Appalachian Water and Soil Analysis, Inc.

From Pollution To Solution

www.awsa.info Dr. Eberhard Essich Mobile: 1-706-892-6036

Project Name							
Date	2/20/18	2/20/18	2/20/18	772-224-9266			
Time	11:00	11:20	11:40				
Location	Outside	Pastor's Office	Cloak Room Entrance				
Analysis	Count/m^3 Air-O-Cell Spore Count	Count/m^3 Air-O-Cell Spore Count	Count/m^3 Air-O-Cell Spore Count	Subtotal			
FEE				$525.00			
Alternaria-mtx	0	0	0				
Ascospores (Allergies: Aureobasidium, Acremonium)	1590	0	0				
Aspergillus **(ZT)**/Penicillium (**ZT**) CUS-MTX (Allergies)	0	0	0				
Basidiospores	30300	300	350				
Bipolaris	0	0	0				
Chaetomium (**ZT**) MTX TXS WDI	0	0	0				
Cladosporium (CIO mtx) cladosporioides (Allergies)	840	0	0				
Curvularia	0	0	0				
Epicoccum CUS	20	0	0				
Fusarium (ZT) CUS MTX WDI	0	0	0				
Ganoderma	20	0	0				
Myxomycetes	20	0	0				
Pithomyces	0	0	0				
Rust	0	0	0				
Scopulariopsis	0	0	0				
Stachybotrys (**ZT**) TXS WDI	0	0	0				
Torula	0	0	0				
Ulocladium WDI	0	0	0				
Unidentifiable Spores	0	0	0				
Zygomycetes (ex Mucor, Rhizopus-Human disease) (Allergies: Mucor)	0	0	0				
Ascotricha	0	0	0				
Microascus	0	0	0				
Total Fungi	32840	330	350				
Hyphal Fragment	0	20	0				
Insect Fragment	0	0	0				
Pollen	0	20	0				
Relative Humidity of Sampling Area	73%	55%	69%				
Temperature oC/oF	22.6 oC/ 71.	20/ 68	20.2/68.4				
Sheetrock / Wall Nearest Sampling Point Moisture level (S=Surface; D=Deep 3/4")	S = 0	0	0				

ZT=zero tolerance. These fungi may not be found in any number indoors in schools and public buildings.
MTX = produce mycotoxins, many are cancer causing and neurotoxic.
TXS = under the right condtions these fungi can produce toxic spores (spores with toxic substances adhering) that may be inhaled.
WDI = Water Damage Indicators
Airborne particles were captured on "spore traps" using calibrated pump. Spore traps are examined microscopically for over 20 different genera and spores and particulates are identified and enumerated. Any mold can cause allergic reactions but some are worse and are labelled "allergies"
Basidiospores: These spores have been documented in cases of hay fever, asthma, eczema, allergic alveoltis, fatigue, runny nose, sneezing, stuffy nose, and plugged ears

Five most common molds in homes

Alternaria - water damage
Aspergillus - most common - can cause infections
Cladosporium - lower temperatures
Penicillium - strong musty odor
Stachybotrys c. - mycotoxins

Group 2: Common mycoflora in homes

Acremonium strictum
Alternaria alternata
Aspergillus ustus
Cladosporium cladosporioides I
Cladosporium cladosporioides II
Cladosporium herbarum
Epicoccum nigrum
Mucor and Rhizopus group
Penicillium chrysogenum

Guidelines and recommendations for airborne fungal concentrations

values range from 50 to 10 000 spores/m3. No international consensus exists . value for schools currently 1000 spores/m3.

Group 1: Water damaged environments

Aspergillus flavus
Aspergillus fumigatus
Aspergillus spp.
Eurotium (A.) amstelodami
Aureobasidium pullulans
Chaetomium globosum

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Additional Notes							

Five most common molds in

Cladosporium sphaerospermum
Paecilomyces variotii
Penicillium brevicompactum
Penicillium corylophilum
Penicillium crustosum (group2)
Penicillium purpurogenum
Penicillium spinulosum
Penicillium variabile
Scopulariopsis brevicaulis
Scopulariopsis chartarum
Stachybotrys chartarum
Trichoderma viride
Wallemia sebi

Aspergillus: *Aspergillus* appears to be the most aggressive of these fungi, giving rise to infections also in patients with less severe airway disease, such as cystic fibrosis, asthma and chronic obstructive pulmonary disease. Most common indoor mold.

Chaetonium: Mycotoxins produced: Bipoaroxin, Dihydrobipolaroxin, BMT-toxin, Cytochalasins Sterigmatocystin

Health effects: Cause of mycotic keratitis, subcutaneous, sinusitis, peritonitis in patients on CAPD

Curvularia: Mycotoxins produced: Belfedrin A, Curvularin, Curvularol

Health effects: onychomycosis (fungal nail infections), ocular keratitis (corneal infection), sinusitis, mycetoma (chronic fungal infection, usually affecting the foot), pneumonia, endocarditis (inflammation of the endocardium, the inner lining of the heart), cerebral abscess, and disseminated infection (infection that enters the body at a specific point then spreads throughout, often affecting numerous organs); most cases are from immune compromised patients

Myxomycetes: **Health effects:** Type 1 allergies (hay fever and asthma); fungal hypersensitivity reactions

Pithomyces: **Mycotoxins produced:** Sporidesmin

Health effects: allergen, irritant; produces hypersensitivity pneumonitis, dermatitis

Rhizopus: Mycotoxins produced: Rhizonin A

Health effects: the most common causative agent of zygomycosis (fungal infections), accounting for 60% of reported culture positive cases and 90% of rhinocerebral cases; may cause mucorosis in immune-compromised individuals. The sites of infection are the lung, nasal sinus, brain, eye and skin. Infection may have multiple sites.

Alternaria: usually in buildings with water damage

Cladosporium: lower temperature mold

Fursarium: also a lower temperature mold and present after water damaged carpeting and other fabrics. Allergic reactions, asthma and respiratory infections. Immunocompromised are especially susceptible.

Penicillium: strong musty odor and often produces allergic reactions

Stachybotrys chartarum: black mold producing toxic compounds = mycotoxins- can cause severe health problems

Torula: Type I allergies (hay fever, asthma), opportunistic pathogen. Grows well on cellulose surfaces. Where does Torula grow outside? Often found growing in soil, dead herbaceous stems, wood, grasses, sugar beet root, groundnuts and oats

Basidiospores: Originate from mushrooms, toadstools, boletes, wood bracket fungi, and puffballs. Once inside, the spores may begin growing in potted plants, bathrooms, carpeting, textiles, walls and on anything made of wood. Recent flooding, insects, pets may bring spores into the building. A minimal presence may not produce a health risk. Primary symptoms of the presence of