

**VICTORIA & ALBERT MUSEUM
ENVIRONMENT POLICY**



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1 Introduction

The following is the rational and supporting information for the Environmental Policy for the Museum. As with all policies, it is reviewed periodically.

These are general guidelines for the maintenance of an acceptable environment for the collection of the Museum. For any new development, the Conservation Department will provide a detailed brief specifying the conditions required.

2 The Aim

Objects should be displayed and stored in an environment which minimizes their rate of deterioration.

The factors which need to be controlled are:

- Temperature
- Humidity
- Light and all forms of radiation
- Pollution - gaseous and particulate
- Vibration
- Case construction
- Handling

The limiting factors are:

the location of the site in an urban environment
the historic buildings
the varied nature of the collections
a restricted budget.

These constraints force the Museum to take a pragmatic approach.

3 The Policy

The following policy applies:

- 1 Any new development within the Museum, or its outstations, must provide acceptable conditions (see The Practical).
- 2 Any movement of an object should result in its being placed in a better environment than previously.
- 3 All sensitive objects should be enclosed within cases.
- 4 Objects should be illuminated only when it is necessary for display or study; at these times the illumination should be no more than that needed for the task.
- 5 No radiation other than visible light (e.g. ultra-violet radiation) should fall on objects.
- 6 The internal space of the Museum must be properly insulated from external conditions.
- 7 Cleanliness must be maintained within the building at all times.
- 8 Any new scheme in the Museum should include the provision for environmental monitoring.
- 9 Objects must be protected from any undue vibration or shock.
- 10 Objects borrowed by the Museum should only be accepted when the Museum is able to provide the conditions specified by the lender.
- 11 The Museum must insist that objects loaned from the Museum are provided with conditions which match those within the Museum.
- 12 While objects are in transit the ambient conditions around the object should be maintained.

4 The Ideal

The aim is to maintain a stable environment, with no light falling on an object except when it is on view, e.g. during Museum opening hours.

While some materials are not affected by fluctuation of humidity and temperature, others are. Thus, a steady, controlled environment would be ideal.

Environment parameters for a mixed collection:

These environmental parameters would be least damaging to a mixed Collection:

Temperature range 19Å1_C

Humidity range 50%Å2%rh [NB. this represents the best control of rh that can be achieved]

Ultra-violet radiation less than 75 W/lm (microwatts per lumen)

Illuminance light levels should be in the region 50-250 lux

Filtration

Particulates, pre-filter to give 98% efficiency at 5 m [BS 6540]

High efficiency filter to give 99.97% efficiency at 0.6 m [BS 3928]

Gases: all pollutant gases should be removed.

5 The Practical

It would be difficult in the V&A to achieve the ideal conditions within all gallery spaces. It is also labour-intensive and expensive to maintain. We know that the rapid fluctuations of rh, which are particularly damaging to much material, can be effectively dampened down by enclosing the exhibits within showcases. This also provides security for the objects.

Environmental parameters within the gallery space should be kept within reasonable limits, (assuming objects are enclosed within high quality cases with passive conditioning, e.g. silica gel):

- Temperature: always within the range 18-25_C
- Humidity: within 40%-65% rh, with fluctuations of no more than 5% within 1 hour
- Filtration: 85% efficiency at 5 m

Light and ultra-violet radiation are easier to measure and control than temperature and humidity. This means that it is practical to stipulate standard conditions (see above). Light intensity may be calculated as an overall maximum continuous dose, or with restricted viewing on a lux.hour calculation.

A maximum annual exposure of 200,000 lux. hours for highly light sensitive material is acceptable. This gives more flexibility, but requires better supervision.

It is questionable whether any highly light-sensitive objects should be on permanent display. These objects would be best grouped in areas of the building where there is little natural light and the display regularly changed. Where an object is known to have had a very low light exposure during its lifetime, it should not be put on display without due consideration.

6 Showcase Design

It is essential that showcases are constructed with care and attention to detail. They form an essential barrier to the conditions within the galleries, but can also be used to provide a contrasting micro-environment.

These guidelines for showcase design do not cover the security aspects.

- 1 All materials used in the manufacture of both cases and case fittings should be inert, preferably metal and glass. Many materials may give off corrosive or tarnishing vapours. Consequently, all materials must be tested and passed for use by the Conservation Department. This process takes at least one month to complete.
- 2 The outer shell of the case must be made from laminate glass, toughened glass should not be used. Float glass may be used for shelving within a case. The possible loading of the shelf must be checked and a suitable thickness of glass used.
- 3 Case fittings must be securely fixed to the case. Methods of fixing objects to the case fittings should prevent the object suffering excessive vibration or wear. It should not be possible for an object to slip from a shelf and suffer damage.
- 4 Showcases must provide adequate access for the placement of objects. Opening of the case must not place the object at risk. It must be possible to remove an object without dismantling the case around it.
- 5 Showcases should be as airtight as possible.
- 6 Showcases should not have internal lighting. Lights should be housed in a separate compartment to the objects, with a UV absorbent daylight between the lamps and objects and with separate access. It should be possible to direct the light from the source to the object. This will be impossible if an opalescent diffuser is used.
- 7 All case lighting must be easily controllable, using dimmers.
- 8 It should be possible to accommodate passive humidity buffers (e.g. silica gel) in trays below the cases. These should be large enough to buffer the objects adequately and be properly sealed to prevent infiltration of dirt. It may be possible to service this buffering material without disturbance to the display space.
- 9 The construction of the case should allow some form of mechanical environmental control to be added at a later date.

7 Gallery Design

Handling procedures

The design of a gallery should take into account the needs of movement and placement of objects, e.g. the cases should not be placed too close together, the floor must be smooth.

Protective measures against vibration and shock

Objects should not be subjected to undue vibration or shock. Maximum velocity of vibration to be no more than 4mm/sec within any Museum building. Drilling operations should be tested before use so that the risk can be assessed.

Environmental monitoring

Before control can be achieved it is necessary to monitor conditions and build up an environmental history of areas of the Museum. If the environment is controlled, it must be monitored to assess the success or failure of the controls. It is also necessary to provide a history of the conditions which have been maintained around certain objects.

The size of the Museum is such that an integrated system for monitoring the environment is required. *Ad hoc* readings will not be adequate for decisions to be made on methods of control.

Remote sensors should be provided to monitor temperature and humidity. Sensors for light intensity and gaseous pollution will also be necessary in selected areas. A distributed series of data loggers should gather the data from sensors placed within gallery spaces and showcases.

This data is required by:

- 1 The Conservation Department - to build up an historical record of conditions within the Museum, to provide data for analysis and research.
- 2 Buildings and Estate Department - to monitor and assess controlled environments, for maintenance.
- 3 Control Room - to respond to the alarm conditions.

Use should be made of data loggers to provide information from galleries, stores and work spaces before any re-development takes place.

8 Maintenance

A gallery manual will be completed by the project team at the completion of any gallery project. This should set out the maintenance required for the gallery, including the environmental specification. See the Operation and Maintenance Specification for further details.

Any plant which is to provide the conditions within a gallery must have a proper maintenance contract and backup facilities. It should be possible to compile a fault log for each gallery.