



Eric J. Holcomb
Governor

Kristina M. Box, MD, FACOG
State Health Commissioner

September 23, 2021

MB3-99-RLP-#493

Dr. Paige McNulty, Superintendent
Gary Community School Corporation
9th and Gerry Street
Gary, IN 46406

Dear Superintendent, McNulty:

The purpose of this letter is to report the result of our indoor air quality evaluation of the Bailly STEM Academy on September 16th. This evaluation was conducted at the request of a concerned citizen stating there were elevated temperatures in the classrooms.

IAQ Coordinator/Director of Operations, Barry O'Quinn said the school planned to update the HVAC system in May 2021. Due to the Covid pandemic, supplies were put on back order. Supplies are now arriving, and the HVAC system update should be completed by September 24th. Mr. O'Quinn stated classes were cancelled earlier in the month because of unseasonal temperatures. This week, the students have been attending half day classes during the morning hours because of the temperatures.

An IAQ-Calc TSI 7545 Instrument was used to take air quality measurements for carbon dioxide, relative humidity, and temperature. The Carbon dioxide (CO₂) levels inside were measured with the highest reading 2009 parts CO₂ per million parts of air (ppm) in room 135. 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 1137 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.

To **promote**, **protect**, and **improve** the health and safety of all Hoosiers.

The outdoor relative humidity was measured at 51 percent (%) and the indoor relative humidity had a range of 43% to 58%. The outdoor temperature was measured at 79 degrees and the indoor temperature had a range of 70 to 73 degrees. The school Indoor Air Quality rule, 410 IAC 33-4-4 (b) states "Where provided air-conditioning systems shall be capable of providing and shall be operated to maintain a temperature not to exceed seventy-eight (78) degrees Fahrenheit and sixty-five percent (65%) relative humidity during periods of student occupancy. "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.

Based on our measurements taken during our visit 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"**. The carbon dioxide concentration in rooms 133, 135, 204, and 417 were above the allowed limit of 1137 ppm. Classrooms 133 and 135 had the highest carbon dioxide concentrations at 1443 ppm and 2009 ppm. Please take the necessary steps to ensure that sufficient outdoor air is being supplied into the classrooms. We recommend, once repairs or adjustments are complete, the classrooms be checked to ensure they are within the allowed range for carbon dioxide.
- 2) **410 IAC 33-4-2 (a) states: "each such ventilating system shall be kept continuously in operation whenever a room it serves is occupied"**. The fan for the HVAC unit in rooms 211, 403, and 415 were turned off when we entered the rooms. Please inform teachers and staff that the HVAC fans (unit vents) must be operating when the classrooms are occupied.
- 3) **410 IAC 33-4-4 Sec. 4 (b) states: "where provided air-conditioning systems shall be capable of providing and shall be operated to maintain a temperature not to exceed seventy-eight (78) degrees Fahrenheit and sixty-five percent (65%) relative humidity during periods of students occupancy"**. With the exception to classroom 122, the temperature in all the classrooms checked were above 78 degrees Fahrenheit.
- 4) **410 IAC 33-5 a) states: "Schools shall establish and maintain a written procedure for routine maintenance of HVAC systems"**. This procedure shall include but is not limited to the following items: 1) A schedule for inspecting the HVAC system including an annual inspection 2) Ensuring that all supply and return air pathways in the ventilation system are unobstructed and perform as required 3) A schedule for cleaning the HVAC coils annually at a minimum 4) A schedule for inspecting and changing filters. This procedure shall be available for the state inspector's review.
- 5) **410 IAC 33 also requires schools to have written policies for Vehicle Idling, Animals in Classrooms, and Chemical Management.** We were unable to find these policies on the school's website. When asked about these policies, we were told the policies could not be found. The rule requires all schools to have these written policies.

6) 410 IAC 33-3-1 (b) states: “the IAQ coordinator’s contact information shall also be published: (1) on the school’s agency website; and (2) in the school or state agency’s handbook”. Please ensure the IAQ coordinator’s information is in the school’s handbook and on the school’s website.

The School Indoor Air Quality rule 410 IAC 33 requires you to respond within 60 days of any actions you take based upon this report.

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 317/682-9030.

Sincerely,

A handwritten signature in cursive script that reads "Rick Plew".

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

TABLE 1
 Bailly STEM Academy
 Air Sample Results
 Taken September 16, 2021

| SAMPLE ID | LOCATION | NO. OF OCCUPANTS | RELATIVE HUMIDITY (%) | TEMP. (Deg f) | CARBON DIOXIDE (ppm) |
|-----------|------------|------------------|-----------------------|---------------|----------------------|
| 1 | Library | 16 | 46 | 79 | 675 |
| 2 | Room 122 | 14 | 48 | 77 | 951 |
| 3 | Room 321 | 20 | 54 | 78 | 632 |
| 4 | Room 314 | 12 | 51 | 79 | 1023 |
| 5 | Room 322 | 12 | 50 | 79 | 619 |
| 6 | Room 318-B | 12 | 52 | 79 | 1070 |
| 7 | Gym | 14 | 51 | 80 | 575 |
| 8 | Room 417 | 16 | 50 | 82 | 1201 |
| 9 | Room 403 | 7 | 46 | 82 | 1080 |
| 10 | Room 415 | 11 | 46 | 83 | 816 |
| 11 | Room 217 | 7 | 44 | 82 | 450 |
| 12 | Room 204 | 15 | 43 | 81 | 1253 |
| 13 | Room 211 | 7 | 48 | 82 | 959 |
| 14 | Room 133 | 17 | 50 | 82 | 1443 |
| 15 | Room 135 | 33 | 58 | 82 | 2009 |
| 16 | Outdoor | - | 51 | 78 | 437 |

Notes: Windows were open in several classrooms. Unit vent fans were on in most classrooms. New roof being installed 09/16/21.

% -----percent
ppm-----parts per million