Environmental Consultants and Engineers
1818 New York Avenue Suite 217
Washington, DC 20002
www.globalincusa.net

February 14, 2023

Prince Georges County
Environmental Safety Office
13306 Old Marlboro Pike
Upper Marlboro, MD 20772

Attention: Mr. Alex Baylor

RE: Indoor Air Quality Screening Preliminary Report

Global Project Number: 23-005
School: Pointer Ridge Elementary School

Dear Mr. Baylor,

On February 7, 2023, Global Inc.'s (GLOBAL) team of Industrial Hygienists under the supervision of Certified Industrial Hygienist, Dr. Channa Bambaradeniya, conducted an Indoor Air Quality Screening at Pointer Ridge Elementary School located at 1110 Parkington Lane, Bowie, MD 20716. GLOBAL's IHs met with PGCPS representative Samuel Norman on site.

Methodology

The IAQ evaluation included a visual assessment, and measurement of comfort parameters (temperature, humidity, carbon dioxide, and carbon monoxide) and respirable particulate matter (PM2.5um and PM10um size classes) in randomly selected representative locations within the building. GLOBAL's inspector conducted a walkthrough with Prince Georges County Public School (PGCPS) personnel present. Rooms were selected in a random manner throughout the building so as to prevent sampling bias.

During the visual assessment of representative locations, and when noted, GLOBAL documented those areas with suspected mold growth, water intrusions, and wet conditions that have the potential to lead to mold growth. GLOBAL also noted any unusual odors.

Observations

The general observations in the five indoor locations inspected are summarized in Table 1 below:

Table 1: Observations

Location	Observations
Grade 1/ Wing 3/ Room 5	• No unusual odor/wet patches/visible mold. • Air vents dirty.
Grade 5/ Wing 1/ Room 2	• No unusual odor/wet patches/visible mold. • Air vents dirty.
Gymnasium area	• No unusual odor/wet patches/visible mold. • Air vents dirty.
Coaches' Room	• No unusual odor/wet patches/visible mold. • Air vents dirty. • Water staining on ceiling tiles.
Custodian Room	• No unusual odor/wet patches/visible mold.
Multipurpose Room	• No unusual odor/wet patches/visible mold. • Air vents dirty. • Water staining on ceiling tiles.
Multimedia Room	• No unusual odor/wet patches/visible mold. • Air vents dirty.

Comfort Parameter and Respirable Particulate Measurements

The comfort parameters and respirable particulate measurements are summarized in Table 2.

Temperature

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) have published recommendations for year-round acceptable temperatures in Standard 55-2016 (*Thermal Environmental Conditions for Human Occupancy*). The winter comfort range is 68 to 75°F and the summer comfort range is 73 to 79°F. It is important to note that ASHRAE standards are intended as a suggested guideline as opposed to a regulation. The indoor temperature readings of all the rooms inspected were below the ASHRAE Standard for winter.

Relative Humidity (RH)

Relative humidity is a key factor for mold growth. Mold has the potential of growing on suitable surfaces with humidity levels above 60%. ASHRAE standard 62.1-2013 (*Ventilation for Acceptable*

Indoor Air Quality) recommends a maximum indoor relative humidity of 65% to preclude the likelihood of condensation on cool surfaces encouraging mold growth. All the indoor relative humidity readings were below the ASHRAE recommended maximum level of 65%.

Carbon Monoxide

Carbon monoxide (CO) is a colorless and odorless gas that is produced by the incomplete combustion of carbon-containing fuels. Oil, gasoline, diesel fuels, wood, coke, and coal are the major sources of CO. All registered CO concentrations were below the EPA National Ambient Air Quality Standard (NAAQS) of 9 ppm.

Carbon Dioxide

Under conditions of maximum occupancy, ASHRAE Standard 62.1-2013, Appendix C, infers that the acceptable carbon dioxide upper limit is the prevailing outdoor carbon dioxide concentration plus 700 parts per million (ppm). On February 7, 2023, the outdoor (ambient) carbon dioxide concentration was approximately 533 ppm so indoor concentrations should not exceed approximately 1233 ppm (700 + 533). All indoor carbon dioxide measurements were within the ASHRAE standards.

Respirable Particulates

The respirable particulate concentrations under the PM2.5 and PM10 size classes in all locations tested were below the National Ambient Air Quality Standard (NAAQS) levels. The highest average PM2.5 concentration during the monitoring period was 11.2 µg/m^3 in the Grade 1/Wing 3/Room 5. This is compared to the NAAQS primary standard for PM2.5 of 12 µg/m^3 annual mean. The highest average PM10 concentration during the same period was `17.4 µg/m^3, in the Grade 1/Wing 3/Room 5. This is compared to NAAQS standard for PM10 of 150µg/m^3 24 hr. average.

Table 2: Air Quality Results

Sample Location	Temp ^{0}F	RH%	CO ppm	CO2 ppm	PM2.5 ug/m3	PM10 ug/m3
Standards	**ASHRAE 68 to 75°F**	**ASHRAE <65%**	**NAAQS <9**	**ASHRAE 1233**	**NAAQS 12**	**NAAQS 150**
Ambient	51.1	41.0	0	533	13.0	18.9
Grade 1/Wing 3 /Room 5	75.1	30.0	0	887	11.2	17.4
Grade 5/Wing 1 /Room 2	72.8	25.5	0	594	7.3	11.1

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Sample Location	Temp ^{0}F	RH%	CO ppm	CO2 ppm	PM2.5 ug/m3	PM10 ug/m3
Standards	**ASHRAE 68 to 75°F**	**ASHRAE <65%**	**NAAQS <9**	**ASHRAE 1233**	**NAAQS 12**	**NAAQS 150**
Gym Area	72.2	29.1	0	913	6.5	9.7
Gym Area/Coaches' Room	68.1	28.1	0	773	6.8	9.7
Gym Area/Custodian Room	72.3	29.4	0	943	5.4	8.0
Multipurpose Room	73.8	26.1	0	547	4.8	6.6
Media Room	51.1	26.5	0	646	4.4	8.4

Conclusions and Recommendations

Among the comfort parameters measured, the indoor temperature reading in the Media Room was below the ASHRAE recommended range for winter. The indoor temperature should be maintained between 68 to 75^{o}F when the school is in operation during the winter. The respirable particulates in air were below the relevant NAAQ standards. The air vents need to be cleaned.

It has been our pleasure to conduct these IAQ Screening services for the Prince Georges County Public School system. If you have any questions, please feel free to contact us.

Regards,

Channa Bambaradeniya, Ph.D., CIH, CSP, CHMM
Certified Industrial Hygienist
Global, Inc.
Mobile: 443-691-0455