Water Salvage Workshop

SANDALL WINTER INSTITUTE
FEBRUARY 10, 2017

JULIE PAGE
JPAGE@CALPRESERVATION.ORG
CALIFORNIA PRESERVATION PROGRAM
Health & Safety

HUMAN SAFETY COMES BEFORE THE CARE OF THE COLLECTIONS!

- Account for all personnel
- Care for injured
- Protect workers during recovery

Consider the building / collection guilty until proven innocent
Health & Safety

Are you equipped with appropriate personal protective equipment (PPE)?

• Hardhat
• Boots
• Respirator/N95 particulate mask
• Gloves
• Protective goggles
Heritage Preservation
Disaster Resources

Field Guide to Emergency Response

Emergency Response & Salvage Wheel

Emergency Response & Salvage -- ERS App

www.conservation-us.org/publications-resources
Prevention: Mitigate your risks

- Conduct an internal and external survey of your building
  - Potential water/electrical problems, HVAC issues, asbestos concerns, below grade storage
- What can you do to protect or lessen damage to collections?
  - Keep boxes/collections off the floor
  - Avoid basement storage when possible
  - House collections in protective storage
  - Stay alert to construction in or around your building
For risks you can’t avoid, do the following:

- Reduce the risk as much as possible
- Reduce the impact as much as possible
- Prepare well for the event should it occur (e.g., response and recovery plans)
## Risk Assessment

### Facilities Assessment
- Architecture
- Drainage
- Protection from fire
- Protection from water
- Construction projects
- HVAC
- Security
- Housekeeping
- Insurance

### Emergency Event History
- Type of event
- Cause
- Resulting damage
- When it happened
- Duration
Freezing buys time ...

- “Buys time” to make decisions
- Only response for some materials
- Inhibits mold growth
- Does not affect inks

BUT...
- Special equipment needed
- Not suitable for all materials
Guidelines for Establishing Salvage Priorities & Template

GUIDELINES FOR ESTABLISHING SALVAGE PRIORITIES

The collection priorities list is meant to be a guide. Consider the circumstances and limiting factors (access to materials, extent of damage, time, availability of resources, etc.) that may require deviations from the plan.

1. Assemble an appropriate team to establish salvage priorities. Knowledge of the collection is essential as are the administrative requirements for business continuity. The team must reach a consensus before a disaster. Lack of an action plan will result in a lack of direction, ultimately resulting in wasted time and the very real possibility of collection loss.

2. Develop criteria to which prioritization will be determined. There are a few guidelines available to facilitate this thought process. See below for an example of established criteria.

3. Establish collection groups to which criteria will be applied. These are decisions that will be highly individual to each institution. A library might see subject areas or call numbers, an archive use record groups, and a museum use material groupings.

Established Criteria

- Heritage Preservation's Field Guide to Emergency Response guidelines
- Decide which objects, collections, and records are vital to your organization. These should be the highest priorities for salvage. For example:
  - Objects and collections that are central to the institution’s mandate, mission, services, and programs
  - Essential records -- bibliographic and collection catalogs, inventories, electronic storage devices, personnel, and financial
  - Items of high historic, scholarly, or monetary value
  - Objects or collections that are impossible or difficult to replace

Staff and personnel records necessary to continue payroll and operations should also be prioritized. It is strongly recommended that these types of records be duplicated (electronic backups) and stored off-site to prevent their irretrievable loss. Also, do not forget to include objects for which the institution has legal obligations, such as loans or conditional gifts.

To create the lists of priorities, identify the collections or the objects, note their location and include any security and display information that will allow for speedy removal. Both the list of prioritized collections and security information should be considered sensitive information. Consider carefully what information to include in the distributed plan. If kept separate, make it easily accessible by the salvage team and to the public. Plans with priority collection areas highlighted and/or pictured can be especially useful during a response.

Once a list is established, it is useful to sort by location or collection type. For example, objects housed in a vault may have one list of priorities, while archival collections housed in a library may be better served by another list. This way if there is a minor or localized event in the building, the affected collection will have its own prioritized list. Similarly, in the event of a major disaster, separate salvage efforts can ideally be in effect simultaneously.

It may also be useful to create different levels, or ranks, of prioritized objects. HIGH priority may include objects that have higher vulnerability and require immediate treatment or loss assessment records. MEDIUM priority may contain objects that, while a high priority, may just need to be checked and treatment could be delayed until everything at a HIGH priority has been assessed and treated. LOWER priority could be objects of slightly lower priority or those that are so large as to be difficult to move or treat (e.g., murals, paintings, large sculptures).

Think ahead about what preparations might help with emergency evacuation of priority collections (e.g., color-coded data or reflective tape on shelving boxes, grouping together priority objects, marking priorities on floor plans). Each institution must determine the best system to fit its needs. Update the list of collection priorities frequently to account for incoming/outgoing teams, stock shifting, exhibit changes, new storage locations, etc.
Working with Commercial Recovery Services

- Be clear about the services you need
- If unsure, ask for detailed explanations
- Document with photos before contracted services start
- Request a sample batch be processed before signing an agreement
- Sign letter of agreement/contract that specifies treatments
- Consult local/regional networks for assistance & recommendations
Purpose is to keep track of materials that are removed for storage, treatment & restoration or disposal:

- Vital for control & insurance purposes
- Key to a timely & efficient recovery
Inventory Control

Books / Documents

- Number boxes & sheet
- Put call number range on box & sheet
- Record movement on sheet

Barcodes on outside covers?
Scan book barcodes & link to box barcode / control number
Disaster Response Supplies & Equipment

- Immediate Response Supplies
- Personal Protective Supplies
- Supplies & Equipment
Immediate Response Supplies
Resources to Inform Salvage Decisions

Salvage at a Glance

Salvage of Water Damaged Collections

Books: Cloth or Paper Covers

**Priority**
Freeze or dry within 48 hours. Freeze books to stabilize and prevent mold growth if there are a large number of books and/or the books are very wet.

**Handling Precautions**
Do not move items until a place has been prepared to receive them.
Do not open or close books or remove covers until assessment is completed.
Oversized books need to be fully supported; if possible, move one at a time.

**Equipment and Supplies**
Air Drying: Water hose / Blotting paper or newsprint (un-inked) / Polyester, spunbond (Reemay or Hollytex) / Clotheline or heavy packing string / Extension cords / Dehumidifiers / Moisture meter / Fans
Freezing: Boxes / Freezer or waxed paper / Large plastic bags for lining cardboard boxes

**Preparation for Drying**
Books that are muddy should be rinsed before freezing, if possible. Keep the book closed and rinse mud off the exterior.

**Drying Method (Air Drying)**
Suitable for small quantities of books (up to 1,000 volumes) that are not very wet.
To air dry books requires space with electricity in an area away from the disaster to set up book and fans. Lay newspapers, stand books upright on top or bottom edge, and gently fan pages open. The book covers will help support them to stand on their own. Replace the newspapers or blotting paper when it has absorbed moisture, remove wet newsprint from drying area to eliminate any source of additional humidity. Turn the books to stand on their opposite edge after partially dried.

**String clothseams to lay pamphlets and small books across to air dry.**

Oversize volumes must lay flat on blotting paper, replacing the paper when it becomes wet, and turning the volume. To wick moisture from the book, pages should be interleaved with sheets of un-inked newsprint or blotting paper that is changed as it becomes saturated. Check moisture content of volumes daily with moisture meter.

Keep the air moving at all times using fans, direct fans into the air and away from the drying records. Monitor temperature and humidity, use dehumidifiers as needed to maintain 50% RH or lower.

---

**Books: Cloth or Paper Covers**

<table>
<thead>
<tr>
<th>Material</th>
<th>Priority</th>
<th>Handling Precautions</th>
<th>Packing Method</th>
<th>Drying Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloth or paper covers</td>
<td>Freeze within 48 hours, if many books</td>
<td>Do not open or close, do not remove covers; Lay flat on cardboard box, one layer deep.</td>
<td>Air Dry; Fanning pages and standing upright. Freeze, then Vacuum Freeze Dry.</td>
<td></td>
</tr>
<tr>
<td>Leather and velvet covers</td>
<td>Air Dry immediately, Freeze if many books</td>
<td>Do not open or close, do not remove covers; Separate with freeze paper, pad spine down in plastic lined cardboard box, one layer deep.</td>
<td>Air Dry; Fanning pages and standing upright. Freeze, then Vacuum Freeze Dry.</td>
<td></td>
</tr>
<tr>
<td>Books with coated paper</td>
<td>Air Dry, no other option, or freeze if immediate.</td>
<td>Do not open or close, do not remove covers; Coated paper all permanently block if allowed to dry.</td>
<td>Keep wet, pack spine down in plastic lined cardboard box, one layer deep.</td>
<td>Freeze, then Vacuum Freeze Dry.</td>
</tr>
</tbody>
</table>

---

**Paper: Uncoated**

<table>
<thead>
<tr>
<th>Material</th>
<th>Priority</th>
<th>Handling Precautions</th>
<th>Packing Method</th>
<th>Drying Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Booksales</td>
<td>Freeze or freeze within 48 hours</td>
<td>Do not remove single sheets; Pack in plastic lined cardboard box.</td>
<td>Air, vacuum freeze dry.</td>
<td></td>
</tr>
<tr>
<td>Soluble inks, etc., (ink on page)</td>
<td>Air Dry, no other option.</td>
<td>Do not blot; Pack in plastic lined cardboard box.</td>
<td>Air, vacuum freeze dry.</td>
<td></td>
</tr>
<tr>
<td>Inks on cloth, (ink on cloth)</td>
<td>Immediately freeze or dry.</td>
<td>Do not blot; Place in single sheets and pack in cardored boxes.</td>
<td>Air or freeze dry.</td>
<td></td>
</tr>
<tr>
<td>Maps and posters</td>
<td>Air Dry, no other option.</td>
<td>Well paper is fragile, use extrication of folded or rolled.</td>
<td>Support large items with board covered with plastic or keep in existing metal drawers.</td>
<td>Air or freeze dry.</td>
</tr>
</tbody>
</table>
# Drying Techniques for Water Damaged Books & Paper

<table>
<thead>
<tr>
<th>TECHNIQUE</th>
<th>PROCEDURE</th>
<th>SPEED</th>
<th>DIRECT COST</th>
<th>STAFF &amp; LABOR</th>
<th>AVAILABILITY</th>
<th>RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Drying</td>
<td>Items dried by circulating air, preferably in a cool, low humidity space</td>
<td>days or week</td>
<td>negligible</td>
<td>high</td>
<td>very good</td>
<td>• swelling (20-30%)&lt;br&gt;• cockling&lt;br&gt;• blocking&lt;br&gt;• inks running&lt;br&gt;• mold threat</td>
</tr>
<tr>
<td>Dehumidification</td>
<td>Large, commercial dehumidifiers installed to dry building, furnishings, and collections in place</td>
<td>varies</td>
<td>varies</td>
<td>moderate</td>
<td>good</td>
<td>• limited cockling, if used only on damp items&lt;br&gt;• inks may run</td>
</tr>
<tr>
<td>Freezer Drying</td>
<td>Items placed in self-defrosting freezer (under -10°F) are frozen, then ice is slowly sublimated</td>
<td>months or year</td>
<td>negligible (if done at home)</td>
<td>moderate</td>
<td>very good</td>
<td>• swelling&lt;br&gt;• blocking</td>
</tr>
<tr>
<td>Vacuum Freeze Drying</td>
<td>Frozen items placed in chamber; vacuum drawn; small amount of heat introduced. Items remain frozen during drying. Ice crystals drawn out by sublimation</td>
<td>1-2 weeks per load</td>
<td>$5 - $10 per volume</td>
<td>low</td>
<td>good</td>
<td>Very good results IF frozen quickly&lt;br&gt;• leather &amp; vellum may warp&lt;br&gt;• photos may lose gloss</td>
</tr>
<tr>
<td>Vacuum Thermal Drying</td>
<td>Wet or frozen items placed in chamber; vacuum drawn; heat introduced; items dried by evaporation (above 32°F, up to 100°F)</td>
<td>1-2 weeks per load</td>
<td>$5 - $10 per volume</td>
<td>low</td>
<td>good</td>
<td>Damaging to cellulose. Potential: &lt;br&gt;• swelling/cockling&lt;br&gt;• inks running&lt;br&gt;• blocking</td>
</tr>
</tbody>
</table>
Break first – Hands-on salvage next