Department of the Interior
Museum Property Guidance

Guidance for Using the Facility Checklist for Spaces Housing DOI Museum Property

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In accordance with DOI Museum Property Directive (Directive) 14, *Facility Checklist for Spaces Housing DOI Museum Property* (Checklist), this guidance presents best practices for using the Checklist to evaluate bureau/office ("bureau") and non-bureau facilities housing DOI museum collections. This guidance follows current professional standards and practices, including those found in other Directives, and provides additional information to supplement the policy provided in Directive 14. The Definitions and References sections at the end of this document also provide additional information.

Contents

Date Issued: September 24, 2015

General Information about the Checklist

What is the Checklist and why do I have to use it?
The Checklist is an assessment tool that DOI uses to evaluate all facilities (bureau and non-bureau facilities) that house DOI museum collections. Within those facilities, every separate space where collections are located on a long-term basis (exhibit, storage, or administrative office spaces) must be assessed using the Checklist. Use of the Checklist is required by DOI Museum Property Directive (Directive) #14, Facility Checklist for Spaces Housing DOI Museum Property.

How long will it take to complete the Checklist?
It usually takes 1-2 hours per space in a facility. For example, if a facility has both an exhibit space and a storage space, it will take 10-15 minutes to go through the Core Plans section of the Checklist and then about 1-2 hours for each space, for a total of approximately 2 to 4 hours. You will need to contact other staff, such as facilities management staff, to help you estimate costs to correct deficiencies (at DOI facilities) or to properly score some elements, which may take additional time.

Who can help if I have questions about using or scoring the Checklist?
If you have questions, first read through this document. Every effort has been made to anticipate your questions so you do not have to find someone to ask. If your questions are not answered in this document, contact your bureau's National or Chief Curator or your Regional Curator, if your bureau has one. You may also contact the Interior Museum Program staff:
Terry_Childs@ios.doi.gov and Steven_Floray@ios.doi.gov.

How is the Checklist evaluator selected?
The evaluator at a bureau facility is typically a member of the curatorial, museum property management, or personal property staff who knows the museum collection and the facility in which it is housed.

While it is preferred to have curatorial staff evaluate a facility, many bureau units do not have curatorial staff. In these instances, a museum property management staff member or other staff with museum management responsibilities as a collateral duty may need to conduct the evaluation. That person should have at least a basic knowledge of museum collections and their preservation. Basic DOI museum collections training is available via DOI Learn. For course information, visit the Interior Museum program website at:
http://www.doi.gov/museum/upload/IMP-Training-Courses-and-Descriptions.pdf. An online training course for using the Checklist will be available via DOI Learn in 2015.

While it is recommended that DOI curatorial or museum property management staff conduct the Checklist evaluation at non-bureau facilities, this may not always be possible. In these cases, the responsible bureau curator or manager may request that a staff member at the non-bureau facility conduct the evaluation. Effort should then be made to confirm the information that the bureau receives from the non-bureau facility. For example, the evaluator could be asked to submit photographs of the space and copies of the Core Plans as evidence of his/her findings.

Date Issued: September 24, 2015

How do I decide which facilities to evaluate using the Checklist?
You must use the Checklist to evaluate all facilities that are used for long-term[1] exhibition or storage of DOI museum objects. This includes both bureau and non-bureau facilities. Within each facility, you must use the Checklist to evaluate all exhibit spaces, storage spaces, and administrative offices spaces in which DOI museum objects are housed. If there is more than one of these spaces in a bureau or non-bureau facility, such as one exhibit and one storage space or two storage spaces, the Checklist must be used to evaluate each space separately.

Do I have to complete a Checklist for a non-bureau facility prior to instituting a short-term loan for exhibition or research?
No, it isn't required but it's a good idea. The DOI curatorial or museum property management staff responsible for the short-term loan have discretion over whether to conduct an evaluation at the facility, unless required by bureau policy. If a Checklist evaluation is not conducted, the responsible DOI staff should request a copy of the borrower's *AAM General Facility Report* for review, if available, prior to agreeing to the loan.

Should I use the Checklist to evaluate any other museum-related spaces?
No. Do not use the Checklist to evaluate museum offices, processing rooms, laboratories, research areas, or other similar locations **unless** you find that they are used for overflow museum storage or exhibition of bureau museum objects.

Should I include any additional documentation about the conditions at the facility?
Yes, take plenty of photographs, especially to document conditions that need to be corrected. Take thorough notes and use the Comments box (each element has a comments box) whenever necessary to record additional information, observations, clarifications, recommendations, etc. Ask for copies of core documents, training logs, repair logs, environmental condition logs, etc. to verify the planning and record keeping performed at the facility. If possible, conduct the facility visit with a colleague who can assist by making additional observations and checking your Checklist responses and scoring.

What are the key things to look for or consider as I evaluate a facility using the Checklist?
The sections of this guidance—Core Plans, Exhibit and Storage Space, Exhibit Space Only, Storage Space Only, and Administrative Office Space—provide the key things to look for regarding each element of the Checklist. Refer to those sections if you have questions about specific elements. In general, be observant, ask questions, take numerous photos, and include detailed notes during your evaluation.

> You should identify the local threats to DOI museum collections at the beginning of the Checklist evaluation, under the Emergency Management Plan in the Core Plans section. This is critical because you will use the information about local threats as you evaluate several other Checklist elements.

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[1] Don't use the Checklist to evaluate museum work areas where objects may be temporarily located for short-term cataloging, conservation, exhibit preparation, or other such projects.

Date Issued: September 24, 2015

Be mindful of any bureau digital museum objects at the facility, such as digital associated records from an archeological investigation, and their storage conditions. This applies to both format (e.g., Word, Excel, or Adobe PDF) and media, such as files stored on a server and on a portable storage medium (e.g., compact disk, digital video disk, or Universal Serial Bus drive). The Checklist does not address digital museum objects, so you should try to find out if they are present in the facility. Also, ask if there is a backup and/or systematic program to transfer formats and media as these become out of date for the museum object, and document their care as best as possible in the "Overall Comments" section of the Checklist Cover Page.

The Checklist does not fully address natural history specimens preserved in fluid. Look for and note any evidence of spoiling or contamination, vulnerability to breakage, and presence of toxic or flammable chemicals. Pungent smells may indicate a problem.

When you evaluate administrative office spaces, be mindful that the curatorial staff who manage the objects on display may not be able to control or change the conditions in those spaces. Although you should consider this when you fill out and score the Checklist, it is important to document the conditions you observe and identify what needs to be corrected.

Who should I consult when I evaluate a facility using the Checklist?
To ensure that your evaluation is as accurate as possible, confer with a wide variety of personnel at the facility, especially the following staff: facilities management/maintenance; law enforcement/security; fire protection; safety; custodial; curatorial; museum property management; property management; interpretation/education (especially in regards to visitor center exhibit spaces); front-line supervisors; and others that regularly interact with the collections and/or facility on a daily basis. Of these, the facility's curatorial and facilities management staffs are the most important: curatorial (knowledge and expertise of the collections) and facilities management (knowledge and expertise of the buildings, utilities, and other infrastructure). Curatorial and facilities management staffs have:
- in-depth knowledge of the facility and the built-in systems, equipment, and utilities, including environmental controls, physical security measures, and fire protection systems.
- been involved in helping to set up the space(s) that house collections and/or resolve deficiencies that were identified in the space(s).
- responsibility for inspecting, testing, and maintaining security and fire protection systems/equipment. Without their assistance, you may not be able to properly score elements related to security and fire safety.
- access to your bureau's Financial and Business Management System (FBMS), which tracks real property assets using its Real Property Unique Identifier. You will need the Real Property Unique Identifier code for each bureau facility that you evaluate (see also page 8).

If a facility is accredited by the American Alliance of Museums (AAM) do I still have to evaluate it using the Checklist?
No. If a bureau or non-bureau facility has a current accreditation from the AAM you do not have to evaluate it using the Checklist. AAM accreditation is a stringent process that evaluates all facets of an institution's operations, including the elements addressed in the Checklist. Therefore, bureaus may use AAM accreditation in lieu of the Checklist. To document the

Date Issued: September 24, 2015

facility's AAM accreditation, record the date that the facility was accredited (Accreditation Date) and the date it expires (Accreditation Expiration Date) on the Checklist Cover Page. To confirm a non-bureau facility's AAM accreditation, you might ask for a copy of the facility's confirmation letter from AAM or check the facility's listing on the AAM website at http://www.aam-us.org/resources/assessment-programs/accreditation/accredited-museums/.

Also, you should ask for a copy of the non-bureau facility's *AAM General Facility Report* from all AAM accredited museums your bureau partners with and keep it as a substitute for the Checklist. Even if a non-bureau facility is not AAM accredited, you should ask for a copy of their latest *AAM General Facility Report*, if available. The report contains information that can aid in your evaluation. For example, it includes details on environmental controls, security, fire protection, and emergency management. However, as some of these topics may include sensitive information, such as security protocols and equipment types, you <u>must</u> be extremely careful to safeguard the report and <u>not</u> disseminate it to unauthorized individuals.

If a non-bureau facility houses collections from more than one bureau and/or unit, does each DOI bureau have to conduct its own evaluation of the non-bureau facility using the Checklist?
No. Multiple bureaus or units that house their collections in the same non-bureau facility are encouraged to coordinate their evaluation efforts. For example, UCLA's Fowler Museum of Cultural History houses collections from the Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), Bureau of Reclamation (Reclamation), and Fish and Wildlife Service (FWS). If all of the bureaus' collections are maintained by the same non-bureau staff and are located in the same building (e.g., in the same space(s) with similar conditions), then only one evaluation must be conducted by one of the four bureaus. The bureau that conducts the evaluation should share it with the other three bureaus for their use in order to maximize efficiencies and limited bureau resources (e.g., staff, time, funding, travel restrictions). The three other bureaus are encouraged to assist with support costs, if possible, and/or be willing to conduct the next multi-bureau facility evaluation effort.

Sometimes it is not appropriate for one bureau to use another bureau's Checklist evaluation. For example, the Natural History Museum of Los Angeles County houses BIA archeology collections, Reclamation paleontology specimens, and other natural history specimens from BLM and the National Park Service (NPS). This non-bureau facility has a large staff that are distributed among numerous discipline-specific departments. Also, the building is large, with multiple floors, and each department maintains its own separate collection storage facility. Therefore, the conditions of the spaces where BIA's collections are managed by the Department of Anthropology and Archaeology are not the same as those where Reclamation's specimens are stored by the Department of Vertebrate Paleontology. The NPS's herbarium collections and BLM's mammal collections are stored in different spaces and overseen by different personnel as well, so all four bureaus need to conduct their own evaluations. Ideally, all four bureaus could coordinate their efforts to make the site visit at the same time, but every departmental facility within the building that houses DOI collections must be individually assessed.

Date Issued: September 24, 2015

When should I use the "Comments" box?

Always. Remember that Comments are required for all scores less than "No deficiency(ies)/4 points." You should document your observations as fully as possible because your comments provide an important record of your decisions and an important foundation for future evaluations.

When do I have to start using the new Checklist?

Use of the Checklist in DOI Museum Property Directive #14 is phased. All bureaus may begin using the Checklist beginning April 1, 2015, but it is mandatory for all bureaus starting October 1, 2016. You must evaluate a particular facility using the Checklist within five years of the date that the facility was last evaluated. If a facility was never evaluated using the previous version of the Checklist, then do it as soon as possible.

How often do I need to evaluate a facility using the Checklist?

DOI policy requires an evaluation using the Checklist at least once every five years; however, your bureau may require it more frequently. You also shouldn't wait wait five years to reevaluate a facility if any of the following circumstances apply:

- There is a significant change in the number or type of collections housed at the facility, especially those that might require microclimates for long-term preservation.
- A major rehousing project occurred.
- The building underwent a major renovation.
- Your bureau's collections have been relocated to a new space in the facility.
- A natural or human-caused disaster occurred since the last evaluation.

What can the Checklist be used for other than reporting on facility condition?

The Checklist has several other important uses:

- It is a valuable planning tool that can be used to help select a facility prior to moving a collection into a space for either exhibit or storage purposes. Similarly, it can be used when a new facility is being planned to ensure that key planning documents, environmental controls, security and fire protection measures, and emergency management protocols are considered.
- Estimates of the costs to correct deficiencies in a facility are critical to developing and justifying funding requests at the facility or unit levels. Be mindful that these cost data also may be used at the bureau and Departmental levels to justify the overall needs for museum collections in budget requests to Congress.
- It is a valuable management tool since Checklist information can be used to help establish annual work plans.
- Non-bureau facility staff may also use the cost estimates to apply for additional resources to correct the deficiencies found in their facility.
- The section-by-section scores in the Checklist provide a good understanding of facility strengths and weaknesses.

What is the FBMS Real Property Unique Identifier?

This is the unique number (abbreviated "Real Property ID" on the Checklist form) that the Financial and Business Management System (FBMS) assigns to identify and track all real property assets DOI-wide, including facilities that house collections. For DOI facilities only, you must record this number in the "Real Property ID" field on the Checklist (located at the top

of the first page for each exhibit, storage, and administrative office space section of the Checklist). The bureau facility manager has access to this information in FBMS and can provide it to you.

Does the Checklist come in any format other than paper?
Yes. There is both an Excel and Word version of the Checklist, which may be used on a laptop, tablet, or similar device. These versions will also work on some smart phones. One advantage of the Excel version is that the score is automatically calculated for you.

The previous version of the Checklist, the Automated Checklist Program (ACP), is a module in the Interior Collection Management System (ICMS). The ACP, which is used solely by the NPS, will be updated to conform to the new Checklist in the future. Once the ACP is updated, all DOI bureaus can use the ICMS version.

Scoring the Checklist

How do I determine the score for each Checklist element?
There are several different foci of the Checklist elements, including the thoroughness of plans and other documents; the performance of specific activities related to the storage, exhibition, or display of museum objects; the measure or action taken to ensure the proper storage, exhibition, or display of museum objects; whether a particular condition is met in the facility; and the quality of staff training.

The following criteria are provided to help you determine the appropriate score between 0-4 for each element. Also more information about how to evaluate each element is available in the sections Core Plans, Exhibit and Storage Space, Exhibit Space Only, Storage Space Only, and Administrative Office (Non-Museum) Space.

4 Points = No Deficienc(ies): The element is fully met:
- The plan or document exists, is current, and has no omissions or deficiencies;
- The activity is consistently performed and is completely successful;
- The measure is taken in all instances and spaces and is fully effective;
- The condition is met in all instances and spaces and is fully acceptable; or
- The training covers the required topics and is always held on schedule.

3 Points = Minor Deficiency(ies): Considerable effort has been undertaken to meet the requirements, but the element is not fully met:
- The plan or document exists and has very few omissions or deficiencies;
- The activity is being performed and is generally successful;
- The measure is taken in most instances and spaces and is generally effective;
- The condition is met in most instances and spaces and is generally acceptable; or
- The training covers most of the required topics and is usually held on schedule.

2 Points = Moderate Deficiency(ies): Some effort has been made to meet the requirements of the element:
- The plan or document exists, with some omissions and deficiencies;

Date Issued: September 24, 2015

- The activity is being performed and is partially successful;
- The measure is taken in some instances and spaces and is partially effective;
- The condition is met in some instances and spaces and is partially acceptable; or
- The training covers some of the required topics and is sometimes held on schedule.

1 Point = Major Deficiency(ies): Little has been done to meet the requirements of the element:
- The plan or document exists but has major omissions and numerous deficiencies;
- The activity is rarely performed or is minimally successful when performed;
- The measure is taken in some instances and spaces but is minimally effective;
- The condition is met in some instances and spaces but is minimally acceptable; or
- The training covers very few of the required topics and is held at some point but not recently.

0 Points = Fully Deficient: Nothing has been done to meet the requirements of the element:
- The plan or document does not exist;
- The activity is not being performed;
- The measure is not taken;
- The condition is not met; or
- Training does not occur.

Not Applicable (N/A):
- Some elements may not be applicable to the space that you are evaluating. For example, Element # 3 under Storage and Exhibit Spaces is "Appropriate microclimates are used in the space to protect environmentally sensitive objects." Enter N/A if there are no environmentally sensitive objects in the space.
- You must enter "N/A" when an element is not applicable to the facility space you are evaluating to ensure that no points are assigned to the element.
- You may only enter "N/A" if the directions for the element specifically say that N/A is a valid entry.

What are the key things I should consider when I score each Checklist element?
- When you find deficiencies related to a particular element, you should ask whether there are plans to bring the facility into full compliance with that element. However, sometimes it is not possible for a facility to be in full compliance with all elements. For example, Checklist Element #2 under Exhibit and Storage Spaces states that "The environment in the space is controlled to protect the predominant collections." If the facility is a furnished historic structure you need to consider both the building and the collections before installing any new systems for environmental control. A modern HVAC system in a historic house may adversely impact the building's integrity (structural, historic, or other) and/or the museum objects. In administrative office spaces, curatorial or museum property management staff may not be able to control or change certain conditions. Make sure you document the reasons why a facility is not or cannot be fully compliant with an element in the accompanying Comments box. Be mindful that lack of resources is an inadequate reason to not comply with most elements. If lack of resources is the reason stated for noncompliance with a large number of elements, then the facility in question is probably not a suitable

location for museum collections and the objects should be relocated to a more appropriate facility.

- You should think critically about all aspects of the element before deciding upon a score. Some of the elements have more than one component, which are broken out to help you think through them all.

Why must I fill out the boxes at the end of each section of the Checklist that ask for Total Points and Total # of Elements?
You must calculate section scores because they provide a good idea of relative strengths and weaknesses in a facility and may be a helpful reference in proposals for future funding. Also, you will bring those numbers to the Checklist Cover Page to determine the overall score of the facility.

How do I fill out the "Summary Scoring Information" table on the Checklist Cover Page?

The following chart is provided on the Checklist Cover Page to help you determine the overall score for the facility you evaluated:

Section	Total Points for All Applicable Elements	Total # of Applicable Elements
Core Plans		**5**
Exhibit Space(s)		
Storage Space(s)		
Administrative Office Space(s)		
Totals for All Sections		

You must first fill out the columns "Total Points for All Applicable Elements" and "Total # of Applicable Elements" of the chart for *each* section of the Checklist you used to evaluate a facility. For example, if you evaluated one storage space, then you only need to enter the information on the "Core Plans" and "Storage Space(s)" lines. If you evaluated two storage spaces and one exhibit space, you need to enter the information on the "Core Plans" line, add together the numbers for the two storage spaces and enter that information on the "Storage Space(s) line, and enter the information on the "Exhibit Space(s)" line. Be mindful that "5" is already filled in for the "Total # of Applicable Elements" for "Core Plans" because all five plans must always be evaluated.

Enter the totals of the two columns in the "Totals for All Sections" row. Use the numbers in the "Totals for All Sections" to then calculate the overall Checklist score as a percentage by substituting the numbers into the following formula and multiplying by 100:

$$\text{Checklist score} = \frac{\text{Total points for All Applicable Elements}}{4 \times (\text{Total \# of Applicable Elements})} \text{ X } 100$$

Date Issued: September 24, 2015

The last step is to check off the Facility Condition equivalent of Good, Fair, or Poor according to the range of percentages provided and the total percentage score you calculated.

Deficiencies and Estimating Costs to Correct Them

What is a deficiency?
A deficiency is when a plan, activity, condition, measure, or training program lacks something that is required. Every numbered element of the Checklist corresponds to a DOI museum preservation requirement. If every aspect of the element is met, then the facility is compliant with that element. If only some or no aspects of the element are being met, then the facility is deficient because something needs to be done to make the facility compliant with the element.

What is an example of a deficiency?
Element #4 under Storage and Exhibit Spaces is "Temperature and relative humidity (RH) are monitored in the space on an appropriate schedule and deficiencies are addressed." If monitoring is not currently being carried out, then this element should be scored "0" for fully deficient. This is because facility staff cannot know or address environmental deficiencies revealed by monitoring if they are not monitoring. When monitoring for temperature and RH is carried out, the resulting data may show significant fluctuations in temperature. Those fluctuations are a sign of deficiencies that can often be corrected by sealing windows and doors or installing a HVAC unit or a dehumidifier. When the fluctuations are not addressed, there is a deficiency that must be considered in your score for this element depending on the circumstances. For example, a score of "2" may be assigned if monitoring is being carried out and the unit has developed a plan to address the deficiencies by purchasing two dehumidifiersbut is waiting for funding. You may assign a score of "1" for this element if monitoring is being carried out but there are no plans to correct the fluctuations.

When do I need to estimate costs to correct deficiencies?
If the deficiency is in a bureau facility, you <u>must</u> provide a cost estimate to correct it. Providing cost estimates for deficiencies at non-bureau facilities is optional but is still a good idea. Unless you provide cost estimates, it will be impossible to quantify the staffing and/or funding resources necessary to achieve full compliance with DOI museum standards. You will lack the data to establish reliable project proposals and funding requests to correct the deficiencies. Finally, absent these critical data, it is unlikely that you will ever receive whatever additional resources are necessary. Funding is only distributed for projects with proposals that are well developed, demonstrate a true need, provide a clear justification, a credible budget, and a proper implementation plan to ensure success.

Note that there is no column to estimate the cost of developing any of the Core Plans when they are missing or woefully out of date. Obviously, every effort should be made to develop a Core Plan if it is missing for a facility. The final section called "Professional Assistance and Museum Planning " in the *Museum Cost Estimates* guidance document at http://www.doi.gov/museum/policy/upload/DOI-Museum-Cost-Estimates-2013.pdf provides cost estimates for each Core Plan and other key planning documents for collections management.

How do I estimate costs to correct deficiencies at bureau facilities?
There are two methods to estimate the costs to correct any deficiencies you find, which you may want to combine in many instances. First, consult with the unit's curatorial and facilities management staff (FM) or other appropriate personnel (including curators at other DOI units and your Regional, National or Chief Curator) to help you estimate the costs of deficiencies. FM staff often have experience developing cost estimates to address structural, environmental, utility, equipment, and infrastructure-related deficiencies. Most bureau fFM staff also are proficient in the use of asset management and cost estimating software systems that provide current labor, equipment, materials, and other related cost data for new construction, maintenance, repair, rehabilitation, and renovation projects. Second, use the guidance document *Museum Cost Estimates* at http://www.doi.gov/museum/policy/upload/DOI-Museum-Cost-Estimates-2013.pdf, which provides a list of costs for many of the common curatorial deficiencies you will encounter. Be sure to use the Comments box to note how you developed your cost estimates and retain all related documentation for future use.

For example, suppose that a facility does not monitor the environment because it lacks both the proper equipment and staff. A credible cost estimate to correct this deficiency must include the costs of purchasing the equipment and the staff time to download, assess, and record the data. A review of the "Museum Cost Estimates" document shows that the cost of a single datalogger to monitor one room ranges from $55 to $580. If there are ten rooms to monitor, a budget of $550 - $5800 is needed to just address the equipment. Also, there are many different types and brands of dataloggers on the market. Consult with curators at other DOI units and your Regional, National, or Chief Curator for advice, since the most expensive model may not be needed.

For the staffing cost estimate, consult your colleagues on the amount of time needed to download each datalogger's data, upload it into the software program, organize the data, and then analyze it. If the estimate is 30 minutes per week, five staff hours will be required per week to fully implement a monitoring program. An existing museum technician, intern, or volunteer may be able to do this work at no additional cost, except for reprioritizing their current duties. If curatorial or museum property management staff are not available to carry out the monitoring, an estimate to fund five hours of additional personnel services each week will be needed to fund the work. At this point, you will want to consult with your unit's office of administration to develop the staffing cost estimate.

Must I estimate costs to correct deficiencies at <u>non-bureau</u> facilities?
No. You are not required to estimate the costs to correct the deficiencies found at non-bureau facilities. The staff at a non-bureau facility may not be interested in developing cost estimates, due to higher priorities, lack of time, or other circumstances. However, if the staff at a non-bureau facility do want to develop cost estimates, be sure to consult with the non-bureau facility's curatorial, facilities management, and any other staff who may have information and expertise to share. This will help ensure that your estimates are accurate. Remember, too, that these cost estimates may be critical to a successful grant application developed to correct the deficiencies found.

Date Issued: September 24, 2015

How do I fill out the "Summary of Estimated Costs to Correct Deficiencies" table on the Checklist Cover Page?

The following table is provided on the Checklist Cover Page to help you determine the overall estimated costs for the facility you evaluated:

	Exhibit Space(s)	Storage Space(s)	Administrative Office Space(s)	**Total**
Estimated Costs	$	$	$	$

The Exhibit Space, Storage Space, and Administrative Office Space sections of the Checklist have an "Estimated Cost" column on the Checklist form, which is short for "Estimated Costs to Correct Deficiencies." Transfer the estimated cost amounts from each of the applicable sections into the appropriate boxes within the table on the Checklist Cover Page. Add up the costs per section across the boxes and enter the total in the "Total" box on the far right. For example, if you evaluated one exhibit space and two storage spaces, you need to enter the total costs for the exhibit space in the Exhibit Space(s) box, total the estimated costs for both storage spaces and enter that total in the Storage Space(s) box, and then add those amounts together and enter the number in the Total box. Be mindful that the amount listed in the Total box should be reported as facility deferred maintenance for bureau facilities in your bureau's Museum Property Management Summary Report that is sent to the Interior Museum Program each year.

Checklist Cover Page

What information must I include on the Checklist Cover Page?

Complete every field on the Checklist Cover Page:
- Bureau(s) with Collections in the Facility: List all bureaus that house their museum collections (or some portion thereof) in the facility. A list of all non-bureau repositories is compiled each year by the Interior Museum Program and is distributed to all the bureaus. If you do not have the list, ask your National/Chief Curator.
- Unit/Facility Name: The name of the DOI unit, bureau facility, or non-bureau facility (e.g., Los Angeles County Museum of Natural History). Include the unit acronym, if applicable.
- Space(s) Evaluated: The number of exhibit, storage, and administrative office spaces at the bureau or non-bureau facility that were evaluated.
- Facility Contact Information, including:
  o Name and title of the primary contact.
  o Street address of bureau or non-bureau facility.
  o Email address of the primary contact at the bureau or non-bureau facility.
  o Telephone number of the primary contact at the bureau or non-bureau facility.
- Checklist Completed by, including:
  o Name and title: The person (or team leader) who conducted the Checklist evaluation. If other individuals assisted, list their names and titles in the Comments field.
  o Organization: His/her organization, such as a bureau unit, a non-bureau museum, or a University department.
  o Email: His/her primary office email address.

Date Issued: September 24, 2015

- o Date: Date that the Checklist was completed.
- Bureau Checklist Review and Approval, including:
  - o Name, bureau, and title: Name, bureau, and title of the designated authority identified in bureau policy to review and approve a Checklist evaluation.
  - o Signature: Signature of the designated authority.
  - o Date approved: Date that the designated authority reviewed and approved the Checklist.
- AAM Information (if applicable): If the bureau or non-bureau facility is accredited by the American Alliance of Museums (AAM), note the following information:
  - o Accreditation Date: Date that the facility was accredited (or reaccredited).
  - o Accreditation Expiration Date: Date that the facility's accreditation will expire. (Note: AAM usually grants accreditation for 10 years).
  - o Provide AAM General Facility Report (if available).
    - – For bureau facilities with AAM accreditation, include a copy of the AAM General Facility Report.
    - – For non-bureau facilities with AAM accreditation, ask for a copy of the AAM General Facility Report to include with the Checklist.
  - o Be mindful that AAM accredited museums receive an Accrediting Report that usually lists any outstanding issues to resolve prior to reaccreditation and identifies which buildings and spaces were included in the accreditation. Include a copy of this report for bureau facilities; if appropriate, request this report for non-bureau facilities.
- List of Exhibit, Storage, and Administrative Office Space(s) Evaluated: List the name of each space and type (e.g., Main Exhibit Hall - exhibit or Room 125 - administrative office) that was evaluated.
- Location of Checklist Documentation, Including Photographs Taken: If any notes, photographs, or other supplementary documentation were developed during the Checklist evaluation, note what those items are and where they are stored (e.g., "USB Drive labeled 2014 DOI Checklist, stored in Curatorial Office, Media Cabinet 2, and copied on unit CRM server G:\Museum_Backup_Files\DOI_Checklist\10JUL2014").
- Summary Scoring Information: Fill out the chart and determine the Checklist score using the instructions for *How do I fill out the "Summary Scoring Information" table on the Checklist Cover Page?*
- Summary of Estimated Costs to Correct Deficiencies: Fill out the chart and determine the total estimated costs necessary to correct all deficiencies using the instructions for *How do I fill out the "Summary of Estimated Costs to Correct Deficiencies" table on the Checklist Cover Page?*
- Overall Comments, Including Recommendations for Improvements: Use this space to include summary information, important observations that were too extensive to be fully accommodated within a specific element's comment box, names and titles of other individuals assisting with the Checklist evaluation, and any other significant information concerning the Checklist evaluation, facility conditions, or other specifics that you feel should be recorded.

What information should be included on the Checklist Cover Page if the Checklist is conducted by a non-bureau facility staff member?

Ask the non-bureau facility staff to complete every field on the Non-Bureau Facility Cover Page. The Non-Bureau Facility Cover Page was adapted from the standard Checklist Cover Page that

DOI staff complete. The Non-Bureau Facility Cover Page has fewer fields and includes the following:

- Facility Name: The name of the non-bureau facility (e.g., Los Angeles County Museum of Natural History or Santa Barbara Botanic Garden).
- Facility Contact Information, including:
  - Name and title of the primary contact at the non-bureau facility.
  - Street address of the non-bureau facility.
  - Email address of the primary contact at the non-bureau facility.
  - Telephone number of the primary contact at the non-bureau facility.
- Bureau(s) with Collections in the Facility: List all bureaus that house their museum collections (or some portion thereof) at the non-bureau facility.
- Checklist Completed by, including:
  - Name and title: The person (or team leader) who conducted the Checklist assessment. If other individuals assisted with the evaluation, list their names and titles in the Comments field.
  - Organization: His/her organization, such as the non-bureau facility or a partner organization.
  - Email: His/her primary office email address.
  - Date: Date that the Checklist was completed.
- AAM Information (if applicable): If the non-bureau facility is accredited by the American Alliance of Museums (AAM), note the following related information:
  - Accreditation Date: Date that the non-bureau facility was accredited (or reaccredited)
  - Accreditation Expiration Date: Date that the non-bureau facility's accreditation will expire.
  - Provide AAM General Facility Report (if available).
    - For non-bureau facilities with AAM accreditation, ask for a copy of the AAM General Facility Report to include with the Checklist.
- List of Exhibit and Storage Space(s) Evaluated: The list should include the name, room or building number, and location of all exhibit and storage spaces at the non-bureau facility that were evaluated.
- Overall Comments: The evaluator at the non-bureau facility is encouraged to use this space to include:
  - Summary information.
  - Important observations that were too extensive to be fully accommodated within a specific element's comment box.
  - Names and titles of other individuals assisting with the Checklist evaluation.
  - Any other significant information concerning the Checklist evaluation, facility, conditions, or other specifics that the evaluator believes should be recorded.

Core Plans

What are general things I should consider as I evaluate the Core Plans section of the Checklist?

- The elements in the Core Plans section apply to all of the spaces being evaluated at a bureau or non-bureau facility. Therefore, fill out this section once.

Date Issued: September 24, 2015

- Read the description of each plan on the Checklist form, which provides the requirements that should be included. Are they all present? Also, ask when the document was last reviewed and, if necessary, updated. Give up to three points if a draft of the plan exists, the requirements are all covered, the plan has already been implemented, and it is only awaiting signature by the designated authority. A draft plan that covers most of the requirements, but has not been reviewed by anyone, should not receive any more than two points.
- If you are not familiar with the facility and the required plans for that facility, you should verify each document. For example, ask to see a paper copy when you are on-site or have an electronic copy of the plan sent to you before you go to the facility.
- Be mindful that two or more of the required plans may be combined into a single document or components of some plans may be found in other required plans. For example, the Emergency Management Plan (EMP) might include the Security Plan or most of the required components of a Security Plan. If a Security section of a facility's EMP contains the requirements for a Security Plan and is current, you may give four (4) points for the Security Plan. Evaluate the EMP separately to ensure it includes the EMP requirements.
- Be mindful that if the space you are evaluating is in a large building, the core plans may be for the entire building. In this case, make sure that the plans include procedures for attending to the museum collections in those smaller spaces.
- Ask if there are other plans for the facility. If so, list those in the area for "Other Plans" since this is useful information. Do not score the other plans that are not required

What information must I record for each element in the Core Plans section?
Record the following information for each element in the Core Plans section:
- Score: Use the 0-4 scale discussed in "*How do I determine the score for each Checklist element?*" to score each plan. Be sure to consider if the plan includes the requirements provided, if it is current, or if it exists in draft only.
- Date approved: The date that the plan was last approved and signed.
- Comments: Include all pertinent observations about the plan and any recommendations to improve it.

How do I appropriately score an out-of-date plan?
An out-of-date plan is one that was last reviewed and approved by the designated authority more than five years ago. In this case, consider the following when you score the plan:
- If a plan meets all or nearly all of the requirements (75% or more), then the highest score that you can assign it is "3".
- If a plan meets at least half of the requirements, then the highest score that you can assign it is "2".
- If a plan meets at least 25%, but less than half of the requirements, then the highest score that you can assign it is "1".
- If a plan meets less than 25% of the requirements, then it needs a lot of work, and you should score it "0".

How do I appropriately score a draft plan?
A draft plan is a plan that has not undergone a final review and approval, including a signature and date, by a designated authority. In this case, consider the following when you score the plan:

Date Issued: September 24, 2015

- If a plan will meet all or nearly all of the requirements (75% or more), then the highest score that you can assign is "2".
- If a plan will meet at least half of the requirements, then you can assign a score of "1".
- If a plan will meet less than half of the requirements, then you should assign it "0".

What are the key things I should look for, be mindful of, and ask about as I evaluate and score a Collection Management Plan (CMP)?
The CMP documents the unit's strategies in regard to the long-term management, care, and preservation of its museum collections; includes recommendations for correcting any identified deficiencies; and has been reviewed, and updated if necessary, in the last five years.

An effective CMP contains a variety of important components. When reviewing a CMP, make sure that it includes:
- A summary of the history and significance of the unit, its establishment, themes, goals, and objectives.
- The history, significance, purpose, and scope of the museum collection.
- A discussion of the unit's current overall museum program, noting observations, conditions, and procedures, with specific chapters/sections devoted to:
  - Museum records.
  - Types of collections.
  - Preservation and storage requirements.
  - Fire protection, security, and emergency management.
  - Collections use for interpretation and education; scientific research; exhibits; in support of management activities; planning; and any other programs and initiatives.
  - Museum staffing, funding, planning, budget, and any other program management issues.
  - Identified museum program deficiencies and challenges with related budgetary and staffing requirements.
  - Practical, prioritized recommendations for addressing all identified deficiencies, challenges, and needs related to the unit's museum management program.

To achieve a score of "4": it is recommended that the CMP was developed by a team of curators, conservators, or other experts (including some outside experts, if possible); it must include all of the elements listed above; and be current (within five years). If funding limitations prevented the CMP team from including any outside experts, the final draft CMP should have been reviewed by at least two independent experts, including the bureau's National/Chief Curator or Regional Curator.

What are the key things I should look for, be mindful of, and ask about as I evaluate and score an Emergency Management Plan (EMP)?
The EMP identifies all of the local threats to the museum collections and includes the following requirements: 1) risk mitigation, response, and recovery for museum collections appropriate to each threat; 2) risks to the spaces, as identified by a structural fire survey; 3) appropriate staff, training, and drills; and 4) locations of all of the spaces that house collections. The EMP has been reviewed, and updated if necessary, in the last five years.

Date Issued: September 24, 2015

An effective EMP contains a variety of important components. When reviewing an EMP, make sure that it includes:

- Local Natural and Human-Caused Threats: The EMP is largely built around the various threats that can negatively impact the facility and the collections it houses. Therefore, it is important to work with unit or non-bureau facility staff, including facilities management staff, to identify the local threats. Facilities management staff might provide a different and useful perspective on the threats to the facility and collections, and they might have insights into the building construction and operations that are addressed in the EMP.
  - o Check off the threats on the Checklist form under the EMP that apply to both the inside and outside of the facility. Be mindful that you will need this information to evaluate several elements in the other sections of the Checklist.
  - o When reviewing the local threats, consider whether certain threats that may have been unlikely in the past are now a potential danger. For example, some locations are becoming more susceptible to wildland fires or flooding in recent years.
  - o Be mindful that flooding is one of the greatest threats to museum collections. Museum collections should not be housed in basements or in buildings located in a Special Flood Hazard Area. For more information, see the Federal Emergency Management Agency's website on flooding at: https://msc.fema.gov/portal.
- Mitigation, response, and recovery procedures for the collection pertaining to each identified threat.
- A discussion of the facility's fire risk and recommendations for mitigation, as identified in a structural fire survey.
- Training information for staff, including types of required training, which personnel require what type of training, and training frequency.
- Detailed information concerning all locations that house collections, including maps and floor plans noting the locations of:
  - o Priority museum collections.
  - o Evacuation routes.
  - o Emergency supplies and equipment.
  - o Hazards for responders, such as natural history specimens in alcohol.
  - o Utility shut-offs.

To achieve a score of "4" for this element, the EMP must address all four requirements noted above; identify the local natural and human threats; be reviewed by bureau emergency management staff and the National/Chief Curator or a regional curator (equivalent personnel in the case of a non-bureau facility, such as a university's fire marshal, police, and emergency management chief); be current (within five years), and include the following:

- Emergency Resources Lists, including:
  - o Emergency contacts (names and telephone numbers of facility/unit staff trained to respond in event of an emergency).
  - o Other appropriate emergency contacts (names and telephone numbers of other bureau staff, or personnel such as university police that would respond in an emergency at a non-bureau facility located on campus).
  - o Local emergency responders (fire, police, emergency medical response personnel, hazardous materials response teams, etc.).
  - o Local utility companies.

Date Issued: September 24, 2015

- o   Other local, state, and Federal emergency management agencies.
- o   Contractors, such as conservators, disaster recovery, and equipment rental.
- Mitigation and response procedures for each identified threat.
- List of priority collections, noting locations.
- Maps and floor plans noting the locations of priority museum collections, evacuation routes, emergency supplies and equipment, and utility shut-offs.
- Specific procedures to protect, relocate, and/or evacuate priority museum collections.
- Inventory list of emergency supplies and equipment.

What are the key things I should look for, be mindful of, and ask about as I evaluate and score a Security Plan?
The Security Plan establishes the museum security program. The Security Plan must include procedures for: 1) authorizing access, including key control and opening and closing requirements; 2) recording/tracking object movement; 3) using a combination of staff, mechanical devices, and/or electronic systems that are adequate to the risks; 4) securing exhibits at all times; and 5) staff training. The Security Plan has been reviewed, and updated if necessary, in the last five years.

- It is useful to determine who developed the Security Plan. Although curatorial staff may have written the plan, s/he should have consulted a physical security specialist (ideally someone with museum security experience), a law enforcement officer with physical security expertise, a museum security consultant, or other individuals with museum security experience.
- Determine whether the plan resulted from an on-site physical security survey, which includes:
  - o   A thorough inspection of all museum spaces at the unit or non-bureau facility.
  - o   Discussions with the unit's/facility's curatorial, law enforcement, facilities management, interpretive, management, and other staff.
  - o   A review of all existing security protocols, procedures, and other relevant plans and documents.

To achieve a score of "4" for this element, the Security Plan must have been prepared in conjunction with a museum security expert, address all five requirements noted above, be current (within five years), and include the following:
- A detailed list of all the potential security threats to the collection, the facilities housing the collection, the facility's staff, and visitors.
- Prioritized recommendations for addressing all potential security threats and a practical action plan.
- Information concerning existing security procedures, equipment and systems, and training programs.
- Recommendations for improvement, if needed, in priority order. Additional new and/or improved security procedures, equipment or systems, or training programs should be included in the plan, preferably in one or more appendices.

What are the key things I should look for, be mindful of, and ask about as I evaluate and score an Integrated Pest Management (IPM) Plan?
The IPM specifies the procedures to prevent and resolve pest problems in the most efficient and ecologically sound manner without compromising the safety of the collections, visitors, and staff. The IPM Plan must be implemented for all spaces housing museum collections and include procedures for: 1) monitoring and inspecting the objects and spaces; 2) identifying and documenting the presence of pests; 3) discouraging/mitigating pests by habitat modification and good housekeeping; 4) response/treatment; and 5) training. The IPM Plan has been reviewed, and updated if necessary, in the last five years.

- It is useful to determine who developed the IPM Plan. The author should be a conservator, curator, entomologist, biologist, other scientist, or an individual with demonstrated experience in the protection of museum collections from insects, rodents, and other pests.
- Determine whether the plan resulted from an on-site survey, which includes:
  - A comprehensive assessment of all museum spaces at the facility, including a thorough inspection of the foundation, basement, attic, exterior walls, loading docks, windows, doors, and any other potential routes of entry for pests. Other areas in need of inspection are those adjacent to museum spaces, break rooms, all food prep areas, and any other locations that might attract pests into the building.
  - Discussions with the unit's/facility's curatorial, custodial, facilities management, interpretive, and other key staff involved in museum operations, maintenance, housekeeping, and visitor services.
  - A review of all existing IPM protocols and procedures.

To achieve a score of "4" for this element, the IPM Plan must have been prepared by an IPM expert, address all five requirements listed above, be current (within five years), and include the following:
- An overview of the museum collection, noting major collection types, sensitive objects, most significant objects, and any other critical preservation needs.
- An IPM survey of all buildings, including exteriors, that house museum collections, noting any recommended building renovations, procedural changes, and needed supplies and equipment, including new and/or enhanced exhibit cases and storage cabinets.
- A comprehensive list of all the potential pests that threaten the collection, including their physical characteristics, preferred diet/types of collections they damage, favored habitat, and color illustrations for easy identification.
- IPM program roles and responsibilities, inspection and monitoring forms, schedules for monitoring, and maps/floor plans illustrating locations for monitoring trap placement.
- Practical, prioritized recommendations for:
  - Improved housekeeping;
  - Environmental monitoring;
  - Protection from, discouraging, and deterring the identified pest threats.
- Pest control actions, post-treatment monitoring, and evaluations.
- Reference materials.

What are the key things I should look for, be mindful of, and ask about as I evaluate and score a Housekeeping Plan?
The *Housekeeping Plan provides clear direction for minimizing agents of deterioration and maintaining clean spaces and objects. The Housekeeping Plan must include: 1) procedures and schedules for performing housekeeping tasks; 2) proper handling and cleaning methods and techniques; 3) identifying and training responsible staff; 4) supplies and equipment to be used; and 5) restrictions on smoking, drinking, and eating in collection storage spaces and rules for these activities in other spaces. The Housekeeping Plan has been reviewed, and updated if necessary, in the last five years.*

- It is useful to determine who developed the Housekeeping Plan. The author should be a conservator, curator, museum technician, or an individual with demonstrated experience in the preventive conservation of museum collections from all agents of deterioration (i.e., direct physical forces; theft and vandalism; fire; water; pests; radiation from light; contaminants; incorrect temperature; incorrect relative humidity; and custodial neglect).
- Determine whether the plan resulted from an on-site survey, which includes:
  - A comprehensive assessment of all museum spaces (i.e., storage, exhibit, and administrative office) and associated areas at the unit or non-bureau facility (e.g., curatorial work areas, labs; research rooms, or any other museum-related spaces).
  - Discussions with the unit's/non-bureau facility's curatorial, custodial, facilities management, interpretive, and other key staff involved in museum operations, facility maintenance, housekeeping, and visitor services.
  - A review of all existing plans and surveys relevant to the collection, the structures housing collections, and curatorial planning, staffing, and programming (e.g., exhibit plans, historic furnishings plans, etc.).

To achieve a score of "4" for this element, the Housekeeping Plan must have been prepared by, or in consultation with, an expert in preventive conservation of museum collections, address all five requirements listed above, be current (within five years), and include the following:
- An overview of the museum collection, noting major collection types, primary constituent materials, overall condition, sensitive collections, most significant objects, and any other critical preservation needs.
- Housekeeping roles and responsibilities. This is especially important when different divisions at the unit or non-bureau facility carry out separate aspects of the plan.
- Comprehensive list of housekeeping tasks, featuring easy-to-understand instructions, procedures, techniques, appropriate supplies and equipment to use, and schedules.
- Examples of all housekeeping forms to be used (e.g. schedules, task lists, etc.) to ensure that all tasks are carried out consistently and on schedule.
- Specific information concerning each space housing museum collections (with particular emphasis on exhibited objects), such as:
  - The environment, condition, and structural and physical characteristics of each building, room, or other collections space.
  - Special considerations for furnished historic structures, such as the open air nature of exhibits in which objects are more vulnerable to dust, pests, and environmental fluctuations.

- o Seasonal environmental variations and/or changing weather conditions that may impact the structure and the collection.
- Any other issues that may affect the collections, such as:
  - o Cyclical variations in visitor numbers and use patterns (e.g., increased visitation during the winter holidays results in more mud tracked into the museum).
  - o Seasonal closures, such as a mountaintop visitor center that is closed from September to June due to snowpack. Use of this facility creates an additional housekeeping workload for the staff and may require relocation of collections during the winter.

Exhibit and Storage Space

What information must I enter at the top of the Checklist form for each exhibit and storage space?
Enter the following information in the appropriate spaces on the Checklist form:
- Name/Location of Space: This is the name or location of the specific exhibit or storage space.
- FBMS Real Property Unique Identifier (abbreviated Real Property ID on the Checklist form): This is the unique number that the Financial and Business Management System (FBMS) assigns to identify and track real property assets, including facilities that house museum collections. The bureau or unit facility manager has access to this number in FBMS and can provide it to you. **This unique number is only required for DOI facilities.**

What are the key things I should look for or be mindful of as I begin using the Exhibit and Storage Space section of the Checklist?
- Use this section of the Checklist when evaluating both exhibit and storage spaces. If you are evaluating an exhibit space, include the one additional element (#27) that is unique to exhibit spaces. If you are evaluating a storage space, include the eight additional elements (#28-35) that are unique to storage spaces.
- Be mindful that this section of the Checklist is organized into the following sub-sections to help focus your attention: Environmental Controls; Emergency Management; Security; Fire Protection; Housekeeping and Object Handling; Records Handling and Preservation; Exhibit Space Only; and Storage Space Only.
- It is important to enter cost estimates in the "Estimated Cost" column on the Checklist form for all elements in a bureau exhibit and/or storage space that are not fully met. See the section of this guidance called "Deficiencies and Estimating Costs to Correct Them" for more information on cost estimations.
- Use the Comments box for each element to highlight any issues, deficiencies, or information that might be useful in the future. Note any related information on how you estimated costs to correct deficiencies and, as practical, retain any related documentation for future use. Be mindful that comments are required for all elements that you do not score a "4."

What are the key things I should look for, be mindful of, and ask about as I score each element in the Exhibit and Storage Space section of the Checklist?

Element #1. *A qualified museum professional has assessed the space and has determined the appropriate environmental controls for the objects.*
- Inquire about the qualifications of the professional who assessed the space and established

the appropriate environmental controls. Acceptable professional experience may be based on years of museum experience, the type(s) of museum collections managed, and educational background.

- When was the assessment conducted? If it was many years ago, conditions in the building may have changed. For example, walls, doors, or windows may have been added or removed, affecting ventilation and temperature, or the HVAC system that was brand new 15 years ago may not be sufficient today. Also, the objects in the space may have changed, especially in the exhibit spaces.
- Ask for evidence that an assessment was conducted and appropriate measures were determined for temperature, relative humidity, visible light, ultraviolet radiation, pests, particulates, and air pollution (see DOI Museum Property Directive 4, *Required Standards for Managing and Preserving Museum Property* http://www.doi.gov/museum/policy/upload/Dir-4_Required-Stds-Collections-Preservation.pdf). This evidence may be a written report, list of recommendations, or similar documentation.

Element #2. *The environment in the space is controlled to protect the predominant collections.*
- Walk around the space to determine the predominant collections, which are often from a particular discipline and are generally of a similar material type(s). For example, prehistoric archeological collections often consist mostly of ceramic and stone artifacts.
- Ask for evidence of how temperature, RH, and lighting are managed, including schedule and duration, for the predominant collections. Are they operating on a daily (including nights), weekly (including weekends and holidays), seasonal, or yearly basis? Typically, these controls must operate at all times, but it is possible that some systems are purposefully altered or turned off during part of a year in some facilities, such as historic structures, to adjust for temperature or humidity changes or seasonal closures.
  - Determine the appropriate range of environmental controls for the predominant collections. For example, prehistoric ceramic and stone artifacts stored in boxes can have a greater range of temperature, RH, and lighting controls than a collection of historic wooden furniture. For additional information, see Appendix 2: Suitable Relative Humidity and Temperature Ranges for Various Materials in DOI Museum Collections and Appendix 4: Basic Standards for Museum Light Levels at DOI Museum Facilities.

Element #3. *Appropriate microclimates are used in the space to protect environmentally sensitive objects.*
- Determine if environmentally sensitive objects exist in the space. For additional information, see Appendix 3: Examples of Environmentally Sensitive Museum Objects in DOI Museum Collections.
- If there are environmentally sensitive objects in the space, are they in an appropriate microclimate? In most cases, a cabinet or exhibit case with internal environmental controls for temperature, RH, and lighting create an appropriate microclimate.
- Enter Not Applicable (N/A) for this element if there are no environmentally sensitive objects in the space.

Element #4. *Temperature and relative humidity (RH):*
    - are monitored in the space on an appropriate schedule and

- deficiencies are addressed.
- Ask if temperature and RH are monitored in the space, and ask to see the monitoring equipment.
- If there is no monitoring for both temperature and RH, enter a score of "0" for this element.
- If monitoring occurs, ask about its frequency and how that frequency was determined. For example:
  o Artwork on paper and natural history collections are extremely sensitive to rapid fluctuations in RH and periods of sustained high humidity can lead to damaging mold growth. Spaces with these collections should be monitored weekly.
  o Environmentally sensitive objects on exhibit should be monitored daily, but this may be impractical based on staff schedules and duty stations.
  o Archeological collections in storage consisting primarily of ceramic and stone can be monitored every three months.
  o See Appendix 1: Sample Museum Housekeeping Schedule.
  o See Appendix 2: Suitable Relative Humidity Ranges for Various Materials in DOI Museum Collections.
- Ask if significant fluctuations in temperature and RH have been found, which indicate that deficiencies exist(ed). If deficiencies exist(ed), ask how they are/were addressed. For example, you might note: "I scored this a "4" because, based on RH monitoring, a new storm drain completed in 2014 alongside the visitor center's north exterior wall has eliminated all standing water near the building following heavy rain and the accompanying spikes in RH inside."

Element #5. *Visible and ultraviolet (UV) light:*
  - are monitored in the space on an appropriate schedule and
  - deficiencies are addressed.
- Ask if light levels are monitored in the space, and ask to see the monitoring equipment. If there is no monitoring in an exhibit space, enter a score of "0" for this element.
- **For Storage Spaces Only:** If the space has no windows, the lights are off at all times (except when accessing objects) and all light-sensitive objects are protected within boxes or cabinets (or otherwise covered), ongoing light monitoring may not be necessary.
- Look around the space to determine if the sources of visible and ultraviolet light are from lighting devices, natural sources, or both. Both sources must be monitored if present. Visible light levels should be monitored in lux and UV light levels in microwatts per lumen (μw/lumen). See Appendix 4: Basic Standards for Museum Light Levels at DOI Museum Facilities and Appendix 5: Sample Light Monitoring Record for DOI Museum Facilities.
- Ask whether significant fluctuations in light levels have been found, which may indicate that deficiencies exist(ed). If deficiencies exist(ed), ask how they are/were addressed. Controls for visible and UV light from lighting devices include timers to automatically shut off or dim lights and filtering material. Controls for visible and UV light from natural sources include filtering materials and blocking devices, such as ultraviolet filters, shades, and sun blinds.

Element # 6. *If there are windows in the space, the museum objects are appropriately protected from agents of deterioration.*
- Walk around the space to determine if any windows are present. Enter N/A for this element if there are no windows in the space.

Date Issued: September 24, 2015

- If windows exist, examine their condition because they may be a source of agents of deterioration, such as light, pests, particulates, temperature and relative humidity fluctuations, theft, and vandalism.
- Determine whether mitigation measures are in place to protect the objects from applicable agents of deterioration, such as blocking light with ultraviolet filters, sun blinds, or shades; blocking and insulating air leaks; and using window locks and intrusion alarms. An example of partial mitigation is a locked window that is properly sealed, but the blinds do not block out all sunlight.

Element #7. *Heating, ventilation, air conditioning (HVAC), and humidity control systems and filters are cleaned and maintained on an appropriate schedule and replaced when needed.*
- Ask to see the system(s) that control heating, cooling, relative humidity (RH), and ventilation. Enter not applicable (N/A) if there are no environmental control systems in the space. Some historic houses do not have any of these systems due to the age of the building, the environmental controls inherent to the building, and the potential negative impact of installing them to the building.
- Observe if the existing systems are functioning.
- Ask whether each system is cleaned, maintained, and replaced when appropriate. Ask about the frequency with which the systems are maintained and cleaned and how the schedule, if in place, was determined. The schedule recommended by the manufacturer is usually the most appropriate.
- Ask whether the filters for system(s) are cleaned and replaced and how the schedule was determined. The schedule recommended by the manufacturer is usually the most appropriate.
- Ask if any of the existing systems have been replaced, when that occurred, and why.

Element #8. *Using integrated pest management principles, pests are:*
  - *monitored,*
  - *identified, and*
  - *controlled.*
- Refer to the Integrated Pest Management (IPM) plan used in the space, if it exists (see Core Plan section of the Checklist,) and compare your observations to the plan.
- Determine if the staff members know the basic principles of IPM. These are monitoring for pests, identifying and documenting pests, discouraging and mitigating pests through housekeeping and other means, response/treatment of pest problems, and training staff in IPM principles.
- Ask who monitors and identifies the pests that are found and whether there is a monitoring schedule in place. If so, ask who identifies the pests found (e.g., an expert is named with some background on credentials); ask to see how observations are recorded and if the schedule is followed; and look for evidence of monitoring (e.g., sticky traps are distributed throughout the space).
- Ask how pests are controlled. Examples of effective controls are tight seals/sweeps on all exterior doors; posted signs prohibiting food and drink in all areas housing collections or near collections, along with periodic checks by supervisors; and tight control over the presence and disposal of any food waste in the other areas of the facility.) There will be some exceptions on tight control over food waste in some facilities, such as visitor centers.

Element #9. *Environmental data are:*
  - *analyzed and*
  - *documented and retained.*

- Ask who analyzes the environmental data for temperature, relative humidity, visible and ultraviolet light, and pests (see elements # 4, 5, and 8). This work may be done by facilities management staff. Also ask about the procedure(s) used to analyze the environmental data.
- Ask whether the results of monitoring are documented and retained for purposes of analysis. Ask to see a sample of those documents, which can be paper or digital.
- Records of environmental data must be retained for a minimum of five years, but may be retained longer according to bureau policy or at the discretion of curatorial and museum property management staff in DOI facilities and staff at non-bureau facilities. These records are important to document trends in the facility environment.
- Be mindful that reports of no deviations outside acceptable ranges also provide valuable information and those reports also must be retained.

Element #10. *Appropriate measures are taken to mitigate potential risks from local threats.*
- Refer to the local threats to the facility, which you listed under the Emergency Management Plan (EMP) in the Core Plans section of this Checklist. Water damage is often the greatest risk to museum collections.
- Look around the space and ask about the measures that have been taken to mitigate potential risks from the local threats you identified under the EMP. These measures may include: locating museum collections on floor levels that are above flood level (e.g., above the basement level); raising storage cabinets, shelving, and free-standing objects at least four (4) inches above floor level; bolting tall cabinets to walls; securing cabinets together; installing shelf barriers; and using stabilizing object mounts.
- Evaluate the degree to which most of the collections are protected from the identified local threats and whether the most crucial risks are addressed.

Element #11. *Appropriate measures are taken to mitigate risks of water damage to museum objects from broken pipes, backed up drains, or other potential points of water entry.*
- Look for potential entry points for water in the space, such as leaking roofs, clogged gutters, floor drains, under and around doors, and around windows. Look for recent and old water stains and mold on walls, ceilings, windows and doors, and along any window and door joints where water might have entered.
- Ask about possible impacts from condensation, ice, or snow that only occur sporadically and may not be obvious during the Checklist evaluation. Ask how any impacts mentioned have been lessened or corrected.
- Ask about steps taken in the space to prevent or correct water damage. These may include ensuring that collections are not exhibited or stored on floors immediately below restrooms, kitchens, or exposed pipes, or are located near floor drains. Cabinets, shelving, and free-standing objects should be raised at least four (4) inches above floor level. Doors and windows should be sealed from potential water intrusion.
- Evaluate the degree to which appropriate measures to mitigate water damage have been taken for all of the collections or in all of the space.

Element #12. *Egress/exit routes are:*
   - *clearly marked and*
   - *unobstructed.*
- Human safety is the priority for this element. Look to see that all exit routes are clearly marked to ensure safe evacuation of people from the exhibit or storage space during an emergency.
- Look for any points of egress or exit routes that are blocked by museum objects and/or storage equipment, which may impede safe movement by staff and visitors.

Element #13. *Staff are regularly trained in risk mitigation and emergency response procedures for museum collections.*
- Ask if training in risk mitigation and emergency response procedures for museum collections is provided to staff. If not, enter a score of "0" for this element.
- Ask which staff are trained in emergency response procedures. The staff that need training are those who protect the museum collections in the space, which typically include curatorial staff, museum property management staff, interns, and volunteers at bureau facilities. Interpreters, rangers, facilities management, law enforcement, and other staff members also may be called to assist in an emergency, especially after-hours or weekends. Therefore, it is a good idea for all staff at the facility/unit to have some level of training. A similar range of staff should have this training at non-bureau facilities.
- If training is provided, inquire about the topics covered. Topics should be specific to the local threats to the facility and objects and should include both how to minimize risks from the local threats and how to respond to an emergency from those threats. Refer to the local threats to the facility, which you listed under the Emergency Management Plan in the Core Plans section of this Checklist.
- Ask about the frequency of training. Annual training, or when new staff are hired, is usually sufficient to ensure that staff know what to do without delay when a risk is identified or an emergency occurs.

Element #14. *Physical security measures are:*
   - *identified by an appropriate specialist and*
   - *sufficient to mitigate risks to the objects.*
- Ask who developed the facility's physical security measures. At bureau facilities, the individual should have been a physical security specialist (either bureau staff or a contractor), law enforcement (LE)/police officer, museum security consultant, or other individual with relevant physical security training and experience. An individual with expertise similar to those above should have developed the physical security measures at a non-bureau facility.
- The specialist should have identified all physical security measures for the space to minimize risks to museum objects and to the space as a whole. For museum facilities that share space in a large building, there may be additional risks to consider, such as evening events in a non-museum area.
- If a security specialist was consulted, determine if a team that includes curatorial, museum property, LE, and/or facilities management staff also helped to evaluate the space for appropriate security measures. Such interaction with staff knowledgeable about the objects and the facility helps the security specialist to identify the best security measures. For example, facilities management staff will know about the building-wide physical security

measures that might help protect the museum collections while curatorial staff know which objects are the most valuable or vulnerable and need special protection.

- Look for and ask about what physical security measures were identified and are now in place. These might include appropriate locks on doors, windows, exhibit cases, and storage cabinets; an adequate number of guards and stanchions positioned throughout an exhibit space; electronic intrusion detection systems; key control; and routinely-scheduled physical inspections.
- Security risks are most often theft by employees, volunteers, researchers, and visitors so measures to prevent theft are particularly important.

Element #15. *Security procedures are performed consistently including:*
   - key control,
   - access control, and
   - opening and closing.

- Be mindful that security procedures in storage spaces are typically conducted by curatorial and museum property management staff due to the need to carefully control access to the space. Interns and volunteers typically are not involved in performing security procedures for storage spaces due to their temporary status in the facility.
- Be mindful that security procedures in exhibit areas may be conducted by curatorial and museum property management staff, as well as interpretive, law enforcement, volunteers, interns, or other staff. On weekends, these duties may be carried out by non-museum staff, such as interpreters, volunteers, custodians, and interns.
- Ask who has access to the keys to the exhibit or storage space and how those keys are issued. Keys should be given to as few people as possible, and the extra keys should be properly secured.
- Ask how access to the space is controlled. Methods may include establishing and following rules for access by staff, contractors, visitors, and scholars, including sign-in and visitor badge procedures; designating appropriate entrances and exits for staff and visitors, which may be separate; and limiting access to non-public storage and exhibit spaces.
- Ask whether procedures to open and close the space are in place. Such procedures may include designating specific staff with opening and closing duties; setting consistent times for opening and closing; conducting a thorough security patrol at opening and closing; and establishing and following an after-hours access policy.

Element #16. *Staff are regularly trained in security procedures.*

- The staff that must be trained are those involved in protecting the museum collections in the space. In bureau facilities, these typically include curatorial and museum property management staff, interns, and volunteers. Because bureau interpreters, rangers, law enforcement, facilities management, custodial, and other staff members also may be called to assist in an emergency, especially after-hours or on weekends, it is a good idea for all staff at the facility to have some level of training. A similar range of staff should have this training at non-bureau facilities.
- Ask if training in security procedures for museum collections is provided to staff. If not, enter a score of "0" for this element.
- If training is provided, inquire about the topics covered, which should include key control, access control, and opening and closing procedures.

- Ask about the frequency of the training. Annual training, or when new staff are hired, is usually sufficient to ensure the security of the objects in the space and staff follow security procedures without a breach.

Element #17. *Electronic intrusion detection systems are:*
   - *inspected and tested by qualified personnel on an appropriate schedule and*
   - *maintained by qualified personnel on an appropriate schedule.*
- Ask whether the space is protected by an electronic intrusion detection system(s), such as perimeter security, electronic locks, and motion sensors. Enter not applicable (N/A) for this element if an electronic intrusion detection system is not present.
- If a system(s) is present, inquire about who inspects, tests, and maintains it. Qualified personnel, often facilities management staff, should have a training certificate for the assigned task and must follow the procedures mandated by law, codes, professional standards, and manufacturer's recommendations. Ask to see documentation on completed inspections, tests, and/or maintenance actions.
- Ask about the frequency with which the system(s) is inspected, tested, and maintained and how a schedule, if in place, was determined. The inspection, testing, and maintenance schedule recommended by the manufacturer of the system(s) is usually the most appropriate.

Element #18. *Fire detection and suppression equipment and systems are unobstructed and fire extinguishers are accessible.*
- Look around and ask about the fire detection and suppression equipment and systems that are used in the space. For example, detectors may be heat-sensing, smoke-sensing, radiant energy-sensing, or a combination. Notification equipment may include devices that emit an audible, visual, or a combination of both types of signals. Suppression systems and equipment may be: water-based automatic sprinklers; fire hoses, or "mist" systems; foam systems; portable fire extinguishers; and clean agents (gaseous replacements for Halon®). Often the facilities management staff will have the most in-depth knowledge of the equipment and systems used in the space.
- Be mindful that human safety is a priority. No fire detection and suppression equipment and systems should ever be blocked by museum objects, equipment, or supplies limiting the effectiveness of the equipment.
- Determine the degree to which all fire extinguishers are readily accessible for immediate use in case of a fire.

Element #19. *Fire detection and suppression equipment are:*
   - *inspected and tested by qualified personnel on an appropriate schedule and*
   - *maintained by qualified personnel on an appropriate schedule.*
- Ask who inspects, tests, and maintains the fire detection and suppression equipment in the space. Qualified personnel are typically facilities management staff or a contractor who is certified in the procedures mandated by the fire code and manufacturer's recommendations.
- Be mindful that "inspection" is a "…visual examination of a system or portion thereof to verify that it appears to be in operating condition and is free of physical damage." (National Fire Protection Association (NFPA) 25, 2011); "testing" consists of "procedure[s] used to determine the operational status of a component or system by conducting periodic physical checks, such as waterflow tests, fire pump tests, alarm tests, and trip tests of…valves"

(NFPA 25, 2011) and "alarm and signaling equipment" (NFPA 72, 2013); and, "maintenance" is "work performed to keep equipment operable or to make repairs" (NFPA 25, 2011).

- Ask to see the documentation for the inspection, testing, and maintenance of the fire detection and suppression equipment in the space, such as tags on fire extinguishers, valves, and pumps. This documentation must be retained by the facility for inspection according to DOI policy, NFPA code, and local, state, and federal requirements. Inspection logs are typically maintained by the facilities management staff.

- Ask how often the systems are inspected, tested, and maintained. Ask how a schedule for these tasks, if in place, was established and verify that the schedule is being followed. The local fire code specifies minimum requirements, and manufacturers develop specific procedures for inspection, testing, and maintenance, including schedules. If schedules for these equipment and systems do not exist or the schedule is not followed, you should deduct points from the score for this element.

Element #20. *All staff are properly trained in fire safety procedures.*
- Ask if training in fire safety procedures is provided to staff. If not, enter a score of "0" for this element.

- The staff that must be trained are those involved in protecting the museum collections in the space. In bureau facilities, these typically include curatorial and museum property management staff, interns, and volunteers. Often there is fire safety training for all staff in a bureau facility, which might include interpreters, law enforcement, facilities management, and custodial staff. A similar range of staff should have this training at non-bureau facilities.

- If training is provided, ask about the topics that are covered. For example, training should include visitor and staff safety and how to evacuate the building during a fire.

- Ask about the frequency of the training provided so you are assured that the staff have current knowledge on response procedures. Annual training, and when new staff are hired, is usually sufficient to ensure the safety of the staff and the objects in the space during a fire.

- If portable fire extinguishers are located in the space for staff to use in an emergency, OSHA requires that those individuals complete annual portable fire extinguisher training. This training is conducted by most local fire departments, when requested. A certificate is not usually provided for this type of training.

Element #21. *The space is clean and uncluttered, and housekeeping is performed on a written schedule.*
- Look around the space to determine the degree to which it is clean. Look for the presence of dust and other particulates on the objects. Are miscellaneous materials, such as boxes, bags, and supplies, in the space that could damage the objects if they fall, collapse, begin to disintegrate, or introduce pests?

- Ask to see a written housekeeping schedule and task list, and ask if it is followed. This may require coordination with facilities management or custodial staff.

- For additional information, see Appendix 1: Sample Museum Housekeeping Schedule.

Element #22. *Rules against eating, drinking, smoking, and use of live plant materials in the space are enforced.*

- Ask to see written rules against eating, drinking, smoking, and use of live plant materials in the space. Look for signage that prohibits such activities, which provide helpful reminders of the rules.
- Determine whether the rules are enforced. Look for evidence of eating, drinking, smoking, and use of live plant materials in the space, such as food wrappers in trash cans, mugs on a tabletop, or live plants. If live plants are located anywhere in the building they should be limited to offices, lobbies, and other areas where museum collections are not located.

Element #23. *Staff are trained to properly handle museum objects and perform housekeeping.*

- The staff that must be trained are those who handle museum objects and perform housekeeping in the space. In bureau facilities, these typically include curatorial and museum property management staff, interns, and volunteers. Custodial and facilities management staff may also be involved in these activities. A similar range of staff should have this training at non-bureau facilities.
- Determine whether training in handling objects and housekeeping is provided to appropriate staff. Training should be discussed in the Housekeeping Plan you reviewed in the Core Plans section of the Checklist. Enter a score of "0" for this element if training does not exist.
- If training is provided, ask about the topics included to ensure that both object handling and housekeeping are covered.
- Ask about the frequency of the training provided to ensure staff can effectively carry out the required procedures. Annual training, and when new staff are hired, is usually sufficient.

Element #24. *Museum-quality mounts, cases, containers, cabinets, racks, and/or shelves are sufficient and appropriate to safely house the objects without crowding, overloading, or movement.*

- Look at the types of mounts, cases, containers, cabinets, racks, and/or shelving that are used in the space and compare with those listed in Appendix 6: Recommended Storage and Exhibit Materials.
- Assess whether there are museum objects in the storage space that are not yet stored in museum-quality mounts, cases, cabinets, and other containers. For example, some objects could be in non-archival boxes on the floor or on top of cabinets.
- Assess whether the museum objects are stored to prevent movement, abrasion, and stress from overcrowding in both storage and on exhibit. Check that the objects are spaced to not touch each other and are mounted, if needed, so they do not move as their container is opened and closed.
- Assess whether the mounts, racks, shelves, and/or cabinets are overloaded, which causes sagging, buckling, or slumping of the structural supports. Shelving and cabinets must not exceed the weight limits that are set by the manufacturer, which may be visible on the shelving or cabinets.

Element #25. *Museum collection management systems':*
   - data are backed up on an appropriate schedule and
   - backup files are kept offsite in appropriate storage.
- Ask whether an electronic museum collection management system, such as the Interior

Collection Management System (ICMS), is used to document the objects in the space. If so, identify the system in the Comments box.
- Enter not applicable (N/A) for the element if only paper records are used to document the objects in the space.
- Ask how often the data are backed up and how the schedule, if in place, was determined. Data should be backed up daily, but no less than once a week, if staff are actively accessioning, cataloging, and conducting other documentation activities at the facility.
- Ask whether backup files exist and, if so, where they are stored. This should be an offsite location that is separate and distant from the space being evaluated. The location should be climate controlled and the cabinet or container in which the data files are stored should be locked and fireproof.

Element #26. *All museum records are stored appropriately to ensure their preservation against fire, theft, and loss of physical or digital integrity.*
- Ask how all of the paper and film-based museum records, including original documents, copies of originals, and photographs, both prints and negatives, are stored. A locking, fireproof cabinet, safe, or vault is the most appropriate container for storing museum records.
- Ask how digital museum records that are not in ICMS are stored for safe keeping, including images, spreadsheets, and documents. They should be in appropriate formats and on a secure server or other appropriate storage media. They also should be regularly backed up and stored offsite.
- Ask how the integrity of digital files is maintained. Digital files should be migrated to the latest compatible software every three to five years.

Exhibit Space Only

Element # 27. *Museum objects are exhibited for a length of time that is appropriate for the preservation of the objects.*
- Ask how long each object in the space has been on exhibit. The objects' condition, composition, and environmental sensitivity, particularly to temperature, relative humidity, and light, should be considered when determining the length of time that the objects are on exhibit. Ideally, objects are exhibited for one to three years and then placed in storage.
- Objects that are made of environmentally sensitive materials, such as leather, textiles, or paper, should be exhibited for shorter periods of time than objects composed of stable materials, such as stone or well-fired ceramic.
- Look for evidence of conservation that is needed on any museum object on exhibit. Document your findings in the Comments box. Score the element accordingly, since objects that require conservation should not be on exhibit.
- Be mindful that some museum objects on exhibit have cultural or historical significance to constituents that result in their exhibition for a longer period of time than is optimal. In these cases, extra precautions (e.g., limited light exposure, tighter humidity controls) should be taken to preserve the objects on exhibit. Document such instances in the Comments box.

Storage Space Only

Element #28. *The space is dedicated to housing museum collections.*

Date Issued: September 24, 2015

- Look around to determine if anything besides museum objects is stored in the space, such as cleaning supplies, excess equipment and furniture, audiovisual equipment, boxes of books or other sales items, or non-museum office files. Be mindful that curatorial and museum property management staff in bureau and non-bureau facilities have the discretion to store museum-related items, such as exhibit mounts, step ladders, and archival supplies, based on bureau museum policy or the policy of the non-bureau facility.
- Look around the space for interpretive props, which include non-museum items used in educational programs, living history demonstrations, offsite programs, or "touch tables." Examples include animal skins and skulls, rocks, leaves, petals, stems, or plant seeds, fossil casts, and replicas of artifacts. Interpretive props should <u>not</u> be housed in a storage space, as they are likely to introduce agents of deterioration, including pests and particulates, and may be a security risk (especially if needed when bureau curatorial staff are off-duty).
- Look for a dedicated work area in the storage space. Such a work area is not optimal for the long-term preservation of the museum objects in storage due to the agents of deterioration that might be introduced. Temporary work stations are preferred if work must be done in the storage space.

Element #29. *The space is organized to ensure safe movement of staff, equipment, and museum objects, and to facilitate access to objects.*
- Look around for any hindrances to the safe movement of staff, equipment, and objects in the storage space. Hindrances may include areas overcrowded with supplies; unstable storage equipment, including dilapidated shelving; low ceilings; building supports in the center of aisles; inadequately-sized doors; blocked or narrow passageways; and narrow, winding, or steep stairways. Ask how long the hindrances have been in place to help you determine the score for this element.
- The Americans with Disabilities Act (ADA) has certain requirements for aisles, hallways, doorways, etc. For example, aisles must be at least 36" in width to accommodate a single wheelchair and doorways must have 32" of clearance. All ADA requirements are available at: http://www.ada.gov/2010ADAstandards_index.htm.
- Look for any equipment that is used in the storage space, such as pallet jacks, carts, and step ladders. Determine if there is sufficient room to safely move the equipment between the shelving and cabinets.
- Assess whether the objects in the storage space are accessible at all times, including those on shelving or in containers. There must be enough aisle space to fully open cabinet doors, pull out drawers, and safely access the objects.

Element #30. *The size of the space is sufficient to:*
  - *house current museum collections and*
  - *accommodate planned growth.*
- Evaluate whether the space is overcrowded. For example, are boxes piled on top of each other, on the floor, or on top of cabinets?
- Ask if new collections are being accepted into the space. If not, then only focus on whether the current space is sufficient for the current objects and make a note to that effect in the Comments box for this element. If so, ask to see where they are being stored to determine whether there is sufficient room.
- Determine the degree to which there has been active planning for collections growth. Ask

whether the facility has a collection storage plan. Document in the Comments box any factors that may impact the acquisition of new collections, such as lack of space or the preservation and use of current collections.

Element #31. *Procedures are in place to escort and monitor non-curatorial staff who service utility meters and other equipment located in the space.*

- Ask whether utility meters and other equipment that require servicing by persons who are not curatorial staff or bureau museum property management staff in either a bureau or non-bureau facility are present in the storage space. Enter not applicable (N/A) for this element if there are no utility meters or other equipment in the space.
- Determine whether staff who service utility meters; electrical, plumbing, and telecommunication systems; heating, ventilation and air conditioning (HVAC) systems; and other utilities and equipment are escorted into and out of the space. Ask how the staff are monitored while they work. Ensure that the collections are protected from damage and are secure from theft when non-curatorial staff are servicing equipment in the space.

Element #32. *Museum objects are protected from dust, pests, and particulates through the use of air filters, dust covers, bags, boxes, and/or cabinets.*

- Ask about the composition of the objects in the space and think about the care that is required to protect those materials. For example, objects made of stone are not as susceptible to deterioration from dust, particulates, and pests as textiles and other organic materials that are very sensitive and must be protected.
- The following types of sensitive objects should be stored in sealed cabinets or containers:
  o Natural history collections, e.g., herbarium specimens, feathers, skins, and taxidermy mounts
  o Textiles, e.g., clothing and rugs
  o Leather objects
- Open shelf storage should be equipped with clear polyethylene sheeting on all sides to protect the objects on the shelves from dust, unless the objects are otherwise protected (such as in a box or under a dust cover).
- Ask about the use of air filters in the space, which significantly reduce particulates in the air. If air filters are not used, ask for an explanation.

Element #33. *Hazardous materials are:*
- identified using labels and signage that conform to applicable Federal or local requirements and
- stored in an approved cabinet outside of the storage space.

- Look around for any hazardous materials that are present in the space. These may include items used to preserve, conserve, or label objects; for housekeeping; or in exhibit construction. Be mindful that all hazardous materials must be stored **outside** of the storage space. Examples of hazardous materials include:
  o Alcohol and formalin for fluid-preserved specimens
  o Acetone, lacquers, consolidants, conservation chemicals, and adhesives
  o Paint and other coatings
- If any hazardous materials are found in the space, enter a score that is less than "4" points for this element depending on quantity, proximity to the collections, and storage method.

- Determine the degree to which labels and/or signage are used to identify all of the hazardous materials in the space. Look for Material Safety Data Sheets or Safety Data Sheets, which should be posted near the hazardous materials.
- Determine if an "approved" cabinet is used to store hazardous materials outside of the space, which must meet Occupational Safety and Health Administration, National Fire Protection Association standards, or other standards mandated at the state or local level.
- This element does not include museum objects that may contain hazardous materials, which are addressed in Element #34.

Element #34. *Any museum objects that may pose health risks are:*
- identified using labels and signage that conform to applicable Federal or local requirements and
- appropriately packaged.
- Look around the space and ask if any museum objects that pose human health risks are

Figure 1: Radiation Hazard "Tri-Foil" Symbol.
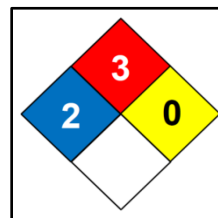
Figure 2: NFPA Hazard Rating System symbol for Ethanol.

present, such as biological or ethnographic objects treated with arsenic or radioactive fossils. Identify those objects in the Comments box for this element as reference for future evaluators.
- Enter N/A for this element if no museum objects that pose human health risks are present.
- See if labels and/or signage are used to identify all of the objects that may pose human health risks to the facility staff and visitors.
- Determine whether objects that pose human health risks are housed appropriately. Examples include:
  o Radioactive fossils should be stored in a designated fossil storage cabinet or room with a dedicated ventilation system to exhaust the room or the individual cabinets. All cabinets and rooms containing radioactive fossils must be properly signed with: "CAUTION, RADIOACTIVE MATERIAL", the trefoil radiation hazard symbol (see Figure 1), and "RADON AREA." A written set of instructions for handling radioactive specimens must be posted nearby.
  o Museum storage cabinets housing specimens and objects suspected of, or known to be contaminated with arsenic, must be labeled with a warning sign that states "CAUTION, SPECIMENS TREATED WITH ARSENIC." A written set of instructions for handling contaminated specimens must be posted nearby.
  o Rooms and storage cabinets housing specimens preserved in ethanol must be properly signed with: "FLAMMABLE, SPECIMENS IN ETHANOL" and the appropriate NFPA Hazard Rating System symbol (see Figure 2).

Date Issued: September 24, 2015

Element #35. *Fluid-preserved specimens are housed in a space that is separate from dry specimen collections.*

- Look to see and ask whether fluid-preserved specimens, such as an animal or plant that is immersed in a fluid preservative, are stored in the space. Enter N/A for this element if no fluid-preserved specimens are present.
- Ask whether all fluid-preserved specimens are physically separated from the dry specimens. Enter a score of "4" if all fluid-preserved and dry specimens are stored in separate spaces, and there is adequate ventilation in the room with the fluid-preserved specimens. An exception is a small collection of fluid-preserved specimens in 50 or less small vials and housed separately in a ventilated cabinet. This exception may receive a score of "4."
- If any of the specimens are preserved in flammable fluids, the room(s) and cabinets must be appropriately signed as noted for element #34.
- Be mindful that this Checklist does not adequately evaluate storage spaces for fluid-preserved specimens. Best practices for storing and preserving fluid-preserved specimens are provided in Simmons 2014 (see References section).

Administrative Office Space

What is an Administrative Office Space?
Administrative office spaces are non-museum areas in a **DOI facility** where DOI staff conduct business, including education, and where museum objects are present but are not central to the purpose of the space. Examples include offices, conference and meeting rooms, hallways, classrooms, and reception areas.

Should I assess a non-bureau facility's Administrative Office Spaces?
No. DOI collections should not be located in a non-bureau facility's administrative office space. DOI collections are housed at non-bureau facilities for long-term storage, exhibit, or research purposes and must be located in either a storage or exhibit space.

What information must I enter at the top of the Checklist form for each Administrative Office Space?
Enter the following information in the appropriate spaces on the Checklist form:
- Name/Location of Space: This is the name or location of the specific administrative office space.
- FBMS Real Property Unique Identifier (abbreviated Real Property ID on the Checklist form): This is the unique number that the Financial and Business Management System (FBMS) assigns to identify and track real property assets, including facilities that house museum collections. The bureau or unit facility manager has access to this number in FBMS and can provide it to you. This unique number is only required for DOI facilities.

What are the key things I should look for or be mindful of as I begin using the Administrative Office Space section of the Checklist?
- It is important to enter cost estimates in the "Estimated Cost" column on the Checklist form for all elements in a bureau administrative office space that are not fully met. See the section of this guidance called "Deficiencies and Estimating Costs to Correct Them" for more information on cost estimations.

Date Issued: September 24, 2015

- Use the Comments box for each element to highlight any issues, deficiencies, or information that might be useful in the future. Note any related information on how you estimated costs to correct deficiencies and, as practical, retain any related documentation for future use. Be mindful that comments are required for all elements that you do not score a "4."

What are the key things I should look for, be mindful of, and ask about as I score each element in the Administrative Office Space section of the Checklist?

Element #1. *Responsible staff are provided with instructions about the physical and environmental requirements pertaining to museum objects displayed in the space.*
- Determine who are the staff responsible for meeting the physical and environmental requirements of the objects in the space. They are typically the office occupants, administrative staff, and facilities management staff, as appropriate. Ask if the responsible staff have received instructions about the physical and environmental requirements. If they have not, then enter a score of "0."
- Review the instructions provided to the responsible staff about the physical requirements. These must include the potentially harmful effects of smoking, eating, drinking, and locating live plant materials near museum objects. The instructions must also include security requirements such as locking doors and windows and other appropriate measures to prevent theft.
- Review the instructions about the environmental requirements, which must address significant temperature and relative humidity fluctuations, light levels (e.g., turning off or dimming the lights at the end of the work day and closing window blinds), pests, and air pollution.

Element #2. *Responsible staff are provided with instructions about procedures to protect and minimize damage to museum objects during an emergency.*
- Determine who are the staff responsible for conducting emergency procedures. These staff are typically the office occupants, administrative staff, and facilities management staff, as appropriate. Ask if the responsible staff have received instructions about protecting and minimizing damage. If they have not, then enter of score of "0."
- Review the instructions provided to the responsible staff about emergency procedures, which must include the sensitivities of specific objects to water and heat and, if time allows, special evacuation techniques. Be mindful that fire and flooding due to natural (e.g., hurricanes) and human-related (e.g., burst pipes) causes are the most typical emergencies in administrative office spaces and should be covered in the instructions.
- Ask if the curatorial or museum property staff have worked with the facilities management staff to make them aware of the protection needs of the museum objects in the case of an emergency.

Element #3. *Responsible staff are provided with instructions for handling objects, conducting housekeeping, and reporting any changes to appropriate curatorial or other staff.*
- Determine who are the staff responsible for handling objects, conducting housekeeping, and reporting any changes to the objects. Typically curatorial and museum property management staff handle the objects when they are put on or removed from display, and no one handles the objects in between those events. Typically custodial staff do the housekeeping; it is

critical that these individuals are instructed on how to do housekeeping in the vicinity of museum objects, how to handle any objects that must be handled, and how to report any changes to the objects, particularly damage. Ask if the responsible staff have received instructions about handling, housekeeping, and reporting changes. If they have not, then enter of score of "0."

- Review the instructions provided to the responsible staff on handling museum objects in the space. The instructions must be specific to the nature of the objects and focus primarily on object safety while on display and during transport in order to prevent dropping, breaking, and mishandling.
- Review the housekeeping instructions, which must be specific to the nature of the objects in the space. The instructions should take into account the care required for the types of objects on display and the skills required of the staff being instructed.
- Review the instructions concerning how to report any visible changes to the objects. These may include: alterations in location, condition, or framing of specific objects; significant changes to the environmental conditions in the space; and renovations to the space or new activities conducted in the space, which may not be compatible with museum objects. Instructions must clearly identify the person to whom changes are reported.

Element #4. *Objects are included and accounted for in a regular museum collections inventory.*
- Ask when the last inventory of the objects in the space was conducted and the inventory method used, such as a random sample or a 100% inventory, and determine if that method is appropriate for the objects in the space. The requirements in Directive 14, *Inventory of Museum Collections*, must be followed. Typically, the museum objects in these spaces are considered controlled property, and all controlled property must be inventoried annually.
- Ask to see documentation of the last inventory, such as an inventory list.
- Be mindful that the inventory of objects in administrative office spaces is especially important, since:
  - o Curatorial and museum property staff do not go into these spaces on a regular basis.
  - o Access to these spaces is not as stringently controlled as access to museum storage areas.
  - o Often there are no barriers protecting the objects. For example, a painting mounted in a heavily-used hallway might be bumped more often than a painting that is behind a stanchion and rope barrier in a museum.

Element #5. *Objects are protected from damage while on display.*
- Look at where the objects are displayed to determine how well they are protected from possible damage. Examples of appropriate locations are those that are away from doors, air ducts, office equipment, moveable furniture, and direct sunlight.
- An inappropriate location would be a painting mounted low on the wall directly behind several chairs in the conference room. People seated in those chairs could easily bump into the painting or brush against it, causing damage.
- Are two-dimensional objects, including paintings, historic documents, photographs, banners, and flags, individually protected from damage? Are they properly framed, matted, and glazed (e.g., have a glass or plastic covering)? Are they secured using appropriate hanging hardware? "Security hardware" mounting brackets that require a special key to remove a painting from the wall are required for administrative offices. They provide a level of additional protection from "grab and run" theft as well as enhanced earthquake safety.

- Are three-dimensional objects, such as statues and historic lamps, protected from damage using vitrines (exhibit cases), ropes and stanchions, or other appropriate devices?

Element #6. *Temperature and relative humidity:*
   - are monitored in the space on an appropriate schedule and
   - deficiencies are addressed.
- Be mindful that temperature and relative humidity (RH) levels in administrative office spaces are set for human comfort during the day and may change (or be turned off) when the facility is not occupied (e.g., nights, weekends, and holidays).
- Ask whether temperature and RH are monitored in the space, and ask to see evidence of monitoring, such as monitoring records and equipment. If monitoring is not done, enter a score of "0" for this element.
- Be mindful that the monitoring schedule for this type of space should be determined by curatorial or museum property management staff based on the types of museum objects on display. Environmentally sensitive objects, such as textiles or watercolor paintings, must be monitored more frequently than stable objects, such as a stone statue or an oil painting.
- If monitoring occurs, ask whether there is a monitoring schedule and how that frequency was determined. Due to difficulties in accessing administrative office spaces, monitoring may only occur once or twice a year. It is always preferred to monitor more frequently.
- Ask how deficiencies, such as significant fluctuations in temperature or RH, are addressed. Ask if office occupants find the temperature and RH in the space comfortable year-round. Is the HVAC system able to properly heat or cool the room at all times of the year? Does the office staff experience much higher (or lower) humidity or temperature than other offices? If so, when?
- Examples of actions that might be taken to correct deficiencies include informing the facility manager about the need to stabilize temperature fluctuations; removing the museum object(s) from the space; or replacing object(s) on display with less environmentally sensitive object(s). Be mindful that some deficiencies may not be addressed for reasons outside of the control of the curatorial and museum property management staff.

Element #7. *Visible and ultraviolet light:*
   - are monitored in the space on an appropriate schedule and
   - deficiencies are addressed.
- Ask whether light levels are monitored in the space, and ask to see evidence of monitoring, such as monitoring records and equipment. If monitoring is not done, enter a score of "0" for this element.
- Monitoring should include light level or intensity, the duration of light, and the light wavelength or type of light. Sources of visible and ultraviolet light are from lighting devices and natural sources, so both sources must be monitored if present.
- If monitoring occurs, ask whether there is a monitoring schedule and how its frequency was determined. Due to difficulties in accessing administrative office spaces, monitoring may only occur once or twice a year. It is always preferred to monitor more frequently.
- Ask how deficiencies, such as <u>high</u> levels from visible and/or ultraviolet light, are addressed. Examples of controls that might be taken to correct deficiencies include:
   o Installing window awnings, blinds, draperies, or other barriers to sunlight.
   o Lowering shades and blinds or closing draperies when necessary to block direct sunlight.

- o   Turning off all lights at the end of the day.
- o   Applying UV filtering film on windows and UV filters over fluorescent lighting.
- o   Using lighting sources that emit little to no UV radiation or heat (e.g. LED).

Element #8. *Using integrated pest management principles, pests are:*
   - monitored,
   - identified, and
   - controlled.
- Ask what types of pests have been found and are expected in the space.
- Look for evidence that those pests are monitored (e.g., sticky traps are distributed throughout the space).
- Ask who identifies pests found in the space. The person identifying pests must be trained in Integrated Pest Management, which includes monitoring for pests, identifying and documenting pests, discouraging and mitigating pests through housekeeping and other means, and response/treatment of pest problems.
- Ask how pests are controlled. Examples include:
  - o   Installing additional weather-stripping around windows and doors.
  - o   Replacing open-topped trashcans in break-rooms and other food areas with trashcans with lids and emptying them daily.
  - o   Removing vegetation along the building's perimeter, especially near doors and windows.

Element #9. *Security for objects is adequate to mitigate the risk of theft.*
- Ask how the objects in the space are secured from the risk of theft, such as requiring that:
  - o   Doors and windows are locked and alarms are set at the end of the day or any other time when the space is unoccupied.
  - o   All office occupants are informed about security measures they should take to protect the museum objects.
- Ask if there are any particularly valuable objects in the space. If so, ask how these objects are protected. Examples of security measures include key control, locking the office door when the room is unattended, and requiring staff to escort visitors in non-public areas.
- Ask if any specific actions were recommended to the responsible staff (office occupant, administrative staff, or facility or security management staff) but were not acted upon for reasons outside the control of the curatorial or museum property management staff. If so, document these instances in the Comments box for this element.

Element #10. *Museum objects are not used for secondary functions.*
Look at the objects on display. Are any used for functions other than display? Examples of inappropriate secondary uses include:
- A basket used as a trash container, magazine holder, or planter.
- Historic chairs used for conference room or office seating.
- A ceramic bowl used to hold business cards.
- A painting temporarily used for educational purposes in an alternate location. You might learn about this from the office occupant, or you might see that the painting is on the floor or on a table and has not been rehung after use.

Date Issued: September 24, 2015

Element #11. *Museum objects are displayed for a length of time that is appropriate for the objects.*

- Ask how long each object in the space has been on display. The objects' condition, composition, and environmental sensitivity, particularly to temperature, relative humidity, and light, should be considered when determining the length of time that the objects are on display. Ideally, objects are displayed for one to three years and then placed in storage.

- Be mindful that any objects made of environmentally sensitive materials, such as leather, textiles, or paper, should be displayed for shorter periods of time than objects composed of stable materials, such as stone or well fired ceramic.

- Look for evidence of conservation that is needed on any object(s) on display. Examples include a painting that is scratched or has a torn canvas; fresh-looking scratches or dents in the legs of a historic chair; and broken component parts, such as an unattached handle placed on the shelf next to the clay water vessel. Document your findings in the Comments box and score the element accordingly; objects that require conservation should not be on display.

- Be mindful that some museum objects on display have cultural or historical significance that may outweigh object preservation, so they might be on display for a longer period of time than is optimal. Document such instances in the Comments box.

Definitions

Administrative office space – A space in which people within an organization conduct business, including education, and where museum objects are present but are not central to the purpose of the space. Examples of administrative office spaces include offices, conference and meeting rooms, hallways, schools, classrooms, and reception areas.

Agents of deterioration – Natural and human-caused phenomena that will adversely affect museum objects such as: direct physical forces; thieves and vandals; fire; water; pests; contaminants; radiation from light; and improper levels of temperature and relative humidity.

Class C estimate – An approximation of the construction or repair cost based on the cost per square foot of a similarly constructed building, also known as a "Conceptual Cost Estimate."

Curatorial staff – A DOI employee who has the appropriate knowledge, training, experience, and direct responsibility to manage the nature, scope, and content of bureau/office or unit museum collection/museum property. This may include museum curators, museum specialists, and museum technicians, as well as staff possessing expertise in an academic discipline along with requisite museum training and experience. (See also Museum property management staff.)

Deferred maintenance – Maintenance work that was not performed when it should have been or was scheduled to be performed and subsequently put off or delayed to a future time. This applies to facilities and to museum collections.

Element – A statement of preservation and protection criteria used to evaluate core plans, exhibit spaces, storage spaces, or administrative office spaces in the *Facility Checklist for Spaces Housing DOI Museum Property*.

Environmentally sensitive – The degree of vulnerability to various agents of deterioration, based on the constituent materials of museum objects.

Exhibit space – An area dedicated to interpretive and educational display of museum objects for an intended audience in which appropriate security and environmental conditions are maintained.

Evaluator – The individual conducting the assessment of a facility where museum collections are stored, exhibited, or displayed using the Checklist.

Facility – A building, administrative unit, or partner facility that has space(s) dedicated to the display, exhibit, study, and/or storage of museum collections/museum property.

Glazing – For picture framing, the act of covering an object with a protective glass or other appropriate material.

Integrated Pest Management (IPM) principles – The standards for preventing and resolving pest problems in an efficient and ecologically sound manner without compromising the safety of collections, visitors, and staff. IPM principles encompass monitoring for pests, identifying and

documenting pests, discouraging/mitigating pests through housekeeping, response/treatment of pest problems, and training staff in IPM principles.

Material Safety Data Sheet (MSDS) – A document that provides staff and emergency personnel with procedures for handling or working with a particular hazardous substance in a safe manner, and includes information such as physical data (e.g., melting point, boiling point, and flash point), toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill-handling procedures. Based on new Hazard Communication Standard requirements, the name of this document is being changed to Safety Data Sheet (SDS).

Microclimate – The environmental conditions within a small area such as a storage cabinet or exhibit case.

Mitigation – The act of reducing the severity of a situation or condition.

Museum collection/Museum property – A subset of personal property that is retained for long-term preservation, study, and interpretation consistent with statutory requirements, its relationship to the mission of the respective bureau/office mission, or other appropriate factors. A museum collection/museum property, which includes objects, works of art, and archives, is acquired according to a rational plan, such as a Scope of Collection Statement. It consists of 1) all accessioned, unaccessioned, cataloged, and/or uncataloged objects and 2) all museum objects under the control of a facility, unit, or bureau/office. Museum property is synonymous with and referred to as "museum collection(s)" in the DOI Museum Property Directives, a standardized term that is used by museum professionals.

Museum property management staff – A DOI employee with delegated responsibilities to manage museum collections/museum property on a regular basis who does not have specialized training in professional museum work. This may include archeologists, archivists, historians, interpreters, property management specialists, rangers, resource management specialists, or others who manage museum property as a collateral duty. (See also Curatorial staff.)

Museum records – Records created to manage museum collections/museum property, such as accession, catalog, loan, deaccession, and inventory records. These records must be appraised through agency record schedule procedures. Museum records are not a museum collection/museum property.

Object – A physical item of a museum collection/museum property. It includes art and history objects, archeological artifacts, ethnographic objects, archival items, and natural history specimens.

Offsite – A location entirely separated and distant from the building of interest.

Overloading – Exceeding the recommended weight capacity, such as by grouping too many objects together on a shelf, cabinet, drawer, or other housing structure.

Particulates – Of or relating to minute, separate particles.

Date Issued: September 24, 2015

Stanchion – An upright bar or post (sometimes portable; often used in conjunction with retractable belts or ropes) acting as a barrier between museum objects and the surrounding environment.

Storage space – An area dedicated to the storage of museum objects in which appropriate security and environmental conditions are maintained.

Ultraviolet (UV) radiation – Energy in wavelengths shorter than 400 nanometers (nm). UV radiation from the sun, sky, and most artificial light sources is in the range of 300-400 nm. It is invisible and may cause significant damage to many museum objects over time.

Visible light – The portion of the electromagnetic spectrum that is perceptible to the human eye, approximately in the range of 400-700 nm.

Visitors – Includes all persons who access DOI museum collections for the purposes of researching and interpreting scientific or historical objects, viewing public exhibits, and participating in interpretive programs and educational activities.

Vitrine – A glass or plastic transparent cover that encloses and protects museum objects on exhibit or display.

Unit – A bureau/office organizational entity, such as an accountability area, administrative unit, center, laboratory, museum, office, park, school, site, refuge, or repository, that manages museum collections/museum property.

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Appendix 1: Sample Museum Housekeeping Schedule

Museum: Daily Schedule

Week of _____   Initial and date upon completion of each task.

	MON	TUE	WED	THUR	FRI	SAT	SUN
Sweep and clean front porch.							
Vacuum museum floors.							
Inspect building for leaks, pests, etc.							
Note temperature and weather on daily weather log.							
Empty all trash cans each night into dumpster.							
Dust/clean exhibit cases, if needed; water and dust rags only.							

Museum: Weekly Schedule

Month of _____   Initial and date upon completion of each task.

	Week 1	Week 2	Week 3	Week 4
Dust exhibit case glass using nylon dust cloth or cotton rags; may be slightly damp. H_2O only.				
Dust exhibit case wood frame using cotton rags; may be slightly damp. H_2O only.				
Vacuum baseboards and windowsills.				
Remove any cobwebs.				
Straighten up and dustmop the back room.				
Sweep back steps.				
Check sticky traps; ID pests; note in IPM binder; replace if needed.				

Museum: Monthly Schedule

January – June _____   Initial and date upon completion of each task.

	January	February	March	April	May	June
Dust/clean tops of exhibit cases.						
Dust/clean light fixtures.						
Clean windows (interior) with vinegar & H_2O on cotton rag.						
Clean porch light.						
Damp mop museum floor (soap & H_2O).						
Download dataloggers.						

Appendix 2: Suitable Relative Humidity and Temperature Ranges for Various Materials in DOI Museum Collections

Relative Humidity

1. **Archeological Materials**
    - Negligible Climate-Sensitive Materials: 30% – 65%
    - Climate Sensitive Materials: 30% - 55%
    - Significantly Climate Sensitive Materials: 30% - 40%
    - Metals: <35%

2. **Natural History Materials**
    - Biological specimens: 40% - 60%
    - Bone and teeth: 45% - 60%
    - Paleontological specimens: 45% - 55%
    - Pyrite specimens: <30%

3. **Paintings: 40% - 65%**

4. **Paper: 45% - 55%**

5. **Photographs/Film/Negatives: 30% - 40%**

6. **Other Organics (wood, leather, textiles, ivory): 45% - 60%**

7. **Metals: <35%**

8. **Ceramics, Glass, Stone: 40% - 60%**

Temperature*

1. **Magnetic/Electronic Media: No lower than 46°F***

2. **Photographic media: 35°F***

3. **All Other Objects and Specimens**
    - Storage: 65°F*
    - Exhibit and Work Areas: 68°F

Sources: National Archives and the National Park Service

*According to research conducted by the Image Permanence Institute, the National Archives, and the National Park Service, storage at low temperatures (above freezing) is optimal, as it enhances the long-term preservation of most museum objects. However, maintaining such low temperatures within a facility may not be warranted, appropriate, or practical in view of an agency's environmental stewardship, sustainability, budgetary, and other mandates, policies, or limitations. As with relative humidity, strive to maintain cool, stable temperatures without major fluctuations in all storage areas.

Appendix 3: Examples of Environmentally Sensitive Museum Objects in DOI Museum Collections

Archeology
- Leather
- Wood
- Other organic materials
- Metal

Archives
- Cellulose nitrate film negatives
- Parchment

Art
- Watercolor paintings

Biology
- Skins
- Feathers
- Ivory
- Teeth

Ethnography
- Leather
- Wood
- Other organic materials
- Composite artifacts, such as a painted gourd that is decorated with shells and feathers

Geology
- Pyrite

History
- Leather
- Wood
- Other organic materials
- Metal
- Composite artifacts

Paleontology
- Pyrite

Appendix 4: Basic Standards for Museum Light Levels at DOI Museum Facilities

Visible Light Levels: Storage Areas

Keep all storage areas dark, except when lighting is necessary for staff access.

Visible Light Levels: Exhibit Areas

50 lux maximum for especially light-sensitive materials including:
- dyed organic materials
- textiles
- watercolors
- photographs and blueprints
- tapestries
- prints and drawings
- manuscripts
- leather
- wallpapers
- biological specimens
- fur and feathers

200 lux maximum for less light-sensitive objects including:
- undyed organic materials
- oil and tempera paintings
- finished wooden surfaces

300 lux for other materials that are not light-sensitive including:
- metals
- stone
- ceramics
- some glass

In general, don't use levels above 300 lux in your exhibit space to minimize the light level variation between exhibit spaces. That way people's eyes will not have to adapt to changing light levels and they will be able to see objects exhibited at lower levels much more easily.

UV Light Levels: All Museum Areas

UV light is extremely damaging to museum objects. Block all UV light with filtering material or use non-UV emitting lighting sources to illuminate objects on exhibit.

From the NPS *Museum Handbook*, Part I, Chapter 4: Museum Collections Environment, Figure 4.2.

Appendix 5: Museum Light Measurement Record

U.S. DEPARTMENT OF THE INTERIOR **MUSEUM LIGHT MEASUREMENT RECORD**					
Building/Room:					
Date	**Time**	**Location**	**UV Light Level (µw/lumen)**	**Visible Light level (Lux)**	**Comments**

Adapted from the Light and Heat Measurement Record in the NPS *Museum Handbook*, Part I, Chapter 4: Museum Collections Environment, p. 4.41.

Appendix 6: Recommended Storage and Exhibit Materials

Bags	
Use:	**Don't Use:**
• Resealable polyethylene bags (Ziploc®, Baggies®, Whirl-pak®) • Spun polyethylene bags (Tyvek®) • Bags made from heat-sealable clear plastic laminate film	• Kraft lunch bags • Waxed paper • Envelopes None allow visual inspection and all are made from unstable materials. Waxed paper may leave a coating on the object.

Padding	
Use:	**Don't Use:**
• Acid free tissue • Cotton or polyester batting in plastic or muslin bags • Polyester felt • Bubble-pak or air-cap	• Loose cotton: Brittle materials may snag on the loose fibers. Cotton will almost certainly leave lint on the objects. • Paper towels or facial or toilet tissue: Papers are not durable and contain impurities. • Newspaper: Newsprint smears easily and may leave ink on objects. Newspaper is also very acidic. • Excelsior: Material is very acidic. • Vermiculite: Substance generates dust that not only is difficult to remove, but also hazardous to museum workers

Plastic Foams	
Use:	**Don't Use:**
• White polyethylene closed-cell foam (Polyfoam) • Cross-linked polyethylene foam (Plastazote®, Volara®) • Ethylene/vinyl acetate copolymers (Evazote®, Volara®) • Extruded plank polystyrene (Styrofoam) • Polypropylene closed-cell foam (Microfoam)	• Blue polyethylene foam (fire retardant): Fire retardant additives can migrate to materials. • Pink polyethylene foam (antistatic): Conductor in foam absorbs water from the air and can become soapy. • Chlorinated or nitrated plastic (for example, PVC– polyvinyl chloride): Plastic outgases hydrogen chloride, which can become hydrochloric acid. • Polyurethane: This is unstable and may off-gas harmful products.

Clear Plastic Sheets	
Use:	**Don't Use:**
• Polyethylene terephthalate clear polyester (Mylar®) • Clear polyester and fluorocarbon laminate (Film-O-Wrap®) • Clear polyester/polyolefin laminate (Scotchpak®)	• Polyvinylidene chloride (e.g., Saranwrap®): PVC is unstable, chlorinated plastic. • Cellophane: Sulphuric acid used in manufacturing process generates acidic by-products.

Fabric	
Use	**Don't Use**
• Polyester Stabiltex • Reemay 2014 • Washed Muslin	• Wool Fabric • Unwashed Muslin: Sizing may attract pests.

Boards	
Use	**Don't Use**

• Acid-free mat board
 	
• Acid-free corrugated board
 	
• Acid-free Fome-Cor® (International Paper Co.); extruded polystyrene with polystyrene skin
 	
• Honeycomb boards
   – acid-free rigid paperboard (Tycore®)
   – aluminum-board (Hexcel Honeycomb®)
 	
• Corrugated polypropylene boards (Cor-X®,Coro-plast®)
 	
• Double-walled polycarbonate (Lexan®)
	• Regular cardboard or matboard
	
	  Non-archival cardboard and matboard are acidic.
	
	• Urea formaldehyde-impregnated paper laminated panel board (Gatorfoam®)

Tape/Ties	
Use	**Don't Use**

• Water-activated paper or linen tape
 	
• Cotton or polyester twill tape
	• Pressure sensitive tapes, including:
	   – Cellophane
	   – Masking
	   – Strapping
	   – Duct
	   – Electrical
	
	  The adhesive degrades and the carrier peels off leaving residues and stains.
	
	• Rubber bands: Rubber degrades and sticks to the surface.

Source: NPS *Museum Handbook*, Part I, Appendix I: Curatorial Care of Archeological Objects, pp. 16-19.