

State of Florida

PUBLIC RECORDS STORAGE GUIDELINES

FOR

RECORDS CENTERS AND ARCHIVES

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PUBLIC RECORDS STORAGE GUIDELINES FOR RECORDS CENTERS AND ARCHIVES

PURPOSE OF MANUAL This manual provides guidelines concerning the design and construction of records centers and archives and the conversion of existing facilities to meet storage standards. The manual is not intended to be used as a means to certify commercial or government records storage centers and archives, nor are facilities which meet the guidelines set forth here endorsed by the Bureau of Archives and Records Management. Public records in records centers and archives are placed there to ensure their continued availability to the public. The first step in ensuring that they will remain available is to store them properly.

RECORDS CENTERS AND ARCHIVES The different functions and purposes of records centers and archives result in different storage conditions for each facility. Their storage conditions are based on whether records are inactive and have a predetermined disposition date, or are permanently valuable.

RECORDS CENTERS **Function - Records centers store inactive records.** Inactive records are those that must be kept for legal or fiscal reasons but have little to no administrative value. They will be retained for a specific period of time.

Purpose - One of the purposes of a records center is to provide low-cost storage of records. It would be cost prohibitive to air condition the storage area of a records center, and since records will not be retained there permanently, they do not require strict environmental controls.

ARCHIVES **Function - Archives store records on a permanent basis.** Records in an archives are historically valuable and will remain there forever.

Purpose - The goal of an archives is to provide permanent preservation of records. Permanent preservation means ensuring that records will not be harmed by their environment. High temperature and humidity levels are very harmful to records and must be controlled in archives. Archives also provide areas for research activities.

There are some basic storage guidelines which apply to both types of facilities. Those include site selection, structure, building layout, fire protection, and building security. These are discussed in **Part 1 - General Records Storage Conditions**. For information on specific storage guidelines for records centers, see **Part 2 - Storage Conditions for Records Centers**. For information on specific storage guidelines for archives, see **Part 3 - Storage Conditions for Archives**.

PART 1 GENERAL RECORDS STORAGE CONDITIONS

SITE PLANNING

The selection of a site for a records storage facility should take several factors into consideration, such as the potential for natural disasters and the future use of the facility. Avoid areas of high air pollution, those near chemical factories, utility plants, or areas subject to pest infestation. Ideally, the location should be within commuting distance of related institutions. The more accessible the facility, the more often it will be used.

The site should be large enough to allow for future expansion.

Consider the growth factors of the facility and the estimated volume of records to be stored over several years. Adequate parking space should be available for employees, visitors, and people with disabilities. Space should also be considered for a loading area and for commercial trucks or vans which transport records.

Evaluate the security and geographical features of the area. Facilities should be located in areas within service of an urban fire station and regularly patrolled by the police. The ground site should be properly lighted after dark. In order to eliminate problems due to water damage, pay attention to the geographical location of the facility. Make sure it is not located in a swampy area or floodplain and has good drainage systems.

STRUCTURE

Permanent construction is essential. An individual structure separate from other buildings is recommended. The building should be constructed of non-combustible materials and fire walls, and other security measures should be used to keep the facility as separate as possible from other areas if the space must be shared.

Newly constructed buildings or those being retrofitted should ensure that facilities meet the requirements of the Americans with Disabilities Act Accessibility Guidelines.

The building should be well insulated for protection against rapid fluctuation of temperature and humidity. Insulation is best achieved by sealing the building with caulk and weatherstripping to make it weather-resistant. Sealing reduces air filtration, air pollution, pest access, the heating and cooling load, and the amount of particulates in the air.

Weather factors unique to Florida should be taken into account when building a records storage facility. Florida is at high risk for hurricanes and tornadoes and parts of the state average 90 to 100 days of

thunderstorms each year. The primary damage associated with these conditions is wind damage, which can be controlled using wind resistant design features.

Hurricane and weather-resistant design features include:

- *Acceptable roof design*
- *Minimal window exposure*
- *Protection against lightning*
- *Above ground storage only.*

Architects are able to design and construct hurricane resistant buildings without dramatically increasing the cost of construction. A study in Texas concluded that complying with model hurricane code provisions would only add 3% to 8 % in structural costs and 1% to 3% in overall finished costs.¹

Roofs should be designed to resist a number of forces, including water, heat, and fire. They should have demonstrated performance in the area where the building will be constructed; have a long life expectancy; be low maintenance; and be able to be serviced and repaired by at least one qualified local contractor. Flat roofs especially need to be kept clean and the drains kept clear.² Ceiling height in the records storage area will determine the number of cartons that can be stored per square foot.

FLOOR LOADS

Minimum live floor loads of 300 pounds per square foot are required in the records storage area. If large quantities of microfilm are to be stored, 500 pounds per square foot is recommended. Areas that do not support storage shelving can have floor loads as low as 150 pounds per square foot. If several floors or mezzanines are used in the storage area, consult a contractor to establish safe floor loads. Floors in the storage area should be concrete and painted or sealed to reduce dust.

BUILDING LAYOUT

Areas which are basic to most records storage facilities include an administrative/office area, a shipping and receiving area, a loading dock, and a reference room. Though different facilities have different needs, the following generalizations regarding these areas can be made.

ADMINISTRATIVE/ OFFICE AREA

This is space set aside for personnel to perform administrative duties. Space for standard office equipment and work space for personnel should be provided. Restrooms and drinking facilities should be nearby and accessible to the disabled.

LOADING DOCK

The loading dock area should be separated from records storage areas by four-hour fire walls with adequate fire doors and from any

other portions of the building by two-hour fire walls. Sufficient space should be provided for maneuverability of large trucks. Overhead weather protection should be provided if there is not a direct entry from the loading dock into the building. Large facilities that may use commercial freight vehicles need docks 3 1/2 feet high. Smaller facilities need platforms 24 to 26 inches off the ground.

**RECEIVING/
SHIPPING AREA**

This area should be climate controlled if records of archival value will be stored there, even if they will be stored for a short length of time. Tables, shelving or other space off the floor should be provided for records which cannot be shelved in the storage area immediately upon receipt. The area should be adjacent to the loading dock and close to the storage areas. Doorways and aisles should be wide enough to allow transport of records and equipment and should meet building and fire code standards.

**MICROGRAPHICS
PRODUCTION AREA**

A separate area should be set aside if microfilm operations are to be performed. The space should be large enough to accommodate all types of cameras and other equipment that will be used such as reader printers, processors, splicers, and darkrooms. Space for records to be processed and for personnel to perform administrative tasks should also be considered. Other considerations for this area include plumbing, ventilation, drainage, and special lighting requirements.

**PUBLIC SERVICE
AREAS**

Reference Room

A room for the use of records should be provided. It should be large enough to accommodate a reasonable number of researchers and records, as well as seating and tables for researchers. This area should be open to visual supervision by staff.

Meeting/Conference Room

A space large enough for workshops, training sessions, or presentations should be provided if such activities are anticipated.

ENVIRONMENTAL CONTROLS

PESTS

Good climate control, orderly arrangement, and sanitation will help prevent problems with pests and insects. Eating, drinking, and smoking should be prohibited in the records storage room and all areas where records are handled. Proper sealing of the exterior will help deter pests from entering the building. All holes or openings should be closed with steel wool and caulking compound. Intake vents for air conditioning should be screened. Trash containers should be located away from entrances to the building.

Periodic searches should be made for evidence of pest activity. If evidence, such as droppings, is found, sticky traps or some other type of zone monitor should be used. Traps or devices that use poison should not be used as the pests will likely die in an inaccessible place such as walls or ceilings. Consult pest control specialists for serious infestations. No measures should be taken that could be harmful to the records or staff.

INSECTS

Insects can be prevented from entering the building using the above mentioned methods of sealing the building. Prohibit house plants in areas where records are stored or serviced as potting soil attracts insects. Ivy, vines, or other vegetation on the building should be removed to prohibit insects. Keep plantings at least 6 feet from the base of the building, eliminate the use of mulch, and use crushed stone to landscape next to the building. Cockroaches and silverfish are the most likely insects to be a problem in the South. Silica gel can be used to deter both types of insects.

Avoid the use of pest control chemicals that are harmful to records or staff. Do not spray any chemicals directly onto records containers. Sprays should be used with extreme caution and only for localized outbreaks. Glueboard trays can be used for small outbreaks. Major infestations may require expert treatment.

FIRE PROTECTION

Damage done to records by vandalism, pollution or pests can usually be repaired. Fire damage, however, can be permanent and involves the entire contents of a records center or archives. Much can be done to minimize the chance of a fire starting or spreading. The most basic fire protection methods include fire prevention, detection, and control. Fire protection information throughout this handbook is taken from **Standards for the Protection of Records** (National Fire Protection Association, 232, 1991).

PREVENTION

Building construction should be fire-resistant or fire-proof. Buildings should be constructed using fire-rated walls, doors, ceilings and floors. The use of combustible materials in interior furnishings should be kept to a minimum.

DETECTION

Fire detection devices should be used throughout the building. There are several types of detection devices. They include the following: flame detectors, which respond to the flame stage of a fire; heat detectors, which respond to heat generated in the flame stage of a fire; and smoke detectors, which respond to the particles of combustion produced early in a fire. Smoke detectors are most appropriate for records storage.

There are two kinds of smoke detectors: photoelectric and ionization detectors. Photoelectric smoke detectors respond to smoke from flames. Ionization detectors respond to the presence of products of combustion. Ionization detectors are preferred. Ideally, a device that contains both types of detectors in one unit should be used.

Detection systems need to be tied into a signalling system that will alert the fire department either automatically or through an intermediary party such as a monitoring security system. The signalling system should automatically shut down the air conditioning system, open dampers in ducts, close fire shutters and doors, and indicate the location of the fire.

CONTROL SYSTEMS

Facilities should comply with all local fire codes and take additional precautions as needed. Effective fire control devices include fire extinguishers, fire hoses, and sprinklers.

Fire extinguishers are the first weapon against small fires. They can only be effective if they are: in working order; the proper type for the fire; easily accessible; and if the person handling them has been trained in their use.

Extinguishers should be high-pressure water or dry powder with a minimum classification of II A:10B:C. They should be of a weight and size that allows all personnel to handle them. Do not rely on small plastic fire extinguishers such as those suitable for home use. See the National Fire Protection Association's publications for more detailed information on types of recommended fire extinguishers.

Wall-mounted fire hoses should only be used by the fire department. In untrained hands they can cause severe water damage.

Automatic sprinkler systems are the best possible fire control system. Most fires occur during off-hours when no one is present to man fire extinguishers or hoses. An automatic sprinkler system, however, provides the fastest response possible to fire. Sprinklers actually use less water than fire department hoses, and thus cause less water damage. A sprinkler head releases 15 to 56 gallons of water per minute compared to a single fire department hose which releases 250 to 350 gallons of water per minute. Preactive dry pipe sprinkler systems are recommended.

In addition to these fire protection measures, electrical systems and lightning protection should be considered. Electrical systems should conform to the National Electric Code of the National Fire Protection Association (NFPA 70, 1993), and be regularly inspected and tested. Use flame retardant insulation and totally enclosed metal clad electrical fittings. A lightning protection system should be installed to safely

conduct lightning discharges to the ground. Lightning not only causes fires, it destroys equipment and damages structures.

BUILDING SECURITY

One of the primary functions of records centers and archives is to keep records safe and secure from a number of agents, including human ones. Security can be "built" into facilities with some planning. Paying attention to the grounds, limiting the number of windows and doors, and installing alarm systems are the first steps in establishing building security.

***GROUND*S**

The building should have free access around the perimeter. The area around the Center should be well lighted after dark. There should be no vegetation or man-made structures near the building that would allow access into or onto the building and landscaping should not obscure visibility to or from the building.

***WINDOW*S**

The number of windows should be kept to a minimum, and those present should be small in size and protected by glazing or metal bars. Windows should not be recessed or have overhangs which cannot be directly observed. There should be no windows in the records storage area.

***DOOR*S**

The number of doors should be kept to a minimum. They should be reinforced with a steel plate and have pick resistant dead-bolt locks. Fire doors should open only from the inside and external doors in the storage area should be limited to emergency exits. Doors should not be recessed so that they cannot be directly observed.

***ROOF*S**

All entrances to and from the roof should be secured. Roof lights and skylights should not be used.

ALARMS AND DETECTION SYSTEMS

Intrusion alarm systems designed to detect unauthorized entry should be used and continually monitored. Surveillance cameras and sensors may supplement the alarm system but should not be used in its place.

These guidelines cover some basic recommendations for both records centers and archives. Guidelines for records storage areas, equipment and supplies, specific environmental controls, and security of records vary somewhat for records centers and archives. Refer to the appropriate section for more information on these topics.

PART 2 STORAGE CONDITIONS FOR RECORDS CENTERS

In addition to the storage conditions mentioned in the previous section, records centers require special storage areas, disposition areas, equipment and supplies, environmental controls, and security measures.

RECORDS STORAGE AREA

The size and capacity of the storage area is based on the anticipated number of cubic feet of inactive records scheduled to be stored. The storage area will consist of standard records center shelving and records center storage cartons.

CARTONS

Standard-size cardboard storage cartons result in the maximum utilization of shelving and storage space. The majority of stored documents are letter (8 1/2" x 11") or legal (8 1/2" x 14") size. The standard carton (10" x 12" x 15") allows storage of both sizes. Smaller or larger boxes should be used only for odd-sized records. Cartons should have a minimum bursting pressure of 200 pounds. They should be stitched together on the fastening corner rather than glued. Cartons with single wall construction are acceptable, although double wall cartons are more durable and better able to withstand frequent handling.

SHELVING

The most common type of shelving used in a records center is the open stationary type. Other types of shelving are available but are not as cost-effective or as suitable to a Records Center. Shelving should be fire-retardant, steel-reinforced 18-22 gauge metal with a baked enamel finish. Standard shelf size for records centers is 42 inches by 30 inches. This accommodates three standard size (10" x 12" x 15") storage cartons left to right and two deep. Shelves may be spaced to accommodate two layers of cartons, each of which is 10 inches high. Shelving for odd-sized and oversized boxes should be spaced as needed.

The maximum recommended stacking height for standard 42 x 30 inch shelves holding 6 cartons per shelf is 14 shelves high. The top-most cartons and shelving should be completely clear of ceiling ducts, pipes, etc. Double units of shelves, with two units placed back to back, are the most efficient and practical arrangement of shelving. End tie clips should be used to anchor upright units when assembled in this fashion. Units should be fastened together with nuts and bolts for maximum stability.

Aisles between rows of shelving should be a minimum of 36 inches

apart and a maximum of 42 inches, with the latter width preferable. Main aisles should measure 4 to 6 feet wide to allow access to carts and hand trucks. Shelving should permit the free circulation of air around cartons. Bottom shelves should be a minimum of three inches, and preferably six inches, from the floor.

VAULTS

Microfilm and electronic media such as tapes and disks should be stored in a fireproof vault. Vaults should meet the requirements of the National Fire Protection Association for records storage vaults. Recommendations are given in the **Standards for Protection of Records**, (National Fire Protection Association 232, 1991). Vaults should also meet the requirements of Chapter 1B-26, Florida Administrative Code.

RECORDS DISPOSAL AREA

A disposal area which allows records scheduled for impending disposition to be removed should be considered. The disposal area should be kept separate from the areas where records are received or processed.

EQUIPMENT AND SUPPLIES

Among the most basic types of records center equipment are ladders and carts needed in order to both store and retrieve records. Due to the shelving requirements in records centers, there are special considerations in choosing this equipment.

LADDERS

The height of shelves in records centers will require the use of ladders for storage and retrieval. Ladders should have the following safety features; safety rails on both sides of the ladder; stair treads, preferably open-grid rather than rubber; a 12" distance between steps; a 10" to 12" deep work platform fastened to the top of the ladder to allow reference and re-filing; rolling casters for easy movement and rubber tipped legs or casters that lock in place; and a base wide enough to prevent tipping.

CARTS

Metal or fire-treated wood rolling platform carts are needed for the transport of records. Carts which are 15" x 10" and hold 20 standard storage cartons each are ideal for transporting records to and from the storage area. They should have swivel mounted wheels at one end and rigid wheels at the other for easy steering and maneuvering. All aisles, hallways, and doorways should be wide enough to accommodate carts. Smaller carts with a capacity of 2 to 6 cartons may be needed to transport records to the reference room.

CLIMATE CONTROLS

**TEMPERATURE
AND HUMIDITY**

Temperature and humidity are not factors that greatly affect paper records scheduled for destruction in several years. When records will be stored longer than fifty years, however, they should be protected. Microfilm and magnetic media have specific temperature and humidity requirements which are covered in the section on Records Storage Areas. The records storage area should be well ventilated and insulated. Forced-air ventilating systems, wall or roof turbines, and fans are recommended.

PHYSICAL SECURITY/ACCESS CONTROL

The records center should be the sole occupant of the building. The main entrance to the center should be monitored by facility personnel. Restricted areas should be monitored by people or devices such as doors that can only be opened by authorized personnel.

**REFERENCE ROOM
SECURITY**

Continuous surveillance of the reference room by staff is necessary. Patrons should be required to check briefcases, purses, or other containers and lockers or some other secure place should be provided for their storage. Items issued to patrons should be recorded and checked upon return.

SUMMARY

The effectiveness of a records center stems from the manner in which it is designed, constructed, organized and operated. In order to offer economical and protective housing of inactive records, a records center must take into consideration the use of low-cost space, equipment and supplies designed for the storage of inactive records. A records center should offer security against environmental hazards, fire, and theft. It should also store records in the most efficient way possible to ensure both cost effective storage and prompt and easy retrieval of inactive records.

**PART 3 RECORDS STORAGE CONDITIONS
FOR ARCHIVES**

Basic standards for the storage of archival records are provided for in Chapter 119.031 of the Florida Statutes, which states, "insofar as practicable, custodians of vital, permanent, or archival records shall keep them in fireproof and waterproof vaults, or rooms fitted with noncombustible material and in such arrangements as to be easily accessible for convenient use." The guidelines presented here are designed to further protect the public records of the state. These guidelines cover building layout, climate control, pest and insect control, equipment and supplies, and security.

BUILDING LAYOUT

RECORDS

This is a preparation room used for sorting, arrangement, re-boxing,

PROCESSING AREA

and re-folding records. It should be close to the storage area, receiving area, and administrative/office area. Doorways and aisles should be wide enough to allow transport of records and equipment. Shelving should accommodate records and processing supplies and work tables should be large enough to allow staff to process records. This area should be restricted to staff and records processed should be protected from excess solar and fluorescent light.

REFERENCE/ RESEARCH AREA

This area will be used by patrons and researchers. The room should be large enough to accommodate a reasonable number of record cartons, as well as seating and tables for patrons. Patrons should be under the visual supervision of staff at all times. The layout of the room should allow for such supervision. There should be only one public exit/entrance to the reference room and patrons entering and leaving the room should pass by a staff desk or office.

Windows should be kept to a minimum or eliminated in the reference room. Paper records can be harmed by exposure to solar light. Solar heat varies day to day, hour by hour. This fluctuation affects the overall temperature and humidity of the building, which in turn, affects the condition of the records.

Copies of original records should be made by staff only. If patrons are restricted from copying, forms for staff to process requests should be provided. Microfilm/fiche readers and printers are standard equipment. Shelving should be provided for reference books and materials. File cabinets and card drawers for finding aids should be considered.

GENERAL REQUIREMENTS

Storage areas should not be located below ground level unless there are adequate flood detection and prevention systems. Basements and walls below soil level should be tiled and waterproofed on the exterior to prevent water from seeping through to the interior. Floors in basements should be sealed with polyethylene film to prevent moisture and covered in concrete. Floor loads should support 300 pounds per square foot. Windows in the records storage area should be eliminated.

CLIMATE CONTROLS

THE NEED FOR ENVIRONMENTAL CONTROLS

Environmental controls are essential to the preservation and protection of an archive's collection. The goal of a heating, ventilation and air conditioning (HVAC) system is to maintain appropriate humidity and temperature levels, provide clean filtered air, and reduce the levels of pollutants in the area. Light, pests, insects, and mold can also effect records, and are in turn affected by the HVAC system. Maintaining

temperature and humidity levels as stable as possible is crucial for the preservation and conservation of archival material.

**CONTROL OF
HIGH HUMIDITY
AND
TEMPERATURE
LEVELS**

A combination of high temperatures and high levels of relative humidity can be very damaging to records. The emulsion on films can be softened and magnetic tapes can de-stabilize at high temperature and humidity levels. In addition, pests and insects flourish in a warm, moist climate. High relative humidity alone speeds up the rate of chemical reactions, causing coated papers to stick together and mold and fungus to grow quickly. Very low humidity rates, however, can result in brittle paper, vellum and leather. While both temperature and humidity need to be controlled, humidity can be a greater problem, especially in the South. The deterioration of records due to humidity can be seen within minutes.

High temperature levels can cause significant damage as well. Constant high temperatures speed up the decay of records. For every 18 degree rise in temperature, the deterioration rate of paper records doubles.

**CYCLING -
A DANGER
TO RECORDS**

Repeated fluctuations of temperature and humidity is the single most damaging threat to records. Fluctuations in temperature and humidity levels can cause physical distortion of records as they expand and shrink according to the varying levels. This process is called cycling. Repeated cycling can be more damaging than a constant temperature above or below the recommended level. Seasonal fluctuations are to be expected, but short-term and daily fluctuations should be minimized. Maintain stable temperature and humidity rates to avoid cycling.

**RECOMMENDED
TEMPERATURE
AND HUMIDITY
LEVELS**

The following table shows the optimal ranges for different types of records. Temperature and humidity should not fall below or exceed these rates.

Relative Humidity	Temperature
Paper: 40% - 50%	Paper: 65 - 70 degrees F (+/- 2 degrees)
Film: 30% - 40%	Film: 55 - 68 degrees F (+/- 2 degrees)
Leather: 45% - 50%	Electronic
Vellum: 40% - 45%	media: 68 degrees F (+/- 2 degrees)
Electronic	
Media: 30% - 40%	

The relative humidity should be between 45% and 50% and the temperature should be between 65 and 70 degrees in areas where different types of records will be stored. Materials frequently taken from storage should not be kept at a temperature lower than 60 degrees Fahrenheit or at a relative humidity lower than 45%. If materials stored under such conditions will be removed frequently, they should be allowed

to slowly warm up to temperatures outside the storage area so that condensation will not form on their surface.

MONITORING TEMPERATURE AND HUMIDITY LEVELS

Temperature and humidity should be monitored by taking daily readings of the varying levels. Readings should be taken in the storage areas, vaults and other areas where material is kept. Devices which can measure temperature and relative humidity are the hygrothermograph, psychrometer, and thermometer. Hygrothermographs will automatically chart a graph of fluctuations in temperature and humidity. Psychrometers and thermometers require staff to take readings and input data onto a chart.

The health and comfort of patrons and staff should be considered when setting temperatures. An ideal relative humidity rate for some records would not be ideal for respiratory health, nor would very low temperatures be conducive to research.

AIR POLLUTION

HVAC systems which service storage areas should be separate from the system servicing office areas and should be equipped with filters designed to remove dirt, harmful gases, and other solid particles from the air. Electrostatic filters should not be used in an archives as they generate ozone, which is harmful to archival materials.

Conventional fiberglass filters are acceptable in areas with low levels of sulfur dioxide and nitrogen dioxide. Filters should be checked and replaced regularly. The use of a vestibule can help keep excessive amounts of outside air from entering the building when placed in commonly used areas and revolving doors create air locks which keep unwanted air outside.

PEST AND INSECT MANAGEMENT

Pests and insects thrive on paper, leather, and pastes, all of which are found in archival records. Records should be examined for evidence of insect infestation or mold before they are put into storage. The damage that pests and insects cause in an archives can be severe. There is a specific approach to pest and insect control for archives, apart from the general recommendations mentioned in Part I, called Integrated Pest Management.

INTEGRATED PEST MANAGEMENT

IPM is an ecosystems approach to the control of pests. The goal of IPM is to solve pest problems using biological, cultural, and mechanical controls rather than chemical ones, so that neither the collection nor the staff are harmed. In an IPM program, elements essential to pests survival such as food, moisture, and habitat are minimized. The basic components of the program include:

<i>On-going Monitoring</i>	<i>Good housekeeping</i>
<i>Routine Inspection</i>	<i>Treatment action</i>
<i>Habitat Modification</i>	<i>Staff Education</i>
<i>Periodic Evaluation</i>	<i>Commitment from institution</i>

MOLD

The presence of mold generally means that the level of relative humidity is too high. For small amounts of mold, individual records can be treated. A bigger problem may require fumigation. Avoid the use of toxic chemicals if fumigating.

HOUSEKEEPING

Housekeeping practices should be conducted in the storage areas and throughout the building. Regular dusting and vacuuming will reduce the level of dust. Cleaning supplies should not emit any fumes harmful to records or staff and should be stored away from the records storage area. Make sure records near the floor will not be affected if wet supplies will be used, such as mopping or waxing fluids.

LIGHTING

Protect archival and library materials from the harmful ultraviolet rays of sunlight and fluorescent light. Light discolors paper and fades ink and pencil. Use incandescent lights rather than fluorescent ones. When fluorescent lights are used they should be outfitted with ultraviolet-filtering shields. These shields are available in sheet form or sleeves which can be fitted onto bulbs. Sleeves and shields need to be changed every 7 to 10 years. Light in the storage area should be kept at a minimum. Lights should not be continually kept on in storage, and timed shut-off lights should be considered in the storage areas.

EQUIPMENT AND SUPPLIES

SHELVING

Fixed or stationary library and industrial shelving is most suited for storage of archival materials. Shelving should be heavy gauge steel with a load bearing capacity suitable for records storage. Wood shelves, bookcases, and filing cabinets are not suitable for storing archival materials. Shelving should be fire-treated and have either a baked- enamel or powder-coated finish.

Arrangement of shelving units should permit the free circulation of air around records containers. Shelves should not be placed directly against exterior walls and should be on a base four to six inches from the floor. Shelving should be clear of all ceiling pipes and fixtures. A minimum of twelve inches between the top shelf and the ceiling is recommended. Do not store records above the top shelf. Units of shelving should be bolted to adjacent units as well as to the floor and should be supported by braces. Shelves should be vertically adjustable to accommodate different sizes of containers. Shelving width varies from 36 to 48 inches and in depth from 10 to 40 inches.

If books will be stored in the reference or storage areas, use library shelving, which is thirty-six inches long and nine inches deep.

Oversize materials such as blueprints and maps may require map cases. Cases should also be heavy gauge steel with a baked enamel or powder coated finish. Drawers should not be more than two inches deep. Aisles between shelving should permit the use of carts or trucks.

CONTAINERS

All boxes, envelopes, folders, mat board or other paper used to store records should be acid-free and buffered to have an alkaline reserve with a minimum pH of 8.5. Archival storage containers should not contain groundwood or alum-rosin sizing.

Paper clips, staples, and other fasteners made of metal should not be used with archival records. They should be removed from records before they are placed in storage. Plastic substitutes are available. Plastics should be inert, chemically stable, and free of chlorinated plasticizers. Use plastic items such as polyester, polyethylene, and triacetate.

PHOTOGRAPHS

Acid-free paper or approved plastic sleeves and envelopes should be used with photographs. Avoid the use of envelopes with center seams and always insert photographs with the emulsion side away from seams. Store albumen prints (ca. 1865-1895) in paper envelopes without pH buffering or in inert plastic sleeves. Photographic materials should ideally be stored away from paper records.

MICROFILM

Store microfilm on non-corrosive metal or inert plastic reels placed in acid-free boxes. Use strips of alkaline paper with strings to keep film on reels, instead of rubber clips. Microfilm should ideally be stored away from paper records.

PHYSICAL SECURITY

REFERENCE ROOM SECURITY

The reference room should be designed to permit continuous surveillance of the room by personnel. Patrons should be required to check briefcases, purses, or other containers, and a secure place should be provided for their storage. The quantity of items issued to patrons at one time should be limited, recorded and checked upon return.

Patrons should record their use of the archives by signing a guest register or some other means of registration. All records of patron use (call slips, forms, register, etc.) should be maintained at the archives.

Patrons should take notes using lead pencils, not ink pens. A policy regarding patron use of typewriters or portable word processors should be stated and a general code of conduct for patrons should be considered.

COLLECTIONS SECURITY

Archival materials should be sufficiently cataloged, accessioned, and described so that repositories can identify missing items. There should be an effective method of recording the issue and return of records so that their location is always known. If possible, documents should be insured to reflect current market value. Acquisition and accession records should be microfilmed and stored in an off-site area. Access to storage areas should be restricted to staff and the number of staff allowed access to the storage area should be kept to a minimum.

SUMMARY

The archives facility exists to house and protect records. Its location, design and construction should be based on the needs of historical records preservation. The permanent preservation of historical records means they must be handled and stored with extreme care. Archives should offer protection from the hazards of excessive fluctuations of temperature and humidity, contamination by dust, dirt, and pollutants, insect and pest infestation, improper handling and storage, fire, and theft. Equipment and supplies used around archival records must be of archival quality so that they do not harm the records. Special attention must be given to the storage conditions of all record media, whether paper, film or magnetic media.

DISASTER PLANNING

Records centers and archives need to offer complete protection of the records they store, even in the event of a disaster. In order to do so, they should have a disaster plan in place and participate in disaster contingency planning. The latest disaster to hit Florida, Hurricane Andrew, was a very real reminder that disasters do happen and that the only weapon against them is preparation.

The following excerpt from An Ounce of Prevention: A Handbook on Disaster Contingency Planning for Archives, Libraries and Records Centers, summarizes the concept of and need for a disaster plan. For more detailed information on disaster planning, refer to the bibliography of this handbook.

"Disaster Contingency planning is founded on the premise that disasters can and will occur. No amount of precaution can reduce this risk to zero. Therefore, it is incumbent on the disaster Contingency planner to ask not only how disasters can be prevented, but also what can be done when they do occur. A disaster may result in extensive damage and long-term consequences or it may be comparatively small with minor losses. The disaster situation may be confined to your institution alone or may impact on nearby buildings. Conversely, the damage to your institution may be secondary effects from a disaster nearby.

Whether it be a flood, a fire, an earthquake or a hurricane, a disaster may result in injury, death and destruction. To deal with this threat to life and property, the plan must aim to keep losses to a minimum and articulate a course of action for the staff. Above all, the safety of human life must take precedent when formulating the priorities of the plan. No previous artifact is worth more than a human life.

The disaster Contingency plan of any institution must outline how its staff should respond when faced with a disaster. Of prime concern are the procedures for the safe evacuation from the building of staff and users. The plan should include phone numbers and addresses of those people, services and organizations who can provide assistance during and after the disaster. The plan will supply information necessary for the salvage of damaged materials. In addition to the technical aspects of salvage and restoration, the plan must take into account the human element; imagination, leadership, cooperation, and levelheadedness.

The formulation of a plan is no easy task. It must be custom designed and take into account all the factors peculiar to the institution. Endorsement of the project by management and the governing body, such as the Board of Directors is essential. A commitment of adequate resources must be made to support the research, coordination and preparation of the plan as well as

the implementation of new policies and procedures where necessary. Management must recognize that the time required may be considerable. In the case of major institutions such a project may take several years. One person should be appointed to oversee the formulation of the plan. This individual should be familiar with the internal organization of the institution and the conservation of library, archives and record materials. This person may, depending on the institution, be an archivist, librarian, records manager, or conservator. A committee(s), with the coordinator as head, may be useful to assist with the research and organization.

It will be necessary to consult all key personnel within the institution, as well as to establish a network of outside resources. This will require investigation of many areas of expertise from administration to fire safety. In some areas, it may be possible to make broad generalizations and in others detailed research must be done. It should be noted that the planner may be involved with confidential information and therefore, access to parts of the plan should be restricted. The plan should also be prepared in consultation with the appropriate authorities, such as the fire marshall and insurance agent, both of whom should receive final copies of the plan. If these parties are fully aware of such planning, an atmosphere of trust should develop which will greatly facilitate salvage operations...

[Federal] and local...legislation must be investigated in order to evaluate its impact on such areas of concern as insurance, fire regulations, and building design. It should be noted that in the event of major catastrophes an institution can be designated by certain authorities as an evacuation shelter. Local suppliers of emergency equipment and facilities should be contacted and a list drawn up. Above all, a human network of conservators and salvage specialists must be established and maintained.

However, disaster contingency planning does not end here. The plan must be distributed to key personnel and its existence made known throughout the institution. Members of the disaster team, in particular, must have up-to-date copies and be familiar with their responsibilities as outlined in the plan. Copies should be kept on-site, as well as off-site in the homes of key personnel. As well, lists of essential telephone numbers (i.e. police, security, members of the disaster team) must be posted in the security and maintenance departments. The plan must be periodically updated, preferably each year, to reflect changes in personnel, suppliers, technology and laws. Conservators may retire or change their place of work. Suppliers may go out of business or relocate. Technological progress may render obsolete certain conservation and salvage techniques now in use. New laws and regulations may be passed which affect the plan.

If the plan simply gathers dust at the back of a filing cabinet, all the efforts that have gone into its preparation will have been to no avail. Indeed,

there is a certain danger that the plan may provide an illusion of preparedness which, in fact, may not be there when disaster strikes. To avoid such false security, someone within the institution must be appointed to disseminate the plan, revise it periodically, and ensure that all personnel know their roles and responsibilities."

¹ Lesso, William G. "The Effect on Building Costs Due to Improved Winds Resistant Standards," **Hurricanes and Coastal Storms**, pp. 109-114, Gainesville, Sea Grant. College Report no. 33, 1980.

² Trinklet, Michael. Preservation Concerns in Construction and Remodeling of Libraries: Planning for Preservation. Chicora Foundation: Columbia, SC, 1992.

ACIDITY: The quality in paper which causes its chemical degradation to the point that it becomes discolored and brittle and will ultimately fall apart. Usually expressed as pH value.

ACCESSION: 1) The procedures involved in transferring legal title and taking **records** into the physical custody of an **archives** or **records center**. In records center operations transfers of title are not involved; 2) The materials involved in such a transfer.

ADMINISTRATIVE VALUE: The usefulness of records for the conduct of current and/or future administrative business.

ARCHIVAL QUALITY: Term used to designate records media (paper, microfilm) and related supplies (inks, folder, fasteners) as suitable materials for creating and storing records of permanent value. Such materials must be stable and free of acid or other chemical contaminants.

ARCHIVES: 1) **Records** which are no longer required for current use but have been selected for permanent preservation because of their **historical value**; 2) The agency responsible for selecting, preserving and making available records of permanent value; 3) The place (room, building, or storage area) where archival records are kept.

CONSERVATION: The component of **preservation** that deals with the physical or chemical treatment of records.

CYCLING: The physical distortion of records as they expand and shrink based on fluctuations in temperature and humidity.

DISASTER PLAN: A document which sets out the measures to be taken to minimize the risk and effects of disasters such as fire, flood, or earthquake, etc. and to recover, save and secure **vital records** should such a disaster occur.

DISPOSITION: The actions taken with regard to **inactive records** such as destruction or transfer to an **archives**.

ELECTRONIC RECORDS: Refers to various technologies used for the storage of digitized information.

ENVIRONMENTAL CONTROLS: The creation and maintenance of a storage environment for records to ensure preservation. Controls include temperature, relative humidity, air quality, lighting, elimination of pests,

housekeeping, security and protection of records from fire and water.

FLOOR LOAD: The capacity of a floor area to support a given weight expressed in terms of pounds per square foot.

HISTORICAL RECORDS: Records that contain significant information about the past or present and are therefore worthy of permanent preservation and systematic management for research.

HISTORICAL VALUE: Information about the present or past that makes the record worthy of permanent preservation for research.

HYGROTHERMOGRAPH: Instrument for recording the fluctuation of temperature and relative humidity which creates a graph of the fluctuations over a given period of time.

INACTIVE RECORDS: Records that are used less than once a month and are suitable for low-cost storage outside of the immediate office.

INTEGRATED PEST MANAGEMENT (IPM): An ecosystems approach to pest control which uses biological, cultural and mechanical controls rather than chemical ones.

IONIZATION DETECTORS: A type of smoke detector which responds to the presence of products of combustion.

HUMIDITY: The concentration of moisture in the atmosphere. See **Relative humidity**.

MAGNETIC MEDIA: A storage medium consisting of a polyester base and a metallic coating on which data is stored by selective magnetization of the surface of the coating, such as computer tapes and disks, and video and audio-tapes.

MICROFILM: Reduced scale, photographic records of documentary materials which require special environmental storage controls.

PERMANENT RECORDS: Records considered to be so valuable or unique in documenting the history of an organization, person, or place, that they are preserved in an archives.

PHOTOELECTRIC DETECTORS: A type of smoke detector which responds to smoke from flames.

PRESERVATION: Actions taken to slow or prevent the deterioration or damage of archival records. Basic actions taken to provide adequate facilities for the protection, care, and maintenance of archives and records.

PROCESS: Preparation of records prior to their use by the public, which involves sorting, arrangement, re-boxing and re-foldering.

PUBLIC RECORDS: Records that are created or received by a public agency in the normal course of its business and which are open to public inspection.

RECORDS: Recorded information, regardless of physical form or characteristics of the medium (e.g. paper, photograph, sound recordings, or computer-generated, machine readable records) made or received by an organization to fulfill its legal obligations or to transact business.

RECORDS CENTER: A facility designed and constructed to provide low-cost, efficient storage and **reference** service of inactive records.

REFERENCE: The range of activities involved in providing information about or from records in archives and records centers, e.g., making records available for access and providing copies or reproductions of records.

REGISTER: The process of formally recording patron information, such as name and address, in a log.

RELATIVE HUMIDITY: The ratio, expressed as a percentage, of the amount of water-vapor present in the atmosphere to the amount required to saturate it at the same temperature. Relative humidity varies with temperature.

VITAL RECORDS: Records which are essential for the ongoing business of an agency, and without which the agency could not continue to function effectively. Vital records need to be identified and stored under special environmental controls.