

The Museum of Modern Art

November 2012

Immediate Response for Collections

Before moving any art object:

1. Select the nearest safe location.
2. Determine how the art object can be most safely handled.
3. Do not drag or push a work of art.
4. Do not try and lift more than you can handle. Get help.
5. If the object is broken and cannot be left where it is without risk of further damage, collect and save all the pieces.

Emergency Handling of **Paintings** in galleries:

1. Only remove a painting from the wall if:
 - a. The wall and/or gallery is deemed structurally unsound.
 - b. The painting has been damaged and must be removed for safekeeping or treatment.
 - c. The painting is hanging un-safely. Wait for two people and place it on pads, face-in to a wall.
 - d. Water has penetrated into the gallery space. Remove paintings from wet walls and place on pads/supports sufficient to keep away from water.
2. Do not touch the front or back of a painting. Move a painting by holding the frame or stretcher bars. Never allow any object to touch or rest against the front or back of a painting, however lightly.
3. Never insert finger between the canvas and the stretcher bars.

Emergency Handling of **Objects** in galleries:

1. Make sure that an object needs to be moved **before** any decision is made. Many objects are more safely left in place than attempting to move them.
2. Place small objects on a padded cart. Do not allow objects to touch each other. Individually wrap objects.
3. Wrap objects that cannot be safely moved to prevent water, smoke, and dust damage.
4. Test the lift to make sure that grasping points chosen are in fact strong and stable.

Emergency Handling of **Works on Paper** and **Photographs** in galleries:

1. After assessing potential damage, prioritize works to be handled:
 - a. Unglazed works are most at risk.
 - b. Photographic works with electrical components should be disconnected.
 - c. Any works and/or components of works that rest on the floor should be moved off the floor.
2. If walls are structurally unsound or wet, removed framed objects and place in bins.
 - a. Identify works with broken glazing or wet penetration and prepare to move these works first. Make sure that a dry, flat space can be identified.

3. If walls appear sound, leave works in place until a later time.

Emergency Handling of **Media Works** in galleries:

1. Handling and storage:
 - a. Avoid scratching tapes and optical discs (e.g. CDs, DVDs).
 - b. Store cassette tapes vertically.
 - c. Avoid heat sources and direct sunlight in storage.
 - d. Avoid magnetic fields in storage: magnets, active computers, motors, transformers.
2. If a tape or optical disc is in functioning playback equipment, eject it. If the playback equipment is not functioning, disassemble to carefully remove the tape or optical disc. If a tape or optical disc is moist, place in a cool (not warm) and dry environment on a clean surface and allow to dry slowly.
3. If a tape is soaked in water, submerge in clean, distilled cold water and contact a media conservator to clean before drying. Fungus can begin to grow within 24 hours.

GUIDELINES FOR HANDLING WATER-DAMAGED PRINTS AND DRAWINGS AND PHOTOGRAPHS

Emergency handling of photographs in storage:

General guidelines for recovery:

- Separate the photographs into the different processes. Remove from envelopes before drying. Dry the photographs emulsion-side-up on blotters, paper, or nylon screen.
- Salvage color photographs first, then black-and-white prints, gelatin silver, albumen, negatives, and transparencies. If facilities and personnel are available, air-dry; pack and freeze if not.
- The drying methods are: air-dry, freeze, thaw and air-dry, and freeze-dry. Vacuum drying will make the photographs stick together into a lump. If the photographs have been immersed in dirty water, clean them before air-drying or freezing.
- If approved by a photo conservator: Photographs should be kept wet in containers of fresh cold water until they are either air dried or frozen. If allowed to partially dry, they will stick together. Pack inside plastic garbage pails or garbage bags inside boxes. Keep to a minimum the immersion time to treatment or freezing.

Emergency Handling of water damaged **Prints** in storage:

After a disaster has occurred:

- Identify space that is safe, accessible, and dry.
- Identify a route from storage (or gallery) to work space.

Disaster Recovery Flow-charts

Solander Boxes:

- Open Solander box and inspect.
- If box and contents are dry
 - Set aside in dry area.
- If box is damp but can dry out without removing contents
 - Set aside on table with increased ventilation.
- If box is wet and mats/works are dry
 - Remove contents and discard box.
- If box is wet and mats, but not works, are wet
 - Remove wet mat/works one-by-one.
 - Discard box.
 - If work is dry, remove from mat and discard mat.
 - If work is wet, transfer to treatment area.
 - **Or:** if whole stack of mats/works are too wet to separate safely, wrap entire stack in paper and prepare for freeze-drying.

Portfolios:

- If portfolio is dry outside
 - Set aside in dry area.
- If portfolio is wet outside
 - Open portfolio and inspect interior.
 - If the interior is dry, set aside interior in dry area and place portfolio cover opened and flat to air-dry or wrap in paper to freeze.
- If portfolio is wet and the contents are wet
 - Take out contents and place portfolio cover opened and flat to air-dry.
 - Treat each flat sheet as an individual print.
 - **Or:** if whole unit is too wet to handle safely, wrap in paper and prepare for freeze-drying.

Treatment of individual prints and drawings from mats:

- Remove work from mat by cutting hinges.
 - Discard mat if wet.
- Is work just slightly damp/humid with no wet-out areas/stains?
 - Air-dry or place in blotter stack to dry.
- Is work wet with no apparent staining?
 - Air-dry until just damp and flatten, or
 - Air-dry completely for future humidification.
- Is work wet with staining from a) outside damage (such as sprinkler water or fire damage) or b) soluble media?
 - Prepare for conservation treatment.

Framed works of art on paper:

- Is there any evidence of water penetration through front or back?
 - No: Place in well-ventilated area.
 - Yes: Is work stuck to glazing?
 - No: Remove backboard and either discard or place aside.

- Remove mat/work unit and treat as matted individual sheet.
- Yes: Place whole frame unit face up and attempt to release paper support from glazing.

Books:

- Refer to Library recovery section. Prepare for freeze-drying.

Three-Dimensional Multiples:

- Every multiple will have its own recovery needs.

Oversize folders (stored vertically):

- Place flat on table.
- Open folder and remove artwork. Place artwork in dry area and discard folder.

Library, Archive Collections
Summary for Immediate Response for Stabilizing Heavily Water-Damaged Materials

This chart provides a quick overview of immediate responses to take, within 48 hours, if recovery efforts cannot immediately proceed.

Heavily Water-Damaged Materials – Immediate Response for Stabilizing Materials

Media type	Immediate Response	Whom to Call	Phone number
Books	Freeze	American Freeze-Dry	609-546-0777
Single Paper Sheets	Freeze	see above	
Coated Paper Stock	Freeze	see above	
Archival Boxes	Check contents; freeze	see recommendations for specific media type	
Photographs	air-dry; freeze if approved by conservator	Photo Conservator	
Glass Plate Negatives	air-dry; DO NOT FREEZE	Photo Conservator	
Record Albums	air-dry		
Magnetic tapes: video, audio cassettes, reel-to-reel	Keep it stable; DO NOT FREEZE. Do not let the material dry out with containment on it. Clean in distilled water.	DuArt	212-757-4580
		Specs Brothers	800-852-7732
Microfilm/Microfiche	Place in clean water	Eastman Park Micrographics	800-352-8378
		Fuji Film	800-829-3854
Compact Discs	Clean with distilled water. air-dry.	DuArt	212-757-4580

Methods for recovery of material vary greatly with the type of water damage, media, priority, extent of damage, etc. Freezing is a good stabilization technique for paper-based materials; but air-drying is more appropriate for most photographs and magnetic tapes. When bound volumes are frozen, they cease swelling,

and inks cease bleeding. The best option is using a commercial blast freezer that will freeze materials at -10 degrees Fahrenheit.

RECOVERY OF WATER-DAMAGED BOOKS AND ARCHIVAL MATERIAL

Initial Guidelines and Considerations (For Library, Archive Collections)

Sort and prioritize before attempting any involved drying and treatment. Can the item be replaced? At what cost? Would the cost of the replacement be more or less than restoration? How important is the item to the collection? Is the item available at another library or institution?

The environment must be stabilized or mold will develop. It should be as cool as possible, 60-65 degrees Fahrenheit or less, and as dry as possible, 45% relative humidity or less, and the air should be well circulated.

1. BOOKS

a. Small-scale water damage, when books are damp

Air-drying method:

1. Line table(s) with blank newsprint or blotter paper. Use one or two strong fans to circulate the air.
2. Sort the materials by degree of damage. (e.g., separate dry items from damp items, and damp from soaked).
3. Stand the books up, fan open slightly and place clean paper toweling in between the leaves to absorb excess moisture. Insert the interleaving sheets after each 50 pages (25 leaves) in such a way that the book can stand upright on its head when done. Change interleaving every hour or so. Amount of interleaving depends on the dampness of the book.
 - A good grade of paper toweling is more effective than newsprint, but the cost is much greater.
 - Frequent changing of interleaving material is much more effective than allowing large numbers of sheets to remain in place for extended periods.
 - Used and damp interleaving sheets should not be reused.
 - Paper towels should not be left in books after drying is complete.
4. Position volumes in path of circulating air, but do not blow fan directly on wet paper, as this will cause pages to wrinkle.
5. When almost dry, lay the volumes flat and place weights (not other drying books) on them to minimize distortion. Do not stack wet volumes. Do not use mechanical presses.
6. Lightweight volumes may be hung on drying racks or other lines to dry. This works best with single-signature, pamphlet-size material. For drying lines, use monofilament nylon, not more than 1/32" diameter and not more than five to six feet long, spaced at least 1/2" apart.
7. *For books with glossy paper:* The only chance of saving such materials is to interleave every page and air-dry. The pages and bindings may warp and distort. Almost all attempts to separate dried pages by rewetting them have failed. If the value of the item warrants, separation of wet sheets may be attempted. Freeze-drying must begin within 48 hours for possible success. *See also Section 1C on following page for further information on Wet Coated Paper.*

b. Large-scale water damage, when books are soaked

1) General information:

- Do not attempt to open a wet book (one tear costs at least one dollar to mend).
- Wet books and papers must be frozen as quickly as possible to halt damage and prevent mold growth. Use 48 hours from wetting to freezing as a goal. Wrap wet books in freezer paper and place in a freezer bag. They can be frozen in almost any kind of freezer, however colder is better (-20 to -40 degrees Fahrenheit is optimal); to restore the books they should be vacuum freeze-dried.
- Do not press books and documents when they are water soaked. This can force mud into the paper and subject the materials to stresses, which will damage their structures.
- If the damage is substantial and salvage will take more than 10 hours, loosen tightly packed document boxes, and shelves. Otherwise, as the paper continues to swell, they will jam in the boxes, or pop off of bookshelves.

2) Cleaning wet books:

- Do not attempt to restore any items on site.
- Carry out all cleaning operations, whether outside the building or in controlled environment rooms, by washing gently with fresh, cold running water and soft cellulose sponges to aid in the release of mud and filth. Use sponges in a dabbing motion; do not rub. These instructions do not apply to materials with water-soluble components. Such materials should be frozen as quickly as possible.
- If the water they've been soaking in is dirty, wash the books before freezing. *Do not wash* books that contain water-soluble media. Wash books closed in tubs of cold running water and dab away (do not rub) mud with a sponge. Time and facilities may limit this treatment.
- Lay a sheet of freezer paper around the cover, and pack spine down in a milk crate or cardboard carton.

3) Guidelines for packing books for freeze-drying

- Be extremely careful when handling wet materials. All of them are very fragile, including their paper boxes.
- Pack crates one layer only, snugly enough that volumes will not slide or lean.
- Fill cartons and crates three-quarters full. Keep identification labels with objects. (Don't mark wet paper, but picture frames and reels can be marked with a grease pencil.) To avoid mechanical damage, do not stack materials in piles or on the floor. If books are stuck together, do not attempt to separate them, but pack them as one volume.
- Wrap freezer paper around each volume (waxed side next to volume). Write call number on the outside and place in plastic crate or box spine down.

Notes on books returning from freeze-drying:

- Before accepting dried materials back from the disaster response/freeze-dry company, clean the area to prepare for shelving the materials.
- When books return from the freeze-dry facility: Under no circumstances should newly dried materials be packed in boxes and left without attention for more than 72 hours. This is a quality control check in case materials return not fully dried.

c. Wet coated paper stock (also known as glossy or slick paper)

- The best solution for very wet books comprised of coated paper is to wrap them in freezer paper, pack them spine down, and send them to a vacuum freeze-dry facility.
- Do not allow wet books with coated stock to dry in a closed state, as the pages will permanently bond together.
- Print will slide off the wet page if it is rubbed.

- Keep volumes submerged or wet until pages can be separated.
- The only chance of saving such materials is to interleave every page and air-dry. Almost all attempts to separate dried pages by rewetting them have failed; vacuum freeze-drying of coated stock volumes is rarely successful. If the value of the item warrants, separation of wet sheets may be attempted.

2. PAPER

- **Prepare for vacuum freeze-drying. Single sheets of paper:** Do not try to separate but interleave the folders every two inches with freezer paper and pack.
- **Watercolors, maps, and manuscripts with soluble media:** Do not blot the surface. Quickly freeze or dry.
- **Coated papers:** Keep wet by packing in boxes lined with garbage bags, then freeze.

3. FLAT OVERSIZE – MAPS, PLANS, MANUSCRIPTS, PRINTS

- At least two people should work together with the flat oversize materials.
- Remove the drawers from the cabinet, place a sheet of Mylar, Remay, or plastic on top of the material in the drawer. Ship and freeze the drawers stacked up with 1" x 2" strips of wood between each drawer.
- To support the material, place a sheet of Mylar, Remay, or plastic on top and on the bottom of the materials before moving them.
- Pack loose, flat maps in bread trays, flat boxes, or between plywood sheets covered in polyethylene.
- Bundle rolled maps very loosely to go in small numbers to the freezer, unless facilities are available for conservators to unroll them.
- For encapsulated material: open each item along the seam or tape, place the item face down, remove the Mylar, turn the item over onto blotter paper so it is face up, and remove the other sheet of Mylar.

4. ARCHIVAL BOXES

- Archival boxes fare better than book material because they are made of porous board stock, which can absorb most of the water, protecting the contents. Each box should be carefully inspected and the box replaced if it is water saturated. Failure to do so will increase the risk of physical damage as boxes collapse from pressure during recovery, shipment, and cold storage. Papers that are adhered together should be frozen. Often the freeze-drying will allow the papers to be separated without damage.

5. PHOTOGRAPHIC MATERIALS – PRINTS, NEGATIVES, TRANSPARENCIES: See photo section.

6. RECORD ALBUMS (also known as vinyl records/LPs)

- The greatest dangers to vinyl records are mold developing from not drying them thoroughly and labels coming off when exposed to water.
- For water-damaged vinyl LPs, remove them from any sleeving (especially plastic sleeves). They can be rinsed with clean, distilled water (do not use tap water because the impurities can create deposits of crystals in the grooves) and a lintless cotton cloth. Air-dry in a rack. Use Volara or other soft foam to cushion the bottom of the box.

7. MAGNETIC TAPES (REEL-TO-REEL, CASSETTE, VIDEO)

- Remove tapes from their housing/casing along with any paper labels to dry separately. Leave any labels on the tape itself for identification purposes.
- Wet tapes must be dried within 24 hours. If contaminated, submerge in distilled water to clean off contaminate.
- Remove magnetic tapes from the water as soon as possible. ***Do not freeze magnetic tapes.*** If the magnetic tape is unique or the backup tape has been destroyed, send it to be dried, cleaned, and migrated to a digital format by a professional. **Do not** attempt this on your own, as the tapes require attention by a trained

professional. Contact Specs Bros or DuArt for magnetic tape recovery. See "Disaster Assistance" for contact information.

- Packing sound and video tapes: Pack vertically into egg crates or cardboard cartons. Do not put excessive weight on the sides of the reels or cassettes. Use Volara or other soft foam to cushion the bottom of the box.

8. MICROFILM AND MICROFICHE

1. Put rolls of microfilm into water-tight containers and fill with clean, cold water.
2. Send to microfilm processor within 48 hours for washing and drying.
3. Contact Eastman Park Micrographics at 800-352-8378, www.kodak.com; or Fuji Film Company at 800-829-3854, www.fujifilm.com for information. They both provide no-cost salvage of their film.
 - Do not attempt salvage if duplicate or replacement microfilm is available.
 - Do not remove the films from their boxes. Hold cardboard boxes (and their labels) together with rubber bands.
 - Microfilm and motion picture film must not be allowed to start drying rolled up because the emulsion will stick. It is possible to dry microfilm in-house by simply draping over clotheslines, but scratching and water spotting are likely. Better results will be obtained if the films are washed and dried by a film processor.
 - In most cases, the salvaged microfilm should not be used again; but used only to create a duplicate copy for use.

8. COMPACT DISCS

- Remove discs from their housing/container and wash with distilled water. Wipe with lint/abrasion-free cloth.

Recovery from Mold Damage

1. DANGERS OF MOLD

MOLD CAN BE TOXIC TO PEOPLE. Do NOT try to smell mold!!! Handle moldy materials with rubber gloves and always wear a dust mask or respirator! You must wait for a hygienist to provide clearance for entry to an area that has been infected by mold. In some cases a mycologist will need to identify the mold. Those individuals who are allergic to mold, who are taking steroids, have chronic respiratory problems, have diabetes, or are pregnant should avoid mold-infected areas until they are deemed safe. Mold fungi may seriously irritate and inflame a person's lungs.

2. CAUSES OF MOLD OUTBREAKS

Spores of mold and mildew are found almost everywhere. All they require are the proper conditions—moisture near 70% relative humidity, temperature near 70 degrees, nutrients such as paper and adhesives, and often darkness or dim light—to proliferate. The combination of temperature and humidity is the most critical factor.

3. PREVENTING MOLD OUTBREAKS

Reduce the risk of infestation by maintaining general cleanliness and removing dust and dirt, as well as maintaining good air circulation. Likely places to find mold will be in areas that have been water damaged or areas in which the humidity has exceeded 70%. Wet books/paper may “blossom” with mold within 48 to 72 hours after water damage. The absence of visible growth at low temperatures does not indicate the death of spores, but merely that they have gone dormant.

4. RECOVERING FROM A MOLD OUTBREAK

- a) Stabilize the environment where the moldy paper/books were located. Do whatever is necessary to increase air circulation and bring the temperature as low as possible, and decrease the moisture in the air.
 - Turn on fans.
 - Turn off heat.
 - Use dehumidifiers (call Operations for dehumidification services).
- b) Spray disinfectant periodically.
- c) Segregate the paper/books so that the mold does not continue spreading. Treatment for the paper/books will vary depending on amount of mold, type of object and budget.
- d) Use a floor plan to note areas and intensity of infestation if possible. Keep this on file.
- e) When mold is present, wear a respirator. Some mold species are toxic; if any health effects are observed, contact a doctor and/or mycologist. When cleaning items with dry mold, make sure there is adequate ventilation that draws the mold spores away from you, i.e. a vacuum cleaner. Wash your hands after handling materials with mold.
- f) Moldy materials that cannot be treated immediately should be frozen. Freezing mold does not kill or eradicate it but merely stops mold growth.
- g) Contact a mycologist or fumigation expert to determine the type of mold and treatment alternatives.

5. REMOVING MOLD FROM BOOKS

To remove mold, the item should be dry. Vacuum the mold, and then wipe it off with a dry chemical sponge.

- Use a multi-filter vacuum that includes a HEPA filter.

- Dry chemical sponges made of pure latex or rubber (NOT cellulose) are also excellent for removing mold. Do not get the sponges wet! To “clean” the sponge, cut off the dirty part.
- Clean floors and shelves with a disinfectant.
- Continue to monitor the books that had mold on them.

OUTSIDE SUPPLIERS AND EMERGENCY SERVICES

American Freeze-Dry, Inc.

www.americanfreedry.com

11 White Horse Pike
Audubon, NJ 08106
Phone: 609-546-0777

Blackman-Mooring Steamatic Catastrophe, Inc.

www.blackmammooring.com

International Headquarters
303 Arthur St.
Fort Worth, TX 76105
Phone: 800-433-2940 (24 hr. hot line)
Contact: ask for on call person
Office hours: 8:00 a.m.–5:00 p.m., Monday–Friday; 24-hour hotline

Document Reprocessors

www.documentreprocessors.com

5611 Water Street
Middlesex, NY 14507
Phone: 716-554-4500 or 888-437-9464 (NY); 800-805-4305 (NY); 800-437-9464 (Calif.)

Servpro Drying Centers

www.servpro.com

2 [*franchise organization*]
44 Madison Ave. PMB 138
New York, NY 10016-2819
212-246-4148
800-909-7189; 800-879-9119
Contact: Tony Giasi, Rob Citrangola
Available 24 hours per day for emergency services

Northeast Document Conservation Center: www.nedcc.org/disaster

Munter's Water Damage Recovery Services
79 Monroe Street
Amesbury, MA 01913
800-MUNTERS
www.munters.us

Rapid Refile
6324 Winside Drive
Bethlehem, PA 18017
877-59-RAPID
www.rapidrefile.com

Eastman Park Micrographics: 1-800-352-8378

DuArt (video and audio tapes): www.duart.com 212-757-4580

Specs Bros. (video and audio tapes) www.specsbros.com. 800-852-7732