



# DISASTER RECOVERY IN A BOX

Planning to save your collections  
in an emergency

# TYPES OF DISASTER TO PREPARE FOR

## Without warning

- Fire
- Earthquakes
- Building leaks
- HVAC leaks

## Warnings may occur

- Hurricanes or tornadoes
- Rain or snow events (flooding)
- Building malfunction (roof, HVAC, pipes)
- Construction

Prepare for the worst-case scenario.

# WATER IS A THREAT TO COLLECTIONS

For most library disasters, water is the biggest cause of damage to paper-based collection material. You should focus your plan on water-damage.

In order to save your collections, you need

- A plan (updated yearly, printed in hard-copy)
- Supplies at the branch
- A team of trained staff
- Extra help lined up (extra supplies, extra people, trained staff)

While we will touch on the plan and the extra help, we will mainly focus on the supplies and training aspects in this presentation.

# THE PLAN

Your library must establish a written disaster plan. It must be a priority for your organization and its leaders.

This involves

- Establishing a disaster prevention routine (inspection, repair no matter how minor)
- Funding for supplies (that are **never** used for anything else)
- Identifying **collection priorities** in the event of an emergency (truly irreplaceable collections)
- A commitment to train staff to respond in an emergency
- A communication plan (who calls whom, who liaises with EMS, regularly updated phone lists, etc.)

Note: The most useful resource I found is *Building an Emergency Plan: A Guide for Museums and Other Cultural Institutions* (<https://goo.gl/jLmpzw>). I also created (and maintain) an online list of sample disaster plans and of sites dealing with disaster planning (<https://goo.gl/TVWTex>).



# LARGER FLOOD-REMEDICATION EQUIPMENT

- Waterproof (marine) extension cords
- Large fans (pedestal or floor) and blowers, as many as possible given electrical safety
- Dehumidifiers
- Monitoring equipment for humidity & temperature (thermometers, [dataloggers](#), or [hygrothermographs](#))
- [Freezer](#) (for temporary holding of wet items not immediately dried)
- Generators
- Pumps
- Wet-dry shop vacs

# SUPPLIES AT THE BRANCH: SALVAGE

## Absorbent products

- Blotting paper
- Diapers
- J-cloths
- Paper towels
- Sponges

## Packing supplies

- Contractor garbage bags
- Banker's boxes (acidic is fine)
- Banker's 2-part boxes (Hollinger boxes)
- Packing tape and duct tape
- Plastic bins, totes, or containers
- Pallets or skids

# SUPPLIES AT THE BRANCH: SALVAGE

## More packing supplies

- Scissors
- Twill tape, twine or string
- Freezer paper or waxed paper
- Mylar (clear acid-free plastic)
- Brown paper
- Bubble pack
- Plastic wrap for packing

## More packing supplies (specialized)

- Acid-free tissue
- Frame corners
- Blotters
- Multi-Use board
- Multi-Use board - C - Flute
- Multi-Use board - E - Flute



# SUPPLIES AT THE BRANCH: SALVAGE

## Water-repellant material

- Rolls of plastic sheeting (10' & 20' rolls of 10 mil polyethylene from hardware stores)
- Tarps
- Plastic tubs, garbage pails lined with plastic garbage bags, etc. to catch water
- Duct tape, caution tape, etc.

## Drying equipment and tools

- Extra buckets, mops and squeegees to remove water
- Knitting needles (to pierce wet periodical boxes on shelves)
- Flashlights
- Batteries (for flashlights etc.)

# SUPPLIES AT THE BRANCH: DOCUMENTATION

## **Recording equipment**

- Clipboards with paper
- Markers to label boxes
- Pencils (write when wet) and pens
- Camera or a Smartphone (photos)
- Tape for signs
- Extra paper for signs, lists, etc.

## **Labelling and other**

- Adhesive labels
- Paper tags with strings
- Pest cups (specimens for identification)
- Caution tape to seal area from public

# PERSONAL PROTECTIVE EQUIPMENT

## Gloves

- Various sizes and types, from Corporate Express (disposable if mould)
  - Cotton gloves
  - Latex, rubber or purple nitrile gloves
  - Sure-grip PVC/cotton gloves
  - Vinyl gloves

## Masks

- N100 masks, N95 masks
- Uncertified “Moldex” dust masks

## Clothing

- Aprons
- Cloth or Tyvek lab coats
- Disposable Tyvek coveralls
- Rubber boots
- Steel-toe boots

# UPDATED LIST OF PEOPLE & SUPPLIERS

## Updated list of people to call

- Internal: staff, managers, Facilities, municipal contacts
- Nearby institutions (LAMs, government)
- Private conservators in the area, Canadian Conservation Institute)

## Suppliers to call

- Hardware stores, moving companies, office supplies
- Vacant space nearby you can rent
- Equipment rental
  - Fans, dehumidifiers, generators, marine extension cords, etc.
  - Electric or sump pumps
  - Safety supplies and equipment
  - Air-sprayer

# UPDATED LIST OF CONTRACTORS

## **Contractors to call**

- **Disaster Recovery services**
- Freeze-drying services or freezer trucks
- Cold storage facilities

## **Other contractors you can call**

- Cleaning and carpet-cleaning services
- Pest Control services
- Archival suppliers
- Mould testing services
- Bookbinders
- Microfilm recovery services

# A TEAM OF TRAINED STAFF

Take the time to train your staff in each location, before an incident occurs.

Make sure you include:

- Safety: electricity, falling objects, slippery trip hazards, mould, crowd-control, first aid
- How to respond: make haste slowly aka Don't Panic
- Security: staff-only areas and collections security
- Photography: when to take pictures, why and how they will be used
- Record-keeping: where the information is in your branch and on the fileshare, and how to update it

# IMMEDIATE RESPONSE

- In the event of a large-scale disaster, make sure EMS has confirmed it is safe to enter.
- Make sure that all electricity has been turned off for areas affected by water and that there is nothing toxic (chemicals or sewage) in the water.
- Make sure the water is stopped. Turn it off or cover the shelves in plastic to protect them from leaks. If there is a lot of water, you may need flood remediation equipment.
- If other material is threatened, move the items to a safe place. (Try to maintain shelf order).

**Personal safety always comes first. Do not risk injury to protect library materials. Never enter a flooded area until Facilities has confirmed it is safe to enter the area.**

# ASSESS THE DAMAGE

- Are the items on your system's list of priority items (your unique and irreplaceable collections)? If not, seriously consider withdrawing them.
- First, assess the the location, and the number and type of collections affected
- Next, assess the extent of the water damage



# ASSESS: LOCATION, NUMBER AND TYPE

- **Location:** Where in the building did the damage occur?
  - Be as specific as possible (room 105, not “Briana’s office”).
- **Condition of the shelves:** Are they upright or leaning? Are they fastened to the wall or ceiling?
- **Quantity:** How many items, shelves or bays are affected?
  - Estimate 50 books/shelf, or 250 books per bay. A recovery box can hold a maximum of 25 books.
- **Type:** What kind of material is damaged? (Books, archival material, artwork, photographs, corporate art, microfilm, newspapers, etc.)
  - Each format requires a different response, so this information will help make a solid plan.
  - What kind of paper are they made from? Coated paper is a bit shiny, regular paper is not. Newsprint is extremely fragile.
- **Uniqueness:** Can the items be replaced? Are there duplicate copies in the system?
  - Each branch should have a list of priority collections.
  - Remember to include archival and local history collections, as well as corporate art.

# ASSESS: EXTENT OF WATER DAMAGE

- **Severity:** Are the items soaked or damp?
  - Try to estimate how many items fall into each category.
- **Time:** How long have they been wet?
  - This will help you figure how long until mould may start to grow.
- **Origin:** Is the water clean or dirty? Is it from a roof or a pipe? Is sewage involved?
  - If the items are contaminated with bodily fluids, it is safest to discard them.

**No staff with mould allergies or respiratory problems should work directly with water-damaged materials.**

# DO THIS: PROTECT PEOPLE AND COLLECTIONS

- Keep members of the public away from the area. Consider yellow caution tape.
- If it is safe to do so, protect the undamaged and damaged collections.
  - If water is coming from above the collections, drape large sheets of plastic over the collections to prevent further damage. Don't let the plastic touch the floor, or moisture will travel up the sheeting and reach the items.
  - If possible, put a bucket, a lined garbage can or a plastic container under the drips to contain them. Empty these regularly.
  - If water is coming from below, take the items off the lower shelves and raise cabinets off the floor, or remove them to a safe part of the building.
- Take pictures to document the water, the damage and details of the situation. Continue to take pictures throughout the clean-up.
  - You will need them for insurance purposes.
  - They will help you plan your response and prevent similar events in the future.

# DO THIS: CONTROL WATER & TAKE INVENTORY

- Use a shop vac, a squeegee, or mops and buckets to remove standing water or at least to direct it away from the collections.
  - If possible, put up a barrier to prevent water from entering.
  - **Make sure electrical cords do not touch water on the floor.**
- Remove wet things: stored items, garbage, or carpet you can't dry.
  - You might have to throw them out.
- Make a list of the items.
  - If possible, scan the barcodes into an Excel sheet, and use a second column for the title.
  - You will probably have to withdraw them.
  - You will probably have to provide a complete list to your manager, your accounting department or your insurer.
- Appoint someone to co-ordinate communication with management, staff, and any outside help you may need to call in.

# DO THIS: SET UP FANS & DEHUMIDIFIERS

- Set up fans and dehumidifiers as soon as it is safe to do so.
- Cold, moving air with low humidity is essential to prevent mould.
- Lower the temperature in the area. It should remain between 18°C (65°F) and 21°C (70°F).
- Fans should not blow directly on drying materials. Make sure the air circulates freely.
- Dehumidifiers dry out the air but must be emptied on a regular basis, including after hours and on the weekends.
  - If possible, put the dehumidifier over a working drain (test it) and secure a bit of hose from the dehumidifier to the drain.
  - Remember, the dehumidifiers discharge heat and will warm the air.

# DO THIS: REMOVE OTHER SOURCES OF MOISTURE

- Remove wet items from the floor.
  - Water on the floor must be removed ASAP to lower humidity.
  - If there is soaked carpet, remove it. It can trap water and encourage mould growth.
  - Throw soaked garbage and other non-collection material away.
  - Consider throwing out the furniture, or move it to a separate location to dry.
- Raise cabinets off the floor so the air can get under them.
  - Ideally, use non-absorbent plastic or foam risers. Using wood is still better than letting the cabinet sit on the floor, however, to minimize toxic mould growth.
- Use air blowers or fans to dry wet drywall. It may need to be removed and replaced.

# DO THIS: CLEAN DAMAGED & UNDAMAGED ITEMS

- Damaged collections
  - Take a picture of the items: soaked and damp.
  - If you have many soaked books, identify the items that are on your branch's disaster-response priority list.
  - Remove the collections in the order of priority. Each branch should already have identified a priority list.
- Undamaged and unthreatened collections
  - Keep an eye on them to make sure they stay safe. If the situation changes, prepare to move them immediately (in shelf order) to a clean, dry space far from the incident.
  - If at all possible, do not store wet and dry items in the same space.

# DO THIS: SET UP A RECOVERY SPACE

Find a second clean, dry space with lots of room, away from other collections. The items may need to stay there for a few days or weeks. If at all possible, do not store wet and dry items in the same space.

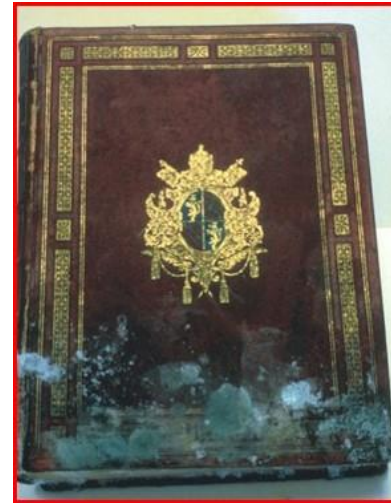
## You need:

- Enough space to spread all the items out
- Electricity
- Access to clean water
- As many tables and book trucks as you can get (cover them with plastic)
- Access to a loading dock, if possible



# HEALTH & SAFETY: MOULD

- Mould can appear in **48 to 72 hours** unless the air is well-circulated and kept cold and dry.
- Take mould seriously: it is a health and safety issue. Staff have the right to refuse unsafe work.
- If there is mould present, all staff must wear protective masks and gloves.
- Staff with severe allergies or respiratory problems cannot assist directly with collections.



# RECOVERY TEAM

- Your recovery team can include the following roles
  - Removers
  - Sorters
  - Record-keepers
  - Packers
  - Crew monitor & communications
- If the disaster affects a large quantity of items that you cannot discard, you have to send them to outside agencies for treatment. Ask the recovery company how to sort and pack the items.
- Wet material is very, fragile and extremely heavy. Handle with care. Do not open books or try to separate pages. Do not wipe off mud or dirt, or try to squeeze the book dry.

# RECOVERY TEAM: REMOVERS

Removers bring damaged material to designated recovery location.

- Form a human chain or a convoy of book trucks (cover trucks with plastic).
- Remove the books in shelf order. This makes them easier to label, to track, and to find later.
- Do not open or close them, wipe them off or squeeze them dry.
- If a book is open, leave it open and pass it carefully along as-is.
- Start from the bottom, and work your way up: first, wet material lying on the floor, then wet or damp items on the bottom shelf, then the next shelf up, etc.

# RECOVERY TEAM: SORTERS

Sorters determine if the books are **soaked**, **damp**, or **dry**. They keep the books in order as much as possible so that record-keepers can record information.

- Label trucks with type of paper and degree of wetness. Make sure you indicate where it was from.
  - Coated soaked from \_\_\_\_\_, Coated damp from \_\_\_\_\_
  - Regular soaked from \_\_\_\_\_ or Regular damp from \_\_\_\_\_. If the book is easy to replace or is very damaged, put it on a truck to be recorded, withdrawn and discarded.
  - Dry from \_\_\_\_\_ (move these items to a safe, dry place)
- Separate the books by type of paper and degree of wetness
  - Type of paper: Separate coated paper (glossy) from non-coated paper.
  - Degree of wetness: soaked, damp or dry.
- If you think a book is mouldy, put it in a large Ziploc bag and pack it separately from items that are not mouldy. Once mould is found, all staff must then wear protective equipment at all times.

# RECOVERY TEAM: RECORD-KEEPERS

Record-keepers **record the barcodes and titles** their box numbers **before the packers** pack them. If a computer or laptop with a barcode scanner is unavailable, take pictures of the barcodes numbers with a camera or smartphone.

- Keep the books in order as much as possible.
- Before a sorted truck can be packed, record the following information into an Excel spreadsheet:
  - Location from which the book was removed
  - Destination of the book (include “Withdrawn” for books that will not be treated)
  - Barcode of the item (scan), if damaged scan the ISBN
  - Call number of the item
  - Title of the item
  - Type of paper (coated or regular)
  - Degree of wetness (soaked, damp, dry)
  - Box number (you will need to communicate closely with the packer to know the correct box number).

# RECOVERY TEAM: RECORD-KEEPERS

Make sure that:

- Books are boxed with similar books and you record the right box number. For instance, all soaked coated paper books will be sent to the same place for treatment, whereas uncoated but soaked books may go to a different place.
- Your information be as accurate as possible. Your records will be used when following up with insurance companies, when estimating treatment or replacement costs, determining what needs to be replaced, when offsite contractors need to track numbers and returned items.
- After the incident, use a copy of your Excel spreadsheet to withdraw items from the catalogue, or to change their status to “Workroom”, so that the website indicates they are unavailable.

# RECOVERY TEAM: PACKERS

Packers **work closely with record-keepers** to ensure that the boxes are packed properly and identified.

Label each box with an **ID number, and the type of material it contains**.  
For example, **TPL-001 (Coated, soaked)**

- When you pack a box:
  - Try to maintain shelf order if possible.
  - Separate bound volumes with freezer paper, wax paper or silicone paper.
  - Place them **spine down** and only one layer deep. Do not pack them so that you can read the titles: the weight of the book must be on the spine. If the spine is up, the book could be irreparably damaged.
  - Do not pack books tightly or they will be damaged when they are removed. Wet books are much more fragile than dry books. They will continue to swell inside the box, so be sure they will have enough room.
  - For oversize items, pack them flat and no more than 2 or 3 deep in the box, with freezer paper in between them.
  - If a book is open, pack it that way. Do not close it.

# RECOVERY TEAM: PACKERS

Once packed, boxes should be stored in the coldest area possible and should be transported to the freezer or treatment facility without delay.

When the boxes are full:

- Seal them and put them on a pallet (by destination if there is more than one).
- Record which boxes are on which pallets.
- Do not stack more than 4 boxes high.
- Put heavier, filled boxes on the bottom and any partially-filled boxes (oversized or open-book boxes) on top.
- Shrink-wrap the stacked boxes on each pallet, and label it with their destination and a list of the boxes it contains.



# RECOVERY TEAM: CREW MONITOR & COMMUNICATIONS

The person in this role **monitors staff** and serves as point person for all internal and external **communications**.

- A disaster recovery operation usually covers multiple sites: the site of the incident, the triage or sorting area, and possibly other areas. There may be no way to communicate easily among sites.
- This person should answer phones and make sure essential communication happens within the building.
  - They relay important messages to and from managers or Directors, Facilities, and other library divisions.
  - They communicate with outside conservators or recovery contractors.
  - They co-ordinate the pickup and delivery of items.

# RECOVERY TEAM: CREW MONITOR & COMMUNICATIONS

Because most disasters require many long hours of recovery, undertaken in the shortest possible timeframe in order to prevent mould growth, disaster-response is very intense. Caught up in the urgency of the moment, people often neglect breaks, food or water.

- Make sure that staff:
  - Drink water frequently (at least every hour).
  - Eat food. Arrange for food if staff are working for more than 3 hours.
  - Take breaks every couple of hours.
  - Have access to a functional washrooms and to a clean, dry place for breaks.

# RECOVERY TEAM: CREW MONITOR & COMMUNICATIONS

If it has been determined that safety equipment should be worn:

- Make sure all staff
  - Know they have to use it.
  - Have the equipment they need.
  - Know how to use it properly and safely.
- For example, if mould is found ALL staff must wear safety masks and gloves.

# POST-DISASTER RECOVERY

Once the books have been dried and the flooded area has been dried and cleaned, you need to rebuild the collection.

- Withdraw items that were discarded.
- Replace or reorder material.
- Send material for rebinding, if required.
- Withdraw items that were discarded.
- Continue to monitor the environment to prevent further damage to collections.

You also have to make notes on what happened and why, what was affected, and the preventive measures you and your institution will take in the future.

# UPDATE YOUR DOCUMENTATION

As staffing changes, important site-specific information should be documented. Future staff will need a record of the major and minor disasters that have occurred, so they can keep an eye out for problems.

- For this incident, complete the Incident Report forms.
  - Be as specific as possible, and include the answers to the questions above, and any actions you have taken.
  - Send a copy to the library manager or CEO, and to the managers of the Facilities and Purchasing departments.
- Keep a Disasters binder
  - Add a printed copy of your disaster-response instructions and a few copies of your forms.
  - Include your branch-specific list of priority items.
  - Maintain a history of **all** minor and major disasters that have occurred and the steps taken to resolve them, along with a copy of the Incident Report and other documentation from each of the previous incidents.

# WHAT SHOULD YOU DO WHEN YOU GET HOME?

- Establish your priority list
  - Find out what items have been designated as priority collections.
  - If you do not have a list, make one. What unique, irreplaceable items do you have in your collections? Which items will cost the most or be most difficult to replace?
- Set up your box.
- Train your staff.
- Make an emergency binder for your location. Include as many floods and leaks as possible: where they occurred, how many items were affected, what steps staff took to prevent future reoccurrences.
- Create your lists of people and contractors to call (update yearly)

# OTHER RESOURCES

- Disaster Response resources
  - Canadian Conservation Institute (<https://goo.gl/sdCTbB>)
  - I created and maintain an online list of sample disaster plans and of sites dealing with disaster planning (<https://goo.gl/TVWTeX>)
  - Council of State Archives PREP templates (<https://goo.gl/d9p44d>), a pocket phone card
- Some resources to help you get started
  - Building an Emergency Plan: A Guide for Museums and Other Cultural Institutions (<https://goo.gl/jLmpzw>)
  - List of comparables (<https://goo.gl/ueduLc>)
- Supporting your community in a disaster
  - Kaaland, Christina. Disaster recovery for school libraries. AASL KnowledgeQuest blog. <http://knowledgequest.aasl.org/disaster-recovery-school-libraries/> Accessed: September 27, 2017

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