

Manchester City Art Gallery

Combined Specification
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DEFINITIONS

CA means Conservation Architect.

REMOVE means disconnect, dismantle as necessary and remove the stated element, work or component and all associated accessories, fastenings, supports, linings, and bedding materials, and dispose of unwanted materials. It does not include removing associated pipework, wiring, ductwork, or other services.

KEEP FOR REUSE means during removal prevent damage to the stated components or materials and clean off bedding and jointing materials. Stack neatly, adequately protect and store until required by the Employer or for use in the Works as instructed.

REPLACE means remove the stated existing components, features, and finishes. Provide and fit in lieu new components, features or finishes which, unless specified otherwise, must match those which have been removed. Make good as necessary.

REPAIR means carry out local remedial work to components, features and finishes as found in the existing building, resecure or refix as necessary and leave in a sound and neat condition. It does not include:

- Replacement of components or parts of components.
- Redecoration.

MAKE GOOD means carry out local remedial work to components, features and finishes which have been disturbed by other, previous work under this Contract and leave in a sound and neat condition. It does not include:

- Replacement of components or parts of components.
- Redecoration.

The meaning of the term shall not be limited by this definition were used in connection with the defect's liability provisions of the Contract.

EASE means make minor adjustments to moving parts of the stated component to achieve good fit in both open and closed positions and ensure free movement in relation to fixed surrounds. Make good as necessary.

TO MATCH EXISTING means use products, materials and methods to match closely all visual characteristics and features of the existing work, with joints between existing and new work as inconspicuous as possible, all to approval of appearance.

TO MATCH ADJACENT means that the component is *to match existing* component in the immediate vicinity, room or area.

SALVAGED refers to materials that have been *removed and kept for re-use* on this job: no second-hand or reclaimed material are to be used on this project.

APPRAISE means the contractor is to appraise and carry out own independent assessment of the works detailed here within and update the scope of works as is necessary through consultation with the Architect.

CONSOLIDATE means the contractor is to make something physically stronger and solid. Returning / combing items into a single / coherent whole. Rake out and repoint / build with an NHL mortar. Return to match original profiles. Rebuild in association with structural ties / wall core gravity grouting etc

DRAWINGS Please note that this specification is to be read in conjunction with the drawings and Architectural Specification document 9518. Any discrepancies between the documents or omissions from the specification are to be brought to the attention of the Architect at the time of tendering. Note that all specified products are to be installed to the manufacturer's recommendations and by approved installers.

RS1 PROTECTION OF HISTORIC FABRIC / FEATURES

1.1 WORK IN LISTED BUILDINGS

1.1.1 It is the responsibility of the Contractor to ensure that no disturbance of any fabric within the listed buildings takes place unless this is specifically detailed on the Architect's drawings and/or specification. The Architect's information is subject to listed building consent and any deviation from this is an offence under the Planning (Listed Buildings and Conservation Areas) Act 1990.

The Contractor is to be responsible for all on site measurement including setting out for new work, details and dimensions for any replacement or repair work.

All dimensions included on the drawings are to be checked for accuracy on site prior to commencing work and any discrepancies reported to the Architect immediately.

1.1.2 Should the Contractor be in doubt about the extent of works or protection required, he should consult with the Architect prior to those works being carried out. Agreement may also be required from the local authority Conservation Officer in some cases, and therefore the Contractor should make any queries to the Architect in a timely manner.

No work shall commence until any such discrepancies have been resolved.

1.1.7 To be read in conjunction with [Restoration Specification section RS2 – Protection of Elements and Components](#).

1.1.3 The Contractor is to provide adequate protection to any historic features which are to be retained in order to avoid damage as the works are in progress. The methods for protection should be agreed with the Architect prior to works being carried out.

1.1.4 Should it be the case that it is not possible to protect historic features without causing further damage to the building, it is the Contractor's responsibility to exercise maximum care to avoid disturbing any historic fabric during the course of the works. This may entail an approach of temporary protection with the agreement of the Architect.

1.1.5 It should be noted that damage to historic fabric cannot be made good in an acceptable manner and that the Contractor is to take all necessary measures to ensure damage does not occur.

1.1.6 The Contractor is to satisfy themselves that they are in possession of adequate information prior to commencing any work.

Any discrepancies found within this document by the Contractor should be brought to the attention of the Architect at the time of tendering.

RS2 PROTECTION OF ELEMENTS AND COMPONENTS

2.1 DESIGN

- 2.1.1 Prior to undertaking any construction works, all working areas and access routes are to be thoroughly protected for the duration of the contract.

There are areas within the building which will be affected by destructive investigation surveys / removals and interior / exterior fabric repairs. The careful removal of building fabric will likely produce excessive dust and debris build up within working areas. The proposed fabric repair works are identified within the drawing pack; 9518 (4) series drawings.

2.2 WORK IN LISTED BUILDINGS

- 2.2.1 This section is to be read in conjunction with section [Restoration Specification section RS1 – Protection of Historic Fabric / Features](#).
- 2.2.2 The contractor is to provide adequate protection to any historic features which are to be retained in order to avoid damage as the works are in progress. The methods for protection should be agreed with the Architect prior to works being implemented.
- 2.2.3 Whilst historic floors / surfaces are often worn, discoloured and out of true level, these imperfections can contribute to the interest and historic value of a building and thus should be protected.

2.3 PREPARATION

- 2.3.1 Prior to installation of any protective measures. The areas in question must be thoroughly cleaned to remove all loose debris / dust which could lead to scratching / abrasion of the finished surface once protective boards are overlaid.
- 2.3.2 It is important to try to not over wet floors as the substrate could become loosened or efflorescence could be triggered. Surface dirt should be removed with minimal quantities of warm water.

- 2.3.3 Sweep and vacuum existing floors / components prior to laying / fixing of any protective boards.

- 2.3.4 Contractor is to photograph and record all areas prior to undertaking any works.

2.4 PROTECTION OF HISTORIC FABRIC

- 2.4.1 The structure, fabric, decoration, and contents of the buildings are to be suitably protected by the use of dustsheets, solid protection, sealing of doors, etc.
- 2.4.2 The appropriate method of protection is to be agreed with the Architect and Local Authority Conservation Officer.
- 2.4.3 Equipment and materials must not be propped against decorated surfaces, fittings, or furniture.
- 2.4.4 When dust or vibration is anticipated, the contractor is to give the Client, neighbouring properties/businesses advance warning.
- 2.4.5 Footwear is to be appropriate to the part of the building or structure in which the work is being undertaken to avoid damage to floor finishes and coverings.
- 2.4.6 No contents or fixture and fittings shall be moved by the Contractor without the written permission of the Client.
- 2.4.7 **No** adhesive tapes or fixings should be used to secure in-situ protection. If no alternatives can be proposed, each instance of proposed use should be discussed with the Architect and Project Conservator.
- 2.4.8 No item longer than 1200mm can be carried through the building unsupervised. Materials and objects should be appropriately covered to ensure that damage will not occur to either the fabric or contents of the building. The admission of equipment / materials longer than 1200mm into the building will be considered – however prior consultation must be sought with the Architect / Project Conservator.

- 2.4.9 Cutting of boards on site; dustsheets should be laid, and vacuum cleaners must be available at the point of work and used to collect dust as and when created.
- 2.4.10 All Contractors must adhere to the restricted walkways through the building / site. These routes **MUST** be clearly visible and identified by the Contractor.
- 2.4.11 All contractors must use dustsheets at all times.
- 2.4.12 Illustrative prints relating to particularly fragile elements / components, will be located at the site of work. All contractors are required to familiarise themselves with the pictures provided.
- 2.4.13 **All** areas of the building /asset are **vulnerable** and **important** and should be protected for the duration of the building works.
- 2.4.14 All items protected must be protected by products and materials which are fire retardant.
- 2.4.15 All protective materials will be attached to elements and components by cloth string and/or pressure fixed unless otherwise directed and approved. No direct fix will be acceptable.
- 2.4.16 **Phasing / Sequencing:**
Installation of protection works is likely to be phased pending investigation works. Refer to Scope of Works document and drawing package.

2.5 PROTECTION OF WALLS AND FLOORS

- 2.5.1 Prior to undertaking any fabric repair / investigation works. Allow for fixing of protective measures to walls and floors within working areas. Refer to marked up drawings.
- 2.5.2 Walls and Floor Generally:
- Lay Antinox protective FR boards to floors and walls within working areas. Tape and seal. Overlay with hardboard in particularly high traffic areas. No direct fix into building fabric is allowed. Loose fix with tape / pressure fix and cloth string.
 - Refer to drawings for locations where protective floor measures are required.

Manufacturer:

Antinox Global,
Castlepoint,
Ellon, AB41 9RG.
Tel: 01358720888.
Email: sales@antinoxglobal.com

Substrate:

wood, stone, concrete

Product reference:

Antinox Protection Board – Black Trade Sheet

Thickness:

6mm (floor) 4mm (walls).

Accessories:

Antinox jointing tape strong and wide / hardboard

2.6 PROTECTION OF EXISTING DOORS AND FRAMES

- 2.6.1 Prior to undertaking fabric repair / construction works, all existing retained doors are to be thoroughly protected for the duration of the project.
- Lightly clean existing door prior to fixing / over-boarding of protective measures.
 - Over-board with Antinox Protection Board and fix in place with cloth string. No direct fix will be acceptable.
 - If existing door is to remain on a main access route for construction traffic, the addition of a hardboard sheet may be required as additional protection.
 - Loosely fix foam (self-gripping) door leaf protector to all leading door edges. No direct fix will be acceptable.
 - Loosely fix foam door jamb (self-gripping) protector within all trafficked openings. No direct fix will be acceptable.
 - Remove and discard of protective measures upon completion of main contract works and undertake any identified door repair / cleaning works identified elsewhere.

2.7 PROTECTION OF STONE STEPS / HANDRAILS / PLINTHS / ENTABLATURE / COLUMNS

2.7.1 Prior to undertaking fabric repair / construction works, all existing retained access routes / steps / landing areas are to be thoroughly protected for the duration of the project.

- Lightly clean area in question prior to fixing / over-boarding of protective measures, to eradicate risk of scratch / abrasion of surfaces.
- Overboard existing steps / walls and landing areas with 12/18mm WBP plywood sheathing with non-slip surfaces including visible nosings.
- Screw fix at joints / treads and risers.
- No direct fix into the existing building fabric is acceptable.
- Columns to be protected up to a height of 2400mm only.

2.8 PROTECTION OF WALL FIXED ITEMS - PLASTER, PAINT, DECORATION

2.8.1 General protection of wall fixed items within the building.

2.8.2 The existing items are to be protected from debris and dust build up including overhead impact damage.

2.8.3 3D plaster and paint above door head height:

- Sheet over with a loose clean cloth, taped and sealed.

2.8.4 3D plaster casts at door head height:

- Construct independent timber frames including timber bracing struts, with 12/18mm WBP plywood sheathing fixed to the front and top faces of the structure. Install foam packers between timber structure and wall to maintain offset from 3D plaster casts.
- No direct fix into the existing building fabric (inc. walls and floors) is acceptable.

- On erection of the scaffold, retain timber bracing struts and install additional foam packers between timber structure and scaffold poles.
- Following scaffold erection, remove timber bracing struts and allow timber structure to be supported by scaffold.
- On removal of the scaffold, reinstall timber bracing struts to allow timber structure to be self-supported.
- Upon completion of the works. Allow for careful removal of all temporary protective measures and tip.

2.9 CONSERVATION WORKING PRACTICES DURING BUILDING WORKS

2.9.1 It is of paramount importance that the working site is maintained and cleaned throughout the construction works.

The following measures are to be observed and looks to reduce the time needed for the conservation clean of the museum post-contract.

- Prior to temporary fixing of protection measures, area to be covered should be vacuumed / cleaned to remove all loose debris and dust prior to over-boarding.
- Vacuum cleaners must be used at source where dust is being created. Bags and filters must be regularly changed, and the vacuum cleaners well maintained.
- Contractors should vacuum up after themselves at the end of each working day.
- In-situ protection must be well maintained.
- Keep to walkways of protection.
- Floor voids should be vacuumed out (check with archaeologist regarding significance of contents).
- Items over 1.2m need to be carried by two people, with ends padded.
- Provide walkways of Antinox covered with hardwood through each room.

- All equipment and materials should be placed on Antinox.
- Loose laid sheets of Antinox should be used by contractors around work areas.
- No access to storage areas or other unauthorised areas outside work site except were accompanied at all times by Project Conservator or designated deputy.

RS3 ACCESS SCAFFOLDING

3.1 DESIGN

- 3.1.1 The design of all scaffolding will be the responsibility of the Contractor and is to be in accordance with the recommendations of BS 5973:1990 "Code of Practice for access and Working Scaffold and special scaffold staircases in Steel" or as updated.
- 3.1.2 Compliance with the various Acts and regulations listed in BS 5973 is the responsibility of the Contractor.
- 3.1.3 Compliance with all aspects of Health and Safety during erection, using and dismantling is the responsibility of the Contractor.
- 3.1.4 The design of the scaffold is to take account of the requirements of all trades which will require access, use as a working platform or storage. No claims will be entertained for additional scaffold or for amending scaffold already erected to suit the requirements of trades contained within the specification and the tendered works as a whole.

3.2 PROPOSALS

- 3.2.1 The Contractor is to submit their proposals for the scaffold on or before the date for possession and not less than 7 days before commencement.
- 3.2.2 The Contractors proposals are to include clear drawings and structural calculations in duplicate sufficient to prove the stability of the proposed temporary structures in accordance with BS 5973: 1990. Drawings will be provided to the Architect and the Structural Engineer.

These drawings will clearly indicate positions where any scaffold is to be tied back to the fabric of the building and the proposed method of fixing.
- 3.2.3 No scaffolding shall be commenced on site until the Contractors proposals have been submitted and agreed with the Architect/Structural Engineer. Agreement of the Contractors proposals does not relieve the Contractor of his responsibilities to ensure full compliance of all requirements.

3.3 PROGRAMME

- 3.3.1 Prior to commencement of any scaffolding the Contractor shall submit a programme indicating the commencement date, and completion date.
- 3.3.2 Prior to striking the scaffold the contractor will submit a programme indicating the period for dismantling for each area of scaffolding.
- 3.3.3 Scaffold is required for inspection purposes prior to confirmation of scope of the work and the Contractor is to indicate this period on his programme and ensure that his proposals are submitted early enough to ensure that this period is not compromised.
- 3.3.4 The programme is to take account of all the requirements of the sub-contractors who require the use of the scaffold.

3.4 ERECTION REQUIREMENTS

- 3.4.1 All scaffold tubing and fittings are to be galvanised and in good condition and free from corrosion. Rusty components will not be accepted.
- 3.4.2 No steel component (including capped tubes) is to be in contact with the fabric of the building except where specific approval has been given.
- 3.4.3 Where it is necessary to brace the scaffold from the structure then timber packing of a minimum thickness of 20mm is to be placed between the scaffolding and the masonry.
- 3.4.4 No scaffolding shall rest on any roof coverings unless agreed in writing prior to commencement.
- 3.4.5 The ends of ALL scaffold tubes are to be protected with plastic caps which are to be fitted prior to delivery to site. Where it is necessary to cut scaffold tubes during erection the end is to be re-capped immediately. A disc of carpet is to be sandwiched between the plastic scaffold cap and the building fabric at every point of contact.

- 3.4.6 Scaffold tubes are not to encroach within 50mm of the surface of the building except where required for support or stabilising. This is to prevent accidental damage to the fabric by minor movement of the scaffold. Where such support is required, the scaffold shall be separated from the building fabric by 20mm timber packers to prevent scarring of the fabric by scaffold tubes.
- 3.4.7 Where it is necessary to brace scaffold through window or door openings the existing finishes are to be protected with 20mm thick timber packers both internally and externally. The opening is to be boarded up with access only for the scaffold tubes.
- 3.4.8 A temporary roof shall be erected over the clerestory area where roof repair works are undertaken as further damage to the interior will be detrimental.
- 3.4.9 Temporary roofs shall be a minimum of 2.5m clear of the existing roof covering / structure to the underside of any scaffold / beam component on the temporary roof.
- 3.4.10 Side sheeting to temporary roofs shall extend to below parapet level on the outside of any scaffolding.
- 3.4.11 All temporary roofs shall be complete, wind and watertight prior to any work being implemented.

3.5 SUPERVISION

- 3.5.1 The Contractor is to exercise particular care in supervising the erection and dismantling of the scaffold to ensure that no damage occurs to the fabric of the building.
- 3.5.2 It should be noted that in many instances damage to the historic fabric cannot easily be rectified. Any damage due to the scaffold use, erection or dismantling will be rectified at the Contractors expense.
- 3.5.3 Any area of scaffold not complying with section 2.4 above will not be used for any purpose.

3.6 SECURITY

- 3.6.1 All external scaffolding shall be designed and erected so as to prevent unauthorised access by sheeting (whether ply or steel) to a minimum height of 3 metres at the base. 'Heras' mesh fencing is not considered a suitable alternative.
- 3.6.2 For the purposes of this tender allow for a 2.4m high 'Plas-Hoard' PVC-U hoarding. The contractor must make an allowance for the application of a vinyl graphic along the entire length of the hoarding subject to the client's requirements and design.
- 3.6.3 Sheeting which forms part of the perimeter hoarding for the site will also need to comply with constraints for site hoarding specified elsewhere within the preliminaries for the project.
- 3.6.4 Access to the scaffold is to be via a single point of entry and a lockable door through the barrier described above. Alternative designs should be approved by the Contract Administrator.
- 3.6.5 Ladders to any lower lifts are to be removed at night.
- 3.6.6 Any areas which may be accessible from adjoining structures, roofs, etc. are to be similarly protected by boarding or by other approved means.
- 3.6.7 Scaffolding shall be alarmed at all times.
- 3.6.8 Adequate measures must be taken to prevent unauthorised access from all elevations. Which could include floodlights and motion detectors as well as CCTV cameras.
- 3.6.9 Adequate signage and lighting must be provided in areas where light levels are reduced.

3.7 PROTECTION

- 3.7.1 The covering to pavements is to be double boarded with visqueen between.
- 3.7.2 The contractor is to satisfy all the requirements of the Local Authority and Highways department.
- 3.7.3 All surfaces at ground level are to be suitably protected to prevent the scaffold damaging existing external finishes.
- 3.7.4 Where internal scaffold is to be erected full protection will be required under all scaffolding except with prior written consent.
- 3.7.5 Ensure any architectural features or areas prone to damage are suitably protected.
- 3.7.6 All entrance doors, fire exits etc. are to be kept clear of obstructions and are to be lined at the top and both sides.

3.8 DISMANTLING

- 3.8.1 Ensure all necessary care is taken to ensure that no damage occurs to the fabric of the building.
- 3.8.2 Scaffold tubes should be carefully lowered to ground level and not thrown or dropped.
- 3.8.3 No dismantled components shall be left on site outside working hours unless housed within a secure compound area.

3.9 TEMPORARY PROTECTION AGAINST THE ELEMENTS

- 3.9.1 A temporary roof is required to the clerestory for the duration of all roofing works as per above specification.

Protection to side walls and public walkways under the scaffold are to be allowed for as is the temporary sheeting of opened roofs and lantern.
- 3.9.2 Any damage arising to the building fabric from the failure of temporary sheeting will be made good at the contractor's expense. Sheeting for side walls shall be reinforced translucent sheets which are self-extinguishing and flame retardant (e.g. Monarflex). Details of any alternative proposals shall be submitted for approval with the tender.

- 3.9.3 All sheeting shall be adequately secured against wind uplift etc.
- 3.9.4 All sheeting shall be checked by a competent person once a week and a signed record kept onsite. Any defects are to be rectified immediately.
- 3.9.5 All areas are to be maintained as watertight at all times.

3.10 CERTIFICATES

- 3.10.1 Copies of all handover certificates issued by the scaffolding sub-contractor shall be forwarded to the Contract Administrator upon receipt by the Main Contractor.
- 3.10.2 Copies of all test certificates for hoists shall be forwarded to the Contract Administrator on receipt by the Main Contractor.
- 3.10.3 No scaffolding shall be used unless handover certificates and test certificates have been issued.

3.11 DESCRIPTION OF THE PROPOSED WORKS AND METHODOLOGY

- 3.11.1 It is proposed that a full access scaffold is erected around four sides of the clerestory element to Main entrance foyer (B01-GF-010). This is to encapsulate the building and allow for the replacement of the central lantern and associated roof repair works within a controlled environment, but most importantly that the building interior is protected from the external elements for the duration of the project. Subject to the Structural Engineer's investigations into the loading capacity of the masonry, the scaffold is to be a suspended system, cantilevered and braced through high level window openings at upper level. A temporary roof and internal crash deck are to be provided for the duration of the works.
- 3.11.2 The Main Contractor is to provide the Contract Administrator with a scaffold design well in advance of any erection works.

The scaffold design will highlight all proposed fixing and contact points for discussion with the Architect and Structural Engineer.

Detailed methodologies are to be provided by

the Main Contractor, to accompany the scaffold design.

properties/businesses.

- 3.11.3 The access scaffold will run around the building to four sides to provide access to the central lantern element to the roof.

Note: the City Art Gallery is in a prominent city centre location. The proposed works and the subsequent site access required is to be coordinated with the neighbouring properties, in accordance with the pre-construction health & safety plan.

- 3.11.4 The scaffold will be built up tight to the facades, with protected scaffold tubes. The scaffold will be braced through existing window and door openings.
- 3.11.5 Where direct fixings will be required into the fabric, these will primarily be taken into mortar joints where the joint size is sufficient.
- 3.11.6 There will be no direct fixings into stonework.
- 3.11.7 The access scaffold may likely be required to house contractor welfare facilities due to space restrictions onsite. The exact arrangement is to be confirmed by the Main Contractor and coordinated with neighbouring

RS4 ROOF REPAIRS: LEADWORK / COVERINGS / FLASHINGS / GUTTERS

4.1 REQUIREMENTS

- 4.1.1 All leadworks shall be undertaken by trained operatives employed by a contractor who is a member of Lead Contractors Association (LSA).
- 4.1.2 All workmanship shall be in accordance with the Lead Sheet Associations recommendations as contained in the Lead Sheet Manual - a guide to good building practice Volume 1 to 3 and current updates.
- 4.1.3 Working Practices shall comply with the Health and Safety Executive COP2 "Control of lead at work - approved code of practice".
- 4.1.4 All work shall comply with BS 5250 "Code of Practice for control of construction in buildings".

4.2 MATERIALS

- 4.2.1 Lead Sheet
Lead sheet shall be milled lead sheet to BS 1178 unless stated otherwise. The minimum height of lead shall not be less than that recommended in BS 6915 "Specification for design and construction of fully supported lead sheet roofs and wall coverings".
- 4.2.2 Underlay
Building paper to BS 1521, Class A.
- 4.2.3 Plywood
Shall only be used where specified and shall be in accordance with BS 1210. Plywood shall be WBP grade, min. 18mm thick.
- 4.2.4 Copper Nails
Copper nails for fixing lead shall be in accordance with BS 1202-2.
- 4.2.5 Wood Screws
Shall be in accordance with BS 1210.
- 4.2.6 Timber
For gutter linings, roof decks etc shall be 100x25mm straight edged boarding with a 2mm gap between adjoining boards or min 18mm thick WBP plywood.

Timber shall be vacuum pressure impregnated with preservative in accordance with the British Wood Preserving and Damp Proofing Associations Manual and as British Wood Preserving Association Commodity Specification C8.

Timbers shall be planed, free from wane, pitch pockets decay and insect attack.

Moisture content shall not be more than 22% at the time of covering.

4.3 WORKMANSHIP

- 4.3.1 General
Cut, joint and dress lead neatly and consistently to provide fully waterproof coverings and flashings free from ripples kinks, buckling and cracks.

Comply with BS 6915 and current good practice as described in the latest edition of "The Lead Sheet Manual" published by the Lead Sheet Association unless specifically instructed in writing.

Do not use screws or other sharp instruments to mark out lead. Use solder only where specified and not in any other location.

Ensure that finished leadwork is fully supported.
- 4.3.2 Lead Welding
In situ lead welding is permitted where specified subject to completion of a "hot work permit" form and compliance with its requirements. Lead chutes / sumps will require onsite welding.
- 4.3.3 Layout
Agree setting out of joints drips and laps with the Architect prior to commencing work.
- 4.3.4 Control Samples
Complete an agreed area of finished work and obtain approval of appearance and detail from the Architect before proceeding with the remainder of the works. The sample area(s) shall be selected so as to reflect the problems likely to

be encountered on the majority of the work.

4.3.5 Existing Lead to Be Retained

Thoroughly clean by washing with a detergent solution and using a stiff bristle brush. Rinse off thoroughly. In areas of stubborn soiling a 5% nitric acid 95% water solution may be used provided that it can be established that the runoff does not have an adverse effect on other materials. Thorough rinsing with clean water should be undertaken on completion.

4.3.6 Existing Lead to Be Removed

Lead specified to be stripped and shall become the property of the contractor.

4.3.7 Replacement of Existing Lead

In areas receiving run off from adjoining unprotected roofs (e.g. gutters etc) then the work must be carried out in small sections at a time to reduce the risk of weather damage. The contractor shall check the weather forecast before commencing removal of lead and shall only remove an area small enough to permit its reinstatement within the working day.

4.3.8 Existing Bases

In areas where existing substrate is to be recovered in lead, remove all existing leadwork and brush clean of all debris, dust etc. Inspect all timbers for condition and level. Replace as necessary any rotten boards with timber to match existing. Ensure that where boarding is straight edged the gaps are cleaned of dust to permit ventilation. Where boarding is tongued and grooved seek instruction prior to drilling ventilation holes in an agreed pattern.

Ensure that all boards are securely fixed. Punch in any protruding fastenings and plane or sand as necessary to achieve an even surface.

4.3.9 All Bases

All bases shall be dry, free from dust debris grease and other deleterious material with all nails punched home and free from all protrusions, unevenness etc prior to laying lead.

Laying of underlay and lead will be taken as a joint acceptance of the Main Contractor and sub-contractor of the suitability of the base.

Substrates or decking for lead coverings must provide a near continuous smooth surface that is strong enough to support the lead (and any

superimposed loadings) and hold the fixings firmly and permanently.

4.4 **FIXING AND JOINTING**

4.4.1 Head Fixing of Lead Sheet

Unless specified elsewhere secure top edge of lead sheets with two rows of fixings 25mm and 50mm from the top edge of the sheet at 75mm centres to each row and evenly spaced and staggered.

4.4.2 Fixings

Fix lead sheet to timber substrates using copper clout nails to BS 1202-2 table 2 with annular ring, helical ring or serrated shank, length not less than 20mm, shank diameter not less than 3.35mm and head diameter not less than 8mm, or similar stainless steel (austenitic) clout nails with diameter not less than 2.65mm.

Where lead is to be fixed to concrete or masonry substrates use stainless steel screws to BS 1210 table 3, not less than 19mm in length and not less than 3.35mm diameter, with stainless steel washers and plastic plugs of length and diameter to suit the screws.

4.4.3 Clips

Clips shall generally be 50mm wide unless specified otherwise. Lead clips shall be cut from sheets of the same code thickness as the sheet being secured.

Each clip shall be secured with 2 fastenings not more than 50mm from the edge of the lead sheet. Clips shall be welted around edges of sheets and turned over 25mm.

4.4.4 Copper clips

Copper or tinned copper clips should not be less than 50mm wide and cut from copper sheet not less than 0.6mm thickness conforming to BS EN 1172.

4.4.5 Stainless steel clips

Clips should be fully annealed stainless-steel strip conforming to BSEN 10088 at least 50mm wide and not less than 0.375mm thickness. It may beterne coated if exposed to view.

4.4.6 Wood Cored Roll Joints

Timber core shall be 45x45 rounded timber tapering to a flat base 25mm wide. Ridge rolls may be larger and should be to the dimensions

specified on the drawings. King Wood roll shall be 75x75 rounded timber tapering to a flat base.

Rolls shall be fixed to the base with stainless steel countersunk screws at not more than 300 centres.

Dress under cloak three quarters around the core and fix with nails at 150mm centres for a distance of one third the length of the panel starting from the head of the sheet.

Dress over cloak around core and extent onto main surface to form a 40mm splash lap.

4.4.7 Wetted Joints

Form with a 50mm overlap, 25mm underlap and copper or stainless-steel clips at not more than 450mm centres.

Welt overlap and clips around underlap loosely turn over and lightly dress down.

4.4.8 Drips - Roofs up to 3-degree Pitch

Dress underlap into rebate along top edge of drip and fix with one row of nails at 50mm centres on centre line of rebate. Dress overlaps over drip and form a 40mm splash lap.

4.4.9 Drips - Roofs over 3-degree Pitch

Dress underlap up full height of drip upstand. Fix to lower-level base with two rows of nails 25mm and 50mm from face of drip and at 75mm centres to each row. Seal over nails with a soldered or lead welded dot.

Dress overlaps over drip and form a 75mm splash lap. Secure with lead clips lead welded to underlap with not less than one per bay.

4.4.10 Forming Details

Details may be made by bossing or lead weld except where specified. Lead welded seams must be neatly and consistently formed. Do not undercut or otherwise reduce the thickness of the sheets at the seams. Filler strips are to be of the same composition as the sheets being joined. Butt joints are to be formed to a thickness one third more than the sheets being joined. Lap joints are to be formed with 25mm laps and two loadings to the edge of the overlap.

Bossing must be carried out without thinning cutting or otherwise splitting the lead sheet.

4.4.11 Fixing into Joints

Currently rake out joint or neatly cut chase to depth of 25mm.

Dress lead into joint or chase and up back face. Fix into back face with stainless steel screws, washers, and plastic plugs at minimum 450 centres with a minimum number of 2 fixings per piece of lead.

4.4.12 Finishing

As soon as practical apply a smear coating of patination oil evenly in one direction. Apply only in dry conditions.

Where run off will be onto visible surfaces apply patination oil immediately on completion of the section of work to avoid staining.

4.5 LEAD SHEET COVERINGS / FLASHINGS

4.5.1 COVER FLASHINGS:

Lead:

Code 5 in lengths not exceeding 1500 mm.

End to end joints:

Laps of not less than 100 mm.

Cover:

Overlap to upstand of not less than 75 mm.

Fixing:

Lead wedges into bed joint and clips to bottom edge at laps and 450 mm centres.

Prior to order, manufacture and installation, the contractor should provide fabrication drawings to the CA for comment. No work shall commence until any such discrepancies have been resolved.

Buttress

Manchester City Council

Manchester Art Gallery

001

Architectural Specification

Preliminary

04-05-2023

Contents

L10 Windows/ rooflights/ screens/ louvres **REVISED**1

L10

Windows/ rooflights/ screens/ louvres **REVISED**

General - Not Used

Products

460 Framed rooflights Type A **REVISED**

1. Manufacturer: [VELUX Commercial](#) or similar approved.
 - 1.1. Contact details
 - 1.1.1. Address: VELUX Commercial
Woodside Way
Glenrothes
Fife
KY7 4ND
 - 1.1.2. Telephone: [+44 \(0\) 1592 778916](tel:+441592778916)
 - 1.1.3. Web: www.veluxcommercial.co.uk
 - 1.1.4. Email: sales@veluxcommercial.co.uk
 - 1.2. Product reference: Specialist Structural Glazing
2. Type: Multiple rows of long light modular skylight modules combined to form a large square glass roof lantern.
3. Frame: Bespoke Pyramid Lantern to match existing pitch and style.
4. Size: Bespoke pyramid lantern to match existing pitch and profile.
5. Thermal performance (U-value maximum):
 - 5.1. Whole window U-value: 1.1W/m²K / 1.4W/m²K
6. Fire performance
 - 6.1. Fire resistance: To EN 1365-2 / EN 13501-2 + A1
 - 6.2. Reaction to fire: To EN ISO 11925-2 / EN 13823, Class B
7. Frame:
 - 7.1. Material: Anodised aluminium.
 - 7.2. Transom:
 - 7.2.1. Width: 60mm (assumed - TBC)
 - 7.2.2. Depth: between 35-170mm (to CDP design)
 - 7.3. Mullion:
 - 7.3.1. Width: 60mm (assumed - TBC)
 - 7.3.2. Depth: 35-170mm (to CDP design)
 - 7.4. Finish:
 - 7.4.1. Coating: Scratch-resistant powder lacquer.
 - 7.4.2. Colour: Colour to match existing aluminium roof lanterns.
 - 7.4.3. Film thickness: Min. 40 µm.
8. Glazing details: Double glazed construction.
 - 8.1. Type: Mono-pitched toughened outer glass and laminated inner safety glass solution.
 - 8.2. Colour:
 - 8.3. Coating: Integral solar UV resistant glass.
9. Integral kerb: Metal plate - TBC by specialist.
10. Operation:

- 10.1. Type: Fixed.
- 10.2. Control: Not required.
- 11. Accessories: Not required.
- 12. Execution: Installation of framed lantern by specialist contractor.
- 13. Surface spread of flame: TO EN 14351-1 / TS1187 / EN 13501-5 + A1, BROOF (t1) and BROOF (t4).

Execution - Not Used

Ω End of Section

Buttress 