T. HARRIS
ENVIRONMENTAL MANAGEMENT
since 1979

93 Skyway Avenue, Suite 101
Toronto, Ontario M9W 6N6
Tel. (416) 679-8914
Fax. (866) 750-1045
1-888-ASK-THEM

ASBESTOS & MOULD AIR CLEARENCE TESTING

Sir Sanford Fleming College – Sutherland Campus
599 Brealey Dr
Peterborough, Ontario
K9J 7B1

FINAL REPORT

Assessment performed: February 28, 2025
Report issued: March 05, 2025
THEM Project #: T25-18561-00

Prepared by:

T. HARRIS ENVIRONMENTAL MANAGEMENT INC.

Vivin Thomas, PG. Dip.
Environmental/OH&S Technician

Raj Singh, P.Eng., MBA, AMRT, CMI
Manager, Greater Toronto Area (GTA) &
National Capital Region (NCR)

Prepared for:
Marriah Wickert
Health and Safety Supervisor
Sir Sanford Fleming College
599 Brealey Dr
Peterborough, Ontario
K9J 7B1

T. HARRIS
ENVIRONMENTAL MANAGEMENT
since 1979

93 Skyway Avenue, Suite 101
Toronto, Ontario M9W 6N6
Tel. (416) 679-8914
Fax. (866) 750-1045
1-888-ASK-THEM

EXECUTIVE SUMMARY

T. Harris Environmental Management Inc. (THEM) performed an asbestos and mould air clearance testing within the Fleming College building at 599 Brealey Dr in Peterborough, Ontario. The assessment was performed on February 28, 2025, at the request of Ms. Mariah Wickert, Health and Safety Supervisor at Fleming College. The assessment was conducted in all areas specified by the client to provide clearance post to the remediation work. Based on the asbestos and mould air sampling results and observations made on the survey date, the following conclusions are made:

Asbestos Air Sampling

- The airborne concentrations measured were well below the occupational exposure limit (OEL) of 0.1 f/cc (8-hour TWA), stipulated by the Ontario Regulation 490/09 – Designated Substances. Furthermore, the samples were also below the THEM recommended ambient air levels of <0.01 f/cc, which is also equivalent to 10% of the regulatory OEL.

Mould Air Sampling

- Total airborne mould within the suspected areas at 599 Brealey Dr, Peterborough, Ontario seemed to be less than to the total spore concentration found outdoors.

- Airborne concentration of *Aspergillus/Penicillium type* spore in the sample AS1 – Room B2 120 (inside the enclosure) was found to be greater than 50% of total spores or species. However, this is not an indication of real dominance as the raw spore counts were very low. In addition, the snow can supress the readings of outside samples.

- The composition of mould types in the indoor sample were similar to the outdoor samples.

- No toxic or pathogenic mould spores were present on any samples collected.

- No mould amplification is present within the accessed areas.

This executive summary is not to be used alone and the report should be reviewed in its entirety.

TABLE OF CONTENTS

March 5, 2025

Sir Sanford Fleming College
599 Brealey Dr
Peterborough, Ontario
K9J 7B1

Attn: Mariah Wickert
Health and Safety Supervisor

Re: Asbestos & Mould Air Clearence Testing - THEM Project # 18561
599 Brealey Dr, Peterborough, Ontario

1.0 BACKGROUND

T. Harris Environmental Management Inc. (THEM) performed an asbestos and mould air clearance testing within the Fleming College building at 599 Brealey Dr in Peterborough, Ontario. The assessment was performed on February 28, 2025, at the request of Ms. Mariah Wickert, Health and Safety Supervisor at Fleming College. The assessment was conducted in all areas specified by the client to provide clearance post to the remediation work.

2.0 INTRODUCTION

2.1 Asbestos

Asbestos is a general name for several varieties of highly fibrous silicate minerals. Commercially significant types include *chrysotile*, *amosite* and *crocidolite*. The fibres are valued for their heat- and chemical-resistant properties. The combination of fibrous structures, low heat conductivity, high electrical resistance, chemical inertness, strength, flexibility and its effectiveness as a reinforcing or binding agent when combined with cement or plastic, made it popular for wide industrial use.

Asbestos is a Designated Substance and, as such, exposure to airborne asbestos is regulated by Ontario Regulation 278/05 – *Asbestos on Construction Projects and in Buildings and Repair Operations* and, Ontario Regulation 490/09 – *Designated Substances* – both made under the Occupational Health and Safety Act. The occupational exposure limit for asbestos (all forms) is 0.1 fibres/cc.

2.2 Mould

No data are currently available that establish a clear dose-response relationship for saprophytic fungal spore exposure (i.e., those fungi deriving nutrition from non-living materials in the environment). The interpretation of the air sampling results is carried out by comparing indoor and outdoor fungal spore biodiversity or composition. The same type of fungal spores should be present in indoor environments at concentrations reflective or lower as compared to the outside. Overall, the composition of the indoor air spora should reflect that of the outdoor, suggesting that the fungal spores found indoors originated from the outdoor air. For the purposes of comparison, one outside (exterior) sample was collected on the date of our assessment.

The following criteria were used to interpret total airborne mould sampling data:

1. Total airborne mould spore concentrations should be lower inside the building as compared to the outside of the building.

2. A similar composition of fungal spores should be present inside the building areas sampled as compared to the outside sample locations.

3. Airborne concentrations of any one type of mould genus/species, other than common environmental moulds detected on the outside of the building, should not be dominant in any one location sampled. Dominant being defined as representing ≥ 50 % of total spores or species detected in any one sample, as determined by spore trap sampling or culturable air sampling results.

4. No known toxic (or pathogenic) mould spores or species should be present in the air samples at significant percentages. Significant percentage being defined as representing ≥ 25 % of total mould spores or species detected in any one sample.

Please note that the above criteria are based on currently acceptable guidelines recommended for interpretation for mould air sampling results, as suggested by Health Canada, the American Industrial Hygiene Association (AIHA) and the American Conference of Governmental Industrial Hygienists (ACGIH).

3.0 METHODOLOGY

3.1 Asbestos

The air sample was collected using an air-sampling pump calibrated to a known flow rate (~15 litres per minute). The sample was collected using an 0.8 µm pore size, 25 mm diameter mixed cellulose ester (MCE) membrane filter, held by black, anti-static, 2-inch open-faced filter holder.

The sample was analyzed for total fibre content by the phase contrast microscopy (PCM) method of detection in accordance with U.S. National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods, Method 7400, Issue 2 Asbestos and other Fibres by PCM (August 15, 1994). The Limit of Detection (LOD) for PCM analysis depends on sample volume and quantity of interfering dust and is < 0.01 fibre/cc for atmospheres free of interferences. The method gives an index of airborne fibres. Fibres less than approximately 0.25 µm in diameter will not be detected by this method.

Possible interferences are any other airborne fibres and particles that meet the counting criteria. Chain-like particles may appear fibrous. High levels of non-fibrous dust particles may obscure fibres in the field of view and increase the detection limit.

Blank filters were also submitted for analysis to ensure that no contamination of the filters occurred during sampling or analytical procedures. Analytical results, as reported in result tables within this report, have been corrected for any background fibre counts recorded for the blank filters.

3.2 Air Sampling for Total Mould

In order to measure total airborne (non-viable) fungi/mould, air samples were collected on Air-O-Cell cassettes using the SKC QuickTake 15 constant flow diaphragm pump. The pump maintains a set flow rate throughout the sampling period in order to compensate for the inherent backpressure created by sampling media. Samples were collected at a flow rate of 15 litres per minute (l/min) over 10-minute duration for a total sample volume of 150 litres. Analysis of spore trap samples is performed using direct microscopy techniques. Sample analysis of individual mould spores is reported in spores per cubic meter of air (spores/m^3).

4.0 RESULTS

4.1 Visual Inspection of Investigated Areas

The assessment was conducted in all areas specified by the client. At the time of the assessment, no visible mould growth and unusual odours were observed within the accessed areas. The remediation work was carried out in the room B2 120 which is situated in the main building of the Sir Sanford Fleming College. Remediation work includes the removal of drywall within the selected areas of the room B2 120, and air samples were collected inside and outside the

enclosure. To ensure that the remediation work did not affect to the adjacent rooms, ambient air samples were collected on the room B2 130 and B2 106. THEM collected four (4) mould air samples along with one (1) interior and exterior reference samples and four (4) asbestos air samples.

Photographs of the assessed areas are presented in Appendix I.

4.2 Air Sampling for Asbestos

The results from air sampling for asbestos is presented in **Table I**.

TABLE I
Asbestos Air Sampling Results
Sir Sanford Fleming College
599 Brealey Dr, Peterborough, ON
February 28, 2025

Sample ID	Location	Volume (L)	Concentration (fibres/cc)
S1	Room B2 120 – inside enclosure	1200	<0.01
S2	Room B2 120 – outside enclosure	1200	<0.01
S3	B2 130	1200	<0.01
S4	B2 106	1200	<0.01

Note: Two (2) field blanks were collected onsite and contained < 7 fibres/100 Fields

Based on the results presented in **Table I**, airborne concentrations measured were well below the occupational exposure limit (OEL) of 0.1 f/cc (8-hour TWA), stipulated by the Ontario Regulation 490/09 – *Designated Substances*.

4.3 Air Sampling for Total Mould

Total mould air sampling includes both living and nonliving mould spores and fragments. The concentrations of mould spores detected indoors were compared to outdoor concentrations in order to determine the potential for interior amplification sites.

Results of Air-O-Cell air sampling for total mould are presented below in **Table II.** The Laboratory Certificate of Analysis is provided in Appendix II.

TABLE II
Mould Air Sampling Results
Sir Sanford Fleming College
599 Brealey Dr, Peterborough, ON
February 28, 2025

Sample / Location	Total Spores (spores/m^3)	Fungal Material Type	Concentration (count/m^3)	Percentage of Sample (%)	Percentage of Outdoors (%)
AS6- Exterior Reference	200	Ascospores	27	14	-
		Aspergillus spp. / *Penicillium* spp.	13	7	
		Basidiospores	13	7	
		Cladosporium spp.	107	54	
		Colourless	40	20	
AS5 - Interior Reference (Cafeteria)	67	*Aspergillus* spp. / *Penicillium* spp.	27	40	208
		Cladosporium spp.	13	19	12
		Colourless	13	19	33
AS1 - Room B2 120 (inside enclosure)	187	*Aspergillus* spp. / *Penicillium* spp.	147	79	1131
		Cladosporium spp.	27	14	25
		Colourless	13	7	33
AS2 - Room B2 130	107	Ascospores	13	12	48
		Aspergillus spp. / *Penicillium* spp.	40	37	308
		Cladosporium spp.	27	25	25
		Colourless	27	25	68
AS3 - Room B2 120 (outside enclosure)	27	*Aspergillus* spp. / *Penicillium* spp.	13	48	100
		Cladosporium spp.	13	48	12
AS4 - B2 106	27	*Cladosporium* spp.	13	48	12
		Colourless	13	48	33

Sampling results can be summarized as follows:

- Total airborne mould within the sampled areas had seemed to be less than to the total

spore concentration found outdoors.

- Airborne concentration of *Aspergillus/Penicillium type* spore in the sample AS1 – Room B2 120 (inside the enclosure) was found to be greater than 50% of total spores or species. However, this is not an indication of real dominance as the raw spore counts were very low. In addition, the snow can supress the readings of outside samples.

- The composition of mould types in the indoor sample were similar to the outdoor samples.

- No toxic or pathogenic mould spores were present on any samples collected.

- Mould amplification is not occurring within the areas assessed based on the above observation.

4.4 Mould Genera

The following briefly describes the moulds identified:

Ascospores are sexual mould spores produced in an ascus. Ascospores can be produced by over 3000 various mould genera.

Aspergillus spp. is common in outdoor environments and commonly can grow on a various substrate and with a wide range of water requirements. Some genera of Aspergillus are known to known to produce mycotoxins.

Basidiospores are sexual mould spores produced in a basidium. Basidiospores may be produced by approximately 1200 mould genera.

Cladosporium spp. is a common mould ubiquitous in outdoor air; also, widespread indoors on many substrates, including textiles, wood, moist windowsills.

Colorless spores are spores lacking distinguishable characteristics.

5.0 CONCLUSIONS

T. Harris Environmental Management Inc. (THEM) performed an asbestos and mould air clearance testing within the Fleming College building at 599 Brealey Dr in Peterborough, Ontario. The assessment was performed on February 28, 2025, at the request of Ms. Mariah Wickert, Health and Safety Supervisor at Fleming College. The assessment was conducted in all areas specified by the client to provide clearance post to the remediation work. Based on the asbestos and mould air sampling results and observations made on the survey date, the following conclusions are made:

5.1 Asbestos Air Sampling

- The airborne concentrations measured were well below the occupational exposure limit (OEL) of 0.1 f/cc (8-hour TWA), stipulated by the Ontario Regulation 490/09 – Designated Substances. Furthermore, the samples were also below the THEM recommended ambient air levels of <0.01 f/cc, which is also equivalent to 10% of the regulatory OEL.

5.2 Mould Air Sampling

- Total airborne mould within the suspected areas at 599 Brealey Dr, Peterborough, Ontario seemed to be less than to the total spore concentration found outdoors.

- Airborne concentration of *Aspergillus/Penicillium type* spore in the sample AS1 – Room B2 120 (inside the enclosure) was found to be greater than 50% of total spores or species. However, this is not an indication of real dominance as the raw spore counts were very low. In addition, the snow can supress the readings of outside samples.

- The composition of mould types in the indoor sample were similar to the outdoor samples.

- No toxic or pathogenic mould spores were present on any samples collected.

- No mould amplification is present within the accessed areas.

6.0 LIMITATIONS

In this statement of limitations, the "Client" refers to the persons or entities to whom this report (the "Report") is addressed. "THEM" refers to T. Harris Environmental Management Inc. The "Contract" refers to any general or project-specific written agreement, including THEM's Terms and Conditions and project-specific scope of work documents, executed between THEM and the Client pertaining to the subject matter of this Report.

This Report is subject to the limitations set out below and any other limitations set out in the body of this Report and/or in the Contract between THEM and the Client.

The investigation and assessment described in this Report were conducted in accordance with the Contract agreed upon by the Client in a manner consistent with a reasonable level of care and skill normally exercised by members of the occupational hygiene consulting profession currently practising under similar conditions in the Province of Ontario and/or Quebec, as applicable, and observing the code of ethics of the Canadian Registration Board of Occupational Hygienists (CRBOH) and the American Board of Industrial Hygiene (ABIH).

In preparing this Report, THEM has relied on information provided by others, including without limitation, information concerning the history and operation of the site, and test results and analyses of other consultants, independent laboratories, or testing services. Except as expressly stated in this Report, THEM has not made any independent verification of such information. Findings cannot be extended to portions of the site, which were unavailable for direct observation.

The assessment in this Report has been made in the context of regulations which were in force and effect at the time of the assessment and which are specified in this Report. The assessment did not consider any regulations, which were not in effect at the date of the assessments, or any guideline or standard not specified in this Report. Regulatory standards do not exist for all materials of a potentially hazardous nature.

The collection of any samples at the site (including the location of samples and the analytical parameters applied to the samples) was undertaken in accordance with the Contract agreed upon by the Client, based upon the information provided to THEM by the Client concerning existing site conditions. Conditions between sample locations (if any) may differ from those indicated in this Report.

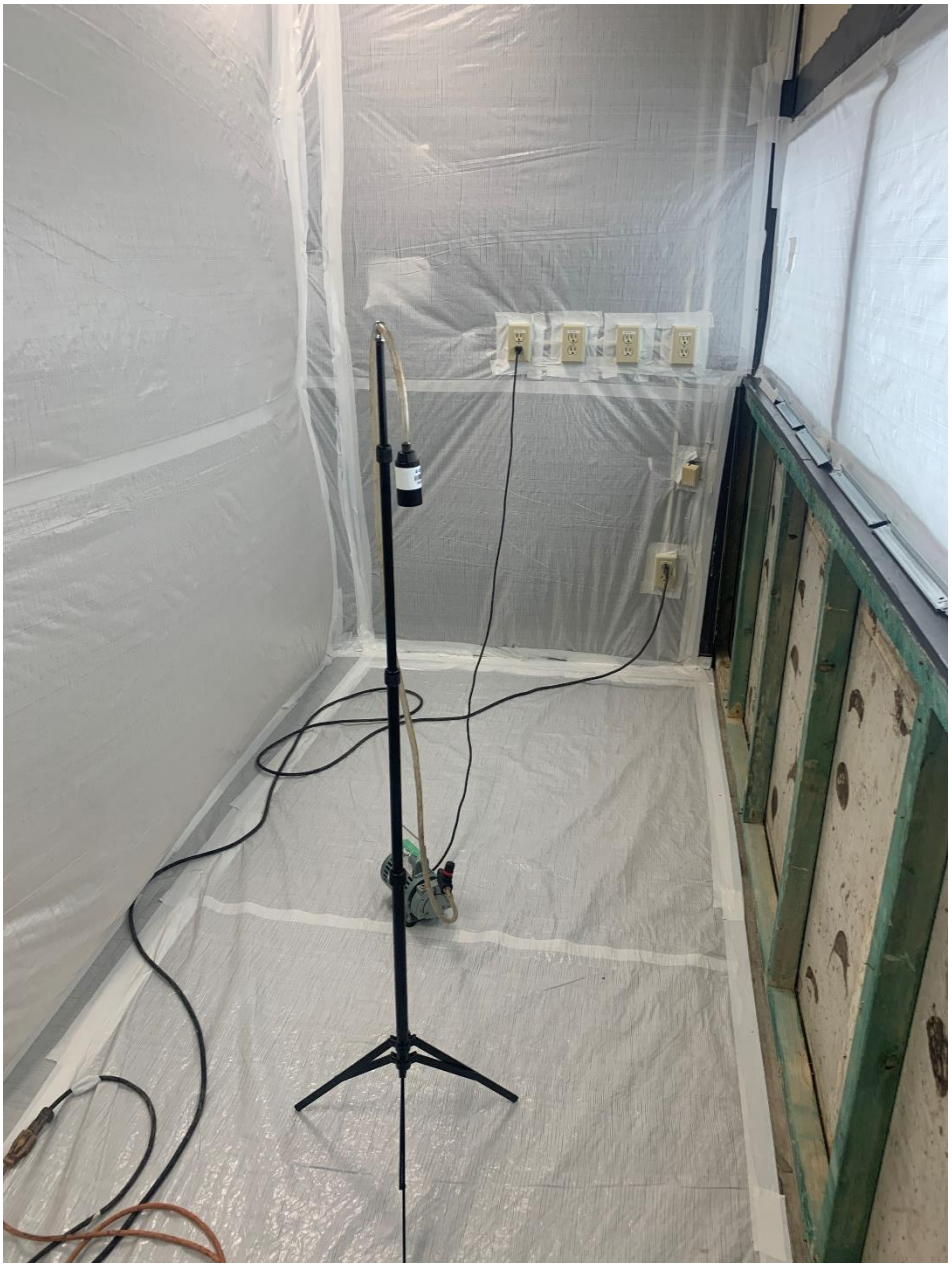
This Report is intended solely for the use or uses specified in this Report and/or the Contract. Use of this Report for purposes other than those expressly set out in this Report and/or the Contract will be at the sole risk of the Client.

Copying of this Report except as may be reasonably required for internal use by the Client and any distribution of this Report to persons other than the Client in whole or in part, is not permitted without the prior express written permission of THEM.

This Report is for the sole use of the Client. THEM makes no representation or warranty, either expressed or implied, to any third party with regard to this Report and the work referred to in this Report and expressly disclaims any, and accepts no duty of care to any third party or any responsibility or liability whatsoever to any third party for any loss, expenses, damages (direct, consequential or contingent), fines, penalties, or other harm that may be suffered or incurred by any third party as a result of any use of, any reliance placed upon, or any decision made or actions taken based upon this Report or the work referred to herein.

In no event shall THEM be liable for any indirect, incidental, special or consequential damages, or damages from loss of profits, revenue, or use, whether in an action in tort, contract or otherwise, even if THEM has been advised of the possibility of such damages. If new information concerning the subject matter of this report arises, the Client should contact THEM to re-evaluate the conclusions of this Report and to provide amendments as required.

APPENDIX I
SITE PHOTOGRAP



Photograph 1: View of asbestos air sampling within the enclosure of room B2 120.

Photograph 2: View of the air sample outside the enclosure of room B2 120.

Photograph 3: View of air sampling within the room B2 130.

APPENDIX II
LABORATORY CERTIFICATES OF ANALYSIS

emcscientific INCORPORATED

Laboratory Analysis Report

To:

Vivin Thomas
T. Harris Environmental
93 Skyway Avenue, Suite 101
Toronto, Ontario
M9W 6N6

EMC LAB REPORT NUMBER: 100422
Job/Project Name: Fleming College - Sutherland Campus
Job/Project No: 18561 **No. of Samples:** 6
Sample Type: Air-O-Cell **Date Received:** Mar 3/25
Analysis Method(s): Fungal Spore Counting
Date Analyzed: Mar 3/25 **Date Reported:** Mar 3/25
Analyst: Anupama Chauhan, M.Sc., *Microbiologist*
Reviewed By: Lalita Sarlashkar, Ph.D., *Microbiologist*

Client's Sample ID	**AS1**			**AS2**			**AS3**			**AS4**			**AS5**		
EMC Lab Sample No.	424010			424011			424012			424013			424014		
Sampling Date	Feb 28/25			Feb 28/25			Feb 28/25			Feb 28/25			Feb 28/25		
Description/Location	Room B2 120 - inside enclosure			Room B2 130			Room B 120 - outside enclosure			B2 106			Interior reference - cafeteria		
Air Volume (m^3)	0.075			0.075			0.075			0.075			0.075		
Fungal Spores	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3
Alternaria															
Arthrinium															
Ascospores				1	13	13									
Aspergillus/Penicillium type	11	79	147	3	38	40	1	50	13				2	40	27
Basidiospores															
Cercospora															
Chaetomium															
Cladosporium	2	14	27	2	25	27	1	50	13	1	50	13	1	20	13
Colorless	1	7	13	2	25	27				1	50	13	2	40	27
Curvularia															
Drechslera/Bipolaris group															
Epicoccum															
Fusarium															
Oidium															
Pithomyces															
Polythrincium															
Rusts															
Smuts, *Periconia* , Myxomycetes															
Stachybotrys															
Ulocladium															
Unidentified spores															
Number of spores/sample	14			8			2			2			5		
Fungal fragments (0-3 +)	0+			0+			0+			0+			0+		
Non-fungal material (0-3 +)	2+			2+			1+			1+			1+		
TOTAL SPORES/M^3	**187**			**107**			**27**			**27**			**67**		

Note:
1. *Aspergillus/Penicillium* type spores may include those of *Acremonium, Paecilomyces, Trichoderma* and others.
2. A scale of 0 + to 3 + (indicating increasing amount) is used to rate abundance of fungal fragments and non-fungal material, with 3+ indicating the most abundance.
3. The presence of a large amount of dust debris may obscure some spores to be counted. Spore counts from samples with 3 + non-fungal material and/or 3 + fungal material may be treated as under-counts.
4. Unidentified spores are those lacking distinguishable characteristics for correct identification. Colorless are colorless spores lacking distinguishable characteristics.
5. These results are only related to the sample(s) analyzed.

emcscientific INCORPORATED

Laboratory Analysis Report

EMC LAB REPORT NUMBER: 100422
Client's Job/Project No.: 18561
Analyst: Anupama Chauhan, M.Sc., *Microbiologist*

Client's Sample ID	**AS6**														
EMC Lab Sample No.	424015														
Sampling Date	Feb 28/25														
Description/Location	Exterior reference														
Air Volume (m^3)	0.075														
Fungal Spores	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3
Alternaria															
Arthrinium															
Ascospores	2	13	27												
Aspergillus/Penicillium type	1	7	13												
Basidiospores	1	7	13												
Cercospora															
Chaetomium															
Cladosporium	8	53	107												
Colorless	3	20	40												
Curvularia															
Drechslera/Bipolaris group															
Epicoccum															
Fusarium															
Oidium															
Pithomyces															
Polythrincium															
Rusts															
Smuts, *Periconia* , Myxomycetes															
Stachybotrys															
Ulocladium															
Unidentified spores															
Number of spores/sample	15														
Fungal fragments (0-3 +)	0+														
Non-fungal material (0-3 +)	2+														
TOTAL SPORES/M^3	**200**														

Note:
1. *Aspergillus/Penicillium* type spores may include those of *Acremonium, Paecilomyces, Trichoderma* and others.
2. A scale of 0 + to 3 + (indicating increasing amount) is used to rate abundance of fungal fragments and non-fungal material, with 3+ indicating the most abundance.
3. The presence of a large amount of dust debris may obscure some spores to be counted. Spore counts from samples with 3 + non-fungal material and/or 3 + fungal material may be treated as under-counts.
4. Unidentified spores are those lacking distinguishable characteristics for correct identification. Colorless are colorless spores lacking distinguishable characteristics.
5. These results are only related to the sample(s) analyzed.