Chapter 11 Museum Property Security and Fire Protection

A. INTRODUCTION

Whether museum property is in storage or in transit, or
whether it is exhibited in cases or in furnished rooms,
protecting it against various risks poses problems. The
general categories of threats to museum property (e.g., those
hazards that can destroy, damage, or cause the loss of
objects and specimens) are fire, crime (e.g., burglary and
vandalism), improper environmental conditions, catastrophic
events (e.g., natural and industrial disasters), and other
events (e.g., transportation accidents and damage to objects
and/or exhibits caused by staff carelessness or inattention).

In general, museum property security is the art of protecting
museum property, information, equipment, physical facilities,
visitors, and staff from harm. The primary objectives of a
museum property protection program are as follows:

! To provide for the protection and safety of staff and
  visitors.

! To prevent the loss of museum property from all
  recognized threats.

! To protect the documentation (e.g., accession records,
  catalog records, conservation reports, photographs, and
  field data) on museum property.

Refer to Appendix I for a discussion of laws, regulations,
DOI policies and requirements, and other DOI guidelines that
relate to the protection of museum property.

1. Protecting Museum Property

    Protecting museum property housed in administrative
    buildings, exhibit spaces, visitor and research centers,
    storage areas, and furnished historic structures requires
    special consideration. The following factors distinguish
    spaces housing museum property from other types of
    premises that require protection:

    a. such spaces house property that is recognized by the
        public to have unusual value (this value is

interpreted as monetary value by thieves;

b. such spaces may house a concentration of valuable
    objects;

c. a museum property collection may include unique,
    irreplaceable objects (e.g., George Washington's tent
    or plant type specimens); and,

d. museum property is often made accessible for public
    enjoyment in exhibits and through study and research.

2. Responsibility

    Security is everyone's responsibility, whether permanent
    or seasonal employee or volunteer. It is important to
    keep in mind that protection of museum property
    collections is only one part of an overall security
    program. The curatorial staff needs to identify security
    deficiencies in spaces housing museum property.
    Curatorial staff should work closely with law enforcement
    and maintenance staffs, and as appropriate, with bureau
    specialists beyond the unit level, in initiating
    appropriate actions to correct deficiencies. Refer to
    Appendix I for additional sources of assistance.
    Good security depends ultimately on management's decision
    regarding the measures considered to be most effective
    and on it's commitment to allocate staff and funds to
    take those measures.

B. **THE SECURITY SURVEY**

    The National Institute of Law Enforcement and Criminal
    Justice describes the security survey as "a critical on-site
    examination and analysis of an industrial plant, business or
    home, public or private institution to ascertain the present
    security status; to identify deficiencies or excesses; to
    determine the protection needed; and to make recommendations

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to improve the security."[1] The primary role of a security

survey is to assist a unit in identifying and removing or
reducing threats against the unit's property.

While fire protection is often considered as a separate
function from physical security, it is often more efficient
to include fire protection in a security survey. Section E
of this Chapter provides guidance on conducting a fire
prevention survey.

A security survey of spaces housing museum property may be
conducted as part of a total or partial security survey for a
unit or as an independent study of only the facilities and
spaces housing museum property. It examines operating
procedures and physical measures for museum property
collections security and makes recommendations for correcting
any deficiencies noted. A survey nearly always results in a
Security Survey Report being prepared and distributed to
responsible management.

1. Basic Security Inspection

    Staff can conduct an inspection of spaces housing museum
    property to identify security deficiencies. Access to
    the final report should be restricted. There are three
    steps to this inspection procedure.

    a. Identify Nature of Museum Property

        Describe and evaluate the nature and value of the
        museum property. Include the types of materials in
        the collections (e.g., paper or stone), the value of
        objects (e.g., monetary, research, and
        interpretation), and the most significant objects
        (e.g., letter signed by President Truman). Refer to

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[1] The material used in these sections is similar to material
published by John Hunter in the book Museum, Archive, and Library
Security edited by Lawrence J. Fennelly (1983), Chapter 1, pp. 3-
15. The material is derived from early manuscripts written by
the John Hunter for use in the National Park Service.

Chapter 3, Section D for guidance on determining the value of a unit's museum collection.

b.   Identify Location of Museum Property

Identify the location(s) of the museum property collection (e.g., visitor center exhibit, administrative office, or storage), especially the most valuable, attractive, or vulnerable portions of the collection.

c.   Inspection

Use the Departmental "Checklist for Documentation, Preservation and Protection of Museum Property" included in Appendix E to identify basic deficiencies in security and fire protection. Work closely with specialists in the fields of law enforcement, structural fire-fighting, and curation in conducting this basic inspection and for assistance in correcting deficiencies.

2.   Comprehensive Security Survey

The results of the basic security inspection may indicate the need for a more extensive survey, the need for a new intrusion detection system, the need to establish better operating procedures, or the need to rehabilitate the existing system. Appendix I contains a comprehensive checklist that may be used in a detailed security survey of exhibit spaces, storage spaces, and furnished spaces in a historic structure. In most cases, this type of survey requires the assistance of an outside professional. The surveyor should possess specific experience in surveying, and awareness of the special requirements of, museum property.

a.   Preparation of Security Survey Report

When the survey is complete, a survey report is written. This report details the security weaknesses and strengths found and makes recommendations for correcting any

deficiencies. The report should present as many
alternatives as possible for dealing with particular
security deficiencies so that measures selected are
within budget and are the most practical. For this
reason, the report should include cost estimates for each
recommendation. The surveyor may elect to recommend a
package of countermeasures that corrects the greatest
number of problems in the most cost-effective manner. In
particular, the surveyor should point out those counter-
measures that, if taken, would correct more than one
security problem. Such countermeasures almost always are
the most cost-effective.

   b.   Selection of Countermeasures

In many instances, the recommendations in a survey report
can be implemented in stages. Those requiring no
expenditures can be adopted first. Those requiring small
costs can be adopted next. Those requiring major funds
to correct should be programmed for future fiscal years.
Refer to Chapter 14 for guidance on programming. In any
event, the most serious threats should be countered
first.

3. Risk Management

Risk management is often associated only with insurance
coverage. However, risk management is much more than
insurance. It also involves identifying, evaluating, and
eliminating as many risks as possible by taking effective
countermeasures.

The application of risk management techniques is vital to
a successful cost-effective security program. Risk
management demands a methodical appraisal of threats
followed by the use of the most economical methods for
dealing with those risks. First the threats are
identified and measured through a security survey. Next,
ways of dealing with the threats are considered.
Whenever possible, threats should be eliminated.
However, some threats cannot be eliminated. When that is

the case, consider the possibility of reducing them.
This approach is frequently found to be more cost-
effective.

When some risks have been eliminated and other reduced,
there are two strategies available for coping with the
risks that remain: risk assumption and risk transfer.

! <u>Risk Assumption</u> means using existing resources to deal
   with meeting losses as and when they occur. For
   example, usually it is advisable to assume the
   risk of some forms of vandalism. Replacing a broken
   window pane is less expensive than hiring additional
   staff to keep it from being broken.

! <u>Risk Transfer</u> means that a known cost, such as an
   insurance premium, is substituted for the chance of a
   greater loss which may arise through risk assumption.
   Because the Federal Government does not insure its own
   property, risk transfer is not employed by the
   Department except in instances where borrowed property
   belonging to others is insured. Refer to the
   Departmental <u>Museum Property Handbook</u>, Volume II,
   Museum Records, Chapter 5, Section H, for guidance on
   insuring borrowed objects.

C. **PHYSICAL SECURITY**

1. <u>Designing a Physical Security Program</u>

A sound physical security program for DOI bureaus may be
based on the concept of **crime prevention**. Crime
prevention is defined as the anticipation, recognition,
and appraisal of a crime risk and the initiation of
activities to remove or reduce it. A physical security
program seeks to remove or reduce crimes against all
property (e.g., anything having monetary or intrinsic
value) by reducing the opportunities for criminal
activity. Appendix I gives additional references
regarding physical security of museum collections.

A physical security program proceeds along four main

lines: employee training, standards development,
preventive planning, and correction of existing problems.

a. Employee Training

Training efforts are intended to make employees aware
of the extent and causes of crime and security
problems and to give them the skills needed to combat
these problems. Training sessions for all employees
should specifically address the unique concerns of
museum property security. This training should
emphasize the need for constant vigilance on the part
of all unit staff to guard against theft, vandalism,
and fire. Emphasis needs to be placed on reporting
procedures, prompt reporting of missing objects,
unusual incidents, disturbances, or suspicious
conduct. Training also should include the steps for
response to fire, including the use of hand-held fire
extinguishers and personnel to call.

b. Standards Development

Bureaus should ensure that standards that deal with
such matters as intrusion and fire detection devices,
door and window assemblies, locking devices, and
equipment for law enforcement personnel and patrol
vehicles are in place. Bureaus may choose to adopt
existing professional standards developed and
published by Underwriters Laboratories, the National
Fire Protection Association, and the Law Enforcement
Standards Laboratory and the Fire Research Center,
both of the National Institute for Standards and
Technology.

c. Preventive Planning

Preventive planning consists of two parts. The first
is an effort to "design out" security problems during
the planning stages of a project. The second
involves writing and instituting a Crime Prevention
and Physical Security Plan for each unit and office.

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1) **Designing Out Problems**

This part requires the cooperation of architects, engineers, exhibit designers, historic preservation specialists, curatorial staff, interpreters, maintenance personnel, museum property specialists and curators, and others who are involved in various ways during the planning process. Designing out potential problems should take place whether the plans are for a new exhibit in an existing public contact area; for new museum property storage area; or for an historic structure that is to be used adaptively for offices, quarters, or other unit functions. In the initial stages of the planning process, requirements should be established for the level of security needed, based on the nature and value of the structure and its contents. At all subsequent stages, the plans should be reviewed to ensure that these requirements will, in fact, be met in the finished product.

If potential problems are found during this review, written comments and suggestions for corrective action can be prepared for submission to the designer. Decisions made at all levels should be documented.

2) **Crime Prevention and Physical Security Plans**

All plans should have the following common elements:

! leadership by and participation of management in the development and operation of the security program;

! regular security surveys by qualified
personnel

and a provision for corrective actions to be taken in response to the results of the

surveys;

! the orientation and training of all employees
(permanent, temporary, seasonal, and
volunteers) in security awareness, with
emphasis on proper attitudes and defining each
employee's security responsibilities;

! an appropriate level of security for all unit
property, including museum property, capital
equipment, supplies, buildings, money,
firearms, and historic sites, monuments, and
ruins; and,

! a regular review and analysis of the unit's
crime and security problems followed by
the addition of appropriate preventive measures
and necessary changes to the unit's Plan.

d.   Correction of Existing Problems

Correction of museum security problems is based on a
security survey. Refer to Section B of this Chapter
for guidance on security surveys. Survey reports may
recommend a number of approaches to correcting
identified deficiencies including, but not limited
to, changes in operating procedures, structural
modifications to a building, installation of
intrusion or fire detection systems, or creation of
an emergency operating plan for protection of unit
resources in case of a disaster.

D.   CORRECTIVE ACTIONS TO ENSURE MUSEUM SECURITY

There are several simple actions that a bureau should take to
provide for its museum property collections. Together, they
constitute the most basic level of museum property security.
These actions are outlined in the "Checklist for the
Documentation, Preservation and Protection of Museum
Property" in Appendix E and in the "Museum Property Security
Survey Checklist" in Appendix I.

E.   FIRE PROTECTION

Fire can cause the most devastating damage to museum
property. Stolen and damaged objects can be recovered and
stabilized; however, an object subjected to a fire may be
lost forever. Fire also is one of the most likely disasters
to occur. Human carelessness and congestion in facilities
increases the threat of a fire.

Protecting museum property collections from fire involves
protecting the structure that houses the collection. Bureau
policies provide the authority, policy, and procedural
guidance for establishing a structural fire program to
prevent the loss of human life and to prevent damage or
destruction to facilities, equipment, and cultural and
natural resources. These policies provide the framework for
developing a fire protection program specifically for museum
property collections. Fire protection concerns for museum
property in storage and exhibit spaces should be addressed in
the overall fire protection program.

Fire protection includes the following three elements:

! **PREVENTION**

! **DETECTION**

! **SUPPRESSION**

1.   Fire Prevention

**Fire prevention should be practiced on a regular basis by
all staff**. The discussion that follows provides elements
of a good fire prevention program.

! Periodic inspection and maintenance of electrical
   wiring for defective components, improper installation,
   and overloaded circuits.

! Periodic inspection and maintenance of heating and
   cooling (HVAC) systems.

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! Maintaining well-organized storage and work spaces.

! Storing all flammable materials in approved containers outside the space housing museum collections.

! Keeping fire exit routes open and clear.

! Consulting with the unit's structural fire specialist, and, if necessary, the local fire department to request advice and to acquaint fire fighting personnel with the museum property collection and its special needs.

! Enforcing a no smoking policy in spaces housing museum property. Evaluate and control other ignition sources (e.g., candles or working fireplaces in an historic structure). All risks should be evaluated and specific protective measures taken.

! Requesting that a fire safety inspection be conducted of spaces housing museum property. The National Fire Protection Association's standard NFPA 911, Protection of Museums and Museum Collections and standard NFPA 913, Protection of Historic Structures and Sites contain fire safety self-inspection form for museums and historic structures that are useful in conducting the inspection.

! Training all staff in the location and operation of fire extinguishers. Training certain other staff in the location and operation of fire hoses, and other protective equipment and systems may be necessary. Regular retraining of staff is essential.

! Practicing good housekeeping in spaces housing museum property.

2. Fire Detection

In spite of a good fire prevention program, an early detection system is essential. The factors that may be used to determine the level of fire security include:

! significance and/or value of the museum property;

! types of fire threats--consider the material makeup of
the facility housing museum property, the nature of the
museum property collection, proximity of facility to a
fire fighting team; and,

! number of visitors and/or staff in the facility at one
time. Can they exit rapidly? Can the fire be
contained long enough for them to get out safely?

Fire can be detected in its earliest stage. A detection
system must be in operation 24 hours a day. There are
two types of detectors: smoke detectors and heat
detectors. The advantage of a smoke detector is that it
provides faster detection than a heat detector. However,
it is more susceptible to false alarms, especially in
attics and other spaces that are not well climate-
controlled. Heat detectors are not as sensitive to false
alarms as smoke detectors and are less expensive. Both
types of detectors detect fires with different response
times. Each should be installed by a specialist who
understands air currents, fire characteristics, and NFPA
requirements. The detectors should be tied into a system
that sets off an alarm in the facility and at the fire
station. Bureaus should work with qualified fire
protection specialists to determine the types and
placement of detectors necessary to protect the bureau's
museum property.

3. <u>Fire Suppression</u>

A fire detection system is effective only if it is
combined with a suppression system (e.g., fire
extinguishers, hose and stand-pipe, response by fire
fighting personnel, and an automatic sprinkler system).
The <u>key</u> to fire suppression in spaces housing museum
property is to ensure that the needs of the museum
property collection are included in an overall structural
fire plan.

The museum property element of the plan should address
the following subjects:

! reliable remote transmission of fire alarms to a fire

department or to a UL Certified central station alarm
company;

! operation and maintenance of any automatic sprinkler
systems;

! list of designated persons to respond to a fire and to
call fire fighters;

! training all staff in the use of fire extinguishers
and
in procedures to follow in the event of a fire; and,

! if there is time, and it is safe, a plan to remove
important objects in the museum property collection to
a pre-designated location that provides basic security.

a. Portable Fire Extinguishers

It is important that everyone know the first
requirement in case of a fire: <u>notify the fire
department</u> by means of telephone or manual alarm.
Only after such notification has been given should
attempts be made to extinguish the fire.

The proper use of portable fire extinguishers should
be demonstrated and all staff should know where
extinguishers are located in the building. They also
should know what classes of fire extinguishers (three
of the four classes are most commonly used) to use on
different kinds of fires. The multi-purpose, dry
chemical Class ABC extinguishers are most frequently
found in public buildings. <u>The use of "Purple K"
dry chemical extinguishers in spaces housing museum
property is not recommended</u>. Ensure that all
extinguishers are appropriate for the types of museum
property in the area, and that they are inspected
annually.

b. Sprinkler Systems

A sprinkler system consists of a network of overhead
pipes with spaced outlets called "heads" that open at

a predetermined temperature to discharge water onto
the fire area. There are four basic types of systems
and some variations, including the wet-pipe or dry-
pipe system, preaction system, the cycling system,
and the deluge system. The kind of system selected
for a space housing museum property depends on a
variety of factors, including the type of museum
property to be protected, and the structure in which
the system is to be installed. Deluge systems are
not appropriate for areas housing museum property.

There is always concern about the accidental
discharge of water in a sprinkler system. The record
indicates that there have been many fires in spaces
housing museum property and very few accidental
discharges. Accidental discharges occur because of
human error or improper maintenance to the system and
are not inherent in the design of sprinkler systems.
It is important that any area equipped with a
sprinkler system also provide for drainage of run-off
water.

c. Halon

Until recently Halon has been used in suppression
systems and portable extinguishers. Halon is useful
with certain museum property collections that may be
damaged by water suppression systems. However, the
Halon manufacturing process is damaging to the
Earth's ozone layer, and Halon's production after
1996 has been specifically prohibited by
international convention. Accordingly, the
Department has a policy against any new installations
of Halon. Refer to 485 Departmental Manual regarding
adherence to NFPA guidelines.

While the fire suppression industry is experimenting
with substitutes for Halon, no acceptable replacement
has been found. Once the Halon in an existing system
has been discharged through accident or in response
to a fire, the unit may exercise one of two options.
The Halon may be replaced in the existing system --
an option that will become increasingly expensive as

supplies dwindle. The preferable alternative is to choose a different suppression agent, which may entail installation of a new system. Either alternative requires advance planning and programming so that funding is available to ensure that standards for protection of museum property are met.

F. MUSEUM RECORDS PROTECTION

1. Threats to Museum Records

    In order to protect important unit museum records adequately, the potential threats to manual and automated museum documentation should be considered. What follows is a brief listing of common threats and suggested precautions:

Threats	Preventive Action
Human error	Training in proper techniques; checking work for accuracy
Fire	Insulated file media file; good fire prevention standards and fire detection and suppression devices
Theft	Locking insulated file; frequent inspection
Mildew and mold	Environmental monitoring; dehumidification if relative humidity exceeds 60%
Pests	Clean and tidy, frequent inspection; active Integrated Pest Management program in place, fumigation as necessary
Paper deterioration	High quality paper for museum forms (high rag content with alkaline buffer); all photocopies made on high rag content paper.

Water damage	Keep records away from pipes, basement, and flood plain

2. Insulated Files

    a. Paper Documents

        The National Fire Protection Association (NFPA) has stated in Bulletin NFPA 911, "Recommended Practice for the Protection of Museums and Museum Collections," 1980, Page 28:

        8-6 Storage of Records, Including Catalogues. Museum records and archives are of primary importance. If such records were destroyed by fire the collections would lose much of their value, and the results of years of research would be lost. Therefore, vaults or approved containers, safes, or cabinets meeting high-resistive standards should be provided as repositories for the basic catalogue and for objects requiring extraordinary protection. NOTE: Protection of Records, National Fire Protection Association, NFPA 232, contains information on the construction of standard vaults as well as information on portable record storage equipment, giving varying degrees of protection to the records kept in them. Archives and Record Centers, National Fire Protection Association NFPA 232 AM, has helpful information on protection for large collections of paper records in rooms of 50,000 cu. ft. (1416 m3) in volume or more.

        All paper museum records should be kept in a locking, approved insulated file that can maintain an interior temperature of less than 350°F during a one-hour exposure to exterior temperatures of at least 1700°F. The Underwriters Laboratories (UL) rating for such a cabinet is "350°F-1 hour" or Class D. If the container is also designed to withstand a 30 foot drop during a fire, it will have a Class C

rating.

b. Mixed Media

For storage of museum records on computer magnetic media (i.e., floppy disks or tapes), either an insulated mixed-media cabinet or a floppy disk drawer insert for an insulated file must be used. A media safe or file (Insulated Record Container) is designed expressly for the protection of plastic-based media, such as computer tapes and diskettes, photographic negatives and slides, video tape, and audio tape. In the event of fire, media safes keep the internal temperature below 125°F.

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