

Adjunct Storage Facility
Facility Program – Volume II



June 28, 2012

Timothy D. Baker
Maryland State Archives
350 Rowe Blvd.
Annapolis, MD 21401
410-260-6402
tim.baker@maryland.gov



Table of Contents – Volume II

Purpose of the Project

Project Scope

Space Requirements – Description of Each Element

Proximity Diagram

Applicable Codes

Design Specification Guidance

Archival and Special Collections Facilities – Guidelines for Archivists, Librarians, Architects, and Engineers (Draft) Society of American Archivists, August 3, 2008.

Archival Storage Standards Directive, National Archives and Records Administration (NARA 1571), February 15, 2002

Planning New and Remodeled Archival Facilities, Thomas P. Wilsted, Society of American Archivists, 2007

Archives II, Using Technology to Safeguard Archival Records, National Archives and Records Administration, College Park, MD.

Program and Specifications, Maryland State Archives, Annapolis, Maryland. DGS Project No. BA-767(2) revised / updated April 1981.

Rayner, Judith; Kosek, Joanna; Christensen, Birthe, "Art on Paper: Mounting and Housing." Archetype Publications in Association with the British Museum.

Note: The publications under copyright to the Society of American Archivists have been purchased in sufficient quantity for inclusion into this program document. If additional copies are needed, contact the Archives. Other articles used by permission.



Purpose of the project

1. To provide long-term preservation of permanent record material and the state's fine art collections in temperature and humidity controlled environment;
2. To consolidate the storage of permanent record material and fine art collections;
3. To provide for the care and preservation of permanent electronic record material and stand up adequate disaster recovery / business continuity infrastructure for critical, permanent electronic record material; and
4. To provide adequate access to the public through processing and scanning of record material;
5. To provide for the care and preservation of the State's fine art collection through conservation treatment.

Project Scope

This project contemplates the acquisition of an existing 170,000 + warehouse facility on the open market. The facility will then be renovated to provide appropriate levels of temperature and humidity controls and will be retrofitted with records center shelving from the existing warehouses and compact shelving to be acquired as part of the renovation.

In our timeline featured in Volume I we have shown some renovation work overlapping with renovation design. This is because we are hoping that we can begin the process of building out compact shelving in one portion of the building while design and then installation of HVAC and other renovations proceed. Following installation of compact shelving, we will begin the process of transferring existing records to the new facility. At the same time we propose de-constructing the existing records center shelving at each of the warehouses and reconstructing it in the new facility. This would take place over the course of a one year period using prison labor.

By utilizing a mix of compact shelving and leveraging our existing investment in existing records center shelving, we will be able to accommodate records currently housed at all of our warehouse facilities and will have enough space for anticipated records transfers through FY 2027.

General Characteristics of the Facility / Architectural and Environmental Considerations



The purpose-built archives is designed and built with many unique criteria including:

- o Constancy of temperature and relative humidity. In order to achieve the desired storage conditions, the Archives adjunct facility needs to be designed with the utmost consideration given to the development of mechanical systems that can adhere to rigorous environmental conditions. Specifically, the storage areas maintain stable and constant temperature and humidity levels;
- o Proper air filtration to remove pollution and such contaminants as mold spores. The ability of the mechanical systems to effectively remove particulate matter such as mold spores and other pollutants such as gases is particularly important;
- o Sturdy construction with adequate load bearing and the ability to deal with extreme conditions such as tornadoes and hurricanes;
- o A maximum fire rating for walls, roof, columns, floors etc., and minimum of combustible materials;
- o Specialized fire detection and protection for the storage areas;
- o Avoidance of many materials and finishing products that may be common to other facilities but may be damaging to records and art;
- o Adequate vapor barriers and insulation to inhibit moisture infiltration and to reduce thermal gain or loss;
- o A minimum number of windows and doors;
- o Adequate security including perimeter security; internal access and control systems; motion detection and security cameras.

The facility would include the following elements:

<u>Element</u>	<u>SF</u>
Records Storage	115,000
Records Processing	2,500
Electronic Archives	5,000
Cold Storage	2,000
Artistic Property	10,000
Staff	1,426
kitchen / lunchroom	200
Scanning Storage	600
Research Room	1,000



Reception Area	195
Conference Space	500
Large Object Storage	5,000
Loading Dock	300

The Artistic Properties program will require a total of 10,000 square feet broken down as follows:

Fine Art Storage	8,000
Fine Arts Conservation Lab	1,000
Fine Arts Processing	1,000
Total	10,000

The total amount of space that will be required for staff is 1,426 square feet.

Activity	SF
Archivist / Deputy	250
Records Processing / Reference	
Professional Supervisor Private (1)	126
Professional Supervisor open (1)	120
Professional Open (5)	450
Scanner operator	
Professional Supervisor Open (1)	120
Operators (4)	360
total	1,426



As outlined in the table of contents, the next section of this Volume will describe the characteristics of each individual spatial element of the facility. Following that section are a series of “Design Specification Guidance” documents which provide substantial additional information to provide direction to the consultant to be hired to superintend the design and renovation project.

Additional documentation is provided in the form of the *Program and Specifications* document developed by the Department of General Services in April of 1981 to guide the design of the current Archives building in Annapolis. Much of the general design specifications and functional relationships remain the same so we thought this, too, may be of assistance.



Space Requirements: Description of each Element

Space: Records Storage

Area: 115,000 NSF

Capacity: 390,000 cubic feet

Function: Archival storage for the State's permanent record material.. The calculations for the GSF / NSF of this proposed facility were based on known records in custody by cubic feet and the estimated accretion of 13,000 cubic feet of record material per year for roughly 15 years. The assumption was made that the new facility would utilize a combination of the same type of compact / movable shelving at the existing archives building and reconstructed records center shelving taken from the existing rented warehouses.

Equip. (Fixed): To maximize space efficiency, the Archives recommends that a portion of the stack areas be constructed of the same type of compact shelving used at the Edward C. Papenfuss building in Annapolis. These mobile, high density units double the storage capacity of any given space by eliminating aisle space. Space conservation should be a consideration not just for the economic benefits of reduced construction costs, but also for environmental reasons. Mobile shelving offers environmental benefits by reducing ongoing energy requirements. More importantly, the tightness with which records are stored actually helps maintain their stability. Finally, they also aid in the retrieval of items given that less energy needs to be expended to get to the record material. To leverage existing investments in regular records center shelving, the Archives would also suggest that the shelving presently used at our rented warehouses, be taken down and reconstructed at the new warehouse. While this will entail considerable labor, we hope to be able to utilize work crews from the prison system to keep the cost reasonable.

Equip. (Movable): Storage and retrieval records carts and trucks; steps ladders

Utilities: A review of the lighting and fire detection / suppression systems would be in order.

Telecomm: Data jacks (or wireless) for computers

Special Req.: Solid floor with minimum floor vibration for high density shelving.



Space: Records Processing

Area: 2,500 NSF

Capacity: NA

Function: Records being accessioned in to the Archives need to be processed before they reach their permanent home in the stacks. Processing tasks may include appraisal work, re-boxing, indexing, location assignment and generally relate to preparing the record material for the stack storage.

Equip. (Fixed): Work space counter-tops with cabinets below for storage. Overhead cabinetry for additional supplies and materials.

Equip. (Movable): Records transfer carts, trucks

Utilities: As required by the Design Specifications Guidance documents

Telecomm: Voice and data jacks as required by the Design Specifications Guidance documents

Special Req.: Supplementary ventilation / exhaust to ensure reduction of dust particles. Flooring to be solid tile.



Space: Electronic Archives

Area: 5,000 NSF

Function: This space will be utilized as a server room / data storage facility.

Equip. (Fixed): Redundant uninterruptible power supplies (flywheel technology preferred owing to environmental concerns over battery banks) supported by an appropriately sized diesel generator located outside of the facility; redundant, high density precision cooling designed for data center usage.

Equip. (Movable): Application and database servers, storage arrays; switches; routers; firewalls to be purchased separately i.e., not part of the project. Funds are only sought for fixed equipment.

Utilities: Dual feed, 600 amp each of 480 volt service brought to two separate distribution panels within the space.

Telecomm: Dual path 50 gigabit connection to NetworkMaryland

Special Req.: Flywheel UPS connected to emergency backup generator located outside.

NOTE: Funding request is for infrastructure only i.e., Power Feeds, UPS, Generator, cooling and network connectivity to DoIT Network Maryland. Servers and storage will be funded separately. Archives currently has use of a large server room at UMBC. As equipment there becomes obsolete, it will be replaced with equipment to be housed at the new Archives.



Space: Cold Storage

Area: 2,000 NSF

Function: Walk-in cold storage to house recorded tapes, film negatives, glass plate negatives and sealed containers holding objects with extensive mold infestation. Specifications (e.g., digital thermometer, insulation valves, automatic defroster settings, tapped seams, vapor proof lighting and shelving / storage arrangements) to be developed by consultant.

Equip. (Fixed): Compact shelving.

Equip. (Movable): None

Utilities: 25 degrees, plus or minus 2 degrees; 30% relative humidity plus or minus 5%; power receptacles and appropriate lighting as recommended by consultant.

Telecomm: None.

Special Req.: Dry-pipe sprinklers to protect material against smoke and water damage or other system as recommended by consultant;

Monitoring alarm to notify significant temperature fluctuations;

42-inch wide lockable door with external light switch;

Chamber at entrance to space for purposes of re-acclimating material before use or circulation; emergency release on inside of door so people will not be locked in the space.



Space: Artistic Property Storage

Area: 8,000 NSF

Capacity: NA

Function: Museum quality storage for fine art collections and possessions. Objects include paintings, furnishing, statuary, works on paper, miniatures, decorative arts, manuscripts, and various miscellany ranging from chandeliers to textiles.

Equip. (Fixed): Compact storage is also the preference in this space. “Screens” or art painting “racks” shall be used for vertical storage of such items as paintings. Flat filing systems shall be deployed for items needing to be stored in horizontal arrangements. The type and quantity of compact storage devices will be determined by the consultant working with the Archives staff analyzing the inventory of artistic property and special collections. Fixed cabinetry will also be appropriate for items such as silver.

Equip. (Movable): “A-Frame” painting carts; carts for small objects; furniture dollies; J-Bars for moving crates.

Utilities: HVAC as defined in Design Specification Guidance documentation

Telecomm: Data

Special Req.: Mist fire suppression system or other appropriate system as recommended by consultant, Steel doors at entrance ways as well as more rigorous security generally should be applied in this area.



Pictures courtesy Maryland Historical Society and the Baltimore Museum of Art. Shown are types of correct storage and some of Maryland's art treasures (sculptures).



Space: Artistic Property – Conservation Lab

Area: 1,000 NSF

Capacity: NA

Function: The conservation lab in the space in which the conservator performs the examination, conservation, and preservation of our artistic treasures using any methods that prove effective in keeping that property in as close to its original condition as possible for as long as possible. Lab space is much different from office space in that it requires much more allocated space per technician. Special care should be given to identifying a consultant resource familiar with design of art conservation laboratories.

Equip. (Fixed): Fixed cabinetry along perimeter of space for adequate housing of materials and supplies; chemical storage cabinets (two) to separate incompatibles (cabinets need not be very large); Cabinetry to have doors and adjustable shelving inside. 20 open shelves 18 x 30; Mobile “Trunk” fumigation hood; Secured storage.

Equip. (Movable): Large, heavy duty work surfaces on wheels: Work Benches with adjustable height capability; Flattening table; Camera stands; standing / adjustable light stands; Drying rack; Easels for objects of varying sizes; Water filtration system

Utilities: A conservation lab requires more electrical service than an office workspace. Receptacles should be both fixed in the walls around the room as well as hung from the ceiling for ease of access. Adjustable, mobile lighting - - color-balanced fluorescent lighting (e.g. Verteray, Verilux) sufficient to provide 100 foot candles at the work surface (37" above floor).

Water: 6' X 4' X 6" (I.D.) sink with square corners, constructed of 14 gauge #315 stainless steel, the bottoms creased to a 1.5" #316 stainless steel drain. There should be an (approximately) 8 inch deck at one of the short sides (the deck will be located at the wall) and the drain should be located in the center of the short side opposite the deck. There should be no convex protrusions on the bottom. There should be a 2.5" standpipe, also of #316 stainless steel. The work surface (ie the floor of the basin) should be 38" high. Fixtures: The faucet and head should be a tin-lined gooseneck with a tubing-attachment unit. An empty space of roughly 3' x 3' immediately adjacent to the sink is required for rented water ionization and filtration system.

An eyewash station should be installed.

Telecomm: None



Special Req.: Entrance to the lab should be through secure, heavy duty double doors. At least one of the doors should be able to swing 180 degrees open.

Space should be designed with flexibility in mind. As much as possible, fixed objects should be avoided and only placed against walls where they will not interfere with moving workspaces around. Space should be as open as possible with no support columns, beams or other architectural features that might limit the ability to reconfigure the space.

Space must be designed with high ceilings (concrete) capable of suspending in place a variety of equipment including trunk fumigation hood device; lighting that is flexible and adjustable e.g., can be moved down closer to object; suspended camera to capture images of the artwork.

Steel doors at entrance ways as well as more rigorous security generally should be applied in this area. Space should be alarmed and equipped with security cameras.

Space to be surrounded by (to the extent practical) half height walls with glass partition above the base to allow work in the lab to be viewed from the outside. Ideally, a portion of the walls to the adjoining Conservation Processing Area could be movable.

Flooring to be tile.



Space: Artistic Property - - Processing Area

Area: 1,000 NSF

Capacity: NA

Function: Processing area immediately outside of the conservation lab performs a variety of functions: receiving and unpacking of objects, unsecured storage of objects, materials and supplies; non-laboratory work spaces for conservators.

Equip. (Fixed): Large, heavy duty work surfaces on wheels: Work Benches (quantity 2) footprint 25 SF accessible from all four sides, 80 feet of access total footprint 210 SF. Work benches should have adjustable height.

Individual workstations for three conservation technicians open to the area layout of the processing area without wall or partition separation. Work surfaces (42" w x 84" l x 29" h) with mar resistant surface top. Should also include lockable drawers beneath work surface and lockable closed cabinetry 24" above the work surface.

Shelving: Deep Shelving 10 units 36" x 42"
Open shelving 15 units 18" x 30"
Closed lockable shelving 6 units 18" x 30"

Equip. (Movable): Computers, one printer, one large format plotter, book trucks, "A Frame" carts Rolling storage for large format rolls of materials such as tyvek. Large format flat file storage e.g., similar to map cases (on wheels)

Utilities: 100 foot candles of light at task level surfaces 12 linear feet of countertop with small utility sink and base cabinets with storage area below and wall cabinets above on wall 24" above cabinets. Units at least 12" deep with lockable doors.

Telecomm: Standard telephone and data jacks.

Special Req.: Flooring to be tile; acoustical ceiling tiles.



Staff 1,426 NSF

Staff spaces were calculated based on DGS published office space standards. The total amount of space that will be required for staff is 1,426 square feet. Below is a summary of the requirement followed by a detailed breakdown by activity.

Activity	SF
Archivist / Deputy	250
Records Processing / Reference	
Professional Supervisor Private (1)	126
Professional Supervisor open (1)	120
Professional Open (5)	450
Scanner operator	
Professional Supervisor Open (1)	120
Operators (4)	360
total	1,426



Space: Archivist / Deputy State Archivist

Area: 250 NSF

Capacity: NA

Function: Office to be used by the Archivist and Deputy State Archivist as agency heads.

Equip. (Fixed): NA

Equip. (Movable): Desk, desk chair, computer, phone, two guest chairs, two book cases

Utilities: As required by Design Specification Guidance

Telecomm: Voice and data as required by Design Specification Guidance

Special Req.: None.



Space: Records Processing / Reference Staff

Area: 696 NSF

Capacity: NA

Function: The records processing / reference staff receive material brought in to the archives and prepare them for transfer into the records storage space. The staff also perform the research and retrieval functions on behalf of other staff, other agencies and the public. In keeping with accepted archival practice, staff desks that are used for detailed research and interpretation are maintained separate and apart from processing and storage areas.

Equip. (Fixed): Book Shelves and cabinetry

Equip. (Movable): Modular furniture including desks, chairs, computers, guest chairs.

Utilities: As required by the Design Specification guidance documents.

Telecomm: Voice and data jacks as required by the Design Specification guidance documents.

Special Req.: Carpeting, acoustical ceiling tiles and other sound attenuation finishings.



Space: Scanner Operators

Area: 480 NSF

Capacity: NA

Function: The scanner operators digitize the permanent record material to make it available to the public and other governmental agencies. In doing so, they also perform an important archival preservation function by helping to ensure that the permanent record is circulated to a minimal degree.

Equip. (Fixed):

Equip. (Movable): One large format sheet-fed scanner; one large book-cradle scanner; one small book-cradle scanner, two high speed paper scanners; one high-speed microfilm scanner; computers, servers and storage arrays attached to scanning devices; Movable tables / work surfaces with adjustable height, chairs

Utilities: Uninterruptable power supply should feed all scanning and image capture servers

Telecomm: fiber connectivity to the server room

Special Req.: adjustable light levels

No ambient light



Space: Kitchen / Lunchroom

Area: 200 NSF

Capacity: NA

Function: Eating in proximity to record material can never be tolerated. A small lunchroom will help ensure that records are protected.

Equip. (Fixed): Built-in cabinets and counter-top, sink.

Equip. (Movable): Refrigerator, microwave, tables and chairs.

Utilities: Deep, heavy duty sink with disposal including base cabinetry with doors and adjustable shelves; at least 15' of countertop space; wall hung cabinets above the base.

At least 30 foot candles of light at task level service.

Telecomm: None

Special Req.: Tile flooring



Space: Scanning Storage

Area: 600 NSF

Capacity: NA

Function: No record material should ever be left out in the open or staff areas after business hours. The scanning storage environment will be used to temporarily house record material that is being prepped for, or awaiting, digitization.

Equip. (Fixed): NA

Equip. (Movable): Records transfer carts and trucks

Utilities: 80 foot candles of light

Telecomm: None

Special Req.: Locking double doors



Space: Research Room

Area: 1,000 NSF

Capacity: NA

Function: Staff, patrons and other state and local government agency personnel use the Research Room as their work space when visiting an archives. Research room is to be secure and only accessible from the Reception area. Visitors should not have direct access to the stack areas.

Equip. (Fixed): Open shelving for reference books.

Equip. (Movable): Researcher tables should be designed with security (especially visibility) in mind. Generally the researcher tables should constrain the visitor to a minimum amount of record material. Average work space of 7.5 SF per researcher. The research tables should be shared by at least two people per table.

Two 30" high tables on wheels so that they can be put together when there is a need to handle over-sized materials such as maps.

Circulation desk designed to be clear to visitors that this station controls access to the collections. The desk should provide security camera monitors.

Computers and printers

Walk-up, self service scanning device

Utilities: Standard receptacles at each researcher desk.

80 foot candles of light at work surface.

Telecomm: Data network connectivity to each researcher desk.



Special Req.: Floor to be carpeted, acoustical ceiling tiles and other sound attenuation should be designed in to the space. In the Annapolis facility, the constant flow HVAC provides sufficient “white noise” to keep conversations from interrupting other visitors.

Records Processing and Reference staff offices should be located immediately adjacent to this space and shall be accessible through the Research Room. Half-height walls with glass partitions above to ceiling too provide staff with the ability to survey and monitor activities in the Research Room.

No visual barriers to provide clear field of view for staff to monitor the space.

Security cameras to provide complete coverage of visitor work spaces and should be placed so as to be conspicuously present as a deterrent.



Space: Reception Area

Area: 195 NSF (as defined in Office Space Standards)

Capacity: NA

Function: The main entrance to the facility is the first impression a visitor will have, so the lobby area must be aesthetically pleasing as well as being functional.

Equip. (Fixed): Built-in receptionist desk and check-in area. The reception area must provide access to amenities required for visitors (cloakroom, small waiting area, rest room facilities) Cloakroom and twenty lockers are required because visitors are not allowed to bring briefcases, coats or other items in to the Archives. As a deterrent to loss of archival material, all visitors must sign in and register as a patron, presenting a photo ID.

Equip. (Movable): Chair, computer, cash register

Utilities: 80 foot candles of light.

Telecomm: Voice and data as required by Design Specification Guidance

Special Req.: Because this will be a minimally staffed facility, the main entrance will need to have a door bell / buzzer to announce the arrival of a visitor. The visitor will then be greeted and sign in at the receptionist desk.

Entrance to the building should be through two sets of double doors with an appropriately sized vestibule in between to provide adequate air lock. Effort should be made to preclude as much unconditioned air from entering the facility as possible. Shoe cleaning mats should be designed in to the vestibule to minimize debris coming in the building.

Floor surface in this area to be carpet. Acoustic ceiling tiles.



Space: Conference Room

Area: 500 NSF

Capacity: NA

Function: Multi-purpose space will be used for conferences, meetings and as a lecture room for staff and visitors. Space will also be used as overflow space for visiting staff and volunteers

Equip. (Fixed): Audio-visual overhead projector; drop-down projection screen.

Equip. (Movable): Computer workstations (15); white-board; tables and chairs

Utilities: Adequate electrical receptacles should be distributed throughout the room proximate to the computer workstation locations.

Telecomm: Adequate network infrastructure distributed throughout the room proximate to the computer workstations.

Special Req.: Flooring to be carpeting; acoustical ceiling tiles and wall treatments to create appropriate multi-use environment.

Variable lighting levels should be provided.

The area should also accommodate visual exhibits / displays.

Locate near the lobby, kitchen / lunchroom and relate to staff areas.



Space: Large Object Storage

Area: 5,000 NSF

Capacity: NA

Function: Separate and distinct from large objects in the artistic property collections, the Archives must accommodate some very large objects not currently in use. While this space does not require the rigorous temperature and humidity controls of the stack spaces, the space needs to be served by regular building HVAC. This space will also serve as a secure temporary storage/receiving area off the loading dock that is separate from collections storage and work/prep areas so as not to introduce pests into collections storage areas. Objects typically must spend at least 24 hours to acclimate to new conditions before they are unpacked.

Equip. (Fixed): Pallet rack shelving (9 units to be moved from existing facility).

Equip. (Movable): Pallet Jacks; electric fork lift, furniture dollies, hand trucks, records transfer carts.

Utilities: Standard receptacles and appropriate plug for electric fork lift. High efficiency lighting as recommended by consultant.

Telecomm: None

Special Req.: Non-skid sealed concrete floor surface.

High concrete ceiling with no drop down acoustical tiling

Large, heavy duty double doors opening at a full 180 degree radius

Space to be adjacent to loading dock.



Space: Loading Dock

Area: 300 NSF

Capacity: NA

Function: This space represents the interior temporary storage / receiving area immediately inside the loading dock doors to be used as a space for preparing materials to be shipped or received. This space must be climate controlled.

Equip. (Fixed): None

Equip. (Movable): None

Utilities:

Telecomm:

Special Req.: Non-skid sealed concrete floor surface. No drop ceiling

The Loading Dock must include the following:

- o Must be covered and climate-controlled and used only for deliveries. Loading dock should not be used as regular point for staff egress.
- o Loading Dock should be enclosed with a dock leveler to accommodate different types of vehicles and weight capacity.
- o Ideal height of raised loading dock: 4 feet
- o Provide entrance and egress, as well as turning radius, for tractor-trailer units of 80+ feet in total length.
- o In an enclosed dock plan for 14 feet clear height for tractor-trailer units, plus two or more feet for overhead lighting or ductwork.
- o Plan for tractor-trailer units of 102 inches in total width – 15-18 feet for proper maneuvering.
- o Trailer bottom clearance is 8 inches, ramps must be designed to avoid high-centering.
- o The dock must be level for the trailer at the stop point (52+ feet).
- o The dock must be well lighted.
- o Provide a hose bib connection and drainage at dock.
- o If the dock is completely enclosed, provide for adequate ventilation for diesel engines.
- o Provide striping on ramp for safe backing, and bumpers on the dock end for safe parking.
- o Provide a dock plate for trailer to dock unloading.