



August 13, 2019

Ms. Rebecca Lopez  
East Stroudsburg Area School District  
50 Vine Street  
East Stroudsburg, Pennsylvania 18301

**RE: Microbial Investigation – Air Quality Sampling**  
Resica Falls Elementary School  
1 Gravel Ridge Road  
East Stroudsburg, Pennsylvania 18302  
Hillmann Project Number: PH-0867

Dear Ms. Lopez:

Thank you for retaining Hillmann Consulting, LLC (Hillmann) to address your environmental concerns. On July 30, 2019, Ian Hinterleiter conducted a Microbial Investigation and Air Quality Sampling of the Kitchen, Gym, Main Office and Classrooms 11, 17, 23, 30, 36, and 41 located within the Resica Falls Elementary School. This investigation is part of a biannual sampling plan in order to document air quality within the Resica Falls Elementary School. The parameters for the investigation included a visual inspection and the collection of one airborne fungal spore sample within the subject spaces listed above.

Hillmann selected the sampling parameters based on consultations with the client (East Stroudsburg Area School District), the laboratory performing the analysis, and our in-house experts. The inspection was a general screening to randomly assess indoor airborne spore concentrations within the subject spaces.

Airborne fungal spores were collected by drawing air through an Air-O-Cell® cassette utilizing a Zefon BioPump. Samples were collected for a time period of five (5) minutes at a calibrated flow rate of 15 L/min yielding a total sample volume of 75 liters. These cassettes were then sent to an AIHA EMLAP accredited laboratory where fungal spores were identified by genera and concentration. Fungal spores are present in normal indoor settings. If found in excess amounts, these spores can produce allergy-like symptoms as well as asthmatic reactions in those who are sensitive to them. If the indoor samples are found to have a greater diversity of genera, and/or higher amounts of fungal spores than outdoor samples, it can be presumed that the subject space may be facilitating microbial growth.

## **OBSERVATIONS AND FINDINGS**

Hillmann was met on site by facility personnel, who escorted Hillmann through the subject spaces to conduct airborne microbial quality assurance sampling.

The Resica Falls Elementary School is primarily composed of a combination of masonry block units and wallboard walls, carpet and vinyl tile flooring, and drop ceiling tiles. Hillmann did not observe water staining or visible microbial growth on accessible surfaces.

Average temperature and relative humidity readings were 73.5°F and 35.1% respectively.

Nine (9) airborne fungal spore samples were collected from the Kitchen, Gym, Main Office and Classrooms 11, 17, 23, 30, 36, and 41 located within Resica Falls Elementary School. Laboratory analysis showed total indoor fungal spore concentrations and individual fungal genera were lower and/or comparable to the outdoor reference levels.

In the absence of health-based federal standards, Hillmann has adopted industry standard practice and recommended practices by the ACGIH to compare indoor/outdoor fungal concentrations. Samples are deemed “comparable” or “acceptable” when the following criteria are met:

- Overall indoor/outdoor fungal genera identified are similar on the day of sampling. Raw spore counts less than ten (10) do not represent a statistically significant number. Therefore, the presence of one (1) spore of certain indicator genera (i.e. *Stachybotrys*) will not be grounds for failure.
- Common outdoor genera identified indoors are similar to or less than outdoor concentrations.
- Common water intrusion indicator genera including but not limited to: *Penicillium/Aspergillus group*, *Chaetomium*, etc. are similar to outdoor concentrations and/or within one order of magnitude (10 times difference). Exceptions will be made depending on conditions, fungal genera identified, and outlying factors.
- Hillmann also recommends that common water intrusion indicator genera be below a level of 1,000 CFU/m<sup>3</sup> of air. Exceptions will be made depending on conditions, fungal genera identified, and outlying factors.

**CONCLUSIONS & RECOMMENDATIONS**

Based upon the findings and laboratory results, the subject spaces do not appear to be facilitating microbial growth at this time.

If you have any questions, or need additional information, please feel free to contact our office at (856) 581-9055.

Regards,  
**Hillmann Consulting, LLC**



Rafael L. Torres, III  
Director of Operations  
Philadelphia Area Regional Office



Ian Hinterleiter  
Industrial Hygienist

File: PH-0867  
Enclosed: Laboratory Results

**Date of Sampling:** 07/31/2019      **Job #:** PH-0867  
**Date of Sample Receipt:** 07/31/2019      **Order#:** 0819004  
**Client:** EAST STROUDSBURG AREA SCHOOL DISTRICT  
 50 VINE STREET  
 EAST STROUDSBURG, PA 18301      **#Received:** 11



HILLMANN CONSULTING, L.L.C.  
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 PHONE: (908) 688-7800      FAX: (908) 686-2636  
 www.hillmannconsulting.com

**Attn:**  
**Collection Site:** RESICA ELEMENTARY SCHOOL, EAST STROUDSBURG/ PA  
**Field Technician:** Ian Hinterleiter  
**Date of Analysis:** 08/01/2019  
**Date of Issue:** 08/01/2019  
**Sampling Method:** Air-O-Cell

**SPODE TRAP REPORT: Method (Fungal Spore SOD)**

| Location:                         | Main Office |           |     | Kitchen    |           |      | Gym       |           |      |
|-----------------------------------|-------------|-----------|-----|------------|-----------|------|-----------|-----------|------|
| <b>Lab ID#:</b>                   | F49063      |           |     | F49064     |           |      | F49065    |           |      |
| <b>Volume (Liters):</b>           | 75          |           |     | 75         |           |      | 75        |           |      |
| <b>Background Debris: *</b>       | Light       |           |     | Light      |           |      | Light     |           |      |
|                                   | raw ct.     | spores/m3 | %** | raw ct.    | spores/m3 | %**  | raw ct.   | spores/m3 | %**  |
| Basidiospores                     | 1           | 64        | 8%  | 2          | 130       | 100% | 1         | 64        | 100% |
| Cladosporium                      | 6           | 380       | 46% |            |           |      |           |           |      |
| Epicoccum                         | 1           | 64        | 8%  |            |           |      |           |           |      |
| Penicillium/Aspergillus           | 5           | 320       | 39% |            |           |      |           |           |      |
|                                   |             |           |     |            |           |      |           |           |      |
| <b>Total Spores/m3</b>            | <b>830</b>  |           |     | <b>130</b> |           |      | <b>64</b> |           |      |
| <b>Analytical Sensitivity ***</b> | <b>64</b>   |           |     | <b>64</b>  |           |      | <b>64</b> |           |      |

\* Background debris may affect analysis of sample causing results to be reported lower than actually present in the air.  
 Background debris are expressed qualitatively: heavy > medium > light.  
 \*\* Percentages may not equal 100% due to rounding.  
 \*\*\* Analytical sensitivity is based on 1000X magnification and 15% of trace analyzed.  
 Samples arrived in acceptable condition unless otherwise noted.  
 Uncertainty of measurement available upon request.  
 This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by Hillmann Consulting, LLC.

**Signature:** Mina Beshay  
 Mina Beshay Senior TEM Analyst      #Analyzed: 11



**Date of Sampling:** 07/31/2019      **Job #:** PH-0867  
**Date of Sample Receipt:** 07/31/2019      **Order#:** 0819004  
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**Field Technician:** Ian Hinterleiter  
**Date of Analysis:** 08/01/2019  
**Date of Issue:** 08/01/2019  
**Sampling Method:** Air-O-Cell

**SPODE TRAP REPORT: Method (Fungal Spore SOD)**

| Location:                         | Room 36    |           |      | Room 41                   |           |     | Room 23   |           |      |
|-----------------------------------|------------|-----------|------|---------------------------|-----------|-----|-----------|-----------|------|
| <b>Lab ID#:</b>                   | F49066     |           |      | F49067                    |           |     | F49068    |           |      |
| <b>Volume (Liters):</b>           | 75         |           |      | 75                        |           |     | 75        |           |      |
| <b>Background Debris: *</b>       | Light      |           |      | Light                     |           |     | Light     |           |      |
|                                   | raw ct.    | spores/m3 | %**  | raw ct.                   | spores/m3 | %** | raw ct.   | spores/m3 | %**  |
| Basidiospores                     | 2          | 130       | 100% |                           |           |     |           |           |      |
| Penicillium/Aspergillus           |            |           |      |                           |           |     | 1         | 64        | 100% |
| <b>Total Spores/m3</b>            | <b>130</b> |           |      | <b>No Spores Detected</b> |           |     | <b>64</b> |           |      |
| <b>Analytical Sensitivity ***</b> | <b>64</b>  |           |      | <b>64</b>                 |           |     | <b>64</b> |           |      |

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**Field Technician:** Ian Hinterleiter

**Date of Analysis:** 08/01/2019

**Date of Issue:** 08/01/2019

**Sampling Method:** Air-O-Cell

**SPODE TRAP REPORT: Method (Fungal Spore SOD)**

| Location:                         | Room 30    |           |      | Room 11                   |           |     | Room 17    |           |     |
|-----------------------------------|------------|-----------|------|---------------------------|-----------|-----|------------|-----------|-----|
| Lab ID#:                          | F49069     |           |      | F49070                    |           |     | F49071     |           |     |
| Volume (Liters):                  | 75         |           |      | 75                        |           |     | 75         |           |     |
| Background Debris: *              | Light      |           |      | Light                     |           |     | Light      |           |     |
|                                   | raw ct.    | spores/m3 | %**  | raw ct.                   | spores/m3 | %** | raw ct.    | spores/m3 | %** |
| Chaetomium                        |            |           |      |                           |           |     | 1          | 64        | 17% |
| Cladosporium                      | 2          | 130       | 100% |                           |           |     | 3          | 190       | 50% |
| Ganoderma                         |            |           |      |                           |           |     | 1          | 64        | 17% |
| Penicillium/Aspergillus           |            |           |      |                           |           |     | 1          | 64        | 17% |
|                                   |            |           |      |                           |           |     |            |           |     |
| <b>Total Spores/m3</b>            | <b>130</b> |           |      | <b>No Spores Detected</b> |           |     | <b>380</b> |           |     |
| <b>Analytical Sensitivity ***</b> | <b>64</b>  |           |      | <b>64</b>                 |           |     | <b>64</b>  |           |     |

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**Date of Analysis:** 08/01/2019  
**Date of Issue:** 08/01/2019  
**Sampling Method:** Air-O-Cell

**SPODE TRAP REPORT: Method (Fungal Spore SOP)**

| Location:                         | Outside      |           |     | Outside      |           |     |         |           |     |
|-----------------------------------|--------------|-----------|-----|--------------|-----------|-----|---------|-----------|-----|
| Lab ID#:                          | F49072       |           |     | F49073       |           |     |         |           |     |
| Volume (Liters):                  | 75           |           |     | 75           |           |     |         |           |     |
| Background Debris: *              | Light        |           |     | Light        |           |     |         |           |     |
|                                   | raw ct.      | spores/m3 | %** | raw ct.      | spores/m3 | %** | raw ct. | spores/m3 | %** |
| Alternaria                        | 1            | 64        | 2%  | 2            | 130       | 3%  |         |           |     |
| Ascospores                        |              |           |     | 4            | 260       | 6%  |         |           |     |
| Basidiospores                     | 27           | 1,700     | 42% | 19           | 1,200     | 27% |         |           |     |
| Bipolaris/Drechslera              | 1            | 64        | 2%  |              |           |     |         |           |     |
| Chaetomium                        | 1            | 64        | 2%  |              |           |     |         |           |     |
| Cladosporium                      | 24           | 1,500     | 37% | 23           | 1,500     | 34% |         |           |     |
| Coprinus                          |              |           |     | 1            | 64        | 1%  |         |           |     |
| Ganoderma                         |              |           |     | 1            | 64        | 1%  |         |           |     |
| Hyphal Fragments                  | 1            | 64        | 2%  |              |           |     |         |           |     |
| Myxo./Periconia/Rusts/Smuts       |              |           |     | 4            | 260       | 6%  |         |           |     |
| Penicillium/Aspergillus           | 8            | 510       | 12% | 10           | 640       | 15% |         |           |     |
| Pithomyces                        | 1            | 64        | 2%  |              |           |     |         |           |     |
| Xylariaceae                       | 1            | 64        | 2%  | 4            | 260       | 6%  |         |           |     |
| <b>Total Spores/m3</b>            | <b>4,100</b> |           |     | <b>4,400</b> |           |     |         |           |     |
| <b>Analytical Sensitivity ***</b> | <b>64</b>    |           |     | <b>64</b>    |           |     |         |           |     |

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Fungal Spore Chain-of-Custody and Analysis Request Form

Date of Sampling: 7/31/19

Job #: PH0867

Date of Sample Receipt: \_\_\_\_\_

Order #: 0819004

Client: E2A Strandsburg SD

Location: Resica elementary school

Field Hygienist: Izh Hitecolitzer



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| Sample ID<br>Lab ID | Sample Type<br>(Air, Bulk, Tape) | Air-Flow Time |      | Air-Flow Rate |     | Air Volume(L)<br>or Area (ft) <sup>2</sup> | Sample Location Description | Turnaround Time |        |      |      |      | Comments |         |
|---------------------|----------------------------------|---------------|------|---------------|-----|--|-----------------------------|-----------------|--------|------|------|------|----------|---------|
|                     |                                  | Start         | End  | Start         | End |  |                             | 3-8hr           | 8-12hr | 24hr | 48hr | 72hr |          | 5-7 day |
| 63 IH46             | Air                              | 3:10          | 3:15 | 15            | 15  | 75F  | Main Office                 |                 |        |      |      |      |          |         |
| 64 IH47             |                                  | 3:16          | 3:21 |               |     |  | Kitchen                     |                 |        |      |      |      |          |         |
| 65 IH48             |                                  | 3:24          | 3:29 |               |     |  | 9th                         |                 |        |      |      |      |          |         |
| 66 IH49             |                                  | 3:30          | 3:35 |               |     |  | 36                          |                 |        |      |      |      |          |         |
| 67 IH50             |                                  | 3:36          | 3:41 |               |     |  | 41                          |                 |        |      |      |      |          |         |
| 68 IH51             |                                  | 3:47          | 3:52 |               |     |  | 23                          |                 |        |      |      |      |          |         |
| 69 IH52             |                                  | 3:48          | 3:53 |               |     |  | 30                          |                 |        |      |      |      |          |         |
| 70 IH53             |                                  | 3:54          | 3:59 |               |     |  | 11                          |                 |        |      |      |      |          |         |
| 71 IH54             |                                  | 4:00          | 4:05 |               |     |  | 17                          |                 |        |      |      |      |          |         |
| 72 IH55             |                                  | 4:09          | 4:14 |               |     |  | outside                     |                 |        |      |      |      |          |         |
| 73 IH56             |                                  | 4:14          | 4:21 |               |     |  | outside                     |                 |        |      |      |      |          |         |

|                               |                 |                    |                    |                    |
|-------------------------------|-----------------|--------------------|--------------------|--------------------|
| Sampled By:                   | Transported By: | Received By:       | Prepared By:       | Analyzed By:       |
| Name: <u>Izh Hitecolitzer</u> |                 | <u>900</u>         |                    |                    |
| Signature: <u>[Signature]</u> |                 | <u>[Signature]</u> | <u>[Signature]</u> | <u>[Signature]</u> |
| Date:                         |                 | <u>7-31-19</u>     |                    | <u>8-1-19</u>      |