

**Schroder Gallery  
Holburne Museum Treasure Chamber**

Showcase Specification

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## 1.0 SHOWCASE SPECIFICATION

### 1.1 PREAMBLE

- This documentation relates to the procurement of the showcase package of works for the Schroder Gallery at the Holburne Museum, Great Pulteney Street, Bath BA2 4DB
- This package is being let early (prior to the appointment of the main fit-out contractor) to enable early development of the showcase design. The actual installation is likely to take place in the first quarter of 2025.
- The gallery is located on basement level of the Schroder Museum in what is currently the museum store. There is an architectural package of works that relates to the enabling works to include floor, wall & ceiling finishes, electrical & lighting installation, doors, air-handling plant and security (excluding showcase alarms).
- Access to the gallery is via a staircase and a large lift – see attachment at the end of this document.

The information below sets out the standards required for the showcases:

### 1.2 APPROVAL PROCESS

- The Client will need suitably detailed drawings at each agreed stage to ensure that these specifications have been met.
- Copies of the drawings need to be sent to the relevant Clients staff with a minimum of two weeks allowed for approval. The final sign-off should allow a minimum of seven days prior to manufacture.
- Sign-off of drawings at every stage including the final sign-off of a display case is a joint process that must involve the Clients Exhibition, Conservation, Collections Management and Security Departments, showcase manufacturers and the designer.
- Snagging of showcases must involve the Clients Exhibition, Conservation and Security Departments as well as the showcase manufacturers and the designer.
- When a manufacturer wants to change a specification, e.g. due to case design limitations, a written case must be made explaining reasoning and how the necessary standards will be met. This will need to be sent to the relevant Clients staff for sign off as outlined above.

### 1.3 MATERIALS

- All materials used should be chemically inert and stable and include glass, enamelled metal and Perspex. The manufacturers should provide a list of all proposed materials to be used for the Client to agree during the approval stage.
- A guidance list of materials is provided in Section 1.10.
- The preferred list of materials for both collections care and sustainability will be regularly reviewed by conservation so please see Section 1.10 of approved materials attached as a guide not a definitive list.
- All new materials will be tested for their suitability and a minimum of eight weeks should be allowed from receipt of sample for results.
- The Client will need a sample of each material to be tested: 350mm by 150mm for fabrics and sheet material; 50ml for liquids; and 10g for block material. For each sample, the product name, MSDS, code, batch number and manufacturer's name and address should be provided.

### 1.4 CONSTRUCTION

#### Framework

- The display case must be of sound construction using good quality mounting and securing methods so that it is resistant to vandalism and forced entry.
- The case must be robust and sturdy so that it cannot be readily moved. All loads must be adequately transmitted from the display case onto the support structure and thus the building.
- The display case must be structurally sound and stable when either all the doors are open or opened to an agreed sequence.
- Cases need to be designed to limit vibration.

- All free-standing cases must be bolted to the floor as a security measure.
- Cases must have a minimum of 200mm between the floor and the lowest shelf.
- The display space of the case must be fully enclosed, sealed along all joints and separate from any light box or utility or storage compartment above or below. The glass ceiling of the display case should conform to BS EN 356 and BS5544.
- Light boxes and case tops must be of adequate strength to allow an engineer or maintenance person to clean, repair or service any element of the case in safety.
- Backboards and baseboards must be able to be removed from the case for replacement without affecting its structural stability.
- The base should be rigid and strong enough to take the weight of the display case and objects without causing the doors or other elements of the case to become misaligned. The total weight loading for each case should be provided.
- Hinges should be concealed. Any visible or accessible screws must be of the approved anti-tamper type.
- Ideally locks should be concealed and protected from direct attack. Where locks are visible, anti-tamper fittings or heads should be provided to deter vandalism. Manufacturers should submit details of their proposed anti-tamper fittings to the Client for agreement.
- Where MDF is to be used, only zero-formaldehyde grade (ZF-MDF) grade should be utilized. The use of MDF is to be strongly discouraged. Conservation can advise on alternative materials.
- If ZF-MDF is used, it should be thoroughly sealed using an agreed inert sealant such as four brushed/sprayed on coats of an approved clear acrylic glaze or aluminium film.

#### Glazing

- Glass should conform to appropriate European Standards to meet with UK standards for anti-intruder and impact performance glazing:  
 BS EN 356: 2000: *Glass in Building – Security Glazing – Testing and classification of resistance against manual attack*. This is the European Standard for anti-bandit glass which will gradually replace BS5544. 1978 (1994): *Specification for anti-bandit glazing (glazing resistant to manual attack)*.
- The fixing or framing system must equal the level of security provided by the glass. The glass size and thickness of opening panels must preclude the prising apart of joints by distortion of the glass. Glass-to-glass joints, particularly at mitred corners, must withstand cutting by simple tools.
- All glass is to low iron and low reflective.

#### Sealants

- Inert, durable, effective seals and joints are required to provide an effective environmental buffer between the objects and the external display environment in order to minimise the ingress of dust, maintain air-tightness, and secure the glazed void.
- Seals should allow no more than 0.5 air changes a day.
- Seals should be installed at all joints, glass-to-glass and glass-to-metal.
- Compression seals should be held in place with both an approved hi-tack double sided adhesive and trim to avoid migration. They should be replaceable.
- Silicon seals should be made of non-acetic acid curing silicone rubber e.g. Dow Corning 797 or Silastic alcohol-curing silicone.
- All seals should be suitable to last 25 years.
- Any incursions into the case should always be sealed as above.
- All internal case construction is to be resistant to water ingress.

## Dressing

- Inherently stable in structure and composition.
- If a material has not been previously tested, samples should be provided for materials testing.
- Panels should be stapled or pinned rather than fixed with adhesive, in which cases only approved adhesives should be used.
- The Client will need to approve the method of fixing the panels to the showcase.
- Capable of supporting imposed loads when used as top/back panels.
- Capable of accepting fixing screws to support objects.
- Capable of supporting padding material to facilitate pinning of objects.
- Capable of supporting imposed point loads when used as top/back/base panels and there must be capability where required, for extra strength and depth to support object mounts.
- The Manufacturer should provide figures for safe loadings on any interior panels in order to ensure that the heaviest objects can be safely displayed.
- Easy to fabric wrap and re-cover when necessary.
- Relatively light-weight and easy to handle.
- Suitable for applied paint finishes.
- Withstand surface damage from the handling and placing of objects.
- Constituted of an inert or appropriately sealed material.
- Rigid and self-supporting.
- Any shelving or display elements are to be fitted to prevent collapse or movement if knocked

## 1.5 SECURITY Framework

- The display space of the case must be fully enclosed, sealed along all joints and separate from any light box or utility or storage compartment below. The glass ceiling of the display area between light box and display space should conform to BS EN 356 and BS5544.
- Casings should be solid, either metal or timber. If timber, a sandwiched layer of steel mesh should be inserted if the back or sides of the showcase are exposed and unprotected by other adjacent structures.
- The fixing or framing system for case glazing must equal and enhance the level of security provided by the glass. Glass-to-glass joints, particularly at mitred corners, must withstand cutting by simple tools.

## Locks

- Locks are to be provided by the showcase manufacturer to meet Client's security criteria. The Client's Security Manager should be contacted after drawing approval and sign off to inform them of number and type of lock specified.
- To comply with Government Indemnity Scheme (GIS) requirements, at least 2 locks are required per door and all doors must have an adjustable mechanical mechanism to close the door securely and form the seal without relying on a lock.
- The door, mechanism, lock and key should be designed and fitted in such a way that when the door is closed each lock operates easily.
- Locks for access to light boxes or facility trays separate from the display space should not be the same suite as the locks for access to the display space.
- It must be possible to open the light box or facility tray compartments without opening the display space or the locks to the display space.

## Alarms

- Provision for alarms should be built into the original specification from the beginning.
- Alarms will be supplied and fitted through a separate contract through the Client's security provider.
- Alarms must be connected to the Clients on site security systems and serviced outside of the display area. Alarms should also have a test regime that can be activated from outside of the display area. The display case manufacturer must liaise with Client's security provider to provide alarm fixing points in suitably accessible positions for connection to the alarm system.

## 1.6 ACCESS

### Staff

- Access to the cases should be via hinged doors. The devices supporting the door should be of sufficient quality and strength to allow the door to open and close easily and accurately and all glazing should be self-supporting. Doors are to be stable when open and constructed to avoid vibration during opening and closing.
- Doors should be maintenance free, air and dust tight and sealed for the life of the case and parts should not require lubrication.
- The whole display area should be easily accessible, and all opening sections or doors should provide a sufficient area of clear opening to enable cases to be dressed, allowing for access into 100% of the display area without affecting the structural integrity of the case.
- Case doors should be capable of being opened by one person on their own. It should also be possible for one person to close the case doors.

### Visitors

- The Manufacturer should ensure that the design of the showcases provides unimpeded viewing for all people and is in accordance with the Disability Discrimination Acts 1995 and 2005.

## 1.7 ENVIRONMENT

### General

- To achieve a microclimate or introduce pollutant scavengers the case may require facility voids outside the main display area of the case. The compartments need to be appropriate in size to the chosen methodology, for example when using Artsorb™ beads the compartment space should be able to house 3kg per m<sup>3</sup> of air in the case). The Manufacturer should seek early confirmation from the Client on chosen methodology and requirements.
- Facility voids should be sealed as part of the display case; this sealed space must be easily accessible without opening the display area or removing objects.
- The facility void will need to be secured with a keyed lock on a different suite to the display void.
- Sufficient space should be allowed to accommodate environmental monitoring equipment. Any incursions into the case for wiring etc. should be sealed.

### Lighting

- All elements of an internal case lighting system should be placed above or outside the display space in a separate, ventilated space. Access to lighting gear will be separate from the display space so that maintenance can be done without disturbing the exhibits and heat transmission is minimised.
- The interface between the top box and the display space should be sealed with silicone sealant or equivalent to prevent dust ingress. Any incursions into the case for fittings, should always be sealed.
- Light sources and luminaries should be selected to ensure performance, reliability, long life and suitability for purpose and should preferably be compatible with other systems to allow flexibility.
- The lighting should allow adjustments to be made to the direction and intensity of light so that light levels on museum objects can be varied from <50 to 300 lux.
- The ultra violet component of all light into the case should be 10µW per lumen or less using appropriate lamp specification.
- Equipment must be adequately ventilated so that the temperature inside the display space does not rise above 25°C.
- All equipment and cases should be earth bonded.
- Before the final specification of lighting is agreed, it is recommended that the Technical Operations Manager is consulted to ensure that they are aware of all maintenance issues.

## 1.8 SERVICE LIFE

- Cases should be designed for a service life of min 25 years.
- As regular access is required into display cases all opening sections or doors must be able to withstand monthly use over their anticipated lifespan of 25 years.
- All case compartments must provide trouble-free usage for a minimum of five years with full warranty for defective parts of workmanship at no extra cost during this period. The Client may require the ability to enter into a separate maintenance agreement with the showcase manufacturer at a later date.
- An appropriate quantity of any equipment / accessories to access and use the display case, including all tools, spare parts, any lamp focussing equipment, or any specialist tools for adjusting and moving display systems, etc. must be supplied prior to completion of the contract and must be included in the cost.

## 1.9 SUPPLY AND INSTALLATION

- The Manufacturer must allow sufficient time within the programme (minimum of two months prior to finalisation of the materials) to facilitate testing and approval of samples.
- The Manufacturer must allow sufficient time within the programme (minimum of four weeks total prior to finalisation of design) for consultation and approval.
- The Manufacturer must allow sufficient time within the programme (minimum of four weeks prior to installation of objects) to facilitate curing of materials, and for drying and off-gassing of sealants, adhesives, paints and glazes.
- The safe transport and installation of the showcases to site will be the responsibility of the Manufacturer.
- Delivery and installation of the cases should be carried out by an experienced team of installers from the showcase manufacturers and overseen by a senior representative of the Manufacturer.
- It will be necessary for the Manufacturer to demonstrate the operation of each display case to the Client.

### Maintenance Manual

- Two copies of the *Maintenance Manual* must be provided to the Clients Conservation and Exhibition Departments and should include:
  - Final specification of the total installation.
  - All operational requirements and maintenance procedures.
  - Removal and replacement details for plinth panels.
  - Full details of all surface finishes.
  - Data sheets for all materials used.
  - Certification that glass complies with BS EN356:2000 and BS5544 as appropriate.
  - Cleaning specification for all case surfaces, including method statement for cleaning all specialist finishes.
  - Electrical test and installation certificates (NICEIC approved).
  - Guarantees or warranties for the case(s) and for any materials or associated equipment, which must commence from the date of practical completion of the contract.
  - All items requiring maintenance and details of maintenance support provided under the contract, including anticipated response times.
  - Names and addresses of all suppliers of specialist elements in order for the Client to place direct orders for spares and replacement parts.
  - Schedule of equipment and accessories required to access and use the case
  - 'As-installed' drawings.

### User's Handbook

- The *Users Handbook* must be provided to the Clients Conservation Department for distribution and should include:
  - Opening and closing operations.
  - Range of available internal display systems.
  - Method of dismantling and replacing compression and silicon seals.
  - Method of removing and inserting internal lining panels.
  - Method of fabric-wrapping internal lining panels.

- Method of focussing light fittings.
- Safe weight loading(s) of lining panels, shelves and display systems.
- Total safe weight of objects should be included to calculate the total loading.
- Capacity of the whole case.
- Cleaning procedures and recommended products.
- Display systems, including the safe adjustment and removal of all elements.

#### 1.10 SUITABLE MATERIALS FOR DISPLAY OF OBJECTS

The choice of materials used in an enclosed display environment is particularly critical and becomes even more so the better sealed the case is.

It is difficult to name particular products as formulas are constantly changing so it is necessary to test continually however there are products that are likely to be fine, others that can be used with discretion and others that are to be avoided. The first port of call to determine whether a product is suitable is the Material Safety Data Sheet (MSDS) for the product. If it contains the chemicals listed in the unsuitable box below it is likely to be a problem.

Likely to be suitable for object display

Product name	Chemical name	Use
Mylar, Melinex		Barrier layer
Acid-free tissue		Wrapping
Marvelseal		Barrier layer
Olefin, Nylon		Flooring, carpet
Linoleum		Flooring
Powder coated metal		Showcase construction
Galvanised/stainless steel		Showcase construction
Acrylic		Mounts, graphics
Glass		Showcase construction
Polyethylene		Plastic
Poly propylene		Plastic
Polystyrene		plastic
Polyester		Plastic
Ethafoam	Polyethylene	Padding, mounts
Plastazote	Cross-linked Polyethylene	Padding, mounts
Teflon	Polytetraflouroethylene	Showcases
Correx, corplast, artcor		Graphics
Foamex		Graphics
Nylon monofilament		Hanging objects
Polyethylene coated wire		Hanging object, mounts
Silicon tubing		Mounts
Scotch brand tape		General
Dow corning 795	Silicon sealant	Showcase construction
Silicone GE II	Silicon sealant	Showcase construction
Woven polypropylene		Carpet backing
Dulux water based emulsion		Showcase finish
Baumann cotton fabric		Showcase finish
BAF graphics laminates		Graphics
BAF graphics Foamex		Graphics
ZF MDF	Showcase construction, used if 4 weeks to off-gas and coated in Marvelseal, or other barrier	Acidic wood vapours, miscellaneous adhesives (unknown)

Generally unsuitable for object display

Product name	Use	Reason
Vulcanised rubber		Sulphur containing compound
Polyvinyl chloride (PVC)		Harmful degradation products
Oil based paints		VOC's
Dulux eggshell	Decorative finish	VOC's
Cardboard		Acid vapour
Wood		Acid vapour
Ammonia	Adhesives cleaning products	Alkaline vapour
Formaldehyde		Acidic
Acetaldehyde		Acidic
Peroxide		Oxidising agent
Many adhesives		Various
Many cleaning products		Alkaline vapours
Silicones other than above	Showcase construction	Acidic
Polyurethane paint	Decorative finish	Harmful degradation products
Polyurethane foam	Padding	Harmful degradation products
Wool	Decorative finish, carpet	Sulphur
Natural latex		Harmful degradation products
Wood panel products	Construction, Showcase construction	Acidic vapour, formaldehyde
Wood	Construction, finish	Acidic vapour
Polyvinyl acetate (PVAc)	Glue	Acidic vapour
Cellulose nitrate		Acidic
Cellulose acetate		Acidic

## 2.0 DESIGN RESPONSIBILITY

2.1 The Contractor is to hold Design Responsibility for the manufacture and installation of the showcases.

## 3.0 DRAWINGS

3.1 The Designer's drawings are to some extent diagrammatic; they give the overall requirement of each element and do not give full construction details. Read the Specification, Designer's drawings and documents. Obtain all details of every description to provide a complete and operable installation. Should there be any discrepancy in dimensions, please inform the Designer immediately. Any significant changes in the operation, performance or appearance of the showcases proposed by the contractor from those proposed in this specification and Real Studios and Drawings are to be made explicit at costing stage for approval or these may not be accepted by the designer / Client post costing.

3.2 The Contractor is to produce fully detailed fabrication drawings for approval before commencing fabrication or installation. The Contractor is to produce fabrication drawings in sufficient time to allow 5 days for comment and then incorporate comments into fabrication drawings for final approval.

Real Studios Drawings to be read with this Specification are listed against each showcase in the following schedule: 1839\_HMTC\_RS\_SPEC\_02 Showcase Schedule

Real Studios Drawings and documents related to this package are as follows:

1839/HMTC/RS/GA/04	Showcase Plan
1839/HMTC/RS/SC/01	Showcase: SC_HMTC_01
1839/HMTC/RS/SC/02	Showcase: SC_HMTC_02
1839/HMTC/RS/SC/03	Showcases: SC_HMTC_03, 04, 05 & 06
1839/HMTC/RS/SC/04	Showcase: SC_HMTC_07
1839/HMTC/RS/SC/05	Showcase: SC_HMTC_08 and 10
1839/HMTC/RS/SC/06	Showcase: SC_HMTC_09
1839/HMTC/RS/SC/07	Showcase: SC_HMTC_11 and 13
1839/HMTC/RS/SC/08	Showcase: SC_HMTC_12
1839/HMTC/RS/SC/09	Showcase Plinths: PL_HMTC_01, 02, 03, 04, 05 & 06
1839/HMTC/RS/SC/10	Showcase Plinths: PL_HMTC_07 09 & 11
1839/HMTC/RS/SC/11	Showcase Plinths: PL_HMTC_12 & 13
1839/HMTC/RS/SC/12	Showcase Caption Rails and Plinths PL_HMTC_08 & 10
1839/HMTC/RS/SC/13	Fabric wrapped object blocks
1839/HMTC/RS/DE/01	Typical Island Showcase Details
1839/HMTC/RS/DE/02	Typical Wall Showcase Details
1839/HMTC/RS/SPEC/001	Showcase Specification
1839/HMTC/RS/SPEC/002	Showcase Schedule

### 3.0 PRICING

3.1 The Contractor is to provide a fully broken-down costing to identify the following:

- Individual showcase costs
- Case by case mounts / blocks
- Preliminaries
- Delivery and Installation
- Any other costs outside of the above

3.2 The Contractor is to provide a payment schedule based on an installation in the first quarter of 2025.

3.3 The Contractor is to provide details of warranties and options on extended warranties