cells, other.)

\*Interferences-significant sample overloading with dust. Total surface density (counts per millimeter squared) could not be calculated.

See Enclosure A: Laboratory Results for detailed report.



## CONCLUSIONS

Low concentrations of surface soot was found in sampled locations outside of the boiler room including offices, locker rooms, and the hallway within the gymnasium building. Based on our visual evaluation, surface sampling results and air quality testing, soot particulate deposition was possibly related to the boiler maintenance work, flue fire conditions or historical deposition. The diesel truck and generator equipment running adjacent to the building during the boiler maintenance activities may have been a source of carbon monoxide and soot exposures reported by occupants. Other sources of soot or other particulate include the heating system or the adjacent grounds maintenance garage which use diesel and gasoline fueled equipment. WSP also provides the following recommendations to address the boiler maintenance needs and to improve overall IEQ parameters.

## RECOMMENDATIONS

Based on the findings of the assessment as detailed in this report, the following recommendations are presented:

1. **Building Ventilation System:** A HVAC engineer should inspect, repair and balance the HVAC system and confirm that an adequate supply of outside air is supplied from the HVAC air handling units (AHUs) to all office and occupied areas with consideration for contaminants likely to be present. Confirmation and documentation should be maintained for future reference.
  - a. The ASHRAE standard, *Ventilation for Acceptable Indoor Air Quality* (ASHRAE 62.1), specifies minimum ventilation rates and indoor air quality requirements for office space, commercial and institutional buildings. Section 5.13, Air Classification and Recirculation should be adhered to.
  - b. The ventilation system serving the mechanical spaces, motorized equipment storage areas such as the garage should not mix with or redistribute return air where hazardous air contaminants may be present.
2. **Exhaust Outlets:** The separation distance of the boiler exhaust flues on the roof and outdoor air intakes should be documented and adhere to all applicable building codes and ASHRAE 62.1, *Ventilation for Acceptable Indoor Air Quality*, Normative Appendix B – Separation of Exhaust Outlets and Outdoor Air Intakes.
3. **Housekeeping and HVAC/Boiler Flues:** Remove all athletic equipment or other obstructions that may be blocking HVAC air intakes in the gymnasium and other areas. Designate a clear area near the boiler flues in the open chase in the gym closets that lead to the roof to prevent any objects from damaging or being heated against the flue pipes. Warning signs should be posted indicating the purpose of the flue pipes and access should be restricted to maintenance personnel only.
4. **Boiler Commissioning:** Boiler services should be completed to include burner assembly cleaning, nozzle and filter replacement, internal heat exchanger inspection and cleaning, flue pipe vacuuming, re-seal the combustion inspection covers that were removed to clean the fireside, and checking for water or flue gas leaks.
  - a. After the boiler services is complete, a thorough combustion analysis and tuning should be performed.
  - b. Boiler commissioning work should be reviewed by a qualified commissioning engineer.
5. **Flue stack integrity:** After the burner cleaning and testing, a flue draft measurement should be taken to ensure proper updraft. Confirm the flue integrity and that they were not damage by fire or poor maintenance.
6. **Remediation:** clean horizontal surfaces such as work surfaces and floors in the gymnasium building including but not limited to the boiler room, hallways, locker rooms and offices.
7. **Follow-up Sampling:** After the boiler systems have been repaired, retesting should be performed to confirm that particulate, soot, carbon monoxide and general IEQ conditions are satisfied.



## LIMITATIONS

Services performed by WSP were conducted in a manner consistent with that level of care and skill ordinarily exercised by other members of the engineering and science professions currently practicing under similar conditions subject to the time limits and financial and physical constraints applicable to the services. No warranty expressed or implied is made.

WSP cannot provide medical opinions regarding exposure or experience adverse health effects that may have been reported as a result of the fire, boiler maintenance work or other building activities. Microbial growth or other hazards in structures may be hidden in areas that were inaccessible (i.e., wall cavities, behind insulation) to WSP at the time of the study. Additional sampling may be necessary when previously inaccessible locations are revealed.

This report has been prepared for the exclusive use of the client for specific application referenced in this report. No other representation, expressed or implied, is made.

## CLOSURE

WSP appreciates the opportunity to provide these services. If you have comments or questions regarding this report, please do not hesitate to contact the undersigned by email or at (212) 760-5681.

Kind Regards,

A handwritten signature in black ink, appearing to read 'Joseph Kapp'.

Joseph Kapp, CIH, CSP  
Assistant Vice President

Cc: Alexander Smolyar, WSP

Enclosure A: Photolog

Enclosure B: Laboratory Report





ENCLOSURE A  
PHOTOLOG



**PHOTOGRAPHIC LOG**

<b>Bedford Central School District</b>	<b>Fox Lane Gymnasium Building</b>	<b>US0024227</b>
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<b>Photo No.</b>	<b>Date</b>
1	April 28 2024
Fox Lane Gymnasium Building, North face of the building. View is looking south.	



<b>Photo No.</b>	<b>Date</b>
2	April 28 2024
Fox Lane Gymnasium building, east and north face. View is looking south west.	





**PHOTOGRAPHIC LOG**

<b>Bedford Central School District</b>	<b>Fox Lane Gymnasium Building</b>	<b>US0024227</b>
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<b>Photo No.</b>	<b>Date</b>
3	April 28, 2024

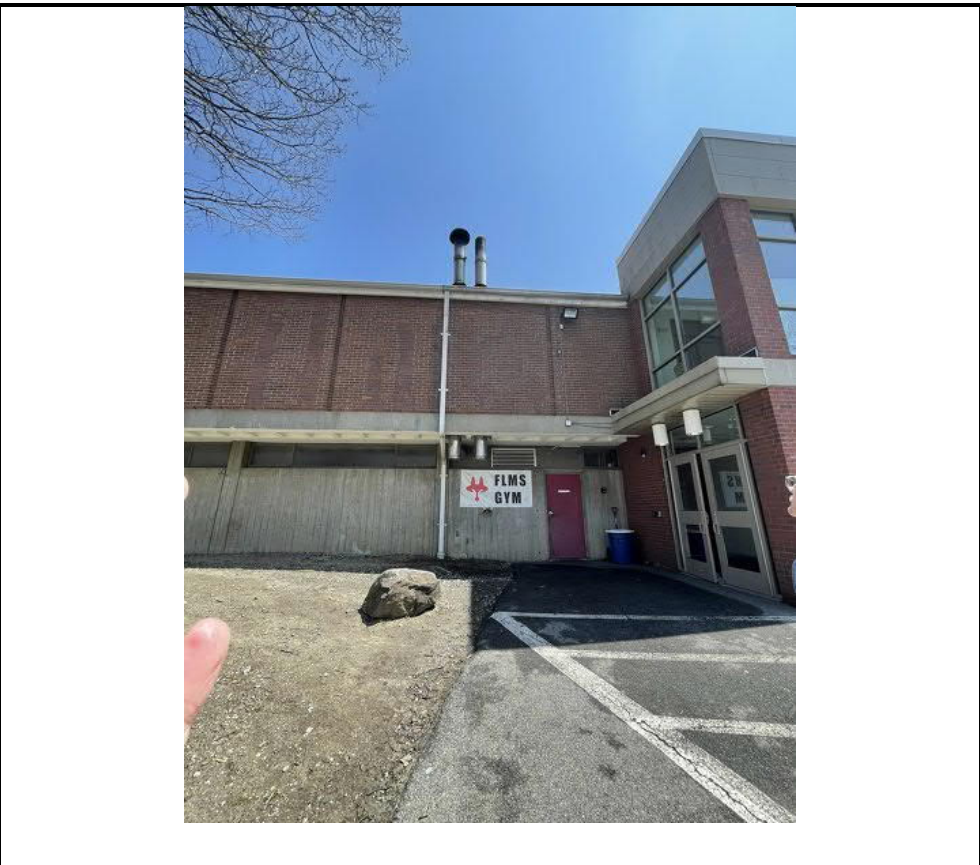
West face entrance. Boiler flue stacks on roof. Boiler #1 flue stack on right. Cap was removed by fire department and discarded. Boiler maintenance contractor parked diesel truck to left of the dark rock.

Grounds crew garage door to the right.



<b>Photo No.</b>	<b>Date</b>
4	April 28, 2024


Main entrance on west side of gymnasium. The boiler room door is and boiler vent is in center of picture. Contractor accessed building from this boiler room door. The contractor diesel truck was parked on the dirt to the left of the walkway.

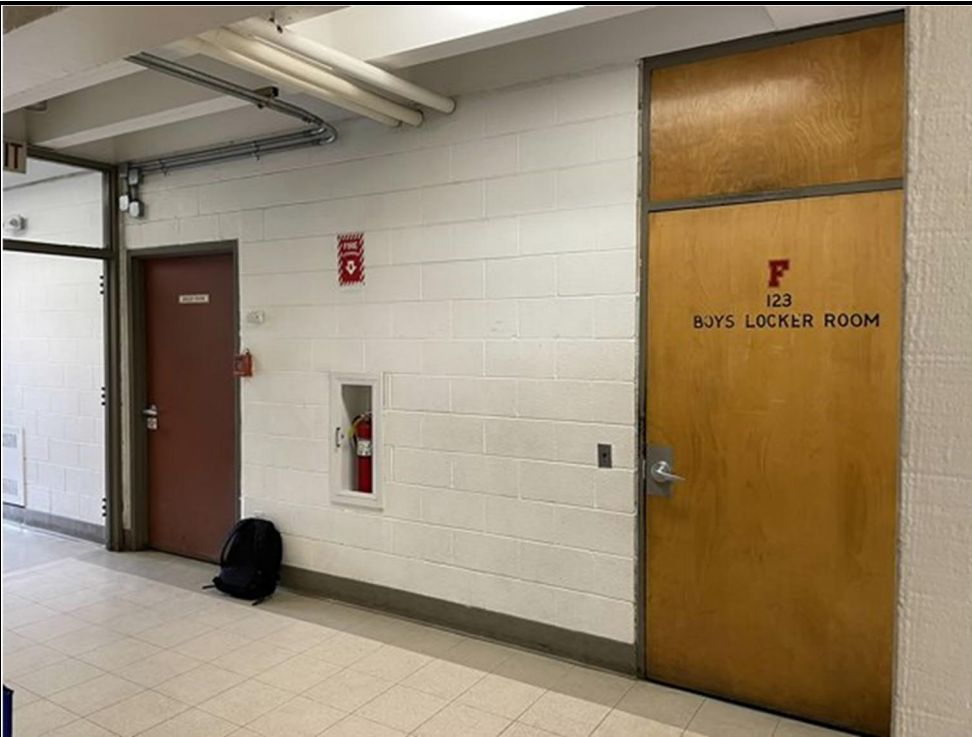




**PHOTOGRAPHIC LOG**

<b>Bedford Central School District</b>	<b>Fox Lane Gymnasium Building</b>	<b>US0024227</b>
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<b>Photo No.</b>	<b>Date</b>	
5	April 28, 2024	
<p>Main entrance hallway. Boiler room door is on right. Access to stairs and grounds garage is to the left.</p>		

<b>Photo No.</b>	<b>Date</b>	
6	April 28, 2024	
<p>Boiler room door from hallway. Boys locker room door.</p>		



**PHOTOGRAPHIC LOG**

<b>Bedford Central School District</b>	<b>Fox Lane Gymnasium Building</b>	<b>US0024227</b>
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<b>Photo No.</b>	<b>Date</b>
7	April 28, 2024
Boiler room. Boiler #1 on left, #2 on right. Combustion air vent on left wall in open position. Boiler room door to the outside on left.	



<b>Photo No.</b>	<b>Date</b>
8	April 28, 2024
Boiler room exit door to the outside.	





**PHOTOGRAPHIC LOG**

<b>Bedford Central School District</b>	<b>Fox Lane Gymnasium Building</b>	<b>US0024227</b>
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<b>Photo No.</b>	<b>Date</b>	
9	April 28, 2024	
Boiler room door to the hallway.		

<b>Photo No.</b>	<b>Date</b>	
10	April 28, 2024	
Gap under the boiler room door is missing door sweep. Approximately half-inch gap.		



**PHOTOGRAPHIC LOG**

<b>Bedford Central School District</b>	<b>Fox Lane Gymnasium Building</b>	<b>US0024227</b>
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<b>Photo No.</b>	<b>Date</b>
11	April 28, 2024
Pipe chases and wall leading to boys locker room.	



<b>Photo No.</b>	<b>Date</b>
12	April 28, 2024
Pipe coming into the boys locker room from the boiler room. No indication of soot or fire residue on walls near the pipe chase through the cinderblock wall.	





**PHOTOGRAPHIC LOG**

**Bedford Central School District**

**Fox Lane Gymnasium Building**

**US0024227**

Photo No.	Date
13	April 28, 2024
Main gym, 2 <sup>nd</sup> Floor. View looking north.	



Photo No.	Date
14	April 28, 2024
Small gym, 2 <sup>nd</sup> floor.	



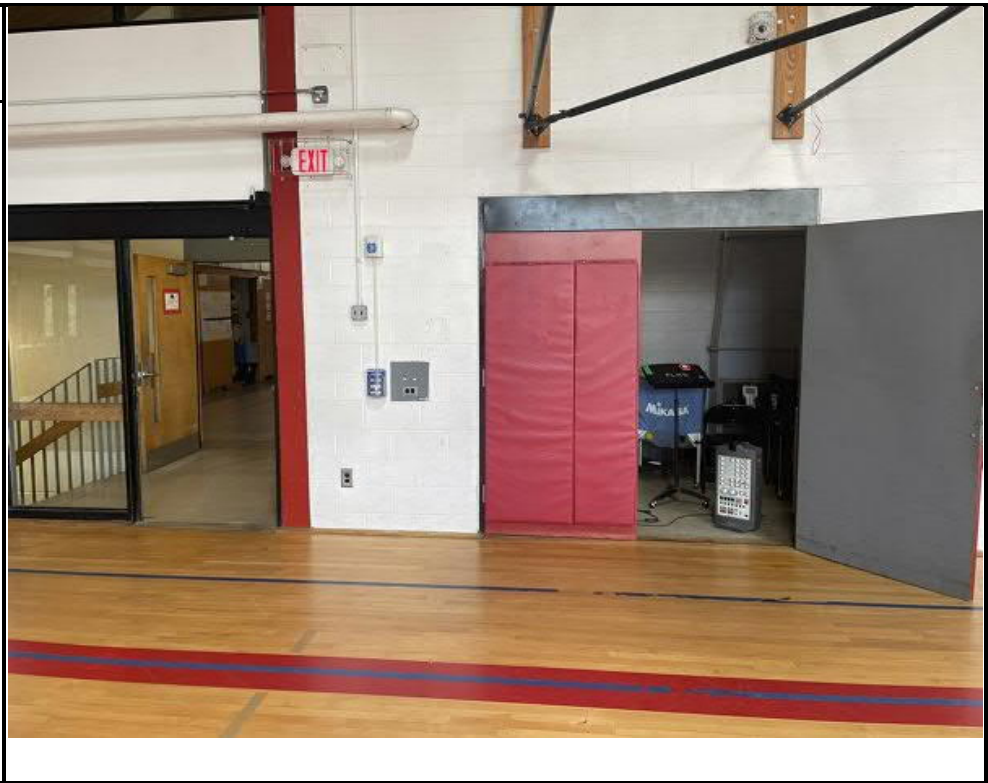




**PHOTOGRAPHIC LOG**

<b>Bedford Central School District</b>	<b>Fox Lane Gymnasium Building</b>	<b>US0024227</b>
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<b>Photo No.</b>	<b>Date</b>
15	April 28, 2024
Stairway leading up from 1 <sup>st</sup> floor hallway to gyms. Return air ducts for gym is in the closet(s).	




<b>Photo No.</b>	<b>Date</b>
16	April 28, 2024
Entrance to girls locker room on the 1 <sup>st</sup> floor.	






**PHOTOGRAPHIC LOG**

<b>Bedford Central School District</b>	<b>Fox Lane Gymnasium Building</b>	<b>US0024227</b>
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<b>Photo No.</b>	<b>Date</b>	
17	April 28, 2024	
Gym teacher offices in girls locker room.		

<b>Photo No.</b>	<b>Date</b>	
18	April 28, 2024	
Entrance to boys locker room on the first floor.		



**PHOTOGRAPHIC LOG**

**Bedford Central School District**

**Fox Lane Gymnasium Building**

**US0024227**

<b>Photo No.</b>	<b>Date</b>
19	April 28, 2024

Gym teacher office in boys locker room. Air supply diffuser in ceiling.





**PHOTOGRAPHIC LOG**

<b>Bedford Central School District</b>	<b>Fox Lane Gymnasium Building</b>	<b>US0024227</b>
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<b>Photo No.</b>	<b>Date</b>
20	April 28, 2024

Boys locker room office cage and locker room. Air conditioning vent in center top of picture.





ENCLOSURE B

LABORATORY REPORT

EAA Project # :  
(Lab use only)

**24 - 0968**

ENVIRONMENTAL ANALYSIS ASSOCIATES, INC. - CHAIN OF CUSTODY FORM

**RUSH!**

Contact Information		Project Information	
Company Name :	WSP USA, Inc	Client Project # :	TBD
Address :	One Penn Plaza, 4th Floor	Project Description :	Bedford CSD-Fox Lane Middle School <b>Gym</b>
City/State/Zip :	New York, NY 10119	EAA-Invoice to:	<input checked="" type="checkbox"/> Same or Different - Provide below
Phone # :	212-760-5681	Email Invoice to:	joseph.kapp@wsp.com
Email :	joseph.kapp@wsp.com	Special	
Date Collected :	4/28/2024	* Instructions:	<i>Hold for possible SEM/EDAX</i>
Date Submitted :	4/29/2024		
Contact Name :	Joseph Kapp		

Analysis requested	Mold	Combustion By-Products	Asbestos
<input type="checkbox"/> Airborne mold (Quantitative)	<input type="checkbox"/> Airborne mold (Quantitative)	<input type="checkbox"/> Airborne fire residue (Quantitative)	<input type="checkbox"/> Bulk asbestos - PLM - EPA/600/R-93/116
<input type="checkbox"/> Surface mold (Qualitative)	<input type="checkbox"/> Surface mold (Qualitative)	<input checked="" type="checkbox"/> Surface fire residue (area % & cts/mm <sup>2</sup> )	<b>Bacteria</b>
<input type="checkbox"/> Surface mold (Quantitative)	<input type="checkbox"/> Surface mold (Quantitative)	(Fire Type: Wildfire - Structure Fire - Protein Fire)	<input type="checkbox"/> Total coliform w/E. coli (presence, absence)
<input type="checkbox"/> Bulk mold (Qualitative)	<input type="checkbox"/> Bulk mold (Qualitative)	<input type="checkbox"/> pH analysis	<b>Scanning Electron Microscopy</b>
<input type="checkbox"/> Airborne dust	<b>Dust Characterization</b>	<input type="checkbox"/> pH & Conductivity analysis	<input type="checkbox"/> Automated Dust Analysis - Screening
<input type="checkbox"/> Surface dust	<input type="checkbox"/> Airborne dust	<input type="checkbox"/> pH, Conductivity & Cation / Anion	<input type="checkbox"/> Automated Dust Analysis - Quantitative
<input type="checkbox"/> Forensic dust	<input type="checkbox"/> Surface dust	<input type="checkbox"/> Automated SEM/EDAX Analysis - Elemental Composition	<input type="checkbox"/> Qualitative Bulk
	<input type="checkbox"/> Forensic dust		Other: _____

Analysis Turnaround Times (TAT)	<input type="checkbox"/> 5 Business Days	* Must notify EAA in advance - Limit on number of rush samples that may be completed in a given day. Turnaround Time (TAT) is measured in full business days; for example, samples arriving today for 24hr TAT are due at the next business day, excludes weekends and holidays. <b>Rush samples must be received by 10 a.m.</b>
	<input type="checkbox"/> 3 Business Days	
	<input type="checkbox"/> Next Day (24hrs)	
	<input checked="" type="checkbox"/> Same Day (8hrs)	
	<input type="checkbox"/> Weekend/Afterhours*	

EAA#  
lab use  
only

Sample #	Description / Location	Analysis (if different from above)	Vol. (liters)
1	1-BR Tape Lift-top of boiler #1 (black soot visible)		n/a
2	2-BR Tape lift-reset switch box boiler #1 (black soot visible)		n/a
3	3-BR 2 Tape lift-vent duct at rear of boiler #2 (black soot visible)		n/a
4	4-Boys LR Desk Tape lift-boys locker room desk #1 (no visible soot/dust)		n/a
5	5-Boys LR Desk 2 Tape lift-boys locker room desk #2, (visible dust, not cleaned, no soot)		n/a
6	6-Boys LR-ext locker Tape lift-top of locker #447 (visible dust, no soot)		n/a
7	7-AH Room 113 Tape lift-air handler room 113-fan belt guard #3 (black soot dust)		n/a
8	8-Girls LR, Rm 109 Tape lift-girls locker room, office 109, 2nd desk (no visible dust)		n/a
9	9-AHU Vent-Gym AHU Vent-Main gym closet, SE corner of gym (no visible dust or soot)		n/a
10	10-Gym Bleacher Main Gym bleacher-top seat (no visible dust or soot)		n/a

**ENVIRONMENTAL ANALYSIS ASSOCIATES, INC. - Shipping Location Information**  
(All samples should be sent to Michigan unless otherwise discussed)

Michigan Lab <input checked="" type="checkbox"/>	Attn: Joseph Heintskill 306 5th Street, Suite 2A Bay City, MI 48708	Phone: (989) 895-4447 Email: labreports@eaalab.com Web: www.eaalab.com
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Relinquished / Received (Signature)	Printed Name	Company	Date	Time
	Joseph Kapp	WSP USA	4/29/24	16:00
	David Heintskill	EAA	4/30/24	10A

**CONTRACT TERMS**

By providing signature authorization, the client acknowledges this contract is entered into, and the lab work will be performed in either San Diego, California or Bay City, Michigan. This signature binds the submitting company to provide payment for services according to EAA's fee schedule within 30 days above from receipt of the project invoice. A 1% finance charge per month will be charged on overdue invoices. Sample archive policy: EAA retains and holds samples for a time period of 3 weeks only. If samples need to be retained by the laboratory for a longer period of time, you must make arrangements for retention at the time of sample submission. Additional charges may apply.



# ENVIRONMENTAL ANALYSIS ASSOCIATES, INC.

306 5th Street, Suite 2A - Bay City, MI 48708



## LABORATORY REPORT

*Fire/Combustion Particle Analysis - Surface Dust*

**Report prepared for : WSP USA, Inc.**

Client Project # : TBD  
Project Description : Bedford CSD - Fox Lane Middle School Gym  
EAA Project # : 24-0968

Samples Collected : 04/28/24  
Samples Received : 04/30/24  
Date of Analysis : 04/30/24

Authorized / data reviewed by : *Joseph R. Heintskill*

Joseph R. Heintskill  
Laboratory Manager

The Environmental Analysis Associates, Inc. (EAA) sample results are only applicable to the items tested and locations as received. Sample descriptions and volumetric data are provided by the client. All particle concentrations are rounded to 3 significant figures. In order for chart clarity, cells where the particle category was not detected are intentionally left blank. This test report shall not be reproduced except in full without the written approval of the laboratory.

EAA shall not be liable to the client or the client's customer with respect to interpretation, recommendations made or actions implemented by either the client or the client's customer as a result of or based upon the test results. Samples are retained for 30 days.





Client : WSP USA, Inc.  
 Client Project # : TBD  
 Client Project Description : Bedford CSD - Fox Lane Middle School Gym  
 EAA Project # : 24-0968

Sample #	Sample Description	Fire / Combustion Particle Concentration					Qualitative Observations			
		Estimated Area Ratio %				Indicator Particles	* Total Surface Density (Cts/mm <sup>2</sup> )	Are large fire combustion particles detected ?	Are wildfire or structure fire indicator particles present?	Are there any potential interferences present?
		Total Area %	Soot	Char	Ash					
1-BR	Tape lift - top of boiler #1 (black soot visible)	66.0	65.5	0.5	not detected		1010.6	Yes - Soot		
2-BR	Tape lift - reset switch box boiler #1 (black soot visible)	33.1	32.1	1.0	not detected		359.0	Yes - Soot		
3-BR 2	Tape lift - vent duct at rear of boiler #2 (black soot visible)	59.9	58.1	1.8	not detected		941.3	Yes - Soot		
4-Boys LR Desk	Tape lift - boys locker room desk #1 (no visible soot/dust)	0.3	0.3	not detected	not detected		4.3			
5-Boys LR Desk 2	Tape lift - boys locker room desk #2 (visible dust, not cleaned, no soot)	4.6	3.2	1.4	not detected		24.5	Yes - Soot (isolated)		
6-Boys LR-ext Locker	Tape lift - top of locker #447 (visible dust, no soot)	4.5	4.5	not detected	not detected		43.2	Yes - Soot (isolated)		
7-AH Room 113	Tape lift - air handler room 113 - fan belt guard #3 (black soot dust)	5.5	3.9	1.6	not detected		*N/A	Yes - Soot (isolated)		Yes
8-Girls LR, Rm 109	Tape lift - girls locker room, office 109, 2nd desk (no visible dust)	1.1	1.1	not detected	not detected		4.3			
9-AHU Vent- Gym	AHU vent - main gym closet, SE corner of gym (no visible dust or soot)	0.6	0.4	0.2	not detected		*N/A			Yes
10-Gym Bleacher	Main gym bleacher - top seat (no visible dust or soot)	not detected	not detected	not detected	not detected		not detected			
11-Hall floor o/s BR	Hall floor (vinyl tile) outside boiler room (no visible dust or soot accumulation)	3.4	3.4	not detected	not detected		20.2	Yes - Soot (isolated)		

The Estimated Area Ratio % is the estimated area (µm<sup>2</sup>) of the fire / combustion particles divided by all other particle categories analyzed in the sample.

The Surface density (Cts/mm<sup>2</sup>) of fire / combustion particles is the numerical surface particle concentration independent of the amount or ratio of background dust present.

\* Note: If the surface particle density of fire residue particles (cts/mm<sup>2</sup>) is not displayed in the report, it was not reported due to significant sample overloading, or could not be performed on the collection media submitted for analysis. The surface density of fire combustion particles can only be calculated on tape lift samples that are not overloaded with dust.

The color-coded ranges provided in this summary table are to be used as a preliminary comparison with levels measured from your project. The detailed one-page reports should be used as the primary basis for interpreting the EAA data. The color-coded guideline ranges of Typical-Low, Typical, Atypical, or Elevated are based on historical background data collected on tape-lift samples from other buildings not suspected of a fire / combustion particle impact. Laboratory test results are secondary support information to be used in conjunction with information gathered during the visual site assessment. The local background, site specific building conditions, and other potential fire / combustion sources must be considered in order to render an independent opinion and conclusion as to whether or not the concentrations measured on your samples by the EAA laboratory represent a typical background, atypical, or elevated condition for your specific project.

Total Area Ratio % & Numerical Surface Concentrations		
Classification Range	Fire particles Area Ratio %	Fire particles Density cts/mm <sup>2</sup>
Elevated > 10x background	> 10%	> 50
Atypical 3 -10x background	> 3-10%	> 5-50
Typical - upper background	≥ 1-3%	≥ 1-5
Typical - low	< 1%	< 1

This Summary Table and the attached laboratory reports shall not be reproduced except in full without the written approval of the laboratory.

**FIRE/COMBUSTION RESIDUE & DUST ANALYSIS - Optical Microscopy** Method: FIRE-D02



Client Name : WSP USA, Inc.  
 Client Project # : TBD  
 Requested by : Joseph Kapp  
 Project Description : Bedford CSD - Fox Lane Middle School Gym  
 Client Sample # : 1-BR  
 Client sample description : Tape lift - top of boiler #1 (black soot visible)  
 Sample collected : 04/28/24  
 Sample received : 04/30/24  
 Sample media : Tape

EAA Project # : 24-0968  
 EAA Sample # : 0968-1

Analysis magnification : 500x  
 Fields counted : 5  
 Field area (mm<sup>2</sup>) : 0.139  
 Area counted (mm<sup>2</sup>) : 0.69

**SUMMARY CONCLUSIONS :** Fire/combustion residue concentration measured above typical background concentrations  
 Qualitative observations indicate the potential presence of fire/combustion particles

<b>QUALITATIVE / ASSEMBLAGE OBSERVATIONS -Reflected &amp; Polarized Light Microscopy (10-500x)</b>			
Sample description - color / texture :	Brown / black powdery dust		
Smoke or fire odor present :	No		
Large char (>500µm) / aciniform soot clusters (>50µm) present :	Yes - Soot		
Large ash particles present :	No		
Wildfire or structure fire indicator/signature particles present :	No		
		Particle Concentration Cts/area (mm <sup>2</sup> )	Estimated Area Ratio %
<b>FIRE / COMBUSTION RESIDUE CONSTITUENTS</b>		<b>Totals ►</b>	<b>1010.6</b>
			<b>66.0 %</b>
	Aciniform soot	1007.7	65.5
	Char (mixed pyrolyzed vegetation / non-vegetation)	2.9	0.5
	Ash	not detected	not detected
<b>INORGANIC CONSTITUENTS</b>			
Fibrous Constituents :	Cellulosic / synthetic fabric fibers	11.5	9.3
	Fiberglass fibers	20.2	5.4
Non-fibrous Constituents :	Mixed inorganic mineral dust / soil	311.4	10.0
	Other opaque / paint / metal corrosion / tire rubber	106.7	7.2
<b>BIOAEROSOLS</b>			
Mold Spores / Structures :	Unspecified	11.5	0.2
	Pollen : Unspecified	4.3	0.3
	Plant fragments : Vegetation fragments, trichomes, etc.	1.4	0.2
	Animal fragments : Dander / skin cells	11.5	1.4
	Miscellaneous : Unspecified	not detected	not detected
<b>OTHER CONSTITUENTS</b>			
Biogenic / organic debris :	Unspecified	not detected	not detected

Particles counted : 1033

Background dust loading : Elevated

Detection Limit - (Area ratio %) : 0.2%

Detection Limit - (Cts/area) mm<sup>2</sup> : 1.4

Analysis date : 04/30/24

Authorized / data reviewed by : Joseph R. Heintskill 05/02/24

Analyst initials : lrh

Background dust loading (area%) : Typical-low <5%, Typical 5-20%, Atypical 20-40%, Elevated 40-80%, Overloaded >80%

The local geographic background and other site specific conditions and combustion sources must be taken into account in order to determine if an atypical or elevated condition is present. The estimated surface particle concentrations per unit surface area (Cts/mm<sup>2</sup>) can only be calculated on tape lift samples. For a detailed explanation, see the EAA "Suggested Report Interpretation Guidelines" located on our website at eaalab.com.

**Note: Sample results are only applicable to the items or locations tested.**

**FIRE/COMBUSTION RESIDUE & DUST ANALYSIS - Optical Microscopy** Method: FIRE-D02



Client Name : WSP USA, Inc.  
 Client Project # : TBD  
 Requested by : Joseph Kapp  
 Project Description : Bedford CSD - Fox Lane Middle School Gym  
 Client Sample # : 2-BR  
 Client sample description : Tape lift - reset switch box boiler #1 (black soot visible)  
 Sample collected : 04/28/24  
 Sample received : 04/30/24  
 Sample media : Tape

EAA Project # : 24-0968  
 EAA Sample # : 0968-2

Analysis magnification : 500x  
 Fields counted : 5  
 Field area (mm<sup>2</sup>) : 0.139  
 Area counted (mm<sup>2</sup>) : 0.69

**SUMMARY CONCLUSIONS :** Fire/combustion residue concentration measured above typical background concentrations  
 Qualitative observations indicate the potential presence of fire/combustion particles

<b>QUALITATIVE / ASSEMBLAGE OBSERVATIONS -Reflected &amp; Polarized Light Microscopy (10-500x)</b>			
Sample description - color / texture :	Brown / black powdery dust		
Smoke or fire odor present :	No		
Large char (>500µm) / aciniform soot clusters (>50µm) present :	Yes - Soot		
Large ash particles present :	No		
Wildfire or structure fire indicator/signature particles present :	No		
		Particle Concentration Cts/area (mm <sup>2</sup> )	Estimated Area Ratio %
<b>FIRE / COMBUSTION RESIDUE CONSTITUENTS</b>		<b>Totals ►</b>	<b>359.0</b> <b>33.1 %</b>
	Aciniform soot	356.1	32.1
	Char (mixed pyrolyzed vegetation / non-vegetation)	2.9	1.0
	Ash	not detected	not detected
<b>INORGANIC CONSTITUENTS</b>			
Fibrous Constituents :	Cellulosic / synthetic fabric fibers	7.2	10.8
	Fiberglass fibers	14.4	7.2
Non-fibrous Constituents :	Mixed inorganic mineral dust / soil	335.9	22.8
	Other opaque / paint / metal corrosion / tire rubber	125.4	16.5
<b>BIOAEROSOLS</b>			
Mold Spores / Structures :	Unspecified	10.1	0.3
	Pollen : Unspecified	13.0	1.9
	Plant fragments : Vegetation fragments, trichomes, etc.	not detected	not detected
	Animal fragments : Dander / skin cells	33.2	7.5
	Miscellaneous : Unspecified	not detected	not detected
<b>OTHER CONSTITUENTS</b>			
	Biogenic / organic debris : Unspecified	not detected	not detected

Particles counted : 623

Background dust loading : Elevated

Detection Limit - (Area ratio %) : 0.3%

Detection Limit - (Cts/area) mm<sup>2</sup> : 1.4

Analysis date : 04/30/24

Authorized / data reviewed by : Joseph R. Heintskill 05/02/24

Analyst initials : lrh

Background dust loading (area%) : Typical-low <5%, Typical 5-20%, Atypical 20-40%, Elevated 40-80%, Overloaded >80%

The local geographic background and other site specific conditions and combustion sources must be taken into account in order to determine if an atypical or elevated condition is present. The estimated surface particle concentrations per unit surface area (Cts/mm<sup>2</sup>) can only be calculated on tape lift samples. For a detailed explanation, see the EAA "Suggested Report Interpretation Guidelines" located on our website at eaalab.com.

**Note: Sample results are only applicable to the items or locations tested.**

**FIRE/COMBUSTION RESIDUE & DUST ANALYSIS - Optical Microscopy** Method: FIRE-D02



Client Name : WSP USA, Inc.  
 Client Project # : TBD  
 Requested by : Joseph Kapp  
 Project Description : Bedford CSD - Fox Lane Middle School Gym  
 Client Sample # : 3-BR 2  
 Client sample description : Tape lift - vent duct at rear of boiler #2 (black soot visible)  
 Sample collected : 04/28/24  
 Sample received : 04/30/24  
 Sample media : Tape

EAA Project # : 24-0968  
 EAA Sample # : 0968-3

Analysis magnification : 500x  
 Fields counted : 5  
 Field area (mm<sup>2</sup>) : 0.139  
 Area counted (mm<sup>2</sup>) : 0.69

**SUMMARY CONCLUSIONS :** Fire/combustion residue concentration measured above typical background concentrations  
 Qualitative observations indicate the potential presence of fire/combustion particles

<b>QUALITATIVE / ASSEMBLAGE OBSERVATIONS -Reflected &amp; Polarized Light Microscopy (10-500x)</b>			
Sample description - color / texture :	Brown / black powdery dust		
Smoke or fire odor present :	No		
Large char (>500µm) / aciniform soot clusters (>50µm) present :	Yes - Soot		
Large ash particles present :	No		
Wildfire or structure fire indicator/signature particles present :	No		
		Particle Concentration Cts/area (mm <sup>2</sup> )	Estimated Area Ratio %
<b>FIRE / COMBUSTION RESIDUE CONSTITUENTS</b>		<b>Totals ►</b>	<b>941.3</b> <b>59.9 %</b>
	Aciniform soot	929.8	58.1
	Char (mixed pyrolyzed vegetation / non-vegetation)	11.5	1.8
	Ash	not detected	not detected
<b>INORGANIC CONSTITUENTS</b>			
Fibrous Constituents :	Cellulosic / synthetic fabric fibers	10.1	7.8
	Fiberglass fibers	7.2	0.9
Non-fibrous Constituents :	Mixed inorganic mineral dust / soil	432.5	15.2
	Other opaque / paint / metal corrosion / tire rubber	145.6	11.7
<b>BIOAEROSOLS</b>			
Mold Spores / Structures :	Unspecified	8.6	0.1
	Pollen : Unspecified	14.4	1.1
	Plant fragments : Vegetation fragments, trichomes, etc.	2.9	0.4
	Animal fragments : Dander / skin cells	24.5	2.8
	Miscellaneous : Unspecified	not detected	not detected
<b>OTHER CONSTITUENTS</b>			
	Biogenic / organic debris : Unspecified	not detected	not detected

Particles counted : 1101

Background dust loading : Elevated

Detection Limit - (Area ratio %) : 0.1%

Detection Limit - (Cts/area) mm<sup>2</sup> : 1.4

Analysis date : 04/30/24

Authorized / data reviewed by : Joseph R. Heintskill 05/02/24

Analyst initials : lrh

Background dust loading (area%) : Typical-low <5%, Typical 5-20%, Atypical 20-40%, Elevated 40-80%, Overloaded >80%

The local geographic background and other site specific conditions and combustion sources must be taken into account in order to determine if an atypical or elevated condition is present. The estimated surface particle concentrations per unit surface area (Cts/mm<sup>2</sup>) can only be calculated on tape lift samples. For a detailed explanation, see the EAA "Suggested Report Interpretation Guidelines" located on our website at eaalab.com.

**Note: Sample results are only applicable to the items or locations tested.**

**FIRE/COMBUSTION RESIDUE & DUST ANALYSIS - Optical Microscopy** Method: FIRE-D02



Client Name : WSP USA, Inc.  
 Client Project # : TBD  
 Requested by : Joseph Kapp  
 Project Description : Bedford CSD - Fox Lane Middle School Gym  
 Client Sample # : 4-Boys LR Desk  
 Client sample description : Tape lift - boys locker room desk #1 (no visible soot/dust)  
 Sample collected : 04/28/24  
 Sample received : 04/30/24  
 Sample media : Tape

EAA Project # : 24-0968  
 EAA Sample # : 0968-4

Analysis magnification : 500x  
 Fields counted : 5  
 Field area (mm<sup>2</sup>) : 0.139  
 Area counted (mm<sup>2</sup>) : 0.69

**SUMMARY CONCLUSIONS :** Low fire/combustion residue present (isolated particles detected)

<b>QUALITATIVE / ASSEMBLAGE OBSERVATIONS -Reflected &amp; Polarized Light Microscopy (10-500x)</b>			
Sample description - color / texture :	Brown / gray powdery & fibrous dust		
Smoke or fire odor present :	No		
Large char (>500µm) / aciniform soot clusters (>50µm) present :	No		
Large ash particles present :	No		
Wildfire or structure fire indicator/signature particles present :	No		
		Particle Concentration Cts/area (mm <sup>2</sup> )	Estimated Area Ratio %
<b>FIRE / COMBUSTION RESIDUE CONSTITUENTS</b>		<b>Totals ►</b>	<b>4.3</b>
			<b>0.3 %</b>
	Aciniform soot	4.3	0.3
	Char (mixed pyrolyzed vegetation / non-vegetation)	not detected	not detected
	Ash	not detected	not detected
<b>INORGANIC CONSTITUENTS</b>			
Fibrous Constituents :	Cellulosic / synthetic fabric fibers	10.1	28.6
	Fiberglass fibers	not detected	not detected
Non-fibrous Constituents :	Mixed inorganic mineral dust and starch grains	239.3	28.9
	Other opaque / paint / metal corrosion / tire rubber	75.0	17.7
<b>BIOAEROSOLS</b>			
Mold Spores / Structures :	Unspecified	4.3	0.2
	Pollen : Unspecified	1.4	0.4
	Plant fragments : Vegetation fragments, trichomes, etc.	not detected	not detected
	Animal fragments : Dander / skin cells	56.2	23.9
	Miscellaneous : Unspecified	not detected	not detected
<b>OTHER CONSTITUENTS</b>			
Biogenic / organic debris :	Unspecified	not detected	not detected

Particles counted : 271

Background dust loading : Atypical

Detection Limit - (Area ratio %) : 0.2%

Detection Limit - (Cts/area) mm<sup>2</sup> : 1.4

Analysis date : 04/30/24

Authorized / data reviewed by : Joseph R. Heintskill 05/02/24

Analyst initials : lrh

Background dust loading (area%) : Typical-low <5%, Typical 5-20%, Atypical 20-40%, Elevated 40-80%, Overloaded >80%

The local geographic background and other site specific conditions and combustion sources must be taken into account in order to determine if an atypical or elevated condition is present. The estimated surface particle concentrations per unit surface area (Cts/mm<sup>2</sup>) can only be calculated on tape lift samples. For a detailed explanation, see the EAA "Suggested Report Interpretation Guidelines" located on our website at eaalab.com.

**Note: Sample results are only applicable to the items or locations tested.**

**FIRE/COMBUSTION RESIDUE & DUST ANALYSIS - Optical Microscopy**

Method: FIRE-D02

Page 7 of 17



Client Name : WSP USA, Inc.  
 Client Project # : TBD  
 Requested by : Joseph Kapp  
 Project Description : Bedford CSD - Fox Lane Middle School Gym  
 Client Sample # : 5-Boys LR Desk 2  
 Client sample description : Tape lift - boys locker room desk #2 (visible dust, not cleaned, no soot)  
 Sample collected : 04/28/24  
 Sample received : 04/30/24  
 Sample media : Tape

EAA Project # : 24-0968  
 EAA Sample # : 0968-5

Analysis magnification : 500x  
 Fields counted : 5  
 Field area (mm<sup>2</sup>) : 0.139  
 Area counted (mm<sup>2</sup>) : 0.69

**SUMMARY CONCLUSIONS :** Fire/combustion residue concentration measured above typical background concentrations  
 Qualitative observations indicate the potential presence of fire/combustion particles

<b>QUALITATIVE / ASSEMBLAGE OBSERVATIONS -Reflected &amp; Polarized Light Microscopy (10-500x)</b>			
Sample description - color / texture :	Brown / gray powdery & fibrous dust		
Smoke or fire odor present :	No		
Large char (>500µm) / aciniform soot clusters (>50µm) present :	Yes - Soot (isolated)		
Large ash particles present :	No		
Wildfire or structure fire indicator/signature particles present :	No		
		Particle Concentration Cts/area (mm <sup>2</sup> )	Estimated Area Ratio %
<b>FIRE / COMBUSTION RESIDUE CONSTITUENTS</b>		<b>Totals ▶</b>	<b>24.5</b>
			<b>4.6 %</b>
	Aciniform soot	21.6	3.2
	Char (mixed pyrolyzed vegetation / non-vegetation)	2.9	1.4
	Ash	not detected	not detected
<b>INORGANIC CONSTITUENTS</b>			
Fibrous Constituents :	Cellulosic / synthetic fabric fibers	14.4	36.0
	Fiberglass fibers	not detected	not detected
Non-fibrous Constituents :	Mixed inorganic mineral dust and starch grains	245.1	26.1
	Other opaque / paint / metal corrosion / tire rubber	62.0	12.9
<b>BIOAEROSOLS</b>			
Mold Spores / Structures :	Unspecified	4.3	0.2
	Pollen : Unspecified	2.9	0.7
	Plant fragments : Vegetation fragments, trichomes, etc.	not detected	not detected
	Animal fragments : Dander / skin cells	51.9	19.4
	Miscellaneous : Unspecified	not detected	not detected
<b>OTHER CONSTITUENTS</b>			
	Biogenic / organic debris : Unspecified	not detected	not detected

Particles counted : 281

Background dust loading : Atypical

Detection Limit - (Area ratio %) : 0.2%

Detection Limit - (Cts/area) mm<sup>2</sup> : 1.4

Analysis date : 04/30/24

Authorized / data reviewed by : Joseph R. Heintskill 05/02/24

Analyst initials : Irh

Background dust loading (area%) : Typical-low <5%, Typical 5-20%, Atypical 20-40%, Elevated 40-80%, Overloaded >80%

The local geographic background and other site specific conditions and combustion sources must be taken into account in order to determine if an atypical or elevated condition is present. The estimated surface particle concentrations per unit surface area (Cts/mm<sup>2</sup>) can only be calculated on tape lift samples. For a detailed explanation, see the EAA "Suggested Report Interpretation Guidelines" located on our website at eaalab.com.

**Note: Sample results are only applicable to the items or locations tested.**

**FIRE/COMBUSTION RESIDUE & DUST ANALYSIS - Optical Microscopy** Method: FIRE-D02



Client Name : WSP USA, Inc.  
 Client Project # : TBD  
 Requested by : Joseph Kapp  
 Project Description : Bedford CSD - Fox Lane Middle School Gym  
 Client Sample # : 6-Boys LR-ext Locker  
 Client sample description : Tape lift - top of locker #447 (visible dust, no soot)  
 Sample collected : 04/28/24  
 Sample received : 04/30/24  
 Sample media : Tape

EAA Project # : 24-0968  
 EAA Sample # : 0968-6

Analysis magnification : 500x  
 Fields counted : 5  
 Field area (mm<sup>2</sup>) : 0.139  
 Area counted (mm<sup>2</sup>) : 0.69

**SUMMARY CONCLUSIONS :** Fire/combustion residue concentration measured above typical background concentrations  
 Qualitative observations indicate the potential presence of fire/combustion particles

<b>QUALITATIVE / ASSEMBLAGE OBSERVATIONS -Reflected &amp; Polarized Light Microscopy (10-500x)</b>			
Sample description - color / texture :	Brown / gray powdery & fibrous dust		
Smoke or fire odor present :	No		
Large char (>500µm) / aciniform soot clusters (>50µm) present :	Yes - Soot (isolated)		
Large ash particles present :	No		
Wildfire or structure fire indicator/signature particles present :	No		
		Particle Concentration Cts/area (mm <sup>2</sup> )	Estimated Area Ratio %
<b>FIRE / COMBUSTION RESIDUE CONSTITUENTS</b>		<b>Totals ▶</b>	<b>43.2</b>
			<b>4.5 %</b>
	Aciniform soot	43.2	4.5
	Char (mixed pyrolyzed vegetation / non-vegetation)	not detected	not detected
	Ash	not detected	not detected
<b>INORGANIC CONSTITUENTS</b>			
Fibrous Constituents :	Cellulosic / synthetic fabric fibers	7.2	30.9
	Fiberglass fibers	not detected	not detected
Non-fibrous Constituents :	Mixed inorganic mineral dust / soil	173.0	27.8
	Other opaque / paint / metal corrosion / tire rubber	40.4	14.4
<b>BIOAEROSOLS</b>			
Mold Spores / Structures :	Unspecified	2.9	0.2
	Pollen : Unspecified	not detected	not detected
	Plant fragments : Vegetation fragments, trichomes, etc.	not detected	not detected
	Animal fragments : Dander / skin cells	34.6	22.2
	Miscellaneous : Unspecified	not detected	not detected
<b>OTHER CONSTITUENTS</b>			
Biogenic / organic debris :	Unspecified	not detected	not detected

Particles counted : 209

Background dust loading : Typical

Detection Limit - (Area ratio %) : 0.2%

Detection Limit - (Cts/area) mm<sup>2</sup> : 1.4

Analysis date : 04/30/24

Authorized / data reviewed by : Joseph R. Heintskill 05/02/24

Analyst initials : lrh

Background dust loading (area%) : Typical-low <5%, Typical 5-20%, Atypical 20-40%, Elevated 40-80%, Overloaded >80%

The local geographic background and other site specific conditions and combustion sources must be taken into account in order to determine if an atypical or elevated condition is present. The estimated surface particle concentrations per unit surface area (Cts/mm<sup>2</sup>) can only be calculated on tape lift samples. For a detailed explanation, see the EAA "Suggested Report Interpretation Guidelines" located on our website at eaalab.com.

**Note: Sample results are only applicable to the items or locations tested.**

**FIRE/COMBUSTION RESIDUE & DUST ANALYSIS - Optical Microscopy** Method: FIRE-D02



Client Name : WSP USA, Inc.  
 Client Project # : TBD  
 Requested by : Joseph Kapp  
 Project Description : Bedford CSD - Fox Lane Middle School Gym  
 Client Sample # : 7-AH Room 113  
 Client sample description : Tape lift - air handler room 113 - fan belt guard #3 (black soot dust)  
 Sample collected : 04/28/24  
 Sample received : 04/30/24  
 Sample media : Tape

EAA Project # : 24-0968  
 EAA Sample # : 0968-7

Analysis magnification : 200x  
 Fields counted : 5  
 Field area (mm<sup>2</sup>) : 0.917  
 Area counted (mm<sup>2</sup>) : Area % only

**SUMMARY CONCLUSIONS :** Fire/combustion residue concentration measured above typical background concentrations  
 Qualitative observations indicate the potential presence of fire/combustion particles  
 Sample overloaded - analysis of surface density not possible, area estimation only

**QUALITATIVE / ASSEMBLAGE OBSERVATIONS -Reflected & Polarized Light Microscopy (10-500x)**

Sample description - color / texture :	Brown / gray powdery & fibrous dust
Smoke or fire odor present :	No
Large char (>500µm) / aciniform soot clusters (>50µm) present :	Yes - Soot (isolated)
Large ash particles present :	No
Wildfire or structure fire indicator/signature particles present :	No

	Particle Concentration	Estimated
	Cts/area (mm <sup>2</sup> )	Area Ratio %
<b>FIRE / COMBUSTION RESIDUE CONSTITUENTS</b>	<b>Totals ▶</b>	<b>*N/A 5.5 %</b>
Aciniform soot		3.9
Char (mixed pyrolyzed vegetation / non-vegetation)		1.6
Ash		not detected

<b>INORGANIC CONSTITUENTS</b>		
Fibrous Constituents :	Cellulosic / synthetic fabric fibers	27.7
	Fiberglass fibers	not detected
Non-fibrous Constituents :	Mixed inorganic mineral dust / soil	25.7
	Other opaque / paint / metal corrosion / tire rubber	35.3

<b>BIOAEROSOLS</b>		
Mold Spores / Structures :	Unspecified	0.2
	Pollen : Unspecified	0.4
	Plant fragments : Vegetation fragments, trichomes, etc.	not detected
	Animal fragments : Dander / skin cells	5.1
	Miscellaneous : Unspecified	not detected

<b>OTHER CONSTITUENTS</b>		
Biogenic / organic debris :	Unspecified	not detected

Particles counted : \* N/A - area estimation only Background dust loading : Overloaded

Detection Limit - (Area ratio %) : 0.2%

Detection Limit - (Cts/area) mm<sup>2</sup> : \* N/A - area estimation only

Authorized / data reviewed by : Joseph R. Heintskill 05/02/24 Analysis date : 04/30/24  
 Analyst initials : lrh

Background dust loading (area%) : Typical-low <5%, Typical 5-20%, Atypical 20-40%, Elevated 40-80%, Overloaded >80%

The local geographic background and other site specific conditions and combustion sources must be taken into account in order to determine if an atypical or elevated condition is present. The estimated surface particle concentrations per unit surface area (Cts/mm<sup>2</sup>) can only be calculated on tape lift samples. For a detailed explanation, see the EAA "Suggested Report Interpretation Guidelines" located on our website at eaalab.com.

**Note: Sample results are only applicable to the items or locations tested.**



**FIRE/COMBUSTION RESIDUE & DUST ANALYSIS - Optical Microscopy** Method: FIRE-D02



Client Name : WSP USA, Inc.  
 Client Project # : TBD  
 Requested by : Joseph Kapp  
 Project Description : Bedford CSD - Fox Lane Middle School Gym  
 Client Sample # : 8-Girls LR, Rm 109  
 Client sample description : Tape lift - girls locker room, office 109, 2nd desk (no visible dust)  
 Sample collected : 04/28/24  
 Sample received : 04/30/24  
 Sample media : Tape

EAA Project # : 24-0968  
 EAA Sample # : 0968-8

Analysis magnification : 500x  
 Fields counted : 10  
 Field area (mm<sup>2</sup>) : 0.139  
 Area counted (mm<sup>2</sup>) : 1.39

**SUMMARY CONCLUSIONS :** Fire/combustion residue measured in the typical / upper background range

<b>QUALITATIVE / ASSEMBLAGE OBSERVATIONS -Reflected &amp; Polarized Light Microscopy (10-500x)</b>			
Sample description - color / texture :	Gray powdery dust		
Smoke or fire odor present :	No		
Large char (>500µm) / aciniform soot clusters (>50µm) present :	No		
Large ash particles present :	No		
Wildfire or structure fire indicator/signature particles present :	No		
		Particle Concentration Cts/area (mm <sup>2</sup> )	Estimated Area Ratio %
<b>FIRE / COMBUSTION RESIDUE CONSTITUENTS</b>		<b>Totals ▶</b>	<b>4.3</b>
			<b>1.1 %</b>
	Aciniform soot	4.3	1.1
	Char (mixed pyrolyzed vegetation / non-vegetation)	not detected	not detected
	Ash	not detected	not detected
<b>INORGANIC CONSTITUENTS</b>			
Fibrous Constituents :	Cellulosic / synthetic fabric fibers	2.2	21.8
	Fiberglass fibers	not detected	not detected
Non-fibrous Constituents :	Mixed inorganic mineral dust / soil	54.1	20.4
	Other opaque / paint / metal corrosion / tire rubber	30.3	25.4
<b>BIOAEROSOLS</b>			
Mold Spores / Structures :	Unspecified	0.7	0.1
	Pollen : Unspecified	0.7	0.7
	Plant fragments : Vegetation fragments, trichomes, etc.	not detected	not detected
	Animal fragments : Dander / skin cells	20.2	30.5
	Miscellaneous : Unspecified	not detected	not detected
<b>OTHER CONSTITUENTS</b>			
Biogenic / organic debris :	Unspecified	not detected	not detected

Particles counted : 156

Background dust loading : Typical

Detection Limit - (Area ratio %) : 0.1%

Detection Limit - (Cts/area) mm<sup>2</sup> : 0.7

Analysis date : 04/30/24

Authorized / data reviewed by : Joseph R. Heintskill 05/02/24

Analyst initials : lrh

Background dust loading (area%) : Typical-low <5%, Typical 5-20%, Atypical 20-40%, Elevated 40-80%, Overloaded >80%

The local geographic background and other site specific conditions and combustion sources must be taken into account in order to determine if an atypical or elevated condition is present. The estimated surface particle concentrations per unit surface area (Cts/mm<sup>2</sup>) can only be calculated on tape lift samples. For a detailed explanation, see the EAA "Suggested Report Interpretation Guidelines" located on our website at eaalab.com.

**Note: Sample results are only applicable to the items or locations tested.**

**FIRE/COMBUSTION RESIDUE & DUST ANALYSIS - Optical Microscopy** Method: FIRE-D02



Client Name : WSP USA, Inc.  
 Client Project # : TBD  
 Requested by : Joseph Kapp  
 Project Description : Bedford CSD - Fox Lane Middle School Gym  
 Client Sample # : 9-AHU Vent- Gym  
 Client sample description : AHU vent - main gym closet, SE corner of gym (no visible dust or soot)  
 Sample collected : 04/28/24  
 Sample received : 04/30/24  
 Sample media : Tape

EAA Project # : 24-0968  
 EAA Sample # : 0968-9

Analysis magnification : 200x  
 Fields counted : 5  
 Field area (mm<sup>2</sup>) : 0.917  
 Area counted (mm<sup>2</sup>) : Area % only

**SUMMARY CONCLUSIONS :** Low fire/combustion residue present (isolated particles detected)

Sample overloaded - analysis of surface density not possible, area estimation only

<b>QUALITATIVE / ASSEMBLAGE OBSERVATIONS -Reflected &amp; Polarized Light Microscopy (10-500x)</b>		
Sample description - color / texture :	Brown / gray powdery & fibrous dust	
Smoke or fire odor present :	No	
Large char (>500µm) / aciniform soot clusters (>50µm) present :	No	
Large ash particles present :	No	
Wildfire or structure fire indicator/signature particles present :	No	
	Particle Concentration Cts/area (mm <sup>2</sup> )	Estimated Area Ratio %
<b>FIRE / COMBUSTION RESIDUE CONSTITUENTS</b>	<b>Totals ▶</b>	<b>*N/A</b>
Aciniform soot		0.4
Char (mixed pyrolyzed vegetation / non-vegetation)		0.2
Ash		not detected
<b>INORGANIC CONSTITUENTS</b>		
Fibrous Constituents : Cellulosic / synthetic fabric fibers		34.1
Fiberglass fibers		not detected
Non-fibrous Constituents : Mixed inorganic mineral dust and starch grains		31.1
Other opaque / paint / metal corrosion / tire rubber		23.7
<b>BIOAEROSOLS</b>		
Mold Spores / Structures : Unspecified		0.2
Pollen : Unspecified		1.4
Plant fragments : Vegetation fragments, trichomes, etc.		0.8
Animal fragments : Dander / skin cells		8.0
Miscellaneous : Unspecified		not detected
<b>OTHER CONSTITUENTS</b>		
Biogenic / organic debris : Unspecified		not detected

Particles counted : \* N/A - area estimation only

Background dust loading : Overloaded

Detection Limit - (Area ratio %) : 0.2%

Detection Limit - (Cts/area) mm<sup>2</sup> : \* N/A - area estimation only

Analysis date : 04/30/24

Authorized / data reviewed by : Joseph R. Heintskill 05/02/24

Analyst initials : lrh

Background dust loading (area%) : Typical-low <5%, Typical 5-20%, Atypical 20-40%, Elevated 40-80%, Overloaded >80%

The local geographic background and other site specific conditions and combustion sources must be taken into account in order to determine if an atypical or elevated condition is present. The estimated surface particle concentrations per unit surface area (Cts/mm<sup>2</sup>) can only be calculated on tape lift samples. For a detailed explanation, see the EAA "Suggested Report Interpretation Guidelines" located on our website at eaalab.com.

**Note: Sample results are only applicable to the items or locations tested.**

**FIRE/COMBUSTION RESIDUE & DUST ANALYSIS - Optical Microscopy** Method: FIRE-D02



Client Name : WSP USA, Inc.  
 Client Project # : TBD  
 Requested by : Joseph Kapp  
 Project Description : Bedford CSD - Fox Lane Middle School Gym  
 Client Sample # : 10-Gym Bleacher  
 Client sample description : Main gym bleacher - top seat (no visible dust or soot)  
 Sample collected : 04/28/24  
 Sample received : 04/30/24  
 Sample media : Tape

EAA Project # : 24-0968  
 EAA Sample # : 0968-10

Analysis magnification : 500x  
 Fields counted : 10  
 Field area (mm<sup>2</sup>) : 0.139  
 Area counted (mm<sup>2</sup>) : 1.39

**SUMMARY CONCLUSIONS :** Fire/combustion residue not detected

<b>QUALITATIVE / ASSEMBLAGE OBSERVATIONS -Reflected &amp; Polarized Light Microscopy (10-500x)</b>			
Sample description - color / texture :	Gray powdery & fibrous dust		
Smoke or fire odor present :	No		
Large char (>500µm) / aciniform soot clusters (>50µm) present :	No		
Large ash particles present :	No		
Wildfire or structure fire indicator/signature particles present :	No		
		Particle Concentration Cts/area (mm <sup>2</sup> )	Estimated Area Ratio %
<b>FIRE / COMBUSTION RESIDUE CONSTITUENTS</b>		<b>Totals ▶</b>	<b>not detected</b>
		<b>not detected</b>	<b>not detected</b>
	Aciniform soot	not detected	not detected
	Char (mixed pyrolyzed vegetation / non-vegetation)	not detected	not detected
	Ash	not detected	not detected
<b>INORGANIC CONSTITUENTS</b>			
Fibrous Constituents :	Cellulosic / synthetic fabric fibers	5.0	40.4
	Fiberglass fibers	not detected	not detected
Non-fibrous Constituents :	Mixed inorganic mineral dust / soil	38.9	12.5
	Other opaque / paint / metal corrosion / tire rubber	31.0	20.7
<b>BIOAEROSOLS</b>			
Mold Spores / Structures :	Unspecified	0.7	0.1
	Pollen : Unspecified	1.4	1.2
	Plant fragments : Vegetation fragments, trichomes, etc.	not detected	not detected
	Animal fragments : Dander / skin cells	20.9	25.1
	Miscellaneous : Unspecified	not detected	not detected
<b>OTHER CONSTITUENTS</b>			
Biogenic / organic debris :	Unspecified	not detected	not detected

Particles counted : 136

Background dust loading : Typical

Detection Limit - (Area ratio %) : 0.1%

Detection Limit - (Cts/area) mm<sup>2</sup> : 0.7

Analysis date : 04/30/24

Authorized / data reviewed by : Joseph R. Heintskill 05/02/24

Analyst initials : lrh

Background dust loading (area%) : Typical-low <5%, Typical 5-20%, Atypical 20-40%, Elevated 40-80%, Overloaded >80%

The local geographic background and other site specific conditions and combustion sources must be taken into account in order to determine if an atypical or elevated condition is present. The estimated surface particle concentrations per unit surface area (Cts/mm<sup>2</sup>) can only be calculated on tape lift samples. For a detailed explanation, see the EAA "Suggested Report Interpretation Guidelines" located on our website at eaalab.com.

**Note: Sample results are only applicable to the items or locations tested.**

**FIRE/COMBUSTION RESIDUE & DUST ANALYSIS - Optical Microscopy** Method: FIRE-D02



Client Name : WSP USA, Inc.  
 Client Project # : TBD  
 Requested by : Joseph Kapp  
 Project Description : Bedford CSD - Fox Lane Middle School Gym  
 Client Sample # : 11-Hall floor o/s BR  
 Client sample description : Hall floor (vinyl tile) outside boiler room (no visible dust or soot accumulation)  
 Sample collected : 04/28/24  
 Sample received : 04/30/24  
 Sample media : Tape

EAA Project # : 24-0968  
 EAA Sample # : 0968-11

Analysis magnification : 500x  
 Fields counted : 5  
 Field area (mm<sup>2</sup>) : 0.139  
 Area counted (mm<sup>2</sup>) : 0.69

**SUMMARY CONCLUSIONS :** Fire/combustion residue concentration measured above typical background concentrations  
 Qualitative observations indicate the potential presence of fire/combustion particles

<b>QUALITATIVE / ASSEMBLAGE OBSERVATIONS -Reflected &amp; Polarized Light Microscopy (10-500x)</b>			
Sample description - color / texture :	Brown / gray powdery dust		
Smoke or fire odor present :	No		
Large char (>500µm) / aciniform soot clusters (>50µm) present :	Yes - Soot (isolated)		
Large ash particles present :	No		
Wildfire or structure fire indicator/signature particles present :	No		
		Particle Concentration Cts/area (mm <sup>2</sup> )	Estimated Area Ratio %
<b>FIRE / COMBUSTION RESIDUE CONSTITUENTS</b>		<b>Totals ►</b>	<b>20.2</b>
			<b>3.4 %</b>
	Aciniform soot	20.2	3.4
	Char (mixed pyrolyzed vegetation / non-vegetation)	not detected	not detected
	Ash	not detected	not detected
<b>INORGANIC CONSTITUENTS</b>			
Fibrous Constituents :	Cellulosic / synthetic fabric fibers	4.3	20.6
	Fiberglass fibers	1.4	2.3
Non-fibrous Constituents :	Mixed inorganic mineral dust / soil	92.3	17.6
	Other opaque / paint / metal corrosion / tire rubber	106.7	42.4
<b>BIOAEROSOLS</b>			
Mold Spores / Structures :	Unspecified	2.9	0.2
	Pollen : Unspecified	not detected	not detected
	Plant fragments : Vegetation fragments, trichomes, etc.	not detected	not detected
	Animal fragments : Dander / skin cells	18.7	13.4
	Miscellaneous : Unspecified	not detected	not detected
<b>OTHER CONSTITUENTS</b>			
Biogenic / organic debris :	Unspecified	not detected	not detected

Particles counted : 171

Background dust loading : Typical

Detection Limit - (Area ratio %) : 0.2%

Detection Limit - (Cts/area) mm<sup>2</sup> : 1.4

Analysis date : 04/30/24

Authorized / data reviewed by : Joseph R. Heintskill 05/02/24

Analyst initials : lrh

Background dust loading (area%) : Typical-low <5%, Typical 5-20%, Atypical 20-40%, Elevated 40-80%, Overloaded >80%

The local geographic background and other site specific conditions and combustion sources must be taken into account in order to determine if an atypical or elevated condition is present. The estimated surface particle concentrations per unit surface area (Cts/mm<sup>2</sup>) can only be calculated on tape lift samples. For a detailed explanation, see the EAA "Suggested Report Interpretation Guidelines" located on our website at eaalab.com.

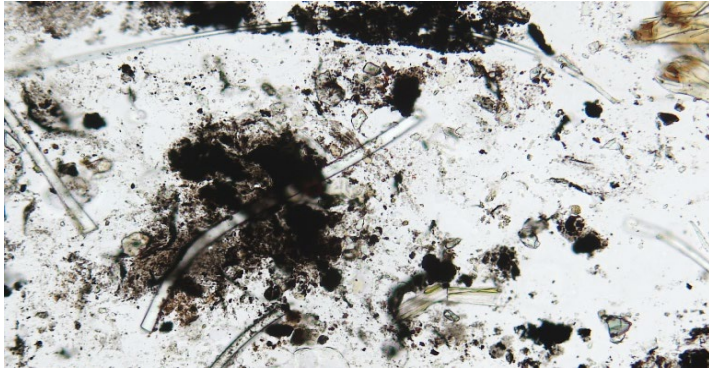
**Note: Sample results are only applicable to the items or locations tested.**



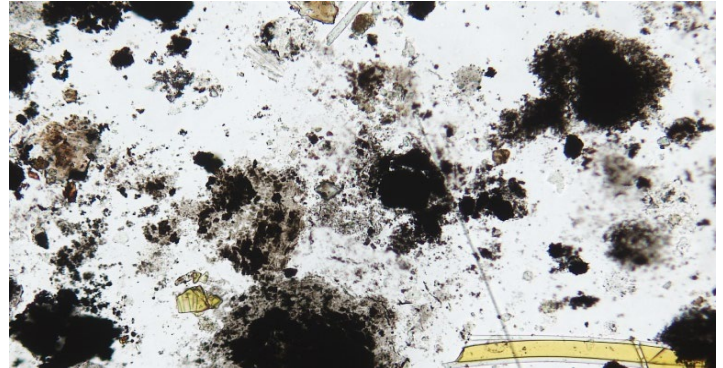
**SURFACE FIRE / COMBUSTION RESIDUE & DUST ANALYSIS PHOTO REPORT**

Client Name : WSP USA, Inc.  
Client Project # : TBD

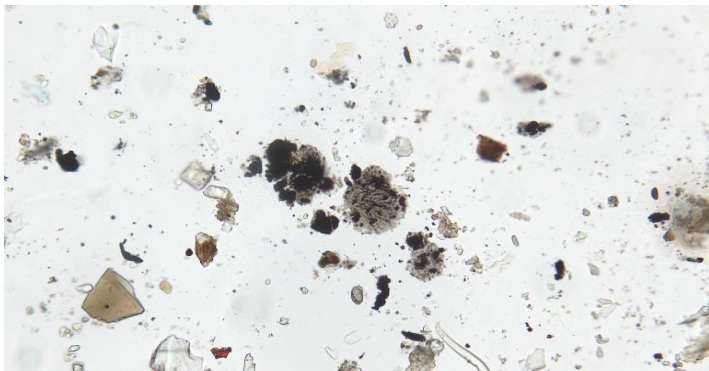
EAA Project # : 24-0968  
Magnification : 200x



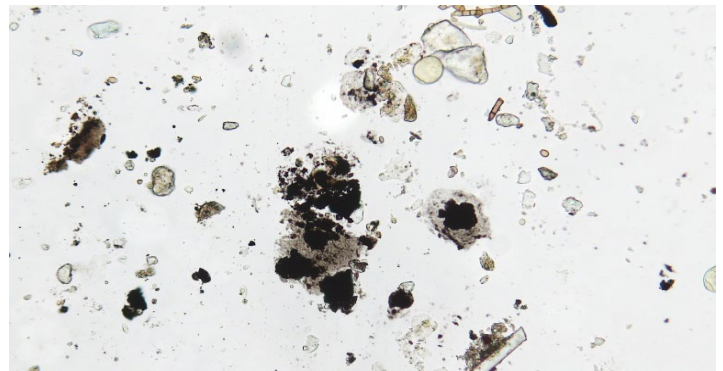
1-BR  
Tape lift - top of boiler #1 (black soot visible)  
200x



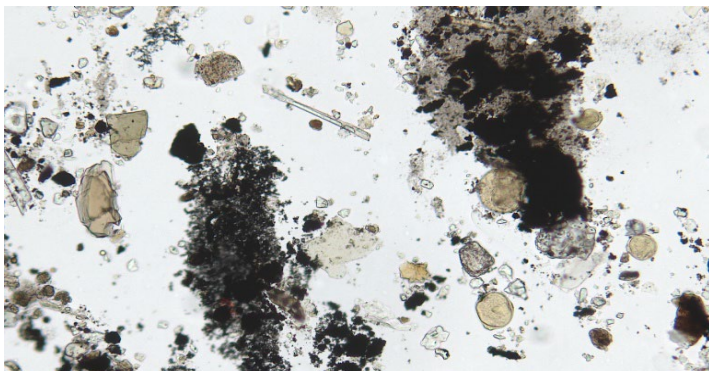
1-BR  
Tape lift - top of boiler #1 (black soot visible)  
200x



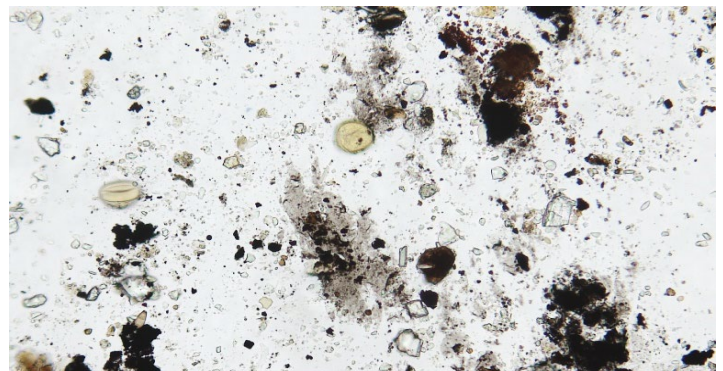
2-BR  
Tape lift - reset switch box boiler #1 (black soot visible)  
200x



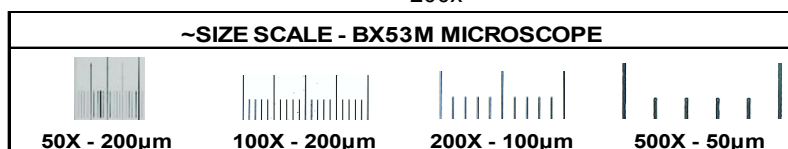
2-BR  
Tape lift - reset switch box boiler #1 (black soot visible)  
200x



3-BR 2  
Tape lift - vent duct at rear of boiler #2 (black soot visible)  
200x



3-BR 2  
Tape lift - vent duct at rear of boiler #2 (black soot visible)  
200x

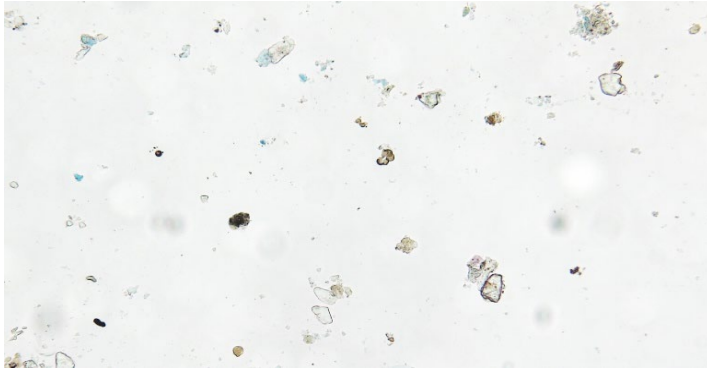




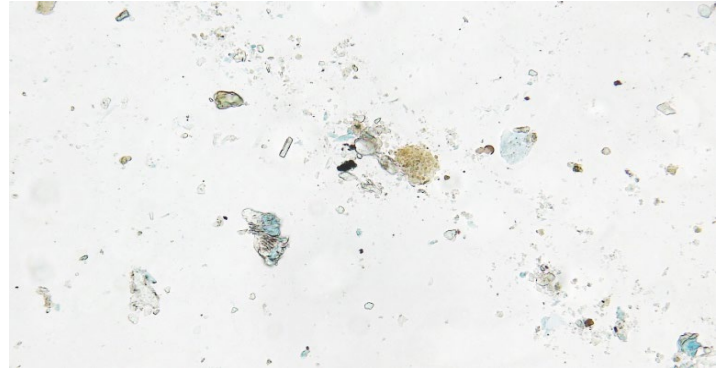
**SURFACE FIRE / COMBUSTION RESIDUE & DUST ANALYSIS PHOTO REPORT**

Client Name : WSP USA, Inc.  
Client Project # : TBD

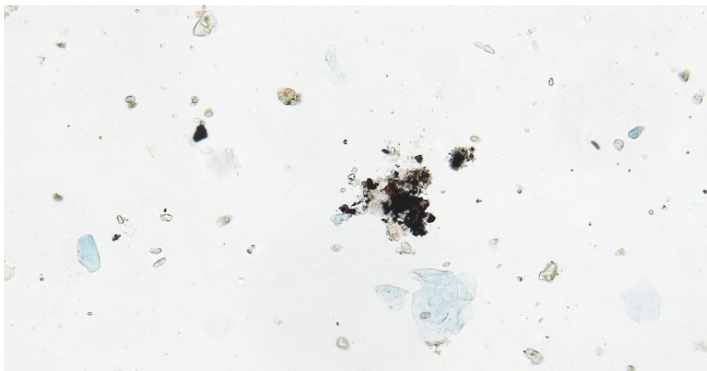
EAA Project # : 24-0968  
Magnification : 200x



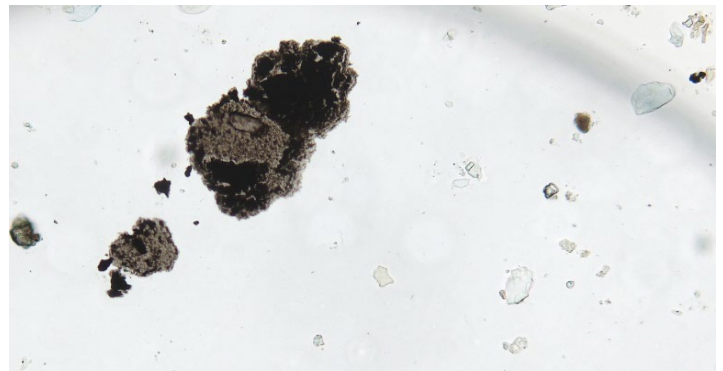
4-Boys LR Desk  
Tape lift - boys locker room desk #1 (no visible soot/dust)  
200x



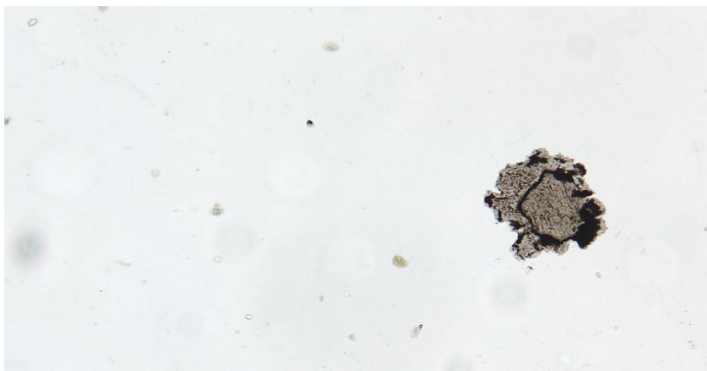
4-Boys LR Desk  
Tape lift - boys locker room desk #1 (no visible soot/dust)  
200x



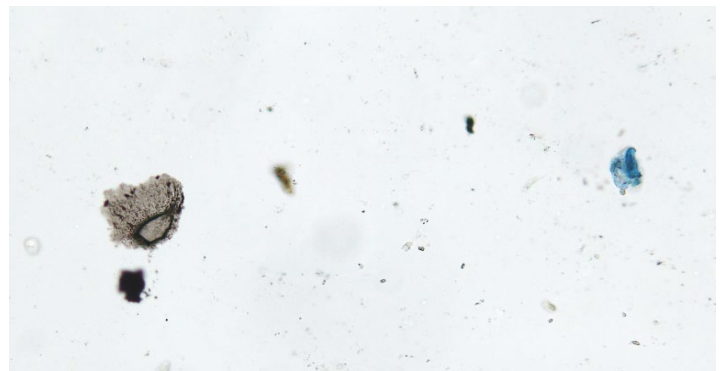
5-Boys LR Desk 2  
Tape lift - boys locker room desk #2 (visible dust, not cleaned, no soot)  
200x



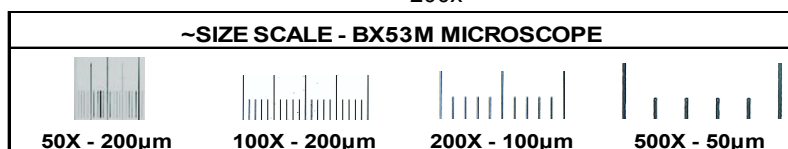
5-Boys LR Desk 2  
Tape lift - boys locker room desk #2 (visible dust, not cleaned, no soot)  
200x



6-Boys LR-ext Locker  
Tape lift - top of locker #447 (visible dust, no soot)  
200x



6-Boys LR-ext Locker  
Tape lift - top of locker #447 (visible dust, no soot)  
200x

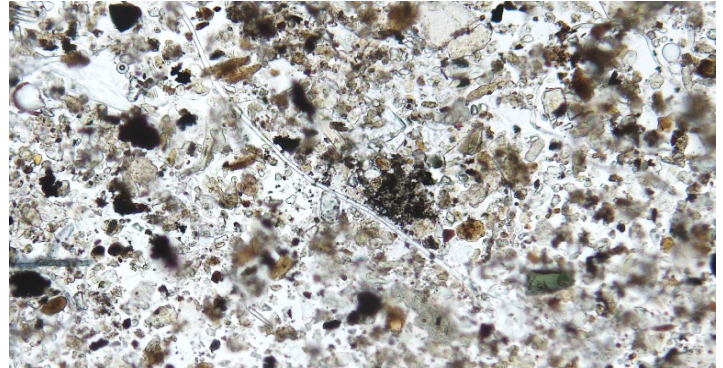
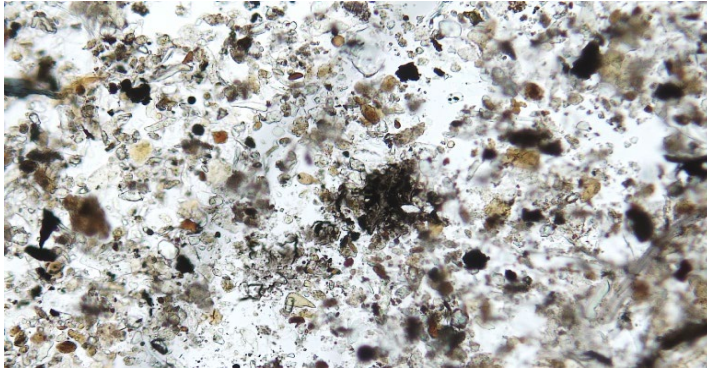




**SURFACE FIRE / COMBUSTION RESIDUE & DUST ANALYSIS PHOTO REPORT**

Client Name : WSP USA, Inc.  
Client Project # : TBD

EAA Project # : 24-0968  
Magnification : 200x

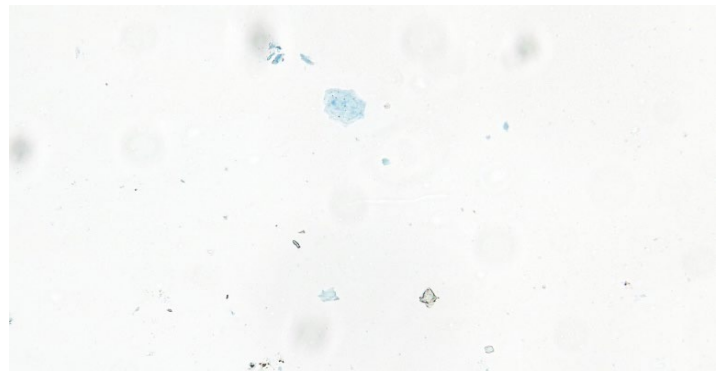
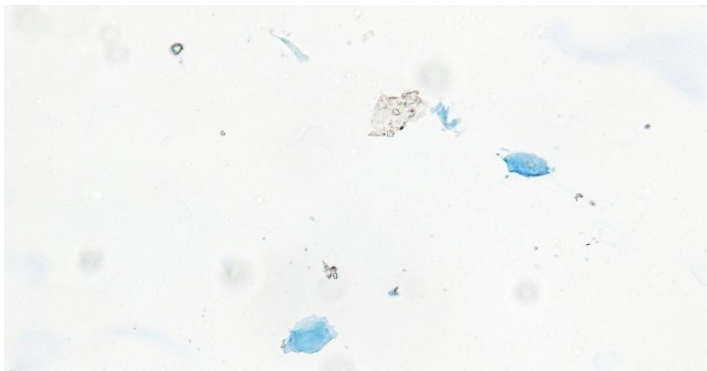


7-AH Room 113

7-AH Room 113

Tape lift - air handler room 113 - fan belt guard #3 (black soot dust)  
200x

Tape lift - air handler room 113 - fan belt guard #3 (black soot dust)  
200x

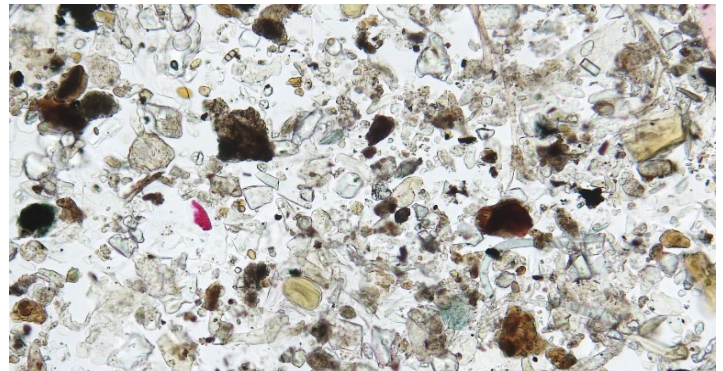
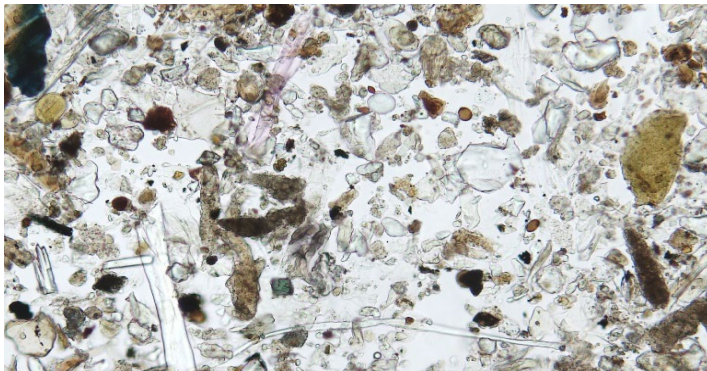


8-Girls LR, Rm 109

8-Girls LR, Rm 109

Tape lift - girls locker room, office 109, 2nd desk (no visible dust)  
200x

Tape lift - girls locker room, office 109, 2nd desk (no visible dust)  
200x

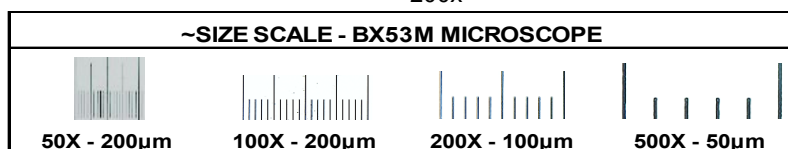


9-AHU Vent- Gym

9-AHU Vent- Gym

AHU vent - main gym closet, SE corner of gym (no visible dust or s  
200x

AHU vent - main gym closet, SE corner of gym (no visible dust or s  
200x

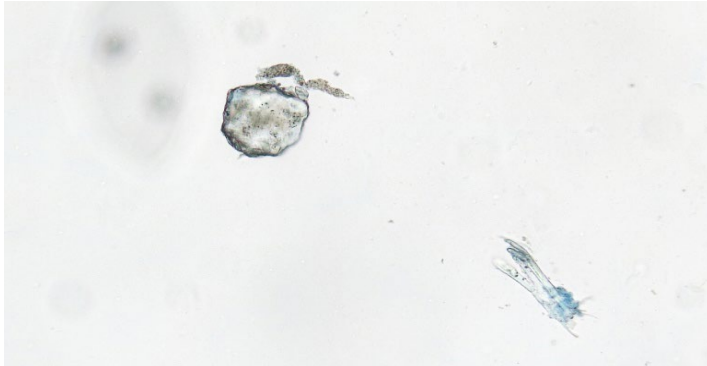




**SURFACE FIRE / COMBUSTION RESIDUE & DUST ANALYSIS PHOTO REPORT**

Client Name : WSP USA, Inc.  
Client Project # : TBD

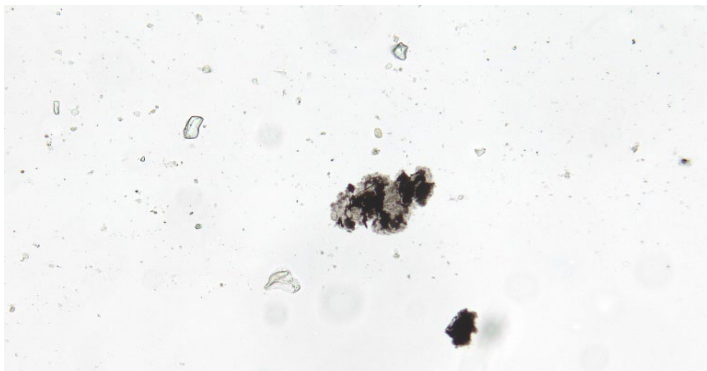
EAA Project # : 24-0968  
Magnification : 200x



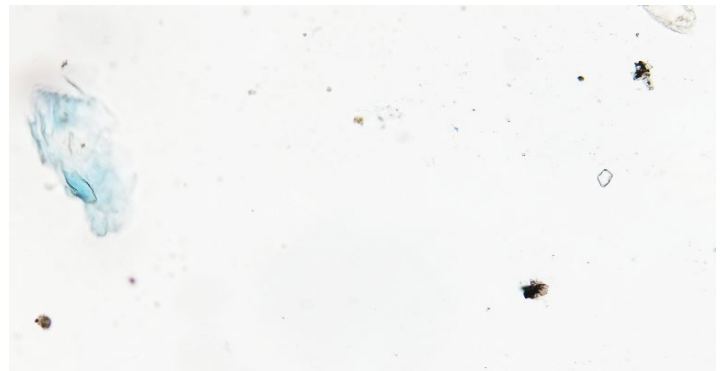
10-Gym Bleacher  
Main gym bleacher - top seat (no visible dust or soot)  
200x



10-Gym Bleacher  
Main gym bleacher - top seat (no visible dust or soot)  
200x



11-Hall floor o/s BR  
Hall floor (vinyl tile) outside boiler room (no visible dust or soot accu  
200x



11-Hall floor o/s BR  
Hall floor (vinyl tile) outside boiler room (no visible dust or soot accu  
200x

