Birmingham Museums

Birmingham Museums Trust

Collections Management Framework

Appendix 4.1 Collections Care and Conservation Policy 2025-2030

1. INTRODUCTION

This document provides an overview of Birmingham Museum Trust's (BMT) policy regarding care and conservation of the collection. This policy was agreed by Birmingham Museum Trust's Board of Trustees on 11 July 2025, and Birmingham City Council on 15 July 2025. This policy covers the period 15 July 2025 – 31 March 2030 and replaces any previous versions of the policy.

This Collections Care and Conservation Policy will be published and reviewed from time to time, at least once every five years. The next date for review will be no later than 31 March 2030.

This policy forms part of the Collections Management Framework for BMT, which supports BMT to achieve its charity objects, vision and strategic aims. These are:

Birmingham Museums Trust Charity Objects

To advance education by the operation, maintenance, development and promotion of museums, galleries and libraries in Birmingham together with associated facilities and related programmes of outreach and research, fostering knowledge, understanding, appreciation and enjoyment of the arts, history, science and technology by residents and visitors to the City of Birmingham.

Vision

A radical reinvention of the museum as a catalyst of cultural and social change.

Mission

Bring Birmingham out by shining new light on people's stories, collections and creativity.

Strategic Aims

1. **Experience** – to create fun, meaningful, involving experiences for the full diversity of our communities and their uses of our collection and services.

2. **Infrastructure** – to be at the heart of Birmingham's communities, providing inclusive access to the peoples' sites and collections, including digital access

3. **People** – to be a boldly progressive organisation, increasingly rooted in and porous to Birmingham's communities, with the skills and culture to engage with its audiences

4. **Financial** – to be a sustainable, more independent organisation that provides affordable, surplus-generating paid services and experiences that add social and economic value to Birmingham, and will have secured funding to support its priority capital projects

2. GENERAL PRINCIPLES

Birmingham City Council's museum collection is managed on its behalf by Birmingham Museums Trust (BMT). This policy will guide BMT's work in the area of collections care and conservation.

The Conservation team carry out all their functions based on one overarching principle, which is to preserve the objects that are the responsibility of Birmingham Museums Trust (BMT), by maintaining the physical, historic and aesthetic integrity of those objects. Within this activity it is recognised that there is a requirement to maintain a balance between the need of the public to have access to the objects in the collection and the preservation of those objects.

This policy is to provide direction for the ongoing development, conduct and management of conservation activities within the Birmingham Museums Trust.

3. APPLICATION

This Conservation Policy applies to the following activities relating to the permanent collections and public programmes of the Birmingham Museums Trust: acquisitions, display, storage, general maintenance, treatment, exhibitions and loans of objects, research and information. External objects on loan to the BMT or being examined in the BMT conservation department are also covered by this policy.

The Conservation team delivers a service across all sites based on best practice and recognised conservation professional standards and strives to communicate their work and ethos to the museum, fellow professionals and the wider public.

To ensure that our services deliver corporate priorities in a focussed way, the department utilises six key operational tools:

1. Benchmarks in Collection Care, to ensure that a strategic approach to collection care and conservation is utilised and monitored.
2. The Conservation Heritage Asset Management Database, to enable the recording and monitoring of key data relating to each site.
3. The Collections Management System, to ensure that information relating to the treatment, condition, movement and display of objects is accurately maintained.
4. Government Indemnity Standards (GIS), to ensure that environmental conditions, especially for loans, are monitored and maintained.
5. British Standard BS 15757:2010 Specifications for temperature and relative humidity to limit climate-induced mechanical damage in organic hygroscopic materials.
6. British Standard BS EN 17820:2023 Conservation of Cultural Heritage – Specifications for the Management of Moveable Cultural Heritage Collections.

INTER-DEPARTMENT AGREEMENT

To ensure that the Conservation Policy is delivered consistently across all the museum sites, the conservation team agrees to:

- Abide by professional and ethical standards as laid down by ECCO (European Confederation of Conservator-Restorer Organisations), Icon (Institute of Conservation), ICOM (International Council of Museums) and the V&A (Victoria and Albert Museum) Ethical Checklist
- Have a visible presence in public spaces by wearing badged departmental work-wear and name badges
- Work in a safe manner by complying with Health and Safety requirements, COSHH and IRR regulations
- Respond in a timely and courteous manner to all work requests
- Be open and collaborative in its approach to its work
- Contribute to the planning process for museum developments
- Monitor its work and respond to feedback from its customers
- Provide information on conservation and collection care matters to internal and external customers
- Engage with the wider museum profession
- Work in a flexible way across disciplines
- Work to achieve organisational priorities
- Engage with the Public Programmes team to share the work of the department with the wider public

By working to these objectives the department will show that it is:

- Open
- Outward facing
- Collaborative
- Has integrity

To carry out these objectives, the department requires the assistance and collaboration of its colleagues in the museum across all levels. Colleagues can achieve this by:

- Using the documentation and work request systems in operation
- Providing as much lead time for collections care and conservation requests as possible (ideally 12 months in advance for exhibitions. Where it is not possible to give 12 months' notice, it may not be possible to offer a full conservation service due to limited capacity).
- Providing full accession details of every object submitted for conservation or assessment
- Ensuring that all objects required for exhibition have an accession number
- Entering into discussion with the relevant department / project team for all projects and exhibitions as soon as is practicable (ideally at least 6 months in advance)
- Engaging with the relevant department / project team to enable a positive working relationship.

5. DEFINITIONS

5.1 Birmingham Museums Trust

BMT was set up in April 2012. It consists of Aston Hall, Birmingham Museum and Art Gallery (BMAG), Blakesley Hall, Museum Collections Centre, Museum of the Jewellery Quarter, Sarehole Mill, Soho House, Thinktank Birmingham Science Museum and Weoley Castle.

5.2 Object

‘Object’ refers to any works of art, museum material or documentary material regardless of medium or form, whether it is historic or contemporary, which are or may become a part of the collection or are borrowed for exhibitions, displays or reference purposes.

For the purposes of this policy, the term also refers to the furnishings and fabric of historic buildings that are under the auspices of BMT.

5.3 Collection Care and Conservation

Collection Care and Conservation encompasses a range of activities within the museum context: prevention of deterioration and damage; scientific examination and research; documentation; conservation treatment; participation within the exhibitions and loans programmes; education and outreach and managing the risk to objects from the environment and staff from the objects (arsenic, mercury etc). Each activity is an essential part of a complete programme of the department. All are to ensure the proper preservation and display of the BMT collections.

For the purposes of this Policy, ‘conservation’ also encompasses all processes that may be understood as ‘restoration’, namely the addition or replacement of elements to enable full understanding and cogent display.

5.4 Conservator – preventive

For the purpose of this policy, the term applies to any person whose primary occupation is to advise on and try to achieve the most appropriate environmental conditions for the display and storage of objects. The conservator is responsible for developing a complete programme of preventive care for the BMT collections and, thus, ensuring that the objects would be preserved in the best way possible for future generations.

5.5 Conservator – object

The term refers to any person whose primary occupation is the conservation and restoration of objects. The conservator is responsible for ensuring appropriate standards are maintained for all conservation treatments.

All BMT conservation staff will have a conservation qualification and ideally be accredited in their chosen specialism via the ICON (Institute for Conservation) Accreditation scheme; or must be working towards Accreditation.

Unqualified staff, volunteers and sub-contracted conservation services shall be managed by the accredited staff.

5.6 Use of freelance conservators

The conservation team holds a wide range of experience, but they are not skilled in the conservation of every type of material. Working on material outside of the conservator’s experience contravenes the ethical guidelines. For these materials, the department will bring in freelance conservators who are skilled in working on that type of material. The freelancer will be selected from the Conservation Register, will have ACR status and, where possible, will be known or recommended to the team. The conservation team will provide a brief for the conservation work in conjunction with the relevant curator. The Conservation Manager, or members of the team supervised by the Conservation Manager, will oversee the conservation work. Where possible, the supervisor will themselves have ACR status. The freelancer will be required to provide a treatment report and photographs of the work undertaken. Work may be undertaken in the conservation department at BM&AG or MCC or at the workspace of the freelancer. The freelancer will be required to be insured.

5.7 Use of contract conservators

Long-term projects may require the use of contract conservators. This may be to carry out a project for a new gallery or store move or it may be a project based around a specific group of objects or a large-scale object. To enable these types of works to be undertaken, conservators will be recruited in one of two ways. *Either* a conservator will be recruited through the normal recruitment channels and will be offered a fixed-term contract to be part of the conservation team *or* the conservator will be asked to tender or quote for the project. The selection process will always involve the conservation manager. Supervision will ideally be undertaken by a member of the team with ACR status. The requirement for reports and insurance (if not directly employed by BMT) as specified for freelance conservators applies, but this may also include a requirement to supply condition reports.
has context menu

6. THE POLICY

All actions of the Conservation team shall be governed by the responsibility to maintain the physical, historical and aesthetic integrity of the objects, which is a responsibility shared by all other employees of BMT. The Conservation team are also responsible for contributing to the development and growth of conservation and preventative care by continuing to develop knowledge and skills, sharing this information and experience, and promoting proper action in regard to the care of the collection.

6.1 Conservation and Environment

The Conservation team aims to advise on and monitor appropriate storage and display conditions to ensure a stable environment and conditions in which deterioration and damage are reduced to a minimum.

The team assures this by:

- advising on safe handling, transport, packing and display of objects and loans
- advising on and carrying out conservation as requested
- advising on storage conditions, materials and methods
- identifying hazards in collections
- condition checking objects
- implementing Benchmarks in Collection Care
- maintaining and updating the emergency response plan

and by monitoring and maintaining:

- the environment (relative humidity, temperature, light)
- integrated pest management
- housekeeping
- standards for loans
- display conditions and materials used
- store conditions and materials used
- providing reports on these functions

6.2 Conservation

The Conservation team aims to provide and undertake conservation and restoration treatments to provide stability and longevity to objects while allowing their interpretation and maintaining their integrity.

Conservation treatments will employ techniques and materials which, to the best of current knowledge, will neither endanger the object nor impede future treatment or the retrieval of information through scientific examination.

The team assures this by undertaking the following:

- examination prior to acquisition
- assessment of the physical condition of objects
- advising on suitability for display and loans
- advising on safe handling, transport, packing and display of objects and loans
- providing condition reports for objects
- providing loan reports
- undertaking further research where required
- overseeing and undertaking conservation treatments
- advising on further action and the level of interventive treatments where required

7. THE NINE AGENTS OF DECAY

These are listed in order of the level of risk and damage that may occur.

1. Direct Physical Forces
2. Thieves, Vandals and Displacers
3. Fire
4. Water
5. Pests
6. Contaminants
7. Light
8. Incorrect Temperature
9. Incorrect Relative Humidity (RH)

In relation to the nine agents of decay, the following further specifications will be provided:

- What the department aims to achieve against each agent
- How the collection can be damaged by each agent
- How each agent is monitored
- What procedures are in place to mitigate against each agent

7.1 Direct Physical Forces

What does BMT want to achieve?
BMT aims to minimise the amount of damage caused to objects by physical means through controlling handling and use and ensuring that all objects display and storage methods are fit for purpose.

How do Direct Physical Forces cause damage?
The term Direct Physical Forces refers to external forces acting upon an object. This can occur through handling by staff and public, through inappropriate cleaning, through using an object (e.g. machinery or clocks) or through natural disasters such as earthquakes or tornados.

Direct Physical forces can cause damage in a number of ways:

Handling by staff:

- Inappropriate handling may result in objects being damaged
- Objects may be dropped and become damaged/break due to inappropriate methods being employed when objects are carried or repositioned
- Inappropriate handling may cause movement within the object, leading to stress and damage to the fabric of the object and/or its joints
- Repeated handling may lead to objects becoming soiled, torn, worn or broken

Handling by the Public:

- Human beings gain a high proportion of their understanding of the material world through handling it
- If uncontrolled/repeated handling occurs, objects may become soiled, torn, worn away or broken

Other factors:

- Objects in transit may break due to the use of inappropriate packing and being poorly packed
- Shelving and storage units may collapse due to poor construction techniques or through being overloaded, resulting in damage to the objects placed within/on them
- Cleaning may result in the surface of objects being worn away. This may be caused by the use of harsh polishes, by polishing or rubbing surfaces at too frequent an interval or by using a solvent-based cleaner that strips away the surface.
- Working objects may experience wear and tear as parts rub together as the objects operate. This results in small fractions of the object being lost. Over time, this loss may become significant.
- Natural disasters are unusual in the UK, but are not uncommon. There are a range of natural phenomena that may occur, but all may result in objects being shaken or lifted so that they are thrown against each other or thrown from shelves in display or storage units. Damage may vary from chipping to complete destruction.

How does Collections Care monitor Direct Physical Forces?

There is no direct method for monitoring in place except for as part of specific development schemes – vibration monitoring had been in place at BMAG as part of works to the Paradise development, and at time of writing is in place at MCC as part of works by HS2. Any damage that does occur is recorded on the Collections Management System and the incident database maintained by the department. The Conservation team carries out a walkabout at Birmingham Museum and Art Gallery at least fortnightly to visually check for damage as part of the housekeeping work.

How does the team try to prevent damage?

- Staff and volunteers are trained by the team to ensure that correct handling and packing methods are used
- Discussions are held with curators and learning & engagement staff to find safe solutions for public handling sessions and open displays
- The team advises on, and sometimes supplies, gloves appropriate to the object type to prevent damage and soiling when handling objects
- The team advises on the production of, and encourages the use of, day books to record the amount of use that working objects receive as a measure of the wear being experienced

- The team advises on, and helps to find solutions to, secure fixing and placing of objects
- The team advises on, and produces procedures for, the safe handling, packing and transporting of objects

7.2 Thieves, Vandals and Displacers

What does BMT want to achieve?
BMT aims to have no thefts, minimal or no vandalism and no loss of objects through displacement.

How do Thieves, Vandals and Displacers cause damage?
Thieves, vandals and displacers can cause damage in a number of ways:

Thieves:
- Remove objects from the collection, making them unavailable for the public and staff
- The forcible removal of an object may involve damage to the object itself, to surrounding objects and to cases and fixings

Vandals:
- Deface objects (including buildings) using a variety of media. This may be difficult or impossible to remove, leading to permanent damage. The chosen media may deface the object or it may chemically change the object e.g. acid may dissolve all or part of an object
- Vandals may also attack objects using sharp or blunt instruments. This may result in holes, tears, chips or loss. Vandals may target high status or controversial objects, but all objects can be considered to be at risk to some degree
- Unintentional vandalism may occur through improper use of an object

Displacers:
- This refers to the loss of objects from the collection by the incorrect use of documentation and movement procedures involving the Collections Management System, Ke Emu
- If an object is found within a collection with no accession number it is very difficult to determine if it is part of the collection, a prop, part of the handling collection or an object brought in for an opinion. The object is thus separated from its history and nothing is known about it. Similarly, if an object is placed in store and its location is not updated in the documentation system then there is no way of locating the object and it is effectively lost from the collection.

How does Collections Care monitor thieves, vandals and displacers?
Theft:
- Objects on display are checked on a regular basis and a notification system is in use to indicate that objects have been removed intentionally, by staff. If objects are removed due to a gallery being redisplayed, the new location is updated on the Collections Management System
- Objects in store have their location recorded on the Collections Management System and movements are recorded in the movement and location fields and on the shipping notes that accompany moves. Periodic audits are undertaken to check that selected objects are still present in the collection and that their location is recorded correctly.
- Any thefts that do occur are recorded on the Collections Management System

Vandalism:

- Objects on display are checked on a regular basis by Visitor Services, Curatorial and Conservation staff, and buildings are inspected by the Museum or Site Managers, Facilities and site staff
- Objects in store are audited periodically
- Any vandalism that does occur is recorded on the Incident Database maintained by the conservation team. If an object from the collection is vandalised, the information is also recorded on the object's Collections Management System record.

All sites use CCTV (although not all sites have internal CCTV) with hard disk recording, so any acts of theft or vandalism are recorded and the information can be used by the police. Visitor Experience and Security teams act as a deterrent and monitor the collections on a daily basis.

Displacers:

- Periodic audits of the galleries are carried out by the Collections Management team
- Stored collections are also periodically audited by the Collections Management and Conservation teams

How does the team try to prevent damage?

Thieves:

- The team carries out a walkabout at BMAG to carry out housekeeping and to check for missing objects at least fortnightly. The VE team has been provided with gallery photographs to enable them to carry out regular gallery checks. Any missing items or changes to objects are reported to the conservation and collections access teams
- The team supplies marking kits and has produced procedures for object marking
- The team ensures that the conservation studios are a secure area and limit access to these areas. Access must be approved by the head of department

Vandals:

- The team carries out a walkabout at BMAG at least fortnightly to carry out housekeeping and check for evidence of vandalism.
- The team finds solutions to remove/repair damage caused by vandalism
- The team helps to find solutions to prevent vulnerable objects from becoming vandalised

Displacers:

- The team supplies marking kits and has guidelines and procedures for object marking
- The team complies with the object moving procedures established by collections management and ensures that teams bringing objects to and from the department also comply with these procedures

7.3 Fire

What does BMT want to achieve?

BMT aims to have no damage to collections or buildings from fire and no incidences of fire. If a fire should occur, BMT aims to respond in a calm, effective, manner to ensure that collection damage is minimised.

How does fire cause damage?

Fire causes damage to collections in several ways:

- Burning results in objects becoming discoloured and weakened. Structural change may occur from exposure to extreme heat. Parts of the object may be lost, or the whole object may be destroyed.
- Smoke damage results in objects becoming discoloured. They may become stained and the staining may be impossible to remove. Organic objects may become very acidic leading to the object become brittle and difficult to handle.
- Water damage may occur as a result of the fire suppression methods used. This may result in mould damage, structural change and loss of paint or dye. See Section 7.4 for full details.

How does Collections Care monitor for fire?
All sites are fitted with a smoke detection system, with some sites having an additional heat detection system, which goes to an alarm receiving centre. On confirmation that there is a fire, the fire service will be called to attend site. All sites are fitted with "break glass" systems to enable manual activation of the alarm system.

How does the team try to prevent damage?
- Annual independent fire assessments are undertaken by the Estates team at each site
- Combustible materials used by the team are stored in small quantities in metal (inflammable) cabinets
- Electrical equipment used by the team is PAT tested and is used as directed by the manufacturer
- The Emergency Response Plan details the procedure for dealing with an emergency incident to ensure that it is dealt with in a calm and timely fashion. It is updated at least annually. See the ERP for further details
- As part of the ERP, all sites have been risk assessed to determine the likelihood of a fire occurring

7.4 Water

What does BMT want to achieve?
BMT aims to reduce the risk of damage from water to a minimal level. When water does enter an object space and cause damage, BMT aims to deal with all affected objects and spaces in a calm and timely manner.

How does water cause damage?
Water can cause damage in a number of ways:
- Leaks (whether from water penetration of buildings, burst pipes or overflowing sinks) can result in water staining and structural damage
- Pigments and inks can become soluble and mobile leading to loss of information and staining
- Organic materials may absorb the water and swell and distort. This physical change may be permanent
- Objects can become saturated and unable to support themselves. This can lead to tearing and loss, particularly if the object is moved
- A large quantity of water entering a space may cause physical damage to objects by knocking them over
- Water in a space will lead to an increase in relative humidity. If the humidity remains high for more than a few hours, mould growth and corrosion may occur.
- Insect pest activity may be increased/encouraged if humidity remains high for long periods or if objects, remain saturated

How does Collections Care monitor water ingress?
The presence of water in the building is not monitored with the exception of visual checks following periods of heavy rain, but there are a number of monitoring and other procedures in place to prevent water from entering object spaces:

- Where possible, water pipes do not run through object spaces. This prevents burst pipes from having an impact on objects
- Buildings are inspected for evidence of water ingress during rainy periods
- Gutters and down pipes are kept clear of leaves and other debris where possible
- Visual inspections are carried out to ensure that there is no water ingress, especially after heavy rain
- Wet heating systems are run over the winter period, or kept on a frost setting to prevent freezing, and subsequently burst, pipes

How does the team aim to prevent damage?

- The team manages and maintains the Emergency Response Plan and emergency contact list to ensure that a co-ordinated and calm response can be provided to water ingress incidents
- The ERP should be enacted if a large quantity of water enters a building to ensure that any damage is restricted
- The team works with sites to devise flood protection measures. Where practicable, the team works with sites to put these measures in place
- The team works with all the sites to identify objects that should be raised on blocks in the event of a water ingress incident
- The team sources and procures soak-up materials which are stored at BMAG and MCC
- The team works with all sites to identify possible sources of water and to produce strategies to reduce or remove this risk
- The team responds to water ingress incidents by attending sites to reduce the impact of the incident on the collection and the building whenever possible

7.5 Pests

What does BMT want to achieve?
BMT aims to prevent damage to its collections and buildings from pests.

How do pests cause damage?
Pests of museums can be divided into three types: birds, rodents and insects.

Birds:

- Foul buildings, leading to staining or damage of stone or brick
- The droppings may carry diseases communicable to humans; this is especially the case with pigeons
- Bird's nests provide a food source and harbourage for insect pests
- Dead birds and bird detritus may clog up rainwater goods leading to flooding
- If present in chimneys there may be reduced air movement (which may cause problems with RH levels), unpleasant smells and insect pests may be introduced into the building interior

Rodents:

- Gnaw items, leading to loss of all or part of the object

- They may gnaw the building fabric leading to damage that may admit water, cause a loss of control of the environment and admit other animals
- Electric cables may be gnawed, which may lead to short circuits or fires
- Gnawing of pipe work can lead to leaks or floods
- Rodents may carry diseases communicable to humans and dead rodents provide a food source for insect pests

Insect larvae:

- These feed on objects and the building fabric which may result in partial or total loss of objects and may result in structural failure of parts of the building
- Adult insects are generally nectar feeders and thus do not damage objects. They do, however, make it easier to recognise the species causing damage. The exceptions are silver fish and book lice, which have no larval stage only nymphs, which are miniature adults

How does Collections Care monitor for pest damage?

- Birds and any damage caused by them are not presently monitored
- Rodents are monitored through the use of rodent traps at all sites. These are installed and monitored by external pest contractors
- Insects are monitored through the use of blunder (sticky) traps at all sites. These traps are checked quarterly, monthly if a problem is detected. Pheromone traps are used to detect Webbing Clothes Moth Tineola Bisselliellia. Finds are recorded on a monitoring sheet and transferred to a pest database. An annual report for all sites is produced by the team

How does the team try to prevent damage?

Birds: the team works with all site managers to determine where birds may be nesting or roosting and to suggest strategies for preventing them, or the insects that may be associated with them, from damaging the building or collections.

Rodents: the team works with all site managers to identify instances of rodent damage and entry points. The team offers suggestions on proofing/sealing the sites to prevent entry.

Insect damage is limited by employing an Integrated Pest Management Strategy (IPM) managed and maintained by the team:

- This requires all collection areas to be monitored by blunder traps, or moth pheromone traps as appropriate
- Each trap has a unique location (marked on a floor plan) and is checked at least quarterly
- The finds are identified and recorded centrally
- The team respond to evidence of active infestation by carrying out an appropriate treatment, usually spraying with a plant-based insecticide or freezing
- Housekeeping is carried out across all sites, in conjunction with the site staff, to prevent a build-up of dirt, debris and dead insects that may encourage an infestation
- Housekeeping takes the form of dusting of horizontal surfaces on at least a fortnightly basis and a deep clean carried out on an annual basis
- Staff at all sites are trained in trap checking and insect identification by the team to aid early detection of problems

7.6 Contaminants

What does BMT want to achieve?

BMT aims to have minimal levels of contaminants entering the object spaces from the outside. It also aims to reduce the presence of contaminants arising from object deterioration and inappropriate storage or display materials.

How do contaminants cause damage?

Contaminants cause damage in several ways, depending upon the contaminant:

- Dust, largely composed of skin, clothing fibres and particles of building materials, can be very disfiguring and lead to loss of definition and a grey cast to the colours. In the right RH conditions, dust can cement to surfaces, becoming difficult to remove. Objects look uncared for and insect pests may be more prevalent as they feed on dust
- Sulphur Dioxide, a product of combustion and an off-gas from wool, mainly attacks silver, leading to tarnishing
- Acetic acid is a decomposition product from some plastics and is emitted by wood products, leather, some paints and sealants. This acid breaks down molecular bonds, leading to colour changes and loss of structural strength. Metal will corrode in the presences of acetic acid and organic materials will deteriorate
- Nitric acid is a decomposition product from some plastics and is a product of combustion. This acid breaks down molecular bonds, leading to colour changes and loss of structural strength. Metal will corrode in the presence of nitric acid
- Volatile Organic Carbons, VOCs, are products of combustion and may be emitted by paints and varnishes. They may react with objects as described above, but they can also leave an oily film on objects, leading to discolouration
- Tannic acids are emitted by wood and leather. They have a similar effect to acetic and nitric acids
- Formaldehyde is emitted from some adhesives, particularly those used in wood composite products and some paints. It has a similar effect to acetic and nitric acids

How does Collections Care monitor contaminants?

Currently, BMT does not actively monitor contaminants across all sites, although individual areas of concern are monitored.

- Acetic and nitric acids emitted by plastics are monitored by the use of cresol red (colour change) indicator threads
- Metal tokens are used to monitor off gassing and tarnish rates for the silver collection in storage
- The at least fortnightly walkabout at the BMAG site identifies any damage that has resulted from the presence of contaminants

How does the team try to prevent damage?

The team employs a number of mitigation strategies:

- The team carries out horizontal surface cleaning at BMAG on at least a fortnightly basis. Staff at the Historic Properties are trained to carry out this type of cleaning and the team identify the objects that can be cleaned safely by the site staff
- The Historic Properties and MCC carry out an annual winter/deep clean. The team provides training and support for this process
- Objects vulnerable to contaminants are identified and solutions are offered to limit damage
- The team advises on the specification of new showcases to ensure that they are not sources of contaminants
- The team advises on the sealing of materials used in displays and showcases that might result in contaminants being off-gassed
- The team advises on the materials used for storage furniture and storage enclosures

- The team advises on the use of storage enclosures to provide additional protection where necessary
- The team advises on the provision of storage furniture for parts of the collection particularly at risk from contaminant damage, e.g. vented storage for plastics
- The team advise on the use of the building to limit damage from contaminants. For example, placing vulnerable objects so that they are kept some distance from external doors means that the contaminants can be absorbed by the building fabric or fall out of the air before they reach the object spaces
- The team use and provide pollutant scavenging materials for storage and display, such as tarnish inhibitors and charcoal cloth

7.7 Light

What does BMT want to achieve?
BMT aims to achieve light levels that will allow the collection to be seen easily by visitors, but limits the amount of damage to objects. Stored collections are kept dark whenever possible. The ultra violet (UV) portion of light is removed whenever possible as this portion is not required for sight and accelerates damage from visible light.

BMT aims to maintain light levels between 50 and 300 lux.

How does light cause damage?
- When light falls on an object, energy is received by molecules in the object, allowing them to move more rapidly. This can lead to breaking of bonds and the creation of free radicals, which in turn cause more bonds to break. This may result in colour change and weakening of the structure of the object leading to fading, darkening and breakage
- UV light has a shorter wavelength than visible light and thus is able to put more energy into an object. Consequently, all the deterioration reactions happen more rapidly
- Once an object has been exposed to light, the deterioration reactions begin and continue, even if the object is then stored in the dark and does not receive any further exposure. The rate at which the reactions proceed is however greatly reduced if the object subsequently receives no or very little light. Consequently, by keeping exposure rates to a minimum, the rate of damage can be reduced

How does Collections Care monitor light?
- Continuous monitoring is undertaken using Hanwell telemetric lux (the amount of visible light) and UV monitors in a selection of spaces across all sites. These show what happens to the light levels over extended periods of time
- Spot readings for lux and UV are taken at regular intervals in specific locations at BMAG and on an annual basis at the Historic Properties and MCC. These readings show what is happening to light levels falling on specific objects in a more general way and at specific times of the year
- Cumulative exposure readings for lux only are taken using Light Check™ strips. These are used to show how much light has fallen on specific objects over a period of time (lux hours, amount of lux x length of exposure) by comparing the colour change of the strip to a chart
- Exposure records are kept for prints, drawings and watercolours as part of their conservation record on the Collections Management System. These records detail when the object was exhibited and for what length of time

How does the team try to prevent damage?
As UV puts a high level of energy into objects (which is not needed for sight) and thus causes the most damage, the team recommends that it is eliminated whenever possible. The team recommends that film that filters out UV is fitted to windows and skylights and to fluorescent tubes. Also that spotlights are fitted with filters. The team advises that new showcases are fitted with fibre optic lighting, which does not emit UV.

The team works with each site to create protocols and procedures to reduce exposure to lux. These protocols include some or all of the following:

- Gallery lighting should be switched off during closed hours
- During opening hours, the amount of light emitted by gallery lighting should be controlled through the use of dimmers
- The entry of daylight should be reduced by the use of tinted window film and blinds or curtains that help to filter light during opening hours
- Where possible, blackout blinds are used outside opening hours to eliminate unnecessary light
- Where it is not possible to eliminate daylight outside opening hours, case covers are recommended
- Storage areas should be kept dark when staff are not present
- Light sensitive material should only be displayed for short periods of time, generally at low light levels, to ensure that the rate of damage is as slow as possible. This type of material is usually displayed infrequently to further reduce the amount of damage. Exposure time should be recorded on the object's Collections Management System record so that over exposure can be prevented
- The principle of lux hours, as mentioned above, can be employed to allow light sensitive material to be displayed at higher light levels with a longer non-display period. The team will advise on the use of this principle

7.8 Incorrect Temperature

What does BMT want to achieve?
BMT aims to achieve a temperature range that will allow for human comfort whilst at the same time provides a stable environment for the objects. BMT aims to maintain temperature in the range 16-24°C with no more than a 4°C change in 24 hours.

How does temperature cause damage?

- Increased temperature puts more energy into objects, allowing the degradation reactions to occur more rapidly
- Objects may expand, resulting in physical damage such as splitting
- Some objects/media may melt or flow, leading to deformation
- Temperatures above 25°C may lead to increased pest activity. If such temperatures persist for a period of months, insects may be able to increase the number of breeding cycles and thus reproduce more readily. This increase in individuals may lead to greater damage to objects
- Reduced temperatures reduce the speed of decay reactions so that degradation proceeds more slowly. This tends to lead to uncomfortable conditions for staff and visitors, so these conditions are not common in galleries

- Very reduced temperatures may result in objects becoming brittle and prone to breakage. Objects need to be handled with extreme care if they are experiencing very low temperatures

How does Collections Care monitor temperature?

- Continuous monitoring is undertaken using a Hanwell telemetric system at all sites
- Data loggers also record information continuously, but they are used as a temporary method and are moved from one location to another. Due to their small size, they can be used inside cases. Button loggers are the smallest type of logger employed and can be used in very restricted spaces, such as the back of paintings
- Spot readings are carried out using hand held, electronic meters. These enable instant readings at specific locations to be carried out

How does the team try to prevent damage?

The team primarily prevents damage by working to maintain a stable temperature across all sites. Objects are thus not exposed to extremes of temperature and fluctuations, therefore do not experience the stress and damage that this can cause.

This is achieved by:

- Working with site staff to control the heating systems to provide stability whilst using energy economically
- Working with sites to understand and thus more effectively manage the heating system
- Working with sites to manage and maintain air conditioning systems
- Advising on the specification of showcases to provide stable conditions
- Advising on the levels required for specific objects
- Producing reports as requested with an annual report to review conditions across all sites

7.9 Incorrect Relative Humidity (RH)

What does BMT want to achieve?

BMT wants to achieve a stable relative humidity to ensure that objects are displayed and stored in optimum conditions to prevent or limit damage.

BMT aims to maintain a stable RH between 40-65% with no more than a 10% change in 24 hours.

How does humidity cause damage?

Incorrect humidity can cause damage in a number of ways:

- Organic materials try to take in or give out water to come to equilibrium with the surrounding environment. Thus they may split and warp, especially if they are moved to a different environment
- At high levels of RH (70% and above) mould growth is likely
- Insect damage is more likely above 60% and Furniture beetle (Anobium punctatum) eggs are viable at these levels
- Inorganic materials are principally affected by high humidity levels
- Metals, particularly iron, may corrode and silver more rapidly tarnish
- Fluctuation, where the relative humidity changes rapidly over time, causes the most damage. Objects are forced to respond to the changes in RH rapidly and this may lead to splitting and warping, loss of surfaces, paint flaking etc.

- Medieval and Roman glass may suffer from crizzling and archaeological ceramics may experience salt efflorescence

How does Collections Care monitor relative humidity?

- Continuous monitoring is undertaken using a Hanwell telemetric system at all sites
- Data loggers also record information continuously, but they are used as a temporary method and are moved from one location to another. Due to their small size, they can be used inside cases. Button loggers are the smallest type of logger employed and can be used in very restricted spaces, such as the back of paintings
- Spot readings are carried out using hand held, electronic meters. These enable instant readings at specific locations to be carried out

How does the team try to prevent damage?

The team works with all sites to provide a stable RH.

This is achieved by:

- Working with Estates and site staff to control the heating systems to provide stability whilst using energy economically
- Working with sites to understand and thus more effectively manage the heating system
- Working with sites to improve the seal of the building to reduce air change to better maintain RH levels
- Working with sites to manage and maintain air conditioning systems
- Managing humidifiers at BMAG
- Advising on the specification of showcases to provide stable conditions
- Advising on the RH levels required for specific objects
- Producing reports as requested with an annual report to review conditions across all sites

8. CONSERVATION & ENVIRONMENT - SPECIFICATIONS

8.1 Examination Prior to Acquisition

Prior to the acquisition of any object by BMT, the object must be examined by a member of the Conservation team. The ultimate function of this examination is to determine whether a proposed acquisition is valid in terms of condition and collection usage. The report must serve the following purposes; to accurately determine the condition of a work; to determine whether an object has been critically compromised by damage; to determine reasonable future use of the object and state any restrictions; to estimate short and long term associated costs of the acquisition, storage and treatment.

8.2 Assessment of the Physical Condition of the Collection

A pre-requisite to any conservation treatment programme is the assessment of the physical condition of the objects that make up the collection. Initial thorough assessments in the form of surveys should be updated and augmented periodically in order to ensure the preservation of the collections. This should be done in the form of focused examinations of groups of related objects, dependant on the resources available.

8.3 Establishment of Priorities for Treatment

Conservation priorities will be established on the basis of the strategic aims of BMT and the delivery of its programmes.

8.4 Examination Prior to Treatment

Immediately prior to any treatment, the conservator, in collaboration with the curator or other professionals, will carry out a thorough examination of the object and of all available documentation relating to its history and past condition, in order to propose the most suitable treatment.

8.5 Documentation

Preliminary examination and actual treatment of the object are to be recorded by the conservator on the Collections Management System. These records will be thorough and will usually contain written and photographic/visual documentation of the object prior to, during and after treatment, especially where extensive treatments are concerned. However, documentation employed at any point in an examination or treatment procedure is acceptable.

8.6 Guidelines Governing Examination and Treatment

Work within the ethical and best standards practice as stated in the Inter-departmental Agreement. Where BMT proposes to carry out conservation to an object which is on loan to the collection then BMT would seek prior approval from the owner for the conservation work and would respect the requirements of the owner.

8.7 Conservation Research

Research activity in this area will fit within BMT's research strategy and will thus inform the conservation and care of the collections. Research outcomes and outputs will be clearly designed and will contribute to BMT's core objectives.

9 RELATED DOCUMENTS

In addition to the documents that comprise the Collections Management Framework, the Conservation Policy is also supported by:

- Emergency Response Plan (ERP)
- Exhibition installation Guidelines
- Light Guidelines
- Object marking Guidelines
- Object Handling Guidelines
- Housekeeping Guidelines
- Hazards in collections Guidelines
- Working Objects Policy 2025-2030
- Time Based Media Procedure
- Hospitality and Filming Guidelines

10. POLICY REVIEW PROCEDURE

This Collections Care and Conservation Policy will be published and reviewed from time to time, at least once every five years or at the expiry of the Agreement. The next date for review will be no later than 31 March 2030.

11. CHANGE CONTROL

Issue	Date	Author	Comments