

March 5, 2015

MB3-99-RDC-#303

Ms. Clara Thigpen, Principal
The Bowman Academy, Elementary
975 W. 6th Street
Gary, IN 46402

Dear Principal Thigpen:

The purpose of this letter is to report the result of our indoor air quality evaluation of the Bowman Academy Elementary School, located at 975 W. 6th Street on February 24th. This evaluation was conducted at the request of the school administration to address the health concerns of the occupants that may be related to indoor air quality of the school.

The Indiana State Department of Health's Microbiological Laboratory incubated and counted the fungal and bacterial units. The colony forming units per cubic meter of air (CFU/M³) were computed taking the fungal or bacterial counts, and dividing by the total volume of the sampled air. Please refer to Table 1 for further details. The indoor fungal and bacteria counts were lower than the outdoor sample. There are no limits established as an acceptable concentration of fungal counts indoors. There are guidelines that recommend fewer counts indoors than outdoors.

The request stated that there was concern by some individuals that moisture due to a water intrusion issue had allowed mold to grow on some of the walls. The walls had been repaired prior to our visit but photos that were sent to us showed signs of efflorescence, a "fuzzy" mineral deposit formed on plaster, brick, and concrete surfaces. This occurs when moisture passes through the material carrying the minerals to the surface and depositing them on the surface as the moisture evaporates. There is no health risk due to this material.

The Carbon dioxide (CO₂) levels inside were measured with the highest reading 2120 parts CO₂ per million parts of air (ppm). The School Indoor Air Quality rule, 410 IAC 33-4-2 states "carbon dioxide concentrations in the breathing zone shall never exceed 700 ppm over the outdoor concentration", in this case giving a limit of 1050 ppm. ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Engineers) recommends 15 cfm (cubic feet per minute) of outdoor air per person for classrooms. The Sanitary Schoolhouse Rule, 410 IAC 6-5.1-5, states: "...each such ventilating system shall be kept continuously in operation whenever a room it serves is occupied".

The outdoor relative humidity was measured at 35 percent (%), and the indoor relative humidity had a range of 8% to 20%. The American Society of Heating, Refrigeration and Air-conditioning Engineers (ASHRAE), recommends the relative humidity in habitable spaces preferably should be maintained between 30% and 60% to minimize growth of allergenic and pathogenic organisms. Humidity levels above 50% have been found to increase the population size of molds, fungi and mites that may cause allergies. The evidence suggests that humidity levels should be maintained between 40% and 50% to reduce the incidence of upper respiratory infections and to minimize the adverse effect on people suffering from asthma or allergies. Such a range would be hard to maintain, however, exposure to higher or lower levels are unlikely to affect the health of most people.

Based on sample results and our visual inspection we note the following:

- 1) Our sample results and visual inspection do not indicate a problem with mold growth in the school.
- 2) **410 IAC 33 -4-2(a) states: “Outdoor air shall be supplied to classrooms when occupied” and 410 IAC 6-5.1-5, states: “...each such ventilating system shall be kept continuously in operation whenever a room it serves is occupied”.** The design of the HVAC system is such that no outdoor air is supplied during the heating season. We suggest when weather conditions permit, allowing teachers to open windows to allow fresh air into the building.
- 3) **410 IAC 33-4-2 states “carbon dioxide concentrations in the breathing zone shall never exceed 700 ppm over the outdoor concentration”**, (As stated in 1) above, the system is not designed to bring in outdoor air. We understand that this cannot be remedied until the HVAC system is upgraded but we do encourage you to use the windows when weather permits.
- 4) **410 IAC 33 requires schools to designate an individual as their Indoor Air Coordinator and states “The IAQ Coordinator’s contact information shall also be published: 1) on the school website and 2) in the school handbook”** The school needs to designate an Indoor Air Coordinator and ensure they are meeting the requirements specified in the rule.
- 5) **410 IAC 33 also requires schools to have written policies for Vehicle Idling, Animals in Classrooms, and Chemical Management.** The rule went into effect May 2011. The school should work to put these policies in place as soon as practical.
- 6) **410 IAC 33-4-6 (c) states “When a water leak or intrusion is discovered, corrective action shall be taken within forty-eight (48) hours,”** We did observe water stained ceiling tile in some classrooms. We suggest the area above these tiles be checked to ensure it is not an active leak and the tiles replaced.

410 IAC 33 requires you to respond within 60 days of any actions you take based upon this report.

The School Indoor Air Quality rule 410 IAC 33-6-2 requires this report, and your response to this report, to be posted for 14 days at the location of the school building stated in the report so they are accessible to all students, parents, and employees.

If you need assistance in developing the required policies or meeting any requirements of the School Indoor Air Quality rule, the rule and Best Practices documents with example policies are available on our website: <http://www.in.gov/isdh/24347.htm> . If I can be of any assistance feel free to contact me.

Individuals experiencing any health problems should seek medical advice from a physician.

If you have questions I can be reached at 317.351.7190 ext. 234.

Sincerely,

A handwritten signature in cursive script that reads "Ron Clark". The signature is written in black ink and is positioned to the right of the word "Sincerely,".

RON CLARK,
Industrial Hygienist
Indoor Air Section, Environmental Public Health

Enclosure

TABLE 1
The Bowman Academy Elementary School
Computed Microbiological Air Sample Results
Taken February 24th 2015

SAMPLE ID	LOCATION	NO. OF OCCUPANTS	RELATIVE HUMIDITY (%)	CARBON DIOXIDE (ppm)	AIR SAMPLED (liters)	FUNGAL COUNT (CFU/M ³)	BACTERIAL COUNT (CFU/M ³)
1	Rm. 308	3	20	1893	200	10	0
2	Rm. 305	26	20	2120	200	15	10
3	Rm. 318	5	16	1314	200	25	5
4	Rm. 216	24	18	1897	200	5	0
5	Rm. 208	6	13	1391	200	15	5
6	Rm. 117	3	8	646	200	40	5
7	Rm. 126 – Library	3	11	1137	200	30	5
8	Cafeteria	estimated 85	18	1378	200	35	0
9	Outside	---	35	350	200	105	15

Notes:

% -----percent

ppm-----parts per million

CFU/M³—colony forming units per cubic meter of air