



Eric J. Holcomb
Governor

Kristina Box, MD, FACOG
State Health Commissioner

December 23, 2019

MB3-99-RDC-#466

Dr. James Hanna, Superintendent
Rossville Consolidated Schools
1 Robert Egly Drive
Rossville, IN 46065

Dear Dr. Hanna:

The purpose of this letter is to report the result of our indoor air quality evaluation of the Kindergarten classrooms at Rossville Elementary on December 16th. This evaluation was conducted based on a referral from the Indiana Dept. of Environmental Management's complaint coordinator. They received a complaint stating the individual was concerned about water leaks and stained ceiling tiles along with the possibility of mold in the kindergarten classrooms. This inspection is limited in scope to the kindergarten classrooms.

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. The indoor fungal count in room 226 was higher than the outdoor sample but within the range typically seen indoors at this time of year. It is not unusual to see indoor counts slightly higher than the outdoors when there is snow cover. Please refer to Table 1 for further details. There are no limits established as an acceptable concentration of fungal counts indoors. There are guidelines that recommend fewer counts indoors than outdoors.

The bacteria counts indoors were higher than the outdoors. Bacteria can be from several sources such as sanitation issues, damp clothing or towels, pets, and naturally shed by humans. We feel the indoor bacteria is due natural shedding by the occupants and is not a health risk.

The Carbon dioxide (CO₂) levels inside were measured with the highest reading 1802 parts CO₂ per million parts of air (ppm) in room 224. The School Indoor Air Quality rule, 410 IAC 33-4-2 states "(a) 'Outdoor Air shall be supplied to classrooms when occupied. (b) Carbon dioxide concentrations in the breathing zone shall never exceed 700 ppm over the outdoor concentration'", in this case giving a limit of 1085 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 52 percent (%), and the indoor relative humidity had a range of 28 to 35%. 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) **410 IAC 33-3-1(b) states “The IAQ coordinator’s contact information shall also be published: (1) on the school or state agency’s website; and (2) in the school or state agency’s handbook”** We were unable to locate the IAQ coordinator’s information on the school website.
- 2) The airborne fungal concentration in room 226 was higher than the outdoor sample but within the range we typically see in classrooms at this time of year. It is not unusual to see indoor concentrations slightly higher than outdoors when the outdoor temperature is below freezing or there is snow cover. We do not think this higher concentration is due to mold growth in the classroom.
- 3) **410 IAC 33-4-2 states “carbon dioxide concentrations in the breathing zone shall never exceed 700 ppm over the outdoor concentration”,** The carbon dioxide concentrations in rooms 224 and 226 were substantially higher than allowed. Studies have shown that elevated carbon dioxide concentrations temporarily affect students’ cognitive ability. We understand that the school is in the process of replacing the classroom HVAC units with ones that can supply additional fresh air and these two rooms have the old units. We recommend that the school do it’s best to balance the temperature requirements with supplying as much fresh air as possible to these rooms until the units are replaced. Room 206 does have the new HVAC and the carbon dioxide concentration was slightly higher than the limit. We recommend that the settings be checked to ensure sufficient fresh air is being supplied.
- 4) **410 IAC 33-4-6 (b) states “Scented candles and air fresheners are not to be used in classrooms.”** We could smell fragrance in one classroom but did not see an air freshener. Please remind teachers and staff that these items are not allowed in classrooms as they are asthma triggers.

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.

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

If you have questions I can be reached at 317.682.9033.

Sincerely,

A handwritten signature in cursive script that reads "Ron Clark".

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

Enclosure

TABLE 1
Rossville Elementary School

Computed Microbiological Air Sample Results
Taken December 16, 2019

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. 226	19	35	1609	200	25	5
2	Rm. 224	19	38	1802	200	0	20
3	Rm. 221	22	38	1099	200	5	5
4	Rm. 206	19	30	1205	200	5	10
5	Outside	---	52	385	200	10	0

Notes:

% -----percent

Ppm-----parts per million

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