

Conservation Guidelines for Exhibitions

The following set of guidelines aims to protect museum collections from unnecessary damage while on display. Improperly designed exhibitions are a significant source of damage for collections which can be prevented by involving conservation early and creating a shared sense of responsibility for collection preservation by all members of the exhibition team.

Exhibition planning

- Integrate conservation and preservation of the collections into the exhibition planning to ensure it's embedded in all aspects of the exhibition design and installation.
- Allow enough time, resources, and budget to adequately care for the collections, including condition checking objects, conservation treatment, review of technical designs, testing of materials, environmental conditions, mount making, safe handling and installation of objects.
- Search for balanced conservation solutions that are appropriate for the exhibition and other exhibition requirements.

Selecting Objects

- Select display objects in conjunction with a conservator who will determine whether they are stable enough for display (with or without treatment) and will advise on the implications of their display
- Avoid selecting too many objects
- Determine the look of the exhibition, the overall aesthetic will affect the level of conservation treatment an object may require.
- Avoid permanent exhibition of objects. Objects that are sensitive to environmental change will need resting/replacing/rotating after a period of time to aid long-term preservation.
- Carry out a condition assessment of each object to ascertain its conservation requirements, i.e. environmental needs, conservation treatment, stability, mounting requirements.
- Address the conservation requirements in the design of the exhibition. Work collaboratively as a team with the designer, conservator, curator, and other members of the team to ensure practical display methods that help to preserve the collection.
- Stabilise all objects required for display. A conservator will carry out a condition assessment and treatment proposal for any item that requires conservation treatment. Funding should be set aside for treating any unstable objects for display.
- Document the objects on display, exhibition lists should include the accession number, photographs, locations (which should be updated on CALM).

General Design

- Design an exhibition that provides environmental stability and protection. Weigh up the options available to produce an appropriate level of protection as set out by the conservation requirements of the objects.
- Consider different approaches, balancing the costs and benefits of obtaining an environmental solution for the whole exhibition gallery against placing sensitive items in display cases.

- Use display cases where possible. Avoid open display except in historic houses and gallery settings when an object's size makes enclosure impractical. Open display should never be a routine exhibition option chosen solely for financial reasons.
- If objects are placed on open display consideration must be given to how the object will be protected from dust, ease of access for cleaning, barriers in place to prevent touching, security measures, plinths to prevent kicks and damage from floor cleaning.
- Group objects with similar conservation requirements together as it will make it easier and more economical to meet the design requirements.
- Consider layout of the exhibition to allow access for all around the display cases as well as ease of installation, maintenance, and object removal.
- The floor loading capacity of the gallery space must be assessed and known to be suitable for taking the weight of the proposed objects.

Temperature and Relative Humidity

- Monitor the environment in the exhibition space for a year to know how the gallery performs in terms of temperature and relative humidity, additional monitors may need to be purchased for new exhibition areas. Review the data to determine whether the conditions meet the conservation requirements of the objects.
- Control the environment of the exhibition space to meet the requirements of the objects on display and following Carmarthen Museums' Care and Conservation Plan which states:
 - We aspire to keep the collection on display within the range of 40-65%RH with a maximum variation of less than 10% RH over a period of 24 hours. Wider parameters may be acceptable for less sensitive materials such as stone and ceramic, while especially vulnerable materials and those with special requirements, such as photographic product, may need more controlled conditions.
 - Due to the acceleration of chemical change at high temperatures, the temperature in stores and most display areas will be kept at a stable temperature in the range of 16-22°C, with a maximum variation no more than 4°C over a period of 24 hours.
- Display sensitive objects in the most stable locations, i.e. do not place sensitive items in the path of direct sunlight, near heating or air ducts, against external walls or in damp locations.
- Provide additional control for sensitive objects. Use sealed cases where appropriate especially when the gallery space cannot meet the environmental requirements of the object, this will provide a micro-climate that can stabilise the environment inside the case with the use of silica gel. Conservation glazing of framed works will also help to maintain a stable environment for the work.

Particulate and Chemical Contamination

- Monitor the pollutants present in the gallery space using the Eltek air quality monitor to assess the level of contaminants and adjust the environment accordingly to suit the objects on display.
- Enclose sensitive objects in display cases that are adequately sealed to prevent particulate entry.
- Use highly efficient filters in environmental ventilation systems to remove chemical particles down to 1-0.3 microns. Change the filters regularly.
- Use localised room sized filtration systems when particulates pose a threat to collections and the filtration systems cannot be improved.
- Selection stable construction materials to build the exhibition space that do not emit hazardous chemicals

- Provide adequate time for an exhibition space to off-gas before installing objects into the exhibition. The Eltek air quality monitor will inform when contamination levels have dropped.

Lighting

- Develop a lighting plan that meets the conservation requirements of the objects and follows Carmarthen Museums' Care and Conservation Plan which states:
 - Light sensitive material is not suitable for permanent display and items will be removed from display if light exposure is deemed too high. Carmarthenshire Museum aim to keep light exposure for very light sensitive material to below 150,000 lux hours per annum. For less sensitive material, to below 300,00 lux hours per annum.
- Limit total light exposure, turn lights off and emit daylight during non-public hours, have separate lighting for security checks, cleaning, maintenance, and other routine work.
- Remove all sources of UV light including windows and light bulbs.
- Prevent sunlight from falling directly on display objects. Put in measures to control the intensity of the sunlight so it falls within acceptable light levels.

Biological Threats

- Examine objects for signs of infestations or mould before bringing them into the exhibition space. If signs of infestation are found, place in quarantine and consider treatment options.
- Design exhibitions to limit infestations. Don't leave windows and doors open to the outside, fill gaps and crevices that can harbour dirt and dust and become attractive to pests.
- If the threat of infestation to an object is high place it in a sealed environment.
- Prevent bringing insects into the exhibition area on props or exhibition material. Do not use wool or other materials that harbour insects. If using organic props like trees and branches treat them for pests first.
- Control human behaviours that encourage infestation. Don't bring food or drink into the exhibition or storage areas.

Security

- Conduct a risk assessment of theft and vandalism for the collections on display. Put in place protection against human damage.
- Provide an adequate level of protection. Adapt the security in place to the vulnerability and value of the objects on display
- Use fixings that deter tampering, such as security screws, bolting cases to the floor, locking cases

Emergency Preparedness

- Include new exhibitions in the emergency response plan.
- Carry out a risk assessment to spot potential damage eg location of pipes etc.

Exhibition Case Design

- Display cases should be used as protective enclosures and new cases procured for exhibitions should follow Carmarthenshire Museums Case brief. [Display cases\Carmarthenshire Museums Case Brief.docx](#) The case brief covers the main points of case construction including:
 - Construction and structural stability

- Access and security
- Materials for construction and display
- Humidity Control
- Lighting
- Supply and installation

Construction Materials

- Materials used to construct the exhibition such as woods and paints may off-gas to produce Volatile Organic Compounds (VOCs) that will accelerate the deterioration of the objects. Wherever possible materials should be used that are conservation grade and inert or with low VOCs.
- The materials used can be checked against the British Museum's list of materials that are suitable for use in displays [Copy of BM Materials Database Webversion November 2015.xlsx](#) or a sample of the proposed material to be used can be tested to check it's suitability for use. A minimum of 8 weeks needs to be given to complete material testing.
- Consideration should be given on whether the materials can be varnished or have a protective film applied before it is used near an object.
- A suitable period should be allowed for the exhibition space to off-gas before installing the objects. The list below provides a guideline before installation:
 - 8-6 weeks plaster work
 - 6 weeks solvent based paints
 - 4-2 weeks use of adhesives (including spray mounting)
 - 2 weeks glazing and painting completed
 - 2-3 weeks sealants
 - 2-3 weeks water-based paints

Mounting Exhibition Objects

- Allow for sufficient time to design and fabricate mounts for objects. Decide how an object will be displayed and what type of mount in the early design stages. Use a qualified mount specialist, some objects may require input from a conservator.
- Ensure the mount supports the whole object and prevents physical stress, especially to flexible parts. No fixing or mounting should cut into the object. Textiles, papers and organic materials should not be creased or folded, or heavy objects be placed on top of them.
- The mount should fit the object with precision to prevent vibration and abrasion.
- Fix framed works to the wall with adequate security fittings that support their weight and deter opportunist removal
- All materials used must be approved/tested by Conservation

Object Installation

- Transport collections into a secure area separate from construction before installation
- Complete construction before object installation. Ensure that the exhibition areas are clear of debris and dust.
- Inspect the exhibition area before installing objects. Ensure that the preservation requirements have been met, that sufficient off-gassing has been completed, test and approve display cases.
- Ensure that there are adequately trained people and equipment to safely install the objects. All people that install the object should have object handling training. The installation of

heavy or complex objects may require specialist equipment, method statements and specific risk assessments which should be completed ahead of time.

- After installation, evaluate the exhibition to assess how well it meets the conservation requirements. Note any lessons learnt that could be built into the planning of the next project.

Exhibition Maintenance

- Create a maintenance manual for the exhibition. Outline procedure and schedule for maintaining the exhibition and conservation requirements for the objects
- Monitor the environment and pests in the exhibition and take corrective measures as necessary.
- Carry out routine maintenance, replenish silica gel, replace filters and bulbs.
- Keep the exhibition area clean. Set in place when specific objects on display require cleaning and how. Allocate time to inspect objects to assess any changes in condition.
- Plan ahead for the movement of objects that either need replacement after a period due to their sensitivity, end of a loan or exhibition.