

Sent Via Email: zcole@traverscitymi.gov

October 24, 2014

Mr. Zach Cole
City of Traverse City
400 Boardman Ave.
Traverse City, Michigan 49684



AIR QUALITY CONSULTANTS, LLC

**Re: Mold Assessment and Sampling Report
Commercial Building – 517 Wellington, Traverse City, MI
AQC Project Number: 01511**

Dear Mr. Cole:

Air Quality Consultants, LLC (AQC) has completed the Mold Inspection and Sampling of the Commercial Building located at the above address. This assessment was conducted in accordance with the City of Traverse City's authorization of services with AQC.

The purpose of this assessment was to determine the extent of mold damage, determine if mold spore contamination is present and provide mold remediation recommendations (if warranted).

This report was prepared for the exclusive use of City of Traverse City (Client, Property Representative) whom may rely on the report's contents. AQC acknowledges that this party may rely on the contents and conclusions presented in this report. Unless stated otherwise in writing, AQC makes no other warranty, representation, or extension of reliance upon the findings of this report to any other entity or third party. All parties should read this report and attachments in its entirety to understand and acknowledge the report's findings, conclusions, recommendations and limitations.

AQC appreciates the opportunity to assist you with this project. Please contact us at 517-490-1304 or at rostoni@miaqc.com with any questions related to the project.

Sincerely,
Air Quality Consultants, LLC

A handwritten signature in black ink, appearing to read "Jeffrey D. Rostoni". The signature is fluid and cursive, written in a professional style.

Jeffrey D. Rostoni
Project Consultant

SECTION 1.0: INTRODUCTION

Air Quality Consultants, LLC. (AQC) was retained by Mr. Zach Cole, representative of the City of Traverse City (Client). Mr. Zach Cole, representative of the City of Traverse City requested AQC to conduct a mold and moisture assessment at the Commercial Building located at 517 Wellington, Traverse City, Michigan. The purpose of this assessment was to determine the extent of mold damage, determine if mold spore contamination is present and provide mold remediation recommendations (if warranted).

According to information provided to AQC, the building is currently vacant and is used for storage. Roof leakage and previous plumbing leaks were reported resulting in reported mold growth. The building is being considered for occupancy. AQC was requested to determine the extent of mold damage and contamination and provide mold remediation recommendations.

SECTION 2.0: SITE INSPECTION/METHODOLOGY

AQC performed a visual inspection for mold, determined wetness of building materials with moisture meter equipment, evaluated humidity levels, and collected air samples.

The inspection was conducted by Mr. Jeffrey D. Rostoni, Project Consultant for AQC, on October 22, 2014. AQC inspected the office area and gym area. Only a limited inspection of the attic space above the suspended ceiling tile system was performed. Also, two rooms (computer and events rooms) were inaccessible and not inspected.

Section 2.1: Description of Building

The Commercial Building is a one story commercial building that consists of an office area and a warehouse area used as a gymnasium. The construction materials in the office area generally consisted of drywall walls, floor tile, some carpeted areas, and a suspended ceiling tile system consisting of fiberglass batt insulation above acoustical ceiling tile. The gym consisted of concrete floors, concrete block walls and a ceiling tile system consisting of tectum panels.

Section 2.2: General Observations

AQC inspected the floor, wall and ceiling surfaces for evidence of visible water damage and mold growth. AQC observed the following:

Office Area

- Mold growth was visible on the lower portions of drywall walls in three of the inspected offices, in the arts and crafts room and on lower concrete block walls in the bathrooms.
- Mold growth was observed on contents in the arts and crafts room, on contents in the main area (toward the gym), as well as in the office adjoining the computer room.
- Mold growth was observed on ceiling tiles in the main area of the office.
- A musty odor was detected.
- AQC did not have access to the locked computer room and locked events room.

- AQC observed some areas with removed baseboard and some missing drywall under the removed baseboard which indicates a previous water event that someone attempted to dry

Gym

- Some water staining was observed intermittently on the ceiling tiles.
- No mold growth was visible on floor, wall or ceiling surfaces or on inspected contents.

HVAC Room

- No obvious mold growth or water damage was observed in the HVAC room, however, animal feces was present.

Photographs of site conditions are included in the attachments.

Section 2.3: Moisture Meter, Temperature and Humidity Evaluation

During AQC's inspection, AQC used a Tramex Moisture Encounter moisture meter and Delmhorst® BD-2100 moisture meter to determine if exposed building materials contained elevated levels of moisture. Relative humidity was determined with a Mannix® Thermo Hygrometer. Because mold requires moisture to grow, moisture meter testing and evaluation of humidity often assists in identifying potential areas of mold growth. The following table defines the settings of the moisture meters and what readings correspond to "damp" or "wet" conditions:

	Wood	Drywall
Damp	15% to 17%	0.5%-1.0%
Wet	>17%	>1.0%

AQC performed moisture meter testing on floor, wall and ceiling surfaces. Moisture meter results showed the following:

Office Area

- The lower two feet of drywall walls along exterior walls in the office adjoining the arts and crafts room measured damp to wet.
- The lower two feet of drywall wall of the front of the building (toward the office and art and crafts room) measured wet.
- The lower two feet of the office wall adjoining the gym entry measured wet.
- Some of the water damaged ceiling tiles in the main office area measured damp to wet.

Gym

- Tested areas of concrete block wall measured dry.

- The ceiling tiles in the gym were not tested due to the ceiling height.

AQC performed a scan of the floor, wall and ceiling surfaces with a thermal imaging camera. No major thermal anomalies were identified on wall surfaces, however, AQC identified several thermal anomalies on the gym ceiling and some on the office ceiling, indicating water leakage.

The following table presents the measured temperature and relative humidity readings:

Location	Temperature (°F)	Relative Humidity (%)
Office	49 °F	41%
Gym	50 °F	46%
Outside	44 °F	57%

The relative humidity indoors did not appear elevated.

Section 2.4: Air Sampling Evaluation and Results

AQC conducted air sampling on each level of the structure to assess the current amount of airborne mold spores to determine if mold contamination is present and to assist in recommendations for potential remediation. An outdoor air sample was also collected to establish naturally occurring background mold concentrations for comparison with indoor air samples. AQC aggressively stirred the air prior to and during air sample collection. The HVAC system was operational during AQC's assessment. The samples were collected by Mr. Jeffrey Rostoni of AQC and analyzed by AIHA Accredited Hayes Microbial Consultants of Midlothian, Virginia. Sample locations and results are summarized below.

Table #1: Analytical Results Summary

Sample Location	Type and Concentration of Mold Spores Recovered	Total Mold Spore Concentrations
S-1 Office 1	40 spores/m ³ <i>Ascospores</i> 40 spores/m ³ <i>Alternaria</i> 653 spores/m³ <i>Aspergillus/Penicillium</i>	733 spores/m ³
S-2 Main Office Area	27 spores/m ³ <i>Ascospores</i> 493 spores/m³ <i>Aspergillus/Penicillium</i> 13 spores/m ³ <i>Cladosporium</i>	533 spores/m ³
S-3 Art Room	853 spores/m³ <i>Aspergillus/Penicillium</i>	853 spores/m ³

S-4 Office (adjoining computer room)	13,067 spores/m³ <i>Aspergillus/Penicillium</i> 933 spores/m³ <i>Cladosporium</i>	14,000 spores/m³
S-5 Gym (left side)	13 spores/m ³ <i>Alternaria</i> 80 spores/m ³ <i>Aspergillus/Penicillium</i>	93 spores/m ³
S-6 Gym (right side)	80 spores/m ³ <i>Aspergillus/Penicillium</i>	80 spores/m ³
S-7 Outside	67 spores/m ³ <i>Ascospores</i> 13 spores/m ³ <i>Basidiospores</i> 13 spores/m ³ <i>Bipolaris/Dreschlera</i>	93 spores/m ³

Note: Results reported in spores per cubic meter (spores/m³). Items in bold indicate mold spore contamination.

Air sample results identified evidence of mold spore contamination in several areas within the office portion of the building. The mold spore concentration was significantly elevated in the office adjoining the computer room.

Air sample results did not identify evidence of mold spore contamination in the gym.

SECTION 3.0: DISCUSSION/CONCLUSIONS

AQC concluded the following based on visual observations, moisture meter readings, and air sampling results:

- Mold growth was observed on several wall surfaces, ceiling tiles, and contents in the office area. The mold growth on walls and ceiling tile appeared to be from direct water damage and mold growth on contents appeared to be from elevated humidity (at the time of the water event).
- Moisture meter testing identified some wet walls in two office areas, indicating an on-going moisture source(s). Infrared thermography results identified some minor leaks in the gym roof as well as the office roof area.
- Air sampling identified mold spore contamination in the office area.
- Visual inspection and air sampling identified no evidence of mold growth or contamination in the gym area.
- The moisture sources in the office area appears to be from a combination of roof leakage and leakage in some of the exterior walls.

SECTION 4.0: RECOMMENDATIONS

Based on the above findings, AQC recommends the following.

- AQC is recommending mold remediation. In general, mold remediation activities will involve removal of carpeting, the lower four feet of drywall and damaged ceiling tiles as well as cleaning of contents and all remaining surfaces in the office area. A detailed mold remediation plan is included in the attachments.
- AQC's remediation recommendations pertain to mold remediation activities only and do not address any possible structural damage that could be present (i.e. roof leakage, wall leakage, etc).
- Post remediation inspection and sampling is recommended to determine if mold remediation activities were completed and mold spore contamination was reduced to background levels. AQC will provide a proposal for this additional service under separate cover.
- AQC recommends assessment and repair of the water intrusion associated with the roof and exterior walls where wet/moldy building materials were identified.
- As a precaution, dehumidification of the office area of the building is recommended while the building is vacant.

If you have any questions related to this report, please do not hesitate to contact our office at (517) 490-1304 or rostoni@miaqc.com to discuss this report.

REPORT PREPARED BY:

Air Quality Consultants, LLC



Jeffrey D. Rostoni
Project Consultant

ATTACHMENTS:

- APPENDIX A: Limitations**
- APPENDIX B: Analytical Results**
- APPENDIX C: Photographs**
- APPENDIX D: Mold Remediation Protocol**

LIMITATIONS

LIMITATIONS

This Mold Inspection and Sampling is a site-specific assessment related to the environmental conditions of the subject property at the time of the assessment only. Air Quality Consultants, LLC. (AQC) performed its services with the care and skill ordinarily used by other reputable environmental consulting firms practicing under similar conditions, at the same time, and in the same or similar locality. In preparing the assessment report, AQC has relied on information obtained from or provided by others. AQC makes no representation or warranty regarding the accuracy or completeness of this information. Beyond the conclusions expressed in this report, no warranty, guarantee, or certification of any kind, expressed or implied, at common law or created by statute, is extended, made, or intended by rendering these environmental consulting services. Environmental conditions and regulations are subject to constant change and reinterpretation. One should not assume that any on-site conditions and/or regulatory statutes or rules would remain constant in the future, after AQC has completed the scope of work for this project. Furthermore, because of the facts stated in this report are subject to professional interpretation, other professionals could reach differing conclusions.

Mold (fungus, mildew) may be hidden in inaccessible areas, covered by building materials, or otherwise be located in unpredictable, site-specific locations. It should be noted that with all air sampling, the test results indicate the airborne levels of spores at the time of sampling. Mold spore release varies considerably, depending upon such conditions as time of day, relative humidity, presence (or absence) of light, and wind currents. The most that AQC can do is prepare a logical assessment program to reduce the client's risk of discovering mold contamination. This risk may be reduced by more extensive exploration on the site; however, even with additional exploration, it is not possible to completely eliminate the risk of discovering mold contamination on-site. It cannot be assumed that samples collected and conditions observed are representative of an area that has not been sampled and/or tested. Tests and other data collected for the report were obtained only for the sole purposes stated, and they should not be used for purposes or reasons other than those intended. The results presented are valid only for the sampling conditions encountered during this evaluation. Should sampling conditions change considerably, no predictions are made as to the expected level of indoor air mold concentrations that may be found during future sampling events. AQC stipulates specifically that AQC is not qualified to interpret any health effects attributed to these results; all health evaluations and interpretations of these results must be conducted by a licensed physician. The results presented are valid only for the sampling conditions encountered during this evaluation.

Any reports, field data, field notes, laboratory testing, calculations, estimates or other documents prepared by or relied upon by AQC are the property of AQC. If any of these documents are released or obtained by a party other than the client, AQC may not discuss the project with that party unless the original contracted client notifies AQC that the client authorizes AQC to disclose the information and to discuss the project with others. Except as otherwise agreed with the client, AQC, Inc. further states that it disclaims any duty of any kind or nature to any person or entity other than the client in preparing this report.

AQC, Inc. does not assume liability for financial or other losses, or subsequent damage caused by or related to any use of this document.

ANALYTICAL RESULTS



Email: IAQ@hayesmicrobial.com
www.hayesmicrobial.com/lims/

Analysis Report prepared for

Air Quality Consultants, LLC

1518 Haslett Rd
Suite 227
Haslett, MI 48840 USA
Ph.: (517) 490-1304

Job Number:
Job Name: Traverse City
Date Sampled: 10-22-2014
Date Analyzed: 10-23-2014
Report Date: 10-23-2014

AIHA EMPAT Laboratory ID# 188863
EPA Laboratory ID# VA01419



NVLAP Lab Code: 500096-0



LAB #188863

AIHA Accredited
Environmental Microbiology



Certified Clinical Microbiologist

Texas Dept. of State
Health Services

Mold License: LAB1021
Asbestos License: 300435



HAYES

MICROBIAL CONSULTING
3005 East Boundary Terrace, #F
Midlothian, VA 23112, USA
804.562.3435 Fax: 804.447.5562

HMC #14017969

Air Quality Consultants, LLC
1518 Haslett Rd
Suite 227
Haslett, MI 48840 USA

October 23, 2014

Client Job Number:
Client Job Name: Traverse City

Dear Air Quality Consultants, LLC,

We would like to thank you for trusting Hayes Microbial for your analytical needs. On October 23, 2014 we received 7 samples by FedEx for the job referenced above.

The results in this analysis pertain only to this job, collected on the stated date and should not be used in the interpretation of any other job. This report may not be duplicated, except in full, without the written consent of Hayes Microbial Consulting, LLC.

This laboratory bears no responsibility for sample collection activities, analytical method limitations, or your use of the test results. Interpretation and use of test results are your responsibility. Any reference to health effects or interpretation of mold levels is strictly the opinion of Hayes Microbial Consulting. In no event, shall Hayes Microbial Consulting or any of its employees be liable for lost profits or any special, incidental or consequential damages arising out of your use of the test results.

Steve Hayes, BSMT(ASCP)
Laboratory Director
Hayes Microbial Consulting, LLC



HAYES

MICROBIAL CONSULTING
 3005 East Boundary Terrace, #F
 Midlothian, VA 23112, USA
 804.562.3435 Fax: 804.447.5562

Air Quality Consultants, LLC
 1518 Haslett Rd, Suite 227
 Haslett, MI 48840 USA
 Ph.: (517) 490-1304

Spore Trap Analysis
 SOP #HMC101

HMC #14017969

Job Number:		Job Name: Traverse City	Date Collected: 10/22/2014
Collected by: Erin Craft			Date Received: 10/23/2014
Email: rostoni@miaqc.com			Date Reported: 10/23/2014

HMC ID Number	14017969 - 1	14017969 - 2	14017969 - 3	14017969 - 4
Sample ID#	S-1	S-2	S-3	S-4
Sample Name	Office 1	Main Area	Art Room	Office
Sample Volume	75 liters	75 liters	75 liters	75 liters
Limit of Detection	13 spores/M3	13 spores/M3	13 spores/M3	13 spores/M3
Background	2	2	2	2
Fragments	ND	13 /M3	ND	ND

Organism	14017969 - 1			14017969 - 2			14017969 - 3			14017969 - 4		
	Raw Count	Count / M3	% of Total	Raw Count	Count / M3	% of Total	Raw Count	Count / M3	% of Total	Raw Count	Count / M3	% of Total
Alternaria	3	40	5.5%									
Ascospores	3	40	5.5%	2	27	5.1%						
Aspergillus Penicillium	49	653	89.1%	37	493	92.5%	64	853	> 99%	980	13067	93.3%
Basidiospores												
Bipolaris Drechslera												
Chaetomium												
Cladosporium				1	13	2.4%				70	933	6.7%
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes												
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Unspecified Spore												
Total	55	733		40	533		64	853		1050	14000	

Water Damage Indicator Common Allergen Slightly Higher than Outside Air Significantly Higher than Outside Air Ratio Abnormality

Signature: Rohaan Anwar Date: 10/23/2014 Reviewed by: A. Rajarajeswari Date: 10/23/2014



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MICROBIAL CONSULTING
3005 East Boundary Terrace, #F
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804.562.3435 Fax: 804.447.5562

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1518 Haslett Rd, Suite 227
Haslett, MI 48840 USA
Ph.: (517) 490-1304

Spore Trap Analysis
SOP #HMC101

HMC #14017969

Job Number:		Job Name: Traverse City	Date Collected: 10/22/2014
Collected by: Erin Craft			Date Received: 10/23/2014
Email: rostoni@miaqc.com			Date Reported: 10/23/2014

HMC ID Number	14017969 - 5	14017969 - 6	14017969 - 7
Sample ID#	S-5	S-6	S-7
Sample Name	Gym Left	Gym Right	Outside
Sample Volume	75 liters	75 liters	75 liters
Limit of Detection	13 spores/M3	13 spores/M3	13 spores/M3
Background	2	2	1
Fragments	ND	ND	ND

Organism	14017969 - 5			14017969 - 6			14017969 - 7		
	Raw Count	Count / M3	% of Total	Raw Count	Count / M3	% of Total	Raw Count	Count / M3	% of Total
Alternaria	1	13	14.0%						
Ascospores							5	67	72.0%
Aspergillus Penicillium	6	80	86.0%	6	80	> 99%			
Basidiospores							1	13	14.0%
Bipolaris Drechslera							1	13	14.0%
Chaetomium									
Cladosporium									
Curvularia									
Epicoccum									
Fusarium									
Memnoniella									
Myxomycetes									
Pithomyces									
Stachybotrys									
Stemphylium									
Torula									
Ulocladium									
Unspecified Spore									
Total	7	93		6	80		7	93	

Water Damage Indicator Common Allergen Slightly Higher than Outside Air Significantly Higher than Outside Air Ratio Abnormality

Signature: Rohana Anwar

Date: 10/23/2014

Reviewed by: A. Rajarajeswari

Date: 10/23/2014



HAYES

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Midlothian, VA 23112, USA
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Air Quality Consultants, LLC
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Spore Trap Information

HMC #14017969

Limit of Detection	The Limit of Detection is the lowest number of spores that can be detected based on the total volume of the sample collected and the percentage of the slide that is counted. At Hayes Microbial, 100% of the slide is read so the LOD is based solely on the total volume. Raw spore counts that exceed 500 spores will be estimated.
Blanks	Results have not been corrected for field or laboratory blanks.
Background	<p>The Background is the amount of debris that is present in the sample. This debris consists of skin cells, dirt, dust, pollen, drywall dust and other organic and non-organic matter. As the background density increases, the likelihood of spores, especially small spores such as those of Aspergillus and Penicillium may be obscured. The background is rated on a scale of 1 to 4 and each level is determined as follows:</p> <p>ND : No background detected. (Pump or cassette malfunction.) Recollect sample.</p> <p>1 : <5% of field occluded. No spores will be uncountable.</p> <p>2 : 5-25% of field occluded.</p> <p>3 : 25-75% of field occluded.</p> <p>4 : 75-90% of field occluded.</p> <p>5 : >90% of field occluded. Suggest recollection of sample.</p>
Fragments	Fragments are small pieces of fungal mycelium or spores. They are not identifiable as to type and when present in very large numbers, may indicate the presence of mold amplification.
Indoor/Outdoor Comparisons	There are no national standards for the numbers of fungal spores that may be present in the indoor environment. As a general rule and guideline that is widely accepted in the indoor air quality field, the numbers and types of spores that are present in the indoor environment should not exceed those that are present outdoors at any given time. There will always be some mold spores present in "normal" indoor environments. The purpose of sampling and counting spores is to help determine whether an abnormal condition exists within the indoor environment and if it does, to help pinpoint the area of contamination. Spore counts should not be used as the sole determining factor of mold contamination. There are many factors that can cause anomalies in the comparison of indoor and outdoor samples due to the dynamic nature of both of those environments.
Water Damage Indicators	These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem.
Common Allergens	Although all molds are potential allergens, these are the most common allergens that may be found indoors.
Slightly Higher than Outside Air	The spore count is slightly higher than the outside count and may or may not indicate a source of contamination.
Significantly Higher than Outside Air	The spore count is significantly higher than the outdoor count and probably indicates a source of contamination.
Ratio Abnormality	The types of spores found indoors should be similar to the ones that were identified in the outdoor sample. Significant increases (more than 25%) in the ratio of a particular spore type may indicate the presence of abnormal levels of mold, even if the total number of spores of that type is lower in the indoor environment than it was outdoors.
Color Note	Fungi that are present in indoor samples at levels lower than 200 per cubic meter are considered insignificant. Insignificant spore counts are not color coded on the report.



Alternaria

Habitat: Commonly found outdoors in soil and decaying plants. Indoors, it is commonly found on window sills and other horizontal surfaces.

Health Effects: A common allergen and has been associated with hypersensitivity pneumonitis. Alternaria is capable of producing toxic metabolites which may be associated with disease in humans or animals. Occasionally an agent of onychomycosis, ulcerated cutaneous infection and chronic sinusitis, principally in the immunocompromised patient.

Ascospores

Habitat: A large group consisting of more than 3000 species of fungi. Common plant pathogens and outdoor numbers become very high following rain. Most of the genera are indistinguishable by spore trap analysis and are combined on the report.

Health Effects: Health affects are poorly studied, but many are likely to be allergenic.

Aspergillus|Penicillium

Habitat: The most common fungi isolated from the environment. Very common in soil and on decaying plant material. Are able to grow well indoors on a wide variety of substrates.

Health Effects: This group contains common allergens and many can cause hypersensitivity pneumonitis. They may cause extrinsic asthma, and many are opportunistic pathogens. Many species produce mycotoxins which may be associated with disease in humans and other animals. Toxin production is dependent on the species and on the food source for the fungus. Some of these toxins have been found to be carcinogenic.

Basidiospores

Habitat: A common group of Fungi that includes the mushrooms and bracket fungi. They are saprophytes and plant pathogens. In wet conditions they can cause structural damage to buildings.

Health Effects: Common allergens and are also associated with hypersensitivity pneumonitis.

Bipolaris|Drechslera

Habitat: They are found in soil and as plant pathogens. Can grow indoors on a variety of substrates.

Health Effects: They may be allergenic and are very commonly involved in allergic fungal sinusitis. They are opportunistic pathogens but occasionally infect healthy individuals, causing keratitis, sinusitis and osteomyelitis.

Cladosporium

Habitat: One of the most common genera worldwide. Found in soil and plant debris and on the leaf surfaces of living plants. The outdoor numbers are lower in the winter and often relatively high in the summer, especially in high humidity. The outdoor numbers often spike in the late afternoon and evening. Indoors, it can be found growing on textiles, wood, sheetrock, moist window sills and in HVAC supply ducts.

Health Effects: A common allergen, producing more than 10 allergenic antigens and a common cause of hypersensitivity pneumonitis.

PHOTOGRAPHS



Subject	Mold growth on office ceiling tiles.	AQC Project No. 01511	1
Site	Commercial Building - 517 Wellington, Traverse City, Michigan		



Subject	Mold growth on block wall in bathrooms.	AQC Project No. 01511	2
Site	Commercial Building - 517 Wellington, Traverse City, Michigan		



Subject	Mold growth on chairs in main area of office.	AQC Project No. 01511	3
Site	Commercial Building - 517 Wellington, Traverse City, Michigan		



Subject	View of mold in the office adjoining the art and crafts room.	AQC Project No. 01511	4
Site	Commercial Building - 517 Wellington, Traverse City, Michigan		



Subject	Another view of mold growth on lower walls.	AQC Project No. 01511	5
Site	Commercial Building - 517 Wellington, Traverse City, Michigan		



Subject	View of mold growth on contents in art and crafts room.	AQC Project No. 01511	6
Site	Commercial Building - 517 Wellington, Traverse City, Michigan		



Subject	Mold growth on wall of office adjoining computer room.	AQC Project No. 01511	7
Site	Commercial Building - 517 Wellington, Traverse City, Michigan		



Subject	Mold growth on wall in office adjoining computer room.	AQC Project No. 01511	8
Site	Commercial Building - 517 Wellington, Traverse City, Michigan		



Subject	View of mold growth on wall in office near the gym entrance.	AQC Project No. 01511	9
Site	Commercial Building - 517 Wellington, Traverse City, Michigan		



Subject	View of removed baseboard and drywall which appears to be a previous drying attempt.	AQC Project No. 01511	10
Site	Commercial Building - 517 Wellington, Traverse City, Michigan		

SCOPE OF WORK FOR MOLD REMEDIATION/SITE RESTORATION

SCOPE OF WORK FOR MOLD REMEDIATION/SITE RESTORATION

Based upon AQC's observations and sampling results, the following remediation protocol is recommended. The recommendations for remediation are based upon areas that were reported to be wet and were observed or suspected to contain obvious mold growth. It is possible that more (or fewer) areas of actual mold growth may be identified by the remediation contractor. If additional materials or contents containing mold is discovered during remediation activities, they should be removed, cleaned and disinfected, and/or encapsulated.

Health & Safety Recommendations

Varying concentrations of airborne mold spores were identified indoors compared to outdoor air sample results. Some individuals react differently to exposure to mold spores. Although AQC cannot make a determination of which areas are "safe" to enter, AQC is recommending limited access into the office area until remediation activities are complete. AQC is providing the site inspection findings and remediation recommendations to the Client. It is the Client's discretion to inform other parties of the on-site conditions. The following are some typical recommendations for remediation contractors, which may vary depending on site conditions.

- AQC recommends that warning signage is placed on-site to warn people of potential hazards. The location of the signage is at the discretion of the restoration contractor.
- Full-faced respirator (or half-faced respirator with sufficient eye protection) with HEPA cartridges is recommended within any remediation/containment areas. PPE outside remediation/containment areas is at the discretion of the remediation contractor. AQC recommends that remediation contractors fulfill state and federal respiratory protection regulations.
- Gloves are recommended to limit exposure.
- Tyvek®, or other disposable full body suit, is recommended within containment/remediation area.
- Remediation contractors should provide adequate decontamination facilities for personnel so that mold spores are not transported outside containment while exiting the containment areas.

AQC was not contracted to conduct sampling for asbestos, lead paint or other hazards that may be present on-site. AQC does not specify processes used in remediation such as the use of chemicals, biocides, encapsulants or other specific products that may be used by the restoration contractor as part of the remediation process. AQC suggests the Client discuss the remediation processes with the restoration contractor.

Pre Remediation

The remediation area(s) should be isolated to prevent further contamination. AQC recommends the office area is isolated from the gym area. Plastic sheeting (polyethylene) may be used for containment purposes. The ductwork and registers in remediation areas should be covered with plastic sheeting.

AQC recommends the use of a HEPA filter system (air scrubber) during and immediately after remediation activities to help reduce current elevated airborne mold spore concentrations.

Use of biocides, fogging agents, disinfectants, encapsulants or other chemical containing products are at the discretion of the remediation contractor and should be discussed with the Client, occupant, and other applicable parties as some individuals could have sensitivities related to these type of products.

Current EPA regulations require contractors be certified Lead Based Paint Safety for Renovation, Repair and Painting (RRP) when conducting renovation activities within child occupied structures constructed prior to 1978. AQC was not contracted to conduct lead paint sampling, confirm construction date, nor conduct any sampling of building materials for asbestos or any other potential on-site hazards as part of this assessment.

Cleaning of Building Contents

AQC observed many contents, several with mold growth. All contents should be assumed to have either mold growth and mold spore contamination/deposition. For contents, AQC made remediation recommendations based on several factors:

1. If direct water damage or mold growth was identified in the area where contents were present,
2. No evidence of direct water damage or mold growth, but elevated humidity or evidence of condensation was present (which could cause mold growth),
3. Areas where mold spore deposition was identified (but no direct water damage or mold growth).

Based on AQC's observations, AQC recommends the following:

- Because of the elevated airborne mold spores present on-site, AQC recommends contents be cleaned off site.
- Disposal of items that are not practical to clean.
- HEPA vacuum and/or wet wipe all contents with hard surfaces.
- HEPA vacuum, launder and/or steam clean all contents with fabric or porous surfaces. AQC suggests that fabric and porous items that can not be laundered be considered for disposal.

The contractor should consult with the Client regarding cleaning versus disposal of contents. AQC suggests the contractor consider temporarily storing these type of contents for further determination by the Client.

- Mold impacted contents should not be returned after mold remediation because they could recontaminate the area.

AQC is available for consultation regarding content cleaning. AQC can provide guidance regarding cleaning versus disposal, help decide if something can be cleaned and assist in determining cleaning techniques.

Remediation Protocol

AQC's remediation recommendations were based on areas confirmed or suspected to contain mold growth or mold spore deposition. AQC recommends the following:

Office

AQC identified mold growth on several walls, contents and ceiling surfaces. Based on this information, AQC recommends the following:

- Isolate the office from the remainder of the building. AQC suggests a plastic barrier or equivalent be installed between the office and gym to prevent entry by occupants and to prevent cross contamination outside containment.
- The carpeting on the stairway to the second floor should be removed and the animal feces removed. The Client should retain someone to identify the source of the animal feces and determine how to prevent animals from entering the building.
- Remove all contents (as described above).
- Remove and dispose of all carpeting, lower four (4) feet of drywall walls and insulation (if encountered), and water and mold damaged ceiling tiles.
- The undamaged ceiling tiles can be either hepa vacuumed or replaced. AQC suggests making this determination based on the remediator's cost to clean versus removal and replacement.
- Clean all remaining floor, wall and ceiling surfaces to reduce settled mold spores or any possible mold growth that may have occurred as a result of high humidity and/or condensation. AQC suggests a combination of HEPA vacuuming and wet cleaning.
- An air scrubber, equipped with HEPA filtration, should be used during remediation and cleaning activities to help reduce airborne mold spore concentrations.

Remainder of Building:

AQC identified no evidence of mold growth in the gym and air samples in this area did not indicate the presence of mold contamination in the gym. Based on the assessment findings, no further remediation recommendations are warranted.

Furnace:

The furnace units are located on the second floor. Elevated airborne mold spores were identified in the office area. Based on these observations, AQC recommends the following:

- Remove flex ducting (if present) as they can not be adequately cleaned.
- Clean the furnace units and associated ductwork.
- Remove and replace the furnace filters.

Section 4.5: Post Remediation

Upon completion of remediation and water restoration activities and subsequent authorization, AQC recommends a post mold remediation inspection and air sampling to assess whether remediation was successful. AQC will provide a proposal for these services. After remediation has been conducted, AQC recommends the following:

- The post remediation inspection and sampling should occur prior to removal of containment and prior to encapsulation (i.e. painting, building material installation, etc). AQC should be consulted prior to the use of encapsulants to determine if inspection should be conducted prior to its application.
- AQC will perform air sampling throughout the remediated areas to determine if sufficient cleaning was conducted.
- All air filtrations devices should be turned off, cleaned and air intakes sealed prior to the post remediation inspection and sampling. AQC recommends these devices be shut off the day prior to AQC's final testing.
- All windows to the outdoors should be closed a minimum of one day prior to AQC's final inspection and clearance sampling.

It should be noted that additional mold remediation activities may be recommended if the recommended remediation protocol is not completed, if remaining mold growth is present, remaining building materials are wet or if elevated mold spore concentrations are identified. If this occurs, subsequent site inspections and testing will be performed at an additional cost.