

After the flood: First aid for cultural heritage objects and personal treasures

First Steps:

- We recommend that you call a professional to help with your emergency response. Ideally salvage should take place under guidance of a professional conservator.
- Only salvage objects after authorities have declared the building safe.
- Take photographs of the damage before salvage. This will be useful for insurance purposes.
- Prioritise objects that have more sentimental or monetary worth.
- Flood water can be very polluted. Wear PPE (gloves, mask, overalls, goggles, boots) when handling objects salvaged from a flood.
- Before salvage takes place, ensure that flood waters have receded and all electricity and gas lines are closed.

Take Note:

- Mould will grow after 48 hours at 60% RH at 21°C. Mould will effect different objects in different ways. Mould growth can be reduced if frozen or in cold rooms.
- Do not place wet objects in enclosed (plastic) containers. This will promote mould growth.
- Freeze paper, books, photographs and textiles to prevent mould. This also gives you time to prepare for treatment. You can place these wet objects in a plastic bag before freezing.
- Support thin objects such as paper and photographs from the back. Use a rigid support to move them, such as corrugated cardboard.
- Shelves for drying can be made by placing corrugated cardboard covered with paper towels (replace when wet) balanced on plastic cups.
- Air drying is preferable and may prevent further damage. Direct exposure to sunlight may be applicable for certain types of objects only.
- Move heavy objects away from walls if you cannot place them in another (dry) environment. This increases air flow possibilities and will help with drying.
- Lift objects off the floor to increase air flow.
- Place smaller objects on a board, tray, or open box to move them. Wet objects can often be very fragile and handling may damage them.
- Gather pieces of broken objects in one container and label clearly.
- Do not use disinfectant on any of the objects listed below.
- If objects are still wet, rinse off mud and debris. If damp or dry do not wash further.
- If objects are damp, brush off loose debris. Do not rub as this may damage surfaces.
- Dehumidifiers can be used to speed up drying in enclosed rooms, but do not use air conditioners or heating units.
- Ensure that you have a safe dry place to move objects to before you begin to collect them. You may also need to collect containers, dry tissues, cloths etc.

How to handle objects:

I. Paper (printed and coated):

Water will swell paper and may cause inks to bleed or dissolve. Print ink is usually more stable than writing ink.

Follow these suggestions for printed material. Do not follow instructions if ink is visually affected.

Freeze bundles of papers if they are stuck together.

Wash sheets individually in water. A bath or shower basin provides a good flat water bath and can provide running water. If in a container change rinsing water regularly. If very stained with mud, use lukewarm water.

Dry cleaned paper sheets individually between textiles or absorbent paper sheet. Use t-shirts or tea-towels.

Alternatively, place in the sun which will mean drying rate is faster and UV content will help prevent fungal growth.

Alternatively, hang individual sheets of paper by the corner on a clothesline with clothes-pegs when touch dry.

The surfaces of wet watercolours should not be touched. Place upright to facilitate drying. If unglazed, edges of the water colour can be held down with light weights. If glazed, and water has ingress into the frame, un-framing may be appropriate. Do not un-frame if the watercolour is stuck to the glass.

II. Photographs:

Different photograph printing techniques may require different treatments. Consult a professional for further advice.

Freeze blocks of photos or photo albums, especially if they are stuck together.

Wash off mud first, if possible in running water. A bath or shower basin provides a good flat water bath and can provide running water. If in a container change rinsing water regularly. No **not** use warm water.

Don't let the photo surface come into contact with other surfaces when drying. Air dry only, by spreading photographs out individually and placing on absorbent material - paper towels, tea towels, cloth, newspaper.

For framed photographs, remove from frame and glass before drying but only if there is no resistance. Photographs in plastic sheets should be carefully cut from the mounting and upper surface peeled off, rather than sliding out.

Film reels cases should be opened to release dirty water. Drying can be problematic. Call a conservator for advice.

III. Books:

Waterlogged books will require different treatment than damp books. Book covers (thicker) may react to water uptake differently than the main body. Adhesives used to bind books can dissolve.

For waterlogged books, don't try to open the book. Freeze the book and call for professional help. Thoroughly wet books can be rinsed in running water. Once rinsed, balance the book on its top edge to facilitate water drainage and allow to air dry.

For damp books, Insert sheets of tissue into damp books every twenty pages or so and between covers and main body. Replace tissues frequently. Place wax paper between gloss photo content. Place under light weight when partially dry.

Use ventilation fans to help drying. Do not use warm air blowers. Final drying should take place under weights.

IV. Textiles (clothing, carpets and hangings):

Large wet textiles are heavy and may break hanging fixtures. These should be carefully removed from hanging fixtures and placed on large sheets for support. Woven textiles may shrink when waterlogged.

Waterlogged textiles can be frozen to prevent mould growth.

If the textile is still wet, wash individually in a water bath. Mud stains can be reduced by multiple rinses. Do not wring out.

Leave to dry in sun or compressed between other dry textiles. UV content of sun will help against fungal growth.

V. Paintings (canvas and panel):

Paintings (on canvas or wooden supports) are delicate laminate objects. Different layers (support, preparation, paint, varnish) will react differently to moisture uptake.

Handle wet paintings as briefly and infrequently as possible. Do not touch the painted surface or place anything on it.

Try not to lift the painting by the top of its frame as the frame maybe damaged and break under weight of painting.

If wet, leave to dry in a well ventilated area very slowly. Dry upright leaning vertically against a wall for increased air circulation.

Do not place in the sun.

Remove any backing boards or glazing to increase ventilation and un-frame carefully.

Absorbent paper can be placed on the reverse of the painting support (canvas or panel) to wick away water. Change regularly until dry.

If paint layers are lifting, call a conservator. These will need to be treated by a professional.

Varnish layers may turn white as the surface dries. This problem does not require immediate action. Call a conservator to remedy this issue.

VI. Wood (sculptures and furniture):

Wood swells when wet and may warp (bend) on drying, especially if dried too fast. Cracks and splits may occur if drying happens when wood is constrained. Joints may spring open and (natural protein) adhesives will loose structural strength above 85% RH leading and may open. Paint layers may lift away from the support.

Lift heavy wooden objects by the base rather than the top.

If small enough, place in a container before transport. If larger, transport using a cradle or stretcher.

Bandages can be used, if appropriate, to keep separating pieces together.

Air dry slowly in a well ventilated room. Keep temperatures below 20°C while drying.

Lay larger heavy objects flat on the ground while drying.

Do not place in the sun.

Varnish layers may turn white as the surface dries. This problem does not require immediate action. Call a conservator to remedy this issue.

If paint layers are lifting, call a conservator. These will need to be treated by a professional.

VII. Metals:

Water may cause metal objects, especially iron, steel, bronze or copper, to corrode. Silver and gold objects may be less susceptible. Note that many objects that appear to be silver or gold may be electroplated and have another base metal as a substrate.

Corrosion can set in quickly. Keep objects in dry conditions with low temperatures.

Use clean running water to rinse off mud and stains. Pollutants in dirty water may exasperate corrosion.

Immediately dry the metal with a soft cloth.

Painted or coated metals may have specific complications. If lifting of layers is noted, call a conservator.

VIII. Pottery and glass:

Long-term exposure to water may promote the growth of salts.

Air dry objects without contact.

If objects are broken, collect pieces and place in a single individual container for each object.

IX. Wall paintings and Wallpaper:

Wall paintings on plaster may take a long time to dry out as walls / supports will have absorbed water. Wallpapers or wall hangings on canvas may be very fragile, avoid bumping these with other objects when moving them.

Do not rub surfaces. Do not use disinfectant on these surfaces.

Use ventilators or fans to assist in drying.

Move (heavy) objects such as cupboards or tables away from wall hangings or wall paintings.

If paint is lifting from the support, call a conservator.

X. Leather related objects

Leather may swell when wet and shrink on drying. Shrinkage will be worse if drying is fast.

Place sodden waterlogged leather objects, including books with leather covers, in the freezer.

Cover larger leather objects, especially gilt leather hangings, with plastic sheeting and call a conservator for further treatment.

Supplies you may need:

Many of these supplies can be bought at a local building merchant or home improvement store:

- Alcohol hand wash
- Absorbent materials (tissue paper towels, rags)
- Brushes (soft paint brushes large and small)
- Boxes (stiff cardboard or plastic)

- Buckets
- Planks of wood (size: 60 x 80 cm or smaller for lifting)
- Caution tape
- Chairs, folding/portable
- Clothesline or nylon rope
- Clothes-pegs
- Cotton sheets
- Disposable wipes
- Door wedges
- Dollies or trolleys with wheels
- Drinking water
- Emergency lighting
- Extension cords
- Fans
- First Aid Kit
- Flashlights (and batteries)
- Garbage bags
- Garden hose with spray attachment
- Lunch boxes
- Mops
- Personal Protection Equipment (PPE): gloves, masks, personal suits, hard hats
- Plastic bags (large freezer bags)
- Plastic trays
- Rigid board, corrugated cardboard or plexiglass sheets
- Scissors
- Screening / fine mesh for making drying racks
- Soap, dispensers
- Sponges
- Table, folding/portable
- Tape
- Toilet paper
- Utility knives and blades
- Vacuum cleaner with HEPA filter
- Walkie-talkies
- Waterproof pen markers and pencils
- Wet-Dry vacuum (this can be rented)
- Writing paper or note books

Remember to take supplies for a long day of salvage work: PPE, first aid kit, food and snacks, drinking water and personal cups, utensils and plates.

Remember to take a camera for photographic documentation, with extra charged batteries and memory card. Spare phone batteries and chargers will also be useful.

Useful resources

<https://www.cultureelerfgoed.nl/onderwerpen/veilig-erfgoed/veiligheidszorg/wateroverlast/waterschadewiel>

https://www.fema.gov/sites/default/files/2020-06/Flood_FIMA_Fact_Sheet_advice_salvaging.pdf

<https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.7-emergency-salvage-of-wet-photographs>

<https://www.culturalheritage.org/resources/emergencies/disaster-response-recovery>

<https://www.culturalheritage.org/resources/emergencies/disaster-response-recovery/fieldguide>

<https://www2.archivists.org/initiatives/mayday-saving-our-archives/annotated-resources>

https://issuu.com/princeclausfund/docs/first_aid_to_heritage_handbook_2018

<https://siarchives.si.edu/what-we-do/preservation/emergency-preparedness>