



**Environmental
Microbiology
Laboratory, Inc.**

Report for:

Mr. Tim Klassen
ENVIRONIX
20728 56th Ave W
Lynnwood, WA 98036

Regarding: Project: Sample report
EML ID: 123456

Date of Analysis: 03-05-2007

Approved by:

A handwritten signature in black ink, appearing to read "Dr. Kamashwaran Ramanathan", is written over a horizontal line.

Northwest Lab Manager
Dr. Kamashwaran Ramanathan

Project SOPs: Spore trap analysis (100005)

This coversheet is included with your report in order to comply with AIHA and ISO accreditation requirements.

For clarity, we report the number of significant digits as calculated; but, due to the nature of this type of biological data, the number of significant digits that is used for interpretation should generally be one or two. All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank corrections of results is not a standard practice. The results relate only to the items tested.

Environmental Microbiology Laboratory, Inc. ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Document Number: 200091 - Revision Number: 5

Client: ENVIRONIX
 C/O: Mr. Tim Klassen
 Re: Sample report

Date of Receipt: null
 Date of Report: 03-05-2007

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	1: Outside control		2: Downstairs		3: Downstairs family room	
Comments (see below)	None		None		None	
Lab ID-Version‡:	1234567-1		1234567-1		1234567-1	
	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3
Alternaria						
Arthrinium						
Ascospores*	4	53	8	107		
Aureobasidium						
Basidiospores*	16	213	8	107	16	213
Bipolaris/Drechslera group	1	13				
Botrytis	1	13				
Chaetomium			3	40		
Cladosporium	12	160			16	213
Curvularia						
Epicoccum						
Fusarium						
Myrothecium						
Nigrospora						
Other brown	1	13				
Other colorless						
Penicillium/Aspergillus types†	4	53	32	427	16	213
Pithomyces						
Rusts*						
Smuts*, Periconia, Myxomycetes*					1	13
Stachybotrys						
Stemphylium						
Torula						
Ulocladium					1	13
Unknown						
Zygomycetes						
Background debris (1-4+)††	2+		3+		3+	
Sample volume (liters)	75		75		75	
TOTAL SPORES/M3		518		681		665

Comments:

* Most of these spore types are not seen with culturable methods (Andersen sampling), although some may appear as non-sporulating fungi. Most of the basidiospores are "mushroom" spores while the rusts and smuts are plant pathogens.
 † The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.
 †† Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be actually higher than reported. Background debris also affects the reporting limit for some spore types. The reporting limit is dependent on spore size, background debris, sample volume, and the percentage of the trace analyzed. It is important to account for sample volumes when evaluating dust levels. The minimum reporting limit is based on a raw count of one, which the lowest count that can be detected.
 ‡ A "Version" greater than 1 indicates amended data.

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Alternaria						
Arthrinium						
Ascospores*	4	53	8	107		
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Basidiospores*	16	213	8	107	16	213
Bipolaris/Drechslera group	1	13				
Botrytis	1	13				
Chaetomium			3	40		
Cladosporium	12	160			16	213
Curvularia						
Epicoccum						
Fusarium						
Myrothecium						
Nigrospora						
Other brown	1	13				
Other colorless						
Penicillium/Aspergillus types†	4	53	32	427	16	213
Pithomyces						
Rusts*						
Smuts*, Periconia, Myxomycetes*					1	13
Stachybotrys						
Stemphylium						
Torula						
Ulocladium					1	13
Unknown						
Zygomycetes						
Background debris (1-4+)††	2+		3+		3+	
Hyphal fragments/m3	< 13		27		27	
Pollen	2+		None		None	
Skin cells	< 1+		2+		3+	
Sample volume (liters)	75		75		75	
TOTAL SPORES/M3		518		681		665

Comments:

* Most of these spore types are not seen with culturable methods (Andersen sampling), although some may appear as non-sporulating fungi. Most of the basidiospores are "mushroom" spores while the rusts and smuts are plant pathogens.
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Client: ENVIRONIX
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MoldRANGE™: Extended Outdoor Comparison
Outdoor Location: 1, Outside control

Fungi Identified	Outdoor data	Typical Outdoor Data by Date†				Typical Outdoor Data by Location‡			
		Month: March				State: WA			
	spores/m3	low	med	high	freq %	low	med	high	freq %
Generally able to grow indoors*									
Alternaria	-	7	27	230	44	7	13	420	16
Bipolaris/Drechslera group	13	7	13	130	11	5	13	380	4
Chaetomium	-	7	13	150	8	7	13	67	5
Cladosporium	160	50	350	4,200	92	31	320	5,800	87
Curvularia	-	7	13	240	6	6	13	170	3
Nigrospora	-	7	13	93	6	-	-	-	< 1
Other brown	13	7	13	80	34	7	13	100	41
Penicillium/Aspergillus types	53	27	160	1,800	84	53	270	2,800	88
Stachybotrys	-	7	13	390	3	5	13	2,000	2
Torula	-	7	13	180	8	7	13	180	6
Seldom found growing indoors**									
Ascospores	53	13	160	2,100	78	40	430	7,700	88
Basidiospores	213	27	400	6,000	91	53	1,600	26,000	97
Botrytis	13	7	27	240	19	7	27	340	25
Rusts	-	7	13	310	19	5	13	280	16
Smuts, Periconia, Myxomycetes	-	7	27	310	55	7	27	420	48
TOTAL SPORES/M3	518								

† The Typical Outdoor Data by Date represents the typical outdoor spore levels across North America for the month indicated. The last column represents the frequency of occurrence. The low, medium, and high values represent the 2.5, 50, and 97.5 percentile values of the spore type when it is detected. For example, if the frequency of occurrence is 63% and the low value is 53, it would mean that the given spore type is detected 63% of the time and, when detected, 2.5% of the time it is present in levels above the detection limit and below 53 spores/m3. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

‡ The Typical Outdoor Data by Location represents the typical outdoor spore levels for the region indicated for the entire year. As with the Typical Outdoor Data by Date, the four columns represent the frequency of occurrence and the typical low, medium, and high concentration values for the spore type indicated. These values are updated periodically, and if enough data is not available to make a statistically meaningful assessment, it is indicated with a dash.

*The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

**These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

Interpretation of the data contained in this report is left to the client or the persons who conducted the field work. This report is provided for informational and comparative purposes only and should not be relied upon for any other purpose. "Typical outdoor data" are based on the results of the analysis of samples delivered to and analyzed by Environmental Microbiology Laboratory, Inc. and assumptions regarding the origins of those samples. Sampling techniques, contaminants infecting samples, unrepresentative samples and other similar or dissimilar factors may affect these results. In addition, Environmental Microbiology Laboratory, Inc. may not have received and tested a representative number of samples for every region or time period. Environmental Microbiology Laboratory, Inc. hereby disclaims any liability for any and all direct, indirect, punitive, incidental, special or consequential damages arising out of the use or interpretation of the data contained in, or any actions taken or omitted in reliance upon, this report.

Client: ENVIRONIX
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Date of Receipt: null
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MoldSTAT™: Supplementary Statistical Spore Trap Report

Outdoor Summary: 1: Outside control

Species detected	Outdoor sample spores/m3				Typical outdoor ranges (North America)	Freq. %
	<100	1K	10K	>100K		
Ascospores					13 - 150 - 4,300	76
Basidiospores					13 - 320 - 13,000	92
Bipolaris/Drechslera group					7 - 13 - 170	17
Botrytis					7 - 22 - 240	15
Cladosporium					53 - 530 - 7,800	95
Other brown					7 - 13 - 93	37
Penicillium/Aspergillus types					27 - 210 - 2,600	86
Smuts, Periconia, Myxomycetes					7 - 40 - 760	71
Total						

The "Typical outdoor ranges" and "Freq. %" columns show the typical low, medium, and high spore counts per cubic meter and the frequency of occurrence for the given spore type. The low, medium, and high values represent the 2.5, 50, and 97.5 percentile values when the spore type is detected. For example, if the low value is 53 and the frequency of occurrence is 63%, it would mean that we typically detect the given spore type on 63 percent of all outdoor samples and, when detected, 2.5% of the time it is present in levels below 53 spores/m3.

Indoor Samples

Location: 2: Downstairs

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: 131%	dF: 1 Result: 0.1429 Critical value: 3.8415 Inside Similar: Yes	Result: 0.5455	dF: 8 Result: 0.4464 Critical value: 0.6190 Outside Similar: No	Score: 164 Result: Medium	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
Ascospores					107
Basidiospores					107
Chaetomium					40
Penicillium/Aspergillus types					427
Total					681

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MoldSTAT™: Supplementary Statistical Spore Trap Report

Location: 3: Downstairs family room

% of outdoor total spores/m3	Friedman chi-square* (indoor variation)	Agreement ratio** (indoor/outdoor)	Spearman rank correlation*** (indoor/outdoor)	MoldSCORE**** (indoor/outdoor)	
Result: 128%	dF: 1 Result: 0.1429 Critical value: 3.8415 Inside Similar: Yes	Result: 0.5000	dF: 9 Result: 0.5167 Critical value: 0.5833 Outside Similar: No	Score: 132 Result: Low	
Species Detected		Spores/m3			
		<100	1K	10K	>100K
Basidiospores					213
Cladosporium					213
Penicillium/Aspergillus types					213
Smuts, Periconia, Myxomycetes					13
Ulocladium					13
Total					665

* The Friedman chi-square statistic is a non-parametric test that examines variation in a set of data (in this case, all indoor spore counts). The null hypothesis (H0) being tested is that there is no meaningful difference in the data for all indoor locations. The alternative hypothesis (used if the test disproves the null hypothesis) is that there is a difference between the indoor locations. The null hypothesis is rejected when the result of the test is greater than the critical value. The critical value that is displayed is based on the degrees of freedom (dF) of the test and a significance level of 0.05.

** An agreement ratio is a simple method for assessing the similarity of two samples (in this case the indoor sample and the outdoor summary) based on the spore types present. A score of one indicates that the types detected in one location are the same as that in the other. A score of zero indicates that none of the types detected indoors are present outdoors. Typically, an agreement of 0.8 or higher is considered high.

*** The Spearman rank correlation is a non-parametric test that examines correlation between two sets of data (in this case the indoor location and the outdoor summary). The null hypothesis (H0) being tested is that the indoor and outdoor samples are unrelated. The alternative hypothesis (used if the test disproves the null hypothesis) is that the samples are similar. The null hypothesis is rejected when the result of the test is greater than the critical value. The critical value that is displayed is based on the degrees of freedom (dF) of the test and a significance level of 0.05.

**** MoldSCORE™ is a specialized method for examining air sampling data. It is a score between 100 and 300, with 100 indicating a greater likelihood that the airborne indoor spores originated from the outside, and 300 indicating a greater likelihood that they originated from an inside source. The Result displayed is based on the numeric score given and will be either Low, Medium, or High, indicating a low, medium, or high likelihood that the spores detected originated from an indoor source. EMLab reserves the right to, and may at anytime, modify or change the MoldScore algorithm without notice.

Interpretation of the data contained in this report is left to the client or the persons who conducted the field work. This report is provided for informational and comparative purposes only and should not be relied upon for any other purpose. "Typical outdoor ranges" are based on the results of the analysis of samples delivered to and analyzed by Environmental Microbiology Laboratory, Inc. and assumptions regarding the origins of those samples. Sampling techniques, contaminants infecting samples, unrepresentative samples and other similar or dissimilar factors may affect these results. With the statistical analysis provided, as with all statistical comparisons and analyses, false-positive and false-negative results can and do occur. Environmental Microbiology Laboratory, Inc. hereby disclaims any liability for any and all direct, indirect, punitive, incidental, special or consequential damages arising out of the data contained in, or any actions taken or omitted in reliance upon, this report.

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MoldSCORE™: Spore Trap Report

Outdoor Sample: 1 Outside control

Fungi Identified	Outdoor sample spores/m3				Raw count	Spores/m3
	<100	1K	10K	>100K		
Generally able to grow indoors*						
Alternaria					ND	< 13
Bipolaris/Drechslera group	█				1	13
Chaetomium					ND	< 13
Cladosporium	█				12	160
Curvularia					ND	< 13
Nigrospora					ND	< 13
Other brown	█				1	13
Penicillium/Aspergillus types†	█				4	53
Stachybotrys					ND	< 13
Torula					ND	< 13
Seldom found growing indoors**						
Ascospores‡‡	█				4	53
Basidiospores‡‡	█	█			16	213
Botrytis	█				1	13
Rusts					ND	< 13
Smuts, Periconia, Myxomycetes‡‡					ND	< 13
Total						518

Location: 2 Downstairs

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3
	<100	1K	10K	>100K		
Generally able to grow indoors*						
Alternaria					ND	< 13
Bipolaris/Drechslera group					ND	< 13
Chaetomium	█				3	40
Cladosporium					ND	< 13
Curvularia					ND	< 13
Nigrospora					ND	< 13
Penicillium/Aspergillus types†	█	█	█		32	427
Stachybotrys					ND	< 13
Torula					ND	< 13
Seldom found growing indoors**						
Ascospores‡‡	█				8	107
Basidiospores‡‡	█				8	107
Rusts					ND	< 13
Smuts, Periconia, Myxomycetes‡‡					ND	< 13
Total						681

MoldSCORE‡		Score
100	200	
█		100
█		100
█	█	162
█		100
█		100
█		100
█	█	164
█		100
█		100
█	█	137
█		106
█		100
█		100
Final MoldSCORE		164

Client: ENVIRONIX
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MoldSCORE™: Spore Trap Report

Location: 3 Downstairs family room

Fungi Identified	Indoor sample spores/m3				Raw count	Spores/m3	MoldSCORE‡			
	<100	1K	10K	>100K			100	200	300	Score
Generally able to grow indoors*										
Alternaria					ND	< 13	█			100
Bipolaris/Drechslera group					ND	< 13	█			100
Chaetomium					ND	< 13	█			100
Cladosporium	█				16	213	█			111
Curvularia					ND	< 13	█			100
Nigrospora					ND	< 13	█			100
Penicillium/Aspergillus types†	█				16	213	█	█		132
Stachybotrys					ND	< 13	█			100
Torula					ND	< 13	█			100
Ulocladium	█				1	13	█			105
Seldom found growing indoors**										
Ascospores††					ND	< 13	█			100
Basidiospores††	█				16	213	█	█		117
Rusts					ND	< 13	█			100
Smuts, Periconia, Myxomycetes††	█				1	13	█			103
Total						665	Final MoldSCORE 132			

*The spores in this category are generally capable of growing on wet building materials in addition to growing outdoors. Building related growth is dependent upon the fungal type, moisture level, type of material, and other factors. *Cladosporium* is one of the predominant spore types worldwide and is frequently present in high numbers. *Penicillium/Aspergillus* species colonize both outdoor and indoor wet surfaces rapidly and are very easily dispersed. Other genera are usually present in lesser numbers.

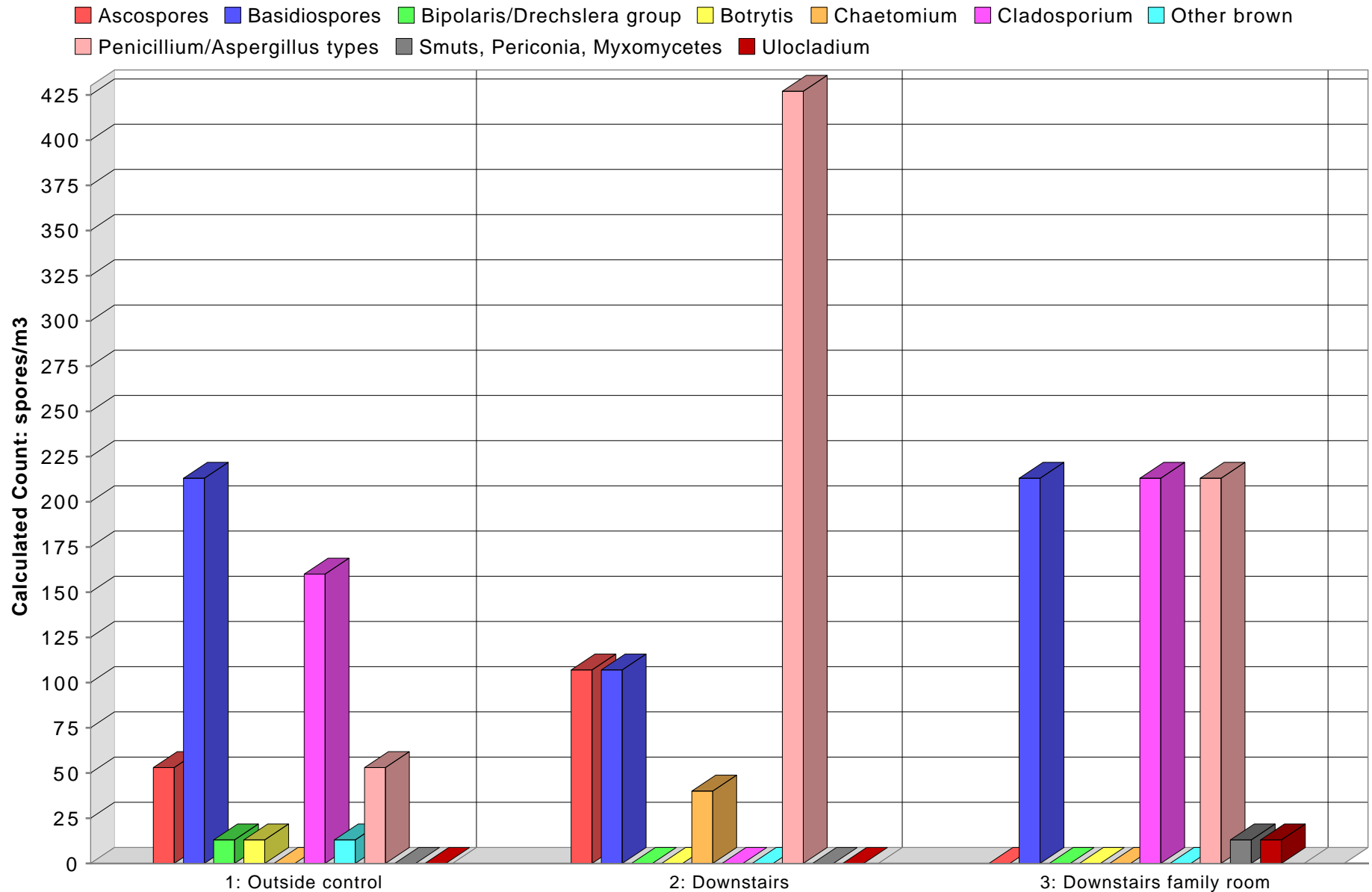
**These fungi are generally not found growing on wet building materials. For example, the rusts and smuts are obligate plant pathogens. However, in each group there are notable exceptions. For example, agents of wood decay are members of the basidiomycetes and high counts of a single morphological type of basidiospore on an inside sample should be considered significant.

†The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods.

††Most of these spore types are not seen with culturable methods (Anderson sampling), although some may appear as non-sporulating fungi. Most of the basidiospores are "mushroom" spores.

‡Rated on a scale from 100 to 300. A rating less than 150 is low and indicates a low probability of spores originating inside. A rating greater than 250 is high and indicates a high probability that the spores originated from inside, presumably from indoor mold growth. A rating between 150 and 250 indicates a moderate likelihood of indoor fungal growth. MoldSCORE is NOT intended for wall cavity samples. It is intended for ambient air samples in residences. Using the analysis on other samples (like wall cavity samples) will lead to misleading results.

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY



Comments:

Note: Graphical output may understate the importance of certain "marker" genera.