



Michael R. Pence
Governor

Jerome M. Adams, MD, MPH
State Health Commissioner

September 2, 2016

MB3-99-RLP-#332
Mr. Jeff Fritz, Superintendent
Clay Community Schools
1013 S. Forest Ave.
Brazil, IN 47834

Dear Dr. Tucker:

The purpose of this letter is to report the result of our indoor air quality evaluation at Forest Park Elementary School on August 22, 2016. This evaluation was conducted at Mr. Howard's request 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 total colony forming units per cubic meter of air (CFU/M³) were computed by adding the fungal and bacterial counts, and dividing the sum by the total volume of the sampled air. Please refer to Table 1 for further details. Fungal counts inside the speech room were higher than the outdoors. There are no limits established as an acceptable concentration of fungal counts indoors. There are guidelines that recommend fewer counts indoors than outdoors.

The Carbon dioxide (CO₂) level was measured inside the classrooms. The highest carbon dioxide level measured was 1432 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 1123 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 outdoor relative humidity was measured at 40 percent (%). The indoor relative humidity had a range of 51% and 64%. The American Society of Heating, Refrigeration and Air-conditioning Engineers (ASHRAE) recommend 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) **410 IAC 33-4-2 (b): states “carbon dioxide concentrations in the breathing zone shall never exceed 700 ppm over the outdoor concentration”.** Room 143 was above the allowed limit. The damper should be checked to ensure sufficient fresh air is being supplied to the room.

- 2) **410 IAC 33-4-6 (d) states “when mold or mold-contaminated material is discovered, corrective action shall be taken within forty-eight (48) hours. Mold is not to be growing in the school”.** The sample collected inside the speech room had a higher fungal count than the outdoor sample. Although we did not see visible mold inside the classroom, we did notice water dripping from the ceiling unit vent. Therefore, we are making the following suggestions: 1) Please check above the drop ceiling near the ventilator for hidden mold growth. 2) Inspect the carpet for mold growth, especially where drips have occurred underneath the unit vent. 3) Inspect the pan and coil inside the unit ventilator to ensure they are clean and free of mold growth. 4) Any remediation activity should be done after hours when students are not present. Air scrubber units with (HEPA) filtration and dehumidifiers should be considered until mold remediation has been completed inside the classrooms.

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

Please 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 have questions, please contact me at 317/351-7190 ext. 264

Sincerely,



RICK PLEW
Industrial Hygienist
Indoor Air Section, Environmental Public Health Division
Enclosure

TABLE 1
Forest Park Elementary School
800 S. Alabama Street
Brazil, IN 47834

Computed Microbiological Air Sample Results
Taken August 22, 2016

SAMPLE ID	LOCATION	NO. OF OCCUPANTS	RELATIVE HUMIDITY (%)	CARBON DIOXIDE (ppm)	AIR SAMPLED (liters)	FUNGAL COUNT (CFU/M ³)	BACTERIAL COUNT (CFU/M ³)	TOTAL COUNT (CFU/M ³)
8	Speech Room	3	51	690	50	540	0	540
9	Room 143	3	57	1432	50	220	40	260
10	*Room A-105	2	64	1060	50	300	0	300
11	Outdoor	-	40	423	50	420	0	420

Notes: * window open/ Speech Room- running 3 dehumidifiers

% -----percent

Ppm-----parts per million

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