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Providers of Protection for Health Property and Liability

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Water Impact Response:

- I. The (Resident / Owner) of an Indoor Air Space, Is first responsible for the well being of the content located within the air space should a catastrophic event take place, a typical recommendation and/or consideration of the following actions must first be responded to by that occupant regardless of where final liability is obligatory.
 - The first response is to extract, remove, or have removed the water with a determination of the recoverability of the items directly impacted at that time, should the items be of monetary or sentimental worth, those items become priority. The ability to minimize loss, falls upon actions taken.
 - Removals of clothing, bedding, window coverings, etc. made of washable cloth materials are most recoverable. (Washable using over the counter products.)
 - Set aside non porous items i.e., glass, plastic, laminated type materials which are readily recoverable with over the counter products, disinfectants wipes etc.
 - All cellulose products which are sealed, i.e., polyurethanes, enamels, laminates are readily recoverable with over the counter products which will disinfect the surfaces.
 - Many Carpet and Floor coverings are constructed of microbial inhibitive materials, capable of salvage rendering them also recoverable by professional services.
 - Furniture depending on the monetary or sentimental value should be individually assessed, First by the Owner to determine worth, then by a restorer should there be physical water exposure visible and noted.

- II. **Eliminate the undue costs of recovery through timely response.**
 The content within the unit is again the primary owner's responsibility to deter fungal surface activity where excessive Humidity and indoor conditions for growth exist, the allowance of an ever-present state to continue is generally viewed as negligence.

- III. **Available On Line Information for all your fungal related concerns from water related first response to recovery clearance determinations >**
Go To:
<http://www.traskresearch.com/mold.htm>
www.EPA.gov



Compilation of Mold Knowledge

Why is there mold in My Home?

Common Mold types for the most part are opportunistic by nature and are virtually everywhere. Throughout the mold growth cycle a seeding will occur allowing the release of the seeds (spores) into the air.

The presence of mold spores found in the average indoor environment may be as much as (4) four times greater in volume than of those found in the outdoors. This is typically from the ability of the outdoor environments to cleanse the air of contaminants through normal rainfall and dew droplets (Condensation). An indoor environment is generally reflective of a mold spore build up, especially in closed or minimal air flow areas such as shoes and coat closets, outdoor sports equipment, etc.; Open to air flow, hard to reach or non accessible locations behind furnishings, appliances, in HVAC closets, water closets, pantries (especially dry food and vegetable bins) are also ideal build up spaces

In an occurrence of a water leak, it is important to first initiate: The removal of intrusive water through all means available.

Wet vacuuming is an immediate approach. HVAC systems in cooling mode will create a dehumidification process to occur with absorbent materials. The introduction of a dehumidification program is an essential tool in rapid moisture expulsion.

Water impacting an indoor air space is responsible for only one element required in the promotion of fungal activity. Water being a nutrient source, will require an available growth substance preferably being of cellulose or porous material. And of course, the crucial availability of mold spore deposits within an attainable distance of the moisture deposits. The origin and level of mold spores present at the time and location of the water intrusion are in direct correlation to the indoor air spaces hygienic condition at the time of impact and the water's origination. In short, the water origination being of potable drinking water and or water supply for human use, there should be no introduction of contaminants delivered with the water. Hence the mold spores available become known as contaminants commonly and readily available within the indoor environment with no controllable source levels outside of the occupant's control.

Should the water intrusion be identified as originating from a non potable source such as sewage back-up and or water exhaust lines one should automatically assume the water impact is contaminated, with bacteria's, viral agents and other concerns dictating PPE (personal protection equipment) usage during all phases of extraction and remediation.

Active materials where continued growth is occurring with no available liquid water source may be resulting from fungal activity having reached a level of root base embedment being capable of growth continuation with only ambient moisture or high humidity available.

Who is at fault?

An occurrence involving water intrusion may not always be the obvious. The originations of actual entry may have underlying or extenuating circumstances. Therefore the obligation to correct the intrusion is foremost the occupants responsibility. The control of an indoor environment (House Health) and IAQ are generally achievable through attentive means. There are available information sources to assist in the "How To" through local city services / State Services / and governmental resources such as the [U.S. Environmental Protection Agency](http://www.EPA.gov).



U.S. Environmental Protection Agency **Recognized Standards**

Environmental Resources Division

1. The Kingdom Fungi is a diverse kingdom **consisting of** over 1 million species and includes mushrooms, **molds**, and yeasts. Fungi are mainly saprophytic meaning they obtain their nutrition from the breakdown and decay of organic matter. They can thrive in many places such as soil, plant litter, wood, live plants, dung, animal remains, fungal remains, etc, and play a vital role in the environment as a decomposer of dead-plant matter.

Molds: Commonly called mildew, molds (sometimes referred to as "black mold") are a subset of fungi that produce fluffy or powdery growth on surfaces. Toxic molds can grow on cloth, carpets, leather, wood, sheetrock, insulation (and on human foods) **when moist conditions exist**.

Molds are ubiquitous, the **most common form of fungus** on earth, and may grow at high levels indoors, in a home or building, if the right environmental conditions exist. Factors that influence the distribution of molds are **most importantly a source of moisture**, proper nutrients, temperature, and light.

Carbon containing materials that are abundant both indoors and outdoors may provide the essential nutrients for growth. Sources of moisture, which are usually the limiting and most important factor. They can come from high humidity levels, condensation, and water intrusion due to a number of events such as indoor leaks and floods.

ESA Notation: In regard to indoor leaks, once the water leak is remedied and the water is extracted from the impact area, the ability for fungal activity to continue is withdrawn. Temperature and light may affect fungal growth, but are usually not a limiting factor since most fungi can grow in light and total darkness.

2. **The key factor in limiting mold exposure indoors is to prevent its growth through moisture control, maintenance, and proper cleaning methods.**

ESA Notation: Regardless of the nature or the origin of moisture introduction, the proper cleaning methods applied are first and foremost the responsibility of the person/s having power over of the environment (ownership). The assurance of the health and wellbeing of the occupants, the dwelling and its content should incur no further damage than actual at the time of impact. The cost of personal loss from water impact is at it least if attended to promptly. **Time:** Mold growth begins between 24 hours and 10 days from the provision of the growing conditions. There is no way to date mold.

Knowledgeable and cost effective remedies are available from a variety of resources through the local government agencies i.e., City, County or State Services as is also with local service providers.

How a Mold Reproduces – It's Life Cycle:

3. When the appropriate conditions for growth exist: The presence of moisture, nutrients, temperature, etc, the mold begins to reproduce via its life cycle.

Hyphal Growth: Hyphae are the thread-like filamentous cells that release enzymes which degrade and absorb nutrients from a substrate (i.e., organic debris, cellulose, wood, almost any carbon containing material including human skin). Upon obtaining it's nutrition, the hyphae will grow into a mycelium, the main body of the fungus which is also the visible portion.

Spore Formation: Spores form on the ends of some hyphal cells. The formation of spores is dependent on a variety of environmental factors including light, oxygen levels, temperature, and nutrient availability.

Spore Dispersal: After the spores are formed, they are released into the air and carried elsewhere to begin the process of germination and growth all over again. Mold spores are highly resistant and durable. They can remain dormant for years in even hot and dry environments.

Spore Germination: Once the spore is dispersed to a new area and when the appropriate conditions exist, moisture and nutrient availability, the spore will begin to germinate into a new hyphal cell.

4. **Why is mold growing in my home?**

Molds are part of the natural environment. Outdoors, molds play a part in nature by breaking down dead organic matter such as fallen leaves and dead trees, but indoors, mold growth should be avoided. Molds reproduce by means of tiny spores; the spores are invisible to the naked eye and float through outdoor and indoor air. Mold may begin growing indoors when mold spores land on surfaces that are wet. **There are many types of mold, and none of them will grow without water or moisture.**

5. **It is impossible to get rid of all mold and mold spores indoors;** some mold spores will be found floating through the air and in house dust. The mold spores will not grow if moisture is not present. Indoor mold growth can and should be prevented or controlled by controlling moisture indoors. If there is mold growth in your home, you must clean up the mold **and** fix the water problem.
6. **If you clean up the mold, but don't fix the water problem, then, most likely, the mold problem will come back.**

HVAC Systems Concerns

DUCTS: A SPECIAL CONCERN

Don't even think about cleaning out contaminated heating, ventilation, or air-conditioning (HVAC) systems yourself. Manufacturers recommend that furnaces, boilers, water heaters, heat pumps, and central air conditioners that have been submerged under flood waters be replaced. Water damage could cause combustion or electrical-system malfunctions that could be life-threatening. And, the duct-distribution system connected to that equipment also needs to be cleaned and disinfected.

A qualified mold-remediation contractor must clean the entire system from supply to return, not just the ductwork, to prevent spreading mold spores throughout the house. It also involves vacuuming and scrubbing out the system under containment, then applying EPA-approved chemicals to reduce germs and fungi.

Work should be performed according to ACR 2005, the industry standard for assessment, cleaning, and restoration of HVAC systems developed by the National Air Duct Cleaners Association (NADCA). Unless an inspection shows it is mechanically sound, fiberglass or other porous ductwork typically must be discarded because it cannot be cleaned with biocides. For more information on cleaning fiberglass ductwork (and also insulation), contact the North American Insulation Manufacturers Association (NAIMA) at See EPA document number 402-K-97-002, October 1997, or www.epa.gov/iaq/pubs/airduct.html for more information. You can also type the publication number into the search box on the EPA Web site to access it.

The national average for routine duct cleaning is \$450 for a 2,000 square-foot house, though what you pay can vary widely based on the size and complexity of the job, says John Schulte, a spokesman for NADCA, in Washington, D.C. Figure on roughly eight hours with a two-man crew. Replacing flexible duct sections, washing metal ducts, or removing or replacing fiberglass insulation will increase costs and the time needed to complete the job.

For more information on duct cleaning and to find an association member in your area, go to www.nadca.com .