AIR Consulting Services, LLC

October 18, 2017

John Swanson, Facilities
Pemberton Board of Education
P.O. Box 228
Pemberton, NJ 08068

Re: Mold Inspection: Helen Fort Middle School

Dear Mr. Swanson;

We performed inspection and air testing for mold in several rooms in the Helen Fort Middle School on October 12, 2017. The objective of the testing was to determine if there are any recognized environmental conditions present in the rooms due to concerns from staff in the classrooms.

We inspected rooms 16, 20, 22, 23, 35 67 and the girls locker room. We conducted a visual inspection of each room. The rooms are largely composed on non porous materials that do not readily support mold growth. The walls are mostly plaster or masonry blocks, however several of the rooms have been reconstructed with drywall partition walls. We performed moisture testing on all drywall walls in the above classrooms. All drywall walls were clean and dry.

Several of the classrooms contain plumbing for the chilled water which is present along the top of the wall. The pipes have suffered for some time from condensation on the pipe itself and have resulted in some of the condensation from the insulation leaking into the classroom. The insulation is a foam rubber that is non-porous and generally does not support mold growth. We collected samples from the pipe insulation in rooms 20, 22 and 67 to characterize the current conditions. In rooms 16, 23 and 35 we observed a small amount of visible mold growth on the pipe insulation at the seams. We recommended damp wiping of the pipe insulation with a mild disinfectant to remove the surface growth present.

We collected air samples in each room and a sample was also collected outside as a comparison.

As shown in Table I, the indoor air samples are reported in the range of 1,500 to 4,100 fungal structures per cubic meter of air (S/m^3). The sample collected in Rooms 16, 20, 22, and 67 compare favorably with the outside sample result of 6,400 S/m^3. The samples collected in these rooms showed similar dominant molds in both the indoor and outdoor samples.

The samples collected in the Girl's Locker Room, Room 23, and Room 35 are below the outside sample concentration of 6,400 S/m3. The dominant species indoors, however, is Cladosporium which is not dominant in the outside sample. These samples reflect modestly elevated airborne mold levels.

The samples collected from the pipe insulation in Rooms 67, 22 and 20 are reported with no mold growth.

The rooms with the modestly elevated air samples corresponded to the rooms where we identified minor mold growth on the pipe insulation. This indicates that the recommended cleaning measures are appropriate. The cleaning work can be accomplished by Pemberton maintenance staff.

We have some additional recommendations to maintain a safe and healthy environment.

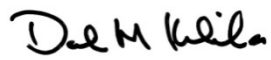
1. Remove the pipe insulation associated with the chiller line. Insulate with the proper materials to prevent condensation from forming during the cooling season.

2. Maintain temperatures in the range of 74 to 79°f during the cooling season and relative humidity levels below 60%. Maintaining humidity levels below 60% will limit the available moisture present for mold growth.

3. Clean the HVAC units on a regular basis. All rooms will benefit from cleaning of the ventilation equipment. The supply diffusers, fan, coils and return chamber should all be thoroughly cleaned and disinfected.

Please contact us should you have any questions or comments. We look forward to being of continued assistance. Your time and cooperation are greatly appreciated.

Sincerely,



David M. Kichula, CIH

Table I
Fungi Result Summary
Helen Fort Middle School
October 12, 2017

	Sample Identification	Result	Identification, %
Air Samples, S/m³			
1.	**Room 67**	3,000	Basidiospores, 52% Cladosporium, 21% Pen/Asp Types, 14% Ascospores, 11% Ganoderma, 6%
2.	**Room 22**	1,500	Basidiospores, 32% Cladosporium, 25% Rusts, 20% Ascospores, 11% Two Others, 13%
3.	**Room 16**	2,900	Basidiospores, 42% Pen/Asp Types, 20% Cladosporium, 16% Three Others, 21%
4.	**Room 20**	1,600	Basidiospores, 56% Pen/Asp Types, 17% Smuts, Periconia, Etc., 14% Three Others, 13%
5.	**Room 23**	1,600	Cladosporium, 49% Basidiospores, 39% Five Others, 12%
6.	**Room 35**	4,100	Cladosporium, 44% Basidiospores, 36% Four Others, 19%
7.	**Girls Locker Room**	2,100	Cladosporium, 40% Basidiospores, 38% Three Others, 23%
8.	**Outside**	6,400	Basidiospores, 78% Ascospores, 16% Cladosporium, 6% Rusts, 1%

Sample Procedures: Total Airborne Fungi

Air samples for non-viable fungi were collected on the Air-O-Cell cassette, connected to a high-volume BioPump calibrated at a flow rate of 15 liters per minute. The cassette contains an adhesive strip on which virtually all particulates in the passing air stream adhere. A total of one hundred liters of air were collected for each air sample. After collection, the cassettes were sealed, labeled and transported to the laboratory with full chain-of-custody documentation.

In the laboratory, the samples were examined under plain optical microscopy at 600X magnification. Fungal spores, conidiophores, hyphae and other fungal structures are counted and identified on a preliminary basis by size, color and morphology. The concentrations of other particulate agents, such as pollen grains, skin fragments, insect fragments and fibers can also be estimated by this method.

The Air-O-Cell air testing method provides a quantitative assessment of the number of airborne fungal structures. The identification of taxa is provided by microscopic examination of the fungal spores that are present. Many fungi can be identified solely by the size and morphology of the spores. Some spores of common fungi, such as Penicillium and Aspergillus, have very similar appearance, and can only be grouped together as Pen/Asp like. The results are reported in units of fungal structures per cubic meter of air (S/m3).

The fungi analyses were performed by EMLab P&K Microbiological Services, located in Marlton, NJ. EMLab P&K is certified by the New Jersey Department of Environmental Protection and the American Industrial Hygiene Association (AIHA Laboratory No. 100305) for the analysis of microbiological contaminants in environmental samples.

Interpretation:

There are currently no widely accepted industry standards for acceptable concentrations of fungi, and there are several reasons for this. Fungi occur commonly in nature, since microbes provide the final decomposition of many organic waste materials such as plant and animal debris. Fungi colonize in virtually all temperate environments, and it can be difficult to distinguish a normal population from an amplified population. In addition, individual response to fungi is a function of sensitivity, which can range from no effect to significant allergic discomfort in the typical building population. As a result, it is virtually impossible to predict whether exposure to a given concentration of fungi will elicit a response in a given individual.

The evaluation of hazard in the indoor environment is a process of comparing concentrations in an area of concern to ambient levels found in non-problem areas or outdoors. The airborne levels of fungi inside a building should be similar to those on the outside, and should not cause irritation or discomfort in most people. Levels that are significantly higher than the normal outdoor range, which can seasonally range up to 1000 cfu/m^3, indicate a local source of contamination. In addition, microbial populations that include the presence of a dominant genus that is not dominant in natural settings also suggest that local contamination is present.

Surface and bulk concentrations are evaluated on an order-of-magnitude basis. Fungi occur naturally, and their presence up to several thousand colonies per gram of material or square inch of surface is unremarkable in a normal building. Mold concentrations substantially higher suggest that contamination is present. The distribution of organisms in the population is also important, especially if a genus has become dominant that is not dominant in natural settings.