

**Department of Public Safety**

**Jonathan L. Young, Sr.**  
Freeholder

**Robin J. Blaker**  
Director of Public Safety

**Samuel M. Spino**  
Emergency Management Coordinator  
Highway Traffic Safety



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Charles J. DePalma Complex,  
2311 Egg Harbor Road  
Lindenwold, NJ 08021  
phone 856.783.4808  
fax: (856) 309-4202

[Samuel.Spino@CamdenCoDPS.org](mailto:Samuel.Spino@CamdenCoDPS.org)

August 25, 2020

Thomas Pratt  
Facilities Director  
Berlin Borough School District  
215 South Franklin Avenue  
Berlin, NJ 08009

RE: Indoor Air Quality Investigation  
Berlin Community School  
Case ID #: 20-08-21-0815-C

1.0 Background and Observation

An investigation was conducted on August 21, 2020, at the Berlin Community School located at 215 South Franklin Avenue in Berlin. According to information given to the Department of Public Safety, the investigation was requested to ensure that air quality was within the Public Employees Occupational Safety and Health recommended standards. The scope of the investigation included a visual inspection of the entire building along with indoor air quality readings to identify potential sources of contamination.

No visible fungal growth was observed in any of the areas inspected. Indoor air quality readings were taken in each room to ensure that proper ventilation was being achieved according to the NJ Indoor Air Quality Standard N.J.A.C. 12:100-13.

All levels for temperature, carbon dioxide and carbon monoxide, by NJ PEOSH Standards, were all within the acceptable ranges for indoor air quality. The PEOSH IAQ Standard 12:100-13.3 specifies where a mechanical ventilation system capable of regulating temperature is present, facilities personnel strive to maintain office building temperatures within the range of 68 to 79 degrees Fahrenheit. If the room is equipped with non-mechanical ventilation systems such as operable windows, stacks, louvers, these areas are to be clear and operable to allow the flow of air. If carbon dioxide (CO<sub>2</sub>) concentrations exceed 1,000 parts per million (ppm), and the room is not equipped with operable windows, an inspection shall be conducted to ensure that the mechanical HVAC system is operating properly. OSHA’s time weighted average exposure limit for carbon monoxide is 25 parts per million for an 8-hour work day. ASHRAE Standard 62.1-2016 recommends that relative humidity in occupied spaces be controlled to less than 65% to reduce the likelihood of conditions that can lead to microbial growth.

2.0 Sampling Methods and Sample Locations

All samples were collected using a Q-Trak 7575 Advanced Indoor Air Quality Meter.

At the time of the initial investigation, there was no evidence of any fungal contamination.

3.0 Sample Results

Indoor Air Quality Readings				
Room Number	CO <sub>2</sub> (ppm)	Temperature (°F)	Relative Humidity (%)	CO (ppm)
1	457	71.4	65.6	0
2	447	70.9	60.0	0
3	455	71.2	63.4	0
4	471	70.8	61.2	0

5	457	71.3	64.7	0
6	452	71.1	61.9	0
7	461	70.4	63.7	0
8	465	71.1	64.7	0
9	460	71.2	64.3	0
10	454	70.4	60.0	0
11	449	70.1	62.6	0
13	463	70.9	64.0	0
15	458	71.6	55.1	0
12	467	72.3	56.6	0
14	463	72.9	59.6	0
16	446	72.1	57.1	0
17	462	72.1	55.8	0
18	459	71.1	53.8	0
19	457	71.4	55.9	0
20	456	72.0	58.9	0
21	461	71.7	55.0	0
22	465	66.0	56.1	0
22A	462	71.4	62.7	0
28	480	73.1	63.5	0
27	466	73.0	63.5	0
26	642	73.1	63.3	0
25	471	72.6	64.2	0
23	462	73.4	66.0	0
Outside	422	74.1	74.9	0
24	471	75.4	60.3	0
29	465	74.9	55.0	0
30	455	75.7	60.5	0
31	458	74.2	63.4	0
32	452	74.6	64.7	0
33	464	74.3	64.7	0
34	455	73.5	63.9	0
35	462	72.1	59.5	0
36	445	71.9	70.0	0
37	455	71.5	58.2	0
36A	465	72.1	58.8	0
43	453	71.8	69.7	0
42	449	71.5	68.2	0
46	451	70.9	67.7	0
44	443	70.6	72.2	0
46	448	71.2	70.7	0
47	473	71.1	67.8	0
54	437	74.5	77.0	0
52	440	72.4	57.9	0
52A	442	72.3	57.6	0
50	444	71.9	54.9	0
51	451	71.0	55.7	0
49	463	73.0	58.2	0

49A	451	74.1	72.8	0
48	459	73.5	48.9	0
53	490	72.5	50.2	0
55	453	71.9	64.2	0
57	441	72.2	62.5	0
56	450	72.2	59.5	0
58	437	71.2	60.1	0
60	435	72.3	71.5	0
62	427	73.9	72.6	0
59	424	72.0	71.8	0
59A	413	74.2	72.2	0
61	403	73.3	73.5	0
63	416	72.5	66.7	0
64	418	72.3	70.7	0
66	400	72.5	70.9	0
67	409	74.3	76.3	0
68	410	72.6	75.9	0
69	413	73.1	76.2	0
70	416	73.2	76.4	0
71	404	73.9	74.4	0
72	440	73.1	65.2	0
Gym	422	71.4	63.5	0
Gym office	430	71.5	65.7	0
73	424	71.7	69.7	0
77	435	72.4	71.5	0
79	426	73.4	73.6	0
Gym	410	72.0	70.3	0
Barry's office	416	71.3	70.3	0
Caruso's office	417	71.1	70.5	0
81	414	72.0	75.2	0
80	452	72.1	73.0	0
82	436	71.7	72.1	0
84	429	72.2	76.3	0
83	452	71.9	69.0	0
Board conference room	606	72.1	70.1	0
Outside	404	74.8	76.6	0

\*It should be noted that floor buffing and mopping operations were being conducted in the E wing during this investigation. The introduction of water to this space could contribute to higher relative humidity levels than normal within those areas.

#### 4.0 Remediation Workplan

No visible fungal contamination was observed in any of the areas inspected. No remedial activities are recommended at this time.

#### 5.0 Conclusion and Recommendations

To prevent fungal contamination, water intrusion events should be properly dried out within 48 hours and humidity levels should be kept below 65%. Rooms listed above in section 3.0 with levels of relative humidity above 65% should be identified and addressed.

Employees have a role in maintaining good indoor air quality within their workplace. Employees should ensure that they do not introduce unauthorized chemicals (i.e. fragrances, air fresheners, diffusers, cleaning solvents, ozone generators) into the workplace. In addition, if employees observe situations which may lead to poor indoor air quality (i.e. inoperable windows, water leaks, visible mold) they should notify administration or maintenance of the situation so that it can be addressed promptly.

Employees are responsible for maintaining mechanical and passive ventilation systems by ensuring that louvers and diffusers remain clear to allow the free flow of air. Intentionally blocking, diverting, or otherwise manipulating components (i.e. thermostat,) of the ventilation system may result in disruption of the ventilation system in the immediate area or other occupied areas of the building. If a ventilation unit is shut off, windows should be opened or cracked to introduce fresh air into that space.

Also, the recordkeeping provision of the Indoor Air Quality (IAQ) standard requires that the following items be maintained and available to employees within 10 days of a request, and immediately to PEOSH inspectors during an inspection: Written indoor air quality program, documentation of designated person training, written preventive maintenance program, 36 months of preventive maintenance log. The employer also should maintain several IAQ compliance documents including: As-built construction documents, HVAC system commissioning reports, HVAC systems testing, adjusting and balancing reports, operations and maintenance manuals, water treatment logs, and operator training materials. All records are kept within the Facilities Director's office and were reviewed upon the completion of this investigation. All of the necessary records are being properly maintained by the Facilities Director.

**It should be noted that the conditions observed during this inspection are considered to be a "snapshot" of that point in time. With indoor air quality, conditions can change over time in relation to the outdoor environment and other factors. Therefore, it is vital to ensure that the HVAC system is functioning properly, and that all areas of moisture intrusion are addressed promptly.**

Sincerely,

A handwritten signature in black ink, appearing to read 'C. Costa', with a stylized flourish at the end.

Christopher Costa  
Senior Environmental Health Specialist  
Hazardous Materials Unit