



Eric J. Holcomb  
Governor

Lindsay M. Weaver, MD, FACEP  
State Health Commissioner

June 26, 2024

99 RDC 586

Dr. Jamie Wilkins, Superintendent  
Southwestern Consolidated School District  
3406 W 600 S  
Shelbyville, IN 46176

Dear Dr. Wilkins:

The purpose of this letter is to report the result of our indoor air quality evaluation of Southwestern Elementary School on June 18<sup>th</sup>. This evaluation was conducted at the request of Interim Superintendent Walter Bourke 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/M<sup>3</sup>) were computed taking the fungal or bacterial counts and dividing by the total volume of the sampled air. The indoor fungal concentrations were lower than the outdoor concentration. Please refer to Table 1 for further details. There are no limits established as an acceptable concentration of fungal concentrations indoors. There are guidelines that recommend fewer counts indoors than outdoors. The bacterial concentrations were quite low and within the range typically seen indoors.

The Carbon dioxide (CO<sub>2</sub>) levels were measured as part of our routine tests but as this was taken over summer break it is not representative of the levels that would be found when students are present. The highest reading of 436 parts CO<sub>2</sub> per million parts of air (ppm) was in the room outside the Principal's office. 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

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over the outdoor concentration”, in this case giving a limit of 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 64 percent (%) and the indoor relative humidity had a range of 68 to 76%. 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 do not indicate that there was an issue with airborne mold in the areas sampled.
- 2) **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 note water stained ceiling tile in various areas of the building. We recommend repairing any active leaks then replacing any water damaged ceiling tile so new leaks are easily identified and quickly addressed.
- 3) **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 relative humidity levels throughout the building were quite high. In part this may be due to the temperatures in the building being 63-69 degrees. We recommend adjusting the HVAC settings to reduce the relative humidity to below the allowed limit of 65%.



- 4) As we noted above, these measurements were taken during summer break and the carbon dioxide levels are not representative of what would be found when students are present. We will plan to conduct a follow-up visit after the start of the fall semester.

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, within 5 working days of receipt, to be posted for 14 days both at the school building stated in the report, and on the school's website, where it is accessible to students, parents, and employees. The rule also requires your response to this report to be posted within 5 working days of sending the response to us. That too is to be posted for 14 days. Please respond back providing the links where these are posted on the website.

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,

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

Enclosure



**TABLE 1**  
**Southwestern Elementary School**

**Computed Microbiological Air Sample Results**  
**Taken June 18, 2024**

<b>Sample</b>	<b>Location</b>	<b>Occupants</b>	<b>Temp °F</b>	<b>RH %</b>	<b>CO2 ppm</b>	<b>Fungal cfu/m3</b>	<b>Bacterial cfu/m3</b>
<b>1</b>	<b>Rm 129</b>	<b>0</b>	<b>64</b>	<b>69</b>	<b>442</b>	<b>60</b>	<b>0</b>
<b>2</b>	<b>Library</b>	<b>1</b>	<b>68</b>	<b>71</b>	<b>434</b>	<b>10</b>	<b>0</b>
<b>3</b>	<b>Rm 124</b>	<b>0</b>	<b>63</b>	<b>74</b>	<b>424</b>	<b>40</b>	<b>0</b>
<b>4</b>	<b>Science Lab</b>	<b>0</b>	<b>69</b>	<b>76</b>	<b>421</b>	<b>10</b>	<b>0</b>
<b>5</b>	<b>Rm 105</b>	<b>0</b>	<b>66</b>	<b>68</b>	<b>410</b>	<b>40</b>	<b>10</b>
<b>6</b>	<b>Rm 108</b>	<b>0</b>	<b>64</b>	<b>72</b>	<b>427</b>	<b>30</b>	<b>0</b>
<b>7</b>	<b>Room outside Principal's office</b>	<b>0</b>	<b>69</b>	<b>69</b>	<b>436</b>	<b>0</b>	<b>0</b>
<b>8</b>	<b>Rm 140</b>	<b>0</b>	<b>66</b>	<b>70</b>	<b>426</b>	<b>90</b>	<b>0</b>
<b>9</b>	<b>Rm 111</b>	<b>0</b>	<b>66</b>	<b>73</b>	<b>423</b>	<b>100</b>	<b>0</b>
<b>10</b>	<b>Outside</b>	<b>0</b>	<b>83</b>	<b>64</b>	<b>402</b>	<b>510</b>	<b>10</b>

**Notes:**

**% -----percent**

**ppm-----parts per million**

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