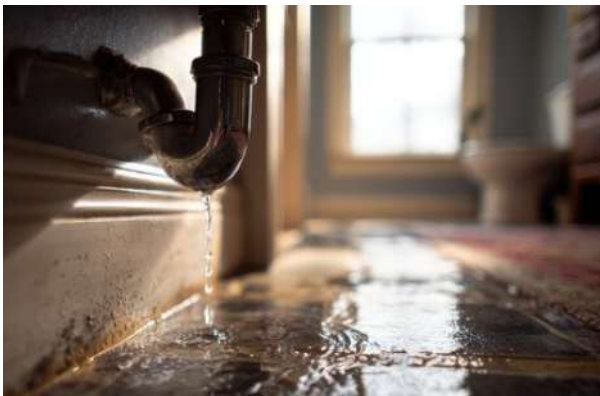


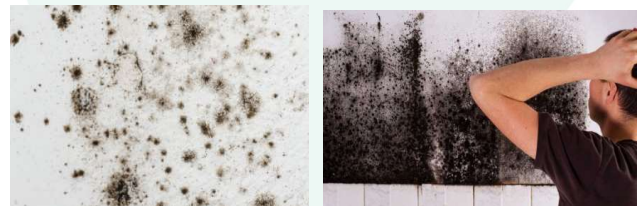
Time is of the Essence When There's Water Damage!

When there is water damage in someone's home or business it may not seem like a big emergency as long as you get the water turned off, vacuum or mop up the water, and put a fan on it. Unfortunately, most people don't understand that **water follows the path of least resistance and goes down due to gravity and can easily get behind or underneath materials where you can't see it.** Add to that the fact the longer water sits in contact with building materials, like drywall and wood (organic food sources for mold) microscopic microorganisms can start to grow. The microorganisms I'm talking about are fungus, bacteria, and viruses and they all depend on moisture to grow, multiply, and thrive.



Fungus, which I call the “fun-guys & fun-gals,” **needs 5 things to grow - moisture, the right temperature (optimum 68-86 degrees F), an organic food source (like drywall paper, wood, and adhesives), stagnant air, and time to grow.** Some xerophilic molds, e.g., aspergillus/penicillium, don't need much moisture to grow and are typically some of the fun-guys and fun-gals that show up first to have a party in your home! Other species of mold, e.g., stachybotrys, need a lot of moisture to grow and generally don't show up for weeks and are an indicator of chronic water damage. I call Stachy the lazy fun-guy/fun-gal that is the last one to the party and doesn't bring any drinks or snacks. Stachy was known as the “black, toxic” mold everyone was scared of because there was a lot of publicity around black mold that could make people sick that caused some hysteria and to this day many people are very scared of mold.

People typically fear what they don't understand, e.g., mold, asbestos, lead paint, COVID, etc. and **to reassure people we need to educate them on how mold occurs and what to do to prevent it from growing in the first place.** *See *Getting EDucated Article on What is Mold and How Dangerous Is It?* The best way to stop mold from growing inside buildings is to start mitigation as quickly as possible and never give it a chance to start growing.



At our IICRC approved flood house called the Disaster Recovery Learning Lab or DRLL on the Clark State campus in Springfield, OH **we intentionally get a home wet every month and dry it out in 3-5 days with no mold!** In addition, we build a “mold incubator” by putting normal building materials, e.g., drywall, wood, carpet, baseboard, etc., in a plastic bin, soaking them with water, and leaving them at room temperature and recording how quickly mold can become visible to the naked eye inside the incubator.



In our testing, which has been repeated dozens of times, it is typically 5-6 days before we can get mold to become visible to the naked eye on the wet materials, and this is inside the mold incubator where we have optimum conditions for mold to grow. It would take much longer inside someone’s home, especially if they have a functional HVAC system.

You may have heard that mold can show up on wet materials inside buildings after only a day or two (24-48 hours) but when you better understand how mold grows that is the mold spore (seed of mold) at a microscopic level just getting started to grow. You won’t be able to see it at 24-48 hours juncture because it takes that long for the cell wall of the mold spore to soften and to send out an exploratory root called a hyphae looking for an organic food source. The way I explain it to my students is a mold spore, which is 3-10

microns in size (remember the width of a normal human hair is 75 microns) is too small to see and is sitting dormant on surfaces in your home as well as floating in the air because mold is ubiquitous on this planet.

Mold is the third-largest group of living matter on earth behind plants & bacteria. Mold isn’t an issue unless it has a chance to grow and proliferate inside a structure and it needs moisture to make that happen. As a matter of fact, mold needs an organic food source and needs to be “wet enough, long enough” for the mold to get started growing. Different species of mold have different water activity levels, which is the equilibrium relative humidity (ERH) of the air right at the surface of an organic material that would allow mold to get started growing. Generally, xerophilic molds, which need the least amount of moisture, can start to grow on an organic food source around 70-75% ERH.

**See Water Activity Chart below courtesy of AquaLab*

Water Activity and Growth of Microorganisms*	
Range of a_w	Microorganisms Generally Inhibited by Lowest a_w in This Range
1.00–0.95	Parasitomas, Escherichia, Proteus, Shigella, Klebsiella, Bacillus, Clostridium perfringens, some yeasts
0.95–0.91	Salmonella, Staphylococcus, C. botulinum, Serratia, Lactobacillus, Pedicoccus, some molds, yeasts, Rhizopus, Aspergillus
0.91–0.87	Chaetomium, Trichoderma
0.87–0.80	Most molds (myceliogenic, penicillia, Staphylococcus aureus, most Saccharomyces, Rhizopus, Aspergillus, Chaetomium, Aspergillus)
0.80–0.75	Most halophilic bacteria, myceliogenic, aspergilli, Penicillium
0.75–0.65	Xerophilic molds (Aspergillus clavatus, A. candidus, Wallemia sebi, Saccharomyces bayanus)
0.65–0.60	Osmophilic yeasts (Saccharomyces rouzei, few molds (Aspergillus nidulans, Monascus sp.)
0.60–0.00	No microbial proliferation

Once the mold spore finds a wet organic food source it sends out more roots called mycelium and starts feeding and reproducing.

All that takes days, so we typically don't see visible mold without a microscope under optimum conditions for growth until about 5-6 days in our mold incubator.



All this is to say, we have about one week of materials being wet before we risk mold showing up to the party! In actuality, it may be closer to two weeks in a normal home with a functional HVAC, but because we don't always know exactly when the water loss started it is best to error on the side of caution and remember to get a professional, certified restorer out to the loss location as soon as possible for we might be right on the cusp of the fun-guys & fun-gals getting ready to show up!

Remember, **destructive mold growth can begin to occur on wood at 20% moisture content or above!** Always take your moisture content readings with a penetrating moisture meter, if at all possible, for the readings are more conclusive. Non-destructive mold growth or what we call "surface" mold can begin to occur at 17%-19% moisture content on wood materials. This is also called "lumberyard mold." *See *Getting EDucated Article on What is Lumberyard Mold?*

So, in summary, get a professional, certified restorer to the water loss as soon as possible in order to stop mold from

occurring. Mold is everywhere, but we just don't want it to grow inside our homes and businesses. **We need to differentiate between date of loss and date of discovery and remember that the clock is ticking on how long it will take mold to show up!**

Always perform a meticulous inspection and take plenty of photos of the materials that got wet and are the closest to the origin of loss to look for potential microbial growth. **Go to where it was the wettest, the longest, on the material most likely to be a food source for mold, which is typically drywall paper, back of baseboard, or on wood framing inside walls.** You may need to use Selective Invasive Investigation to open up a small area at the bottom of a wet wall nearest to the source to inspect inside the wall. *See *Getting EDucated Article What is Selective Invasive Investigation*

Good Luck and watch out for those fun-guys & fun-gals and don't be an alarmist that scares people with stories of how dangerous mold is but instead **educate them on what mold is, how it grows, that mold is everywhere outside and inside our buildings normally, and why it is important to keep the insides of our homes and businesses dry to prevent mold from growing and becoming a problem.**

MEET ED



Instructor Ed Jones has more than 30 years of experience in the industry, has the title of Master Water Restorer, is an Institute of Inspection Cleaning and Restoration Certification (IICRC)-approved instructor, and has served on the S500-2021 consensus body committee to