

# FACILITIES CRITERIA (FC)

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## NAVY MUSEUMS AND HISTORIC RESOURCE FACILITIES



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**FACILITIES CRITERIA (FC)**

**NAVY MUSEUMS AND HISTORIC RESOURCE FACILITIES**

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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEER CENTER

Record of Changes (changes are indicated by \1\ ... /1/)

<b>Change No.</b>	<b>Date</b>	<b>Location</b>



## FOREWORD

Facilities Criteria (FC) provide functional requirements (i.e., defined by users and operational needs of a particular facility type) for specific DoD Component(s), and are intended for use with unified technical requirements published in DoD Unified Facilities Criteria (UFC). FC are applicable only to the DoD Component(s) indicated in the title, and do not represent unified DoD requirements. Differences in functional requirements between DoD Components may exist due to differences in policies and operational needs.

All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (HNFA), and in some instances, Bilateral Infrastructure Agreements (BIA.) Therefore, the acquisition team must ensure compliance with the most stringent of the UFC (replace w/ FC), the SOFA, the HNFA, and the BIA, as applicable.

Because FC are coordinated with unified DoD technical requirements, they form an element of the DoD UFC system applicable to specific facility types. The UFC system is prescribed by MIL-STD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applicable to the Military Departments, Defense Agencies, and the DoD Field Activities. The UFC System also includes technical requirements and functional requirements for specific facility types, both published as UFC documents and FC documents.

FC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and the Air Force Civil Engineer Center (AFCEC) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent office by the following electronic form: [Criteria Change Request](#). The form is also accessible from the Internet site listed below.

FC are effective upon issuance and are distributed only in electronic media from the following source:

- Whole Building Design Guide web site <http://dod.wbdg.org/>.

Refer to UFC 1-200-01, *General Building Requirements*, for implementation of new issuances on projects.

### AUTHORIZED BY:



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**FACILITIES CRITERIA (FC)  
NEW SUMMARY SHEET**

**Document:** FC 4-760-10N, *Navy Museums and Historic Resource Facilities*

**Superseding:** None

**Description:** FC 4-760-10N, *Navy Museums and Historic Resource Facilities* represents an effort to establish uniform design and construction standards for Naval History and Heritage Command (NHHC) facilities including public museums, artifact storage and curatorial spaces, archives, secure archives, and administration. These standards will cover new construction, leased facilities and repair projects.

**Reasons for Document:**

- Many existing facilities are inadequate in size and condition, with insufficient heating, ventilating, and air conditioning systems. Many existing facilities are not conducive to the proper conservation, preservation, and storage of rare and historic archives, books, art and artifacts. Current storage conditions do not meet standards for collection management and risk permanent damage to artifacts.

**Impact:**

- Single, comprehensive, up-to-date criteria and standards will help to produce facilities that provide a safe, economical, and energy efficient environment for visitors, artifacts, historical documents, and art. These facilities will preserve and provide access to naval history and heritage for present and future generations.

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## CHAPTER 1 INTRODUCTION

### 1-1 PURPOSE AND SCOPE.

This FC provides requirements for evaluating, planning, programming, and designing two facility types:

- Navy Museum – Protects and displays precious naval artifacts, documents and art portraying the Navy’s rich military history and offers visitors, including Navy personnel, their families, retirees, recruits and the general public, an important glimpse into their cultural heritage.
  - Plans, designs, and fabricates exhibits and displays.
- Historic Resource Facility (HRF) – There are several functional areas which are included in HRFs. Although HRF is listed as a facility type, its functional areas may be co-located within a single facility or built as separate structures. See Chapter 2 for additional planning information. HRFs serve the following functions:
  - As an archive depository that consists of operational and administrative records of SECNAV, fleet, major commands, and other organizations and individuals stored in paper, microform and electronic form.
  - As a library to hold collections of books, journals, maps, charts, records, and other valuable items deemed important to the Navy for the purpose of research, analysis, and writing about naval history and related topics as well as for the purpose of preserving important icons of the Navy’s heritage.
  - Executes the responsibilities of the Director of NHHC/Curator of the Navy and ensures proper documentation, cataloging, accountability, and preservation of historical art, property, artifacts, and collections.
  - Develops and administers exhibit programs, including collecting, selecting, and researching exhibit materials.
  - Manages and oversees historical underwater archaeology, conservation projects, and activities that relate to the Curator of the Navy.

The information in this FC applies to the design of all new construction projects, to include additions, alterations, and renovation projects.

This FC is organized to provide the data and criteria needed at each stage of the project development process. It also applies to the procurement of design/build services for the above noted projects. Alteration and renovation projects should update existing

facilities to meet the guidance and criteria within budgetary constraints. Some Core UFCs provide guidance and requirements on renovation and alteration projects relative to thresholds and triggers. A list of the Core UFCs is included in UFC 1-200-01, *General Building Requirements*. This FC is not intended as a substitution during design for thorough review by individual program managers and operations staff.

## **1-2           APPLICABILITY.**

This FC is intended as a source of basic architectural and engineering information for all individuals involved in the planning, design, construction or evaluation of museums and historic resource facilities. Architects and Engineers (A/Es) that provide design services will use this FC under the direction of NAVFAC. Installation and facility planning personnel will use this FC, in conjunction with other required planning documents, for programming new or replacement facilities, pre-design planning, or assessing the extent of improvements required in an existing museum or historic resource facility in order to achieve the standard established herein.

## **1-3           GENERAL BUILDING REQUIREMENTS.**

Comply with UFC 1-200-01, *General Building Requirements*. UFC 1-200-01 provides applicability of model building codes and government unique criteria for typical design disciplines and building systems, as well as for accessibility, antiterrorism, security, high performance and sustainability requirements, and safety. Use this FC in addition to UFC 1-200-01, as well as the UFCs and other government criteria referenced therein.

## **1-4           STANDARDS.**

Museum and Historical Resource Facility standards are critical to ensure the longevity of historical artifacts and to share U.S. naval history with the public. Museums and HRFs are not the Navy's typical operational facilities. These facilities require a unique set of standards to allow the Navy to meet its mission. The intent of this FC is to reference existing standards to the greatest extent possible, supplemented by new standards for these facilities which have unique requirements. Where conflicts occur between additional referenced documents, this FC will have precedence.

### **1-4.1       National Archives and Records Administration (NARA).**

NARA standards are the guiding documents for the following functional areas which are included in this FC:

- Navy Museums – Archival Processing
- Navy Historic Resource Facilities – Archives, Library, and Histories, as well as for common functional space shared by these groups

NARA 1571 directive establishes structural, environmental control, fire safety, preservation, and security standards for archival storage conditions in NARA archival facilities. 36 CFR, Chapter XII, Subpart B, 1234.10-14, Facility Standards for Records Storage Facilities establishes civil, architectural, structural, environmental control, and fire safety standards for records storage in NARA storage facilities. 36 CFR 1234.20

explains what rules apply if there is a conflict between NARA standards and other regulatory standards that a facility must follow.

**1-4.2 National Park Service Title 36 – Parks, Forests, and Public Property, Part 79 (36 CFR 79).**

For purposes of this FC, 36 CFR 79, Curation of Federally-Owned and Administered Archaeological Collections, is federal law and therefore also applies to the artifacts and underwater archaeological collections under the jurisdiction of the NHHHC.

The regulations in this part establish definitions, standards, procedures and guidelines to be followed by Federal agencies to preserve collections of prehistoric and historic material remains, and associated records, recovered under the authority of the Antiquities Act, the Reservoir Salvage Act, Section 110 of the National Historic Preservation Act or the Archaeological Resources Protection Act.

**1-5 HISTORIC PRESERVATION COMPLIANCE.**

**1-5.1 Stewardship.**

The Department of Defense remains a leader in the federal government in balancing new construction projects with the protection of historic properties. According to SECNAVINST 4000.35A, “The DON is a large scale owner of historic buildings, districts, archaeological sites, ships, aircraft and other cultural resources. Protection of the components of the nation’s heritage is an essential part of the defense mission, and the DON is committed to responsible cultural resources stewardship.” The Department of Defense abides by federal legislation on protecting cultural resources, and issues its own complementary policies for stewardship.

**1-5.2 Compliance with Laws.**

Museum and Historic Resource Facility projects related to existing facilities on or eligible for the National Register of Historic Places must comply with federal laws regarding cultural resources including the National Historic Preservation Act and the Archaeological Resources Protection Act. Navy personnel need to determine possible adverse effects upon an historic structure and/or archaeological resource during project development and consult accordingly. The Navy is required to identify, protect and nominate historic properties to the National Register of Historic Places. NAVFAC HQ develops policy statements and other forms of guidance, maintains and interprets data, and produces reference and promotional materials.

**1-5.3 Compliance with DoD Standards.**

Conversely, historic preservation compliance does not negate the requirement to implement DoD policy. Federal agencies are always the decision maker in the Section 106 process of the National Historic Preservation Act. Navy Cultural Resource managers work directly with naval installations, state historic preservation offices and other interested parties to implement the Section 106 process.

**1-6 MUSEUM ACCREDITATION.**

One of the goals set forth in OPNAVINST 5450.342 for the NHHC's outreach mission is to sustain a fully accredited "Smithsonian class" Navy museum network. Use of this FC will provide facilities that meet requirements of the American Alliance of Museums' *National Standards and Best Practices*. Note that museum accreditation by the American Alliance of Museums involves a wide range of issues beyond planning and facility-related requirements such as a Code of Ethics, fundraising, and other operational needs.

**1-7 REFERENCES.**

Appendix A contains a list of references used in this document. The publication date of the code or standard is not included in this document. In general, the latest available issuance of the reference should be used.

**1-8 RESOURCES.**

Appendix B contains additional resource materials for planners and designers of Museums and Historic Resource Facilities.

**1-9 GLOSSARY.**

Appendix C contains acronyms, abbreviations, and definitions.



## CHAPTER 2 PLANNING AND LAYOUT

### 2-1 PLANNING CONSIDERATIONS.

The content of Chapter 2 provides guidelines and information needed for planning and programming Navy Museums and Historic Resource Facilities. Development planning and the programming of facility space and other requirements may be different for each project depending upon the unique factors regarding each facility. Review applicable programmatic requirements based on facility location, master plan development, landmark status, or site security requirements that may be part of larger site context requirements.

### 2-2 SPACE CRITERIA.

Museum and Historic Resource Facility space needs are site and mission specific and must be individually programmed based on a facility study. Actual size must be determined during the planning phase using UFC 2-000-05N (P-80), *Facility Planning Criteria for Navy and Marine Corps Shore Installations* and UFC 3-101-01, *Architecture*.

### 2-3 FACILITY REQUIREMENTS.

In developing the space program for an individual facility, consider the issues of overall building design and relationships discussed in Chapters 3, 4 and 5. The adjacency diagrams at the end of Chapter 2 do not indicate sizes of spaces. The diagrams should be used as guidance for space functional relationships including adjacencies and flow.

### 2-4 FACILITY TYPES.

- Museums.
- Historic Resource Facilities.

### 2-5 MUSEUMS.

Each museum should be planned and sized based on the mission of the facility, the type and size of the planned collections, and the projected audience. Most museums have non-government organizations (NGO) which should be included in the planning, design and operations of revenue-generating spaces. These spaces may include, but are not limited to: parking, museum store, theater, food service, and special events area(s). See Figure 2-5, Museum Adjacency Diagram, for additional guidance.

The goals of museum planning are:

- to provide space and facilities that are both aesthetically pleasing and effective in preserving and interpreting museum collections for museum visitors;

- to establish and/or maintain an institution which can perform these functions efficiently and sustainably.<sup>1</sup>

## **2-5.2 Site.**

### **2-5.2.1 Location.**

Visibility, access, and convenience are all contributing factors to the success of a museum. If possible, locate public museum facilities outside the secured perimeter of the base to enable unrestricted public access. If located on base, the museum should be readily accessible from the main entrance to the base. Locate museum facilities near existing transportation alternatives to provide various options for visitors. A museum's location along a prominent thoroughfare or in a key district of a community, such as a housing, shopping, or recreational area, increases its visibility to its audience. If the museum has multiple buildings, locate the museum and resource facilities near each other to reduce travel time between buildings and to minimize potential exposure of collections. Consider desirable natural site features such as terrain. Existing natural site features may be incorporated into required site elements like antiterrorism standoff distances or vehicle barriers that may help to blend the facility into the natural setting of the site. Though it may not be possible in certain areas, it is desirable to have the museum located above the 500 year flood plain or have critical artifacts protected to this level. See Chapter 3 for minimum design requirements.

### **2-5.2.2 Size.**

It is desirable to have a minimum level terrain site area of approximately two or three times the gross area of the building. This size will allow for proper truck access to loading dock areas, parking and other site features such as attractive landscaping and monuments. More area may be needed if the site has any special features, such as natural ravines, existing specimen trees, or rock outcroppings to be preserved. The loading dock will serve as a space for material shipping and receiving, as well as a place for building waste removal. When sizing, consider shipments and large collection items that will enter the facility through the loading dock. A preliminary site design should be prepared to ensure the basic building and site criteria can be accommodated. Site size should provide for future expansion, if practical.

### **2-5.2.3 Access.**

New construction, additions, and renovations of existing facilities must be designed and constructed to meet accessibility requirements of the Architectural Barriers Act Accessibility Standard (ABAAS) for DoD Facilities. All functional areas must be barrier-free and accessible to persons with disabilities. Site and building designs should enable persons with disabilities to act independently and enjoy the full range of programs provided. Level changes may be included but must be accommodated by ramps suitable for wheelchair users, both indoors and outdoors. Include access to all areas

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<sup>1</sup> B. Lord, G. Dexter Lord, L. Martin, "Museum Planning" in *MANUAL OF MUSEUM PLANNING*, 3rd Edition, 2012

and facilities, including staff and work areas, restrooms, water fountains, and communication devices.

Consider service road access for loading dock/service entrance and emergency vehicles. Along with parking area(s) and service road, consider group tour bus drop off area(s) with the access planning. When possible, provide two (2), two-way access drives to separate service vehicles/truck access from privately owned vehicle parking area access. Provide bicycle racks in a secure location near the facility entrance.

### **2-5.3 Building Service Areas.**

Provide an interior off-loading area separated from the remainder of the building by a second overhead coiling door to accommodate the staging and delivery of materials and collections. After the items have been processed, they will proceed either to the collections or the exhibit areas. Minimum size of the overhead coiling door is 8 ft. (2.4m) wide by 8 ft. (2.4m) high, but larger sized doors may be required based on the size and type of collection materials. To accommodate the movement of items, the loading dock must be connected to each of these other spaces by corridors which have the same minimum width as the overhead coiling door. All interior doors and openings along these access routes must accommodate a minimum height dimension equal to the height of the overhead coiling door. The general collections storage space is required to be adjacent to the loading dock. To minimize the possibility of contamination of exhibits and collections due to a common path with the trash, locate a trash room separated from, but accessible to the loading dock. If the loading dock is used to receive food, provide a separate path of travel for food items to the food service area, thereby isolating museum exhibits and collection storage areas.

### **2-5.4 Public/Private Areas.**

Separation between public and non-public, more secure spaces should be a planning consideration for museum facilities. Public functions, including exhibition halls, theaters, food service, public toilets and museum store should be located near the main building lobby. Elevators should be visible from the main entrance.

#### **2-5.4.1 Public Areas.**

##### **2-5.4.1.1 Lobby.**

Plan for all visitors to enter the museum through one common entrance unless the size of the facility and expected visitor count require a separate bus/group entrance. Visitor areas should be continuously monitored by the facility's video surveillance system. Provide space for possible security desk and screening equipment. If possible, provide queuing space in front of security/inspection stations inside lobby.

##### **2-5.4.1.2 Museum Store.**

The museum store must be in close proximity to the main entrance and lobby. Provide adjacent office for museum store manager, storage area and packing area.

#### **2-5.4.1.3 Toilets.**

In addition to public toilets, provide family toilets in the same area. For facilities where high visitation by children is anticipated, consider child-size toilet fixtures and mounting heights in family toilet. Provide drinking fountains in this area.

Provide separate staff-only restrooms in non-public areas of the building.

#### **2-5.4.1.4 Visitor Services.**

Plan visitor services area to include coatroom, storage for loaner wheelchairs, strollers, or walkers, and possible first aid room. Consider providing locker storage for visitor accommodation. Include display and storage space for printed materials for visitors, easily accessible to front visitor reception counter. Locate visitor services adjacent to lobby and public toilets.

#### **2-5.4.1.5 Food Service.**

Any requirement for food service must be approved under a coordinated business financial management plan. Food service operations for each facility should be determined based on mission and projected visitor needs. Food service may range from vending machines/self-service café to full-service restaurant. Food service should be located adjacent to the lobby or special events area. Consider location of food service to allow for outdoor dining space as well as convenience to the education space. Food service must be separated from collections storage areas.

Locate separate catering kitchen and beverage vault adjacent to main food service facilities in order to isolate food preparation, storage, and service areas from the museum exhibits and collections. The catering kitchen should be zoned for possible after-hours use.

#### **2-5.4.1.6 Theater.**

Theater should be sized and designed based on the museum exhibits, mission and expected visitor count. The theater should accommodate large presentations and varied media viewing. It should incorporate fixed seating, a focal point stage or platform, projection room, and AV systems. Theater location should be adjacent to lobby, special events area and exhibits, with the option for after-hours use.

Consideration must be given to NFPA 101, Life Safety Code<sup>®</sup>, compliance regarding lobby design relative to required egress width from the theater.

#### **2-5.4.1.7 Special Events Area.**

Consider providing a space adjacent to the lobby which can function as a gathering space for larger group events such as change-of-command and retirement ceremonies, youth and educational functions, receptions and parties. This space can also serve as an exhibition hall for museum displays which provide a “wow-factor” and an enticing introduction to the overall museum collections. This area should be zoned to allow for after-hours use.

#### **2-5.4.1.8 Exhibit Space.**

The exhibit areas should consist of minimal fixed items. Recommend involvement of an exhibit designer early in the design process. Planning considerations which must be decided early in the process include the following:

- Determine if there will be fixed walls and/or panels.
- Determine if there will be an exposed or finished ceiling design (e.g. black or white box, high or low bay).
- Determine if the exhibits will follow a linear progression or an open plan.

Exhibit space should have a minimum clear ceiling height of 12 ft (3.7m).

#### **2-5.4.1.9 Education Space.**

Provide classroom space to educate young adults and children in naval history through special programs and outreach activities. Provide large, flexible space with folding partitions to accommodate smaller groups. Larger museum facilities may include Science, Technology, Engineering and Mathematics (STEM) laboratories, possibly located throughout the museum near specific exhibit areas. Provide outdoor education space if possible. The education space should be zoned to allow for after-hours use.

#### **2-5.4.2 Private Areas.**

##### **2-5.4.2.1 A/V Room(s).**

Locate near exhibit space and theater. Multiple A/V Rooms may be required based on exhibit layout.

##### **2-5.4.2.2 Exhibit Production/Maintenance Spaces.**

The size and functions within exhibit production and maintenance spaces will vary depending on whether exhibits are produced off-site or in-house. In-house exhibit production may require planning for separate spaces for the following functions:

- Tool Room
- Sign and Framing Shop
- Lighting Shop
- Metal Shop
- Project Assembly Room
- Dust Collection Room

##### **2-5.4.2.3 Collections Storage.**

Collections storage should be located near exhibit space as well as the shipping/receiving area. If a freight elevator is required, it should be located in close

proximity to the collections storage area. The collections storage area must be located remotely from any break rooms, vending areas or food service operations.

#### **2-5.4.2.4 General Storage.**

Provide storage space for building maintenance supplies. Provide storage space for furnishings and equipment required for functions in the special events area and the catering kitchen.

#### **2-5.4.2.5 Mechanical/Electrical.**

Provide a buffer between mechanical and finished public space to prevent potential problems of noise, vibration and odors.

#### **2-5.4.2.6 Office Space.**

Design administrative space for long-term flexibility and possible future re-configurations. Open plans, with a high use of workstations rather than closed offices, have a greater degree of efficiency and flexibility, and provide easier distribution of heating, cooling and natural light to the work areas. Where private office space is required, consider the use of demountable partitions for flexibility. Provide administrative support space adjacent to offices including conference rooms, training rooms, copy/mail rooms, file rooms, and supply rooms. Provide staff break room with refrigerator, microwave and sink. Follow planning guidance and criteria per UFC 4-610-01, *Administrative Facilities*.

### **2-6 HISTORIC RESOURCE FACILITIES (HRF).**

Historic Resource Facilities should be planned and sized based on the site and mission-specific functions of the facility. Functional areas that may be a part of this facility include Administrative Space, Archives, Library, Histories, Artifacts, Art, and Underwater Archaeology. See Figure 2-6, Historic Resource Facilities Adjacency Diagram, for additional guidance.

#### **2-6.1 Administrative.**

Provide administrative and support space (break rooms, copy rooms, conference space, supply storage rooms) for the Historic Resource Facility. Note that a planning goal is to share as many administrative and support spaces as possible depending upon which functional groups are combined in one building. For example, Archives office space may be combined with Histories and Library office space if these functions are within one facility. Likewise, if NHH Command Administration shares space in the HRF, common administration and support spaces may be shared with one or more of the other functional areas. Follow planning guidance and criteria per UFC 4-610-01, *Administrative Facilities*.

## **2-6.2 Archives.**

Navy Archives mission is to collect, preserve, arrange, describe, catalog and make available for use the official documents, personal papers, and oral histories relating to the US Navy and Navy personnel. See Figure 2-7, Archives, Library, and Histories Adjacency Diagram, for additional guidance.

### **2-6.2.1 Archives – Office Space.**

Provide general administrative office space including reception area for Archives visitors. Locate adjacent to research area for unclassified documents. Locate adjacent to exterior walls to allow for windows and daylighting. Consider a separate staff entrance to reduce disruption to researchers in the reference and research areas.

### **2-6.2.2 Archives – Classified Receiving.**

Provide secure, open and flexible space adjacent to Loading Dock, Archives – Decontamination Area, and Archives – Classified Processing.

### **2-6.2.3 Archives – Decontamination.**

Provide a secure classified space for the inspection and decontamination of archives prior to entering the HRF. Note that unclassified materials may be handled in this classified space. Two separate decontamination spaces are not required for unclassified and classified decontamination. Locate adjacent to Archives - Classified Receiving and Archives - Classified Processing.

### **2-6.2.4 Archives – Declassification.**

Provide a secure classified space to be used for mandatory declassification reviews of archival materials. Locate adjacent to Archives – Classified Research.

### **2-6.2.5 Archives – Classified Research.**

Secure Archives includes space for classified document research. This secure space should be located near Archives – Office Space, Archives - Classified Archives Storage, Archives – Declassification.

### **2-6.2.6 Archives and Library – Unclassified Research.**

Provide a shared public research space for unclassified Archives and Library documents. This space should be located adjacent to the Entry, Archives – Office Space, and Library – Reference and Circulation for more convenient public access.

### **2-6.2.7 Archives – Unclassified Archives Storage.**

Archives include space for unclassified archives storage. This space should be located adjacent to the Archives - Classified Processing, Archives – Unclassified Cold Storage, and Archives – Classified Storage.

### **2-6.2.8 Archives – Classified Archive Storage.**

Secure Archives includes space for top secret archival storage. This secure space should be located adjacent to Archives – Classified Processing, Archives – Classified Cold Storage, and Archives – Unclassified Storage. Classified Archive Storage should be located near Archives – Office Space, Archives – Classified Research, and Archives - Declassification.

### **2-6.2.9 Archives – Secure Space.**

Secure Space is a compartmented area located within Classified Archives Storage. Include JWICS access. Refer to the section in Chapter 3 entitled, “Physical Security Requirements” for additional security requirements for this space.

### **2-6.2.10 Archives – Cold Storage.**

Provide Archives – Cold Storage in a central, easy-to-access location due to heavy use of this functional area. Research and Reference areas should be adjacent, but separate. Provide both classified and unclassified Cold Storage for negatives, photos, microform, motion recordings and sound recordings.

## **2-6.3 Library.**

Navy Department Library is the only functional group that allows visitors direct access to research materials. The library should be located at the front of the facility because it requires the most public interaction. The library must have controlled access via a single location which includes inventory control sensors. Follow library planning guidance and criteria per UFC 4-740-20, *Libraries*. See Figure 2-7, Archives, Library, and Histories Adjacency Diagram, for additional guidance.

### **2-6.3.1 Library – Reference/Circulation Area.**

Provide reference/circulation area located adjacent to the main entry, book stacks, and Archives and Library - Unclassified Research Room. Rare books/special collections room and restricted research room should be located within clear visible sight from the reference/circulation area.

### **2-6.3.2 Library – Books Stacks.**

Provide space for the book stacks located centrally in the space adjacent to the Reference/Circulation area and within easy access to the Archive and Library Unclassified Research Room.

### **2-6.3.3 Library – Rare Books/Special Collections Room.**

Provide separate room for rare books and special collections with restricted access and alarm system. The rare books/special collections room should be located adjacent to the Restricted Research Room.



**2-6.3.4 Library – Restricted Research Room.**

Provide restricted access research room located adjacent to the rare books/special collections room. This room should have interior windows visible from the circulation desk for monitoring.

**2-6.3.5 Library – Cataloging Area.**

Provide cataloging area adjacent to or within the office space.

**2-6.3.6 Library – Office Space.**

Provide general administrative office space for library staff with exterior windows for daylighting and views if possible.

**2-6.4 Histories.**

Histories functional group researches and analyzes printed, artifact and oral sources as evidence for articles, reports, monographs and published books. Provide additional space in Historian Office area for numerous bookcases and storage cabinets. Provide separate room for Histories microform viewing and storage. Include separate spaces for conducting classified and unclassified oral histories. Include space for historian office within overall secure boundary. The Histories space is administrative and should be located adjacent to the Archives and Library functional areas. See Figure 2-7, Archives, Library, and Histories Adjacency Diagram, for additional guidance.

**2-6.5 Artifacts.**

The Artifacts functional grouping is guided by the need for appropriate storage facilities for a wide variety of historic artifacts and modern conservation capabilities including Macro and Micro Artifact Storage, as well as the Navy Art Collection.

**2-6.6 Artifact Storage.**

Artifact Storage includes general storage space for Macro and Micro Artifact collections as well as support spaces for Loan Artifact Processing, Shipping and Receiving, Technical Library, Record Storage, and Photo Room. Locate general and support spaces adjacent to both Macro Artifact Storage and Micro Artifact Storage. Provide for classified, sensitive, weapons and high-value storage.

**2-6.6.1 Macro Artifact Storage.**

Provide room for Macro Artifact bulk storage. In addition, provide an area for Macro Artifact Processing. See Figure 2-1 for example of Macro Artifact Storage.

**Figure 2-1 Sample Macro Artifact Storage**



Maryland Archaeological Conservation Laboratory, Jefferson Patterson Park & Museum

**2-6.6.2 Micro Artifact Storage.**

Provide room for Micro Artifact Storage to include area for Micro Artifact Processing. In addition, provide specialized areas for Conservation, Uniform/Textile Storage, Cold Storage, and Secure Weapons Storage. Specialized storage areas should be located adjacent to Micro Artifact Storage. See Figure 2-2 for example of Micro Artifact Storage. See Figure 2-3 for example of Artifact Processing Area. See Figure 2-8, Historic Resource Facilities – Artifact Storage Adjacency Diagram, for additional guidance.

**Figure 2-2 Sample Micro Artifact Storage**



Museum Support Center, Fort Belvoir, VA

**Figure 2-3 Sample Artifact Processing Area**



Museum Support Center, Fort Belvoir, VA

### **2-6.6.3 Navy Art Collection.**

NHHC is the principal custodian of the Navy's art/painting heritage. The mission of the Navy Art Collection is to collect, document, preserve, and exhibit art that is significant to the history of the Navy for service personnel and for the public, as well as to promote the creation of art through the Navy Art Program.

The Art Collection space includes the following areas: Administrative space including studio for resident office, Processing, Art Gallery Art Storage, Framing Room, Accessioning, and Secure Storage. The collocation of the Navy Art Collection non-exhibit functions and the Artifacts conservation, distribution, and storage functions allows for a consolidated facility, appropriate storage methods, and improved distribution of Navy assets. Separate art galleries may be located at Navy museums.

### **2-6.6.4 Underwater Archaeology.**

Underwater Archaeology (UA) is the center of expertise and recognized authority for the Department of the Navy in all matters related to science of underwater archaeology, identification, research, analysis, interpretation, preservation, conservation, inventory, and management of Navy's historic ship and aircraft wrecks and their associated contents.

The functions of UA are not easily grouped with other functions found in the HRF. UA is most closely associated with the Artifact Storage function and has been shown in Figure 2-6 to be adjacent to Artifact Storage. There are also functional relationships between UA, NHHC Command Administration, and the museum functional group. See Figure 2-9, Underwater Archaeology Adjacency Diagram for additional guidance.

**2-6.6.4.1 UA - Administration.**

Provide UA offices and support space to include a conference room, secure library, break room, map room, and copier room. Provide a demonstration lab space which is adjacent to the conservation laboratory space.

**2-6.6.4.2 UA – Conservation Laboratory.**

Locate adjacent to UA offices and demonstration lab space in a visible way to facilitate tours. Conservation laboratory should be large enough to accommodate increasing collection. Locate lab adjacent to loading dock. Provide overhead crane. Provide adjacent space for equipment storage, forklift storage, boat storage, chemical storage, cold storage, x-ray machine, and dive operation facility with storage for dive gear and remote-sensing equipment. Plan for adjacent outdoor tanks. See Figure 2-4 for example of UA Conservation Laboratory.

**Figure 2-4 Sample UA Conservation Laboratory**



Maryland Archaeological Conservation Laboratory, Jefferson Patterson Park & Museum

**2-6.6.4.3 UA – Collections Storage.**

Provide a large, open bay storage area with an adjacent space or space within the large storage area for smaller object storage.

Figure 2-5 Museum Adjacency Diagram

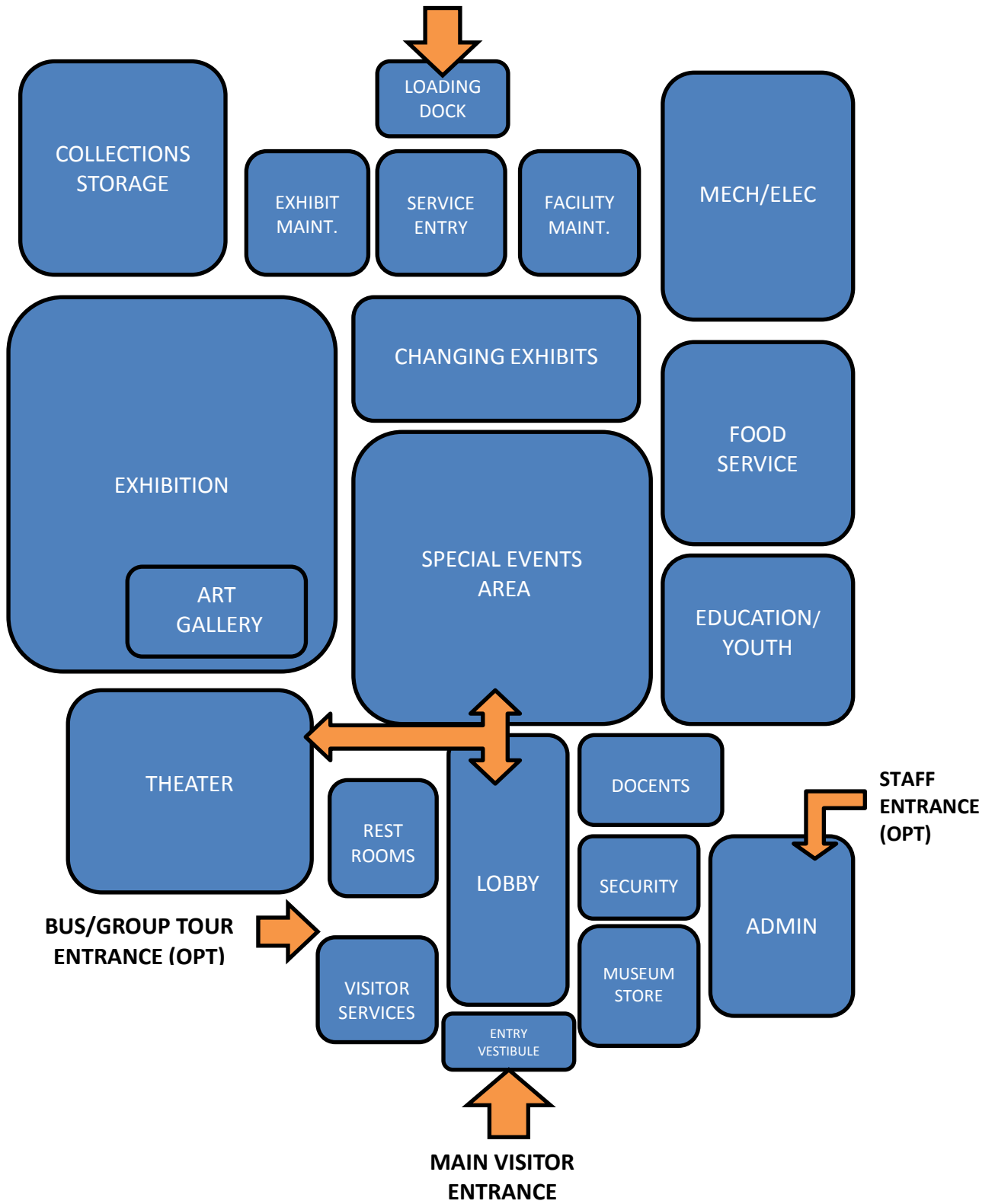
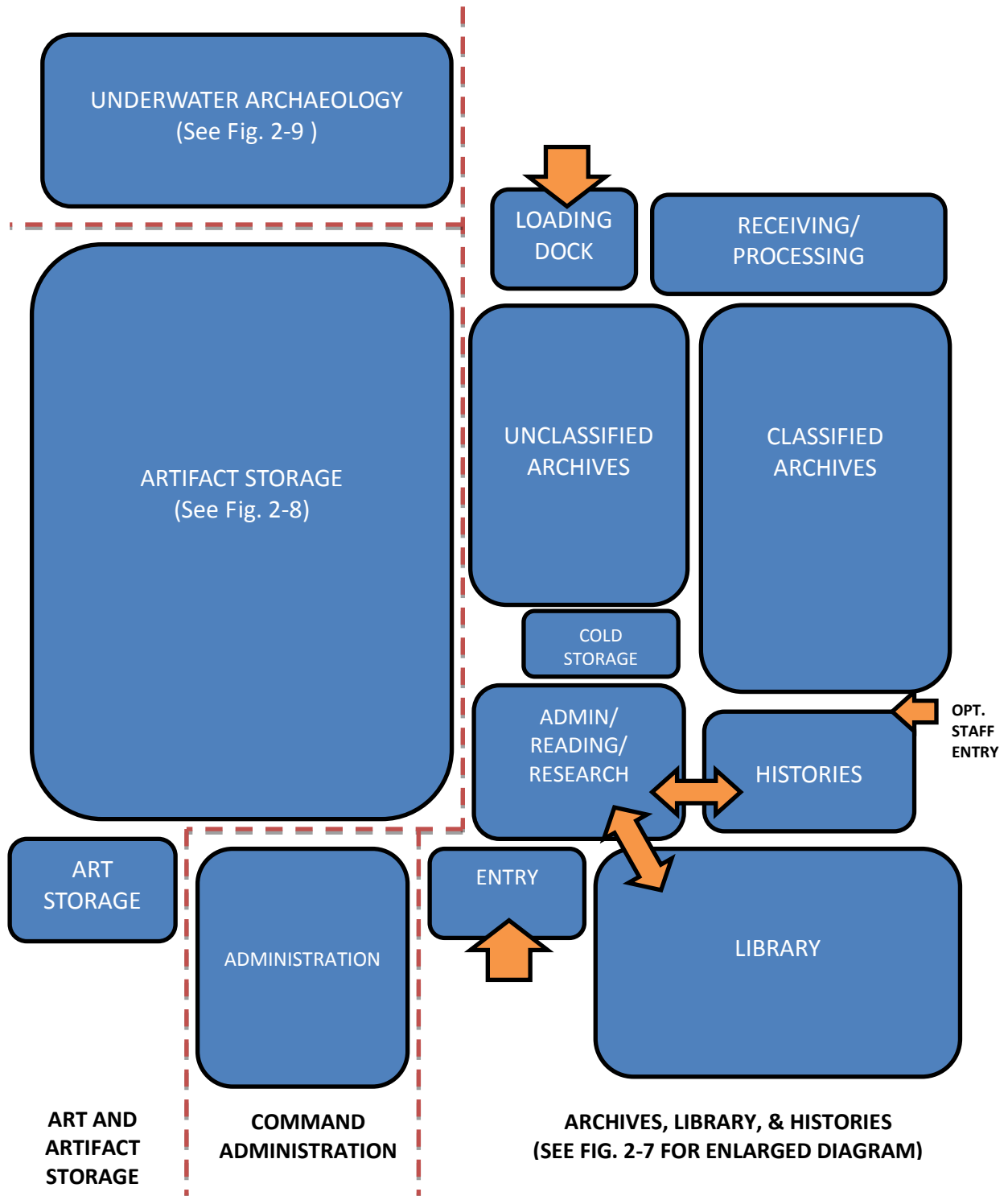


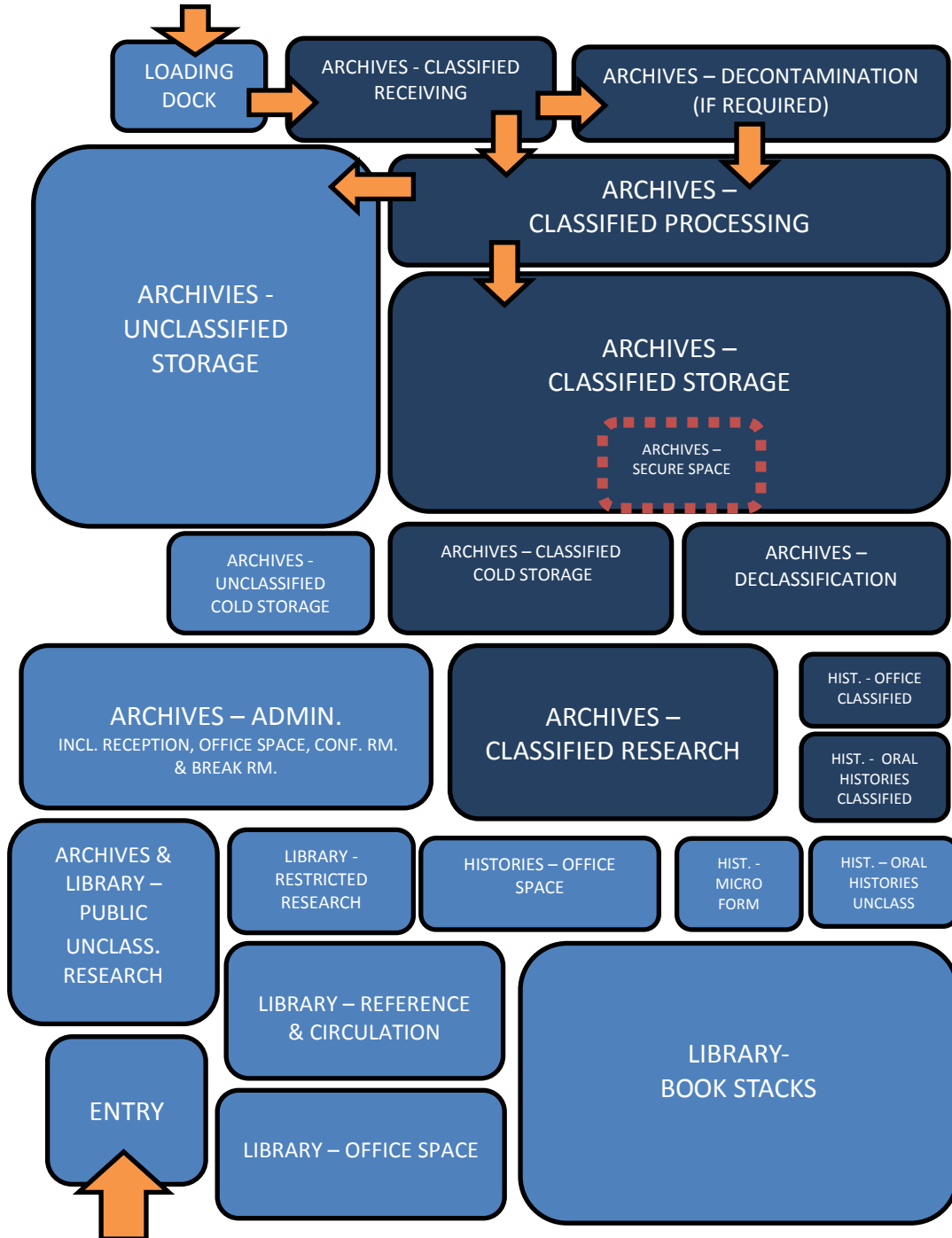
Figure 2-6 Historic Resource Facilities Adjacency Diagram



Note: Dashed lines indicate that these functional areas may be located in separate facilities.

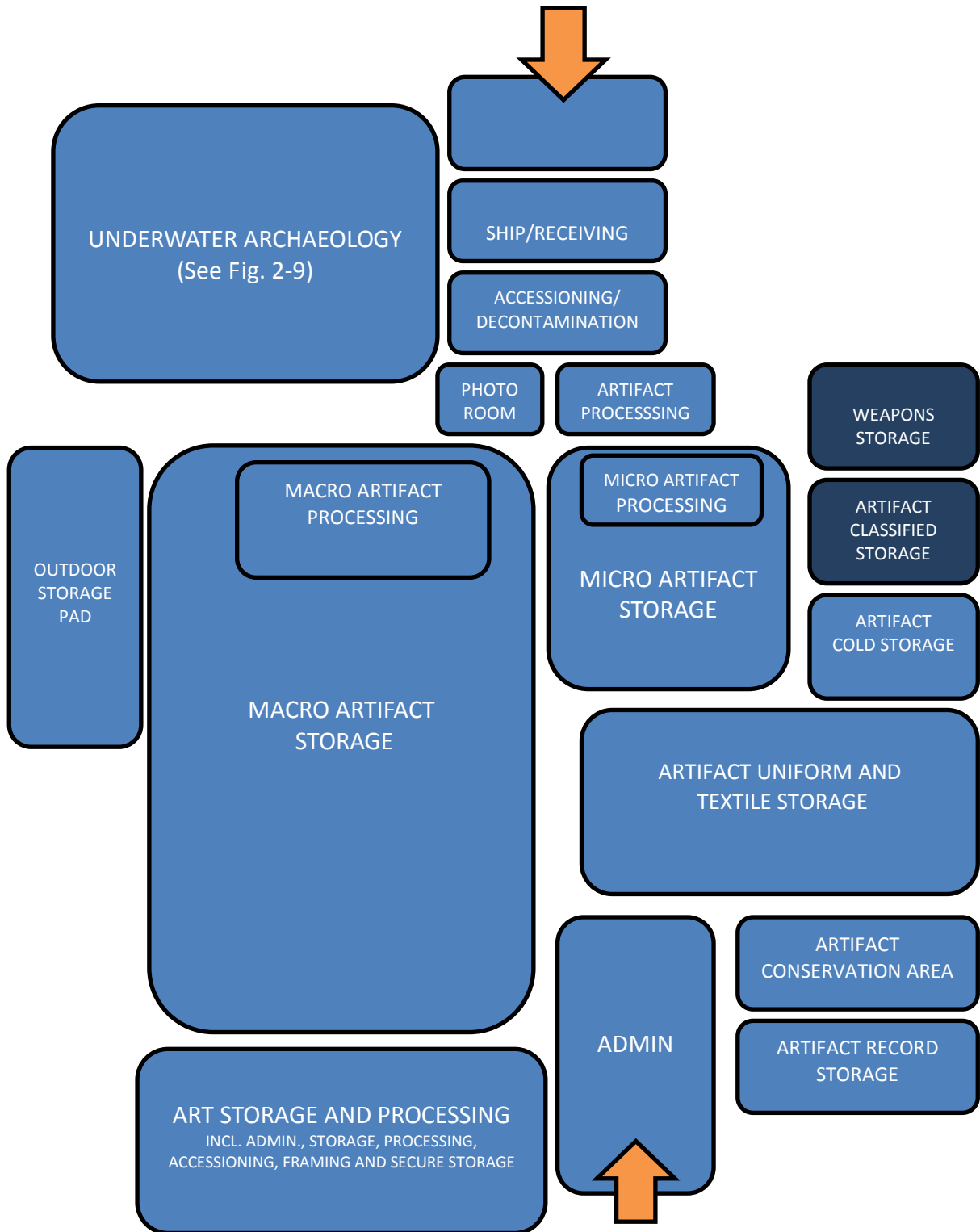


Figure 2-7 Archives, Library, and Histories Adjacency Diagram



Note: Dark blue shading represents Top Secret/Open Storage functional areas and protected area perimeters. The dashed line represents a secure area boundary within a secure area. See Functional Data Sheets for more information.

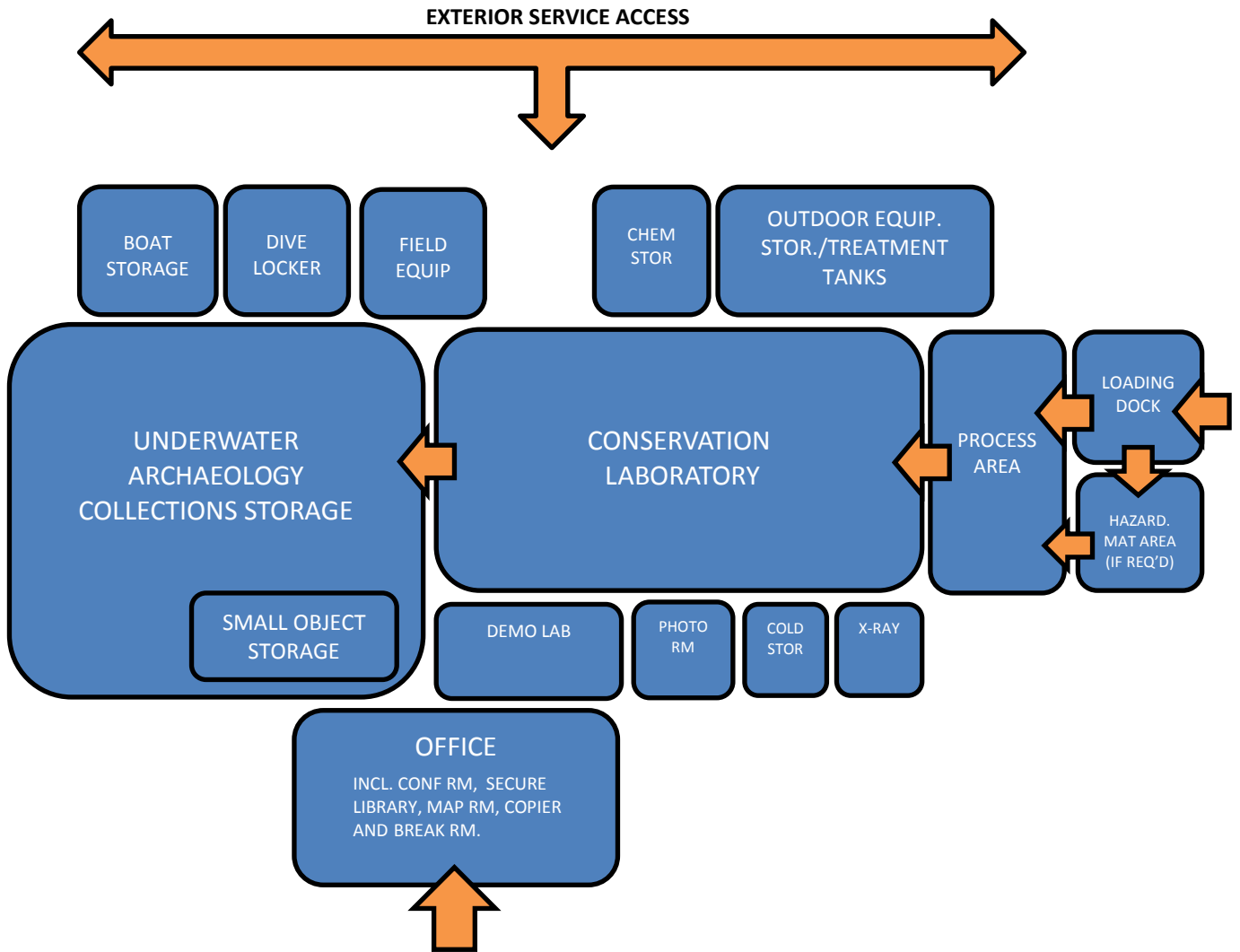
Figure 2-8 Historic Resource Facilities – Artifact Storage Adjacency Diagram



Note: Dark blue shading represents special secure areas. See Functional Data Sheets for more information.



Figure 2-9 Underwater Archaeology Adjacency Diagram



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## CHAPTER 3 GENERAL DESIGN REQUIREMENTS

### 3-1 GENERAL.

This chapter describes the general design criteria shared by Museums and Historic Resource Facilities.

### 3-2 CIVIL.

#### 3-2.1 Site Design.

Site design must be in accordance with UFC 3-201-01, *Civil Engineering*. Also, in addition to the requirements of UFC 1-200-01, *General Building Requirements*, the building must be sited a minimum of five feet (1.52m) above and 100 feet (30.48m) from any 100 year flood plain areas, or be protected by an appropriate flood wall that conforms to local or regional building codes. As noted in Chapter 2, it is desirable to have both museums and HRFs located above the 500 year flood plain or have critical artifacts and records protected to this level. Provide adequate parking for both staff and visitors based on historic and projected parking requirements with the appropriate access drives. Consult local planning documents for facilities located outside the secured perimeter of the base to ensure compliance with applicable regulations.

#### 3-2.2 Water Distribution Systems.

A dependable water supply free of interruption must be provided including a continuous site distribution loop connected to the water main and sized to support the facility with only one portion of the loop operational. Water supply and distribution systems must have the capacity to meet both fire hose and fire sprinkler requirements for 2 hours.

#### 3-2.3 Building Access.

New construction, additions, and renovation of existing facilities must be designed and constructed to meet accessibility requirements of the Architectural Barriers Act Accessibility Standard (ABAAS) for DoD facilities. All functional areas must be barrier-free and accessible to persons with disabilities. Site and building designs should enable persons with disabilities to act independently and enjoy the full range of programs provided. Level changes may be included but must be accommodated by ramps suitable for wheelchair users, both indoors and outdoors. Include access to all areas and facilities, including staff and work areas, restrooms, water fountains, and communication devices.

#### 3-2.4 Service Areas/Loading Docks.

Provide appropriate access drives and loading docks/service entrances in compliance with UFC 4-440-01, *Design: Warehouses and Storage Facilities*.

### 3-3 ARCHITECTURAL.

#### 3-3.1 Exterior Design.

### **3-3.1.1 Landscaping.**

All landscaping must adhere to guidelines found in UFC 3-201-02, *Landscape Architecture*, and local Installation Appearance Plans (IAP's). All design disciplines should coordinate planning and design efforts. Create design solutions that minimize adverse impacts on the natural environment. Landscaping should be compatible with existing surrounding landscapes. Use plant materials to screen undesirable views, land uses, utilities, and reduce visual impacts of parking lots. All landscaping must adhere to current AT standards.

Maximize low-maintenance landscapes. Use hardy, regionally native and drought-tolerant plant material to the greatest extent possible. Where irrigation systems are required, install water-efficient systems.

### **3-3.1.2 Site Amenities.**

Site amenities include items such as benches, trash receptacles, planters, and flag poles. Use site amenities that are durable, well-constructed, and resistant to vandalism.

Provide bicycle racks in a secure location near the facility entrance.

### **3-3.1.3 Exterior Signage.**

An exterior signage system must be developed in accordance with UFC 3-120-01, *Design: Sign Standards*. Coordinate exterior sign programs with the exterior design of the building and local base standards. Signs must also identify the building, parking areas, service areas, and facilities for the disabled.

### **3-3.1.4 Exterior Screening.**

Loading docks, trash dumpsters, and both ground and rooftop mechanical equipment must be screened from views at areas such as main entrance, courtyards, gathering areas, streets and parking lots. Screens should be compatible with main building materials.

### **3-3.2 Future Expansion Capability.**

Plan for building design that permits additions as collections and storage needs grow. Design the structural system for easy expansion and additions, without over-designing the initial construction.

### **3-3.3 Roofs.**

Pitched roofs with exterior gutters and downspouts should be used whenever possible. Roof penetrations should be kept to a minimum to reduce potential leaks.

For storage occupancies, roof or ceiling slope above fire sprinkler systems must not exceed a pitch of 2 in 12 (a rise of 2 units in a run of 2 units, a roof slope of 16.7 percent). Coordinate with the project fire protection engineer.

### **3-3.4 Windows.**

Windows should only be provided in administrative offices, break areas, vestibules, lobbies, classrooms and other public areas that do not house artifacts or archival materials. See Functional Data Sheets for specific locations where windows are permitted.

According to the IES HDBK, the potential damage that daylight can cause to sensitive materials is a concern in both museums and HRFs for the following reasons. Fading and bleaching is caused by the ultraviolet, visible, and infrared portions of the spectrum. Because daylight spaces generally have higher illuminance levels, it is logical that sensitive materials in daylight spaces are more likely to suffer fading and bleaching. In museums, light exposure is quantified in terms of lux-hours (with UV filters applied) and must be limited to protect preservation-worthy materials. This is why daylighting systems in museums often have sophisticated automated controls to maintain interior daylight values at or below specified target values. UV is a well-known cause of fading and is found at higher levels in daylight than in electric lighting (10 times higher than in incandescent lighting). The ratio of UV energy compared to visible energy is almost twice as high in diffuse skylight as it is in sunlight, however, sunlight is generally stronger and therefore provides more UV exposure when present. Coatings on glass can reduce the transmission of UV radiation by up to 75%. Additional absorptive films within laminated glass can further decrease UV transmission to a low as 1%. In instances such as renovations to existing facilities where windows are unavoidable use absorptive films on inside surface of laminated glass.

### **3-3.5 Acoustics.**

Follow outside to inside noise control guidance and interior acoustic requirements per UFC 3-101-01, *Architecture*. Include the service of an acoustics consultant on the design team to properly address acoustics within the facilities.

Specific interior acoustic requirements are included in the Functional Data Sheets. These acoustic ratings (Noise Isolation Class or NIC) reference wall partition assemblies only.

### **3-3.6 Integrated Pest Management (IPM).**

Apply a decision-making process that helps determine if, when, and where pest suppression is needed. Develop a strategy to keep pests from attacking collections. Use a variety of techniques to prevent and solve pest problems using pesticides only as a last resort. Consider knowledge of a pest's habits, ecology and the environment in which it thrives and survives. Using IPM provides a structure in which to make responsible decisions about treating pests. Use IPM to develop a site specific facility design to meet these goals:

- Protect the museum/resource facility and its collections from pests
- Reduce the amount of pesticides used in collections

### **3-3.7 Interior Design.**

#### **3-3.7.1 Interior Construction/Finishes.**

Interior construction and finishes (floors, walls, and ceilings) must be durable, low maintenance and appropriate to the purpose of the facility. Select finish materials, adhesives and sealant systems that contain low to no VOCs to promote healthy indoor air quality. Per NARA 1571 and SI Facilities Design Guide, following is a list of materials that are not permitted in areas where records and artifacts are used, processed, exhibited and stored, including vaults, but may be used in other areas of the facility. These materials are prohibited due to properties that can rapidly degrade and negatively affect artifacts and archival materials:

- Asbestos
- Cellulose nitrate lacquers and adhesives
- Polyurethane products, including paints, varnishes and foams
- Acid-curing silicone sealants and adhesives
- Sulfur containing materials that could release sulfur dioxide (SO<sub>2</sub>) – include, but are not limited to, vulcanized rubber and cadmium sulfide pigments
- Pressure sensitive (tacky) adhesives that release VOCs
- Unstable chlorine-containing polymers (polyvinyl chloride or PVCs)
- Formaldehyde (urea, phenol) emitting compounds, such as might be found in plywood, particle board and plastic laminates
- Vinyls
- Oil-based paints and varnishes and modified alkyd paints

Flooring materials throughout both facility types must be level to facilitate smooth transport of exhibit materials, archival records and artifacts.

#### **3-3.7.2 Interior Signage.**

Develop a comprehensive interior signage package for each facility type that addresses permanent spaces. Refer to UFC 3-120-01, *Design: Sign Standards*, when developing interior signage packages.

#### **3-3.7.3 Wall and Door Protection.**

Provide wall protection and corner guards in service corridors where high cart and equipment traffic may be present. Provide door and door frame protection at heavily traveled doors within service corridors, loading dock/service elevator areas, and artifact, exhibit, and record storage areas.

#### **3-3.7.4 Window Treatments.**

Treatments should be provided at all exterior windows, to include storefronts or locations where control of daylight or privacy at night is required. Uniformity of window covering color and material should be maintained to the maximum extent possible throughout the facility.

#### **3-3.7.5 Storage Systems.**

Provide static or mobile specialty storage systems, as required, to properly house collections. Storage methods include, but are not limited to, flat files, warehouse pallet racks, file cabinets, electric lateral filing machines, specialty art storage racks, and various storage cabinets, some with filter vents for passive air purification. Consider using storage equipment that can be easily adapted for use as movable, high density storage systems.

Design and locations of high density mobile storage systems will require close coordination with structural, mechanical and fire protection engineers. Floor load limits within all storage areas must be established by a licensed structural engineer and will need to be calculated based on storage densities and the type of stored collection (paper-based and larger artifacts will be heavier). Fire suppression and mechanical distribution systems will impact cabinet/shelving heights and the overall design of the storage system. Lighting layouts will also need to be coordinated with these systems, typically running perpendicular to the storage system for optimal illumination of the aisles. When determining high density mobile shelving system requirements also consider:

- Shelving system must include mechanisms (such as bumpers or guards) to maintain a minimum 4 inch (102mm) to 6 inch (152mm) flue space between carriages to reduce the amount of potential fire damage.
- Manual operation of mobile shelving system is recommended due to lower maintenance requirements. However, the use of motorized system operation should be considered during design based on specific user requirements (for example, motorized operation may offer smoother and controlled carriage movement, thereby minimizing vibrations and jarring of fragile artifacts).
- Consider off-gassing of materials utilized in system components such as bumpers, gaskets, recessed tracks, and ball bearings.
- Cold storage areas (temperatures less than 50 degrees F (10 degrees C) should utilize open chrome-plated stainless steel wire racks which promote air circulation and prevent condensation on stored materials.
- Coordinate mobile shelving system design with the structural engineer with regard to floor slab loads, slab flatness, and insertion of recessed tracks. Consult NFPA 232, Standard for the Protection of Records, for additional guidance on construction of mobile shelving to withstand fire damage.

- Perforated shelving uprights and end panels will facilitate air flow circulation or flow of water in the event of fire.

### **3-4 MECHANICAL.**

#### **3-4.1 Heating, Ventilation, and Air Conditioning (HVAC) Design.**

In addition to the criteria established in the section in Chapter 1 entitled, “General Building Requirements” and the stated and cross-referenced requirements for HVAC systems, comply with the following in the design of the mechanical system:

- UFC 3-410-04, Industrial Ventilation
- ASHRAE HVAC Applications Handbook Chapter, “Museums, Galleries, Archives, and Libraries”
- ASHRAE HVAC Applications Handbook Chapter, “Laboratories”
- ASHRAE Standard 62.1, “Ventilation for Acceptable Indoor Air Quality”
- NARA 1571, Archival Storage Standards

##### **3-4.1.1 Humidification.**

Do not use base steam.

##### **3-4.1.2 Ductwork.**

Coordinate duct layout with the end user and architect concerning heights of partitions, displays, shelves, and storage racks, to avoid the disruption of air distribution for spaces with ductwork intended for general air distribution. Provide maintenance access for personnel.

Where theft is a concern due to large duct access, coordinate with the user’s security specialists on duct sizes and maintenance access points.

##### **3-4.1.3 Sound and Vibration Isolation.**

Mechanical systems must not transmit or radiate noise or vibrations. Provide an acoustical analysis to demonstrate how noise levels will be addressed.

##### **3-4.1.4 Critical Spaces.**

Roof penetrations, roof-mounted equipment, and water piping are prohibited above critical spaces.

Design spaces deemed critical by the end user and in the Functional Data Sheets of this FC at their respective indoor temperature and relative humidity requirements and categorize them as process requirements. Conditions in these spaces must be maintained 24 hours/day 365 days/year. Include these spaces in zones conditioned for specialized technical requirements. Air-side economizers are prohibited in these spaces. Perimeter fin-tube radiation and other sensible- only heating or cooling elements that can create local humidity extremes near collections are prohibited.



Coordinate with the electrical engineer to provide emergency power to maintain indoor requirements in these spaces. The HVAC systems for these spaces must be capable of achieving a gradual shift between the cooling and heating conditions, and must maintain these conditions as stated by the end user and in the Functional Data Sheets included in this FC.

**3-4.1.4.1 Renovations.**

Coordinate with the architect on protecting the building envelope and structure against moisture migration and condensation. In critical spaces, provide drain pans under all existing roof penetrations and piping containing water or other fluids, except for fire protection piping. Provide piping from drain pans to outdoors and discharge at grade.

Coordinate with the end user on the possible levels of climate control that can be achieved with the existing building(s) and their requirements.

**3-4.1.4.2 Redundancy.**

If required by the Commanding Officer due to the value of items in these spaces, provide 100% redundancy.

If chilled water systems are selected, size the chillers for 75% (60% allowable with approval) of peak load for the entire facility. Alternate the use of the chillers via a user programmable schedule and equalize run time to lengthen the life span and improve efficiency. Include in controls that in the event of a failure, non-critical loads can be dropped. Variant Refrigerant Volume (VRV) systems and glycol systems are prohibited.

**3-4.1.4.3 Filtration.**

Filter the combined supply air, including return and outside air, with a combination of prefilter(s) with a Minimum Efficiency Reporting Value (MERV) of 7 and final filter(s) with a MERV of 15 when tested in accordance with ASHRAE 52.2, "Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size". Verify and coordinate with the user if a micro-environment is needed when critical spaces with collections require higher than MERV of 15 filtration. Provide minimal airflow and separate filtration at a HEPA level (99.97%).

Provide chemical filtration of outdoor air if there is a risk of ambient air pollution.

**3-4.1.4.4 Contaminated Materials.**

Contaminated materials must be stored in a separate space on a separate HVAC system.

**3-4.1.4.5 Positive Air Pressure.**

Provide positive air pressure as required in critical spaces where it is necessary to prevent particle pollution during entry and exit from these spaces.

Coordinate requirement for smoke control with the project fire protection engineer. Refer to the Section in Chapter 3 entitled, "Fire Protection".

#### **3-4.1.4.6 Warehouse-type Storage Spaces.**

- Infiltration rate - Design for an infiltration rate of two air changes per hour. The rate is dependent upon the installation of dock door seals.
- Under floor heating system - Investigate the use of an under floor heating system when outside design temperature is below -10 degrees F (-23 degrees C). Under floor heating systems must be between the bottom 2 inches (51mm) to 3 inches (76mm) of the floor slab.
- Ceiling fans - Provide multi-speed ceiling fans with wall-mounted controls where required by the end user and in the Functional Data Sheets included in this FC.
- Space thermostat and humidistat - In existing buildings where it is determined that object receiving areas cannot be separated from sensitive storage areas by dual bays/door locks, a switch activated by opening the dock doors should override the space thermostat and humidistat to stop the HVAC equipment. Provide a minimum temperature thermostat field set at 34 degrees F (1 degree C) to override the heating deactivation switch during door-open periods of subfreezing ambient temperatures. After the doors are closed, the space thermostat and humidistat should resume control. Maximum HVAC system recovery time should be 60 minutes after the doors are closed.
- HVAC zones - Each module/bay must be on a separate HVAC zone. Coordinate with fire protection engineer for smoke management requirements.

#### **3-4.1.4.7 Laboratories.**

Coordinate with the end user on air filtration requirements at the diffusers for laboratories where dust control is critical.

#### **3-4.1.4.8 Lobbies and Entrance Areas.**

Provide and maintain positive air pressure in lobbies and entrance areas relative to the outside. Maintain lobbies at a negative pressure relative to the rest of the building. Air servicing the lobby must not circulate to other parts of the building. If feasible, the lobby should have a separate HVAC system.

#### **3-4.1.4.9 Loading Docks.**

If enclosed, provide and maintain positive air pressure in loading docks relative to the outside. Maintain loading docks at a negative pressure relative to the rest of the building. Air servicing the loading dock must not circulate to other parts of the building.

If the user requires an enclosed loading dock with HVAC, the loading dock must have a separate HVAC system.

#### **3-4.1.5 Stairwells.**

Provide heating and cooling in stairwells adjacent to critical spaces. Maintain stairwells not adjacent to critical spaces at mechanical room conditions. Special attention may be required for high humidity areas to prevent condensation in the stairwells.

#### **3-4.1.6 Controls.**

Specify direct digital control (DDC) system per UFGS 23 09 23.13 20, BACnet Direct Digital Control Systems for HVAC. Coordinate DDC specification to ensure proper interface to existing or planned base-wide DDC/EMCS system or UMCS/BAS, and remote network monitoring of temperature and relative humidity.

Due to the critical nature of these facilities, the end user, not the base EMCS office, must have direct control of the thermostats and humidistats. The end user must also have direct control of the cooling and heating utilities, not the base central plant. Coordinate locations of temperature and humidity data loggers, thermostats and humidistats, and DDC system temperature and humidity sensors with the end user in spaces that require them.

#### **3-4.1.7 Exhaust Equipment.**

Provide snorkel type localized exhaust systems with articulating arms that can be adjusted and manually set to desired positions of users where required in laboratories, conservation work spaces, restoration work spaces, and office spaces. Provide damper shutoff of snorkel type exhaust at the main trunk, not at the capturing hood. Verify during design if fume hoods and ventilated safety cabinets are also required by the end user.

### **3-5 PLUMBING.**

In addition to the criteria established in the section in Chapter 1, entitled, "General Building Requirements", and cross-referenced requirements therein, include the following requirements:

#### **3-5.1 Emergency Shower / Eyewash Stations and Floor Drains.**

Provide emergency shower/eyewash stations and floor drains where required by the end user and in the Functional Data Sheets included in this FC. Coordinate locations of emergency shower/ eyewash stations with electrical equipment.

#### **3-5.2 Compressed Air.**

Provide compressed air where required by the end user and in the Functional Data Sheets included in this FC.

#### **3-5.3 Specialty Gases.**

Provide specialty gases where required by the end user and in the Functional Data Sheets included in this FC.

### **3-5.4 Critical Spaces.**

Roof penetrations and all plumbing piping are prohibited above critical spaces.

#### **3-5.4.1 Renovations.**

In critical spaces, provide drain pans under all existing roof penetrations and plumbing piping containing water or other fluids. Provide piping from drain pans to outdoors and discharge at grade.

### **3-6 FIRE PROTECTION.**

#### **3-6.1 Fire Protection Design Objective.**

The fire protection design objective is to minimize damage to, and loss of, historic artifacts and archive material by incorporating active and passive fire protection features. Active features include automatic fire sprinkler systems, smoke detection systems, and smoke control systems. Passive features include fire and smoke resistive construction to create protected fire compartments for the artifacts and archives. Additionally, these compartments are limited in size to minimize the maximum foreseeable loss if a fire event were to occur. The requirements specified herein blend requirements from the various references listed below to minimize the loss of items having cultural, historic, or strategic significance. Special occupancy requirements are included in Chapter 4.

##### **3-6.1.1 Applicable Design References and Criteria.**

- UFC 3-600-01, Fire Protection Engineering for Facilities
- 36 CFR 1234, Facility Standards for Records Storage Facilities
- National Park Service *Museum Handbook, Part 1: Museum Collections*, Chapter 9: Museum Collections Security and Fire Protection
- NFPA 232, Standard for the Protection of Records
- NFPA 909, Code for the Protection of Cultural Resource Properties — Museums, Libraries, and Places of Worship

#### **3-6.2 Fire Suppression Systems.**

Facilities must be protected with wet pipe sprinkler systems to provide 100 percent coverage throughout the entire building. Areas subject to freezing or designated cold storage areas must be protected with dry pipe or preaction sprinkler systems as required by NFPA 13 and as appropriate for the protected area. Storage collection areas must be individually zoned with dedicated isolation valve and alarm flow switch. Refer to Chapter 4 for additional requirements.

##### **3-6.2.1 Piping.**

Sprinkler systems must be designed to minimize the risk of corrosion. Design must consider selection of piping material, pitching of piping, auxiliary drains, and other

methods as recognized by the applicable codes standards, and industry practices. Use of galvanized piping is prohibited. Use of non-ferrous piping materials must be approved by the cognizant NAVFAC fire protection engineer. Use of non-ferrous piping requires an analysis of dissimilar metal corrosion potential, along with mitigation measures if necessary. Where dry pipe or preaction systems are necessary, systems must be charged with nitrogen. For wet pipe system, nitrogen inerting may be considered as an acceptable method of minimizing internal corrosion of pipe. Consideration may be given to new technologies, such as nitrogen inerting of wet pipe sprinkler systems. When provided, nitrogen generation systems must comply with UFC 3-600-01.

### **3-6.3 Fire Alarm and Detection Systems.**

All facilities must be protected with a voice evacuation fire alarm system. The system may serve as the MNS and public address functions as required or as necessary. Smoke detection is required throughout and may be provided with spot, optical beam, video, or early warning smoke detection as appropriate for the protected area. Additional specific design requirements are defined in Chapter 4 and the applicable Functional Data Sheets.

## **3-7 ELECTRICAL.**

Provide site electrical utilities, interior distribution systems, and communications in accordance with UFC 3-501-01, *Electrical Engineering*, and the latest installation design requirements.

- Site Electrical Utilities include equipment, overhead power distribution, underground electrical systems, grounding, metering, and exterior site lighting.
- Interior distribution systems include distribution and service entrance equipment, surge protective devices (SPDs), wiring devices, raceways, conductors, interior lighting systems, lightning protection systems, and hazardous locations.
- Communications includes telecommunications systems, Cable Television System (CATV), and Closed Circuit Television (CCTV).

### **3-7.1 Lighting.**

Provide lighting system designs in accordance with the above which includes UFC 3-530-01, *Design: Interior and Exterior Lighting and Controls*. Exceptions and additions are identified in this FC, and in the Functional Data Sheets.

For areas or rooms not specifically covered, comply with the requirements of the Illuminating Engineering Society of North America's (IESNA) *Lighting Handbook Reference and Application* (hereafter called the *Lighting Handbook*).

### **3-7.1.1 Exterior Lighting.**

Provide vehicular traffic areas, parking facilities, pedestrian areas, and building lighting meeting the requirements for Lighting Zone 2 (LZ2).

#### **3-7.1.1.1 Security Lighting.**

Provide a Medium Level of Protection (MLOP) including the security lighting required by 36 CFR 1234.

### **3-7.1.2 Interior Lighting.**

Conservation considerations are a primary concern when illuminating sensitive artifacts such as paintings, photographs, textiles, tapestries, furniture, rare books, scrolls, and other organic objects. Optical radiation may cause damage through photochemical action and radiant heating. Therefore, all light sources in areas displaying or storing sensitive objects must eliminate harmful ultraviolet (UV) and infrared (IR) wavelengths through ultraviolet filtering or choice of light source.

For the purposes of this FC, lighting for these areas, displaying, handling, or storing sensitive artifacts will be considered "Sensitive Lighting" (SL) and will be designated as requiring SL on the Functional Data Sheets.

#### **3-7.1.2.1 Requirements for Sensitive Lighting (SL).**

Provide SL systems with the following characteristics:

- Limiting UV light to less than 400 nm
- Limiting IR light greater than 700 nm
- Light sources with CRI's greater than 85
- When Life Cycle is cost effective, provide Light Emitting Diode (LEDs). They are an excellent choice for this application since most LED light sources do not emit UV and IR<sup>2</sup>.

#### **3-7.1.2.2 Levels of Sensitive Lighting.**

The levels are divided into three major categories based on the particular object being examined, stored, or on display. These categories are described in a variety of ways in the standards from organizations such as IESNA, Smithsonian, and Society of American Archivists (SSA). Table 3.1 identifies the sensitivity and recommended light levels for materials that will be displayed, handled, or stored in these facilities.

The levels and additional details identified in the FDSs are based on the interpretation of generalized room characteristics, and for archival and display spaces, the general visitors age and visibility limits. Coordinate the requirements herein with the user of the specific facility under design. Modifications may be made to the values, based on the

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<sup>2</sup> GATEWAY report for the J. Paul Getty Museum,  
[http://apps1.eere.energy.gov/buildings/publications/pdfs/ssl/getty\\_museum\\_gateway\\_final.pdf](http://apps1.eere.energy.gov/buildings/publications/pdfs/ssl/getty_museum_gateway_final.pdf).

additional age and visibility requirements identified in the IESNA *Lighting Handbook* for the specific rooms applicable to the project.

Note: There are numerous specialized reference documents available for additional information, such as the “Archival and Special Collections Facilities: Guidelines for Archivists, Librarians, Architects and Engineers”. It provides extensive detailed information on lighting systems focusing on striking a balance between three essential goals of being “Economical, Safe, and Functional”. It also includes detailed descriptions, lighting system considerations, and recommended light levels for many of the areas / rooms covered by this FC. However, the latest Lighting Handbook, included in our order of precedence requirements, continues to expand and currently addresses many of these issues with updated information as well.

**Table 3-1 Light Sensitivity Categories**

<b>Category</b>	<b>Example Materials</b>	<b>Maximum Recommended Light Level fc / (Lux)</b>
Extremely Sensitive  (Per IESNA - High Sensitivity)	Fragile textiles (e.g., silk) Wool Paper Dyed leather Feathers Natural-dyed materials Lacquer Composite objects utilizing any of the above materials	5 / (50)
Moderately Sensitive (unless qualified above)  (Per IESNA - Low Sensitivity)	Bone, Ivory, Horn Textiles (Cotton, Linen) Cellulosic Materials (Wood, Tapa, Basketry, Reed, Grass) Leather, Parchment, Rawhide, Skin Fur Furniture Paintings	15 / (150)
Fairly Sensitive (unless qualified above)  (Per IESNA – No Sensitivity)	Metal - unpainted Stone - unpainted Ceramic - unpainted Glass - unpainted	25 / (250) see Note 1

*Note 1: Object Exposure may be unrestricted (up to 100 fc (1000 lux) max). Adjust fc / Lux accordingly. However, when in Museum setting, recommend limits be adhered to.*

### **3-7.1.3 Areas Covered by CCTV.**

When area covered by CCTV is unoccupied, provide ambient lighting with a minimum illumination level of 0.5 ft-candle (5 lux) average in the camera's field of view.

### **3-7.1.4 Additional Lighting Requirements.**

In addition to the requirements covered by the core documents, provide the following:

- Emergency (battery backup) lighting in restrooms.
- Lighting systems in stack areas perpendicular to the stack arrangement.
- Special effects lighting in the theater, demonstration, ceremony and event areas, coordinated with the end user based on the planned museum and HRF functions and their missions.

### **3-7.2 Power.**

In addition to the power requirements covered by the core documents, provide the following:

- Dedicated electrical panels in areas such as Underwater Archeology Conservation Laboratory where there are significant electrical loads that need to be controlled from within that area. These areas are indicated on the FDSs.
- Ceiling mounted power cord reels in areas with individual workstations such as the Artifact – Micro Artifact Processing Area and Art - Framing Room when indicated on the Functional Data Sheets. See Figure 2-3 Sample Artifact Processing Area.
- Arc-Fault Circuit Interrupters (AFCIs) on circuits serving stack areas.
- Recessed in floor power in special areas, such as for stages and podiums. Coordinate with the end user and provide the flexibility for the variety of potential functions / events.
- Appropriate power and controls for specialty systems as designated by the end user (such as for the HVAC necessary for the micro-environment storage systems often used in areas like the Underwater Small Object Storage Area.)

### **3-7.3 Emergency Power.**

If required by Installation mission requirements due to the extreme fragility or historical significance of materials being stored, provide the service entrance with either an external temporary / portable emergency generator hook-up for the facility, or in rare instances, provide a permanent emergency power generator for the facility. Comply with paragraph entitled "Emergency Generators" in UFC 3-520-01, *Interior Electrical Systems*, and ensure the availability of a hard surface area adjacent to the building service entrance to accommodate the emergency power hookup when designating a temporary / portable generator.



Comply with UFC 3-540-01, *Engine Driven Generator Systems for Backup Power Applications*, when a permanent generator system is used. (Note: The final draft of this UFC is available on the Navy Design Build Master (NDBM) website.)

### **3-7.3.1 Emergency Power Coordination with End User.**

Coordinate specific requirements with the end user on a case-by-case basis utilizing the information on the Functional Data Sheets. As a minimum, place the following loads on emergency power:

- Life safety loads, including elevators
- Emergency and Perimeter Lighting
- Sump pumps
- Head end communication systems
- Physical Electronic Security Systems (ESS), including IDS, ACS and CCTV
- Cold Storage

Validate the planned emergency operation process with the end user, including the following:

- Extent of Load: Is complete power needed for the designated area including air-conditioning/humidity control, or is power only needed for the critical component such as the walk in or portable freezer units for specimen isolation or film storage?
- When will it be needed – immediately, or only if the outage is extended beyond a certain number of hours?
- How long will it be needed – duration of outage or only until the critical articles are relocated?

### **3-7.3.2 Connection Point Signage.**

When a portable generator connection point is provided, coordinate with end user to develop a written, manual load-shedding procedure for the facility. Document size of the generator required to support design conditions. Place signage at the connection point designating proper generator size.

### **3-7.4 Cable Television System (CATV).**

Provide the infrastructure for a CATV system for utilization by specific groups to access cable television programs. This normally consists of the conduit, wire and outlets from the outside point of connection to the local provider, via the telecommunications room, to the individual locations identified in the FDSs. Coordinate with the local provider's requirements.

### **3-7.5 Telecommunications.**

Provide the telecommunications (data and telephone) system infrastructure. Provide the infrastructure for the Secret Internet Protocol Router Network (SIPRNET) system and JWICS system in areas identified. Coordinate requirements with the end user's Certifying Tempest Technical Authority (CTTA). Provide Protected Distribution Systems (PDS) when required, in accordance with UFC 3-580-10, *Navy and Marine Corps Intranet (NMCI) Standard Construction Practices*. See FDSs for the identified rooms and spaces.

- Coordinate the quantities and locations of outlets with the end user to support the specific equipment requirements in the individual areas.
- Coordinate with the end user and provide recessed in floor telecommunication outlets in areas where special events and functions may be held.

### **3-8 PHYSICAL SECURITY.**

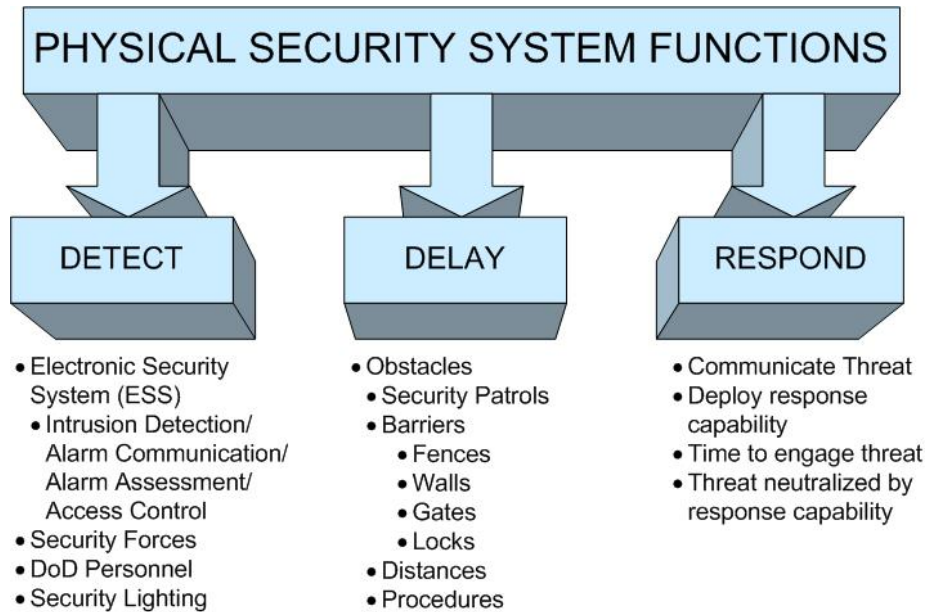
That part of security concerned with physical measures designed to safeguard personnel; to prevent or delay unauthorized access to equipment, installations, material, and documents; and to safeguard them against espionage, sabotage, damage, and theft.

#### **3-8.1 Physical Security System.**

A physical security system is comprised of people, equipment, and operational procedures that control access to critical facilities or assets. Electronic Security Systems (ESS) and security lighting are two of the elements that comprise the equipment component of a physical security system.

Design physical security systems to ensure protective measures work as an integrated system rather than separate elements. The system must detect threats, delay threats, and then respond to threats. This concept is referred to as detect, delay, and respond or detect, delay, and defend. To create an effective system, the time between detection and response by response capability must be less than the time it takes the threat to compromise the asset. Physical security systems accomplish this by detecting threats at the farthest possible distance from the asset and providing delays between the detection points and the asset giving the response capability time to neutralize the threat. Figure 3-1 diagrams some of the components of a physical security system.

Figure 3-1 Diagram Physical Security Functions



### 3-8.2 Physical Security Requirements.

Museums and Historic Resource Facilities contain assets that must be protected against damage or theft.

#### 3-8.2.1 Defining Physical Security Requirements.

The requirement to protect assets such as classified materials or arms are defined in Director of National Intelligence (DNI), Secretary of the Navy (SECNAV), and Office of the Chief of Naval Operations (OPNAV) policies and Instructions. For assets not defined in policy, the requirements are determined by evaluating the value of the assets and the threats to those assets. Defining the requirements of a physical security system and its components involves an interdisciplinary team. The team should consider all interests relating to a project to determine how security fits into the total project design. The specific membership of the team will be based on local considerations, but in general, the following functions should be represented; facility user, antiterrorism officer, operations, security, logistics, architecture, engineering, life safety, and others as required. This team identifies the design criteria, which includes the assets to be protected, policy based requirements, threats to the identified assets (the Design Basis Threat), and the level of protection to be provided to protect the assets. For information on Security Engineering Planning and Design process, refer to UFC 4-020-01, *DoD Security Engineering Facilities Planning Manual*, and UFC 4-020-02, *DoD Security Engineering Facilities Design Manual*. In addition, the team must identify user constraints such as appearance, operational considerations, manpower requirements or limitations, energy conservation and sustainment costs when establishing the physical security system requirements.

When required, integrate physical measures into the site, building, room(s), or area(s) as applicable. Refer to the Specific Design Requirements and Functional Data Sheets (FDS) for specific area requirements.

**3-8.2.1.1 Arms Storage.**

Provide in accordance with OPNAV INSTRUCTION 5530.13C, *Department of the Navy Physical Security Instruction for Conventional Arms, Ammunition, and Explosives*.

**3-8.2.1.2 Classified Materials Storage.**

Provide in accordance with SECNAV M-5510.36, *Department of the Navy Information Security Program*.

**3-8.2.1.3 Archives Secure Space.**

Provide in accordance with Intelligence Community Standard (ICS) 705-1 *Physical and Technical Security Standards for Sensitive Compartmented Information Facilities* and design in accordance with UFC 4-010-05, *Sensitive Compartmented Information Facilities Planning, Design, and Construction*.

**3-8.3 Vaults.**

Vaults are required for arms storage. In addition, vaults may be required to store high value assets of historical significance. Vaults must be constructed to provide a minimum of 10 minutes' resistance to forced entry against an unlimited supply of hand and battery-operated tools.

**3-8.3.1 Walls, Ceilings, and Floors.**

Walls, ceilings, and floors must be constructed of 8-inch (20cm) reinforced concrete. Concrete must have a minimum strength of 2,500 psi (175 Kgf/sq cm). Reinforcing must be a minimum of 5/8-inch (16mm) diameter steel, 6 inches (15cm) on center each direction. Wall reinforcement must be tied into floors and ceilings. A modular vault meeting Federal Specification AA-V-2737 (with a GSA-approved Class 5 Armory Vault Door) may be used to meet this requirement.

**3-8.3.2 Vault Doors.**

Doors must be a GSA-approved Class 5 vault door that meets requirements of Federal Specification AA-D-600.

**3-8.3.3 Locks.**

Vault doors must be equipped with a combination lock meeting Federal Specification FF-L-2937.

### **3-8.4 Staff and Visitor Separation.**

Staff only areas must be grouped to reduce access control requirements. The grouping of staff spaces must provide both vertical and horizontal access controls to enable adequate Public/Staff separation and Intrusion Detection System zoning. Egress paths from Public space must not pass through Staff only areas.

### **3-8.5 Protected Area Perimeter.**

The protected area may be defined as the entire facility, an area, or areas within the facility. The protected area perimeters and the penetrations in those perimeters are the primary focus of physical security design. The perimeter of protected areas must be designed for forced entry, covert entry, and visual evidence penetration.

#### **3-8.5.1 Perimeter Walls.**

Walls must go from floor slab (true floor) to underside of floor or roof deck (true ceiling). Perimeter walls, floor and ceiling must be permanently and solidly constructed and attached to each other. Openings which penetrate a perimeter wall (including HVAC ducts) and are larger than 96 sq inches (240sq cm) with any dimension being greater than 10 inches (25.4cm), must be protected with permanently affixed bars or grills.

- Bars must be a minimum of ½ inch (13mm) diameter steel, welded vertically and horizontally 6 inches (150mm) on center. A deviation of ½ inch (13mm) in vertical and/or horizontal spacing is permissible.
- Grills must be of ¾ inch (20mm) #9 (10 gauge) case hardened expanded metal. When used, metal sound baffles or wave forms must be permanently installed and set no farther apart than 6 inches (150mm) in one dimension.

#### **3-8.5.2 Perimeter Ceiling and Floors.**

Ceilings and floors must meet the same requirements as walls with regard to forced entry, covert entry, and visual evidence penetration.

#### **3-8.5.3 Primary Entrance.**

Unless otherwise noted or approved, each protected area must have one primary entrance where visitor control is conducted. The primary entrance should incorporate a vestibule/lobby for reception desk, queuing, and future requirements such as magnetometer and bag screening equipment. Primary entrance must be:

- Equipped with an automated access control device.
- Equipped with a GSA-approved pedestrian door deadbolt meeting Federal Specification FF-L- 2890.

#### **3-8.5.4 Perimeter Door.**

Doors must be constructed of metal, metal clad or solid wood. At a minimum, wood doors must be 1-¾ inches (45mm) thick solid wood core (wood stave). At a minimum,

metal doors must have a 1- $\frac{3}{4}$  inches (45mm) thick face steel equal to 18 gauge with a predrilled lock area or reinforced to 10 gauge. At least one perimeter door must be provided with an exterior key lock for emergency entrance purposes.

### **3-8.5.5 Emergency Exit Doors.**

Emergency exit doors must meet perimeter door requirements and:

- Be alarmed 24/7 and equipped with a local annunciation.
- Have no exterior hardware.
- Have delayed-egress with NFPA 101 compliance.
- Be secured with deadlocking panic hardware.

Delayed egress hardware must be specified with the activation switch incorporated into the door panic hardware. Delayed egress hardware that integrates the activation switch within the magnetic locking mechanism is not permitted.

### **3-8.5.6 Internal Security Doors.**

Internal security doors are used to secure internal spaces such as closed exhibit or between public events areas and other areas within the facility. When required, internal security doors must meet the requirements of the perimeter door or may be a roll up security gate. Security gate must be one of the following:

- Interlocking perforated or non-perforated Slats: Galvanized ASTM A653/A653M Grade C or ASTM A240/A240M Stainless steel 300 series 16 gauge slats.
- Grille: Solid 5/16 inch (8mm) ASTM A641/A641M galvanized carbon steel wire. Maximum horizontal spacing of 6 inches (15cm) and a maximum vertical spacing of 2 inches (5cm).
- Roll-up security doors which are electrically operated must be provided with key-operated switch. The key-operated switch may be internal or external of protected area.

#### **3-8.5.6.1 Locks.**

All locking arrangements must meet the International Building Code and NFPA 101, Life Safety Code requirements and the following:

- Locks must be capable of receiving full size cylinders.
- Card access controlled doors must be provided with key cylinders on the unprotected side to permit bypass of inoperative card readers for emergency purposes. Use of key bypass will cause a forced entry alarm.
- Doors with automatic door openers (during public hours) must have a lock-down mechanism (e.g.: door deadbolt locks) for use after area/building is closed.

- Roll-up doors at perimeters which are electrically operated must be provided with key-operated electrical switches internal to the protected area.
- Electric locks should be coordinated with the architect, door hardware, and electronic security designer to ensure appropriate lock specification.

#### **3-8.5.6.2 Hinges.**

Hinges must be reinforced to 7 gauge and may be full mortise, half mortise, full surface, or half surface.

Hinge pins on perimeter doors must be tamper resistant unless mounted on the protected side of the door. Tamper resistant hinges must have non-removable pins, security pins, set screws, welded, or equipped with a safety stud.

#### **3-8.5.6.3 Door Closures.**

All perimeter doors must be equipped with a heavy duty door closure, reinforced to 12 gauge, automatic non-hold door-closer installed internal to the protected area.

#### **3-8.5.7 Windows.**

Windows in protected areas less than 18 feet (5.5m) (measured from the bottom of the window) above the ground or from the nearest platform; such as lower roof, canopy or mechanical equipment, which affords access to the window must be non-operable, have positive latch, or deadbolt to secure the window in the closed position. Positive latch must preclude opening with ordinarily obtainable tools. Where window hinges are on the exterior of the building and the hinge pins are capable of being removed, the hinge pins must be either fixed in place with a set screw which is inaccessible when the window is closed or welded in place.

### **3-8.6 Electronic Security System (ESS).**

ESS is the integrated electronic system that encompasses one or more of the following subsystems; access control system (ACS), intrusion detection system (IDS), and closed circuit television (CCTV) systems for assessment of alarm conditions. Refer to the Specific Design Requirements and Functional Data Sheets (FDS) for specific area requirements.

ESS must meet the policy based requirements for assets being protected and designed in accordance with UFC 4-021-02, *Security Engineering Electronic Security Systems*. For policy based requirement, refer to Physical Security Requirements in this chapter.

#### **3-8.6.1 ESS Closet.**

Provide ESS closets dedicated to ESS distribution equipment and workstations. ESS closets must be adjacent to telecommunications room and be stacked vertically in multi-floor facilities. The minimum size of an ESS closet must be 40 sq feet (3.7sq m) with a minimum ceiling height of 8 feet (2.4m).

### **3-8.6.2 Intrusion Detection System (IDS).**

All Interior areas of a Museum and Historic Resource Facilities through which reasonable access could be gained to works of art, archives, and artifacts must be protected by IDS.

#### **3-8.6.2.1 IDS Zones.**

An IDS zone is a room or space within a building that can be armed and disarmed independently from all other zones. See Specific Design Requirements for IDS zoning. Regardless of IDS zoning, each sensor must annunciate as a discrete, identifiable alarm point.

#### **3-8.6.2.2 Motion Detection Sensors.**

Must be UL 639 Listed.

#### **3-8.6.2.3 Point Sensors.**

Must be UL 634 high security switches (HSS) level 1 or 2. HSS Level 2 is preferred. Balanced Magnetic Switches meet HSS Level 2. Level 2 rated switches include only Balanced Magnetic Switches that pass additional performance testing.

#### **3-8.6.2.4 Local Annunciation.**

The local alarm annunciation (sounder) must produce a minimum 92db local chime measured at 10 feet (3.0m) from the device. Provide local sounder at all card reader doors. Sounder should be mounted flush on a stainless steel single-gang box cover, on the protected side, above the door and below any ceiling or tiles and meet the following:

- Sounder must initiate with a Door prop-open alarms.
- Door held-open alarms may be incorporated with request-to-exit devices only if the device will provide the intermittent, chime alert that can be achieved by a stand-alone device.
- Local sounders must be programmed to automatically reset upon reset of door position (secured position).

#### **3-8.6.2.5 IDS Local Processor or Intrusion Panel.**

Provide an IDS local processor or intrusion panel within the protected area. System must be configured to only allow cleared personnel located within the protected area to initiate changes in access modes or alarm conditions.

#### **3-8.6.2.6 Sensor Cabling.**

Cabling between all sensors and the IDS local processor or intrusion panel must be dedicated to the system and contained within the protected area. If the wiring cannot be contained within the protected area, provide tamper protection in accordance with UFC 4-021-02, *Electronic Security Systems*.



### **3-8.6.2.7 External Transmission Line Security.**

IDS transmission lines leaving the protected area to the central monitoring station, must have line supervision. If line supervision is unavailable, two independent means of alarm signal transmission is required.

### **3-8.6.2.8 Backup Power.**

Provide 24 hours of uninterruptible backup power. This may be provided by internal batteries, uninterruptible power supply (UPS), generators, or any combination. Emergency backup power for IDS should not generate the requirement for a UPS or generator. If a generator or UPS is not available for backup, provide backup with internal batteries.

In the event of primary power failure, the IDS must:

- Automatically transfer to the emergency electrical power source without causing alarm activation.
- Initiate an audible or visual indicator at the IDS local processor or intrusion panel to provide an indication of the primary or backup electrical power source in use.
- Initiate an audible or visual indicator at the monitoring station indicating a failure in a power source or a change in power source.

### **3-8.6.3 Access Control System (ACS).**

Provide ACS to ensure only authorized personnel are permitted ingress and egress into areas containing protected assets. The ACS should log and archive all transactions and alert authorities of unauthorized entry attempts. Equipment containing access-control software programs must be located in the protected area. Unless otherwise directed, the default ACS identifier credential should be the Common Access Card (CAC)<sup>3</sup>.

### **3-8.6.4 Closed Circuit Television (CCTV).**

Provide CCTV system for alarm assessment, routine, and event video archiving. CCTV system must be integrated to the IDS and ACS to access and archive events such as alarm conditions and unauthorized entry attempts.

#### **3-8.6.4.1 CCTV Workstation.**

Provide a minimum of one workstation for each CCTV system. Multiple workstations may be required for a large distributed system. Video management software must be compatible with all cameras, encoders, and recording devices.

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<sup>3</sup> Per DoD 5200.08-R

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## CHAPTER 4 SPECIFIC DESIGN REQUIREMENTS

### 4-1 GENERAL.

This chapter describes specific design requirements that only apply to each type of facility including:

- Museums.
- Historic Resource Facilities (HRF).

### 4-2 MUSEUMS.

#### 4-2.1 Civil.

##### 4-2.1.1 Service Areas/Loading Docks.

Provide a covered loading dock and adequate access for trucks to enable easy transfer of artifacts and supplies. When space allows, provide a separate service access from privately owned vehicle parking access. The size of required service vehicles should be verified by the designer prior to planning the service access areas. A back-up spur should be provided for dead-end and service drives that exceed 100 feet (30 meters) in length. Access should be near the loading dock and receiving area. Provide a service vehicle apron and consolidate service access, when possible. Screen or separate the service area from public use or traffic areas with attractive fences, depressions, berms and landscaping. Ensure proper drainage if depressions are used. Do not cross outdoor activity areas with service access. Ensure compliance with AT/FP standards, particularly for dumpster separation and access control. Consult installation fire officials concerning emergency access.

If the museum has food service which involves food deliveries and waste removal, a separate loading dock should be provided from the collections shipping and receiving dock.

#### 4-2.2 Architectural.

##### 4-2.2.1 Exterior Design.

Museums are often thought of as important buildings due to their status as cultural landmarks. The exterior design may be either well integrated into the surrounding environment or more prominent if the decision is made to have the museum stand in contrast to its surroundings. If the museum is located on a base, the exterior design should comply with the Installation Appearance Plan (IAP).

##### 4-2.2.1.1 Entrances.

Museum entrances should be clearly identifiable from parking areas with easy to follow directions to the main door. The building should have one primary means of public access unless a bus or group tour entrance is required to due facility size and expected visitor count. Provide drop-off areas to the primary entrance that are easily accessible

for people who are unable to walk from the parking lot. Consider covered waiting areas if people are expected to queue outside. Control all other service and emergency egress points with access limited to authorized individuals. Design the main entrance to be visible by inside staff. Incorporate a point of reference or landmark that serves as a welcome and transition location for visitors. Visually separate the primary entrance from other entrances and service areas.

Provide security doors or secure gates to exhibit areas and other non-public areas from public spaces that may be used after-hours. Locks must meet the requirements of the section in Chapter 3, entitled "Locks".

#### **4-2.2.1.2 Exterior Materials/Architectural Character.**

The museum should have a distinctive architectural character, whereby the architecture identifies the building as an impressive and inviting destination. Materials and detailing should be of high quality. The architectural character and the interior design of the museum should be integral and related. They both involve functional analysis and consideration of the appropriate environmental character, building organization, circulation, supervision, and flexibility requirements, as well as finishes and furnishings.

#### **4-2.2.1.3 Exterior Signage.**

Provide information regarding the museum's hours of operation on exterior signage that is visible to customers from their cars and at the entrance to the building.

#### **4-2.2.1.4 Outdoor Public Areas.**

Where site allows, provide outdoor gathering space for viewing exterior sculpture, works of art, or historical artifacts. These areas should include, as a minimum, specialty paving, benches, plantings, lighting and signage. Provide as much seclusion from adverse impacts (e.g. utility appurtenances, poor views, noise) as possible in order to create outdoor areas that lend themselves to quiet reflection.

#### **4-2.2.2 Future Expansion Capability.**

Plan for building design that permits additions as collections and storage needs grow. Design the structural system for easy expansion and additions, without over-designing the initial construction.

#### **4-2.2.3 Building Circulation.**

The museum should be designed with clarity of circulation in mind. Public circulation should flow with self-evident ease and without the need for extensive signage. Public circulation should be directed, but should also allow for some self-paced flexibility and choice among museum visitors, especially among repeat visitors.

#### **4-2.2.4 Supervision and Security.**

Provide only one main public entrance/exit that is a prominent architectural component to facilitate visitor wayfinding and supervision. A separate staff only entrance may also

be provided that is not in a prominent location, but near dedicated staff parking areas. All other exits should be for emergency use only and alarmed. Staff at the information/ticket desk should have visual control over the lobby, public toilets, museum store, special events area, and entrances to exhibit spaces. Provide closed circuit television (CCTV) monitoring capability for staff working at the information/ticket desk if a separate security room is not provided.

#### **4-2.2.5 Windows.**

Consider a larger storefront system in the lobby or special events area which could be temporarily removed or partially removed in order to accommodate the installation or removal of an oversized collection object.

#### **4-2.2.6 Integrated Pest Management.**

Food and beverage service, catering kitchens, vending areas and break rooms must be separated from all museum display and storage areas. Organic garbage disposal must be kept separate from museum collections areas. Loading docks should be dedicated to museum collections only. Collections storage rooms must include doors with closers and door sweeps.

#### **4-2.2.7 Interior Design.**

##### **4-2.2.7.1 Interior Construction/Finishes.**

Interior construction and finishes (floors, walls, and ceilings) should support the cultural theme of the museum facility and convey a cohesive image throughout. Museum facilities receive a tremendous amount of visitor traffic as well as heavy equipment traffic to facilitate exhibit changes. Durability is important when specifying materials for interior construction. Finishes should also be low maintenance and promote limited use of cleaning supplies and resources.

Interior finishes should provide a neutral backdrop for artwork and exhibits. Consider the mission of the museum when selecting interior finishes. Interactive, dramatic spaces may utilize dark ceiling and wall finishes creating a “black box” effect. Museums that are more informational or exhibit-based may use lighter tones on walls and ceilings to give the space a lighter feel, thereby allowing the exhibits and displays to stand out. The finishes within entry areas, lobbies and main halls should provide visual interest through the introduction of color and texture.

For more information on finishes in specific areas, see the Functional Data Sheets.

- Floors
  - Floor finishes should be durable, easy to maintain and provide slip resistance for those visiting the facility. Floors in main traffic areas (lobby, special events area, main corridors) should receive high-quality hard surface flooring materials such as epoxy terrazzo, stone, or porcelain tile. Utilize large format tiles to minimize grout lines, thereby reducing maintenance. Consider the introduction of

non-distracting flooring patterns for visual interest. Provide modular, recessed aluminum framed entrance floor mat systems at all major entries to deter the transition of exterior debris into the facility.

- Galleries and exhibit areas could utilize a variety of floor finishes (carpet tile, vinyl flooring materials, stone) to delineate specific collections or displays. Address flooring transitions to eliminate tripping hazards and ensure smooth transport of exhibit materials and artifacts.
- Where carpet is introduced, use tile products with 100% solution-dyed nylon fiber, multi-level loop construction. All carpets, backings and adhesive systems must be certified by Carpet and Rug Institute (CRI) Green Label Plus to ensure low VOCs, promoting healthy indoor air quality. The carpet tile backing system should be non-vinyl.
- Solid wood and composite wood flooring is not recommended for use in museum spaces.
- Walls
  - Wall finishes in public areas should be durable and promote an upscale image for the backdrop of the facility. Exterior wall finishes, such as brick or stone, could transition into interior spaces for visual flow and introduction of varying material textures. Consider the use of high performance coatings (pro-industrial, precatalyzed, water-based epoxy) on walls in high traffic and service areas. Fabric-wrapped wall panels may be introduced for acoustical benefit, visual interest or display requirements.
- Miscellaneous
  - Toilet partitions should be floor-mounted overhead-braced and constructed of stainless steel, solid plastic (HDPE) or color-through phenolic for durability and graffiti resistance.
  - Built-in casework and cabinetry should consist of plastic laminate base and wall cabinets with solid polymer (solid surfacing) material countertops. Provide integral solid surface material sinks at restrooms. Stainless steel sinks should be provided at all other locations.

#### **4-2.2.7.2 Raised Access Flooring.**

Raised access flooring may be introduced in changing exhibition spaces where flexibility of power and data accessibility is required. Consider load requirements as well as

equipment used for exhibit maintenance when selecting raised access floor product. Seal concrete under raised flooring with a clear water-borne sealer.

#### **4-2.2.7.3 Interior Signage.**

Develop a comprehensive interior signage package for the facility that addresses permanent spaces and facilitates visitor wayfinding which is critical to a positive museum experience. Consider low lighting levels within exhibit spaces and the impact on viewing critical directional or informational signage content.

Consider the use of digital signage and interactive floor plans, specifically at the main entry/lobby. The interior signage package should complement interior finishes and exhibit signage with regard to materials, fonts, and style.

#### **4-2.2.7.4 Demountable and Operable Folding Partitions.**

Consider the use of demountable partition systems in exhibit gallery spaces as well as office/administration areas. These partitions will add flexibility to areas that are prone to frequent reconfiguration. System should be non-progressive, moveable and easily reconfigurable unitized panels from a single manufacturer (SI Facilities Design Standards).

Consider the use of operable folding partitions to create temporary separate areas, such as within education/training spaces.

#### **4-2.2.7.5 Fixed Theater Seating.**

Provide fixed seating in theater spaces. Frame and upholstery finishes should be durable and easily cleaned. Design must comply with NFPA 101. Refer to SI Facilities Design Guide, Section 126100, Fixed Auditorium Seating, for recommended performance specifications. Ensure adequate positions are provided for wheelchairs.

#### **4-2.2.7.6 Furniture, Fixtures and Equipment (FF&E).**

Throughout the museum facility, it is crucial to provide enough seating, offering rest areas for visitors. This can be accomplished through the introduction of built-in or freestanding benches scattered within the facility. Consider FF&E construction and finish materials during the selection process to ensure off-gassing is kept to a minimum in all spaces.

For more information on FF&E in specific areas, see the Functional Data Sheets.

### **4-2.3 Structural.**

#### **4-2.3.1 Special Loading Conditions.**

Floor live loads must be in accordance with UFC 3-301-01, *Structural Engineering*. Since locations of corridors are subject to change over time, use a minimum uniform live load of 100 pounds per square foot (4.79 kilopascals) over the entire floor area. Identify

specific live loads based on the use of the space. Consider display size and weights along with potential equipment required to move or service the exhibits.

**4-2.4 Mechanical.**

**4-2.4.1 Interior Design Conditions.**

See Functional Data Sheets for additional requirements.

**4-2.4.2 Temperature Control.**

See Functional Data Sheets for additional requirements.

**4-2.4.3 Humidity Control.**

See Functional Data Sheets for additional requirements.

**4-2.4.4 Heating, Ventilation, and Air Conditioning (HVAC) Design.**

**4-2.4.4.1 “Immersive” Experience Displays.**

Coordinate with the end user on HVAC requirements needed in museum displays to create an “immersive” experience for the museum visitor (i.e., heating to simulate Vietnam, cooling to simulate Korea).

**4-2.4.5 Acoustics and Noise.**

See Functional Data Sheets for additional requirements.

**4-2.5 Plumbing.**

**4-2.5.1 “Immersive” Experience Displays.**

Coordinate with the end user on plumbing requirements needed in museum displays to create an “immersive” experience for the museum visitor (i.e., compressed air and hydraulics to simulate helicopter vibration).

**4-2.6 Fire Protection.**

**4-2.6.1 Fire Protection Design.**

Fire protection designs must incorporate the prescriptive-based options of NFPA 909. Performance-based options must not be considered without explicit approval of the NAVFAC Chief Fire Protection Engineer.

Designs must incorporate redundant fire protection concepts, employing active fire protection through automatic fire suppression and detection systems, passive fire barrier features, and limiting combustible fuel load in order to control and minimize potential injury to staff and losses to collections, mission, and infrastructure.



#### **4-2.6.2 Applicable Guidance and Criteria.**

- National Park Service *Museum Handbook, Part 1: Museum Collections*, Chapter 9: Museum Collections Security and Fire Protection
- NFPA 909, Code for the Protection of Cultural Resource Properties — Museums, Libraries, and Places of Worship
- Smithsonian Institution Office of Safety, Health, and Environmental Management's Fire Protection and Life Safety Design Manual

#### **4-2.6.3 Fire Alarm and Detection Systems.**

Fire alarm and smoke detection systems must be provided throughout. Smoke detection in public exhibit and gathering spaces may be provided with spot, optical beam or early warning smoke detection as appropriate for the protected area. Serviceability and accessibility of detectors must be considered when selecting detector type. Incorporate necessary interfaces such that activation of the building fire alarm system automatically overrides theater A/V systems and other immersive type experiences.

#### **4-2.6.4 Sprinkler Systems.**

Fire Sprinkler System design criteria must comply with NFPA 13 –Installation of Sprinkler Systems, but must be designed for no less than Ordinary Hazard Group 2 criteria.

#### **4-2.6.5 Passive Fire Protection.**

Fire barriers must have a minimum one-hour fire resistive construction and be constructed as smoke barriers. Higher fire ratings may be required depending on the materials, process or hazards present, or as dictated by an applicable code or standard. In addition to fire separation requirements covered by the core documents, provide fire resistive barriers to separate and protect the following areas:

- Process areas or other rooms where collections will be inventoried, processed, restored, and cleaned.
- NGO spaces, such as the museum store or restaurant.

#### **4-2.6.6 Interior Finishes and Decorative Materials.**

- Wall and ceiling materials, paneling, and acoustical tile must be Class A or B, unless otherwise noted, with a maximum flame spread rating of 75 or less, and maximum smoke developed of 450 as tested in accordance with ASTM E84.
- Wood used for platforms, enclosures, cases over 100 cubic feet (or with heat producing equipment) or for other purposes must be fire retardant pressure impregnated lumber and markings clearly visible attesting to its fire retardant characteristics.

- Fire retardant coatings of intumescent paint or other fire retardant chemicals must not be used in lieu of fire retardant pressure impregnated treatment.
- Textiles or other materials treated with a fire retardant must be re-treated as per the recommended frequency by the treatment manufacturer. The building manager must maintain a record of the date and type of treatment for as long as the material is in use.
- Artificial rocks, faux environments, and similar construction must be fabricated of noncombustible materials to the greatest extent possible. Gypsum, glass fiber, metal lath and other noncombustible materials must be used in lieu of foamed plastics and other combustibles.
- Cellular or foamed plastics and expanded plastics must not be used unless they comply with the fire test criteria and limits on quantities in the IBC and in NFPA 101.

#### **4-2.7 Electrical.**

##### **4-2.7.1 Lighting.**

Provide automatic controls to maintain minimum light levels throughout the facility and prevent the lights from completely turning off during occupied hours. Provide master control stations at main staff entrance and at information /ticket desk if a separate security room is not provided. See Functional Data Sheets for additional information.

##### **4-2.7.2 Additional Lighting Requirements in Exhibit and Display Areas.**

Provide SL for all of the various lighting systems used in the exhibit and display areas, addressing the following:

- Coordinate with the end user and exhibit designer to determine how much illuminance and how much exposure time is acceptable for the artifacts planned to be displayed in each area. Limit the maximum display illuminance based on sensitivity of the artifacts (See Table 3-1). The maximum is usually between 5 and 25 fc; (50 to 250 lux).
- Provide luminaire and light sources that provide a defused light pattern, appropriate warmth/coolness of light for the art, color rendering, and visual clarity.
- Provide sources that are suitable for illuminating color paintings and black-and-white prints.
- Limit the use of incandescent specialty lighting to prevent infrared (IR) damage. Use of incandescent lamps requires specific authorization from the end user.
- Provide adjustable lighting systems in rotating exhibit areas. Implement systems, such as Track lighting on a 10 ft. (3.0m) x 10 ft. (3.0m)

permanent grid, to accomplish the initial arrangement while building in flexibility to accommodate future display requirements.

- Comply with Accessibility Laws including provision of circulation pathway lighting into and out of exhibit areas with a minimum of 1 FC (10 lux).
- Incorporate specific pre-programmed controls to permit the light level to remain low or off until a visitor approaches.
- Fiber optics for displays are ideal and are usually integrated into the display cases. Coordinate with the end user, and incorporate the appropriate power and controls for these systems.
- Note: The exhibit systems are often provided via a separate contract, however, exhibit areas must still have a separate maintenance / ambient lighting system. Establish locations of controls and the planned control procedures so that both systems can be operated independently by the staff, at appropriate times.

#### **4-2.7.3 Power.**

All receptacles located in areas occupied by children, such as the Education Center, must be listed Tamper-Resistant (removable caps or plugs are not acceptable).

Coordinate with exhibit planners and provide dedicated sources of power to support the exhibit requirements. Ensure connection points, when concealed, are accessible to staff without disruption of planned exhibits. Provide modular underfloor or within floor power and communication systems in rotating exhibit areas, such as a 10 ft. (3.0m) x 10 ft. (3.0m) permanent underfloor grid, to accomplish the initial arrangement while building in flexibility to accommodate future display requirements.

#### **4-2.7.4 CATV.**

Coordinate with exhibit planners and provide infrastructure to support the educational interactive features planned for the exhibits.

See Functional Data Sheets for additional requirements.

#### **4-2.7.5 Telecommunications.**

Provide modular underfloor or within floor system in the rotating exhibit areas, such as a 10 ft. (3.0m) x 10 ft. (3.0m) permanent underfloor grid, to accomplish the initial arrangement while building in flexibility to accommodate future display requirements. Provide recessed in floor telecommunication outlets in the Theatre, including at the stage and podium areas. Coordinate with the end user and provide the flexibility for the variety of potential functions / events.

See FDS for additional requirements.

#### **4-2.7.6 Coordination.**

The following items require interdiscipline coordination with the electrical design:

- Location of the cashier stations in museum stores that accommodate both data and telephone outlets.
- All power requirements for:
  - Lab equipment
  - Shop equipment
  - Food service equipment
  - Integration of food service equipment with fire suppression equipment

#### **4-2.8 Electronic Security System (ESS).**

See FDS for additional requirements.

##### **4-2.8.1 ESS – Food Service and Museum Store.**

When provided, ESS for the Food Service and Museum Store must be a standalone system. Coordinate requirements with service provider.

##### **4-2.8.2 Intrusion Detection System (IDS).**

- All Interior areas of a Museum through which reasonable access could be gained to works of art, artifacts, and archives must be protected by IDS.
- Provide point sensors on all windows, doors, and man-passable openings. Provide motion sensors within protected areas to protect all windows, doors, and man-passable openings and detect movement within the protected space.
- All emergency exit doors must be alarmed 24/7 and equipped with a local annunciation and delayed-egress is recommended with NFPA 101 compliance. Delayed egress hardware must be specified with the activation switch incorporated into the door panic hardware. Delayed egress hardware that integrates the activation switch within the magnetic locking mechanism is not permitted.

##### **4-2.8.2.2 Exhibit Alarms.**

Depending on value of the asset, some exhibit cabinets, wall mounted, or free standing exhibits may require IDS. When required, comply with the following:

- Exhibit cases must be protected with plunger or point sensor(s) on all doors/hatches and have vibration sensor(s) within the case. Sensors and wiring must be routed within the case, and protected from tampering.
- Wall mounted or free standing exhibits must be protected with plunger or point sensor and vibration sensor. In addition, wall mounted or free standing exhibits may utilize motion sensors with a curtain pattern to

create a detection zone around the asset. Protection patterns expand with distance from the detector. Therefore, careful detector placement is required to avoid inadvertent alarms. In most applications, floor mounted sensors are recommended. Movement within the detection zone should initiate a local sounder and alarm at the security office. In lieu of a toned alarm at the local sounder, consider a pre-recorded message such as "Please step back from the exhibit".

Provide a local sounder mounted at the exhibit to warn individuals who may have touched an exhibit case, wall mounted or free standing exhibits, or trespassed into an alarm zone. Provide a timer to silence the alarm after a preset time.

#### **4-2.8.2.3 Local Annunciation.**

A minimum of four local sounders should be placed in the corners of exhibit galleries. Additional sounders may be required in large galleries.

#### **4-2.8.2.4 IDS Zones.**

Staff only areas and public areas must be on separate IDS zones. In addition, the following areas will be on separate IDS Zones:

- Lobby, Special Events Area, Education Youth, and Theater
- Exhibition and Changing Exhibits
- Exhibit Alarms
- Collection Storage
- Exhibit Maintenance
- Facility Maintenance
- Loading Dock and Service Entrance

#### **4-2.8.3 Access Control System (ACS).**

At a minimum, provide card reader with keypad at the primary entrance, group tour entrance, primary staff entrance, loading dock entrance, ESS closet, the primary entrance of each protected area and IDS zone.

#### **4-2.8.4 Closed Circuit Television (CCTV).**

The following provides the minimum requirements.

##### **4-2.8.4.1 Cameras.**

Infrared (IR) illuminators are prohibited in areas that store or display IR sensitive objects or materials. Coordinate lighting design with camera locations; reference the Lighting in Areas Covered by CCTV section.

#### **4-2.8.4.2 Cameras - Public Areas.**

Provided camera coverage at the public entrances, lobby, emergency exits, loading dock, and in areas where the public has reasonable access to valuable assets. Provide a minimum of 75% camera coverage in the exhibit galley space with a combination of fixed and pan-tilt-zoom (PTZ) cameras. Cameras must provide coverage of:

- Alarmed cases and exhibits
- Museum windows
- Persons entering and exiting museum

#### **4-2.8.4.3 Cameras - Non-Public Areas.**

Provide camera coverage for the primary entrance to each protected area/IDS Zone, emergency exits, and within the protected area based on asset value.

#### **4-2.8.4.4 CCTV Workstation.**

Provide at locations indicated in FDS.

#### **4-2.8.4.5 Video Recording.**

System should have the capability to digitally record and store all cameras images for a minimum of seven days.

- On-demand and event activated recording must be 30 frames per second (fps)
- Routine recording should not be less than 10 fps
- Resolution should be no less than 720 X 480 pixels.

### **4-3 HISTORIC RESOURCE FACILITIES (HRF).**

#### **4-3.1 Civil.**

##### **4-3.1.1 Site Design.**

All Historic Resource Facility site designs must be in accordance with Department of Defense (DoD) criteria. These criteria are based on national standards, private sector consensus standards, and model codes. Refer to UFC 4-440-01N, *Design: Warehouses and Covered Storage*, for additional design requirements.

##### **4-3.1.2 Parking.**

Provide parking for facilities staff and persons with disabilities within walking distance of the facility entrance. Parking areas should be separated from truck docks and other activity areas by some appropriate physical means. Provide access for the largest size truck expected to serve the facility along with materials handling apparatus and fire apparatus. Truck parking and turning space for the largest size truck expected must be provided.

#### **4-3.1.3 Service Areas/Loading Docks.**

Provide maneuvering space to facilitate loading and unloading operations at dock. Inside loading docks are preferable over outside docks. Outside docks should be protected by full width canopies to shield docks from precipitation. Protect building corners and dock areas from vehicle impact by using concrete filled bollards. Dock height will vary between 44 and 52 inches (1120 mm and 1320 mm) depending on the class of trucks served. Configure truck docks to conform to building, site, and traffic flow requirements. Provide dock levelers at all truck positions. Provide space to load and unload flatbed and low-boy trucks and to move material in and out of the facility using a hoist or similar material handling equipment. Specify dock leveler capacity to provide a minimum 20 year life.

#### **4-3.2 Architectural.**

##### **4-3.2.1 Exterior Design.**

If the historic resource facility is located on a base, the exterior design should comply with the Installation Appearance Plan (IAP).

##### **4-3.2.2 Entrances.**

Control all other service and emergency egress points, with access limited to authorized individuals. Design the main entrance to be visible by inside staff. Incorporate a point of reference or landmark that serves as a welcome and transition location for visitors. Visually separate the primary entrance from other entrances and service areas.

##### **4-3.2.3 Roof and Rainwater Collection System.**

Consider using the roof for the collection of rainwater for the Underwater Archaeology outdoor treatment tanks.

##### **4-3.2.4 Future Expansion Capability.**

Plan for building design that permits additions as collections and storage needs grow. Design the structural system for easy expansion and additions, without over-designing the initial construction.

##### **4-3.2.5 Building Circulation.**

The flow of an item or material into, through and out of the building must be considered during the design of a HRF. There should be direct, uninterrupted flow, without ramps, turns or steps, from the loading dock through shipping/receiving to packing/unpacking, holding, and final location.

##### **4-3.2.6 Supervision and Security.**

Provide only one main public entrance/exit that is a prominent architectural component to facilitate visitor wayfinding and supervision. A separate staff only entrance may also be provided that is not in a prominent location, but near dedicated staff parking areas.

All other exits should be for emergency use only and alarmed. Staff at the reception or security desk should have visual control over the entrance and access points to secured areas. Provide closed circuit television (CCTV) monitoring capability for staff working at the reception/security desk if a separate security room is not provided.

#### **4-3.2.7 Integrated Pest Management.**

Provide separate holding room for pest inspection and treatment of materials prior to entering the HRF.

Vending areas and break rooms must be separated from all collections and storage areas.

#### **4-3.2.8 Interior Design.**

##### **4-3.2.8.1 Interior Construction/Finishes.**

HRFs should incorporate the use of functional and practical interior construction and finishes. Interior construction materials and finishes should contain low to no Volatile Organic Compounds (VOCs). Off-gassing of VOCs could adversely affect historic artifacts and archival materials. Per NARA 1571, all interior finish materials used in areas where records are stored must be approved by NARA Preservation Programs (NWT). Ensure testing times are incorporated into project planning and construction schedules.

For more information on finishes in specific areas, see the Functional Data Sheets.

- Floors
  - Flat and smooth concrete floors must be utilized throughout storage and lab spaces. Ensure there are no changes in floor levels or materials in corridors or path of travel for collections. Coordinate with structural engineer. Use of carpet is not permitted in records storage areas, but may be used in other parts of the archival facility (such as administrative spaces and library areas).
  - Archival Storage - Per NARA 1571, within archive/record areas, use a low VOC acrylic membrane curing compound for concrete floors, after which an epoxy should be applied. Limit off-gassing of any epoxy and floor coating used to less than 0.1 part per million by restricting the use of toluene and xylene in the floor coating mix.
  - Artifact Storage - Per NPS Museum Handbook, within artifact storage and work areas, treat concrete floors with a sodium silicate sealing/curing agent which will harden and increase the density of the surface of the concrete. The floor should be easy to clean without the use of chemicals. Seal concrete floors with a water-borne sealer (deck gray or similar color so that dirt and wear will be evident) which does not off-gas during or after curing. Product



should be able to be reapplied once worn without the need to remove collections from the spaces.

- Ceilings
  - Do not install dropped ceilings in record storage areas since they obscure leaks, provide habitats for pests and acoustic tile material can generate dust and debris (National Park Service Museum Handbook, Part 1). Exposed ceiling structure (as well as all exposed ceiling pipes) must be painted with an acrylic water-reducible primer covered by two coats of latex paint (NARA 1571.12). Acoustical tile ceilings can be used in administrative spaces, corridors and other spaces where stacks are not present. Ceilings should be a light color.
- Walls
  - Per NARA 1571.12, use water-based latex paint for walls. Do not use oil-based or alkyd paints. All concrete block walls in storage areas must be primed and painted to prevent dust. Walls should receive a light color.
- Casework
  - Built-in casework and cabinetry should consist of plastic laminate base/wall cabinets with solid polymer (solid surfacing) material countertops. Countertops in lab spaces should be constructed of a material that is nonporous, heat- and scratch-resistant, such as stainless steel or epoxy resin. Provide integral solid surface material sinks at restrooms. Stainless steel sinks should be provided at all other locations.

#### **4-3.2.8.2 Storage Systems.**

- Archival Storage Systems
  - All archives/record storage shelving, racking and high density mobile shelving systems must meet National Archives and Records Administration (NARA) standards per 36 CFR 1234, Facility Standards for Records Storage Facilities. Per NARA 1571, all metal shelving surfaces within records storage areas must be factory-finished with a “powder-coating polymer that must be a polyester epoxy hybrid or best equivalent that passes NWT-conducted or independent lab tests for hardness, coating stability, bending, coating adhesion, and coating durability.” Paints must not exceed off-gassing limits specified in Appendix B of NARA 1571. Wood shelving is not permitted.
  - Shelving must be stabilized to prevent tipping. Seismic conditions must be considered during design. Air circulation around static

shelving in archival storage areas is critical. At perimeter shelving units, the use of perforated backs, coupled with placing units 6 inch (152mm) off walls, will facilitate air flow.

- Electronic media such as CDs, DVDs, and magnetic tapes may require specialized storage units with 4 inch (102mm) to 7 inch (178mm) high drawers, promoting vertical orientation of the media.
- **Artifact Storage Systems**
  - Micro artifact storage systems include cabinets, shelving units and racks depending on the type and size of the object or collection stored. Specialized storage cabinets can reduce artifact exposure to light, increase security with locking mechanisms, or create a micro-environment inside the cabinet to protect against dust, pollutants, and pests. Macro artifact storage requires the use of heavy-duty widespan shelving or warehouse pallet rack systems. Refer to UFC 4-440-01, *Design: Warehouses and Storage Facilities*, for additional information. Macro and micro storage units could also be designed as a high density mobile system. Incorporate aisles that allow for safe handling of artifacts as well as full operation of any drawers or doors. Macro artifact mobile systems would need to accommodate forklift-accessible crates.
  - The use of restraining bars or cords secured to edges of shelves is recommended to prevent objects from falling, especially for collections housed in mobile storage systems or in earthquake zones. Per the NPS Museum Handbook, consider raising static storage shelving and cabinets off the floor at least 4 inches (102mm), preferably 6 inches (152mm) on metal risers to protect against flooding, pests and to facilitate cleaning. Artifact storage units should be factory-finished to match the requirements for Archival Storage Systems as described above.

#### **4-3.2.8.3 Furniture, Fixtures and Equipment (FF&E).**

For information on FF&E in specific areas, see the Functional Data Sheets.

#### **4-3.3 Mechanical.**

##### **4-3.3.1 Interior Design Conditions.**

See Functional Data Sheets for additional requirements.

##### **4-3.3.2 Temperature Control.**

See Functional Data Sheets for additional requirements.

#### **4-3.3.3 Humidity Control.**

See Functional Data Sheets for additional requirements.

#### **4-3.3.4 HVAC.**

See Functional Data Sheets for additional requirements.

#### **4-3.3.5 Acoustics and Noise.**

See Functional Data Sheets for additional requirements.

#### **4-3.4 Plumbing.**

See Functional Data Sheets for additional requirements.

##### **4-3.4.1 Underwater Archaeology Floor Drains.**

For conservation areas, coordinate with the user on the extensive network of floor drains that include chemical traps and neutralizers, as well as the capacity to handle catastrophic failures of vats capable of holding hundreds of gallons of diluted solutions.

Provide piping from floor drains to separate chemical containment system that includes holding tank(s) sized to accommodate the site where the facility is located and the maintenance program for evacuating them on a periodic basis (i.e., monthly, biannually, as needed).

##### **4-3.4.2 Access to Underwater Archaeology Holding Tank(s).**

Provide personnel access to holding tank(s) for the disposal of chemicals.

##### **4-3.4.3 Compressed Air System for Underwater Archaeology.**

Centralize compressed air system for Underwater Archaeology. If feasible, provide air compressor and air dryer in the space for the remote sensing equipment and dive locker. If air compressor and air dryer are provided in the covered area used for the outdoor treatment tanks and equipment storage, provide outdoor rated system, mounted on a slab.

#### **4-3.5 Fire Protection.**

##### **4-3.5.1 Fire Area Limitation.**

The storage of collections and high-value items (including art, artifacts, rare books, archival materials, and objects of historic value) must be stored in fire compartments sized to minimize the maximum foreseeable loss of items stored in any one compartment from a single fire event.

- Artifacts Storage Areas: The maximum size of any single collection storage space must be 30,000 sf (2790 m<sup>2</sup>). Smaller spaces may be required, depending on the value of collection items stored.

- Archival Material and Record Storage Areas (excluding Hazardous materials, including records on cellulose nitrate film): For storage of items deemed “vital” as defined in NFPA 232, the maximum storage volume of vital archival materials or records must not exceed 25,000 cubic ft (708 m<sup>3</sup>) in a single compartment. Items not deemed “vital” are considered “important” as defined in NFPA 232. The maximum storage volume of important archival materials or records must not exceed 125,000 cubic ft (3540 m<sup>3</sup>) in a single compartment.

#### **4-3.5.2 Fire Area Separation.**

The storage of collections and high-value items (including art, artifacts, rare books, archival materials, and objects of historic value) must be protected by passive and active fire protection measures. These measures include the following unless determined otherwise by the NAVFAC fire protection engineer:

- Separate storage areas from other areas with minimum 3-hour fire-rated construction. Barriers must also be constructed as smoke barriers. Higher fire ratings may be required depending on the materials stored and hazard presented.
- Items of extreme value must be stored in fire-resistive vaults, containers, or safes.
- Archival material and records deemed “vital” as defined in NFPA 232 must be separated from other areas with minimum four-hour rated construction.
- Collection storage rooms must be dedicated for such purpose. Artifact processing, packing, unpacking, crate and packaging storage, research performed on artifacts, and conservation of artifacts must not be conducted in collection storage rooms. Separate spaces must be incorporated into the design for these purposes.
- Each collection’s storage area must have a separately zoned HVAC configured to go to full exhaust mode upon smoke detection operation in a corresponding HVAC zone. Coordinate design requirements and features with the project mechanical engineer.
- Artifacts process areas or other rooms where artifacts will be inventoried, processed, cleaned and restored must be separated from other areas by a minimum one-hour fire-rated construction. Barriers must also be constructed as smoke barriers. Higher fire ratings may be required depending on the materials in process and hazard present.

#### **4-3.5.3 Fire Suppression.**

- Wet-pipe fire sprinkler systems must be provided throughout unless ambient or design temperatures warrant consideration for freeze protection. Antifreeze systems are prohibited.

- The protection of artifact storage areas must be based on Class IV commodities, unless a more severe class of storage is anticipated. Use Early Suppression Fast Response (ESFR) protection methods.
- Storage areas utilizing high density mobile shelving systems must be protected with ESFR sprinklers. High density mobile storage of archival materials and records must comply with the provisions of NFPA 13 for “Mobile High Bay Records Storage”. These requirements also apply to mobile storage units less than 12 ft (3.7m) high.
- Standpipe systems must be provided for storage areas utilizing compact mobile storage units. Fire department hose outlets must be spaced so that any point in the record storage area can be reached with a 50-foot (15.2m) hose stream from a 100-foot (30.4m) hose lay.
- Where books or records are stored in fixed open book shelves, the provisions of NFPA 909 and of NFPA 13 for “Library Stack Areas and Record Storage” apply. Performance-based options of NFPA 909 must not be considered without explicit approval of the NAVFAC Chief Fire Protection Engineer.
- Supplemental systems, such as clean agent fire extinguishing systems, may be considered based on hazard, risk, and value of the items stored. Clean agent fire extinguishing systems are not a substitute for required automatic sprinkler systems.

#### **4-3.5.4 Fire Alarm and Detection.**

Artifact and archive storage and processing areas must be protected with early warning smoke detection systems. Each storage area defined by fire rated partitions will be zoned separately. Alarm threshold activation will initiate HVAC smoke exhaust mode.

#### **4-3.5.5 Special Occupancy Requirements.**

Archival material and record storage areas must be designed and constructed in accordance with NFPA 232 for “vital” and “important” records defined except that fire area separation requirements for “important” records must be as required above.

The storage of records on cellulose nitrate film must be in accordance with NFPA 40, Standard for the Storage and Handling of Cellulose Nitrate Film.

The protection of laboratories using chemicals must be in accordance with NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals.

#### **4-3.6 Electrical.**

##### **4-3.6.1 Lighting.**

See Functional Data Sheets for specific lighting requirements. Coordinate with the user, and provide lighting controls based on the specific area zoning requirements.

Include sequentially timed lighting activated as individuals progress through the zoned areas, where appropriate.

**4-3.6.2 Power.**

See Functional Data Sheets for specific additional power requirements.

**4-3.6.3 CATV.**

See Functional Data Sheets for additional requirements.

**4-3.6.4 Telecommunications.**

See Functional Data Sheets for additional requirements.

**4-3.6.5 Coordination.**

The following items require coordination with the electrical design:

All power requirements for:

- Lab equipment
- X-ray equipment
- Shop equipment

**4-3.7 Electronic Security System (ESS).**

See Functional Data Sheets for additional requirements.

**4-3.7.1 Intrusion Detection System (IDS).**

All Interior areas of a Historic Resource Facility through which reasonable access could be gained to works of art, artifacts, and archives must be protected by IDS.

- Provide point sensors on all windows, doors, and man-passable openings. Provide motion sensors within protected areas to protect all windows, doors, and man-passable openings and detect movement within the protected space.
- All emergency exit doors must be alarmed 24/7 and equipped with a local annunciation and delayed-egress is recommended with NFPA 101 compliance. Delayed egress hardware must be specified with the activation switch incorporated into the door panic hardware. Delayed egress hardware that integrates the activation switch within the magnetic locking mechanism will not be permitted.

**4-3.7.1.2 IDS Zones.**

Staff only areas and public areas must be on separate IDS zones. In addition, the following areas must be on separate IDS Zones:

- Underwater Archaeology
- Art Storage
- Artifact Storage
- Arms Storage
- Archives
- Top secret/Open Storage functional areas
- Archive Secure Space
- Loading Dock

#### **4-3.7.2 Access Control System (ACS).**

At a minimum, provide card reader with keypad at the primary entrance, staff entrance(s), loading dock entrance, ESS closet, and the primary entrance of each protected area and IDS zone.

#### **4-3.7.3 Closed Circuit Television (CCTV).**

The following provides the minimum requirement.

##### **4-3.7.3.1 Cameras.**

Cameras are prohibited in areas containing classified materials. IR cameras or IR illuminators are prohibited in areas that store or display IR sensitive objects or materials. Coordinate lighting design with camera locations; reference the Lighting in Areas Covered by CCTV section.

##### **4-3.7.3.2 Cameras - Public Areas.**

Provided camera coverage at the public/Staff entrances, emergency exits, loading dock, and in areas where the public has reasonable access to valuable assets.

##### **4-3.7.3.3 Cameras - Non-Public Areas.**

Provide camera coverage for the primary entrance to each protected area/IDS Zone, emergency exits, and within the protected area based on asset value.

##### **4-3.7.3.4 CCTV Workstation.**

Provide at locations indicated in FDS.

##### **4-3.7.3.5 Video Recording.**

System must have the capability to digitally record and store all cameras images for a minimum of seven days.

- On-demand and event activated recording must be 30 frames per second (fps)

- Routine recording should not be less than 7 fps
- Resolution should not be less than 720 X 480 pixels



## APPENDIX A REFERENCES

### ADVISORY COUNCIL ON HISTORIC PRESERVATION

<http://www.achp.gov>

*National Historic Preservation Act*, <http://www.achp.gov/nhpa.html>

### AMERICAN ALLIANCE OF MUSEUMS

<http://www.aam-us.org>

*National Standards and Best Practices for U.S. Museums*

### AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS (ASHRAE)

<http://www.ashrae.org/>

*ASHRAE HVAC Applications Handbook, Chapter, "Museums, Galleries, Archives, and Libraries"*

*ASHRAE HVAC Applications Handbook, Chapter, "Laboratories"*

*ASHRAE Standard 52.2, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size*

*ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality*

### ASTM INTERNATIONAL

<http://www.astm.org>

*ASTM A240/A240M, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications*

*ASTM A641/A641M, Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire*

*ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*

*ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials*

## **CODE OF FEDERAL REGULATIONS**

<http://www.archives.gov/federal-register/cfr/>

36 CFR 79, *Curation of Federally-Owned and Administered Archaeological Collections*

36 CFR 1234.10 to 1234.14, *Facility Standards for Records Storage Facilities* (formerly numbered 36 CFR 1228.228 to 1228.232)

36 CFR 1234.20, *Creation and Use of Data Files*

## **DEPARTMENT OF DEFENSE**

Intelligence Community Standard (ICS) 705-1, *Physical and Technical Security Standards for Sensitive Compartmented Information Facilities*

## **DEPARTMENT OF DEFENSE, FEDERAL SPECIFICATIONS AND STANDARDS**

<http://quicksearch.dla.mil/index.cfm>

AA-D-600, *Door, Vault, Security*

AA-V-2737, *Modular Vault Systems*

FF-L-2890, *Lock Extension (Pedestrian Door, Deadbolt)*

FF-L-2937, *Combination Lock, Mechanical*

## **DEPARTMENT OF DEFENSE, UNIFIED FACILITIES CRITERIA**

<http://dod.wbdg.org/>

UFC 1-200-01, *General Building Requirements*

UFC 2-000-05N/P-80, *Facility Planning for Navy and Marine Corps Shore Installations*

UFC 3-101-01, *Architecture*

UFC 3-120-01, *Design: Sign Standards*

UFC 3-201-01, *Civil Engineering*

UFC 3-201-02, *Landscape Architecture*

UFC 3-301-01, *Structural Engineering*

UFC 3-410-04, *Industrial Ventilation*

UFC 3-501-01, *Electrical Engineering*

UFC 3-520-01, *Interior Electrical Systems*

UFC 3-530-01, *Design: Interior and Exterior Lighting Controls*

UFC 3-540-01 (Final Draft dated 11/2013), *Engine Driven Generator Systems for Backup Power Applications* – (Note: this version is applicable on projects and is available on the Navy Design Build Master (NDBM) website until the official unified version is available. [http://www.wbdg.org/ndbm/design\\_guidance.php](http://www.wbdg.org/ndbm/design_guidance.php))

UFC 3-580-10, *Navy and Marine Corps Intranet (NMCI) Standard Construction Practices*

UFC 3-600-01, *Fire Protection Engineering for Facilities*

UFC 4-010-05, *Sensitive Compartmented Information Facilities Planning, Design, and Construction*

UFC 4-020-01, *DoD Security Engineering Facilities Planning Manual*

UFC 4-021-02, *Electronic Security Systems*

UFC 4-440-01, *Design: Warehouses and Storage Facilities*, currently in Draft and anticipated to be published January 2014.

UFC 4-610-01, *Administrative Facilities*

UFC 4-740-20, *Libraries*

UFGS 23 09 23.13 20, *BACnet Direct Digital Control Systems for HVAC*

## **DEPARTMENT OF THE NAVY**

OPNAVINST 5450.342, *Mission, Functions, and Tasks of the Naval History and Heritage Command*

OPNAVINST 5530.13C *Physical Security Instruction for Conventional Arms, Ammunition, and Explosives (AA&E)*

SECNAVINST 4000.35A, *Cultural Resources Program*

SECNAVINST M-5510.36, *Information Security Program*

## **ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IES)**

<http://www.ies.org>

*Lighting Handbook Reference and Application*

**INTERNATIONAL CODE COUNCIL**

<http://www.iccsafe.org>

International Building Code

**NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)**

<http://www.archives.gov>

NARA 1571, *Archival Storage Standards*

**NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)**

<http://www.nfpa.org>

NFPA 13, *Installation of Sprinkler Systems*

NFPA 40, *Standard for the Storage and Handling of Cellulose Nitrate Film*

NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals*

NFPA 101, *Life Safety Code*

NFPA 232, *Standard for the Protection of Records*

NFPA 909, *Code for the Protection of Cultural Resource Properties - Museums, Libraries, and Places of Worship*

**NATIONAL PARK SERVICE**

*Museum Handbook, Part 1: Museum Collections,*

<http://www.nps.gov/museum/publications/MHI/mushbkl.html>

*Archaeological Resources Protection Act,*

<http://www.nps.gov/archeology/tools/Laws/arpa.htm>

**SMITHSONIAN INSTITUTION, OFFICE OF ENGINEERING DESIGN AND CONSTRUCTION (OEDC)**

<http://www.ofeo.si.edu/>

*Smithsonian Institution Facilities Design Standard*

**UNDERWRITER'S LABORATORIES**

<http://www.ul.com>

UL 681, *Installation and Classification of Burglar and Holdup Alarm Systems*

UL 2050, *National Industrial Security Systems*

**UNITED STATES ACCESS BOARD**

*Architectural Barriers Act*, <http://www.access-board.gov/the-board/laws/architectural-barriers-act-aba>

*Architectural Barriers Act Accessibility Standard*, <http://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-aba-standards>

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## APPENDIX B RESOURCES

- Lord, B., Lord, G. D., & Martin, L. (Eds.). (2012). *Manual of Museum Planning: Sustainable Space, Facilities, and Operations*. (3<sup>rd</sup> ed.). Plymouth, UK: AltaMira Press.
- MSA's Manager's Guide: Basic Guidelines for the New Museum Store Manager and The New Store Workbook*. Museum Store Association (MSA).
- Pacifico, M. & Wilsted, T. (Eds.). (2009). *Archival and Special Collections Facilities: Guidelines for Archivists, Librarians, Architects, and Engineers*. Chicago: Society of American Archivists.
- Wilsted, T. (2007). *Planning New and Remodeled Archival Facilities*. Chicago: Society of American Archivists.

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## APPENDIX C GLOSSARY

### C-1 ACRONYMS AND ABBREVIATIONS

AAM	American Alliance of Museums
ACS	Access Control System
ACT	Acoustic Ceiling Tile
ABA	Architectural Barriers Act
ABAAS	Architectural Barriers Act Accessibility Standard
ADA	Americans with Disabilities Act
ADAAG	Americans with Disabilities Act Architectural Guidelines
AFCI	Arc-Fault Circuit Interrupters
A/E	Architect/Engineer
AFCEC	Air Force Civil Engineer Center
ANSI	American National Standards Institute
APF	Appropriated Funds
ASTM	American Society for Testing and Materials
AT	Antiterrorism
A/V	Audio/Visual
BAS	Building Automation System
BEAP	Base Exterior Architectural Plan
BFR	Basic Facility Requirements
C	Celsius
CAC	Common Access Card
CATV	Cable Television
CCTV	Closed Circuit Television
CD	Compact Disk
CD-ROM	Compact Disk Read Only Memory

CFR	Code of Federal Regulations
CID	Comprehensive Interior Design
cm	Centimeter
CONUS	Continental United States
CPSC	U.S. Consumer Product Safety Commission
CRI	Color Rendering Index, Carpet and Rug Institute
CTTA	Certifying Tempest Technical Authority
dB	Decibels
DDC	Direct Digital Control
DDN	Defense Data Network
deg	Degrees
DNI	Director of National Intelligence or Director of Naval Intelligence
DoD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DON	Department of the Navy
DVD-ROM	Digital Versatile Disk Read Only Memory
E-Mail	Electronic Mail
EMCS	Energy Monitoring Control System
EPA	Environmental Protection Agency
ESFA	Early Suppression Fast Response
ESS	Electronic Security System
ETS	Electronic Transfer System
F	Fahrenheit
FAMNS	Fire Alarm/Mass Notification System
FC	Facilities Criteria

FDS	Functional Data Sheet
FED-STD	Federal Standard
FEMP	Federal Energy Management Program
FF&E	Furniture, Fixtures and Equipment
FIPS	Federal Information Processing Standards
FOA	Field Operating Agencies
FOIA	Freedom of Information Act
FPCON	Force Protection Condition
FPE	Fire Protection Engineer
fps	Frames per second
FRT	Fire Retardant-Treated
ft	Foot or Feet
FY	Fiscal Year
GFCI	Ground-Fault Circuit Interrupter
GSA	General Services Administration
GWB	Gypsum Wall Board
HDPE	High Density Polyethylene
HEPA	High-Efficiency Particulate Air
HQUSACE	Headquarters, United States Army Corps of Engineers
HRF	Historic Resource Facility or Historic Resource Facilities
HSS	High Security Switches
HVAC	Heating, Ventilating, and Air Conditioning
IAP	Installation Appearance Plan
IBC	International Building Code
ICS	Intelligence Community Standard
IDS	Intrusion Detection System

IESNA	Illuminating Engineering Society of North America
IPM	Integrated Pest Management
IR	Infrared
ISP	Internet Service Provider
IT	Information Technology
JWICS	Joint Worldwide Intelligence Communications System
Kgf	Kilogram-force
LAN	Local Area Network
LC	Library of Congress
LED	Light Emitting Diode
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
LRC	Learning Resource Center
LZ2	Lighting Zone 2
m	Meter
mm	Millimeters
MERV	Minimum Efficiency Reporting Value
MILCON	Military Construction
MIL-HDBK	Military Handbook
MLOP	Medium Level of Protection
MSA	Museum Store Association
MWR	Morale, Welfare, and Recreation
NARA	National Archives and Records Administration
NATO	North Atlantic Treaty Organization
NAVFAC	Naval Facilities Engineering Command
NDBM	Navy Design Build Master

NEC	National Electric Code
NFPA	National Fire Protection Association
NGE	Non-Governmental Entity
NGO	Non-Governmental Organization
NHHC	Naval History and Heritage Command
NIC	Noise Isolation Class
NIPRNet	Non-Secure or Non-Classified Internet Protocol Router Network
NISO	National Information Standards Organization
NPS	National Park Service
NRC	Noise Reduction Coefficient
NWT	NARA Preservation Programs
OCONUS	Outside Continental United States
OMSI	Operations and Maintenance Support Information
OPNAV	Chief of Naval Operations
OSHA	Occupational Safety and Health Administration
PA	Public Address
PCAS	Post-Construction Award Services
PDS	Protected Distribution System
PME	Professional Military Education
PO	Private Organization
POS	Point of Sale
psi	Pound per square inch
PTS	Performance Technical Specifications
PTZ	Pan-Tilt-Zoom
PWS	Performance Work Statement
QA/QC	Quality Assurance/Quality Control

RFP	Request for Proposal
RH	Relative Humidity
SCIF	Sensitive Compartmented Information Facility
SECNAV	Secretary of the Navy
sf	Square Feet
SID	Structural Interior Design
SIPRNet	Secret or Secure Internet Protocol Router Network
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SI	Smithsonian Institution
SL	Sensitive Lighting
SOW	Statement of Work
SPD	Surge Protection Device
SRAN	Supply Record Account Number
SAA	Society of American Archivists
STC	Sound Transmission Coefficient
UA	Underwater Archaeology
UFAS	Uniform Federal Accessibility Standards
UFC	Unified Facilities Criteria
UFGS	Unified Facilities Guide Specifications
UL	Underwriters Laboratories
UMCS	Utility Monitoring Control System
UPS	Uninterruptable Power Supply
US	United States
USAF	United States Air Force
USGBC	United States Green Building Council
UV	Ultraviolet

VI	Visual Information
VOC	Volatile Organic Compound
VRV	Variable Refrigerant Volume
WBDG	Whole Building Design Guide
WBS	Work Breakdown Structure

## C-2 DEFINITIONS

**Accessioning.** The formal act of accepting an object(s) into the category of materials that a museum or historic resources facility holds in the public trust which typically includes the creation of an immediate, brief, and permanent record utilizing a control number for an object or group of objects. An accession record typically includes the accession number, the date and nature of acquisition (i.e. gift, excavation, purchase, bequest), the source, a brief identification and description, condition, place of origin, value, and name of staff member recording the accession.

**Archives.** An archive is a repository of historically significant material. The Archives Branch of the Naval History and Heritage Command collects, preserves, arranges, describes, catalogs and makes available for use material consisting of paper-based, photographic, and electronic documentation.

**Artifact.** An object created by people that is indicative of or exemplifies a specific period of time, culture, or activity.

**Cataloging.** The process of listing something for inclusion in a catalog. In library and information science, the process encompasses the production of bibliographic descriptions of books as well as other types of discovery tools for documents. Today cataloging study and practice has broadened and merged with that of metadata ("data about data contents").

**Cold Storage.** A Critical Space storage room for film and audio recordings where cold temperatures must be maintained in order to protect and preserve the collections.

**Collections.** Objects, documents, books, serials, and other media that museums, libraries, archives, manuscript repositories, and historic resource facilities hold in trust for the public. Items are usually considered a part of a collection once they are accessioned or cataloged.

**Conservation.** A process by which objects are treated with the goal of keeping them in their original or current condition in perpetuity.

**Critical Space.** An area or space where the respective indoor temperature and relative humidity requirements must be maintained 24 hours/day, 365 days/year in order to protect and preserve naval artifacts, archives, and art.

**Curator.** A curator is the keeper or custodian of a museum or other collection. The Curator Branch of the Naval History and Heritage Command ensures the proper documentation, care, and preservation of the Navy's historical artifacts, and makes them available to the Navy and to the public in order to develop a better understanding of and fuller support for the Navy.

**Electronic Security System (ESS).** The integrated electronic system that encompasses interior and exterior Intrusion Detection Systems (IDS), Closed Circuit Television (CCTV) systems for assessment of alarm conditions, Access Control Systems (ACS), Data Transmission Media (DTM), and alarm reporting systems for monitoring, control, and display.

**Historic Resource Facility.** A type of storage facility that may include one or more of the following functional areas: administrative, archives, artifacts (including historical art, property, artifacts and collections), exhibit programs, library and underwater archaeology.

**Histories.** Histories is a functional group within the Naval History and Heritage Command, which conducts historical research and analysis, and produces historical knowledge products ranging from scholarly monographs and policy papers, to on-line chronologies and blog postings. The Histories Branch also promotes and supports outside research of naval history.

**Immersive Experience.** Museum display that simulates an actual environment or historical event and provides the viewer with a feeling of being there.

**Integrated Pest Management.** The coordination of information about pests and environmental conditions with available pest control methods to prevent unacceptable levels of pest damage while minimizing hazards to people, property, collections, and the environment. IPM programs apply a holistic approach to pest management decision making and consider all appropriate options, including but not limited to pesticides.

**Intrusion Detection System (IDS).** A system consisting of interior and exterior sensors, surveillance devices, and associated communication subsystems that collectively detect an intrusion of a specified site, facility, or perimeter and annunciate an alarm.

**Library.** An organized collection of information resources made accessible to a defined community for reference or borrowing. It provides physical or digital access to material, and may be a physical building or room, or a virtual space, or both. A library's collection can include books, periodicals, newspapers, manuscripts, films, maps, prints, documents, microform, CDs, cassettes, videotapes, DVDs, Blu-ray Discs, e-books, audiobooks, databases, and other formats. A library is organized for use and maintained by a public body, an institution, a corporation, or a private individual. Public



and institutional collections and services may be intended for use by people who are unable to purchase an extensive collection themselves, who need material no individual can reasonably be expected to have, or who require professional assistance with their research. In addition to providing materials, libraries also provide the services of librarians who are experts at finding and organizing information and at interpreting information needs. Libraries often provide quiet areas for studying, and they also often offer common areas to facilitate group study and collaboration. Libraries often provide public facilities for access to their electronic resources and the Internet. Modern libraries are increasingly being redefined as places to get unrestricted access to information in many formats and from many sources. They are extending services beyond the physical walls of a building, by providing material accessible by electronic means, and by providing the assistance of librarians in navigating and analyzing very large amounts of information with a variety of digital tools.

**Macro Artifact.** Artifact that is larger in size than a micro artifact and may need a specialty built crate that takes up more than a 4 ft (1.2m) by 4 ft (1.2m) pallet on the floor. Examples of macro artifacts include large ordnance and cannons, ship control panels, anchors, submarine sails, boats, and submersibles.

**Micro Artifact.** Artifact that can be placed within a cabinet or storage rack, can be packaged together for bulk storage, or takes up no more than one standard 4 ft (1.2m) by 4 ft (1.2m) pallet. Examples of micro artifacts include objects as small as a uniform button up to objects such as ship's bells or other equipment.

**Micro-environment.** A climate-controlled and secure space for the display or storage of artifacts within a sealed case or frame. Micro-environments are utilized in facilities where environmental control is not feasible for entire rooms.

**Physical Security.** That part of security concerned with physical measures designed to safeguard personnel; to prevent or delay unauthorized access to equipment, installations, material, and documents; and to safeguard them against espionage, sabotage, damage, and theft.

**Preservation.** A branch of library and information science concerned with maintaining or restoring access to artifacts, documents, and records through the study, diagnosis, treatment and prevention of decay and damage. It should be distinguished from conservation, which refers to the treatment and repair of individual items to slow decay or restore them to a usable state.

**Processing.** A systematic means of bringing an artifact, document, or record into the collection. Processing includes formally accessioning the artifacts, documents, or records, cataloguing, photographing/scanning, packing and/or housing them for storage, and creating a written and/or electronic record of this documentation.

**Records.** All books, papers, maps, photographs, machine readable materials, or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the United States Government under Federal law or in connection with

the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the Government or because of the information value of data in them. Materials made or acquired or preserved solely for reference or exhibition purposes, extra copies of documents preserved only for convenience of reference, and stock of publications and of processed documents are not included.

**Security Lighting.** Security lighting provides illumination during periods of darkness or in areas of low visibility to aid in the detection, assessment, and interdiction of aggressors by security forces. Security Lighting is sometimes referred to as protective lighting.

**Sensitive Lighting (SL).** Lighting with special characteristics required to be used in areas displaying, handling or storing artifacts or archival materials. See the electrical paragraphs within this FC for detailed information.

**Storage Systems.** A system of stationary or mobile storage shelving units, cabinets, racks or other storage solutions. High-density mobile systems include storage units, in varying sizes and configurations, on wheeled carriages which travel on recessed or low-profile tracks. High-density mobile systems offer increased storage capacity and can be either motorized or manually operated.

**Underwater Archaeology.** Underwater Archaeology is a branch under the Naval History and Heritage Command that is tasked to manage and oversee historical underwater archaeology, conservation projects, and activities that relate to the Curator of the Navy. Underwater Archaeology conducts compliance and permitting responsibilities related to cultural resources management and Sunken Military Craft Act compliance as defined in the appropriate directives.

**Vault.** A room specifically designed to provide resistance to forced and covert entry.

## APPENDIX D MUSEUM FUNCTIONAL DATA SHEETS

This appendix further identifies specific design needs for individual spaces within Museums. Building design criteria are provided in a standard Functional Data Sheet (FDS) table format that generally follows the Unifomat II/Work Breakdown Structure (WBS). The Interior Construction/Built-In Equipment category includes anything physically attached or plumbed to the building such as counters, cabinets, casework, toilet accessories, window shades or blinds, and recessed projection screens. The Furnishings and Equipment category includes loose or moveable items such as desks, chairs, and shelving.

The Functional Data Sheets are presented as a guide for the designer, planner, or RFP preparer. It is intended that the information in them are the minimum requirements for the respective rooms and spaces. These minimum requirements apply in addition to all other requirements of this FC and other referenced documents. In the event of a mutually exclusive conflict or where both requirements cannot be satisfied, the Functional Data Sheets take precedence. However, if in the best judgment of the designer, a more restrictive requirement is appropriate, the more restrictive requirement may be applied after consulting with the user. Note that blank spaces found in the Functional Data Sheets indicate building components or systems should follow standard guidance per UFC 1-200-01, *General Building Requirements*.

**Table D-1 Museum – Vestibule**

<b>Description / Usage</b>	Vestibule. Main entrance to the museum.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Storefront system for daylighting and vision into lobby.	
<b>Doors</b>	Heavy duty storefront system to accommodate high visitor traffic.	
<b>Interior Construction / Built-In Equipment</b>	Provide recessed walk-off mat.	
<b>Finishes</b>	<b>Walls</b>	Upgraded wall finish system such as wood, stone, or continuation of exterior finishes.
	<b>Floor</b>	Hard surface (terrazzo, stone/porcelain tile, etc.).
	<b>Base</b>	Terrazzo, stone (coordinate with floor material).
	<b>Ceiling</b>	Painted plaster or GWB, or decorative ceiling treatment.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Provide only heating in vestibule.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of an average of 5 fc (50 lux) ambient and daylighting with dimmability controls.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Adjacent to Lobby/Main Entrance/Visitor Services.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-2 Museum – Lobby/Main Entrance/Visitor Services**

<b>Description / Usage</b>	Lobby/Main Entrance/Visitor Services. Provide dedicated group/tour entrance as required.	
<b>Ceiling Height</b>	Varies.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Reception counter, building directory, bulletin boards, donor recognition display, monitor to display on-going visitor information.	
<b>Finishes</b>	<b>Walls</b>	Upgraded wall finish system such as wood, stone, or continuation of exterior finishes.
	<b>Floor</b>	Hard surface (terrazzo, stone/porcelain tile, etc.).
	<b>Base</b>	Terrazzo, stone (coordinate with floor material)
	<b>Ceiling</b>	ACT, exposed structure, acoustic clouds or other specialized ceiling treatments.
<b>Plumbing</b>	Provide per Chapter 3. Provide electric water cooler in proximity of public toilets.	
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design lobby area to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4. FAMNS flush-mounted remote panel with microphone located at the reception counter.	
<b>Power</b>	Provide per Chapter 3. Coordinate with power requirements for additional special systems.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of 5 fc (50 lux) ambient, day lighting penetrations, and dimmability w/photosensors.	
<b>Communication</b>	<b>Telephone</b>	Provide at reception counter.
	<b>Data</b>	Provide at reception counter. Coordinate requirements for ticket sales system.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4. Locate ACS workstation at reception counter unless directed otherwise.
	<b>CCTV</b>	Provide per Chapter 3 & 4.

<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Benches, Automated External Defibrillator (AED)	
<b>Special Requirements</b>	Consider areas for visitor queuing, wheelchair storage, and visitor screening (x-ray). Include space for visitor coat and personal effects storage.	
<b>Adjacencies/Location within Facility</b>	Vestibule, Museum Store, Public Restrooms, Security, Special Events Area, Theater	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-3 Museum – Museum Store**

<b>Description / Usage</b>	Museum Store. Consists of retail area and inventory storage area for museum merchandise. Include shipping/wrapping area and Point of Sale (POS) register area.	
<b>Ceiling Height</b>	10 ft. (3.0 m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>	Recommend storefront system for visibility.	
<b>Interior Construction / Built-In Equipment</b>	Sales counter to accommodate POS register. Modular display and storage systems.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile or resilient flooring material (linoleum, luxury vinyl tile/plank).
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT, exposed structure, acoustic clouds or other specialized ceiling treatments.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of power panels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of 40 fc (400 lux) ambient, day lighting penetration, dimmability w/ photosensors, and coordination with store display lighting as appropriate.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 and with the addition of infrastructure for non-NMCI system and credit card processing.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	Stand alone system to be coordinated w/ NGO.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Stool at sales counter.	
<b>Special Requirements</b>	May require coordination with NGO. Refer to Museum Store Association (MSA) standards for additional information. Provide storefront wall at front of store for display visibility. Provide storefront door, gate or coiling grille to secure space after-hours, if open to lobby.	
<b>Adjacencies/Location within Facility</b>	Lobby/Main Entrance.	

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		



**Table D-4 Museum – Museum Store Manager Office**

<b>Description / Usage</b>	Museum Store Manager Office. Office can be located within or near Museum Store.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 with the addition of infrastructure for possible Non-NMCI data system connection.
	<b>CATV</b>	
	<b>Security</b>	
	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Freestanding desking system, task lighting, ergonomic desk chair, side chairs, filing/storage, safe.	
<b>Special Requirements</b>	May require coordination with NGO.	
<b>Adjacencies/Location within Facility</b>	Museum Store. Main lobby.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-5 Museum – Security Office

<b>Description / Usage</b>	Security Office. Optional office for security personnel (in larger museum facilities only).	
<b>Ceiling Height</b>	8 ft. (2.4 m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Built-in console for monitoring equipment.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4. FA/MNS Remote Panel with microphone.	
<b>Power</b>	Provide per Chapter 3. Coordinate requirements for radio charging system.	
<b>Lighting</b>	Provide per Chapter 3 and dimmable lighting.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	Provide IDS Workstation
	<b>ACS</b>	Provide card reader at entrance and ACS Workstation
	<b>CCTV</b>	Provide CCTV Workstation
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Desk, ergonomic chair, storage (file cabinet or shelving), task lighting, guest side chair(s), lockable gun storage, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Lobby/Main Entrance, Special Events Area	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-6 Museum – Public Restrooms

<b>Description / Usage</b>	Public Restrooms/Family Restroom/Mothers' Room. Men's, Women's and Family toilet rooms.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Sink vanities, toilet partitions, mirrors, toilet accessories, diaper changing stations.	
<b>Finishes</b>	<b>Walls</b>	Ceramic or porcelain tile (full-height). Provide water-resistant GWB at wet walls.
	<b>Floor</b>	Porcelain tile.
	<b>Base</b>	Ceramic or porcelain tile.
	<b>Ceiling</b>	ACT and/or painted GWB (satin finish).
<b>Plumbing</b>	Provide per Chapter 3. Provide wall-mounted urinals, floor-mounted toilets, and lavatories. Provide a floor drain.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of emergency lighting with battery backup .	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Provide comfortable lounge chair in Mother's Room.	
<b>Special Requirements</b>	Locate one restroom at each floor level. Coordinate with Facility Manager when determining soap and paper product dispensing preferences. Consider child-sized toilet, sink and dispensers and proper mounting heights at Family Restrooms.	
<b>Adjacencies/Location within Facility</b>	Lobby, Exhibit spaces, Education spaces.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-7 Museum – Theater**

<b>Description / Usage</b>	Theater. Accommodates large presentations, ceremonies and media viewing.	
<b>Ceiling Height</b>	12 ft. (3.7m) minimum.	
<b>Windows</b>	Not required.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Fixed seating, audiovisual systems (presentation, sound, lighting, etc.), recessed projection screen, projector mount(s), stage curtain.	
<b>Finishes</b>	<b>Walls</b>	Acoustic wall panels, paint (eggshell or satin finish) or other specialized wall treatments.
	<b>Floor</b>	Carpet tile, resilient flooring, stained/sealed concrete.
	<b>Base</b>	Wood or resilient.
	<b>Ceiling</b>	ACT, exposed structure, acoustic clouds or other specialized ceiling treatments.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Use demand controlled ventilation or heat/enthalpy recovery when cost effective.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapters 3 and 4 with the addition of flush floor mounted outlets, coordinated with requirements of the planned events.	
<b>Lighting</b>	Provide per Chapters 3 and 4 with the additions of 30 fc (300 lux) ambient with dimmability, and the specialty lighting systems to accommodate the planned events.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapters 3 and 4 with the addition of the infrastructure for video teleconferencing system for presentations and training purposes, non-NMCI data system connection, and flush floor mounted outlets, coordinated with requirements of planned events.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>	NC 55 or greater.	
<b>Furnishings and Equipment</b>	Lecturn/podium	
<b>Special Requirements</b>	May require coordination with NGO. Consider use of tiered floor and stage or platform. Provide audio-visual systems to support museum mission. Provide accommodation for remote VTC and podcasts.	
<b>Adjacencies/Location within Facility</b>	Lobby, Special Events Area	

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

**Table D-8 Museum – Docent Education/Training Room**

<b>Description / Usage</b>	Docent Education/Training Room. Work/lounge space for docents/volunteers.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Built-in casework and lockable cabinets, if sink required. Personnel lockers.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet (resilient flooring near sink area, if provided).
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>	Provide per Chapter 3. Provide a stainless steel sink with hot and cold water supply and a cleanout. Provide a water connection for icemaker at refrigerator.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 15 fc (150 lux) ambient and 30 fc (300 lux) task, dimmability or multilevel switching, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	Consider provision of infrastructure for Video teleconferencing hookup for training purposes.
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work table, chairs, small touch-down workstations, open library shelving, storage cabinets for materials, refrigerator, lounge chairs, occasional tables.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Main lobby, Exhibit area, Education Director	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-9 Museum – Museum Director Office

<b>Description / Usage</b>	Museum Director Office. Private office for museum director.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell or satin.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Freestanding desking system, task lighting, ergonomic desk chair, side chairs, filing/storage.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>		
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-10 Museum - Curatorial/Historian Office

<b>Description / Usage</b>	Curatorial/Historian Office	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell or satin.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Verify if snorkel type localized exhaust systems with articulating arms that can be adjusted and manually set to desired positions of users are required.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Freestanding desking system, task lighting, ergonomic desk chair, side chairs, filing/storage.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Collections Area	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



Table D-11 Museum - Computer/IT Office

<b>Description / Usage</b>	Computer/IT Office.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell or satin.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3 & 4.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Freestanding desking system, task lighting, ergonomic desk chair, side chairs, filing/storage.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Administrative Area.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-12 Museum – AV Supervisor Office

<b>Description / Usage</b>	AV Supervisor Office	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell or satin.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3 & 4.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Freestanding desking system, task lighting, ergonomic desk chair, side chairs, filing/storage.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Theater.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-13 Museum – Administrative Support Spaces**

<b>Description / Usage</b>	Administrative Support Spaces. Includes any administrative support spaces required to include copy, print, central files.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum	
<b>Windows</b>	Provide, if possible, for exterior views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell or satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3 & 4.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Freestanding systems furniture (open office), worktables, storage cabinets, file cabinets.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Administrative offices.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-14 Museum – Conference Room

<b>Consider area for wheelchair storage.</b>	Conference Room. Room to support staff meetings, presentations and training.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>	Provide, if possible, for exterior views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Recessed projection screen, projector mount. Visual display system - whiteboards, tackboards, etc.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell or satin finish. Optional finish treatments (wood wainscott, acoustical wall panels, etc.).
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient or wood.
	<b>Ceiling</b>	ACT. Could introduce GWB soffits for interest.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 with the addition of the infrastructure for video teleconferencing system for presentations and training purposes.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Conference table, chairs (around table and stacking for additional capacity), lectern, storage credenza, mobile flipchart easel.	
<b>Special Requirements</b>	Consider VideoTeleconferencing (VTC).	
<b>Adjacencies/Location within Facility</b>	Administrative area, Museum Director Office.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-15 Museum – Staff Break Room

<b>Description / Usage</b>	Staff Break Room	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Casework with base/wall cabinets; television wall-mount bracket.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient (linoleum, luxury vinyl tile or plank).
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>	Provide per Chapter 3. Provide a stainless steel sink with hot and cold water supply and a cleanout. Provide a water connection for icemaker at refrigerator.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Tables and chairs, countertop microwave, refrigerator, coffee machine, television, recycling containers.	
<b>Special Requirements</b>	Provide area for recycling containers and vending machines.	
<b>Adjacencies/Location within Facility</b>	Administrative areas.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-16 Museum – Intern Staff Cluster

<b>Description / Usage</b>	Intern Staff Cluster. Space to support NHHC intern programs.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 with the addition of infrastructure for possible Non-NMCI data system connection.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Freestanding desking system or systems furniture (open office), task lighting, ergonomic desk chair, side chairs, filing/storage.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>		
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-17 Museum – Staff Restrooms

<b>Description / Usage</b>	Staff Restrooms. Toilet facilities for building staff.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Sink vanities, toilet partitions (if required), lockers, mirrors, toilet accessories.	
<b>Finishes</b>	<b>Walls</b>	Ceramic or porcelain tile (full-height). Provide water-resistant GWB at wet walls.
	<b>Floor</b>	Porcelain tile.
	<b>Base</b>	Ceramic or porcelain tile.
	<b>Ceiling</b>	ACT and/or painted GWB (satin finish).
<b>Plumbing</b>	Provide per Chapter 3. Provide wall-mounted urinals, floor-mounted toilets, and lavatories. Provide a floor drain.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
	<b>IDS</b>	
<b>Security</b>	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Coordinate with Facility Manager when determining soap and paper product dispensing preferences.	
<b>Adjacencies/Location within Facility</b>	Administrative areas (non-public areas)	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-18 Museum – Special Events Area**

<b>Description / Usage</b>	Special Events Area. Large open space to accommodate ceremonies, training, and other special events. This space may be a part of the main lobby.	
<b>Ceiling Height</b>	Varies.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Benches, Special mission graphics	
<b>Finishes</b>	<b>Walls</b>	Upgraded wall finish system such as wood panels, stone, or continuation of exterior finishes.
	<b>Floor</b>	Hard surface (terrazzo, stone/porcelain tile, etc.). Coordinate with Main Entrance finishes.
	<b>Base</b>	Terrazzo, stone (coordinate with floor material).
	<b>Ceiling</b>	ACT, exposed structure, acoustic clouds or other specialized ceiling treatments.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. If part of the main lobby, this is a critical area which must be designed to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 10 FC (100 lux) ambient, daylighting, and dimmability controls to accommodate specific activities.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3 with the addition of flush floor mounted outlets, coordinated with requirements of special events .
	<b>Data</b>	Provide per Chapter 3 with the addition of flush floor mounted outlets, infrastructure for Non-NMCI service , and additional systems (e.g., sound, wireless) coordinated with requirements of special events.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4



<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Tables, chairs, and podium to provide flexible layout options.	
<b>Special Requirements</b>	May require coordination with NGO.	
<b>Adjacencies/Location within Facility</b>	Lobby, Food Service area	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-19 Museum – Special Events Storage

<b>Description / Usage</b>	Special Events Storage. Include room for storage of chairs, flags, tables, podiums, etc.	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete or continuation of adjacent floor finish.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - painted.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Table and chair carts, if required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Special Events Area, Kitchen/Catering space.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-20 Museum – Exhibit Area

<b>Description / Usage</b>	Exhibit Area(s). Includes permanent collection gallery, temporary exhibit gallery and art gallery spaces.	
<b>Ceiling Height</b>	Varies. 12 ft. (3.7m) minimum. Consider mix of high bay and low bay ceiling heights depending upon exhibit requirements.	
<b>Windows</b>	Provide only if exterior views are necessary for exhibit enhancement.	
<b>Doors</b>	Provide oversize doors and openings as required for exhibit installation and maintenance.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Painted gypsum wallboard, finish level 4, on 1/2 inch (1.3 cm) FRT plywood. Use 3/4 inch (1.9 cm) FRT plywood on 12 foot (3.7m) high walls.
	<b>Floor</b>	Floor finish materials will vary depending on exhibit layout and design.
	<b>Base</b>	Varies to coordinate with floor finish.
	<b>Ceiling</b>	ACT, exposed structure, acoustic clouds or other specialized ceiling treatments.
<b>Plumbing</b>	Provide per Chapter 3 and 4.	
<b>HVAC</b>	Provide per Chapter 3 and 4. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4. Provide Very Early Warning Smoke Detection.	
<b>Power</b>	Provide per Chapters 3 and 4 with specialty power connections and grids, as appropriate.	
<b>Lighting</b>	Provide per Chapters 3 and 4. All lighting shall be SL, including 1 fc (10 lux) continuous ambient during occupancy, maintenance lighting system (coordinated to sensitivity of the exhibits), exhibit lighting systems with grids as appropriate, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapters 3 and 4 with specialty communication connections and underfloor grids as appropriate
	<b>Data</b>	Provide per Chapters 3 and 4 with specialty communication connections and underfloor grids as appropriate
	<b>CATV</b>	

<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Benches.	
<b>Special Requirements</b>	Art Gallery area - provide flexible art display system for changing exhibits.	
<b>Adjacencies/Location within Facility</b>	Lobby, Special Events Area	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-21 Museum – AudioVisual Room

<b>Description / Usage</b>	AudioVisual Room. Serves as the AV and lighting support areas for exhibits.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Projection systems, AV racks.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT or exposed painted structure.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4. Provide very early warning smoke detection.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3. Coordinate with specialty systems needed for the special events.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3. Coordinate with specialty systems needed for the special events, including microphones, sound, and wireless systems.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Exhibits.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-22 Museum – Education Space – Classrooms**

<b>Description / Usage</b>	Education Space - Classroom(s). Utilized for a variety of activities - lectures, children's education, training.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Consider operable folding partitions if required for flexibility. Recessed projection screen, projector mount. Visual display system - whiteboards, tackboards, etc. Built-in casework and lockable storage, if sink required. Consider use of Smartboards.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>	Provide per Chapter 3. If required, provide a stainless steel sink with hot and cold water supply and a cleanout.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 and Chapter 4.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3. Consider provision of infrastructure for Video teleconferencing hookup for training purposes.
	<b>CATV</b>	Provide per Chapter 3.
	<b>Security</b>	
	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Tables and chairs, podium, flip chart/easel	
<b>Special Requirements</b>	Refer to STEM Center Spaces for possible related education spaces. Consider room-darkening shades for training presentations.	
<b>Adjacencies/Location within Facility</b>		

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table D-23 Museum – Education Space – STEM Center

<b>Description / Usage</b>	Education Space - Science, Technology, Engineering & Mathematics (STEM) Center Spaces. Optional space in larger facilities. Include robotics lab, prep room and storage areas.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Casework, as required, with base/wall cabinets for storage.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT. Will vary depending on location(s).
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Includes critical areas. For critical areas, design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 and Chapter 4.	
<b>Power</b>	Provide per Chapter 3 and Chapter 4.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	Provide per Chapter 3. Consider provision of infrastructure for Video teleconferencing hookup for training purposes.
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	



<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Lab tables, stools, storage cabinets.	
<b>Special Requirements</b>	STEM space(s) could be scattered throughout the Exhibit areas or centrally located.	
<b>Adjacencies/Location within Facility</b>	Exhibit space, Education Director.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-24 Museum – Education Space – Children’s Area

<b>Description / Usage</b>	Education Space - Children's Area. Accommodates children's programs, crafts, etc.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum. May vary depending on location, if incorporated into Exhibit areas.	
<b>Windows</b>	If separate room, provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Built-in casework to accommodate sink and locked storage. Incorporate child-height casework and sink. Artwork display system.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT. May vary with location.
<b>Plumbing</b>	Provide per Chapter 3. If required, provide a stainless steel sink with hot and cold water supply and a cleanout.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 and Chapter 4.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Tables and chairs (scaled for children). Storage cabinets.	
<b>Special Requirements</b>	Provide artwork posting/display area.	
<b>Adjacencies/Location within Facility</b>	Exhibit area, Education spaces, Education Director.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-25 Museum – Restaurant/Café**

<b>Description / Usage</b>	Restaurant/Café. Food service area for museum visitors and staff.	
<b>Ceiling Height</b>	10 ft. (3.0 m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>	Recommend storefront system for visibility.	
<b>Interior Construction / Built-In Equipment</b>	Food service equipment. Casework and storage as required for concessions operations. Sales counter to accommodate Point of Sale (POS) register.	
<b>Finishes</b>	<b>Walls</b>	Painted GWB, ceramic tile in wet areas.
	<b>Floor</b>	Porcelain or terrazzo tile.
	<b>Base</b>	Coordinate with floor finish.
	<b>Ceiling</b>	ACT, exposed structure, acoustic clouds or other specialized ceiling treatments.
<b>Plumbing</b>	Provide per Chapter 3. Provide a compartmented stainless steel countertop sink with hot and cold water supply and a cleanout. Provide floor drain. Provide a water connection for icemaker.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of power panels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 20 fc (200 lux) task, day lighting penetrations, and dimmability w/ photosensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 and with the addition of infrastructure for non-NMCI system and credit card processing.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Equipment as required for concessions operations, tables and chairs for seating, recycling containers, waste receptacles.	
<b>Special Requirements</b>	May require coordination with NGO. Provide recycling and trash collection area. Locate away from exhibit areas to prevent contamination. Requires access to a loading dock for deliveries.	
<b>Adjacencies/Location within Facility</b>	Lobby, Special Events Area, Kitchen/Catering Space.	

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table D-26 Museum – Kitchen/Catering Space

<b>Description / Usage</b>	Kitchen, Catering Space. Area to support restaurant and/or catering (smaller museums) for special events food service.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Food service equipment. Casework, as required, with base/wall cabinets. Paper towel dispenser(s), soap dispenser(s). Dishwasher. Icemaker.	
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - eggshell/satin finish.
	<b>Floor</b>	Quarry tile, resilient or epoxy flooring system.
	<b>Base</b>	Coordinate with floor finish.
	<b>Ceiling</b>	Painted GWB - epoxy (eggshell/satin finish).
<b>Plumbing</b>	Provide per Chapter 3. Provide a compartmented stainless steel countertop sink with hot and cold water supply and a cleanout. Provide floor drain. Provide a water connection for icemaker at refrigerator or separate icemaker.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3. Coordinate requirements for kitchen and catering equipment.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 15 fc (150 lux) ambient, 50 fc (500 lux) task, day lighting penetrations, and dimmiability	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Refrigerator, microwave, coffee machine, recycling containers, waste receptacles.	
<b>Special Requirements</b>	Critical to isolate this space from Exhibit space and any Collections areas. May require coordination with NGO.	
<b>Adjacencies/Location within Facility</b>	Special Events Area, Restaurant/Cafe.	

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table D-27 Museum – Food Service Manager Office

<b>Description / Usage</b>	Food Service Manager Office.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 with the addition of infrastructure for possible Non-NMCI data system connection.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Freestanding desking system, task lighting, ergonomic desk chair, side chairs, filing/storage, safe.	
<b>Special Requirements</b>	May require coordination with NGO.	
<b>Adjacencies/Location within Facility</b>	Food service area(s), Loading dock.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-28 Museum – Exhibit Production/Maintenance**

<b>Description / Usage</b>	Exhibit Production/Maintenance. Space used to design, construct and maintain exhibits in-house.	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Impact resistant wall protection panels to 4 ft. (1.2m) a.f.f. Epoxy paint (eggshell/satin) finish above.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Ch. 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of power panels and cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5-25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equip.</b>	Work tables, stools.	
<b>Special Requirements</b>	If exhibits are produced/maintained in-house, this area may include Tool Area, Sign & Framing Area, Lighting Area, Metal Shop, Project Assembly area, Dust Collection area (see individual FDS for these areas).	
<b>Adjacencies/Location within Facility</b>	Loading dock, Exhibit area.	



	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table D-29 Museum – Exhibit Production Manager Office

<b>Description / Usage</b>	Exhibit Production Manager Office. Head of exhibit production shop.	
<b>Ceiling Height</b>	9 ft. (2.4m) minimum	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Freestanding desking system, task lighting, ergonomic desk chair, side chairs, filing/storage.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Exhibit Production/Maintenance, Loading dock.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-30 Museum – Metal Shop**

<b>Description / Usage</b>	Metal Shop	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction /</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3. Provide emergency eyewash station.	
<b>HVAC</b>	Provide per Chapter 3. Verify during design if work such as grinding, sanding, painting and other process operations that generate dust and particulates that can become airborne or accumulate with heavy metals such as lead, hexavalent chromium, cadmium, and other hazardous residue operations is required. If so, metal shop and associated spaces and areas must comply with COMFRC Instruction 7500, and FRC Southeast Instruction 5103.15B. Includes critical areas. For critical areas, design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of power panels and cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of 50 fc (500 lux) task, day lighting penetrations, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4

<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Workbenches.	
<b>Special Requirements</b>	This space may be included within Exhibit Production/Maintenance.	
<b>Adjacencies/Location within Facility</b>		
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-31 Museum – Lighting Shop**

<b>Description / Usage</b>	Lighting Shop.	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of power panels and cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of 50 fc (500 lux) task, day lighting penetration and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables, stools.	
<b>Special Requirements</b>	This space may be included within Exhibit Production/Maintenance.	
<b>Adjacencies/Location within Facility</b>		
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-32 Museum – Design and Printing

<b>Description / Usage</b>	Design and Printing. Includes layout/design work area for production of graphics and exhibit design.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient or sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables, stools.	
<b>Special Requirements</b>	Provide space for required graphics production equipment (scanners, large format printers, copiers, etc.). This space may be included within Exhibit Production/Maintenance.	
<b>Adjacencies/Location within Facility</b>	Exhibit Production/Maintenance.	

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table D-33 Museum – Tool Room

<b>Description / Usage</b>	Tool Room.	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of power panels.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Workbenches, stools, tool storage cabinets.	
<b>Special Requirements</b>	This space may be included within Exhibit Production/Maintenance.	
<b>Adjacencies/Location within Facility</b>		
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



Table D-34 Museum – Sign and Framing Shop

<b>Description / Usage</b>	Sign and Framing Shop. Production of tile panels and framing for exhibits, gallery, etc.	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3. Provide emergency eyewash station.	
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions. Provide snorkel type localized exhaust systems with articulating arms that can be adjusted and manually set to desired positions of users where required.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of power panels and cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5-25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables, storage cabinets, stools/chairs.	
<b>Special Requirements</b>	This space may be included within Exhibit Production/Maintenance.	
<b>Adjacencies/Location within Facility</b>		

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table D-35 Museum – Project Assembly Shop

<b>Description / Usage</b>	Project Assembly Shop. Includes space for dust collector.	
<b>Ceiling Height</b>	9 ft. (2.7) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of power panels and cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 50 fc (500 lux) task, day lighting penetrations, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables, stools, storage cabinets.	
<b>Special Requirements</b>	This space may be included within Exhibit Production/Maintenance.	
<b>Adjacencies/Location within Facility</b>		

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table D-36 Museum – Exhibit Production Storage

<b>Description / Usage</b>	Exhibit Production Storage. Storage for equipment and materials used to produce exhibits.	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Shelving and storage cabinets, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>		

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table D-37 Museum – Collections Receiving

<b>Description / Usage</b>	Collections Receiving & Processing. For intake and processing of artifacts submitted to museum.	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3. Provide a stainless steel sink with hot and cold water supply and a cleanout.	
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5-25 fc (50 - 250 lux) ambient and 75 fc (750 lux) task, dimmability, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Flat work tables.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Loading Dock.	

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		



Table D-38 Museum – Archival Collections Processing

<b>Description / Usage</b>	Archival Collections Processing. Optional space. For intake and processing of archives submitted directly to museum.	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4. Provide Very Early Warning Smoke Detection.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 - 25 fc, ( 50 to 250 lux) ambient and 75 fc (750 lux) task, dimmability, SL, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 + SIPRNet. Coordinate with the Certified Tempest Technical Authority (CTTA).
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	No cameras allowed with space.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Flat work tables (standing height).	
<b>Special Requirements</b>	Possibly Top Secret (classified materials). Restricted access. Separate from Collections Processing. Locate for control/isolation.	
<b>Adjacencies/Location within Facility</b>		

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table D-39 Museum – Holding and Staging Area

<b>Description / Usage</b>	Holding and Staging Area. Area to allow exhibit climatization.	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - painted.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5-25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables, stools.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Loading dock, Processing area.	

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table D-40 Museum – Curatorial Research Lab

<b>Description / Usage</b>	Curatorial Research Lab. Workspace where incoming objects are examined.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>	Casework (stainless steel countertops) with base/wall cabinets.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient or sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3. Provide emergency shower/eyewash station. Provide one- or two-compartment stainless steel countertop sinks with hot and cold water supply and cleanouts. Provide emergency eyewash stations adjacent to sinks.	
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions. Provide snorkel type localized exhaust systems with articulating arms that can be adjusted and manually set to desired positions of users where required. Verify if fume hoods and ventilated safety cabinets are also required by the end user.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of power panels and cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5-25 fc (50 to 250 lux) ambient and 75 fc (750 lux) task, dimmability, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.

<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Stainless steel work tables, stools.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Archival Collections Processing.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-41 Museum – Artifact Storage (Clean Room)

Description / Usage	Artifact Storage (Clean Room)	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - painted.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions. Coordinate locations of temperature and humidity data loggers with end user.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4. Provide very early warning smoke detection.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with addition of SL, 1 fc (10 lux) ambient and 75 fc (750 lux) task, dimmability, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables and shelving, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Collections Storage.	

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		



Table D-42 Museum – Building Manager Office

<b>Description / Usage</b>	Building Manager Office. Facilities management space.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Freestanding desking system, task lighting, ergonomic desk chair, side chairs, filing/storage.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Loading dock.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-43 Museum – Building Management Storage**

<b>Description / Usage</b>	Building Management Storage. Used to store surplus building products/supplies such as light bulbs, cleaning and paper products.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets and shelving.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Building Manager Office, Loading dock.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-44 Museum – Janitorial Space**

<b>Description / Usage</b>	Janitorial Space. Space for custodial supplies and equipment.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Include mop/broom rack, utility shelf.	
<b>Finishes</b>	<b>Walls</b>	Ceramic tile wainscot (4 ft. (1.2m) high) or fiber-reinforced or rigid vinyl panel wall protection wainscot (4 ft. (1.2m) high). Epoxy paint - semi-gloss finish above.
	<b>Floor</b>	Porcelain tile or sealed concrete.
	<b>Base</b>	Ceramic tile.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3. Provide a mop sink and keyed hose bibb.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinet (optional).	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Restrooms, Public areas.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-45 Museum – Break Room - Building Staff

<b>Description / Usage</b>	Break Room - Building Staff. Provide separate break room for each group that must accommodate three-personnel rotations to include: 1) Security/Guard Forces 2) Building Management Group.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Casework with base/wall cabinets, television wall-mount bracket, lockers.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish. Full-height ceramic tile at shower/wet areas. Water resistant GWB at wet areas.
	<b>Floor</b>	Resilient (linoleum, luxury vinyl tile or plank). Porcelain tile at shower floor/base and wet area.
	<b>Base</b>	Resilient. Porcelain tile.
	<b>Ceiling</b>	ACT. Painted GWB.
<b>Plumbing</b>	Provide per Chapter 3. Provide a stainless steel sink with hot and cold water supply and a cleanout. Provide a water connection for icemaker at refrigerator. Provide a floor drain at shower(s).	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Tables and chairs, countertop microwave, refrigerator, coffee machine, television, recycling containers.	
<b>Special Requirements</b>	Provide separate shower room for shift workers. Provide area for recycling containers and vending machines.	
<b>Adjacencies/Location within Facility</b>	Locate near personnel areas supported.	

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

**Table D-46 Museum – Elevators**

<b>Description / Usage</b>	Elevators. Elevator meeting all IBC requirements at each floor.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Stainless steel or plastic laminate panels.
	<b>Floor</b>	Hard surface (stone/porcelain tile, etc.) or resilient. Continue adjacent space floor finish.
	<b>Base</b>	Stainless steel.
	<b>Ceiling</b>	Panels as offered by elevator manufacturer.
<b>Plumbing</b>	Provide per Chapter 3.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 5 fc (50 lux) ambient.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Lobby.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-47 Museum – Elevator Machine Room

<b>Description / Usage</b>	Elevator Machine Room.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Adjacent to Elevator(s).	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-48 Museum – Electrical Room

<b>Description / Usage</b>	Electrical Room. Room to house electrical panels and equipment.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Mechanical room, Service entry, Facility maintenance office.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



**Table D-49 Museum – Telecom Room**

<b>Description / Usage</b>	Telecommunications/Server Room. Room to house communications distribution.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 50 fc (500 lux) per UFC 3-580 01, Telecommunications Building Cabling Systems Planning and Design.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	ESS Closet	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-50 Museum – ESS Closet

<b>Description / Usage</b>	Electronic Security Systems (ESS) Closet. Room to house electronic security system equipment.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Telecom Room	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-51 Museum – Mechanical Rooms

<b>Description / Usage</b>	Mechanical Rooms. Room housing HVAC equipment.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed - painted.
<b>Plumbing</b>	Provide per Chapter 3.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Electrical room, Service entry, Facility Maintenance office.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table D-52 Museum – Stairwells

<b>Description / Usage</b>	Stairwells	
<b>Ceiling Height</b>	Exposed.	
<b>Windows</b>		
<b>Doors</b>	Fire-rated as required.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient stair system (treads, risers, platforms, etc.).
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
	<b>Security</b>	
	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Locate per Life Safety requirements. Consider use of monumental stair in lobby or public gathering space - finishes to continue or complement lobby finishes.	
<b>Adjacencies/Location within Facility</b>	Lobby, Public Gathering.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table D-53 Museum – Loading Dock(s)**

<b>Description / Usage</b>	Loading Dock(s). Area for shipping/receiving as well as building waste removal.	
<b>Ceiling Height</b>	Varies.	
<b>Windows</b>		
<b>Doors</b>	Minimum 8 ft. (2.4m) wide x 8 ft. (2.4m) high coiling overhead door. Size may vary depending on objects entering the facility. Provide personnel door.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	High Performance Architectural Coating (HIPAC). Service corridors leading to loading dock to receive impact resistant wallcovering wainscot (4 ft. (1.2m) high) with HIPAC above wainscot.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	None. Service corridors to receive resilient base.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3. If restroom is required in this area by end user, verify if shower is also required.	
<b>HVAC</b>	Provide per Chapter 3. If loading dock is enclosed, provide a unit heater or infrared heater at the entrance of the loading dock, and a vehicle exhaust removal system for trucks.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of 10 fc (100 lux) and photocell controlled exterior lights.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Lifts may be stored in this space. Optional: flash freezer for decontamination.	
<b>Adjacencies/Location within Facility</b>	Service entry, Exhibit maintenance and collection storage/holding.	

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

**Table D-54 Museum – Shipping and Receiving**

<b>Description / Usage</b>	Shipping & Receiving. Secure staging area for crating and uncrating of exhibits and objects.	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	8 ft. (2.4m) wide x 8 ft. (2.4m) high rolling coil door. Size may vary depending on objects entering the facility.	
<b>Interior Construction / Built-In Equipment</b>	Staff mailboxes.	
<b>Finishes</b>	<b>Walls</b>	Impact resistant wallcovering wainscot (4 ft. (1.2m) high), epoxy paint (eggshell/satin finish) above.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - painted.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5-25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Packing tables, stools, storage cabinets.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Loading Dock	

	For use during project execution by the appropriate Service	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		



Table D-55 Museum – Equipment Storage

<b>Description / Usage</b>	Equipment Storage. Storage for forklift, pallet jacks, carts, etc.	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Minimum 8 ft. (2.4m) wide x 8 ft. (2.4m) high coiling overhead door.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Loading dock.	
	<b>For use during project execution by the appropriate Service</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

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## APPENDIX E HRF FUNCTIONAL DATA SHEETS

This appendix further identifies specific design needs for individual spaces within Historic Resource Facilities. Building design criteria are provided in a standard Functional Data Sheet (FDS) table format that generally follows the Uniformat II/Work Breakdown Structure (WBS). The Interior Construction/Built-In Equipment category includes anything physically attached or plumbed to the building such as counters, cabinets, casework, toilet accessories, window shades or blinds, and recessed projection screens. The Furnishings and Equipment category includes loose or moveable items such as desks, chairs, and shelving.

The Functional Data Sheets are presented as a guide for the designer, planner, or RFP preparer. It is intended that the information in them are the minimum requirements for the respective rooms and spaces. These minimum requirements apply in addition to all other requirements of this FC and other referenced documents. In the event of a mutually exclusive conflict or where both requirements cannot be satisfied, the Functional Data Sheets take precedence. However, if in the best judgment of the designer, a more restrictive requirement is appropriate, the more restrictive requirement may be applied after consulting with the user. Note that blank spaces found in the Functional Data Sheets indicate building components or systems should follow standard guidance per UFC 1-200-01, *General Building Requirements*.

Table E-1 HRF – Archives and Library – Unclassified Research Room

<b>Description / Usage</b>	Archives & Library - Unclassified Research Room. General research space where the public can review unclassified archive and library collections.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint- eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 70 deg F (21.1 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 68 deg F (20 deg C) to 72 deg F (22.2 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 fc (50 lux) ambient and 50 fc (500 lux) task, multi-level switching, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables, chairs, task lighting, microform readers, shelving as required.	
<b>Special Requirements</b>	This space can be shared by Archives & Library. Note that some microform readers are floor mounted and require a significant footprint.	
<b>Adjacencies/Location within Facility</b>	Library - Restricted Research; Archives - Administrative Spaces.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-2 HRF – Archives – Reception Area

<b>Description / Usage</b>	Archives - Reception Area	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of an avg. of 50 fc (500 lux) ambient and daylighting with dimmable controls.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Reception workstation, side chairs for waiting, file cabinets and storage as required. May include personal lockers for storage of visitor items.	
<b>Special Requirements</b>	Visitor personal effects must be collected/stored. Provide area for printers, as required. Provide window between Reception and Archives and Library - Unclassified Research Room.	
<b>Adjacencies/Location within Facility</b>	Archives - Offices, Archives - Research areas.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-3 HRF – Archives – Office Space

<b>Description / Usage</b>	Archives - Office Space. To include conference space, if required.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Workstations, ergonomic task chairs, task lighting, side chairs, filing and storage.	
<b>Special Requirements</b>	Centrally locate within Archives area. Include space for required copier, printers, scanners and any common storage requirements. Provide private office space for supervisors to meet FOIA requirements.	
<b>Adjacencies/Location within Facility</b>	Archives - Storage areas, Archives - Reception Area, Archives - Research areas.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-4 HRF – Archives – Break Room

<b>Description / Usage</b>	Archives - Break Room	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Casework with base/wall cabinets.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>	Provide per Chapter 3. Provide a stainless steel sink with hot and cold water supply and a cleanout. Provide a water connection for icemaker at refrigerator.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with addition of daylighting and dimming controls.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Tables and chairs, countertop microwave, refrigerator, coffee machine, recycling containers.	
<b>Special Requirements</b>	Provide area for recycling containers.	
<b>Adjacencies/Location within Facility</b>	Archives Office spaces.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



Table E-5 HRF – Archives – Classified Research

<b>Description / Usage</b>	Archives - Classified Research. Top Secret research space where the classified documents can be viewed.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 15 fc (150 lux) ambient, 30 fc (300 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 with the addition of SIPRNET. Coordinate with the Certified Tempest Technical Authority (CTTA).
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	No cameras allowed within space.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets and shelving, as required. Work tables, chairs. Microform readers.	
<b>Special Requirements</b>	Top Secret space - locate within boundaries of Top Secret/Open Storage area. Provide SIPRnet. Provide in accordance with SECNAV M-5510.36, Department of the Navy Information Security Program.	
<b>Adjacencies/Location within Facility</b>	Near Archives - Admin. Space.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-6 HRF – Archives – Declassification

<b>Description / Usage</b>	Archives - Declassification Room. Classified workspace for team review of documents to determine classification status.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 15 fc (150 lux) ambient, 50 fc (500 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	No cameras allowed within space.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Workstations, ergonomic task chairs, task lighting, microform readers.	
<b>Special Requirements</b>	Locate within boundaries of Top Secret/Open Storage area.	
<b>Adjacencies/Location within Facility</b>	Near Archives - Storage Areas.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

**Table E-7 HRF - Archives - Classified Cold Storage**

<b>Description / Usage</b>	Archives - Classified Cold Storage. Space for storage of classified archives to include negatives, photos, motion picture, micorforms and audio recording items.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	High density mobile storage, as required.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Concrete with epoxy coating. Provide per Chapter 4.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	<p>Provide per Chapter 3. Critical area. For storage of color photos, design to 34 deg F (1.1 deg C) dry bulb and 35% RH for indoor design cooling and indoor design heating conditions. Temperature and relative humidity operating ranges must be 32 deg F (0 deg C) to 36 deg F (2.2 deg C) and 32% RH to 38% RH for indoor cooling and heating conditions. For storage of color motion picture film, design to 38 deg F (3.3 deg C) and 30% RH for indoor design cooling and indoor design heating conditions. Temperature and relative humidity operating ranges must be 36 deg F (2.2 deg C) to 40 deg F (4.4 deg C) and 27% RH to 33% RH for indoor cooling and heating conditions. For storage of black and white motion picture film and audio recording items, design to 52 deg F (11.1 deg C) and 30% RH for indoor design cooling and indoor design heating conditions. Temperature and relative humidity operating ranges must be 50 deg F (10 deg C) to 54 deg F (12.2 deg C) and 27% RH to 33% RH for indoor cooling and heating conditions. If personnel will be working on color photos and color motion picture film, provide a holding area for these items to acclimate prior to personnel handling them. Design holding area for color photos to 55 deg F (12.8 deg C) and 35% RH for indoor design cooling and indoor design heating conditions. Temperature and relative humidity operating ranges must be 53 deg F (11.7 deg C) to 57 deg F (13.9 deg C) and 32% RH to 38% RH for indoor cooling and heating conditions. Design holding area for color motion picture film to 50 deg F (10 deg C) and 30% RH for indoor design cooling and indoor design heating conditions. Temperature and relative humidity operating ranges must be 48 deg F (8.9 deg C) to 52 deg F (11.1 deg C) and 27% RH to 33% RH for indoor cooling and heating conditions. For storage of black and white photos, negatives, and slides, design to 62 deg F (16.7 deg C) dry bulb and 35% RH for indoor design cooling and indoor design heating conditions. Temperature and relative humidity operating ranges must be 60 deg F (15.6 deg C) to 64 deg F (17.8 deg C) and 32% RH to 38% RH for indoor cooling and heating conditions. Verify and coordinate with user if microclimate/microenvironment is desired and/or recommended to satisfy these conditions.</p>	

<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3. Coordinate requirements for Emergency Power.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 fc (50 lux) ambient and 30 fc (300 lux) task, multi-level switching, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets/shelves - consider use of wire shelving to promote air circulation and inhibit condensation. Microform storage cabinets with 6 inch (152mm) drawers.	
<b>Special Requirements</b>	Restricted access.	
<b>Adjacencies/Location within Facility</b>	Archives - Classified Storage, Archives - Unclassified Cold Storage.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-8 HRF – Archives - Unclassified Cold Storage

<b>Description / Usage</b>	Archives - Unclassified Cold Storage. Space for storage of unclassified archives to include negatives, photos, motion picture, microforms and audio recording items.	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	High density mobile shelving, as required.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Concrete with epoxy coating. Provide per Chapter 4.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	<p>Provide per Chapter 3. Critical area. For storage of color photos, design to 34 deg F (1.1 deg C) dry bulb and 35% RH for indoor design cooling and indoor design heating conditions. Temperature and relative humidity operating ranges must be 32 deg F (0 deg C) to 36 deg F (2.2 deg C) and 32% RH to 38% RH for indoor cooling and heating conditions. For storage of color motion picture film, design to 38 deg F (3.3 deg C) and 30% RH for indoor design cooling and indoor design heating conditions. Temperature and relative humidity operating ranges must be 36 deg F (2.2 deg C) to 40 deg F (4.4 deg C) and 27% RH to 33% RH for indoor cooling and heating conditions. For storage of black and white motion picture film and audio recording items, design to 52 deg F (11.1 deg C) and 30% RH for indoor design cooling and indoor design heating conditions. Temperature and relative humidity operating ranges must be 50 deg F (10 deg C) to 54 deg F (12.2 deg C) and 27% RH to 33% RH for indoor cooling and heating conditions. If personnel will be working on color photos and color motion picture film, provide a holding area for these items to acclimate prior to personnel handling them. Design holding area for color photos to 55 deg F (12.8 deg C) and 35% RH for indoor design cooling and indoor design heating conditions. Temperature and relative humidity operating ranges must be 53 deg F (11.7 deg C) to 57 deg F (13.9 deg C) and 32% RH to 38% RH for indoor cooling and heating conditions. Design holding area for color motion picture film to 50 deg F (10 deg C) and 30% RH for indoor design cooling and indoor design heating conditions. Temperature and relative humidity operating ranges must be 48 deg F (8.9 deg C) to 52 deg F (11.1 deg C) and 27% RH to 33% RH for indoor cooling and heating conditions. For storage of black and white photos, negatives, and slides, design to 62 deg F (16.7 deg C) dry bulb and 35% RH for indoor design cooling and indoor design heating conditions. Temperature and relative humidity operating ranges must be 60 deg F (15.6 deg C) to 64 deg F (17.8 deg C) and 32% RH to 38% RH for indoor cooling and heating conditions. Verify and coordinate with user if microclimate/microenvironment is desired and/or recommended to satisfy these conditions.</p>	

<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 fc (50 lux) ambient and 30 fc (300 lux) task, multi-level switching, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets and shelving, as required. Microform storage cabinets with 6 inch (152mm) drawers - to support Library & Archives. Consider use of wire shelving to promote air circulation and inhibit condensation.	
<b>Special Requirements</b>	Restricted access.	
<b>Adjacencies/Location within Facility</b>	Archives - Classified Cold Storage, Archives - Unclassified Storage	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



Table E-9 HRF – Archives – Unclassified Storage

<b>Description / Usage</b>	Archives - Unclassified Storage.	
<b>Ceiling Height</b>	10 ft. (3.0m) minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>	High-density mobile shelving.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Concrete with epoxy coating. Provide per Chapter 4.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 70 deg F (21.1 deg C) dry bulb and 45% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 68 deg F (20 deg C) to 72 deg F (22.2 deg C) and 40% RH to 50% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 15 fc (150 lux) ambient and 30 fc (300 lux) task, multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work table, chairs, oversize cases, map files/cases, microform readers.	
<b>Special Requirements</b>	Note that some microform readers are floor mounted and require a significant footprint.	
<b>Adjacencies/Location within Facility</b>	Archives - Classified Processing; Archives - Classified Storage.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-10 HRF – Archives – Classified Storage

<b>Description / Usage</b>	Archives - Classified Storage. Top Secret/Open Storage space.	
<b>Ceiling Height</b>	10 ft. (3.0m) minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>	High-density mobile shelving.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Concrete with epoxy coating. Provide per Chapter 4.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 70 deg F (21.1 deg C) dry bulb and 45% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 68 deg F (20 deg C) to 72 deg F (22.2 deg C) and 40% RH to 50% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 15 fc (150 lux) ambient, 30 fc (300 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 with the addition of SIPRNET. Coordinate with the Certified Tempest Technical Authority (CTTA).
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	No cameras allowed withn space.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets and shelving, as required. Map files. Oversize shelving.	
<b>Special Requirements</b>	Locate within Top Secret/Open Storage area. Provide in accordance with SECNAV M-5510.36, Department of the Navy Information Security Program.	
<b>Adjacencies/Location within Facility</b>	Archives - Unclassified Storage; near Archives - Admin. Area.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-11 HRF – Archives – Secure Space

<b>Description / Usage</b>	Archives - Secure Space. Compartmented space to provide higher level of security storage.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Concrete with epoxy coating. Provide per Chapter 4.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Painted GWB - eggshell/satin finish.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 70 deg F (21.1 deg C) dry bulb and 45% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 68 deg F (20 deg C) to 72 deg F (22.2 deg C) and 40% RH to 50% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 15 fc (150 lux) ambient, 50 fc (500 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapters 3 and 4 with the addition of SIPRNET and JWICS. Coordinate with the Certified Tempest Technical Authority (CTTA).
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	No cameras allowed within space.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables, chairs, storage cabinets and shelving as required.	
<b>Special Requirements</b>	Refer to UFC 4-010-05, Sensitive Compartmented Information Facilities Planning, Design, and Construction, JWICS	
<b>Adjacencies/Location within Facility</b>	Locate within Top Secret/Open Storage area, Locate within Archives - Classified Storage.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

**Table E-12 HRF – Archives – Classified Processing**

<b>Description / Usage</b>	Archives - Classified Processing. Space where archives are reviewed and classification status is determined for storage.	
<b>Ceiling Height</b>	10 ft. (3.0m) minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Concrete with epoxy coating. Provide per Chapter 4.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 68 deg F (20 deg C) dry bulb and 45% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 40% RH to 50% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 fc (50 lux) ambient, 50 fc (500 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	No cameras allowed within space.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables, stools, shelving as required.	
<b>Special Requirements</b>	Locate within boundaries of Top Secret/Open Storage area. Strict supervision and restricted access.	
<b>Adjacencies/Location within Facility</b>	Archives - Classified Receiving; Archives - Decontamination; Archives - Storage Areas.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-13 HRF – Archives - Decontamination Room

<b>Description / Usage</b>	Archives - Decontamination Room. Classified space for isolation of incoming archival materials which may contain mold and/or pest infestation.	
<b>Ceiling Height</b>	10 ft. (3.0m) minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Concrete with epoxy coating. Provide per Chapter 4.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, bi-level or multi-level switching. and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	No cameras allowed within space.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Large work tables, stools, hazardous material containers, as required.	
<b>Special Requirements</b>	Locate within boundaries of Top Secret/Open Storage area. Strict supervision and restricted access.	
<b>Adjacencies/Location within Facility</b>	Archives - Classified Receiving; Archives - Classified Processing.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



Table E-14 HRF – Archives - Classified Receiving

<b>Description / Usage</b>	Archives - Classified Receiving. Top Secret/Open Storage. Receiving and processing area for classified materials.	
<b>Ceiling Height</b>	10 ft. (3.0m) minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Concrete with epoxy coating. Provide per Chapter 4.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 68 deg F (20 deg C) dry bulb and 45% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 40% RH to 50% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 fc (50 lux) ambient, 50 fc (500 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	No cameras allowed within space.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables, ergonomic task chairs, side chairs, book trucks/carts, shelving, microform readers.	
<b>Special Requirements</b>	Locate within boundaries of Top Secret/Open Storage area. Strict supervision and restricted access.	
<b>Adjacencies/Location within Facility</b>	Archives - Classified Processing, Archives - Unclassified Storage, Archives - Decontamination Room, Loading Dock.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-15 HRF – Library – Office Space

<b>Description / Usage</b>	Library - Office Space	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Desks/workstations, ergonomic task chairs, task lighting, file and storage cabinets, shelving.	
<b>Special Requirements</b>	Provide area for copier and printers. Cataloging offices require larger space to accommodate equipment (carts, tables).	
<b>Adjacencies/Location within Facility</b>	Library - Book Stacks, Library - Reference/Circulation, Library - Reading Rooms for supervision.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-16 HRF – Library – Reference/Circulation Desk

<b>Description / Usage</b>	Library - Reference/Circulation Desk. Main point of customer service interaction. Includes check-out area.	
<b>Ceiling Height</b>	10 ft. (3.0m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Tackboards.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 68 deg F (20 deg C) dry bulb and 42% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 40% RH to 45% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 5 fc ( 50 lux) ambient, 50 fc (500 lux) task, daylighting with dimmability, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Circulation desk components, book carts/trucks, work tables, chairs, carrels, task lighting, dictionary stand, mobile storage system (as required). Provide lockers for researchers' personal items.	
<b>Special Requirements</b>	Reference UFC 4-740-20, Libraries, during space design. Circulation desk should have visual access into entire library space.	
<b>Adjacencies/Location within Facility</b>	Main Entry, Library - Book Stacks, Archives & Library - Unclassified Research Room.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-17 HRF – Library – Catalog Area

<b>Description / Usage</b>	Library - Catalog Area. Accessible computer terminal areas with library material database processing and entry. Area can be located within Library office space.	
<b>Ceiling Height</b>	10 ft. (3.0m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 68 deg F (20 deg C) dry bulb and 42% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 40% RH to 45% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 30 fc ( 300 lux) ambient, 50 fc (500 lux) task, daylighting with dimmability, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Carrels for computer terminals, work tables, seating, task lighting.	
<b>Special Requirements</b>	Refer to UFC 4-740-20, Libraries.	
<b>Adjacencies/Location within Facility</b>	Library - Reference/Circulation desk, Library - Book Stack Area.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-18 HRF – Library – Book Stack Area

<b>Description / Usage</b>	Library - Book Stack Area.	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>	No windows.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 70 deg F (21.1 deg C) dry bulb and 42% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 68 deg F (20 deg C) to 72 deg F (22.2 deg C) and 40% RH to 45% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of mobile stacks AFCI protected.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 30 fc (300 lux) ambient and occupancy sensors. Coordinate lighting layout (perpendicular) with stacks.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Book stacks, reference tables, carrels.	
<b>Special Requirements</b>	Reference UFC 4-740-20, Libraries, during space design.	
<b>Adjacencies/Location within Facility</b>	Library - Reference/Circulation Desk, Library - Catalog Area.	



	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-19 HRF – Library – Special and Rare Collection

<b>Description / Usage</b>	Library - Special & Rare Collection. Storage of special collection books and manuscripts.	
<b>Ceiling Height</b>	10 ft. (3.0m) minimum.	
<b>Windows</b>	No windows.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	High-density mobile shelving.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 62 deg F (16.7 deg C) dry bulb and 42% RH for indoor design cooling conditions, and 60 deg F (15.6 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 60 deg F (15.6 deg C) to 64 deg F (17.8 deg C) and 40% RH to 45% RH for indoor cooling conditions, and 58 deg F (14.4 deg C) to 62 deg F (16.7 deg C) and 37% RH to 45% RH for indoor heating conditions. Coordinate locations of temperature and humidity data loggers with end user.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 fc (50 lux) ambient and 30 fc (300 lux) task, multi-level switching, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Reference work tables for processing, chairs, flat files, compact storage shelving (as required).	
<b>Special Requirements</b>	Restricted access. Provide storage for oversize book collection. Vault construction.	
<b>Adjacencies/Location within Facility</b>	Library - Restricted Research Room; Library - Reference/Circulation Desk.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-20 HRF – Library – Restricted Research Room

<b>Description / Usage</b>	Library - Restricted Research Room. Space for visitors to reference special and rare collection materials.	
<b>Ceiling Height</b>	10 ft. (3.0m) minimum.	
<b>Windows</b>	No windows.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Provide interior windows for viewing/supervision of space from Reference/Circulation.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 70 deg F (21.1 deg C) dry bulb and 42% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 68 deg F (20 deg C) to 72 deg F (22.2 deg C) and 40% RH to 45% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, bi-level or multi-level switching. and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Display case, work tables, chairs, storage shelving.	
<b>Special Requirements</b>	Refer to UFC 4-740-20, Libraries. Restricted access with controlled entry/locks.	
<b>Adjacencies/Location within Facility</b>	Library - Reference/Circulation, Library - Special and Rare Collection.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-21 HRF – Histories – Office Space

<b>Description / Usage</b>	Histories - Office Space	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Desks/workstations, ergonomic task chairs, task lighting, file cabinets/shelving, bookshelves.	
<b>Special Requirements</b>	Provide area for copier and printers.	
<b>Adjacencies/Location within Facility</b>	Library, Archives	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-22 HRF – Histories – Conference Room

<b>Description / Usage</b>	Histories & Archives - Conference Room. This room may be shared by Histories and Archives groupings.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Recessed projection screen, projector mount. Visual display system - whiteboards, tackboards.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish. Optional finish treatments (wood wainscott, acoustical wall panels, etc.).
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient or wood.
	<b>Ceiling</b>	ACT. Could introduce GWB soffits for interest.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with addition of daylighting and dimming controls.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>	NIC 50	
<b>Furnishings and Equipment</b>	Conference table, chairs (around table and stacking for additional capacity), lecturn, storage credenza, mobile flipchart easel.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Histories and Archives office areas.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-23 HRF – Histories – Microform Area

<b>Description / Usage</b>	Histories - Microform Area. Darkened space for storing and viewing microforms..	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 40% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 37% RH to 45% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 7.5 fc ( 75 lux) ambient, 30 fc (300 lux) task, occupancy sensors and bi-level or multi-level switching or dimmable controls.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Worktables, chairs, microform storage cabinets, task lighting, microform readers.	
<b>Special Requirements</b>	Note that some microform readers are floor mounted and require a significant footprint.	
<b>Adjacencies/Location within Facility</b>	Histories- Office Space.	



	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-24 HRF – Histories – Storage Room

<b>Description / Usage</b>	Histories - Storage Room. Central filing space.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with vacancy sensor.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work table, chairs, file/storage cabinets, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Histories - Office Space	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-25 HRF – Histories – Oral History Room

<b>Description / Usage</b>	Histories - Oral History Room. Space for recording unclassified interviews.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Soundproof construction.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3. Where individual sound-proof recording booths are required, provide a fire alarm system notification appliance (speaker/strobe) for each booth.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 15 fc (150 lux) ambient and 50 fc (500 lux) task, multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 with addition of SIPRNET and infrastructure for Video teleconferencing hookup for conferencing purposes. Coordinate with the Certified Tempest Technical Authority (CTTA).
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Yes.
	<b>ACS</b>	Yes.
	<b>CCTV</b>	
<b>Acoustics</b>	NC 50.	
<b>Furnishings and Equipment</b>	Work tables, chairs, storage shelves.	
<b>Special Requirements</b>	Provide VTC capability.	
<b>Adjacencies/Location within Facility</b>	Histories - Office Area.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-26 HRF – Histories – Classified Oral History Room

<b>Description / Usage</b>	Histories - Classified Oral History Room. Space for recording classified interviews.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	No windows.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Soundproof construction.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, bi-level or multi-level switching. and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 with addition of SIPRNET and infrastructure for Video teleconferencing hookup for conferencing purposes. Coordinate with the Certified Tempest Technical Authority (CTTA).
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables, chairs, storage shelves.	
<b>Special Requirements</b>	Classified space. Restricted access - locate within boundaries of Top Secret/Open Storage area. Provide VTC capability.	
<b>Adjacencies/Location within Facility</b>	Histories - Office Area.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-27 HRF – Histories – Classified Office Space

<b>Description / Usage</b>	Histories - Classified Office Space. Classified space.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	No windows due to security requirements.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 - 25 fc, ( 50 to 250 lux) ambient and 75 fc (750 lux) task, dimmability, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 with the addition of SIPRNET. Coordinate with the Certified Tempest Technical Authority (CTTA).
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	No cameras allowed within space.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Desks/workstations, ergonomic task chairs, task lighting, file cabinets/shelving, bookshelves.	
<b>Special Requirements</b>	Restricted access - locate within boundaries of Top Secret/Open Storage area. Provide area for copier and printers.	
<b>Adjacencies/Location within Facility</b>	Histories - Office Space.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table E-28 HRF – Artifact – Office Space**

<b>Description / Usage</b>	Artifact - Office Space. Include Curators, Materials Handlers, Materials Techs, Supervisory Curator. Can be combined with Artifact - Processing.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile, if not located within another space.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Workstations, ergonomic task chairs, task lighting, side chairs, filing and storage.	
<b>Special Requirements</b>	Provide area for associated printers and copier.	
<b>Adjacencies/Location within Facility</b>	Shipping/Receiving, Loading Dock, Artifact - Processing, Artifact - Storage.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-29 HRF – Artifact – Conference Room

<b>Description / Usage</b>	Artifact - Conference Room. Staff meetings, presentations, and training.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>	Provide, if possible, for exterior views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Recessed projection screen; projector mount. Visual display system - whiteboards, tackboards, etc.	
<b>Finishes</b>	<b>Walls</b>	Paint (eggshell or satin finish). Optional finish treatments (wood wainscott, acoustical wall panels, etc.) could be introduced.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT. Could introduce GWB soffits for interest.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 with addition of infrastructure for Video teleconferencing hookup for training purposes.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Conference table, chairs (around table and stacking for additional capacity), lecturn, storage credenza, mobile flipchart easel.	
<b>Special Requirements</b>	Consider VideoTeleconferencing (VTC)	
<b>Adjacencies/Location within Facility</b>	Artifact - Office Space.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-30 HRF – Artifact – Record Storage

<b>Description / Usage</b>	Artifact - Record Storage	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Pair - standard doors.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	File cabinets and storage cabinets, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Artifact - Processing, Artifact - Office Space, Artifact - Loan Artifact Processing.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



Table E-31 HRF – Artifact – Technical Library

<b>Description / Usage</b>	Artifact - Technical Library. Internal research area.	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 15 fc (150 lux) ambient and 50 fc (500 lux) task, multi-level switching. Coordinate lighting layout (perpendicular) with stacks.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	No cameras allowed in space.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Shelving, work tables, chairs.	
<b>Special Requirements</b>	Scanner.	
<b>Adjacencies/Location within Facility</b>	Artifact - Office Space.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-32 HRF – Artifact – Conservation Area

<b>Description / Usage</b>	Artifact - Conservation Area. Include lab and storage space.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>	Casework (as required), stainless steel tops with base/wall cabinets.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3. Provide emergency shower/eyewash station. Provide stainless steel industrial trough sink with hot and cold water supply and cleanouts. Provide washing machine hook-up.	
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions. Provide snorkel type localized exhaust systems with articulating arms that can be adjusted and manually set to desired positions of users where required. Verify if fume hoods and ventilated safety cabinets are also required by the end user. Provide clothes dryer exhaust.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels, washer and dryer connections, and local power panels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 15 fc (150 lux) ambient and 75 fc (750 lux) task, dimmable controls, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4

<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables (stainless steel), storage cabinets and shelving, as required. Washer and dryer.	
<b>Special Requirements</b>	Locate away from archive storage areas.	
<b>Adjacencies/Location within Facility</b>	Artifact - Storage Areas.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-33 HRF - Artifact – Uniform and Textile Storage

<b>Description / Usage</b>	Artifact - Uniform and Textile Storage.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>	High-density mobile shelving.	
<b>Finishes</b>	<b>Objects -</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions. Coordinate locations of temperature and humidity data loggers with end user.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 fc (50 lux) ambient and 30 fc (300 lux) task, multi-level switching, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4

<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets (with filter vents), flat files (flags), shelving as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Artifact - Storage Areas; Artifact - Accessioning, Artifact - Decontamination.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-34 HRF – Artifact – Micro Artifact Storage

<b>Description / Usage</b>	Artifact - Micro Artifact Storage. Includes artifact processing area.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>	High-density mobile shelving, pallet racks.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 15 fc (150 lux) ambient and 30 fc (300 lux) task, multi-level switching, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets and shelving, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Shipping/Receiving, Artifact - Accessioning, Artifact - Decontamination.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-35 HRF – Artifact – Processing Area

<b>Description / Usage</b>	Artifact - Processing Area. Space for processing artifacts that can be located with Artifact storage areas.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>	Casework with base/wall cabinets.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - painted.
<b>Plumbing</b>	Provide per Chapter 3. Provide a stainless steel sink with hot and cold water supply and a cleanout.	
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 70 deg F (21.1 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 68 deg F (20 deg C) to 72 deg F (22.2 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions. Provide fume hood.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 15 fc (150 lux) ambient, 75 fc (750 lux) task, dimmable controls, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Yes.
	<b>ACS</b>	Yes.
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables (stainless steel), shelving and storage cabinets, as required.	
<b>Special Requirements</b>	Scanner, Provide flammable storage cabinets as required.	
<b>Adjacencies/Location within Facility</b>	Located within larger Artifact storage spaces (both Micro and Macro).	



	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-36 HRF – Artifact – Macro Artifact Storage

<b>Description / Usage</b>	Artifact - Macro Artifact Storage. Includes macro artifact processing area.	
<b>Ceiling Height</b>	20 ft. (6.1m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Overhead coiling door - 12 ft (3.7m) x 12 ft. (3.7m).	
<b>Interior Construction / Built-In Equipment</b>	Pallet racks for large artifact storage.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3. Provide stainless steel industrial trough sink with hot and cold water supply and cleanouts.	
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions. Coordinate with user on location of exhaust system for hazardous materials (i.e.; radium).	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 15 fc (150 lux) ambient and 30 fc (300 lux) task, multi-level switching, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets and shelving, as required. Work tables, stools at Processing Area.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Shipping/Receiving, Artifact - Accessioning, Artifact - Decontamination.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-37 HRF – Artifact – Cold Storage

<b>Description / Usage</b>	Artifact - Cold Storage	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to -25 deg F (-31.7 deg C) dry bulb for indoor design cooling and indoor design heating conditions. Temperature operating range must be -30 deg F (-34.4 deg C) to -20 deg F (-28.9 deg C) for indoor cooling and heating conditions. Verify and coordinate with user if microclimate/microenvironment is desired and/or recommended to satisfy these conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 fc (50 lux) ambient and 30 fc (300 lux) task, multi-level switching, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets and rack shelving, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Artifact - Accessioning, Artifact - Decontamination, Artifact - Storage Areas.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-38 HRF – Artifact - Classified Storage

<b>Description / Usage</b>	Artifact - Classified Storage.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>	Pallet racks and high-density mobile shelving, as required.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, bi-level or multi-level switching. and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapters 3 & 4.
	<b>ACS</b>	Provide per Chapters 3 & 4.
	<b>CCTV</b>	Provide per Chapters 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets, as required.	
<b>Special Requirements</b>	Restricted access. Provide open floor space for larger artifacts.	
<b>Adjacencies/Location within Facility</b>	Artifact - Storage Areas.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-39 HRF – Artifact – Weapons Storage

<b>Description / Usage</b>	Artifact - Weapons Storage. Historic weapons and inert ordinance storage vault.	
<b>Ceiling Height</b>	12 ft. (3.7 m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>	High-density mobile shelving, as required.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions. Coordinate locations of temperature and humidity data loggers with end user.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 15 fc (150 lux) ambient and 30 fc (300 lux) task, multi-level switching, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Weapons storage cabinets, as required. Work table. Provide open floor space for larger weapons.	
<b>Special Requirements</b>	Restricted access. Vault construction.	
<b>Adjacencies/Location within Facility</b>	Artifact - Weapons Work/Research Area.	



	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-40 HRF – Artifact – Weapons Work/Research Area

<b>Description / Usage</b>	Artifact Collection - Weapons Work/Research Area. Space outfitted for maintainance of weapons.	
<b>Ceiling Height</b>	12 ft. (3.7 m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - painted.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions. Coordinate locations of temperature and humidity data loggers with end user. Provide fume hood.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 15 fc (150 lux) ambient, 50 fc ( 500 lux) task, and multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Provide work station and storage for weapons specialist. Provide chemical/flammable storage cabinets, as required.	
<b>Special Requirements</b>	Provide cipher lock on entry door. Verify required security and construction level to meet the requirements of this space. Reference OPNAVINST 5530.13C	
<b>Adjacencies/Location within Facility</b>	Artifact - Weapons Storage.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-41 HRF – Artifact – Photo Room

<b>Description / Usage</b>	Artifact - Photo Room. Space for imaging documentation of objects.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Overhead coiling door - 10 ft (3.0m) x 10 ft. (3.0m).	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish (dark gray).
	<b>Floor</b>	Resilient or sealed concrete (dark gray).
	<b>Base</b>	Resilient (dark gray).
	<b>Ceiling</b>	Exposed structure - painted dark gray.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3. Provide dedicated power circuits required for photographic lighting.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 fc ( 50 lux) ambient, 50 fc (500 lux) task, and dimmable controls.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	3-D scanner.	
<b>Adjacencies/Location within Facility</b>	Artifact - Storage Areas, Artifact - Loan Object Processing, Artifact - Accessioning/Decontamination.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-42 HRF – Artifact – Artifact Loan Processing

<b>Description / Usage</b>	Artifact - Artifact Loan Processing. Artifact receiving, cleaning and packing for loans.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 10 ft. (3.0m) high	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 70 deg F (21.1 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 42% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 68 deg F (20 deg C) to 72 deg F (22.2 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 40% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels and local power panels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 15 fc (150 lux) ambient and 75 fc (750 lux) task, dimmable controls, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables (stainless steel), stools, shelving and storage cabinets, as required.	
<b>Special Requirements</b>	Scanner.	
<b>Adjacencies/Location within Facility</b>	Artifact - Decontamination, Artifact - Accessioning, Artifact - Photo Room, Artifact - Storage Areas.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-43 HRF – Artifact – Decontamination Room

<b>Description / Usage</b>	Artifact - Decontamination Room. Room for isolation of incoming artifacts which may contain hazardous materials (i.e.; radium) and/or pest infestation.	
<b>Ceiling Height</b>	20 ft. (6.1m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Overhead coiling door - 12 ft. (3.7m) x 12 ft. (3.7m)	
<b>Interior Construction / Built-In Equipment</b>	Pallet racks, as required.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/stain finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, bi-level or multi-level switching. and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets and shelving, as required. Large work tables, stools, hazardous material containers, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Shipping/Receiving, Artifact - Storage Areas.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



Table E-44 HRF – Artifact – Accessioning Area

<b>Description / Usage</b>	Artifact - Accessioning Area. Holding area for incoming artifacts.	
<b>Ceiling Height</b>	15 ft. (4.6m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Overhead coiling door - 12 ft (3.7m) x 12 ft (3.7m).	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - painted.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 70 deg F (21.1 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 42% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 68 deg F (20 deg C) to 72 deg F (22.2 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 40% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 15 fc (150 lux) ambient, 30 fc (300 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Large work tables, stools, filing, storage as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Artifact - Storage Areas, Shipping/Receiving.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-45 HRF – Artifact – Workshop

<b>Description / Usage</b>	Artifact - Workshop. General work area to include mount making. OPTION: May include provision for paint spray booth for conservation, if required by exhibit designers.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. If paint spray booth is required, provide exhaust system for removal of fumes. Provide snorkel type localized exhaust systems with articulating arms that can be adjusted and manually set to desired positions of users where required for equipment below.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4. NFPA 30 as applicable.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels and local power panels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of an avg. of 50 fc (500 lux) ambient, daylighting, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Miter saw, power and hand tools, workbench, stools.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Artifact - Loan Processing, Shipping/Receiving.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-46 HRF – Artifact – Shipping/Receiving Room

<b>Description / Usage</b>	Artifact - Shipping/Receiving.	
<b>Ceiling Height</b>	20 ft. (6.1m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Overhead coiling door - 12 ft (3.7m) x 12 ft. (3.7m).	
<b>Interior Construction / Built-In Equipment</b>	Pallet racks, as required.	
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of an avg. 30 fc (300 lux) ambient.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Work tables, stools. Shelving, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Artifact - Accessioning, Artifact - Storage Areas.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

**Table E-47 HRF – Artifact – Equipment Storage**

<b>Description / Usage</b>	Artifact - Equipment Storage Area. Storage for forklift, pallet jacks, carts, etc.	
<b>Ceiling Height</b>	15 ft. (4.6m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Overhead coiling door - 12 ft. (3.7m) x 12 ft. (3.7m).	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Loading Dock.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-48 HRF – Artifact – Supply Storage

<b>Description / Usage</b>	Artifact - Supply Storage.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - painted.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Shelving and storage cabinets, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Artifact - Processing Areas, Artifact - Storage Areas, Artifact - Accessioning.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



**Table E-49 HRF – Artifact – Exterior Storage Pad**

<b>Description / Usage</b>	Artifact - Exterior Storage Pad. Covered area for larger macro artifact storage.	
<b>Ceiling Height</b>	Exposed - 20 ft (6.1m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Provide personnel doors to Shipping/Receiving and Macro Artifact Storage area.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	
	<b>Floor</b>	Reinforced concrete slab for heavy objects.
	<b>Base</b>	
	<b>Ceiling</b>	
<b>Plumbing</b>	Provide per Chapter 3 and 4. Provide hose bibbs and drains. Provide freeze proof hydrants in lieu of hose bibbs where climate demands. Connect drains to separate chemical containment system that includes holding tank(s) for Underwater Archaeology.	
<b>HVAC</b>		
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 0.6 fc ( 6 lux) and occupancy sensor with integrated photocell.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Provide truck access.	
<b>Adjacencies/Location within Facility</b>	Shipping/Receiving, Artifact - Macro Artifact Storage.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table E-50 HRF - Art – Office Space**

<b>Description / Usage</b>	Art - Office Space. Open office area to accommodate Art staff and associated office functions. This space may be combined with Art - Processing Area. May include wall space for artwork display area associated with loan check-out.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 - 25 fc, ( 50 to 250 lux) ambient and 50 fc (750 lux) task, daylighting, dimmability, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Workstations, ergonomic task chairs, task lighting, side chairs, filing and storage.	
<b>Special Requirements</b>	Include space for required copier, printers, scanners and any common storage requirements.	
<b>Adjacencies/Location within Facility</b>	Art - Processing Area, Art - Storage, Near Shipping/Receiving.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-51 HRF – Art – Artist-in-Residence

<b>Description / Usage</b>	Art - Artist(s)-in-Residence. Space for Navy staff artist(s) to produce artwork.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>	Provide for views and daylighting necessary for art production.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Casework to include sink and base/wall cabinets for storage.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient or sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>	Provide per Chapter 3. Provide a stainless steel sink with hot and cold water supply and a cleanout.	
<b>HVAC</b>	Provide per Chapter 3. Verify if exhaust system is required for removal of potential fumes created in this space from paints and solvents.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 - 25 fc, ( 50 to 250 lux) ambient and 50 fc (500 lux) task, daylighting, dimmability, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Cabinets for art supply storage, work tables, stools, flammable locker, desk, ergonomic task chair, easel, task lighting.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Art Gallery, Art - Office Space.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-52 HRF – Art – Break Area

<b>Description / Usage</b>	Art - Break Area. Space used for breaks and lunches. Includes kitchenette for storage, warming and minimal prep of food and area for seating/tables.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>	Provide, if possible, for exterior views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Casework to include sink and base/wall cabinets.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>	Provide per Chapter 3. Provide a stainless steel sink with hot and cold water supply and a cleanout. Provide a water connection for icemaker at refrigerator.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
	<b>Acoustics</b>	
<b>Furnishings and Equipment</b>	Refrigerator, countertop microwave, coffee maker, tables, chairs, recycling and trash containers.	
<b>Special Requirements</b>	Vending machines.	
<b>Adjacencies/Location within Facility</b>	Art - Office Space.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-53 HRF – Art – Framing Room

<b>Description / Usage</b>	Art - Framing Room. Space to fabricate and assemble frames.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3. Provide emergency eyewash station.	
<b>HVAC</b>	Provide per Chapter 3. Verify if exhaust system is required for removal of potential fumes created in this space from paints and solvents. Provide snorkel type localized exhaust systems with articulating arms that can be adjusted and manually set to desired positions of users where required for equipment below.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels and local power panels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 - 25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Tables, stools, workbench, storage for moldings and other framing supplies, mitre saw, dry mount press, frame chopper.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Artist-in-Residence, Shipping.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-54 HRF – Art – Processing Area

<b>Description / Usage</b>	Art - Processing Area	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - painted.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, bi-level or multi-level switching. and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Large work tables, storage as required.	
<b>Special Requirements</b>	Provide space for digitizers and scanners, as required.	
<b>Adjacencies/Location within Facility</b>	Art - Storage, Art - Accessioning.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-55 HRF – Art – Accessioning Area

<b>Description / Usage</b>	Art - Accessioning Area. Intake area for artwork.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum to accommodate larger art.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, bi-level or multi-level switching. and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Large work tables, filing, storage as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Art - Processing, Loading Dock.	



	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

**Table E-56 HRF – Art – Storage**

<b>Description / Usage</b>	Art - Storage. Storage space for artwork. May include wall space for artwork display area associated with loan check-out.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>	Art storage units, if mobile high density system.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions. Coordinate locations of temperature and humidity data loggers with end user.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient, 30 fc (300 lux) task, and bi-level or multi-level switching. Provide display area lighting per chapter 4 museum exhibit requirements.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equip.</b>	Art Storage Units, if freestanding. Flat files for unframed prints.	
<b>Special Requirements</b>	Mobile bin-type storage units or vertical hanging units. Provide varying bin sizes to accommodate varying artwork formats.	
<b>Adjacencies/Location within Facility</b>	Art - Processing, Loading Dock.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-57 HRF – Art – Secure Storage

<b>Description / Usage</b>	Art - Secure Storage. Locked secure space for designated artwork.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>	Art storage units, if mobile high-density system.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient and bi-level switching.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Art Storage Units, if freestanding. Flat files for unframed prints.	
<b>Special Requirements</b>	Mobile bin-type storage units or vertical hanging units. Provide varying bin sizes to accommodate varying artwork formats.	
<b>Adjacencies/Location within Facility</b>	Art - Storage.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-58 HRF – Art – Crate Storage

<b>Description / Usage</b>	Art - Crate Storage. Area for storage and assembly of crating materials.	
<b>Ceiling Height</b>	12 ft. (3.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft. - 6 inch (1.0m) wide x 10 ft. (3.0m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Approximate same size as Art - Storage.	
<b>Adjacencies/Location within Facility</b>	Shipping/Receiving, Loading Dock	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-59 HRF – UA – Office Space

<b>Description / Usage</b>	UA - Office Space. Open office area to accommodate UA staff and associated office functions. Includes reference area for document research.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>	If adjacent to lab spaces, provide additional sound attenuation.	
<b>Furnishings and Equipment</b>	Workstations (intern and full-time staff), ergonomic task chairs, display cabinets for exhibits, files and storage cabinets as required. Research area - small work table/desk, locking document storage.	
<b>Special Requirements</b>	Provide space to accommodate required printers and copier. Incorporate research area.	
<b>Adjacencies/Location within Facility</b>	Entry, UA -Director Office, UA - Conference Room.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-60 HRF – UA – Director Office

<b>Description / Usage</b>	UA - Director Office.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Freestanding desking system, task lighting, ergonomic desk chair, side chairs, filing/storage.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	UA - Office Space, Conference Room.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



Table E-61 HRF – UA – Conference Room

<b>Description / Usage</b>	UA - Conference Room.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Recessed projection screen, projector mount. Visual display system - whiteboards, tackboards, etc. Map display rail.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish. Optional finish treatments (wood wainscott, acoustical wall panels, etc.).
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient or wood.
	<b>Ceiling</b>	ACT. Could introduce GWB soffits for interest.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3 with addition of infrastructure for Video teleconferencing hookup for training purposes.
	<b>CATV</b>	Provide per Chapter 3.
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Conference table, chairs (around table and stacking for additional capacity), lectern, storage credenza, mobile flipchart easel.	
<b>Special Requirements</b>	Consider Video Teleconferencing (VTC).	
<b>Adjacencies/Location within Facility</b>	Entry, UA Office space, UA Director office.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-62 HRF – UA – Break Area

<b>Description / Usage</b>	UA - Break Area	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Provide, if possible, for views and daylighting.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Casework to include sink and base/wall cabinets.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>	Provide per Chapter 3. Provide a stainless steel sink with hot and cold water supply and a cleanout. Provide a water connection for icemaker at refrigerator.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
	<b>Acoustics</b>	
<b>Furnishings and Equipment</b>	Refrigerator, countertop microwave, coffee maker, tables, chairs, recycling and trash containers.	
<b>Special Requirements</b>	Provide space for vending machines, if required.	
<b>Adjacencies/Location within Facility</b>	UA - Office Space.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-63 HRF – UA – Secure Library

<b>Description / Usage</b>	UA - Secure Library. Management of plan storage for sensitive, unclassified materials.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with addition of SL, 15 fc (150 lux) ambient.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Restricted access.	
<b>Adjacencies/Location within Facility</b>	UA Office Space.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-64 HRF – UA – Map/Drafting/Archives Room

<b>Description / Usage</b>	UA - Map/Drafting/Archives Room. Area to read, plot, prepare and store maps.	
<b>Ceiling Height</b>	9 ft. (2.7m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Carpet tile or Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Workstation or tables, as required. Map table (standing height), flat files. Storage cabinets/shelving, as required.	
<b>Special Requirements</b>	Provide space to accommodate 3-D model production equipment, large plotter and scanner.	
<b>Adjacencies/Location within Facility</b>	UA - Office Space, UA - Director Office	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-65 HRF – UA – Collections Storage

<b>Description / Usage</b>	UA - Collections Storage.	
<b>Ceiling Height</b>	15 ft. (4.6m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Overhead coiling door - 12 ft. (3.7m) x 12 ft. (3.7m).	
<b>Interior Construction / Built-In Equipment</b>	Overhead crane, pallet racks.	
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3 and 4. Provide emergency eyewash station(s). Provide floor drain that connects to separate chemical containment system that includes holding tank(s) for Underwater Archaeology.	
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 70 deg F (21.1 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 42% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 68 deg F (20 deg C) to 72 deg F (22.2 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 40% RH to 45% RH for indoor heating conditions. Coordinate with user on location of exhaust system for hazardous materials (i.e.; radium).	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient, 30 fc (300 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4
	<b>ACS</b>	Provide per Chapter 3 & 4
	<b>CCTV</b>	Provide per Chapter 3 & 4
<b>Acoustics</b>		
<b>Furnishings and Equip.</b>	Forklift.	
<b>Special Requirements</b>	Overhead crane.	
<b>Adjacencies/Location within Facility</b>	UA - Conservation Lab, UA - Field Equipment, UA - Dive Locker.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		



Table E-66 HRF – UA – Small Object Storage

<b>Description / Usage</b>	UA - Small Object Storage.	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 70 deg F (21.1 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 42% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 68 deg F (20 deg C) to 72 deg F (22.2 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 40% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Shelving and storage cabinets, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Could be located within UA - Collections Storage.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

**Table E-67 HRF – UA – Boat Storage**

<b>Description / Usage</b>	UA - Boat Storage. Area used to store trailered boats.	
<b>Ceiling Height</b>	15 ft. (4.6m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Provide personnel door to space.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3. Provide hose bibbs. Provide freeze-proof hydrants in lieu of hose bibbs where climate demands. Consider rainwater collection system.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of local power panels.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Smaller boat storage to be enclosed. Larger boats - provide exterior sheltered area for boats up to 30 ft (9.1m) long (including trailer).	
<b>Adjacencies/Location within Facility</b>	Exterior access.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-68 HRF – UA – Dive Locker and Remote Sensing Equipment

<b>Description / Usage</b>	UA - Dive Locker and Remote Sensing Equipment. Space for dive suits to hang and dry, storage of compressed dive tanks and remote sensing equipment.	
<b>Ceiling Height</b>	10 ft. (3.0 m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3 and 4. Provide compressed air system with air dryer. Coordinate locations of air drops with user. Verify if ceiling hung hose reels are required for compressed air system. Coordinate with user the location of the floor drain(s) for drying area of dive suits.	
<b>HVAC</b>	Provide per Chapter 3. Coordinate with user to provide required air circulation and 45% RH for indoor design cooling conditions, and 40% RH for indoor design heating conditions for drying area of dive suits. Relative humidity operating ranges must be 42% RH to 48% RH for indoor cooling conditions, and 37% RH to 43% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of 20 fc (200 lux) ambient, damp or wet label as appropriate, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Scuba tank racks, as required.	
<b>Special Requirements</b>	Dive tanks storage. Exterior access required.	
<b>Adjacencies/Location within Facility</b>	UA - Collections Storage.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-69 HRF – UA – Field Equipment

<b>Description / Usage</b>	UA - Field Equipment. Storage area for equipment (generators, compressors, etc.).	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - semi-gloss finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with vacancy sensor.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets.	
<b>Special Requirements</b>	Exterior access.	
<b>Adjacencies/Location within Facility</b>	UA - Dive Locker, UA - Conservation Lab, UA - Collection Storage.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-70 HRF – UA – Demonstration Laboratory

<b>Description / Usage</b>	UA - Demonstration Laboratory. Public viewing and demonstration space.	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>	Casework (stainless steel tops) to include base/wall cabinets for storage. Provide viewing glass for spectators.	
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - semi-gloss finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3 and 4. Provide emergency shower/eyewash station. Provide stainless steel industrial trough sink(s) with hot and cold water supply and cleanout. Provide emergency eyewash station adjacent to sink. Provide floor drains where required by user that connect to separate chemical containment system that includes holding tank(s) for Underwater Archaeology. Provide compressed air system with air dryer. Coordinate locations of air drops with user. Verify if ceiling hung hose reels are required for compressed air system.	
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb for indoor design cooling and indoor design heating conditions. Design to 50% RH for conserved organic materials, and to 30% RH for conserved metals. Temperature operating range must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) for indoor cooling and heating conditions. Relative humidity operating range must be 47% RH to 53% RH for conserved organic materials, and 27% RH to 33% RH for conserved metals.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of power panels and cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 25 fc (250 lux) ambient, 100 fc (1000 lux) task and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	

<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Stainless steel work tables. Storage cabinets, as required.	
<b>Special Requirements</b>	Provide viewing glass between adjacent Conservation Lab and Administrative Space.	
<b>Adjacencies/Location within Facility</b>	UA - Conservation Lab, UA - Collection Storage, near entry.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



Table E-71 HRF – UA – Conservation Laboratory

<b>Description / Usage</b>	UA - Conservation Laboratory.	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Overhead coiling door - 12 ft. (3.7m) x 12 ft. (3.7m) from Processing area.	
<b>Interior Construction / Built-In Equipment</b>	Overhead crane. Casework (stainless steel tops) to include base/wall cabinets for storage. Provide viewing glass for spectators.	
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3 and 4. Provide emergency shower/eyewash station. Provide stainless steel industrial trough sink(s) with hot and cold water supply and cleanouts. Provide emergency eyewash stations adjacent to sinks. Provide floor drains where required by user that connect to separate chemical containment system that includes holding tank(s) for Underwater Archaeology. Provide compressed air system with air dryer. Coordinate locations of air drops with user. Verify if ceiling hung hose reels are required for compressed air system.	
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb for indoor design cooling and indoor design heating conditions. Design to 50% RH for conserved organic materials, and to 30% RH for conserved metals. Temperature operating range must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) for indoor cooling and heating conditions. Relative humidity operating range must be 47% RH to 53% RH for conserved organic materials, and 27% RH to 33% RH for conserved metals. Provide fume hoods and/or ventilated safety cabinets as required by the end user.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the additions of cable reels and local power panels.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 25 fc (250 lux) ambient and 75 fc (750 lux) task, dimmable controls, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	

<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Stainless steel work tables (open shelf beneath), shelving and storage cabinets as required for tools/glassware, flammable storage cabinets, corrosive material storage cabinets, flat files, vacuum freeze dryer, large chest freezer, refrigerator, microscope (bench-mounted or freestanding), drying oven.	
<b>Special Requirements</b>	Provide deionized water supply. Overhead crane. Fume hood. Provide viewing glass between adjacent Demonstration Lab and Administrative Space.	
<b>Adjacencies/Location within Facility</b>	UA - X-Ray Room, UA - Cold Storage, UA - Collections Storage.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-72 HRF – UA – Photo Room

<b>Description / Usage</b>	UA - Photo Room.	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish - dark gray.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint dark gray.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 fc ( 50 lux) ambient, 50 fc (500 lux) task, and dimmable controls.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Light stations, camera mounts.	
<b>Adjacencies/Location within Facility</b>	UA - Conservation Lab.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-73 HRF – UA – Cold Storage

<b>Description / Usage</b>	UA - Cold Storage	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to -25 deg F (-31.7 deg C) dry bulb for indoor design cooling and indoor design heating conditions. Temperature operating range must be -30 deg F (-34.4 deg C) to -20 deg F (-28.9 deg C) for indoor cooling and heating conditions. Verify and coordinate with user if microclimate/microenvironment is desired and/or recommended to satisfy these conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of SL, 5 fc (50 lux) ambient and 30 fc (300 lux) task, multi-level switching, and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	UA -Conservation Lab, UA - X-Ray, Processing Area.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-74 HRF – UA – X-Ray Room

<b>Description / Usage</b>	UA - X-Ray Room	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of an avg. of 100 fc (1000 lux) ambient.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Provide space for x-ray machine.	
<b>Adjacencies/Location within Facility</b>	UA - Conservation Lab, UA - Cold Storage, Processing.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		



Table E-75 HRF – UA – Chemical Storage

<b>Description / Usage</b>	UA - Chemical Storage.	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Oversize - Pair 3 ft.- 6 inch (1.0m) wide x 8 ft. (2.4m) high.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - semi-gloss finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3 and 4. Provide emergency eyewash station. Provide floor drain that connects to separate chemical containment system that includes holding tank(s) for Underwater Archaeology.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Flammable storage cabinets, corrosive cabinets, expended chemical storage.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Exterior access (for deliveries), UA - Conservation Lab.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-76 HRF – UA – Outdoor Treatment Tanks and Equipment Storage

<b>Description / Usage</b>	UA - Outdoor Treatment Tanks and Equipment Storage. Covered, open area necessary for off-gassing of tanks and outdoor equipment storage (pallets, vats, etc.).	
<b>Ceiling Height</b>	15 ft. (4.6m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Exterior.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	
	<b>Ceiling</b>	
<b>Plumbing</b>	Provide per Chapter 3 and 4. Provide drains and chemical spill containment for outdoor treatment tanks. Provide hose bibbs. Consider rainwater collection system (with associated hose bibbs). Provide freeze proof hydrants in lieu of hose bibbs where climate demands. Connect drains to separate chemical containment system that includes holding tank(s) for Underwater Archaeology. Provide compressed air system with air dryer. Coordinate locations of air drops with user.	
<b>HVAC</b>		
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of an avg. of 0.6 fc (6 lux) and occupancy sensors with integrated photocell.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Chemical spill containment area required.	
<b>Adjacencies/Location within Facility</b>	UA - Conservation Lab.	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-77 HRF – UA – Object Receiving/Processing

<b>Description / Usage</b>	UA - Object Receiving/Processing. OPTION: May include provision for restroom/shower/changing area for decontamination of personnel and artifacts.	
<b>Ceiling Height</b>	15 ft. (4.6m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Overhead coiling door - 12 ft. (3.7m) x 12 ft. (3.7m).	
<b>Interior Construction / Built-In Equipment</b>	Overhead crane.	
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3 and 4. Provide washing machine hook-up. Provide shower for personnel decontamination. Connect floor drain from shower to separate chemical containment system that includes holding tank(s) for Underwater Archaeology. Provide restroom in changing area.	
<b>HVAC</b>	Provide per Chapter 3. Critical area. Design to 72 deg F (22.2 deg C) dry bulb and 50% RH for indoor design cooling conditions, and 68 deg F (20 deg C) dry bulb and 40% RH for indoor design heating conditions. Temperature and relative humidity operating ranges must be 70 deg F (21.1 deg C) to 74 deg F (23.3 deg C) and 45% RH to 53% RH for indoor cooling conditions, and 66 deg F (18.9 deg C) to 70 deg F (21.1 deg C) and 37% RH to 45% RH for indoor heating conditions. Provide clothes dryer exhaust.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equip.</b>	Work tables (stainless steel), stools. Forklift. Washer and dryer.	
<b>Special Requirements</b>	Provide shower area for personnel decontamination, if required.	
<b>Adjacencies/Location within Facility</b>	UA - Conservation Lab, Loading Dock	

	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		

Table E-78 HRF – UA – Hazardous Material

<b>Description / Usage</b>	UA - Hazardous Material. Room for isolation of incoming artifacts which may contain hazardous materials (i.e.; radium).	
<b>Ceiling Height</b>	15 ft. (4.6m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Overhead coiling door - 12 ft. (3.7m) x 12 ft. (3.7m)	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3 & 4.	
<b>Power</b>	Provide per Chapter 3 with the addition of cable reels.	
<b>Lighting</b>	Provide per Chapter 3 with the additions of SL, 5 - 25 fc (50 to 250 lux) ambient, 50 fc (500 lux) task, bi-level or multi-level switching. and occupancy sensors.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets and shelving, as required. Large work tables, stools, hazardous material containers, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	UA - Object Receiving/Processing, Loading Dock.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-79 HRF - Entries/Vestibule

<b>Description / Usage</b>	Entries/Vestibules. Provide optional employee entrances as required.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>	Consider storefront system for vision and daylighting into lobbies.	
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Provide recessed walk-off mat system. Bulletin boards.	
<b>Finishes</b>	<b>Walls</b>	Plaster or GWB - painted (exterior finishes could carry into vestibule).
	<b>Floor</b>	Hard surface (stone/porcelain tile).
	<b>Base</b>	Coordinate with floor finish and/or storefront system.
	<b>Ceiling</b>	Plaster or GWB - painted, decorative ceiling treatment.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3. Provide flush-mounted fire alarm/mass notification system remote annunciator and microphone station at main entrance vestibule.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of an avg. of 0.6 fc (6 lux) and photocell controlled.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Lockers (half-height), display cases.	
<b>Special Requirements</b>	Provide locker area for visitor item storage.	
<b>Adjacencies/Location within Facility</b>		
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-80 HRF – Public Restroom

<b>Description / Usage</b>	Public Restrooms. Men's and Women's toilet rooms.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Sink vanities, toilet partitions, mirrors, toilet accessories.	
<b>Finishes</b>	<b>Walls</b>	Ceramic or porcelain tile (full-height). Provide water-resistant GWB at wet walls.
	<b>Floor</b>	Porcelain tile.
	<b>Base</b>	Ceramic or porcelain tile.
	<b>Ceiling</b>	ACT and/or painted GWB (eggshell/satin finish).
<b>Plumbing</b>	Provide per Chapter 3. Provide wall-mounted urinals, floor-mounted toilets, and lavatories. Provide a floor drain.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of emergency lighting with battery backup .	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Coordinate with Facility Manager when determining soap and paper product dispensing preferences.	
<b>Adjacencies/Location within Facility</b>	Entries	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



**Table E-81 HRF – Staff Restrooms**

<b>Description / Usage</b>	Staff Restrooms. Toilet facilities for facility staff.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Sink vanities, toilet partitions (at multiple toilets), lockers, mirrors, toilet accessories.	
<b>Finishes</b>	<b>Walls</b>	Ceramic or porcelain tile (full-height). Provide water-resistant GWB at wet walls.
	<b>Floor</b>	Porcelain tile.
	<b>Base</b>	Ceramic or porcelain tile.
	<b>Ceiling</b>	ACT and/or painted GWB (eggshell/satin finish).
<b>Plumbing</b>	Provide per Chapter 3. Provide wall-mounted urinals, floor-mounted toilets, and lavatories. Provide a floor drain.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of emergency lighting with battery backup .	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Coordinate with Facility Manager when determining soap and paper product dispensing preferences.	
<b>Adjacencies/Location within Facility</b>	Administrative areas (non-public areas).	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table E-82 HRF – Janitorial Space**

<b>Description / Usage</b>	Janitorial Space. Space for custodial supplies and equipment.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>	Include mop/broom rack, utility shelf.	
<b>Finishes</b>	<b>Walls</b>	Ceramic tile wainscot (48 ft. high; 1.2m) or fiber-reinforced or rigid vinyl panel wall protection wainscot (4 ft. high; 1.2m). Epoxy paint - semi-gloss finish above.
	<b>Floor</b>	Porcelain tile or sealed concrete.
	<b>Base</b>	Porcelain or ceramic tile (coordinate with wall/floor).
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3. Provide a mop sink, floor drain, and keyed hose bibb.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinet (optional).	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Restrooms, Public areas.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table E-83 HRF – Facilities Management Storage**

<b>Description / Usage</b>	Facilities Management Storage. Space used to store surplus building products/supplies such as light bulbs, paints, cleaning and paper products.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>	Storage cabinets, flammable cabinets, as required.	
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Facility Manager office, Loading dock.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table E-84 HRF – Elevators**

<b>Description / Usage</b>	Elevators. Elevator meeting all IBC requirements at each floor.	
<b>Ceiling Height</b>	8 ft. (2.4) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Stainless steel or plastic laminate panels.
	<b>Floor</b>	Hard surface (stone/porcelain tile, etc.) or resilient. Continue adjacent space floor finish.
	<b>Base</b>	Stainless steel (cab finish).
	<b>Ceiling</b>	Panels as offered by elevator manufacturer.
<b>Plumbing</b>	Provide per Chapter 3.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of an avg. of 5 fc (50 lux) ambient.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Entries, public areas.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-85 HRF – Freight Elevator

<b>Description / Usage</b>	Freight Elevator. Elevator used to convey oversize displays, artifacts, equipment, etc.	
<b>Ceiling Height</b>		
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Stainless steel panels (provide hooks for protective blanket installation).
	<b>Floor</b>	Resilient or sealed concrete.
	<b>Base</b>	Stainless steel.
	<b>Ceiling</b>	Panels as offered by elevator manufacturer.
<b>Plumbing</b>	Provide per Chapter 3.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of an avg. of 5 fc (50 lux) ambient.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Loading dock.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table E-86 HRF – Elevator Equipment Room**

<b>Description / Usage</b>	Elevator Equipment Room(s). Room housing required elevator equipment.	
<b>Ceiling Height</b>	Exposed - 8 ft. (2.4) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Elevator, Freight Elevator.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table E-87 HRF – Stairwells**

<b>Description / Usage</b>	Stairwells	
<b>Ceiling Height</b>	Varies.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete with resilient stair system (treads, risers)
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>		
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Locate per Life Safety requirements.	
<b>Adjacencies/Location within Facility</b>		
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-88 HRF – Electrical Room

<b>Description / Usage</b>	Electrical Room. Room housing electrical panels and equipment.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>		
	For use during project execution by the appropriate Service agency	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		



Table E-89 HRF – Telecommunications/Server Room

<b>Description / Usage</b>	Telecommunications/Server Room. Room to house communications distribution. May include SIPR and JWICS.	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 50 fc (500 lux) per telecommunications UFC, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	Coordinate requirements for extra server racks for separate system for artifact area.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	ESS Closet	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table E-90 HRF – Server Room**

<b>Description / Usage</b>	Server Room. May co-locate with IT personnel.	
<b>Ceiling Height</b>	8 ft. (2.4m) minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Resilient.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	ACT.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 50 fc (500 lux) per telecommunications UFC, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	Provide per Chapter 3.
	<b>Data</b>	Provide per Chapter 3. Coordinate requirements with telcom room for additional servers.
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>		
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-91 HRF – ESS Closet

<b>Description / Usage</b>	ESS Closet. Room to house electronic security system equipment.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of 50 fc (500 lux) per telecommunications UFC, and bi-level or multi-level switching.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Telecom Room	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

Table E-92 HRF – Mechanical Room

<b>Description / Usage</b>	Mechanical Room. Room housing HVAC equipment.	
<b>Ceiling Height</b>	9 ft. (2.7m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3.	
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>		
	For use during project execution by the appropriate Service agency	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table E-93 HRF – Shipping/Receiving**

<b>Description / Usage</b>	Shipping/Receiving. Receiving, unpacking and packing of all packages.	
<b>Ceiling Height</b>	10 ft. (3.0m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Minimum 8 ft. (2.4m) wide x 8 ft. (2.4m) high rolling door.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Impact resistant wallcovering wainscot (4 ft. (1.2m) high), epoxy paint (eggshell/satin finish) above.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of an avg. of 30 fc (300 lux) ambient and bi-level or multilevel switching.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Loading dock.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table E-94 HRF – Recycling Room**

<b>Description / Usage</b>	Recycling Room. Easily accessible room dedicated to collection and storage of materials for recycling. Includes paper, corrugated cardboard, glass, plastics and metals.	
<b>Ceiling Height</b>	8 ft. (2.4m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>		
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>	Coordinate recycling container sizes used by HRF.	
<b>Adjacencies/Location within Facility</b>	Loading dock.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table E-95 HRF – Equipment Storage Area**

<b>Description / Usage</b>	Equipment Storage Area. General storage area for forklift, pallet jacks and carts to support facility.	
<b>Ceiling Height</b>	15 ft. (4.6m) clear minimum.	
<b>Windows</b>		
<b>Doors</b>	Overhead coiling door - 12 ft (3.7m) x 12 ft. (3.7m).	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	Epoxy paint - eggshell/satin finish.
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	Resilient.
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>		
<b>HVAC</b>	Provide per Chapter 3.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3.	
<b>Lighting</b>	Provide per Chapter 3 with vacancy sensor.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	
	<b>ACS</b>	
	<b>CCTV</b>	
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>	Loading dock.	
	<b>For use during project execution by the appropriate Service agency</b>	
<b>Occupancy</b>	<b>Staff</b>	
	<b>Other</b>	
<b>Min. net ft<sup>2</sup> (m<sup>2</sup>)</b>		

**Table E-96 HRF – Loading Dock**

<b>Description / Usage</b>	Loading Dock(s). Area for shipping/receiving as well as building waste removal.	
<b>Ceiling Height</b>	Varies.	
<b>Windows</b>		
<b>Doors</b>	Minimum 8 ft. (2.4m) wide x 8 ft. (2.4m) high coiling overhead door. Provide personnel door.	
<b>Interior Construction / Built-In Equipment</b>		
<b>Finishes</b>	<b>Walls</b>	High Performance Architectural Coating (HIPAC). Service corridors leading to loading dock to receive impact resistant wallcovering wainscot (4 ft. (1.2m) high).
	<b>Floor</b>	Sealed concrete.
	<b>Base</b>	
	<b>Ceiling</b>	Exposed structure - paint.
<b>Plumbing</b>	Provide per Chapter 3. Provide washing machine hook-up if required by end user. If restroom is required in this area by end user, verify if shower is also required.	
<b>HVAC</b>	Provide per Chapter 3. If loading dock is enclosed, provide a unit heater or infrared heater at the entrance of the loading dock, and a vehicle exhaust removal system for trucks.	
<b>Fire Protection and Life Safety</b>	Provide per Chapter 3.	
<b>Power</b>	Provide per Chapter 3. Provide washer and dryer connections.	
<b>Lighting</b>	Provide per Chapter 3 with the addition of an avg. of 10 fc (100 lux) and photocell controlled.	
<b>Communication</b>	<b>Telephone</b>	
	<b>Data</b>	
	<b>CATV</b>	
<b>Security</b>	<b>IDS</b>	Provide per Chapter 3 & 4.
	<b>ACS</b>	Provide per Chapter 3 & 4.
	<b>CCTV</b>	Provide per Chapter 3 & 4.
<b>Acoustics</b>		
<b>Furnishings and Equipment</b>		
<b>Special Requirements</b>		
<b>Adjacencies/Location within Facility</b>		



	For use during project execution by the appropriate Service agency	
Occupancy	Staff	
	Other	
Min. net ft <sup>2</sup> (m <sup>2</sup> )		