

# Water Damage and Microbial Contamination

Water damage in a home or building is the leading cause of microbial contamination. If not handled promptly and properly, bacteria and fungus can quickly colonize and grow, posing potential health risks for inhabitants. Health problems can occur depending upon the quality of water that causes the damage and the length of time before remediation.

There are three different categories of water quality



- **Category 1**, or clean water, is the least contaminated. This category may include rainwater or broken water pipes and usually presents very little risks. However, as this water comes into contact with the ground and structures it can quickly degrade into Category 2.
- **Category 2**, or gray water, contains considerable amounts of chemicals and contaminants and poses a greater health risk. Examples of gray water include water from a washing machine or an aquarium. A gray water contamination, within a short period of time and exposed to temperature changes, can turn into Category 3.
- **Category 3**, or black water, is heavily contaminated and potentially contains sewage and other contaminants including pesticides, toxic chemicals and industrial waste. Health risks increase greatly when water damage includes black water contamination.

There are a number of different fungal contaminants commonly found in water-damaged environments. Some of the most common include certain species of *Aspergillus* and *Penicillium*. These species tend to colonize in continuously damp materials and are commonly found in house dust and on water-damaged wallpaper, wallboards, and other household materials. Other molds found after water damage can include *Stachybotrys chartarum*, *Trichoderma*, *Fusarium*, as well as others. These fungi prefer to colonize in extremely wet environments such as soaked wallboards and water reservoirs. All of these fungi are considered potential toxin producers and the mycotoxins from these molds can cause health effects.

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Additional types of microbial contamination can occur when water damage is caused by Category 3, or black water. The sewage in black water can contain various viruses, parasites, and bacteria pathogens that can pose health problems. Gram-negative bacteria such as *Salmonella*,

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*Campylobacter* and *Escherichia coli* (*E. coli*), are commonly found in sewage water and can cause severe intestinal problems. In addition to the risk of infection, these bacteria can release endotoxins as their cell wall deteriorates. When these endotoxins become airborne, they can cause respiratory distress if inhaled.

It is extremely important that the cleaning and restoration process is done correctly. If handled incorrectly, high levels of bacteria and fungal spores can become aerosolized and cause respiratory complications such as allergies, allergic disease, and toxic disease. This can be particularly dangerous for at-risk populations such as infants, elderly, and those with compromised immune systems.

After water damage of any kind, prompt and proper actions are necessary to avoid contamination problems. These actions may include removal of contaminated materials, properly drying out the area and appropriate cleaning and disinfectant procedures. This will help to prevent microbial colonization by bacteria and fungi.

### For further information

We feel it is important for you and your clients to be informed about mold, not intimidated by it. Should you have any questions or require testing please call.



*The information in this article came from the IICRC S500 Standard and Reference Guide for Professional Water Damage Restoration. This book and others are available from Aerotech Laboratories. To find out more about the books and products available please visit Aerotech's website [www.aerotechlabs.com](http://www.aerotechlabs.com).*

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