

**FOCUSED INDOOR AIR QUALITY ASSESSMENT REPORT**

STAIRWELL S-5 FIRST FLOOR LANDING AND FOYER  
COMMUNITY CONSOLIDATED SCHOOL DISTRICT 181  
HINSDALE MIDDLE SCHOOL  
100 SOUTH GARFIELD AVENUE  
HINSDALE, ILLINOIS  
IES NO. 915-24



# INTEGRITY

ENVIRONMENTAL SERVICES, INC.

1240 IROQUOIS DRIVE  
SUITE 102  
NAPERVILLE, IL 60563

630-718-9133  
FAX 630-718-9114

May 17, 2017

C-12195

Mr. Mike Duggan  
Director of Facilities  
Community Consolidated School District 181  
115 West 55th Street  
Clarendon Hills, Illinois 60514

Dear Mr. Duggan:

Final Report  
Indoor Air Quality Assessment  
Community Consolidated School District 181  
Hinsdale Middle School  
100 South Garfield Avenue  
Hinsdale, Illinois  
IES No. 915-24

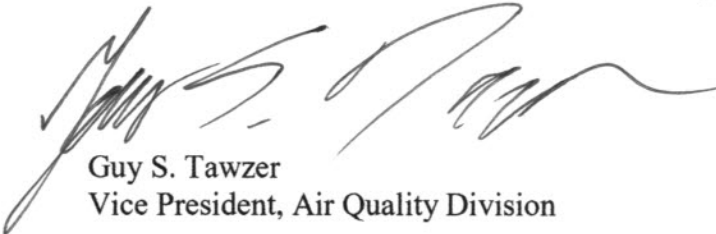
Integrity Environmental Services, Inc. has completed this final Indoor Air Quality Assessment Report for the above referenced School District facility. One (1) original and one (1) copy of the Report have been provided.

This Report has been prepared based on observations made and sample data collected during our May 12, 2017 building investigation.

Opinions made or formed, other than those expressed herein are those of the reader and in no way shall obligate Integrity Environmental Services, Inc. The findings presented in this Report are representative of the date and times that the readings were collected. The findings presented herein should not be used or relied upon to evaluate the air quality measurements obtained at significantly later dates.

If you have any questions, please feel free to contact our office at (630) 718-9133.

INTEGRITY ENVIRONMENTAL SERVICES, INC.



Guy S. Tawzer  
Vice President, Air Quality Division

GST/ks

## **SECTION 1**

## **EXECUTIVE SUMMARY**

**FOCUSED INDOOR AIR QUALITY ASSESSMENT REPORT  
STAIRWELL S-5 FIRST FLOOR LANDING AND FOYER  
COMMUNITY CONSOLIDATED SCHOOL DISTRICT 181  
HINSDALE MIDDLE SCHOOL  
100 SOUTH GARFIELD AVENUE  
HINSDALE, ILLINOIS  
IES NO. 915-24**

### **A. INTRODUCTION:**

The following paragraphs provide a narrative description of a focused air quality investigation conducted for Community Consolidated School District 181 within the above referenced school building.

At the request of the School District, Integrity Environmental Services, Inc. (IES) was present at Hinsdale Middle School on Friday, May 12, 2017 to collect air samples for mold spore concentrations and to conduct a visual inspection for the presence of mold within the first-floor landing and foyer area associated with stairwell S-5 located on the south side of the school building. The inspection was conducted due to concerns raised by the faculty regarding the air quality in these areas following a recent heavy rain and the intrusion of water within the subject area as a result of the recent rain. We understand that all water within the stairwell landing and associated foyer was immediately removed and all floors impacted by the water were quickly dried.

As part of our investigation, one (1) air sample each was collected inside Stairwell S-5, in the hallway by Stairwell S-5 and exterior door 903B, and the vestibule just inside exterior door 903B. In addition, a visual inspection was conducted. During this inspection, the IES representative noted the condition within each of the subject spaces. IES conducted the site inspection and air sampling procedures under normal building conditions. Sample collection began at 3:39 p.m. with students and staff members present. The weather at the time of the sampling event was sunny, breezy and warm. Doors and windows in and around the observed area of school building were closed. The building's HVAC system was operational and functioning at the time of this investigation.

### **B. INSPECTION SUMMARY:**

Discussions with Community Consolidated School District 181 Director of Facilities, Mr. Mike Duggan and School Principal, Mr. Ruben Pena prior to sampling revealed concern regarding the air quality in these areas based upon the recent rain storm-initiated water intrusion. No leaks, visible moisture staining, or water intrusion issues observed within the subject interior portions of the school building during the inspection. However, evidence of pooling and standing water on the walkways located immediately outside of the subject stairwell and doorways was observed.

### C. SAMPLING STRATEGY:

The sampling protocols for this project were developed in conjunction with existing guidelines and recommendations presented by the American Conference of Governmental Industrial Hygienists (ACGIH), the American Industrial Hygiene Association (AIHA), and Environmental Microbiology Laboratories, Inc., a nationally recognized, AIHA proficiency-tested laboratory specializing in microbial testing.

In conjunction with our Air Quality Division, guidelines suggested by the Indoor Air Quality Association (IAQA) and Mycotech Biological, Inc. were utilized in helping determine and interpret sample data.

It should be noted that there are no current regulatory requirements governing the testing strategies and interpretation of sample data at this time. Our sampling strategy has included the incorporation of current guidelines and recommendations, as well as state-of-the-art methodologies to help define the levels of mold and related airborne bioaerosols within the subject areas of Prospect Elementary School. IES collected representative samples within each sample location.

At each area air sample location, the IES representative collected a sample for mold spores using a particulate sampling cassette known as an "Allegro-D" disposable air monitoring cassette. The duration of each of the mold spore air samples was five (5) minutes at each sample location. A separate area sample was collected for mold spores outside the facility, on the building's west side. This sample was collected as a baseline or background sample.

Following collection, each air sample cassette was properly sealed, contained, and issued a separate and unique sample number. Each sample number and corresponding sample location was recorded on the laboratory's chain of custody form, prior to submittal to the laboratory for analysis.

Following collection, all samples were sent to STAT Analysis Corporation, located in Chicago, Illinois for analysis. The IES representative collected a total of five (5) area air samples for mold spores (including the required QA/QC blank). All sample locations are illustrated in Section 2, Exhibit A of this report.

Each of the air samples collected was analyzed for the presence, type, and quantity of fungal spores.

### D. LABORATORY ANALYSIS SUMMARY:

#### MOLD SPORES –

Mold spores were found on all four (4) of the air samples collected during this investigation. Results of the air sample analysis show that five (5) types of mold spores were found on the collected air samples. Four (4) types of mold spores (*Ascospores*, *Aspergillus/Penicillium*-type spores, *Cladosporium sp.*, and *Smuts/Myxomycetes sp.*) were found both inside and outside the building. One (1) type of spore (*Basidiospores*) was found exclusively on air samples collected outside of the building.

All reported interior mold spore concentrations ranged from “low” to “moderate”. While several of the interior spore concentrations were reported to be less than or equal to the concentration of the corresponding exterior concentration, one (1) sample of *Aspergillus/Penicillium*-type spores and one (1) sample of the group including Smuts and spores from the genus *Myxomycetes sp.* were reported to exhibit interior concentrations above the corresponding exterior concentration, but only slightly above the corresponding exterior concentration.

All interior airborne sample concentrations of mold spores were reported to be well below the Mycotech Biological, Inc. guidelines of 650 spores per cubic meter of air (spores/m<sup>3</sup>) for individual spore concentrations, and 2,000 spores/m<sup>3</sup> for total spore concentrations.

Although sample concentrations of these mold spores are considered to be within or below normal levels for the general population, persons who are sensitive and/or allergic to molds may still experience some discomfort

Refer to Section 2, Exhibit A for a drawing of all sample locations. Refer to Section 2, Exhibit B for Laboratory Analytical Results. Refer to Section 2, Exhibit C, Definitions, for additional information regarding the types of mold fungi and spores mentioned above.

#### **E. CONCLUSIONS:**

Based on our inspection, sample collection work, and laboratory analysis, Integrity Environmental Services, Inc. has made the following conclusions:

- Visible mold was not identified during this investigation.
- All interior area airborne mold spore sample concentrations were well below the Mycotech Biological, Inc. total spore concentration guideline of 2,000 spores/m<sup>3</sup>, as well as the individual spore concentration guideline of 650 spores/m<sup>3</sup>.
- The collected interior concentrations of mold spores are considered to be at low to moderate levels for the general population.
- All the types of mold spores found on the interior air samples are the same types of mold spores that were collected on the exterior air sample and are likely from an exterior source, entering the building through a doorway or window; or from being brought into the building on clothing, shoes or other items.
- Results of the laboratory analysis of the collected air samples, at this time, do not indicate the existence of a mold problem within the sampled areas of school building.

#### **F. RECOMMENDATIONS:**

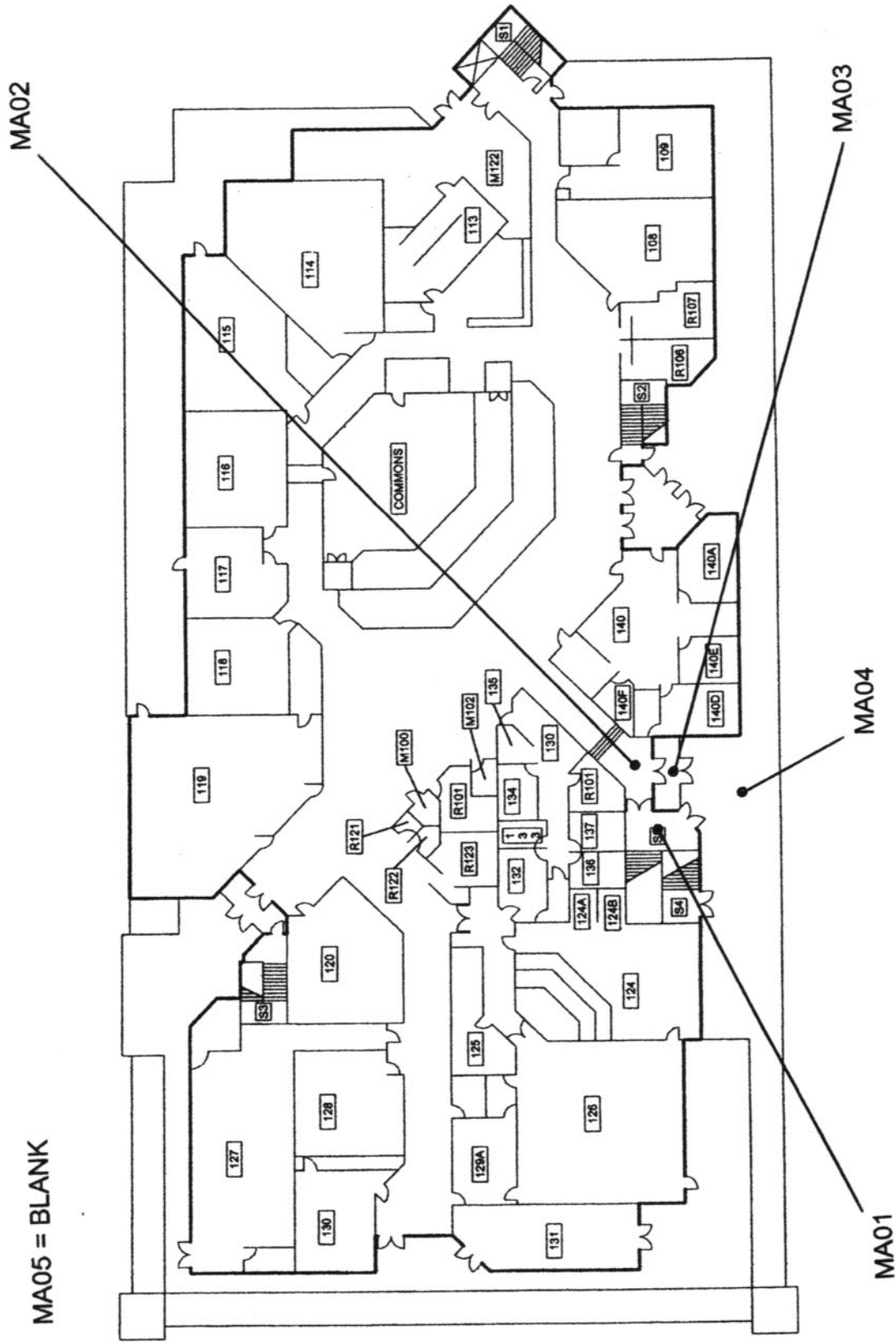
While laboratory results do not indicate any immediate airborne microbial air quality concern, IES recommends that the following actions be taken in an effort to minimize or eliminate any microbial presence within the Hinsdale Middle School building:

1. Continue to be pro-active with the investigation and elimination (if necessary) of any air quality concerns or reported suspect mold-like material.
2. While visible mold growth was not observed during this investigation within subject areas of the school building, any surfaces found to be water damaged or showing visible mold growth should be addressed by cleaning and disinfecting. Minimal disturbance of the contaminated surface during any cleaning or disinfecting work is necessary to prevent introduction of additional microorganisms into the air.
3. Any and all carpeting within the school should continue to be routinely vacuumed and cleaned. The use of HEPA vacuums is recommended.
4. Continue to monitor ceiling tiles and the pipes located above them for the presence of water leaks and/or condensation. The source of water stained ceiling tiles and/or other surfaces should be investigated and the source of the water/moisture should be removed.
5. Continue to routinely clean and/or replace all HVAC filters as necessary to help maintain the levels of potential microbial and other airborne contaminants entering the building at a minimum.
6. Further investigation of spaces behind the walls within the subject areas of the school building, for evidence of moisture/water intrusion should be conducted at a time when the school building is unoccupied so that use of the subject stairway and associated vestibule will not be obstructed.

## **SECTION 2**



**EXHIBIT A**  
**SAMPLE LOCATION DRAWING**



# AIRBORNE MOLD SPORE SAMPLE LOCATION DIAGRAM



NORTH

IES NO.: 915-24

DRAWN BY: GT  
DATE: 05/17/17

NO SCALE

FIRST FLOOR

PROJECT: HINSDALE MIDDLE SCHOOL  
100 SOUTH GARFIELD AVENUE  
HINSDALE, ILLINOIS

OWNER: COMMUNITY CONSOLIDATED SCHOOL DIST. 181  
6010 SOUTH ELM STREET  
BURR RIDGE, ILLINOIS

**INTEGRITY**  
ENVIRONMENTAL SERVICES, INC.

1240 IROQUOIS DRIVE, SUITE 102  
NAPERVILLE, ILLINOIS 60563  
(630) 719-9133  
(630) 718-9114 (FAX)

**EXHIBIT B**  
**LABORATORY ANALYTICAL RESULTS**

# **STAT** Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

May 17, 2017

Integrity Environmental Services, Inc.  
1240 Iroquois Drive  
Naperville, IL 60563

Telephone: (630) 718-9133  
Fax: (630) 718-9114

Analytical Report for STAT Work Order: 17050474 Revision 0

RE: 915-24, Hinsdale Middle School, Area By Stairwell S-5

Dear Guy Tawzer:

STAT Analysis received 5 samples for the referenced project on 5/15/2017 9:28:00 AM. The analytical results are presented in the following report.

Enclosed are the analytical results for the above referenced project. The samples were analyzed as per the enclosed chain of custody.

All analyses were performed in accordance with established microbiology methodology. All Quality Control criteria as specified in the methods have been met. QA/QC documentation and raw data will remain on file for future reference. Sample acceptance criteria has been met unless noted in the Case Narrative or Sample Receipt Checklist. If required, an estimate of uncertainty for the analyses can be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions about the enclosed materials, please contact me at (312) 733-0551.

Sincerely,



Albie Marquez

Senior Microscopist

*The information contained in this report and any attachments is confidential information intended only for the use of the individual or entities named above. The results of this report relate only to the samples tested. If you have received this report in error, please notify us immediately by phone. This report shall not be reproduced, except in its entirety, unless written approval has been obtained from the laboratory. This analytical report shall become property of the Customer upon payment in full. Otherwise, STAT will be under no obligation to support, defend or discuss the analytical report.*

## Analytical Report for Microbiological Analysis - Fungal Spores in Air

Client: Integrity Environmental Serv  
 Project ID: 915-24 Hinsdale Middle School, Area by Stairwell S-5  
 STAT Project No.: 147050474

Date/Time Received: 5/15/17 9:28  
 Date Analyzed: 5/17/2017  
 Analyzed By: AM  
 QC By: DM

Client Sample No.:	MA-01				MA-02				MA-03				MA-04			
Sample Description:	Stairwell S-5				Hall by door 903B				903B Vestibule				Bld Ext			
Date Sampled:	5/12/2017				5/12/2017				5/12/2017				5/12/2017			
STAT Sample No.:	17050474-001				17050474-002				17050474-003				17050474-004			
Volume (m <sup>3</sup> ):	0.075				0.075				0.075				0.075			
	Total Count	Count/ m <sup>3</sup>	DL	%	Total Count	Count/ m <sup>3</sup>	DL	%	Total Count	Count/ m <sup>3</sup>	DL	%	Total Count	Count/ m <sup>3</sup>	DL	%
<b>Total Fungal Spores:</b>	15	200	13	100	7	93	13	100	18	240	13	100	20	267	13	100
<i>Alternaria</i>																
Ascospores	3	40		20.0	2	27		28.6	4	53		22.2	6	80		30.0
<i>Aspergillus/Penicillium</i>									6	80		33.3	4	53		20.0
Basidiospores													1	13		5.0
<i>Botrytis</i>																
<i>Cercospora</i>																
<i>Chaetomium</i>																
<i>Cladosporium</i>	1	13		6.7									1	13		5.0
<i>Curvularia</i>																
<i>Drechslera/Bipolaris</i>																
<i>Epicoccum</i>																
<i>Fusarium</i>																
<i>Nigrospora</i>																
<i>Oidium/Erysiphe</i>																
<i>Periconia</i>																
<i>Phoma</i>																
<i>Pithomyces</i>																
<i>Pleospora</i>																
<i>Polythrincium</i>																
<i>Rhizopus/Mucor</i>																
Rusts																
Smuts/Myxomycetes	11	147		73.3	5	67		71.4	8	107		44.4	8	107		40.0
<i>Stachybotrys</i>																
<i>Stemphylium</i>																
<i>Torula</i>																
<i>Ulocladium</i>																
Unidentified Fungi																
Other																
Mycelial Fragments																
Debris Level	Moderate				Moderate				Moderate				Moderate			
Organic Material	Present				Present				Present				Present			

## Analytical Report for Microbiological Analysis - Fungal Spores in Air

Client: Integrity Enviromental Serv  
 Project ID: 915-24 Hinsdale Middle School,Area by Stairwell S-5  
 STAT Project No.: 147050474

Date/Time Received: 5/15/17 9:28  
 Date Analyzed: 5/17/2017  
 Analyzed By: AM  
 QC By: DM

Client Sample No.:	MA-05															
Sample Description:	Blank															
Date Sampled:	5/12/2017															
STAT Sample No.:	17050474-005															
Volume (m <sup>3</sup> ):	N/A															
	Total Count	Count/ m <sup>3</sup>	DL	%	Total Count	Count/ m <sup>3</sup>	DL	%	Total Count	Count/ m <sup>3</sup>	DL	%	Total Count	Count/ m <sup>3</sup>	DL	%
<b>Total Fungal Spores:</b>	0			100				100				100				100
<i>Alternaria</i>																
Ascospores																
<i>Aspergillus/Penicillium</i>																
Basidiospores																
<i>Botrytis</i>																
<i>Cercospora</i>																
<i>Chaetomium</i>																
<i>Cladosporium</i>																
<i>Curvularia</i>																
<i>Drechslera/Bipolaris</i>																
<i>Epicoccum</i>																
<i>Fusarium</i>																
<i>Nigrospora</i>																
<i>Oidium/Erysiphe</i>																
<i>Periconia</i>																
<i>Phoma</i>																
<i>Pithomyces</i>																
<i>Pleospora</i>																
<i>Polythrincium</i>																
<i>Rhizopus/Mucor</i>																
Rusts																
Smuts/Myxomycetes																
<i>Stachybotrys</i>																
<i>Stemphylium</i>																
<i>Torula</i>																
<i>Ulocladium</i>																
Unidentified Fungi																
Other																
Mycelial Fragments																
Debris Level	Absent															
Organic Material	Absent															

# STAT Analysis Corporation

2242 West Harrison Street, Suite 200, Chicago, Illinois 60612 Phone: (312) 733-0551 Fax: (312) 733-2386  
e-mail address: STATinfo@STATAnalysis.com

## MICROBIOLOGY CHAIN OF CUSTODY RECORD

Page: 1 of 1

Client: Integrity Environmental Serv., Inc.  
Street Address: 1240 Iroquois Ave., Ste. 102  
City, State, Zip: Naperville, IL 60563  
Phone: (630) 718-9133/Cell (708) 528-1491  
Fax: (630) 718-9114  
e-mail/Alt. Fax: ies2001@sboglobal.net  
Project Number: 915-24  
Project Name: *Higdale Middle School*  
Project Location: *Area By Stairwell B-5*  
Project Manager: Guy Tawzer  
P.O. Number: 915-24

### Office Use Only Below:

Work Order No.: 17050474  
Samples Acceptable: Yes: ☒ No: ☐  
Analyzed By: *[Signature]*  
Date/Time: *5/12/17*  
Data File:  
QC By:  
Reported By (Initial/Date/Time):  
Verbal:  
Fax/e-mail:

Turn Around Time: <1 ☐ 1 ☐ 2 ☐ 3 ☒ Viable: 8-18  
Other TAT:  
Date Due:  
Relinquished by: *[Signature]* Date/Time: *5-12-17 17:00*  
Received by: *[Signature]* Date/Time: *5-12-17 17:00*  
Relinquished by: *[Signature]* Date/Time: *5-12-17 17:00*  
Received for lab by: *[Signature]* Date/Time: *5/12/17 7:00*  
Relinquished by:  
Received by:

Client Sample Number/Description:	Date Taken	Time Taken	Volume (Liters)	Area Wiped (Units) <sup>2</sup>	Laboratory Sample No.	Non-Viable	Air Cassette	Direct Exam-Tape	Direct Exam-Swab	Direct Exam-Bulk	Viable	Air Impact	Swab	Bulk	Other
MA01/ Stairwell B-5 5/12/17	13:39	13:39	75		001										
MA02/ Hallway Door 900B	13:45	13:45			002										
MA03/ 9D39 Vestibule	13:53	13:53			003										
MA04/ Bldg Ext.	14:03	14:03			004										
MA05/ Blank			2.0		005										

Comments:

## **SECTION 3**



## DEFINITIONS

### MOLD FUNGI AND SPORES –

An estimated 100,000 species of fungi are known to exist. Fungi may be single celled or multi-cellular. Various organisms such as yeasts, mushrooms, morels, truffles, and molds are actually fungi. Fungal growth is affected by moisture, temperature, and light. All humans are exposed to fungi through inhalation and ingestion, apparently, with no ill health effects. Many fungi are used as foods and sources of drugs that help fight disease. Most fungi are saprophytic, feeding on dead and decaying organic matter. Some species of fungi, however, are known to cause infectious diseases in humans. In most cases, the fungi are unable to cause disease in persons with a healthy immune system.

Three (3) types of fungal infections exist. They are defined as:

1.     Systemic Infection: Caused by the inhalation of certain fungal spores. Most of these infections produce little or no symptoms.
2.     Opportunistic Infection: Limited to those with impaired immunological defenses. In this situation, infection is secondary to a primary disease. Species of *Aspergillus*, *Cladosporium*, *Mucor*, *Rhizopus* and *Cryptococcus* are common opportunistic fungi.
3.     Dermatophytes: A group of fungi that infect the hair, skin and nails. Direct contact with an infected individual or the sharing of items such as grooming utensils or clothes is usually how the infection is transmitted. Transmission to humans from an environmental source is rare.

Fungi produce toxic metabolites called mycotoxins. Mycotoxins are present in both spores and viable fungi. Usually, inhalation exposure of mycotoxins occurs following the disturbance of a contaminated source.

Fungi also produce volatile organic compounds (VOCs) while growing. Some of these compounds have noticeable odors that many people find offensive. It is thought that exposure to these VOCs may be generally responsible for some building-related symptoms (BRSs).

The following is a description of each genus of fungi found within Hinsdale Middle School:

Ascospores:	These spores were found on air samples collected on all of the air samples collected both inside and outside of the building. These spores were not positively identified. They are possibly from species of <i>Alternaria</i> , <i>Aspergillus</i> , <i>Cladosporium</i> , or <i>Penicillium</i> among others.
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- Aspergillus sp.:* Spores were found on air samples collected in the vestibule associated with exterior door 903B, and on the air sample collected outside of the building. This fungus is associated with grains, nuts, cotton, organic debris and water damaged building materials. This is the most common group of fungi in our environment. Sixteen (16) of the over 160 species of *Aspergillus* are known to act as agents of etiological disease in humans. These diseases are fairly uncommon and do not normally occur in people with healthy immune systems. The spores produced by *Aspergillus sp.* appear very similar to the spores produced by *Penicillium sp.*
- Basidiospores: A single spore was found on air sample collected outside of the building. These spores were not positively identified and are possibly from some species of yeasts (*Rhodotorula* and *Sporobolomyces*) that are found in some indoor environments or possibly from a variety of fungus known as *Cryptococcus sp.*
- Cladosporium sp.:* These spores were found on the air samples collected in Stairwell S-5, and on the air sample collected outside of the building. This fungus is commonly found both indoors and outdoors and is often located in spaces where condensation is collected and/or where there is poor ventilation. It is commonly found on the surface of fiberglass duct lining inside supply ducts. It is a common cause of allergies and hay fever and has also been associated with various skin and eye infections acquired by immune compromised individuals.
- Myxomycetes: Spores were found on air samples collected in the vestibule associated with exterior door 903B, and on the air sample collected outside of the building. Myxomycetes are commonly known as slime molds, but are not true molds. They are usually found outdoors on decaying plant material. They are easily dispersed by wind in their dry phase and occasionally are found in indoor environments. Under 600x microscopy, Myxomycetes are indistinguishable from smuts.
- Penicillium sp.:* Spores were found on air samples collected in the vestibule associated with exterior door 903B, and on the air sample collected outside of the building. A large number of organisms belong to this genus. This fungus is commonly found in soil, food, cellulose, paint, grains, compost piles, carpet, wall paper, and in interior fiberglass duct insulation. It is reported to cause allergic reactions on skin and in susceptible individuals, may cause among other infections, hypersensitivity pneumonitis or allergic alveolitis. Some species can produce various mycotoxins that are harmful to humans. The spores produced by *Penicillium sp.* appear very similar to the spores produced by *Aspergillus sp.*

**Smuts:**

Spores were found on air samples collected in the vestibule associated with exterior door 903B, and on the air sample collected outside of the building. This allergen is a parasitic plant pathogen that needs a living host. Smuts are often found on corn, grass, weeds, flowering plants, and even other fungi. Smuts are distributed by wind. Under 600x microscopy, smuts are indistinguishable from myxomycetes.