Emergency Salvage of Textiles and Clothing

FEDERATION FILES

A Publication Service of the Federation of Historical Services

Reprinted, in part, from

DISASTER PREVENTION, PREPAREDNESS AND RECOVERY

Special Concerns for Museum Textile Collections

By Kathy Francis, Chief Conservator

Textile Conservation Center

The purpose of these guidelines is to address disaster planning and recovery concerns that are specific to textile collections. Although general recommendations are included, the information is not intended as a complete guide to writing a disaster plan. Its aim is to focus on textile materials and to offer disaster planning and response information to be incorporated into a museum's general plan.

Many types of disasters including fires, floods, hurricanes, broken pipes and roof leaks -- involve water damage to buildings and collections. For this reason, and because textile materials respond so radically to wetting, the following plans for disaster preparedness and recovery focus on water damage. Although laboratory conservation treatment may be needed following a disaster, quick and careful emergency response will minimize damage to collections.

1. **Types of Problems Encountered with Water-Damaged Textiles**

   Learning to identify the types of artifact damage you might encounter in an emergency is essential to arriving at emergency preparedness. In the event of an emergency, recognizing the diverse problems will also help you describe them more accurately if you are consulting a conservator by telephone.

   The following represents a nightmare checklist for textile curators and conservators. However, consideration of the types and character of the damage should lead to appropriate emergency handling and salvage techniques which will minimize losses.

   1. Heavy soils and plaster deposits, if ceilings or walls have collapsed onto collections
   2. Slight to heavy soot deposits

3. Structural damage--tears, splits, fabric losses, etc.
4. Significant loss of strength--fabrics are weaker when wet
5. Loss of structural integrity--archaeological wool fabrics may become gelatinous when wet
6. Growth of mold and mildew
7. Dimensional instability, leading to physical distortion, stretching, shrinkage, differential shrinkage if a variety of materials are present
8. Damage to or loss of fabric finish (calendaring, glazing)
9. Loss of applied surface design--paint, gilding, etc.
10. Color bleeding and staining, within one item or between items
11. Movement of soils and degradation products causing staining within or between items
12. Contamination of artifacts by wet contact with non-archival packing materials (i.e., dirty and acidic cardboard, water soluble label markers, water soluble colored tissue papers)
13. Contamination by dirty water or sewage
14. Contamination and severe chemical reaction by contact with acidic or alkaline liquids (i.e. air conditioner fluids; these may dissolve some textile fibers)

2. **Handling and Moving Wet Textiles**

    1. Wet textiles will be extremely fragile and must be handled and packaged with the utmost care. Because of the variety of materials and construction techniques involved, textiles will exhibit great differences in response to wetting. (Section 1 Identifies some types of damage.) A textile conservator should be on the disaster recovery team or should be available for telephone consultation regarding rare or unusual items.

    2. Be sure that textiles are adequately supported for moving. Use boxes, trays and platforms as needed. If you find large items without storage boxes or tubes, two people can move them safely to the packing area using a length of sturdy canvas as a stretcher (much the same way that an injured person is moved with a litter).

    3. Use interleaving fabrics or paper to prevent the transfer of soot and heavy soils from one area of a textile to another or between pieces. If dyes are bleeding, use freezer paper or wax paper to limit transfer of staining.

    4. Don't handle anything unnecessarily. If boxes or rolls are intact check contents to log accession number and degree of wetness, but don't otherwise disturb the contents. If dyes are bleeding, transfer materials to a new box, isolating the problem pieces with freezer paper or wax paper.

5. Do not attempt to unfold extremely delicate fabrics that have been folded for the last century. Handling and packing should protect from crushing.

6. All boxes should be clearly marked and lists kept of the contents. Seek to use accession numbers, but if objects are unmarked, provide an emergency number and log a description.

7. Separate and label boxes according to degree of wetness (dry, damp, wet) and treatment (air dry, freeze, freeze-dry).

3. **Air-Drying Wet Textiles**

    1. Air-drying may be considered if:

        1. A small number of items are affected -- Air-drying textiles is labor intensive and may not be possible if a large quantity of material is wet. If disaster recovery team members are needed to move wet collections and prepare materials for freezing, this will usually take priority over drying operations.

        2. Required materials are available--

            These include:

            - clean, flat drying surfaces (cover tables with polyethylene; wipe clean after each use)
            - large amounts of absorbent materials for blotting (cotton sheets, towels, blank newsprint)
            - adequate security

        3. The environment can be controlled--The drying room should be clean. Temperature should be below 70 degrees Fahrenheit with relative humidity below 50 percent. Dehumidifiers and fans will be needed. Keep air moving but do not allow fans to blow directly onto artifacts.

        4. Expertise in care and handling is available--The techniques outlined assume some familiarity with textile structures, textile handling and packing techniques.

    2. Technique for Air-Drying Small Flat Textiles

        1. See Section 3.1. (Air-Drying may be considered if). Assemble materials.

2. Prepare clean, flat workspace by covering tables or floor with polyethylene sheeting.

3. Move one textile at a time to the drying space and position face up. Quickly assess the condition, looking for local weaknesses or structural damage. Assume that black and other dark colored silk embroidery is in poor condition and will powder with abrasion or pressure.

4. Place a single layer of cotton sheeting over the textile, with the sheet edges extending slightly beyond the textile. This sheet will remain in place until the textile is dry.

5. Place additional layers of absorbent fabric or blank newsprint on top of the sheet. Blot very gently, without disturbing the sheet. Allow the absorbent material to remain on the textile for several minutes to absorb maximum amount of water.

6. Carefully remove all paper and fabric without disturbing the single layer of sheeting (applied in step d). Repeat blotting for very wet items. Maintain direct contact between the sheet and textile. Allow to air-dry completely before removing the sheeting.

3. Technique for Air-Drying Large Flat Textiles

    1. See Section 3.1. (Air-Drying may be considered if). Assemble materials.

    2. Prepare a clean, flat workspace by covering tables or floor with polyethylene sheeting.

    3. Assemble a work team. Several pairs of hands will be needed.

    4. Move a textile to the drying space and position face up. Quickly assess the condition, which may vary considerably throughout.

    5. Cover the textile with a single layer of cotton sheeting, with the sheet edges extending beyond the textile. This sheet will remain in place until the textile is dry.

    6. Apply towels or mattress pads over the sheeting to absorb the water. Blot gently and wait 5-10 minutes (or longer) so that the towels absorb the maximum amount of water.

    7. Carefully remove the towels without disturbing the sheeting (applied in step e). Repeat blotting for very wet items. Allow to

air-dry completely before removing the sheeting.

4. Technique for Air-Drying Garments

    1. See Section 3.1. (Air-Drying may be considered if). Assemble materials.

    2. Prepare a clean, flat workspace by covering tables or floor with polyethylene sheeting.

    3. Cover an area larger than the size of the garment with cotton sheeting, towels or mattress pads.

    4. Quickly assess the condition, looking for structural damage and handling concerns. Watch for severely weakened fabric in the armseyes due to perspiration damage. Be aware that women's garments may have boned bodies, metal stays, metal closures, and sharp items which could tear through extremely fragile wet fabrics.

    5. Carefully lift garment onto the padded area. Wait 5-10 minutes (or even longer) so that the toweling absorbs the maximum amount of water. Do not blot unless the garment is very sturdy (wool coats, and military uniforms). Do not attempt to unfasten buttons or other closures.

    6. If possible, place flat pieces of sheeting or blank newsprint (cut to small sizes) between front and back layers. Allow 5-10 minutes for newsprint to absorb water. Remove the paper, Repeat for very wet items.

    7. Remove all blotting materials and allow to air-dry.

5. Technique For Air-Drying Tapestries

    Please Note: Assemble a work team. This procedure will require 3-4 people.

    1. See Section 3.1. (Air-Drying may be considered if:). Assemble materials &emdash; 10-12 cotton sheets and plenty of cotton towel will be needed.

    2. Prepare a clean, flat workspace by covering tables or floor with polyethylene sheeting.

    3. Unroll tapestry face down onto polyethylene. Quickly assess

condition and determine warp direction, (traditionally, the warp runs from side to side). Prepare to roll the tapestry in the warp direction (usually side to side).

4. Starting at one side, cover the tapestry with cotton sheets. (This may be done in sections as the tapestry is rolled.) If the tapestry is extremely wet, add a layer of towels.

5. Using a large diameter (6+ inches), sturdy tube, begin rolling the tapestry, along with the sheets and towels. Attempt to roll straight but not too tightly. Roll to the place where your sheets end.

6. Cover the next section of tapestry with sheets (and towels if tapestry is extremely wet). Continue rolling. Repeat the process to the end of the tapestry.

7. Wait 5-10 minutes so that the sheets and towels absorb the maximum amount of water.

8. Unroll the tapestry, removing the sheets and towels as you go. Repeat blotting for very wet items. Check repeatedly to be sure that drying is progressing. Keep flat until completely dry.

6. Technique for Air-Drying Beadwork, Framed or Unframed

   Minimize movement and keep fully supported. If framed, remove from frame. Lay flat onto absorbent cotton sheeting or blank newsprint to remove excess moisture by wicking action. Air-dry. Do not freeze.

7. Technique for Air-Drying Painted or Stencilled Fabrics

   Lay flat with face up onto absorbent material to remove excess moisture by wicking action. Do not blot painted surface. Air-dry. Do not freeze.

4. **Preparation of Textiles for Freezing and/or Drying**
   Do Not Freeze Beadwork or Painted/Stencilled Fabrics.
   See Section 3.6. (beadwork) and Section 3.7. (painted fabrics).

   Small, Flat Textiles: Samplers, Embroidery, Towels, Small Loose Samples, etc.

   Textiles should be kept flat. If time allows, gently blot extremely wet pieces with clean cotton sheeting blotter paper or blank newsprint. This is especially helpful if dyes are bleeding. Separate one textile from

the next with freezer paper or wax paper to prevent staining between pieces. Box in small groups. Especially fragile pieces should be placed flat between two pieces of freezer paper. Provide rigid support by sandwiching between two pieces of cardboard. Freeze, when air-dry of freeze-dry after consulting a conservator. See instructions for air-trying.

Framed Needlework and Silk Pictures

Wet needlework should be carefully removed from frames. This may be extremely time consuming and will require some experience and workspace. Be sure to label frame, glass and needlework with accession number or temporary emergency number. If dyes are bleeding, blot gently, then pack textile flat between freezer paper and provide rigid support between two pieces of cardboard. Freeze, then air-dry or freeze-dry after consulting a textile conservator. See instructions for air-drying.

Single Layer, Large, Flat Fabrics--Bedcovers, Coverlets, Tablecovers, Curtains, Flags

Keep rolled pieces on storage tubes if possible. Move carefully--wet tubes can collapse causing structural damage to the textile. If needed, carry with a sturdy wood pole through the tube for added support. Protect from crushing damage by nesting the rolled piece within a larger sturdy tube. Freeze, then air-dry or freeze-dry after consulting a textile conservator. See instructions for air-drying.

Embroidered or Multi-Layered Flat Textiles: Curtains, Quilts, etc.

If possible, keep rolled or boxed as found in storage. Be careful of wet, weakened tubes as described above. Protect from crushing damage by nesting rolled pieces within larger sturdy tubes. If found without a container, prepare for boxed storage, interleaving with freezer paper if dyes are bleeding. Freeze, then air-dry or freeze-dry after consulting a textile conservator. See instructions for air-drying.

Fragile Garments (i.e. Silk Dresses)

Avoid handling garments if possible. Be aware that garments may have boned bodices, metal stays and metal closures which could tear through extremely fragile wet fabrics. Box to minimize crushing. Freeze, then air-dry or freeze-dry after consulting a textile conservator. See instructions for air-drying.

Sturdy Garments (i.e. Wool Uniforms)

If extremely wet, carefully blot with absorbent cotton sheet or blank newsprint to remove excess moisture. Freeze, then air-dry or freeze-dry after consulting a textile conservator. See instructions for air-drying.

Tapestries

Tapestries will be extremely heavy when wet. Tubes may be weakened and should be supported at center as well as ends. If possible, keep rolled on storage tube. Gentle blotting with absorbent

cotton sheets or towels will reduce moisture in outer layers. See instructions for air-drying.

Sample Books

Treatment decisions will be complicated due to the variety of materials (paper, glue, leather, ink, fabric). Separate books with freezer paper and freeze. Air-dry or freeze-dry after consulting paper and textile conservators.

5. **New Techniques, Resources and Further Study**

   Documented case studies of salvage techniques for textiles are limited. The author would greatly appreciate hearing from individuals who have worked on disaster response teams that have salvaged textiles. Experience with freezing and freeze-drying would be particularly useful for incorporation into later guidelines.

Kathy Francis joined the staff of the Textile Conservation Center at the Museum of American Textile History in 1979. Since then she has served as Conservation Technician, Assistant Conservator, and Associate Conservator, becoming Chief Conservator in 1988. Through her work with various museums and historical societies, Francis has developed a strong interest in a comprehensive approach to preservation.

As a regional agency, the Textile Conservation Center receives calls for recovery assistance as the result of roof leaks, burst pipes, air conditioning failures, etc. Through their on-site surveys, Francis and other Conservation Center staff stress the importance of disaster preparedness.

Copyright, 1990, the Federation of Historical Services

This publication was made possible with the support of public funds from the Museum Program of the New York State Council on the Arts (NYSCA).

The Federation of Historical Services (FHS) is a non-profit, regional agency which serves museums and historical organizations throughout the upper Hudson, Champlain and Mohawk Valleys in New York State, as well as western Massachusetts, Vermont and Connecticut. Its services include workshops, on-site and telephone technical assistance, and publications.

For additional copies of the leaflet, or for further information on the Federation and its programs, contact the Federation of Historical Services, 189 Second Street, Troy, NY 12180; (518) 273-3400.