H2H Indoor Air Solutions

INVESTIGATIVE SERVICES

For: US Forest Service

Mold Assessment & Protocol

Claim # None

Property owner: US Forest Service

Address: 475 SE County Rd 245, Lake City, FL 32025

MAPv17

H2H INDOOR AIR SOLUTIONS

Date: 08/10/25

Dear Mr. Harris,

Thank you for placing your confidence in H2H Indoor Air Solutions. Please note your job number located in the lower left corner of each page. This report is the follow-up of a walk through, visual survey and an on-site measurement of the parameters described in this report. The results apply only to those rooms or spaces that were tested and are specifically described in this assessment. Information provided in this document is provided 'as is' with no warranty of any kind, either expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

Scope:
H2H Indoor Air Solutions, hereinafter referred to as H2H, is pleased to submit this Mold Assessment/Protocol Report for the above referenced location. The objective was to determine whether significant mold contaminates were present at the property. Based on visual observations, measurements conducted, test samples taken (if deemed necessary), and the report from an accredited lab (if samples were taken) this report will outline H2H's recommendation for remediation or equipment to neutralize any issues discovered during the inspection.

Inspector/s on Site:

Sarah M. Young, MRSA 3372

Table of Contents

Mold Assessment (page 4)

1. General Information Section
- **Weather**
- **Building information**
- **Visual observation of building**

2. Quick reference

3. Loss information

4. Homeowner interview

5. Initial investigative findings

6. Mold findings

7. Technical data
- **Inside psychrometrics:**
- **Lab interpretation**
- **Mold identification**

8. Lab report

Remediation Protocol (if necessary, page 14)

Remediation guidelines (page 26)

Appendix (page 35)

1. *General Information Section*

Inspection Date: ***08/06/25***

Weather:

Conditions:	***Sunny***
Temperature:	***83 F***
Humidity:	***61 %***
Dew Point:	***69 F***
Soil conditions:	***Dry***

Building Information:

Property Occupied?	***Yes***
Building Type:	***Commercial***
Construction:	***Block/Stucco***
Space below grade:	***Slab***
Entrance faces:	***East***
Water On?	***Yes***
Electric On?	***Yes***
Property Appraiser date built:	
Square footage of living area:	

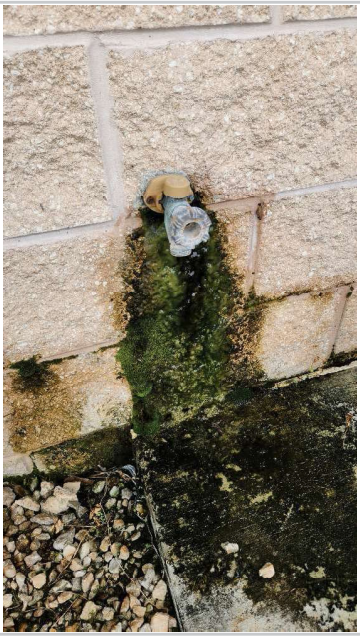
Visual observation of building

- **Overall condition of home:**
  - Outside: ***Well Maintained***
  - Inside: ***Well Maintained***

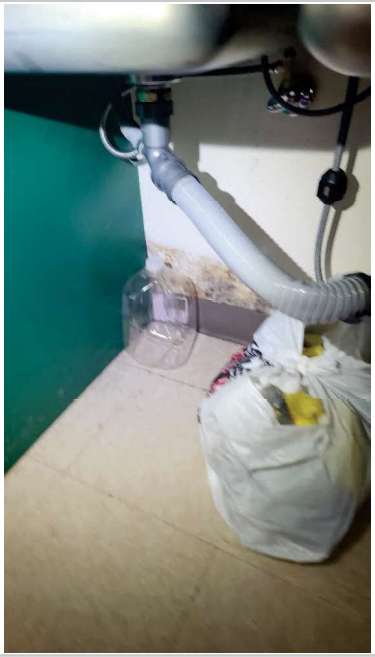
- **Were you able to take invasive action if needed?** (Full access to property, hole in wall for borescope, remove baseboard etc.)

  Yes

  Vinyl base trim detached

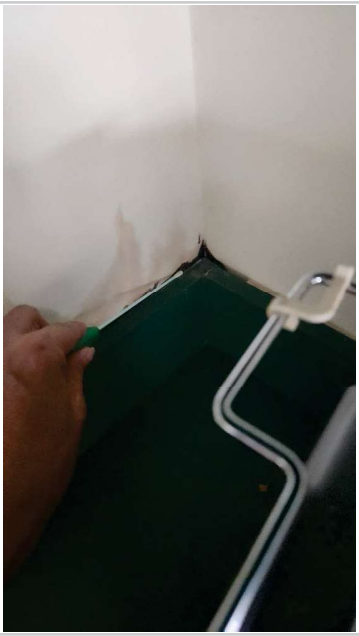


An exterior faucet leak on the West side of the building. This leak was active at the time of the inspection. Exterior wall needs pressure washed once the leak is repaired.

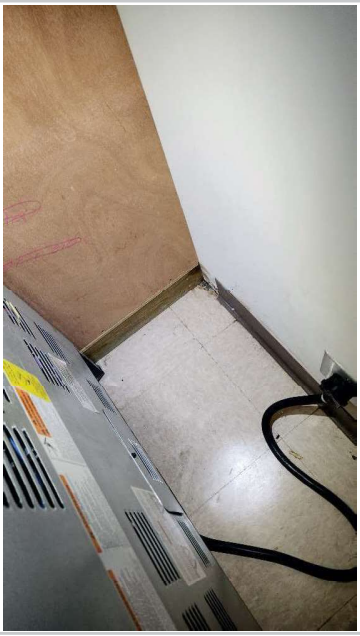


The West kitchen wall presented visible damage behind the sink.

In the void of the SW base cabinet corner, the corner presented heavy visible mold growth.



In the same corner, the mold growth was observed above the counter tops. The swab sample reported the presence of Stachbotrys, Chaetomium, and Aspergillus-Penicillium like spores.



The mold growth extended along the South wall to the East side of the wall (behind the stove and refrigerator).

The mold growth extended onto the North and NW walls of the adjacent laundry room.

The hallway and conference room spore trap air samples reported an elevated presence of Stachybotrys, Asp/Pen, Curvularia, and Chaetomium spores.

The utility closet did not present visible damages (tile base was not removed), however, the damages on the walls of the adjacent kitchen and laundry present enough evidence to support this wall will be affected inside the wall cavity and will likely require removal.

2. *Quick Reference*

(From investigative findings for the affected areas)

a. **Fix the source of the moisture if still active by:**

Repair exterior faucet

b. **It is H2H's opinion that remediation** ***Is required in below:***

☑ Removal is required

Location: Kitchen, Laundry room, and Utility closet

☑ Cleaning is required

Location: Throughout building

c. **HVAC System cleaning is:** *required*

All HVAC units.

d. **Occupancy recommendation**: ***Occupant should seek medical advice if concerned***

e. **Damages found unrelated to claim source:**

None observed

Note: See page 16 for remediation protocol (if necessary).

3. ***Loss information provided:***

Outdoor faucet on wall in front of the kitchen and has a slow leak into the kitchen area and mold visible

4. ***Property owner interview:***

Present: ***No***

Additional parties present: ***US Forest Services Employee***

Present parties response:

- Details of loss as explained to inspector by insured/representatives.

Representative reported a leak that requires repair. The walls have reportedly been cleaned in the kitchen before but the mold keeps coming back.

5. ***Initial investigative findings:***

- Room(s) based on which the damage was found:

Kitchen, Laundry room, and utility closet

Kitchen: Visible mold growth was observed on the South and SW walls. The mold growth extends in the SW corner above the counter top. Damages observed behind the stove and refrigerator.
Laundry room: Visible mold growth was observed behind the washer/dryer on the lower wall and behind the vinyl base trim in the NW corner (unable to reach NE corner due to appliance placement).
Utility closet: There were no viewed damages (unable to detach the tile base trim), but the adjacent areas have suffered damages and the walls are suspected to be affected inside the wall cavities.

6. *Mold findings*

A. MOLD: Initial observations

DAMAGED AREA

Is there a moldy odor? * *Yes, there is a heavy odor*

What is the visible square footage of the mold found? *Greater than 10 sq. ft visible mold*

Is there a possibility of hidden mold based on surface conditions?

Yes, the evidence suggests growth will be/is greater than 10 sq. ft.

Is there any damage that was only caused by mold (as opposed to caused by water)?

Not applicable

A. MOLD: Testing Interpretations

CLAIM AREA

Location of sample: ***Conference room/Kitchen***

Brief description of lab findings: **(detailed information on pages 16 & 17)**

Swab reported presence of mold

Air testing reported elevated presence of genus level mold spores

Location of area(s) where air testing occurred for possible cross contamination:

Hallway

Air testing reported elevated presence of genus level mold spores

***Reference note: A moldy odor (as above) suggests that the mold is producing an enzyme or MVOC (Mold Volatile Organic Compound). This enzyme breaks down the building material to use it as fuel. It also suggests that the mold is viable or alive at the time of this inspection.**

B. MOISTURE: Origin

- **ORIGIN of the moisture** that promoted the growth of MOLD from the initiated claim:

Exterior faucet leak

***B. MOISTURE**: Building material readings*

Moisture level of affected materials (See appendix chart)

Kitchen	Wall	Floor	Ceiling	Other
North	---	---	---	---
East	---	---	---	---
South	*Elevated*	*Elevated*	---	---
West	*Elevated*	*Elevated*	---	---

Laundry room	Wall	Floor	Ceiling	Other
North	*Elevated*	*Elevated*	---	---
East	---	---	---	---
South	---	---	---	---
West	*Elevated*	---	---	---

	Wall	Floor	Ceiling	Other
North	---	---	---	---
East	---	---	---	---
South	---	---	---	---
West	---	---	---	---

7. Technical Data

Inside psychrometrics:

Inside Temperature: ***77 F***

(Per ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers, comfortable settings for the majority are between 67 F & 82 F. In Florida, it is recommended to maintain temperatures between 72 F-78 F. If too cold, the dew point can be reached; if too hot, excessive humidity may result. See appendix for further information on dew point temperature, humidity, and condensation & their impact on indoor environments.)

i. **Is the HVAC system turned on and working properly?** ***Yes***
   If no, please explain:

General Humidity in house: ***44 %***

Acceptable

(ASHRAE Standard 62.1-*titled "*Ventilation *for acceptable indoor air quality"* RH% recommended to be maintained below 65% to reduce the possibility of microbial growth. In Florida we recommend this level be maintained at 60% RH or less.)

General Dew Point in house: ***54 F***

Acceptable

(ASHRAE suggest that the overall average dew point for comfort should be below 62°F)

Lab Information:

Page 14 includes H2H's interpretation of lab testing.

Outside spore control sample: This helps us evaluate the level of spores outside the house compared to the inside. Although there is no set comparative, we typically like to see the mold spore counts inside no more than 25% of the outside count for certain types of molds. Some molds are not normally found outside while some are only found outside. It is the responsibility of the assessor will make the appropriate recommendation based on the conditions. See lab report for quantities and types under "outside".

Below is the interpretation of lab samples by H2H.
See lab report(s) on page 13 for raw data.

Room	Sample type	Abnormal mold reported (genus) [2]	IICRC condition
Kitchen wall	Swab	Stachybotrys, Asp/Pen, Chaetomium	Condition 3
Conference room	Air	Stachybotrys, Asp/Pen, Chaetomium	Condition 2
Hallway	Air	Stachybotrys, Asp/Pen, Chaetomium	Condition 2

Room	Hyphal fragments* reported	Debris rating**
Conference room	Low / Acceptable	Level 3- Acceptable
Hallway	Low / Acceptable	Level 3- Acceptable

*** Hyphal Fragments:** **These fragments are pieces of a developed mold hyphae. The presence of many fragments suggests a potential issue.**
**** Debris Level:** **Levels beyond 3 suggest the space is very dirty and the lab may have to estimate its findings.**

Abnormal mold reported [2] -This is an estimate for mold growth based on site conditions, expertise of assessor, and excerpts from "Understanding Fungi (Mold) in the Indoor Environment", "Sampling and Analysis of Indoor Microorganisms" by Chin S. Yang and Patricia Heinsohn, 2007, and "Advanced Building Seminar" by Chin S. Yang PhD. and Ralph E. Moon PhD; May 2018)

See Appendix for IICRC condition definitions and mold genus descriptions.

Pump calibrated on:

08/06/25

8. Lab Report

Sporelytics
2901 W Cypress Creek Rd #125
Fort Lauderdale, FL 33309
Phone: (954) 633-8989
Email: info@sporelytics.com

Batch: 220315 **A001 Spore Trap Analysis**

Project: 475 SE Cr 245 11461

Sampled: 08-06-25 **Analysis Date:** 08-07-25
Received: 08-07-25 **Report Date:** 08-07-25

Prepared For: Kevin Sorrels
H2H Indoor Air Solutions
712 S. Ocean Shore Blvd
Flagler Beach, FL 32136
(877) 205-7211

Sample ID:	220315-01	220315-02	220315-03
Client Sample ID:	Outside 011	Conference 081	Hallway 082
Volume Sampled (L):	75	75	75
Media:	Allergenco D	Allergenco D	Allergenco D
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—
Ascospores	105	1,400	36	5	67	3	—	—	—
Aspergillus/Penicillium-Like	35	467	12	135	1,800	73	41	547	66
Basidiospores	123	1,640	43	—	—	—	—	—	—
Bipolaris/Dreschlera	—	—	—	—	—	—	1	13	2
Botrytis	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	2	27	1	1	13	2
Cladosporium	9	120	3	4	53	2	—	—	—
Curvularia	1	13	<1	17	227	9	3	40	5
Epicoccum	—	—	—	—	—	—	—	—	—
Fusarium	3	40	1	—	—	—	—	—	—
Ganoderma	9	120	3	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—
Nigrospora	2	27	1	2	27	1	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	1	13	<1	2	27	1	1	13	2
Stachybotrys	—	—	—	17	227	9	15	200	24
Torula	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—
Total Spores	**288**	**3,840**		**184**	**2,453**		**62**	**827**	
Hyphal Fragments	1	13		9	120		1	13	
Pollen	1	13		—	—		—	—	
Debris Rating	3			3			3		
Detection Limit	13			13			13		

Authorized for Release By: Joshua Krinsky
Technical Director

The results provided are applicable only to the samples detailed in the accompanying Chain of Custody.
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Page 1 of 1

Sporelytics
2901 W Cypress Creek Rd #125
Fort Lauderdale, FL 33309
Phone: (954) 633-8989
Email: info@sporelytics.com

Batch: 220315 **S001 Swab Analysis**

Project: 475 SE Cr 245 11461

Sampled: 08-06-25 **Analysis Date:** 08-07-25
Received: 08-07-25 **Report Date:** 08-07-25

Prepared For: Kevin Sorrels
H2H Indoor Air Solutions
712 S. Ocean Shore Blvd
Flagler Beach, FL 32136
(877) 205-7211

Sample ID:	220315-04
Client Sample ID:	Kitchen Wall
Area Swabbed (cm2):	1,61
Media:	Swab
Sample Analysis:	Analyzed at 600X Magnification

Spore Types	Raw Count	Count/cm²	%
Alternaria	—	—	—
Arthrinium	—	—	—
Ascospores	—	—	—
Aspergillus/Penicillium-Like	6	149	1
Basidiospores	—	—	—
Bipolaris/Dreschlera	—	—	—
Botrytis	—	—	—
Chaetomium	2	50	<1
Cladosporium	—	—	—
Curvularia	—	—	—
Epicoccum	—	—	—
Fusarium	—	—	—
Ganoderma	—	—	—
Memnoniella	—	—	—
Nigrospora	—	—	—
Oidium/Peronospora	—	—	—
Pithomyces	—	—	—
Rust	—	—	—
Smut/Myxomyces/Periconia	—	—	—
Stachybotrys	426	10,584	98
Torula	—	—	—
Ulocladium	—	—	—
Unidentified Spores	—	—	—
Total Spores	**434**	**10,783**	
Hyphal Fragments	22	547	
Detection Limit	50		

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Page 1 of 1

H2H
Indoor Air Solutions

REMEDIATION PROTOCOL

- A sign or note **must** be posted to alert the resident NOT to open the containment area or turn off any equipment inside (IICRC S520, 8.4). The remediator is responsible to advise the resident to not enter the containment area. All on-site contractors should be advised of this as well. In addition, a sign must be hung when the remediators are working stating “mold remediation work in progress" per IICRC S520, 12.2.4.

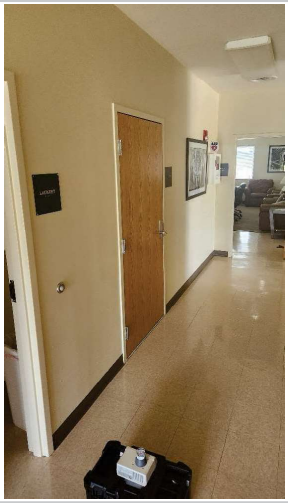
- Only outfitted, licensed remediators or assessors should enter the containment area(s). Containment areas must be intact when clearance testing is conducted. If they are not, the assessor may require the area be re-treated before testing.

- PLEASE NOTE! All remediation technicians must be dressed per IICRC S520, 8.1.1 & 12.2.5. Personal protective equipment or clothing should be put on and removed in the entrance vestibule (if installed). It should be hung up in that area before exiting into the general space. In addition, respiratory protection must be worn in the area during all work. All respirators should be, at minimum, NIOSH N-95 Face Piece respirators to a full-face air purifying respirator.

1. **Containment:** ***If containment is not followed PER THIS PROTOCOL, the clearance may fail. See appendix for general containment construction and best practices for a successful remediation.***

Kitchen, laundry room, and utility closet

Onsite picture of containment location



Notes:

Contain at hallway doors and contain kitchen from conference room.

- ***Type of Containment:*** *See Example "C" in appendix*

- ***Intake Filter Requirement:*** *Install on the zipper entrance*

  Note: The filter needs to be a 6-8 MERV rating, pleated filter. The air flow arrow needs to be pointing into the containment. The filter should be installed towards the top of the containment barrier.

2. Negative Pressure (N.A.M.) :

a. **Is negative air required during the remediation?** ***Required***

b. **Location:** ***Containment wall, double HEPA back into clean space***

N.A.M. MUST be utilized during demolition of building materials and bulk cleaning if required. **(See below examples of N.A.M. set-up)**

	Negative Air Machine (N.A.M.) exhausting out of accessible window/door within containment.
	Negative Air Machine (N.A.M.) exhausting from containment wall or door if window is not accessible.

3. Dehumidification Requirements: Control spaces at 50% RH or below

Location	Yes/No
In containments	*Required, install*

4. Air Scrubbers (A.F.D.'s):

General practices recommend a minimum of four to six air exchanges per hour for containment ventilation and dilution. NOTE: Utilizing negative-pressure differentials within building structures can create unintended airflow hazards in hot/humid and cold climate conditions, therefore the remediator should exercise caution in an effort to prevent/minimize these unintended airflow hazards.

Location	Yes/No
In containments	*Required, install*
Throughout building	*Required, install*

Note: Covert your N.A.M. to an A.F.D. for all detailed air and surface cleanings. *ALWAYS properly seal your intake filter "flap" prior to shutting down your* N.A.M.!!!!

Note: The use of run flat on the discharge is always recommended if spaces allow. This reduces air turbulence and provides a smoother air flow when doing final cleaning.

Note: Always position an air scrubber outside the containment entrance. If a vestibule is used and there is space, position an air scrubber inside the vestibule.

5. Content Cleaning (General)

Where will the belongings be cleaned? Wipe down and clean all content/furniture

General content cleaning instructions listed on page 33.

6. Demolition (Note: Federal, state and local regulations may require asbestos testing prior to demolition of any materials that may be removed or disturbed during the remediation process)

- ***Cover any removed cabinets with plastic before taking them out of the contained space. Contractor is required to assess the sheet rock and floor hidden by any cabinets/vanities. Remove if contaminated.***
- ***Remove infected drywall, insulation and building materials 12-18" past visible microbial growth.***
- ***Assess wall cavities using a light source and mirror. In the event additional areas of contamination are identified, removal should continue until all areas are removed. Any exposed batt or foam insulation that is affected should also be removed and bagged and transported as previously noted.***

Pictures of areas to be removed:

Room	Location	Direction	Substrate	Amount	Action
Laundry room	Wall	North	Drywall/Trim	3' cut up	Remove
Laundry room	Walls	NW/NE	Drywall/Trim	2' cut up	Remove
Kitchen		S/W	Base cabinetry	All	Remove
Kitchen	Walls	S/W	Drywall/Trim	2' past damage	Remove, staggered highest
					in the SW corner.
Kitchen	Floor	S/SW	Vinyl tile	2' from wall	Remove
Laundry	Floor	N/NW	Vinyl tile	2' from wall	Remove
Utility closet	Walls	W/N	Drywall/Tile base	2' cut up	Remove
Conference	Floor		Carpet	All	Remove

Comments:

Detach appliances and move from containments (clean all). Remove any affected insulation found in the wall cavities. Upper cabinetry in the SW corner may require removal due to mold growth as high as the counter tops.

NOTE: CLEAN ALL hard and porous surfaces with FIBERLOCK ADVANCED HYDROGEN PEROXIDE (8314) TO ALL SURFACES. Apply with hand pump. Allow 10 minutes before wiping or vacuuming off. If the building materials are compromised, remove and replace. Clean up needs to follow IICRC S250, 12.2.9.

7. Cleaning within Containment(s)

- ***AFTER CHEMICALLY CLEANED***: HEPA vacuum ceilings, walls, windows, doors and floors and all areas affect by demolition such as studs, sill plates etc. again. Make sure all horizontal areas like door frames, windowsills, and window trim on the top are clean. ***All areas need to be white glove clean.***

- ***FOR FLOORING***- Clean all surfaces by HEPA Vacuuming first, steam clean, & HEPA again. (If Carpets: Follow 14.3.4.1 of the IICRC S250 in regard to cleaning and or steam cleaning the rugs. If the rugs or floor covering cannot be cleaned using this, standard removal may be necessary.)

Location of Cleaning:

Room	Material	Action
Inside the containments	All surfaces, walls, floor, etc	HEPA vac and Wipe down, twice
Inside the containments	Exposed wood structures	Clean with H2O2 and sanding
Throughout the building	All content, surfaces, walls,	HEPA vac and wipe down/clean
	floor, etc	
Comments:		

Note: Clean all tools and equipment in exit area

8. Encapsulation Instructions (after cleaning):

Not Required

- ***EXPOSED WOOD SURFACES:*** Seal all areas with **Fiberlock IAQ white mold resistant sealer IAQ 6000 (8360)** (preferably white for post verification) of all bare wood surfaces. Allow 2 hours to dry, 4 hours to top coat if required.

Not Required

- ***EXPOSED BLOCK WALL:*** Seal masonry block with mold resistant water proofer FIBERLOCK IAQ 9000. Allow 2 hours to dry, 4 hours to top coat. Coat over the top with **Fiberlock IAQ white mold resistant sealer IAQ 6000 Zero (8360)** (white for post verification). This can be used on the inside (and outside) surfaces on masonry walls, cinder and concrete blocks, stucco, brick and foundations.

Not Required

- ***EXPOSED METAL SURFACES:*** Use **Fiberlock IAQ 4000 primer** on metal surfaces if rusted. This is a white rust inhibiting 100 % acrylic for use on ferrous metal, galvanized metal and other surfaces. Allow 2 hours to dry, 4 hours to top coat. Coat over the top with **Fiberlock IAQ white mold resistant sealer IAQ 6000 (8366)** (preferably white for post verification).

9. Additional recommendations:

- **Perform Hydroxyl or Ozone Treatment** Required

  (Needs to be performed once all has been contained. This will assure a final cleansing to the affected area and any other areas that have been exposed to the spores. Seal all windows and doors with tape. Clean up any ash with a HEPA vacuum. Clean all walls and ceilings after cleaning any ash with HEPA vacuum)

- **Air Polishing** Required

  When done with the standard remediation procedures follow the following steps:

  - Remove dehumidifiers. Make sure all scrubbers are on. Run this way after polishing for 24-48 hours before testing. Make sure scrubbers are off 4-6 hours before testing. (***Note: Leave oscillating fans on site.)***

  - **How to Air Polish a remediated room:**
    - Turn off negative air so that the spores are not drawn in from adjacent, unclean areas
    - Set up an air scrubber, not in negative mode. (Size of room will dictate the number of scrubbers needed).
    - Set up (2) oscillating fans. Position to avoid having dead spots in the room.
    - Direct them to sweep the floor and other horizontal surfaces.
    - Periodically use an air blower in the direction of the fan to stir up the settled spores and general debris left over after the remediation activities. Direct the blower into carpet if present.
    - **Be careful not to damage the integrity of the containment barriers.**
    - Reorient the oscillating fans to sweep new areas and re-direct the exhaust of the air scrubber to blow over different areas.
    - Operate oscillating fans and air scrubbers at least 36 hours after the cleanup is completed.
    - Revisit one more time to polish the area with the air blower.
    - **Shut down fans at least 24 hours before post remediation sampling (clearance test).**

- Cover all equipment with plastic wrap once final polish cleaning is complete.

10. HVAC System:

- **HVAC cleaning:** *required, all units* **Replace filters**
- **Or Individually clean:**

Reference Information on HVAC cleaning (if performing)

- **HVAC System needs to be cleaned Per NADCA (National Air Duct Cleaning Association), ACR-2013 and IICRC S-520 Chapter 12 for HVAC remediation**

- H2H also recommends that the Remediation Contractor remediate the HVAC system. Clean the HVAC air handler and ducts associated with the HVAC system. This will include cleaning all fans, coils, ducts, and associated equipment. This work must be completed under the supervision of an Air Systems Cleaning Specialist (ASCS) certified by the National Air Duct Cleaners Association (NADCA). If the ducts are replaced, the old ducts must be carefully removed, wrapped in 6-mil polyethylene sheeting, and sealed with duct tape, then completely removed from the room.

- **Per NADCA ACR-2013**

  - The surface of the Air Handler and the cabin inside should pass a swab or tape lift test. Clean all hard and porous surfaces inside and outside the air handler with **FIBERLOCK ADVANCED HYDROGEN PEROXIDE (8314) TO ALL SURFACES. Apply with hand pump.** Allow 10 minutes before wiping or vacuuming off.
  - 3.9 Level 1 Containment: Level 1 is the minimum level of containment that shall be used on all HVAC system cleaning projects.
  - 3.9.1 Negative Pressure: The HVAC system, or area being cleaned/restored, shall be placed under negative pressure during all cleaning activities. Negative pressure shall be sufficient to prevent migration of any particulate material out of the HVAC system.

- 3.9.2 Protective Coverings: Clean, protective coverings shall be used within the work area. Protective coverings shall extend beyond the work area to provide protection of flooring, equipment, and furniture whenever necessary.
- 3.9.3 Cleaning Equipment and Tools: All tools and equipment shall be maintained as described in Section 3.1.
- 3.9.4 Cross-Contamination Control: Engineering controls shall be in place to control contaminant discharge from the HVAC system and/or cross-contamination into occupied space during the cleaning process.
- 4.3 Cleaning and Restoration of HVAC Systems: HVAC systems shall be cleaned by using a suitable agitation device to dislodge contaminants from the HVAC component surface and then capturing the contaminants with a vacuum collection device.
- 4.4 Wet Cleaning, Power Washing, and Steam Cleaning: Wet cleaning, power washing, steam cleaning and any other form of wet process cleaning of HVAC system components shall not damage or result in subsequent damage to the components. Cleaning agents or water shall never be applied to electrical, fibrous glass or other porous HVAC system components.
- 4.5 Vacuum Collection Equipment: Vacuum collection equipment shall be operated continuously during cleaning. The collection equipment shall be used in conjunction with agitation tools and other equipment to convey and collect debris and prevent cross-contamination of dislodged particulate during the mechanical cleaning process.
- HEPA vacuum the return box. If it is too damaged, then replace insulation.
- Clean all supplies and return registers with the aforementioned product.
- Air Ducts Cleaning - **Per NADCA ACR-2013**
- 4.8.1 Air ducts shall be accessed through service openings in the system that are large enough to accommodate mechanical cleaning procedures and allow for cleanliness verification.
- 4.8.2 Air ducts shall be cleaned using mechanical agitation methods to remove particulate, debris, and surface contamination.
- 4.8.3 Dislodged substances shall be captured with a vacuum collection device.
- 4.8.4 Cleaning activities shall not damage any HVAC components.

- If the ASCS determines to use an anti-microbial and or sealant, it needs to be registered for use with the EPA or applicable regulatory agency. For more information go to ANSI/ACCA 6 HVAC System Cleanliness: 2007- **Per IICRC-520 Page 187**

11. Prior to Clearance Inspection/Testing:

- **Air Scrubber needs to be on 24 hours after final remediation and then shut down 12 hours prior to clearance testing.**
- **Make sure the dehumidifier is running up to 24 hours prior to clearance testing or if space is subjected to high humidity 4 hours before clearance testing.**
- **DO NOT PERFORM REPAIRS UNTIL TESTING HAS BEEN COMPLETED AND RESULTS ARE IN. PERFORMING RESTORATION BEFORE TESTING MAY RESULT IN A FAILED CLEARANCE.**
- **Deviation from Protocol: 12.2.7: "It is recognized that remediation projects are unique, and that in certain circumstances, common sense, experience and professional judgment may justify deviation from this standard. It is the responsibility of the remediators to determine and verify on a case by case basis that application of this standard is appropriate. Allowing mold or moisture conditions to remain is strongly discouraged; since it can compromise the health of occupants, further damage building materials and expose remediators to liability and other consequences."**

- **In the event the clearance has failed, H2H will provide a report with lab findings. This checklist will be reviewed to see if all procedures were followed. Please refer to the spore level noted on this report as to acceptance of cleaning.**

- **After the clearance has passed**
  - **It is important to complete the following: the containment areas should be HEPA vacuumed and cleaned with a damp micro rag with soap and water prior to the removal of containment barriers. Plastic sheeting should be bagged immediately and thrown out. "NYC Remediation guidelines, November 2008"**

H2H
Indoor Air Solutions

REMEDIATION GUIDELINES

The following pages are general guidelines and practices recommended to be utilized by the remediation contractor.

X. Remediation Guidelines

The original problem which caused the mold to occur must have been eliminated in order to assure the success of the remediation. This protocol is the opinion of H2H Indoor Air Solutions and is based on the original Mold Assessment previous detailed in this report. If the methods and suggestions in this report and the integrity of the site are kept intact, the remediation should successfully eradicate the problem.

Note: Remediator must be licensed and adhere to Items of Remediation Protocol & Guidelines in IICRC R520-2015 Guide. Note that, H2H will not be involved in oversight of the contractor during remediation and cleaning activities.

PROTOCOL BASIS

1.0 This Protocol is to be used as a guideline by the Remediation Contractors in remediating the impacted areas of the house. The Contractor must have the training and experience required to properly remediate this area. The objective is to complete the remediation in compliance with all applicable regulations and guidelines of the U.S. Occupational Safety and Health Administration (OSHA) , U.S. Environmental Protection Agency (EPA), State of Florida, and local governments.

2.0 **It is strictly the contractor's responsibility to comply with the applicable regulations, guidelines, permit requirements, etc. The remediation should be completed in accordance with IICRC S520 Standard and Reference Guide for Professional Mold Remediation** (Institute of Inspection Cleaning and Restoration Certification, December 2003).

Any required heating, ventilation, and air conditioning (HVAC) remediation should be completed in accordance with ARC 2006 Assessment, Cleaning, and Restoration of HVAC Systems (National Air Duct Cleaners Association, 2006). Two documents which have become industry standards and will assist the Contractor are Bioaerosols Assessment and Control (American Conference of Governmental Industrial Hygienists 1999) and Mold Remediation in Schools and Commercial Buildings (EPA, March 2001).

This Protocol does not purport to specify or delineate the requirements of referenced standards and guidelines. It is a performance Protocol, not a specifications Protocol. The Contractor agrees to perform the work in conformance with applicable sections of the referenced standards and guidelines.

The Contractor's goal is to meet the Final Inspection and Post-Remediation Testing criteria of H2H, as described in Section 5.0 herein.

3.0 CONTRACTOR RESPONSIBILITY

While completing the work herein, the Contractor agrees to protect the workers. Further, the Contractor assumes full responsibility for all work and agrees to abide by the requirements in Appendix.

4.0 REMEDIATION

The affected areas should be contained in negative pressure enclosures in accordance with S520 Standard and the details provided in Appendix I. All sources of water and moisture which caused the problem must be eliminated before proceeding. Dehumidifiers must be installed to keep relative humidity below 50% until satisfactory Post-Remediation Testing results are obtained and materials are put back in place.

5.0 REMEDIATION AREAS

Inspect and remediate all walls, floors, cabinets, ceilings, etc., which show evidence of water intrusion. This would include those areas with known leaks, water stains, water damage, or resultant mold growth. If additional evidence of water intrusion is found, continue removal 2 feet (ft) beyond the end of the evidence, in accordance with S520 Standard for the expanded areas.

The remediation personnel must be wearing the proper personal protective equipment. When the ozone is applied, the levels in the air must be below OSHA's Permissible Exposure Limits (PEL) of 0.1 parts per million (ppm) on an 8 hour Time Weighted Average (TWA) basis. Finally, the room must be thoroughly ventilated before it is occupied again.

5.1 **If other or additional affected areas or building materials are discovered during the work described above, discuss these with the Owner and H2H Indoor Air Solutions.**

Post Remediation Notification & Clearance Testing

After the remediation a **Post Remediation Verification (PRV or Clearance** - separate report) must be conducted to determine if the remediation was successful.

It is possible that additional remediation may have to be performed in severe cases. A post-remediation assessment test is always required to ascertain whether the property has been restored to a level conducive for habitation**. H2H will provide PRV that states: "Returned to normal spore levels" or "Fail, needs additional remediation".**

Testing must be done in a contained remediated area prior to installation of sheet rock and/or post construction materials.

The Contractor must contact H2H as early as possible to schedule the Post-Remediation Inspection Testing. H2H will conduct the Inspection with the Contractor present to confirm that the Protocol was followed, there are no readily visible remaining water damaged or contaminated materials, and there is no remaining dust or debris.

H2H Pass Criteria

Clearance will be based on: Visual conditions, odor, the way the containment was constructed and the condition it is in at the time of the clearance inspection. Moisture testing will be done to check the condition of the affected areas. The remediation must also pass a "white glove" test as well as meet the air testing criteria below.

Air testing will be performed both in and out of containment (If containment is present)

Target for pass in each area air tested:

1. Total spore count less than 900 spores m/3.
2. Inside count no greater outside reading
3. Will not exceed original assessment levels.
4. Asp-Pen no great than 300 spores m/3.
5. Cladosporium no greater than 300 spores m/3
6. Alteraria, Curvularia, Ulocladium, Ganodema no greater than 50 spores m/3 each.
7. Stachybotrys, Chaetomium, Memnoniella, Fusarium & Trichoderma no greater than 1 raw count.
8. Debris rating 3 or lower.

If H2H's PRV proves unsatisfactory, contractor will need to re-clean or remediate. H2H will inspect again after completion.

- H2H's evaluation and test results do not guarantee that the indoor environment is free of contaminates, gases, organisms, or any analytes sampled. The customer understands that there are instrumentation limitations associated with accuracy, precision, and uncertainty. Additional limitations relating to sampling and measurement methods and procedures utilized in testing and measuring, as well as factors such as environmental and climatic conditions. The customer is aware that no destructive testing was performed and that the evaluation can only assess for conditions that were visible at the time of the evaluation.
- H2H's opinions as noted in the report are based on the findings and upon our professional experience with no warranty or guarantee express or implied. H2H accepts no responsibility for interpretations or actions of others based on this report. The findings, results and conclusions as part of our assessment are only representative of conditions at the time of the H2H visit and do not represent conditions at other times. This report is intended for your use and the use of your assigned representatives. Its data and content shall not be used or relied upon by other parties without prior written authorization of H2H and the Client.

CONTAINMENT: BEST PRACTICES
(for a successful remediation)

<u>The photographs below are for reference only and are not specific to the remediation project defined in this report.</u>

	Clean surface prior to attempting to apply tape. **Use pins to hold up taped plastic or apply painter's tape to wall surface and use double sided tape to connect 6 mil plastic.**
	Zipper on door to open from floor toward the ceiling.
	Cover ceiling fans using 6 mil plastic.
	Shut down the HVAC vents in the areas being worked on. Cover all supply and return vents in plastic.
	Cover plumbing holes and all exposed drains

CONTAINMENT: BEST PRACTICES cont.
(for a successful remediation)

	Cover all outlets and light switches within contained areas
	Containment entrance must be secured by tape to the floor.
	Constructed Vestibule Example (if required)
	Zipper Door with Intake Air Filter
	Flap on filter, seal with tape once Negative Air is terminated.
	Tack sheet at entrance **- Only on hard surfaces to eliminate tracking debris back into the clean space.** **- Secure to floor with tape prior to use**

CLEANING GUIDELINES: CONTENT

Porous Materials: Fabric, paper, clothing, furniture, curtains and drapes **Carpets**	**AIRBORNE SPORES**: Use HEPA sandwich cleaning, dry cleaning, (chemical residue may be a problem), specialized laundering such as Esporta. **VISIBLE GROWTH**: Disposal and replacement unless high value, then specialized restoration such as freeze-drying papers and HEPA sandwich cleaning etc. Follow 14.3.4.1 of the IICRC S250 in regards to cleaning and or steam cleaning the rugs. If the rugs or floor covering cannot be cleaned using this, standard removal may be necessary.
Inside contained spaces	Bag all sheets, pillows, throws etc. and have professionally cleaned with moldicide designed for materials. If in condition 3 area, porous materials may have to be discarded. Determination as to clean, launder or discard due to contamination must be completed in accordance with conditions 1, 2 or 3 as described in IICRC S520.
Clothing	Remove exposed clothes in closets etc. and double bag them to get cleaned off site. Clothes in drawers or storage vessels can be left in drawers and storage vessels.
Furniture **Kitchen**	**Cleaning can be performed by using antimicrobial agent and water by wiping with a microfiber free rag.** Clean and wipe down large items & furniture . Complete in accordance with conditions 1, 2 or 3 as described in IICRC S520. Edible kitchen contents should also be evaluated. Open containers (i.e. cereal boxes, coffee cans, sugar etc.) and fresh foods (i.e. bread and fruit etc.) should be disposed of properly. Any canned goods that show evidence of exterior rust or boxed goods that show evidence of water staining or damage, should also be properly disposed of at this time. Remaining kitchen contents should be damp wiped with a mild detergent solution wiped dry and placed in sealed boxes.
Possible cleaning locations	• **On-site, inside the containment** • **On-site, but inside another clean room** • **Storage Pod** 1. **Clean items before storing in pod; DO NOT PUT CONTAMINATED ITEMS IN POD!** 2. **Clean items after storage and locating them back in clean space** • **Clothes and soft goods** 2. **Clean on site as long as the laundry room is not part of the containment** 3. **Off- site** 4. **When transferring to clean, put into double plastic bag**

CLEANING GUIDELINES: STRUCTURAL

- ***HEPA VACUUM all*** ceilings, walls, windows, doors and floors and all areas affected by demolition such as studs, sill plates etc. Clean from the highest point and work down to the floor. Also clean from the furthest point and work towards the scrubber.

- If wood surfaces cannot be cleaned, then sand or media blast the surface

- ***CLEAN ALL hard and porous*** surfaces with ***FIBERLOCK ADVANCED HYDROGEN PEROXIDE (8314) TO ALL SURFACES.*** Apply with hand pump. Allow 10 minutes before wiping or vacuuming off. If the building materials are compromised remove and replace.

- ***APPLY AFTER CLEANING: SHOCKWAVE DISINFECTANT & SANITIZER (8318)*** Use a pump sprayer or fogger to apply. We highly recommend this product because it works on hard and porous surfaces. If using other products make sure they are a disinfectant and a sanitizer as disinfectants are only effective on hard surfaces. Allow 10 minutes dwell time. Thoroughly wipe down all affected areas, walls, furniture and all surfaces with cleaner below.

- ***APPLY SHOCKWAVE DISINFECTANT & SANITIZER & CLEANER 8316 to surface with microfiber rag.***
    - ***SHOCKWAVE DISINFECTANT & SANITIZER (8316) Use fogger to apply.***
    - We highly recommend this product because it works on hard and porous surfaces. If using other products make sure they are a disinfectant and a sanitizer as disinfectants are only effective on hard surfaces.
    - Allow 10 minutes dwell time.
    - Clean from the top to bottom.
    - Clean from the source of make-up air toward the AFD. Clean from the clean areas and work towards dirty areas.

XII. APPENDIX:

Industry Interpretations of Genus Mold Levels:

ACTION BY STATE AND FEDERAL AGENCIES

There are no mandated actions specific to molds and indoor air quality required by any state or federal agencies. The U.S. EPA Indoor Air Quality website states, "Standards or Threshold Limit Values (TLVs) for airborne concentrations of mold, or mold spores, have not been set. Currently, there are no EPA regulations or standards for airborne mold contaminants."

However, some environmental companies, industrial hygienists, and other IAQ professionals use the following arbitrary numbers for guidance in interpreting microbial survey results.

The final mold interpretation should not be based solely on numbers! Information gathered from the walk-through investigation of the area is very significant, including sources of moisture or high humidity, and signs of visible mold growth.

In air samples, it is important to consider the type and concentration of fungi indoors, as compared to outdoors or a non-complaint area. One should consider the indoor: outdoor fungal count ratio, the presence/absence of certain fungi indoors versus outdoors, the genus/species of predominant fungi indoors versus outdoors, and whether the fungi detected indoors are allergenic and/or toxigenic.

Mold Testing:

Below is the testing performed in this report:

Non-viable Genus Testing: Identifies general level of mold, air test performed. This test does not identify whether the mold is alive or dead. 95% of the time non-viable testing is done. This identifies the genus of the mold not the species. Genus testing identifies the "general" level of many types of mold. It does not test whether the mold is living or not. In most cases this is all that is required unless an individual knows they are susceptible to a particular species of mold then finding the species may be an important element of the test. This testing can test up to 3 cubic

meters of air which generally is one room.

Direct surface test

Done with swab and or tape, this is a non-viable test which does not identify whether the mold is alive or dead. This test will identify the type of fungi present so we can see if spores have been generated into the air with the Aerosol test.

- Swabs are used when there is a visual presence of a fungi substance. This is to identify the type of mold which in this case is usually the initial source of contamination. Swabs are used on rougher surfaces and are generally sampled in a ½" x ½" area.
- Tape samples as swab samples are used when there is a visual presence of a fungi substance. They are used on smoother surfaces and have a pre-designed surface area.

Aerosol (Air) test:

Bio-Aerosols samples are procured by the use a sampling pump and a slit impactor cassette (**Allergenco-D) or a VIA cassette** which contains a sticky material which traps the particulates in the air. We typically take an outside sample to use as a baseline against the possible contaminated room. When possible we may also take an inside non-contaminated room as a baseline. All samples are taken at 15 L of air for 5-30 minutes. They are immediately bagged and sent with a specific "chain of custody" for the lab to evaluate. The lab reads 100% of the slide. If spore counts on the slide are high the lab may have to estimate the spore count. Air tests are used so a comparison clearance test can be performed to evaluate the success of the remediation. They are also used when there is no visual mold observed.

Investigation-Limitations-Occupancy

A. Investigation: The investigative procedures are limited both to a specific time frame and to considering the conditions apparent during the investigation. Since fungi are growing, living organisms that go through growth cycles, the findings of an investigation may not detect or

locate all sites of microbial growth. Rather, the purpose of the investigation is to develop a picture of the situation and the conditions within the building with regard to moisture control, moisture content of the materials and the potential for fungal growth to develop, while simultaneously identify any growth that has already developed. (Fungal Contamination, by Hollace S. Bailey, PE,CIAQP,CIE,CMR, ©2005)

B. Immediacy & Occupancy of Property: If the box for remediation has been filled in then H2H recommends that the affected areas be remediated as soon as possible. If occupants are experiencing health problems**, a Medical Doctor should be consulted concerning occupancy of the premises.** **During and after remediation, until testing confirms complete remediation, the impacted areas should not be occupied or entered by anyone, except the remediation firm's representatives. This includes cleaning staff and others who may periodically enter the impacted areas. After remediation is completed and testing shows the impacted areas are safe these areas may be entered and occupied.**

C. Limitations

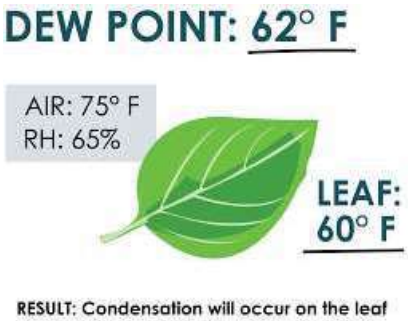
1. H2H Indoor Air Solution's assessment and test results do not guarantee that the indoor environment is free of contaminates, gases, organisms, or any analytes sampled. The customer understands the limitations associated with the instrumentation used related to accuracy, precision and uncertainty. Further limitations are present due to sampling and measurement methods and procedures utilized in testing and measuring, as well as other factors including environmental and climatic conditions. The customer is aware that no destructive testing was performed and that the evaluation can only assess for conditions that are visible at the time of the evaluation.
2. H2H's opinions and the inspectors that represented H2H as noted in the report are based on the findings and upon our professional experience **with no warranty or guarantee express implied**. **H2H accepts no responsibility for interpretations or of others based on this report. The findings, results and conclusions as part of our assessment are only representative of conditions at the time of the H2H visit and do not represent conditions at other times**. This report is intended for your use and use by your assigned representatives. Its data and content shall not be used or relied upon by other parties without prior written authorization of H2H and the Client.

3. Reasonable effort has been made by H2H personnel to sample the affected work area (s) for mold amplification. Mold growth may occur in various areas of a property where water/moisture leak (s) are not addressed. These areas include cavities/enclosures and adjacent building materials which house plumbing/drainage lines and areas adjacent to the perimeter/enclosure systems of the building. NO destructive sampling measures were utilized during sampling; therefore, the potential for mold growth in these areas cannot be dismissed at this time.
4. **Elevated spores may be still present in areas not remediated or tested. I**f these spores have not dried out they may not sporulate and therefore not show up at testing.
5. Finally, mold VOCs ("Musty moldy smell"-MVOCs) are produced during the metabolic or digestive processes of molds and therefore can indicate actively growing mold. When mold is in an inactive or dormant state it does not produce many MVOCs and so cannot be used as an indicator of inactive mold. There are a number of factors that can affect the production and movement of MVOCs, including but not limited to the genus/species, ventilation rates, temperature, humidity, growth surfaces, and competition from other molds. These factors make determination of the genus/species of mold very difficult so the presence of MVOCs indicates active mold growth but not the genus/ species of the mold.
6. H2H was not involved in the oversight of the contractor during the remediation and cleaning activates.

Indoor psychrometrics and possible affects on indoor air quality.

Per the EPA (Environmental Protection Agency), the maximum humidity should be 60%. The maximum grains per pound (dew point measurement) should be 90.

Dew point temperature is the temperature at which the air can no longer hold all of its water vapor, and some of the water vapor must condense into liquid.
The dew point is always lower than (or equal to) the air temperature. If the air temperature cools to the dew point, or if the dew point rises to the air temperature, then dew, fog, or clouds begin to form. At this point where the dew point temperature equals the air temperature, the relative humidity is 100%. If the air cools further, more water vapor must condense out as even more dew, fog, or cloud, so that the dew point temperature then falls along with the air temperature.



EXAMPLE: Inside of your home, if a metal window frame or air supply register is 60 F on the surface and your inside air dew point is 62 degrees F and the relative humidity is 65%, moisture will form and then mold will grow. Unless the temperature of the material changes or the humidity lowers, you will continually have to wipe the mold off. This is very common in bathrooms where there is poor removal of the humidity due to lack of an exhaust fan or failure to open a window.

Condensation: The temperature differential between the surface temperature of building product and the dew point of the air. Controlling humidity and maintaining dew temperatures at least 5 degrees lower than the coolest surface is the only practical and effective solution to eliminate CMG (condensation mold growth.)

Relative Humidity: While relative humidity is (as its name suggests) a relative measure of how humid the air is, the dew point temperature is an absolute measure of how much water vapor is in the air. In very warm, humid conditions, the dew point temperature often reaches 75 to 77 degrees F, and sometimes exceeds 80 degrees. No matter how hight the temperature gets, a dew point temperature of 75 F always represents the same volume of water vapor in the air.

IICRC-520 definitions of mold growth

Conditions 1, 2 & 3: H2H's interpretation of spore counts is based on the conditions set forth by the IICRC as described later in this report. The spore counts are defined in the report as acceptable, slightly elevated, or elevated.)

Condition 1 "ACCEPTABLE" represents an interpreted **acceptable level** defined in the IICRC-520 as Condition 1.

Condition 2 "SLIGHTLY ELEVATED" is an **elevated level of settled spores** defined in the IICRC-520 as Condition 2. No visible mold colony observed.

Condition 3A "ELEVATED" is an **unacceptable amount of settled spores** defined in the IICRC-520 as Condition 3. Modified by H2H to include:**Mold colony observed from condensation**.

Condition 3B: **"ELEVATED"** is an **unacceptable level which shows active mold growth** defined in the IICRC-520 as Condition 3. **Visible mold colonies observed from water damage.**

Description of genus mold spores reported by lab (if reported) and interpreted on page 14 of this report.

Aspergillus/Penicillium Type: Penicillium "Like": Common cause for respiratory issues. Several are know for toxicity, species testing required to determine. This mold is a primary colonizer. Certain species of this mold are xerophilic, which form with little moisture, and are found in condensation or uncontrolled humidity problems. (The testing performed only identifies the type of genus not the species. DNA testing can identify the species) Other species of this mold form with water damage. These species are generally the first colonizers and form within days and weeks** See Appendix.

***Cladosporium*: Allergy, Common cause for hypersensitivity pneumonitis. This genus of mold is generally associated with bathrooms and HVAC systems. It tends to stay on the surface and not aerosolize. It is also a primary colonizer and can form quickly.**

***Chaetomium*: Water damage indicator and mycotoxin producer. This mold can be toxic for some immune deficient people.**

- ***This mold can be a secondary and tertiary colonizer like stachybotrys. It has potential to produce mycotoxins and will dominate a location with time. This mold does however aerosolize faster than Stachybotrys and therefore it can encroach the air stream in locations beyond the primary location.***

***Stachybotrys*: Water damage indicator and potential mycotoxin producer This "black" mold can be toxic for some Immune deficient people. This mold genus only forms if longer term water damage is present.**

- ***This mold is generally formed after months of water exposure. It is generally sticky and stays to the surface unless it dries out and gets in the air stream. If it dries out then it suggests the mold has been there over 6 months. It is a tertiary mold colonizer and will take over a location and eliminate other primary species of mold.***

***Memnoniella*: Water damage indicator. This mold is known to be potentially toxic for some immune deficient people.**

***Ulocladuim*: Water damage indicator. This mold is not known to be a mycotoxin producer.**

***Curvularia*: Grows on indoor building materials. A common cause for respiratory issues. This mold is not known to be a producer of mycotoxins.**

Understanding Fungi (Mold) in the Indoor Environment. (Excerpts from "Sampling and Analysis of Indoor Microorganisms" by Chin S. Yang and Patricia Heinsohn, 2007 and Advanced Building Seminar by Chin S. Yang PhD. and Ralph E. Moon PhD; May 2018)

a. The growth of fungi is ubiquitous and requires moisture, nutrients, reasonable temperature, oxygen and a substrate to grow. Most outdoor spores are found inside but at different levels. They can be brought in by humans, spread around by insects and even be on the original building materials.

b. Different fungi needs and requires different levels of water to grow as well as carbohydrates, organics, and nutrients to grow and propagate. Therefore there are primary colonizers, secondary and tertiary colonizers.

Based on this information and other visual evidence we can approximate how long the molds have been on the substrate.

c. Primary colonizers are the first to form and can begin to form colonies in just several days.

d. Primary colonizers can be replaced by secondary and tertiary colonizers as these species contain mycotoxins and compete for the food source. They require a higher level of water activity and sometimes take 6-months to fully take over.

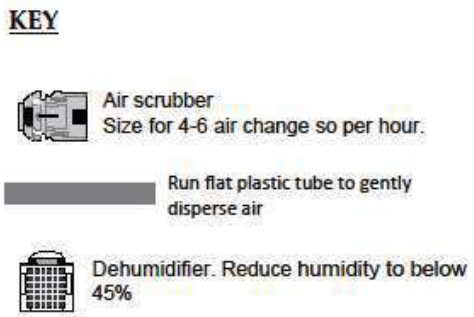
e. Fully submersed building materials do not usually develop molds as the mold needs oxygen to develop and grow.

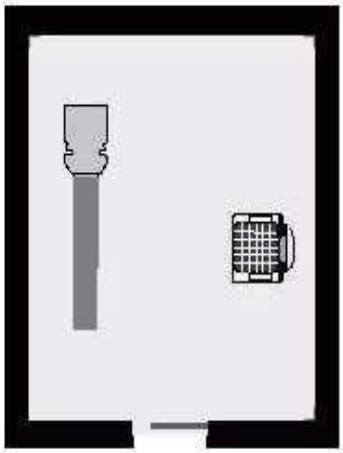
f. Per Dr. Yang some aspergillus species are primary colonizers and some are late primary or secondary colonizers. (PCR DNA testing or cultures would be required to identify.) Dr. Yang goes on to explain that, "common water damage molds like chaetomium globosum which is a tertiary colonizer is known to cause soft wood rot and degradation in paper products in approximately 6 months of prolonged wet conditions. Stachybotrys chartarum, a tertiary colonizer, usually requires 9 months of chronic or repeated wet conditions, provided it started with a dry clean environment."

g. Dr. Yang further explains "Wood decay is a slow process. It requires coexistence of water and spores of wood decaying fungi (most molds cannot break down the lignins in the wood.) Most molds will exist on the surface of wood but will not break it down. Wood decay also involves the process of digesting complex organic matter by wood decay fungi. This normally takes many months and sometimes years."

Containment Examples

* The following pages are to be used as reference only for constructing a proper containment area and are not specific to any particular project.



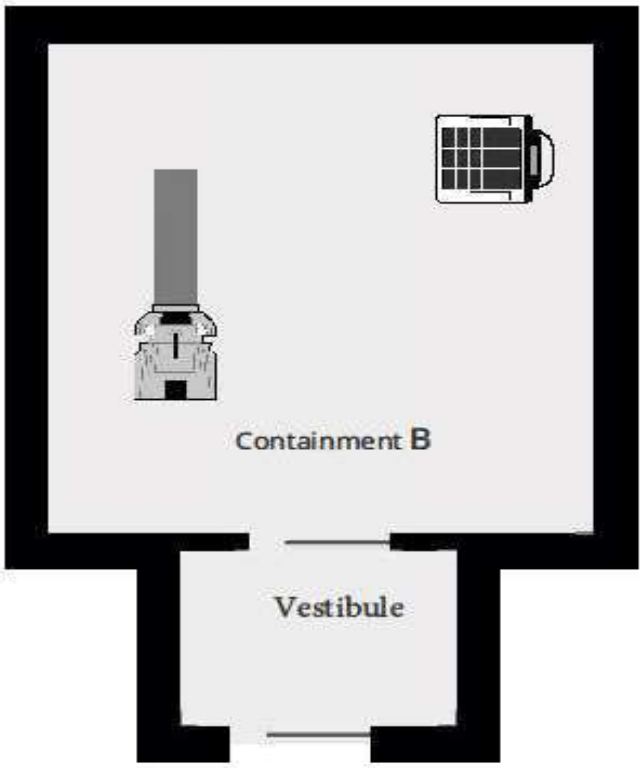


Containment "A"

Containment A is for rooms that do not need or have the capacity for negative air. Use 6 mil plastic on entry. See protocol for location of zipper entrance. See good practice sheet for proper containment construction.

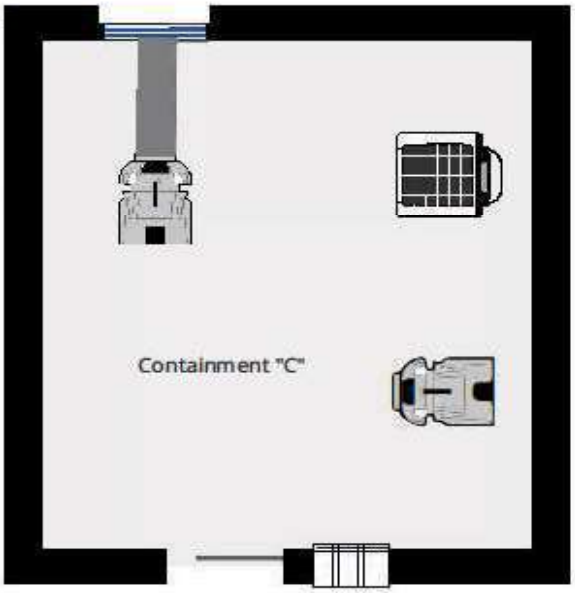
Containment "B"

Containment B is for rooms that do not need or have the capacity for negative air. Use 6 mil plastic on entry. See protocol for location of zipper entrance. See good practice sheet for proper containment construction.

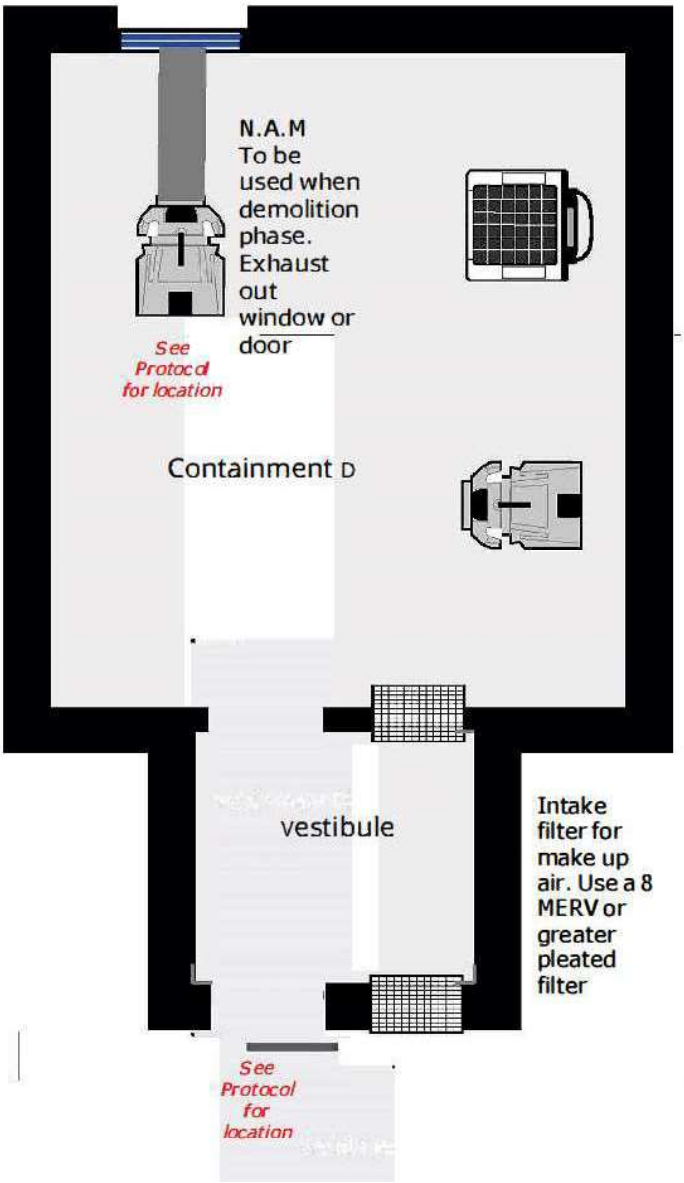


Containment "C"

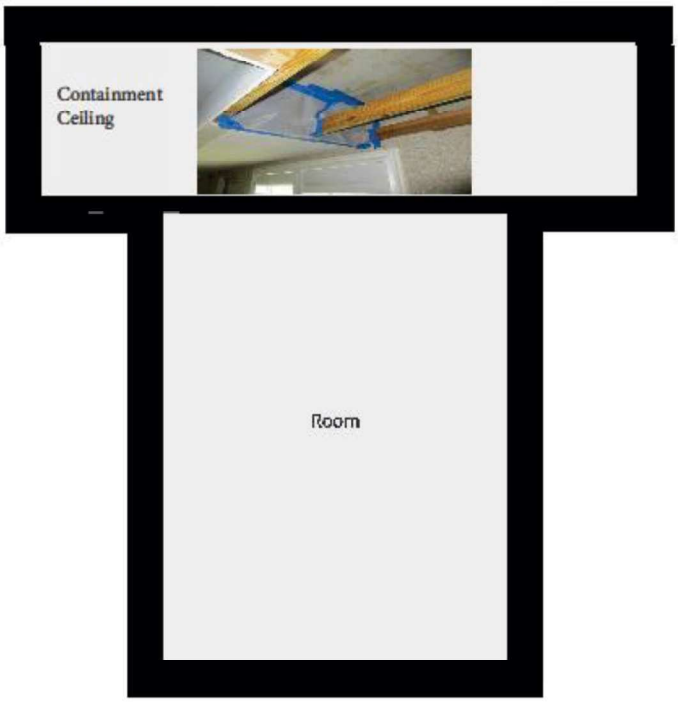
Containment C requires negative air pressure with a intake filter in either the zipper door or another plastic wall. The intake filter needs to be pleated MERV 8 or greater rating and sized correctly for proper room balance. Add filters if required to balance the room.



Containment D:
To to be used when Negative pressure is required with a vestibule. Two (2) intake filters will be required so make up air enters the containment. A Merv 6 pleated filter is required



Containment Ceiling "G" The space above the ceiling must be blocked off from the rest of the ceiling cavity. Insertion of vertical plastic walls will help do this. The area within the ceiling containment should be treated just like the room. If it is not possible to do this the area should be cleaned and encapsulated. Before clearance e testing sheet rock will need to be installed.



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"The investigative procedures are limited both to a specific time frame and to considering the conditions apparent while the investigation is going on. Since fungi are growing, living organisms that go through growth cycles, the findings of an investigation may not detect or locate all sites of microbial growth. Rather, the purpose of the investigation is to develop picture of the situation and the conditions within the building with regard to moisture control, moisture content of the materials and the potential for fungal growth to develop, while simultaneously identify any growth that has already developed." (Fungal Contamination, by Hollace S. Bailey, PE, CIAQP, CIE, CMR, ©2005)

Note:

Currently there are very few federal or state regulations that actually control the mold remediation process. Therefore, true industry professionals must be aware that their efforts are subject to an industry standard of care. Unlike a regulation, a standard of care must be pieced together from a number of different documents. While there is some debate about which references really form the core of the mold control industry, the following documents are cited frequently and were used in this document.

References:

- **IICRC S520 Standard and Reference Guide for Professional Mold Remediation, ANSI/IICRC S520-2008, second edition**
- **American Industrial Hygiene Association, Report of Microbial growth task force, 2001**
- **Environmental Protection Agency; A guide for mold remediation in schools and commercial builidngs,2001**
- **New York City Department of Health; Guidelines on Assessment and remediation of fungi in indoor environments, 2008**
- **Fungal Contamination: A manual for Investigation, remediation and control, Hollace S. Bailey, 2006**
- **"Not all remediation is the same"; Michael Pinto, Wonder Makers Environmental**
- **"A Regional Comparison of Mold Spore Concentrations Outdoors and Inside "Clean" and "Mold Contaminated" Southern California Buildings**