Your Library Books Have Mold

Where does mold come from?

Mold is a general term for a species of fungi that develop through the spread of microscopic spores. Mold spores float through the air and are found on most surfaces. Most of the time, mold is inactive because the conditions are not right for it to grow. Mold needs a food source, such as the cellulose in paper and other organic materials found in library collections, to begin growing. Water or high humidity, warmer air temperatures, and stagnant air allow mold to become active. As it grows, mold releases digestive enzymes that stain and degrade library materials and send more spores into the air. Mold will begin to bloom on wet books in as little as 48-72 hours after exposure and spread rapidly depending on the temperature and air flow unless the books are dried and the humidity in the area where they are shelved is reduced to below 55% relative humidity (RH).

Are there health concerns with working around mold?

Yes. There is no known exposure to mold that is absolutely safe for everyone. Working with moldy library materials may pose significant health risks for people with asthma, allergies, other respiratory issues; weakened or suppressed immune systems; pregnant women; children under twelve; and the elderly. Even people who have had no prior health issues with mold may develop an allergic reaction and subsequent sensitivity after working with moldy materials.

For these reasons, safety equipment should be worn in the form of nitrile or other disposable waterproof gloves, goggles to protect your eyes, disposable coveralls to keep mold spores from contaminating your clothing, and, ideally, disposable N95 series masks.

What should I do if I have moldy books or other library materials?

If the issue is light mold on the surface of a few hundred books and the environmental cause is a localized leak or water in a shelving area, then you can probably handle the situation yourself as long as safety precautions are followed. If the size of the mold outbreak is larger due to a significant natural disaster such as a flood, hurricane, or tornado – especially if there is damage to the building itself – then professional help will be needed.

Dealing with a small-scale mold outbreak:

- Remove any standing water.
- Reduce the humidity in the shelving area to below 55% RH.
- Use fans to keep the air circulating.
- If the books are still wet, dry them first following *What to Do If Your Library Has a Flood or Water Disaster.*
- Set up a work area outside the library. If this isn't possible, the indoor work area should have a fan pulling in fresh outside air into the room and another fan pulling air away from the table where you are cleaning books. The air stream should pull the mold spores you are cleaning off the books away from you and exhaust them outside, not toward you.

- Wear nitrile or other disposable waterproof gloves, goggles to protect your eyes, and disposable coveralls to keep mold spores from contaminating your clothing. Disposable dust masks (N95 series) should ideally be worn. These masks should be used following the manufacturer's safety precautions.
- Remove all books from the shelves in the affected area and transport them to the cleaning area.
- Clean the books using dry microfiber cleaning cloths in a gentle linear rather than a buffing motion. Wipe the spine of a book from the bottom to the top. Wipe the cover boards from the hinge to the edge. Wipe the top and bottom of the text block from the spine to the edge and the face of the text block from the bottom to the top.
- Books may be vacuumed if the vacuum has a certified HEPA filter installed and an aperture that opens to reduce the suction level. Vacuum the books in a gentle linear motion using the brush attachment.
- While the books are off the shelf, clean the shelving and if possible, the floor, using a commercial disinfectant.
- Monitor the environment using a data logger to ensure that temperature and RH levels don't allow mold to return.

Dealing with a large-scale mold outbreak:

If mold already exists on thousands of volumes, then the situation is beyond the means of library staff to safely respond and adequately recover the collection. In these cases, a disaster recovery service should be contacted. Due to the cost of treatment, it is advisable to consider which collection items are valuable and need to be recovered compared with items that could be discarded and replaced.

Freezing books:

The damaging effects of mold can be stalled by packing the books into cardboard boxes and storing the boxes in a commercial freezer. The freezer should be capable of achieving -10° F. The boxes should be lined with plastic bags, and individual books should be wrapped in wax paper, butcher paper, or separated by cardboard to keep them from sticking together. Freezing the books ensures that you have time to make later arrangements for the books to be dried and treated by a disaster recovery service. Freezing the books also allows you to remove boxes of books one at a time from the freezer and dry them in small batches.

Contact GPO's Preservation program at askGPO if you have any questions about developing a disaster response and recovery plan for your library or if you have questions about this information sheet.