

November 2, 2016

MB3-99-RLP-#355  
Mr. Jeff Fritz, Superintendent  
Clay Community Schools  
1013 S. Forest Ave.  
Brazil, IN 47834

Dear Mr. Fritz:

The purpose of this letter is to report the result of our indoor air quality evaluation at East Side Elementary School on October 24, 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/M<sup>3</sup>) 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 outdoors were higher than any areas inside the building. 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 (CO<sub>2</sub>) level was measured inside the classrooms. The highest carbon dioxide level measured was 998 parts CO<sub>2</sub> 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 1089 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 45% and 50%. 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 33-4-6 (b): states “scented candles and air fresheners are not to be used in the classrooms”.** Both plug-in and spray scented air fresheners were being used inside classroom A-118. Air fresheners can be asthma triggers and are not allowed. We suggest you notify teachers and staff that scented candles and air fresheners are not to be used inside classrooms.
- 2) Room A-116 and computer lab had stained ceiling tile. Mr. Howard stated the roof had been repaired. We suggest replacing the stained tile.

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

East Side Elementary School  
936 E. National Avenue  
Brazil, IN 47834

## Computed Microbiological Air Sample Results Taken October 24, 2016

SAMPLE ID	LOCATION	NO. OF OCCUPANTS	RELATIVE HUMIDITY (%)	CARBON DIOXIDE (ppm)	AIR SAMPLED (liters)	FUNGAL COUNT (CFU/M <sup>3</sup> )	BACTERIAL COUNT (CFU/M <sup>3</sup> )	TOTAL COUNT (CFU/M <sup>3</sup> )
9	Rm. A-107 *	-	48	849	50	160	0	160
10	Rm. A-108 *	5	49	799	50	20	0	20
11	Library	5	45	569	50	120	0	120
12	Computer Lab	19	46	868	50	260	20	280
13	Rm. A-119 *	4	46	786	50	60	0	60
14	Rm. A-118 *	-	50	998	50	60	20	80
15	Rm. A-116 *	-	46	469	50	220	0	220
16	Outdoor	-	40	389	50	440	0	440

**Notes:** \*classroom was occupied earlier with students

**% -----percent**

**Ppm-----parts per million**

**CFU/M<sup>3</sup>—colony forming units per cubic meter of air**