

University of Windsor Archives

Disaster Plan

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This is the web version of the University of Windsor Archives Disaster Plan. Official copies of the Plan are housed in the University Archives and in the Leddy Library Administrative office.

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INTRODUCTION

Developing a disaster plan is an essential aspect of protecting the holdings of an archival institution. Disaster management will avoid panic, disarray, and damaging mistakes in the event of a catastrophe. Although prevention is an important consideration, some disasters will remain beyond our control.

The University of Windsor Archives, Rare Books, and Special Collections is a relatively small unit and is particularly vulnerable to disastrous events. A small staff and limited resources require that disaster recovery involve a large number of untrained volunteers. To guide all stages of disaster recovery, the plan must be simple yet comprehensive.

The goals of the University of Windsor Archives disaster plan are:

1. Implement disaster prevention policies.
2. Develop disaster preparedness.
3. Maximize the speed and efficiency of recovery.
4. Establish post-disaster strategies.

Copies of the completed plan must be distributed to the following:

- All members of the Archives staff, the library staff and the disaster teams
- Fire and police departments
- The University's insurance company and legal representative

Copies of the plan must be maintained off-site for reference in case of an emergency.

DISASTER PREVENTION

Many disasters are unavoidable; however certain measures can be adopted to avoid or minimize damage. Through an analysis of the Archive's current situation, preventive procedures can be developed. These policies are vital due to the risks associated with the geographical location of the Archives, which are situated in the basement of the Leddy Library and close to the Detroit River.

Prevention Checklist:

1. Climate

- Examine the institution's internal and external environment.
- Assess the geographical risks of the area.
- Determine if the Detroit River floods seasonally.
- Ensure river authorities contact the Archives and Library in the event of flooding or rising water levels.
- Ensure temperature and humidity do not fluctuate.
- Identify which materials are most sensitive to climate conditions.

2. Structure

- Implement daily inspection procedures.
 - Close all fire doors.
 - Secure all windows.
 - Ensure that heating and water systems are not leaking.
 - Turn off all equipment.
 - Verify the structural integrity of the building.
 - Assess the condition of the roof.
 - Ensure the building is well insulated.
- Determine when the building was last inspected.
 - Ensure the utility services, heating, ventilation, and air conditioning systems are regularly inspected and maintained.
- Verify the structural integrity of the building,
- Assess the condition of the roof.
- Ensure the building is well insulated.
- Determine if the building has an effective dampcourse (a barrier against rising moisture from the ground).
- Confirm that repairs and maintenance are up-to-date.
- Secure the building against the entry of small animals.

3. Fire Prevention and Security

- Obtain the advice of local fire and police regarding safety and security issues.
- Ensure the Archives has proper fire and water protection equipment, including water sensors, smoke and fire detectors, a fire suppression system and fire extinguishers.
 - Connect the ventilation system to the smoke detection system so it will automatically turn off in the event of a fire.
 - Guarantee that the equipment is regularly inspected, tested and maintained.
 - Train all staff in the proper use of the equipment.
- Safeguard the Archives against all potentially hazardous chemicals and substances.
 - Determine if any flammable materials are stored in the building.
 - Confirm that these materials are stored, used, and disposed of in accordance with appropriate safety standards.
- Limit the number of key holders to the Archives.

4. Storage

- Ensure that records are not located near any water or sewage pipes running through the storage area.
 - Never store records on the floor.
 - Store the most valuable material on upper shelves.
- Identify and store nitrate film apart from the rest of the collection and have it copied at the earliest opportunity, since it is highly combustible.
- Ensure that carpeting is not installed in the storage areas. It will retain water, prevent drainage, and interfere with temperature and humidity stabilization in the event of a disaster.
- Keep passages and drains in storage areas unobstructed.
- All documents should be stored in acid-free boxes.
- Institute computer back-up procedures and off-site storage policies.
- Shelf materials according to fire control standards.
 - Ensure that materials are set back slightly from the edge to prevent the vertical spread of fire from one shelf to another.
 - No materials should be stored on top of shelving units.
 - There should not be less than a 60cm space between shelving units and the ceiling.
 - A 10cm flue space should be left between the end of each compact shelving unit and the documents, in order to facilitate fire detection.
- To protect materials against water damage, shelving should be installed at least 30cm away from outside walls, 5cm away from inside walls; bottom shelves should be raised at least 10cm off the floor.

DISASTER PREPAREDNESS

In the development of a disaster plan, staff from all areas of the institution should be consulted; however, it is necessary to establish a committee of experts. Every archives must personalize the plan to make it conform with their institution's specific requirements. Members of the University of Windsor Archives Disaster Planning Committee should include:

- Archivist
- Head Librarian
- Insurance agent
- University lawyer
- Fire department official
- Security personnel
- Occupational health and safety inspector
- Conservator
- Building inspector
- Engineer

The committee is responsible for identifying the emergencies that can occur and the appropriate disasters response. Potential disaster may include:

- Fire
 - electrical, mechanical, arson, lightning
- Flood
 - rising of the Detroit River
 - severe thunderstorms
- Chemical leak or explosion.
- Nuclear meltdown.
- Terrorism, bombing, riots, and/or vandalism.
- Structural collapse.
- Tornados and heavy winds.
- Heavy snowfall
- Sewer failure or sewage spill.

In addition, the Disaster Planning Committee is responsible for organizing staff and volunteers into three disaster teams: prevention, action, and recovery. When developing the three teams, the Disaster Planning Committee should:

1. Consider human safety first.
2. Assign responsibilities and establish authority.
 - Appoint a Recovery Director (and a back-up) who will:
 - Take command of the operation.
 - Determine a plan of action.
 - Determine methods and procedures for salvaging materials.
 - Make keys available to storage areas.

- Establish lines of communication.
- Act as the source of all final decisions.
- Establish a chain of command and a reporting mechanism.
- Secure authority to disperse funds.
- Ensure cooperation with Leddy Library staff and gain practical control over their activities.
- Verify a method of bypassing bureaucratic obstruction in an emergency or a threatened emergency.

3. Examine the Archives' legal position.

- Establish what can and cannot be done in the event of an emergency.
- Determine what documentation is necessary for insurance claims.

4. Ensure the efficiency of the salvage operation.

- Test the plan regularly, including evacuation and fire drills.
- Staff, recovery team members, and volunteers must attend workshops on the handling and treatment of damaged materials.
- Staff must be updated on any changes to the plan.

RESPONSIBILITIES OF THE DISASTER TEAMS

Disaster Prevention Team:

- Follow prevention procedures as outlined above.
- Keep updated lists of appropriate names and phone numbers, including those for resource personnel. Distribute the plan to all essential personnel including local fire and police.
- Train archival and library staff in disaster procedures.
- Arrange continuing education for committee and team members.

Disaster Action Team:

- Notify all essential personnel as outlined in Appendix 1.
- Appraise the damage from a disaster and create a plan of action.
- Assign someone to call personnel on the secondary contacts listed in Appendix 2 if applicable.
- Assign a person to record expenditures.
- Establish proper temperature and humidity controls.
- Set up emergency generator if needed.
- Develop teams to deal with damaged materials. Ensure the leader is knowledgeable in the handling of materials and will train volunteers on-site.
- Re-establish utilities and other essential services as quickly as possible.
- Establish liaisons to the university insurance coordinator, insurance broker, public relations officer, and lawyer.
- Ensure the safety of all workers.

Disaster Recovery Team:

- Designate an on-site command post.
- Establish contact with salvage and restoration services as listed in Appendix 4, if necessary.
- Arrange for the security of facility during salvage operations.
- Work in conjunction with fire crews to salvage records.
- Assemble and direct the salvage crews.
- Retrieve and order material for salvage procedures.
- Remove damaged records to the recovery sites.
- Label boxes to identify materials.
- Remove inventoried materials from the disaster area.
- Organize the transport of damaged material.
- Photograph all stages of the recovery operations and keep a written record of all activities.

RECOVERY PROCEDURES

If a disaster is forewarned:

1. Alert the disaster teams.
2. Turn off master electrical switches, gas and utilities if possible.
3. Relocate vital records to a safer place.
4. Wrap important records that cannot be moved with plastic.
5. Secure loose objects and move them away from windows.
6. Keep collections above ground level and away from the floor.
7. Get supplies ready that may be needed to cope with the disaster.

First response after a disaster:

1. Evacuate the area if necessary. All staff should meet at a predetermined location.
2. Contact the University Archivist who will activate the Disaster teams.

Salvage procedures:

1. Place human safety first.
 - A disaster professional, such as a fire inspector, must declare the building safe before recovery can begin.
2. Establish an emergency operations centre to co-ordinate actions.
3. Assess the damage.
 - The initial assessment should include a walk-through of affected areas to estimate the extent and nature of the disaster (take notes and photographs).
 - Determine how many of the collections have been affected.
 - Establish what types of materials have been affected.
 - Appraise the damaged materials.
 - Determine whether or not the items can be easily replaced or are more valuable.
 - Determine the means of salvage.
 - Contact professional conservators if necessary.
4. Stabilize the environment.
 - Use hygrometers to monitor and record the temperature and humidity in the affected areas and work areas. The temperature should be stabilized at 18°C and the relative humidity at 45%.
 - Reduce the humidity as rapidly as possible to avoid mold growth.
 - Turn off the heat.
 - Open doors and windows and use fans to increase air circulation.
 - Keep the air conditioning systems operational.
 - Remove any standing water from the area and utilize dehumidifiers to ventilate and remove the excess moisture.
5. Organize on-site and off-site storage spaces.

- Any work area should be removed from the immediate disaster site, but not so far away as to make the transport of materials unfeasible.
 - Ensure all work space is safe and secure.
 - Establish the location of salvage and treatment centres.
 - Contact salvage and restoration companies and organize transportation if necessary.
6. Remove and/or stabilize vital records.
 7. Inventory and remove undamaged materials or otherwise stabilize unaffected materials.
 8. Initiate the salvage treatment of materials.

SALVAGE TREATMENTS

The following salvage treatments are for water damaged materials:

Paper

- It is preferable to have a professional conservator care for single sheet documents.
- Paper can withstand temperatures of up to 176.5°C.

Washing:

- Decisions regarding items to be washed must be made by a conservator.

Separation and Drying of Wet Sheets:

1. Remove all items from the shelves and examine.
2. Extract the wettest material from the area first. Remember that materials which appear to be dry may in reality be damp.
3. Place a sheet of polyester film on top of the wet stack of papers.
4. Rub gently (The surface friction will cause the wet paper to adhere to the film).
5. Peel back the top sheet and place it on top of a piece of polyester web.
6. Remove the polyester film.
7. Place another piece of polyester web on top of the wet sheet.
8. Repeat the process.
9. Be careful to maintain the identity of individual pieces by laying them out or stacking them in a consistent order. Have box and folder numbers written in pencil on slips of paper and inserted in proper sequence.
10. Air dry the sheets (supported by the polyester web) by placing them on absorbent paper, drying racks, or closely spaced monofilament lines. Sheets should be spread out to dry on clean white absorbent paper or unprinted newsprint on table tops.
11. If there is not enough room, then slightly damp sheets can be stacked in groups of 25 pages with interleaving; the stack should be turned over regularly.
12. Increase the amount of staff attention to the air drying time. Check for migration of dyes and feathering of inks.
13. The papers may be flattened when they are dry by placing them between two sheets of blotting paper and applying even, light pressure with weights or a book press.
14. Check for mould growth. If detected see below.

Books

Rare books should be cared for by a professional conservator.

Washing:

1. Do not wash open or swollen books, vellum or parchment bindings or pages, leather bindings, or brittle books.
2. Keep the book tightly closed and hold it under a stream of clean water or immerse it in a series of tubs with clean water.
3. Remove as much mud as possible from the binding by dabbing gently with a sponge.

4. Do not rub, brush, or sponge the pages or edges. Scrubbing will only cause the mud to infiltrate the fibre.
5. Squeeze the book gently with even pressure to remove excess water and to reshape the binding.

Wet books:

1. Do not open wet books. Maintain the book in the position it was found.
2. If books are dripping wet, remove the excess water by gently squeezing them.
3. Place books on their heads on absorbent paper.
4. Reverse their position each time the paper is changed.
5. Do not stack wet books, as this could lead to further damage and distortion.
6. When most of the water has been drained, proceed to section on "Damp books".

Damp books:

1. Very carefully interleave sheets at approximately 25 page intervals to speed the drying process.
2. Sheets should be dry, clean, unprinted, and acid-free.
3. Sheets should be slightly larger than book pages and be inserted into the gutter margin.
4. The interleaves should not exceed 1/3 of the total pages, in order to avoid physical distortion of the book's structure.
5. Interleaving should be changed approximately every 2 hours with the new sheets placed in different locations.
6. Small books may be hung to dry on fishing line. The fishing line segments should be 2m long and strung approximately 1.25cm apart. Three lines will be needed for books more than 3.75cm thick. Do not underestimate the weight of wet books or the line will cut through the book.

Slightly damp books:

1. These items should be stood upright for drying and fanned slightly.
2. Re-fan every 2 hours if possible.
3. When books are almost dry, lay them flat under plastic sheets and apply light pressure using weights or a book press to return them to their original shape.

Covers:

1. Although book covers take longer to dry than pages, do not remove them.
2. Insert a barrier of aluminum foil or plastic sheeting between the cover and text.
3. Books with leather covers need special attention to avoid distortion. It is best to freeze these items and allow them to be treated by a conservator at a later date.
4. Dirty book covers can be vacuumed utilizing a screen placed between the book and brush. Covers can also be brushed with an electrostatically charged dust cloth, holding the book spine up and brushing down towards the edge.

Coated Paper:

1. If the book has coated paper, interleave waxed paper between all damp/wet pages. Failure to do so will result in papers sticking to one another.
2. If the leaves cannot be immediately separated, coated paper should be frozen on nylon monofilament fishing line.

Files

Air Drying Files:

1. Cover tables with plastic sheets followed by paper towels.
2. Place files on a preparation table and record their titles on a location sheet.
3. See Separation of Wet Sheets for treatment of file contents.
4. Using the location sheet as an index, assemble the file contents in their original order and place in an appropriate sized folder.
5. Record the file title in large letters on a label, then place it on top of the folder and secure it and the file papers to the folder with a binder clip.
6. Pass the dried and assembled file to records management staff for further processing.
7. Staff should inspect the files for mould growth, repair, or restoration needs.

Pamphlets

1. If the gutter margin is dry, pamphlets may be hung on nylon monofilament fishing line.
2. Pamphlets may also be opened and laid flat to dry if the pages are turned frequently.
3. When pamphlets are almost dry, lay them flat under plastic sheets and apply light pressure using weights or a book press to return them to their original shape.

Maps

1. Due to size, maps tear easily, especially at fold creases. Unfold maps gently and lay flat if possible.
2. Rolled maps should be unrolled and laid flat with light weights at the corners. If there is any resistance, then the maps should be frozen.

Architectural Drawings

Linen:

1. Linen reacts to water in a similar way as coated paper. If wet, the linen will adhere to other material while drying and be unsalvageable.
2. Linen drawings need to be immediately separated and interleaved with waxed paper, freezer paper, or unprinted newsprint. If unprinted newsprint is used, do not place pressure on the sandwich (this could result in sticking).
3. If separation is not possible, then freeze immediately.

Blueprints and sepia prints:

1. These items cannot be left immersed in water. Water soluble inks will be destroyed.
2. The documents must be separated, and air dried or freeze dried.

Mylar:

1. Architectural drawings on Mylar also contain water soluble inks and therefore cannot remain immersed in water.
2. These documents may be blotted gently with cloths. If too much pressure is applied the ink will erase.
3. Air dry.

Parchment and Vellum

Due to the nature of the medium, a conservator should be consulted before treatment.

1. Parchment and vellum are easily distorted, therefore drying demands constant attention to shaping and flattening.
2. Restraints should be applied around all the edges. Control of this restraint by occasionally releasing pressure at the edges will help to ensure even and safe drying.
3. Once the material is reasonably dry it can be pressed between blotters for the final stages of the drying process.
4. If necessary, parchment and vellum may be frozen, but should later be thawed and dried, not vacuum freeze dried.

Magnetic Media

- This section includes treatment of audio and video tapes, computer tapes and floppy disks.
- It is important to note that prolonged exposure to water will cause chemical breakdown of the tapes.
- Magnetic tapes can withstand temperatures up to 65.5°C at a maximum relative humidity of 85%, whereas floppy disks when in envelopes suffer damage at 51.6°C at a relative humidity of 85%.
 1. Separate wet from dry tapes.
 2. Check labels for legibility and replace, if necessary.
 3. Wet tapes should be removed from their containers and any water allowed to drain.
 4. Dirt and debris must be rinsed off with clean or distilled water.
 5. Floppy disks in plastic sleeves, if slightly wet, may be dried with a hand held hair dryer provided no heat is used. Set the dryer to air only.
 6. Wet floppy disks should be cut out of their plastic sleeve, debris rinsed off, wiped with a soft cloth, and air dried.
 7. Allow tapes to dry without heating, preferably where there is high air circulation.
 8. Once dried, run the tapes on a tape cleaner 6 or 7 times to remove debris. If there are oxide residue deposits on the cleaning tissues discontinue treatment and consult a conservator.
 9. Rerecord onto a new tape or disk.
 10. When possible, it is best to replicate tapes and disks from security masters to ensure the integrity of the information is retained.

Photographic Material

- Restoration of photographs that are soiled, stained, and wrinkled should be referred immediately to a photographic conservator.
- Remember that prints are more vulnerable to damage than negatives. If negatives do exist and are available, it may be the best decision to sacrifice the print and reproduce at a later date. If there are no negatives, then it is vital to salvage prints immediately. Colour photographs are more sensitive to water exposure than black and white photographs.

- Photographs must be separated as soon as possible, otherwise they will adhere to anything that comes in contact with them. Therefore, photos may receive a higher priority than most other documents and books.
- Freeze photographs only if they cannot be separated or if there is mould growth.
- Photographs mounted in an album can be frozen if the album must be preserved. However, the process increases the loss of surface gloss and the cockling of mounts.

Photographs:

1. Immediately immerse the photographs in clean, cold water preferably in plastic garbage cans. The water should be at or lower than 22°C. Formaldehyde may be added to the water (15 milliliters to 1 litre of water) to help prevent the gelatin from swelling and softening, and to deter mould growth. The materials should be washed in cold, clean water after their removal from the solution.
2. If wet photographic materials are in envelopes, immerse in water and formaldehyde. Remove the prints/negatives from the envelopes and wash in cold running water for 15 minutes. These items will later have to be processed in special hardening and finishing solutions.
3. Always keep immersion to a minimum. Prolonged exposure to water will be hazardous.
4. Rinse photographs in clean water if they are covered in dirt.
5. Place photographs face up on clean paper or nylon screens and air dry flat. Photographs and negatives may also be air dried by hanging with plastic clothespins on lines of monofilament. Any curling that may occur in the air drying process can be flattened at a later date.

Collodion:

1. Collodion glass plate negatives and collodion positives (ambrotypes and tintypes) will be destroyed by freeze drying. Therefore, any water damage is very serious. Remove from water immediately and air dry.

Slides:

1. Remove slides from their cardboard mounts, dip in clean water, air dry and remount.

Microforms

Microforms can withstand temperatures of up to 65°C. They will suffer destruction if exposed to 60% or greater relative humidity for long periods of time.

Microfilm:

It is often less expensive to repurchase rather than recover.

1. Film must be kept in clean, cold water and sent to the nearest film processing laboratory as soon as possible. Film cannot be dried before reprocessing because it will adhere to anything it contacts and be destroyed.

2. If film cannot be immediately treated, reels must be submerged in clean, cool water (below 18°C) in a sealed dark container. Submerge colour film for up to 48 hours, black and white film for 72 hours.
3. Add 1% solution of formaldehyde to the water if advised by a reprocessing centre. This may prevent softening of the film's emulsion; however, if left in the solution too long, the film will crack and flake. Take care not to exceed 1% formaldehyde.
4. If reprocessing is not an option, unroll the film, rinse in clean cool water, and lay out on its edge to dry. Ensure that the emulsion does not touch any surface, as it will adhere immediately.
5. When dry, rewind the film with a hand cranked reel, passing the film through flannel. Water spots may remain.

Microfiche:

If regeneration from the master copy is possible, it may be a viable option.

1. Remove microfiche from the envelope to avoid sticking.
2. Wash off the mud and dirt under clean, cold water.
3. If reprocessing is available, keep the item wet, envelope included. Otherwise, allow to air dry, or gently wipe dry with cheesecloth.

Diazo and Vesicular Microfilm:

1. Wash off the mud or dirt under clean, cold water.
2. Air dry or dry with cheesecloth.
3. If damage is more than simple water spots, replicate from silver gelatin camera masters if possible. If not, commercially reprocess the film.

Paintings

The various media and supports present different problems when wet. Contact a professional conservator for treatment.

Other Considerations

If Mould is Detected:

- Mould can develop within 48-72 hours in an environment where the temperature is over 24°C and the relative humidity is over 60%.
- Growth can be controlled through the stabilization of the environment (temperature and humidity). Keep the air in the region circulating.
- Remove items from general area and treat with conservator's assistance.
- Do not attempt to remove mould from wet/damp paper. This will increase the probability of mould spores becoming embedded into the paper fibres.
- Mould is easier to remove when the document is dry. Vacuum or brush it off and remove the spores from the area.
- If possible, professional fungicidal fogging of the area is recommended.
- Materials that will be fumigated should be removed from plastic crates, as plastic will absorb the fumigants.

Fire and Smoke Damage:

- Damage resulting from extremely high temperatures is usually irreversible.
- Information contained on charred materials may sometimes be retrieved through specialized photography.
- Because of the fragile nature of such materials, they should be handled by professional conservators only.

Fire Damaged Magnetic Media:

- There is little chance for recovery if the tapes are warped, stuck together, or are shedding coating.
- Separate, as soon as possible, those reels which appear to have sustained the least amount of heat damage.
- Clean all debris from exposed surfaces.
- Slowly perform at least two wind-rewind passes to inspect the tapes.
- Rewind the tapes onto clean or new reels and make new labels.
- Relax these rewound and cleaned tapes for 24 to 48 hours in the normal operating environment.
- Perform a read and recopying pass. If the tapes will not load onto the transport at this time, store them in a low humidity environment and retry at intervals.
- Tapes that are damaged only by heat will still become brittle and should be recopied.

Freezing:

- Freezing is a good option, even for items that will be air dried. It allows for more time to estimate costs, make decisions and stabilize materials. It also allows for a more orderly treatment of materials.
- Candidates for freezing include: coated paper, materials with water soluble components, leather, and items that show mould growth.
 1. Paper should be frozen at -30°C.
 2. Some authors suggest dipping wet books and documents into fungicide before freezing as a way to control mould.

3. Books and documents for freezing do not need to be cleaned.
4. Wrap items individually in freezer or waxed paper (waxed side up) and place in plastic crates. Do not overstock the boxes but ensure that items will not fall over and become contorted.
5. Do not wrap books completely.
6. Books should be packed spine down before freezing to avoid wrinkling.
7. Pack items in the condition in which they were found. Do not attempt to close open books or open books that are wet.
8. Wrap open books as found and place on top of a packed container.
9. If books are stuck together, do not attempt to separate them, but pack them as one volume.
10. Documents will emerge from the process flatter if interleaved.
11. Keep accurate records of the location and identity of box contents. Label each container with the institution's name and assign it a number corresponding to the inventory list.

Vacuum Freeze Drying:

- Vacuum freeze drying is a safe and effective method of treating most wet paper. In vacuum freeze drying, water sublimates directly from the frozen state to a vapour. Freeze drying kills active mould and causes dormancy in spores.
- Vacuum drying, which is different from vacuum freeze drying, should not be used for archival material, rare books or photographs.
 1. It is important to partially thaw distorted items and reshape before vacuum freeze drying. Items will retain the same shape from the frozen to the vapour state.
 2. Materials should be kept frozen and left in their transport boxes for the process.
 3. If the vacuum freeze drying facilities are over 30 minutes away, transport materials in freezer trucks. Refrigerated trucks are highly recommended if mould growth and time are significant factors.

POST-DISASTER PROCEDURES

Clean-up Operation

- Following a disaster, the shelves, floors, walls, and ceiling should be washed. Use liquid Lysol or Borax (62.5mL Borax to 1 litre of water).
- Areas seriously affected by soot and smoke should be cleaned professionally.
- Removal of smoke odour and fogging with fungicides or insecticides should be performed by professionals only.
- Carpeting, and the padding underneath, should be examined for mould growth.
- Following a flood, tap water should not be used, even for clean-up purposes, until it has been declared safe of contaminants.

Reshelving

- Do not move materials back until the shelves are completely dry and the temperature and humidity have been restored and maintained for several days. It is vital to return documents to proper environmental conditions, otherwise mould control will be lost.
- All materials must be thoroughly dry before they are returned to the shelves. Examine materials with a moisture content meter (acceptable level at 6-7%).
- Air dried materials will not fit into their previous storage space. The number of storage boxes will need to be increased and the appropriate adjustments made to finding aids.
- Relabel and repair boxes before reshelving takes place.
- Documents can be encapsulated to protect them from further damage through handling.
- Embrittled books and documents may be reformatted (photocopied, microfilmed, or digitally imaged). If reformatting is not possible, place charred or embrittled materials in protective boxes and ensure careful handling. If only the bindings of books are charred, consider trimming or rebinding.
- If possible, isolate damaged materials for 6-12 months to ensure the ease and thoroughness of follow-up mould checks.

Evaluate and Review Plan

- Carry out a post disaster assessment.
 - Determine the cause of the emergency.
 - A written report including photographs should be prepared after recovery and attached to all copies of the disaster plan.
 - Evaluate the effectiveness of the plan, the sources of supplies and equipment, and all off-site facilities.
 - Determine which methods and products were the most or least helpful.
- Replace collection materials, equipment, and supplies.
- Assess the restoration requirements and arrange for repairs.
- Submit documentation for the preparation of insurance claims.
- Ensure that the plan is kept up-to-date.
 - Update collection priorities.
 - Guarantee that all phone numbers are kept current.
 - Include factors which were overlooked in the initial planning stage.

GLOSSARY

Acid-Free ● materials that have a pH of 7.0 or slightly greater. Unless treated with an alkaline substance capable of neutralizing acids, materials that are acid-free at the time of manufacture may become acidic through contact with acidic material or atmospheric pollutants.

Binding ● the structural materials, such as thread and glue, that hold a book together, and the attachment of a cover which may be made of any number of materials.

Cockling ● a bulge or ripple in paper caused by uneven tension during its manufacture or by atmospheric changes during its use.

Diazo ● a generic term for films employing light-sensitive diazonium salts for the production of the film image.

Emulsion ● a coating containing light -sensitive materials that creates a latent image upon exposure.

Encapsulation ● a form of protective enclosure for papers and other flat objects; involves placing the item between two sheets of transparent polyester film that are subsequently sealed around the edges.

Fumigation ● the process of exposing documents to poisonous gas or vapour to destroy insects or mould.

Gutter ● the two inner margins of facing pages in a book.

Head ● the top of a volume or page.

Hygrothermograph ● a device used to measure and record both relative humidity and temperature.

Interleaving ● the placing of sheets of one material between sheets of a similar or different material for such purposes as drying wet documents, providing an alkaline buffer, or preventing documents from rubbing.

Magnetic media ● various recording materials coated with magnetic material on which data can be stored by selective magnetization of portions of the surface.

Microfiche ● a sheet of microfilm containing multiple micro-images in a grid pattern.

Microfilm ● a transparent, flexible film used for the photographic reproduction of documents in reduced size.

Moisture content ● the percent of moisture found in finished paper.

Mylar ● A Du Pont trade name for a clear, flexible polyester plastic sheet.

Nitrate film ● a very unstable and highly flammable type of film. In addition to its high combustibility, this film slowly decomposes under normal storage conditions releasing harmful gases.

Parchment ● animal skin (usually calf, goat, or sheep skin) prepared with a lime solution, then scraped and polished, but not tanned.

Polyester ● common name for the plastic polyethylene terephthalate. Its characteristics include transparency, colorlessness, and high tensile strength.

Vacuum freeze drying ● the treatment of water-soaked documents by freezing and subsequent drying under high vacuum with the controlled application of heat, used to prevent further damage from water in its liquid state.

Vellum ● animal skin (traditionally unsplit calfskin) that has been treated with lime, then dried, stretched, scraped, and polished rather than tanned.

Vesicular film ● a type of film in which exposure of a light-sensitive component creates bubbles that form a latent image, made permanent by heating and subsequent cooling.

Vital record ● a record containing information essential to re-establish or continue an organization in the event of a disaster.

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