

# ARCHIVES FACILITY CONSIDERATIONS

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## Establishing the Archival Environment:

The entire archives area (closed stacks, processing/research room, hallway, and offices) will require a separate computer-monitored archival quality HVAC system, independent of the building's main system. Ideally there will also be a backup generator. Refer to ISO11799 Standards for Archives. The HVAC unit, because of the water lines, cannot be located in the Archives itself. It should also not be located in an unsecured public area. At best the unit will be secured in a closet or room easily accessible by Facilities staff so that it is not necessary for them or service people to enter the Archives. The goals of an archival environmental system include:

- Maintaining stable conditions of temperature and RH within specified ranges, which may require vapor barriers for walls, ceiling and floors. Since the conditions of the areas will differ (the storage room with the shelving has no windows or equipment emitting heat, while the processing room does), there must be separate thermostats/hygrometers;
- Removing gaseous and particulate pollutants from incoming air;
- Achieving sufficient air exchange and movement to remove collection-generated volatiles and avoid creating pockets of stagnant air;
- Assuring safety to materials in the event of failure with a backup system and careful location of pipes, vents, doors, lighting, etc.;
- Ability to safely move materials from one area to another without risking exposure to drastic environment changes in temperature and relative humidity which can cause cellular structural damage.

Keep in mind that it is the 'fluctuations' in temp/humidity that cause structural damage to archival materials. Archival HVAC units, such as those made by Leibert, consist of pre-heat, chilling, and re-heat and are controlled by computer with the ability to print out reports of operation, fluctuations, etc. (Liebert units were installed). The HVAC must be able to maintain:

- Temperature at 68 degrees F  $\pm 2$  degree;
- Relative Humidity at 45 percent  $\pm 2$  percent;
- Air pollutant maximums used by National Archives -
  - a. Sulfur dioxide – Stacks  $2.7 \mu\text{g}/\text{m}^3$  1 ppb; Processing  $13 \mu\text{g}/\text{m}^3$  5 ppb
  - b. Nitrogen dioxide - Stacks  $5 \mu\text{g}/\text{m}^3$ ; Processing  $25 \mu\text{g}/\text{m}^3$
  - c. Ozone – Stacks  $4 \mu\text{g}/\text{m}^3$  2 ppb; Processing 13 ppb
  - d. Formaldehyde – Stacks  $25 \mu\text{g}/\text{m}^3$  25 ppb; Processing  $61 \mu\text{g}/\text{m}^3$  49 ppb
  - e. Acetic acid - Stacks  $50 \mu\text{g}/\text{m}^3$  10 ppb; Processing n/a

## Archives Closed Stacks/Storage Room:

- SpaceSaver compact shelving to be purchased from Walter Thompson Company. The fixed end should be attached to the inside wall of the room, thereby allowing good air circulation for the two outside walls. Walter Thompson will provide specifications for the floor which must be able to hold weight when shelves are fully loaded. Do not install tiles or carpet under the shelving rails. (The solution of slanting the floor from the stacks to the door, rather than recessing the rails, is unfortunate)
- Security – The double doors will be locked (double bolt locks) each evening. Keys to those doors should be separate from the building's master key. Cleaning crew should not have access without staff present. Keys should be limited to archivists, Chancellor, Archbishop, and the Facilities office.
- Fire protection – Fire detection, smoke detectors, fire safe walls and doors should meet NFPA910 Safety Standards for Libraries. If considering a fire suppressant, it must of course be safe for materials and humans. With sprinkler systems, it is important that sprinkler heads operate independent of each other. The fire alarm system, as well as the HVAC system, ideally would be tied to an outside agency or alert someone after hours in the event of an emergency. (Dupont FM-200 waterless system installed)
- Lighting – Must be UV, infrared radiation safe. Can use fluorescent lights with low UV emission bulbs. 20-40 foot candles (200-500 lux) recommended for closed stacks with ultraviolet light at a maximum of 10 microwatts per lumen. Also install multiple switches so that lights can be turned off/on in zones over the stacks or only over the entry area. (Zoned LED lighting was installed)

- Paint walls with UV absorbing zinc white or titanium dioxide (this was not done). Avoid oil based paints. Do not install ceiling tiles.
- Carpeting may be installed in the entry area of the room (Linoleum was used). Entry area will house 53.75”w x 41.6”d map case and shelving. There will also be a 2’ x 7’ long table in the middle of the area. (The resulting slanted floor presents problems; had to build a level platform for the map case.)

### **Hallway:**

Walls will be used to hang art work and exhibits. The door leading outdoors in particular must be tightly fitted so that there is no draft that will affect the stabilization of the environment in the hall. Area will require appropriate vents with dampers the same as the other two areas. Archival materials will be constantly moved back and forth from the stacks and processing areas through the hallway and as a result will require archival climate control. A bell or buzzer should be attached to the stairway door to announce that someone has entered the area. An alarm must also be attached to the emergency door going outside in the event there is an attempt to break it open or leave from that exit. (The hallway was not appropriately designed to be part of the archives as requested. It divides the space in half which requires that doors must be kept closed at all times; therefore a separate HVAC system will later have to be installed in the hall ceiling; space has old water sprinklers)

### **Archives Processing/Research Room:**

The area is to be used for multiple purposes, including processing, cataloging, preservation, filing, scanning, exhibits, research, workshops, and meetings with PowerPoint presentations.

- Install environmentally safe carpeting with no out-gassing. Must be compact enough to easily roll book carts and dollies.
- Run computer and electrical connections under carpeting so that computers and scanners can be used on the tables in the middle of the room. (Wall outlets were installed, many inaccessible behind cabinets)
- Front desk will require computer connections. Preservation Environmental Monitor (PEM) software to be installed on that computer. (Grant request submitted for PEM was denied: will resubmit next year)
- Fire/smoke alarms and protection as in stacks area. (Dupont FM-200 waterless system was installed)
- Lighting for the processing room is the same recommendation as for the closed stacks. UV light levels also the same. Have multiple switches for zoned ceiling lights. Use dimmers over work areas when additional illumination is needed for detail work and research. (LED lights installed, but no dimmers).
- Use UV absorbing paint.
- If windows do not have high UV protection, Mylar film can be applied to the windows and blinds installed so that 95% to 98% of the UV light is reduced. (Film was installed on all windows)
- Will reuse some shelving from present Archives. Need 2 to 4 four-drawer lateral file cabinets.
- The only additional piece of furniture required is a large table that can be used primarily for processing and viewing documents. It must accommodate large format materials, such as posters and architectural drawing folders (largest size is 40”x50”; opened 80”x50”), and provide enough space to sort materials. 4’ x 10-12’ would suffice. There must be enough space around tables to allow passage of book carts and the placement of chairs. (Acquired the Archbishop’s old boardroom table, and later a large copier)

### **Offices:**

- The smaller office will require new furniture, including a desk and processing table.
- A low glassed-in window with blinds should be placed in the wall of the smaller office overlooking the research area. (The interior window was not installed)

### **Building Acclimatization:**

Before archival materials can be moved into the newly renovated area, the internal environments must stabilize, which usually takes about four weeks (with a longer period for the stacks). Air handlers should be in continuous exhaust mode during the acclimatization period to reduce the level of pollutants. Air filters should be changed before materials are moved to the new space. Avoid using building materials such as unsealed concrete, self-leveling floor compounds, biocides, ammonia, vinyl, unstable PVCs, mercury, lead, sulfur, cellulose diacetate or acetate fabrics, acid-curing silicone sealants and adhesives, etc. Complete list provided upon request.

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