

Buttress

Manchester City Council

Manchester City Council - Framework

01

MCC War Memorials

Tender

17-09-2024

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BUT01

General

Clauses

75 Disclaimer

1. This specification has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of Buttress Architects being obtained.

Buttress Architects accepts no responsibility or liability for the consequences of this document being used for a purpose other than the purposes for which it was commissioned.

Any person using or relying on the document for such other purpose agrees and will by such use or reliance be taken to confirm this agreement to indemnify Buttress Architects for all loss or damage resulting, therefore.

Buttress Architects accepts no responsibility or liability for this document to any party other than the person by whom it was commissioned.

105 Definitions and interpretations - General

1. Employer's Representative: The person nominated in the Contract as Employer's Representative, Architect, Contract Administrator or Project Manager.
2. Reference specification: Not all clauses in the Reference specification apply to this project. If in doubt about the applicability of a clause, obtain instructions.
3. Communication: When required to communicate – including advise, inform, submit, give notice, instruct, agree, confirm, seek, or obtain information, consent, or instruction, or make arrangements – do so in writing to the Employer's Representative.
4. Responses from the Employer's Representative: Do not proceed until response has been received.
5. Approval: Approval or directions given by the Architect in writing. Unless otherwise specified in the written approval, approval is limited to the visual appearance of the work, materials or components involved and shall not relieve the Contractor from compliance with specification.
6. Conservation Professional: The person(s) responsible for inspecting and providing approval will be registered with conservation accreditation in building conservation from the AABC, RIBA (SCA level) or CIAT-Accredited Conservationist. The Conservation Professional will have specific conservation skills provided by Buttress Architects Ltd.
7. As directed: as defined for 'approval'.
8. As shown on drawings: This is an implied term deemed included within the specification.
9. As Specified: This term means that the work to which it refers is described somewhere in the contract documentation (example, on drawings or in schedules), not necessarily in the specification.
10. BBA: British Board of Agreement.
11. BS: British Standard Specification.
12. CP: British Standard Code of Practice.
13. Fuel: Electricity, gas, oil and any other source of energy.
14. Materials: Materials, components and accessories of every description.
15. Provisional sum: A sum provided for the entire cost of anticipated work that cannot be properly drawn or described.

16. Weather: Specified requirements for weather precautions and protection refer to rain, frost, snow, sleet, gales, excessive sunshine, drying winds, flooding or any other state of the weather which could cause damage or otherwise interfere with the execution of the works.

110 Definitions and interpretations – products and work

1. Remove:
 - a) Disconnect, dismantle as necessary and take out the designated products or work and associated accessories, elements, components, fastenings, supports, linings and bedding materials. Dispose of unwanted materials.
 - b) Excludes taking out and disposing of associated pipework, wiring, ductwork, or other services.
2. Keep for reuse:
 - a) Do not damage designated products or work. Clean off bedding and jointing materials.
3. Make good:
 - a) Execute local remedial work to designated work. Make secure, sound, and neat.
 - b) Excludes redecoration and/ or replacement.
4. Repair:
 - a) Execute remedial work to designated products. Make secure, sound, and neat.
 - b) Excludes redecoration and/ or replacement.
5. Refix: Fix removed products.
6. Replace:
Supply and fix new products matching those removed. Execute work to match original new state of that removed.
7. Ease:
Adjust moving parts of designated products or work to achieve free movement and good fit in open and closed positions.
8. Match existing:
Provide products and work of the same appearance and features as the original, excluding ageing and weathering. Make joints between existing and new work as inconspicuous as possible.
9. 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.
10. Salvaged:
Refers to materials that have been *removed* and *kept for reuse* on this job: no second-hand or reclaimed material are to be used on this project.
11. Consolidation:
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.

115 Documents

1. Currency: References to published documents are to the editions, including amendments, current on the date of the Invitation to tender.
2. Services drawings: Diagrammatic, except to the extent that figured dimensions are given or calculable.
3. Dimensions: Do not rely on scaled dimensions.
4. Ensure that the manufacturers instructions and other information are at the site whilst the related work is being executed. Retain these documents and upon completion of the works, hand them to the Architect in suitable folder(s) together with a contents list.

120 Compliance

1. Submittals, samples, inspections, and tests: Undertake to suit the Works programme. Do not conceal, or proceed with, affected work until compliance with requirements is confirmed.
2. Compliance with proprietary specifications: Retain on site evidence that the proprietary product specified has been supplied.
3. Compliance with performance specifications: Submit evidence of compliance, including test reports indicating properties tested, pass/ fail criteria, test methods and procedures, test results, identity of testing agency, test dates and times, identities of witnesses, and analysis of results.

125 Design and production documentation

1. Design compliance: Submit certification that design complies with documented requirements.
2. Documentation:
 - 2.1. Draft: Submit complete design and production documentation.
 - 2.2. Final: Submit sufficient copies for distribution to affected parties. Keep at least one copy on site.
 - 2.3. Space requirements: Check space requirements of products or work indicated diagrammatically in the contract documents. Submit a report on consequent variations needed to the design.
 - 2.4. Drawings: Include dimensions.

126 Construction problems, issues

1. If any specified materials, components or drawn details appear to be unfit for purpose, or difficult to apply as intended, or if considered to be likely to be detrimental to the works at any time, the contractor is requested to discuss such problems with the Architect as soon as they arise.

130 Authorities and statutory undertakers

1. Approvals: Submit evidence of approvals of relevant authorities and statutory undertakers.

135 Product samples

1. Complying samples: Retain in good, clean condition on site.

140 Products and Execution

1. General quality
 - 1.1. Products generally: New. Proposals for recycled products will be considered.
 - a) Supply of each product: From the same source or manufacturer.
 - b) Whole quantity of each product required to complete the Works: Consistent kind, size, quality, and overall appearance.
 - c) Product tolerances: Where critical, measure a sufficient quantity to determine compliance.
 - 1.2. Execution generally: Fix, apply, install, or lay products securely, accurately, plumb, neatly and in alignment.
 - a) Colour batching: Do not use different colour batches where they can be seen together.
 - b) Dimensions: Check on-site dimensions.
 - c) Finished work: Not defective, e.g. not damaged, disfigured, dirty, faulty, or out of tolerance.

144 Setting out

1. Accurately set out the works in accordance with Section 6 of BS.5606 Code of Practice for accuracy in buildings. Protect any existing bench marks unless otherwise instructed. Ensure that

all critical co-ordinate points are marked in a manner that cannot be removed or in a manner that makes any subsequent movement immediately apparent. Check and seek approval for the setting out before commencing work.

145 Sizes

1. General dimensions: Nominal.
2. Cross section dimensions of timber: Finished dimensions.

146 Descriptions

1. Unless otherwise indicated, any description of work to be undertaken shall be deemed to include:
 - 1.1. Material and components as specified and all labour in fitting and fixing in position, including cutting and wastage.
 - 1.2. Use of plant, tools and temporary works of every description.
 - 1.3. All matters of general application as set forth.

147 Acts, regulations etc

1. Compliance, must comply with:
 - 1.1. Any and all regulations made by any authority having jurisdiction over or in connection with the works.
 - 1.2. Code of practice published by BSI and the other major trade organisations.
 - 1.3. British standards referred to in the specification.
 - 1.4. BRE digests and other autoreactive documents prepared by the major government organisations.
 - 1.5. Printed directions issued by the manufacturers of proprietary materials and components used (whether specified or not).

148 Compliance qualification

1. Excluding statutory documents, compliance is subject to this specification which take precedent. Compliance with codes restricted to the recommendations for workmanship unless otherwise stated (if the contractor has design input).

149 Strict accordance

1. All construction must be undertaken and completed in strict accordance with all drawings, specifications, schedules, statutory building and planning regulations, health and safety regulations, all relevant British Standards, codes of practice requirements and manufacturers recommendations, standards and instructions.
2. Any discrepancies and/or anomalies across construction information must be reported immediately to the contract administrator prior to commencement of any works.

150 Substitution

1. Products: If an alternative product to that specified is proposed, obtain approval before ordering the product.
2. Work: If alternative work to that specified is proposed, obtain approval before execution.
3. Reasons: Submit reasons for the proposed substitution.
4. Documentation: Submit relevant information, including:
 - a) manufacturer and product reference;
 - b) cost;
 - c) availability;
 - d) relevant standards;
 - e) performance;

- f) function;
 - g) compatibility of accessories;
 - h) proposed revisions to drawings and specification;
 - i) compatibility with adjacent work;
 - j) appearance; and
 - k) copy of warranty/ guarantee.
5. Alterations to adjacent work: If needed, advise scope, nature, and cost.
6. Manufacturers' guarantees: If substitution is accepted, submit.

155 Incomplete documentation

1. General: Where and to the extent that products or work are not fully documented, they are to be:
- a) Of a kind and standard appropriate to the nature and character of that part of the Works where they will be used.
 - b) Suitable for the purposes stated or reasonably to be inferred.

160 Manufacturer's recommendation

- 1. General: Comply with manufacturer's current printed recommendations and instructions.
- 2. Changes to recommendations or instructions since close of tender: Submit details.
- 3. Manufacturers' current recommendations and instructions: Keep copies on site.
- 4. Ancillary products and accessories: Use those supplied or recommended by main product manufacturer.
- 5. Agrément certified products: Comply with limitations, recommendations, and requirements of relevant valid certificates
- 6. Strictly observe all manufacturers written instructions, particularly in respect of handling, storage life and conditions, preparing, fixing and protecting.
- 7. Should a manufacturers instructions and this specification be at variation, seek instructions from the Architect.

166 Before commencing work

1. Liaise with all parties concerned and arrange liaison between trades. Do not start or continue any part of the work until:
- 1.1. Environmental conditions are suitable for the type of work involved.
 - 1.2. Supervisors are satisfied that operatives understand what is required.
 - 1.3. Related preceding work is fully completed and if necessary, tested and approved.

190 Schedule of works, drawings and reports

1. General: The specification must be read in association with all available drawings and pricing schedule.

200 Sub-consultants, specialists

1. General: The specification must be read in association with all available sub consultant / specialists' information, including drawings, schedules, specifications, and reports. Any discrepancies / anomalies identified are to be brought to the attention of the Architect as soon as they become evident.

250 Contractor designed packages

1. Where appropriate, sub-contractor designed packages related to the architectural elements are highlighted upon drawings and within the preliminaries.

260 Familiarisation

1. The contractor shall fully familiarise themselves with the buildings, site and its construction prior to commencement.

265 Design responsibility

1. The contractor will be responsible for developing the design intent drawings / solutions as necessary. Refer to the unique work item references for locations, where this may be applicable.

270 Design intent drawings

1. The contractor is to develop the design intent drawings (where requested) and provide the Architect with drawings for comment. Drawings to be provided, shall include the following as a minimum:
 - 1.1. General arrangement drawings
 - 1.2. Detail fabrication drawings
 - 1.3. Product information sheets
 - 1.4. Structural and fixing calculations

Ω End of Section

BUT04

Asbestos / hazardous materials

Clauses

100 General

1. Be aware that existing buildings / assets may contain materials which are considered hazardous by current standards. All such materials must be flagged and carefully disposed of in accordance with all relevant legislation and safety standards, and relevant authorities informed wherever applicable.
2. The [Control of Asbestos Regulations 2012](#) came into force on 6 April 2012, updating previous asbestos regulations to take account of the European Commission's view that the UK had not fully implemented the EU Directive on exposure to asbestos (Directive 2009/148/EC).
3. Regulation 4 of the CAW Regulations relates to the identity of the responsible party/ parties who have a duty to manage asbestos. This onus has been changed from the "employer" – as defined under the Health and Safety at Work Act 1974 – to the "duty-holder" who will have a duty to manage asbestos.
4. The CAW Regulations define a "duty-holder" in Regulation 4 as (a) "every person who has, by virtue of a contract or tenancy, an obligation of an extent in relation to the maintenance or repair of non-domestic premises or any means of access thereto or egress therefrom; or (b) in relation to any part of non-domestic premises where there is no such contract or tenancy, every person who has, to any extent, control of that part of those non-domestic premises or any means of access thereto or egress therefrom".
5. The definition of a "duty-holder" under the CAW Regulations is therefore different from the definition under the 1987 Regulations (where the duty was placed on the Employer).
6. The CAW regulations require the duty-holder to manage the risk from asbestos in non-domestic premises. The "duty-holder" is required to ensure that a "suitable and sufficient assessment is carried out whether asbestos is liable to be present in the premises". The duty-holder shall take such steps that are reasonable in the circumstances in making the assessment to "those parts of the premises which are reasonably accessible".
7. The industry standard for asbestos surveys requires contractors to be accredited by the United Kingdom Accreditation Service (UKAS). Surveys are carried out in accordance with the Method of Detecting Hazardous Substances, (the HSE Asbestos Survey Guide HSG264:2012) and three surveys are identified as follows: -

Type 1: Location and Assessment Asbestos Survey (presumptive)

Type 2: Standard Sampling, Identification and Assessment Asbestos Survey (sampling survey)

Type 3: Full Access Sampling and Identification Asbestos Survey (pre-demolition/ major refurbishment surveys)

8. The Architect is not an expert in matters relating to asbestos, nor an accredited surveyor in respect of the UKAS requirements and this report should therefore not be considered as a contribution to the Asbestos Survey Report required by the CAW Regulations. The Architect has no duty to report on asbestos. However, where there is reasonable cause to suspect that asbestos containing materials are encountered during the course of the fabric inspection, these matters will be reported in the usual way.
9. All contractors and specialist sub-contractors dealing with asbestos are to comply with the following Regulations and Directives:
 - Asbestos Surveys and Asbestos Sampling and Removal.
 - The Control of Asbestos Regulations 2012 (2012/632).
 - HSE Asbestos – Health and Safety in the workplace – April 2012.
 - The revised Approved Code of Practice (ACOP) 2nd October 2013.
 - ISO 17020 UKAS P402 accredited laboratory for testing.

Ω End of Section

BUT06

Protection / opening up and investigative works

Clauses

75 Background

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

100 General

1. The building(s), structure(s), asset(s) and its surroundings are of great historical importance and it is essential, therefore, that the greatest possible care be taken throughout the repair works to eliminate every possibility of damage to the fabric, and its surrounds from any cause whatsoever.
2. The Contractor shall be responsible for arranging with the owners' agents / owner direct for the removal, storage and protection of all rooms, windows or articles which are retained within the finished works and would otherwise be exposed in any way to damage through vibration, damp or humidity attack. The Contractor must ensure that this has been done before the relevant work is commenced. Particular care is to be taken to protect all glazing
3. Work which exposes the historic fabric to the weather (where protection is not specified) undertake during favourable weather; once such work is commenced, complete it as quickly as possible. The Contractor is responsible for preservation of the historic fabric in accordance with the contract documents.
4. Cutting away and alteration work generally:

Undertake with the minimum amount of disturbance to those parts of the building intended to be left undisturbed. The use of power tools should be carefully considered and only used with the Architect's approval. The Contractor is to assume that all opening up will be undertaken by hand.

5. Provide all necessary forms of protection, temporary support, and safe access as necessary to allow for inspection of and access to the exposed structure or fabric.

110 Onsite recording prior to works

1. In advance of any works commencing onsite (inc. opening up, demolition, removals, temporary, conservation, restoration works etc) the existing building fabric must be thoroughly recorded to provide a snapshot in time and reference archive material for future usage.
2. The contractor shall provide a full dilapidation survey, covering the area of works, to the Conservation Professional for wider distribution and should be provided digitally.
3. The contractor shall agree with the Conservation Professional and clearly label onsite items, fabric and contents that are not to be demolished and/or removed but are to be carefully protected and retained for reuse, conservation and/or restoration works.
4. Subject to approval and prior to commencing removal of detritus, the contractor shall ensure that all items to be salvaged are identified, set aside, protected, labelled (catalogued & tagged), safely stored for reuse and/or retention.
5. The contractor shall adopt the following strategy for recording onsite items, as follows:
 - a) Full dilapidation survey photographs both internally and externally prior to any works taking place.
 - b) Photograph each specific asset, component and/or element which are to undergo works (removal, repair, restoration etc), including but not limited to:
 - a. Windows; varying types, surrounds, cills, linings, ironmongery etc.
 - b. Door set; varying types, door leaf(s), frame, linings, architraves, ironmongery etc.
 - c. Take mouldings and profiles (cross sections/dimensions) of elements and components to allow for reproductions (like-for-like) to be produced.

- d. Where elements of the fabric are loose, carefully remove (retain intact as far as is feasible), tag and store a remnant (of the above) of each instance to assist with future matching within a designated area within the building.
- e. It will also be possible to record areas of the fabric which were previously unseen: offering a unique opportunity to gather invaluable data, previously unavailable.

115 Onsite tagging and recording of objects

1. No direct fix and or permanent marking of items / elements / components will be acceptable.
2. Temporarily mark a unique identification number on each object, component prior to any removal and catalogue accordingly.
3. The reference number must be:
 - unique, none repeating.
 - durable to remain legible over time.
 - removable, should the need arise to make a change in the future.
 - never cause harm to the object, element, or component.
4. All items temporarily removed and identified to be reinstated within original locations at a later date, should be thoroughly recorded so that the item is returned to the exact position to which it was removed.
5. The exact tagging protocol may differ from object to object but will typically include one of the following methods:
 - Cloth binding cord loosely wrapped and tied with solid tag.
 - Brass wire and solid tag, can be used where existing holes or voids exist within the object in question. Choose a strong holding point.
 - Direct paper labels, generated from a computer or hand written.
6. If in doubt, discuss in further detail with the Architect and client curator.

125 Protection of fabric

1. The Contractor is to prepare a full schedule of all existing defects and damage to the fabric, and the routes to their work areas. Any damage to the fabric found on completion of the works which is not within this schedule will be made good at the contractors expense. Any damage whatsoever caused by the Contractor during the works should be reported to the Architect immediately. The Contractor shall be responsible for the cost of making good any such damage in a manner as directed by the Architect
2. The Contractor shall ensure the proper protection and storage of all materials be they new, secondhand or reused, to eliminate any deterioration or damage. The Contractor shall provide and maintain all necessary adequate temporary dust screens and sheets, etc. for the protection of the public and the fabric, for the purpose of security and to provide complete protection from the weather
3. The Contractors attention is particularly drawn to the need for weather protection when/if the roof coverings are removed.
4. The Contractor shall protect, support and maintain all existing services which are within the area or are affected by the works
5. Generally, provide all necessary and suitable protection to all areas of work and areas adjacent to the works in order to enable the least destructive, safe and efficient means of carrying out of the works.
6. The element of protection is to encompass the non-destructive shielding of the existing building fabric and finishes against wear and tear and destructive working methods; the enclosing of working areas and areas of opening up against environmental and climatic conditions; the security of the working area and the site as a whole and the safety of site operatives, visitors and general public.
7. 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.

8. All protection is to be loose laid, or pressure fixed by wedging, bracing, clamping or tying as appropriate in a manner that will not damage the existing fabric of the building, no direct fix will be acceptable. The use of cloth string is acceptable.
9. The Contractor is to make allowance for and carry out all necessary modifications and adaptations of all forms of protection, where so instructed or where so required, to enable the safe and efficient carrying out of the works.
10. All protective installation must be regularly and routinely checked, with replacement of materials etc where well-worn and/or defective.
11. The appropriate method of protection is to be agreed with the Conservation Professional.
12. Equipment and materials must not be propped against decorated surfaces, fittings, or furniture.
13. 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.
14. **No** contents or fixture and fittings shall be moved by the Contractor without the written permission of client.
15. **No** adhesive tapes or mechanical fixings shall be used to secure insitu protection. If no alternatives can be proposed, each instance of proposed use should be discussed with the Architect and Project Conservator.
16. **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.
17. Cutting of boards on site; dustsheets must be laid, and vacuum cleaners must be available at the point of work and used to collect dust as and when created.
18. All Contractors must adhere to the restricted walkways through the building / site. These routes **MUST** be clearly visible and identified by the Contractor.
19. All contractors must use dustsheets at all times.
20. 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.
21. All areas of the building / asset are vulnerable and important and should be protected for the duration of the building works.
22. All items protected must be protected by products and materials which are fire retardant.
23. Phasing / Sequencing:
 - 23.1. Installation of protection works is likely to be phased pending investigation works. Refer to Scope of Works document and drawing package.

160 Health and safety

1. The contractor will provide props, struts, scaffolding and shores, etc as necessary to ensure the stability of the existing structures, including making preliminary investigations and calculations where necessary. The Contractor is responsible for the overall safety of the Works and existing structures unless expressly made the responsibility of others in the Contract Documents. All such methods of temporary support and access are to be clean and isolated from the building fabric by suitable forms of protection.
2. All works are to be carried out strictly in accordance with all relevant legislation and legal obligations currently in force. The Contractor is to have particular consideration of the programming, planning and safe carrying out of operations in respect of other works and site operatives on and about the building.
3. The Contractor is to prepare and submit to the Contract Administrator and Principal Designer, for consideration, Risk Assessments and Method Statements to address the safe carrying out of the works with the minimum of disruption to the existing structure and fabric.
4. All opening up is to be carried out strictly in accordance with the health and safety measures and requirements.

165 Nuisance

1. Prevent all avoidable nuisance on and about the site with particular reference to fumes, dust and noise. Establish and maintain good relations with adjoining occupiers. Smoking is only allowed on site outside of the building, where it has been agreed with the Client and waste is to be collected and disposed of by the Contractor at the end of each working day.
2. Bonfires will not be permitted. All waste materials shall be removed from site and disposed of in a suitable manner and in compliance with all relevant legislation.

170 Risks

1. Fire:
 - 1.1. Fire is one of the greatest risks as the damage can be so far reaching. Where a process creates a high risk of fire and is considered unavoidable, it is important to ensure that there is an adequate policy in place to mitigate the risks.
 - 1.2. Where possible all hot work is to be dealt with offsite or on the ground well away from the building fabric. Hot work is only permitted only when deemed necessary by the Conservation Professional.
 - 1.3. Where possible prefabrication and Hotwork are to be carried out a minimum distance of 6 m outside the building, on the ground and with no combustible materials within 10m of the Hotwork operation.
 - 1.4. The contractor is to advise the Conservation Professional, in writing beforehand, of the dates when hot work is being carried out, and the details (including method statements) of the work. This is to allow the client and Conservation Professional to consider whether any further precautions are deemed necessary. A Hot Work Permit System may be introduced.
2. Burglary, theft and arson:
 - 2.1. The asset must be thoroughly secured and protected at all times throughout the construction contract. All windows, doors and access points into the asset shall be blocked and/or secured at all times, ensure that the fixings do not, in themselves damage the building if it is forced.
 - 2.2. Remove ladders, along with tools and other materials which may pose a risk to the fabric. Consideration should also be given to individual objects of value, this may include fixed assets fireplaces, doors etc which could be easily stripped out or loose portable items. These assets should be security marked with a property ID system (SmartWater or SelectaDNA for example) with assets temporarily over boarded to provide additional protection and hide from view. Details of the property identification system should be displayed at the perimeter if adopted to deter certain individuals.
3. Access routes:
 - 3.1. It is important to consider access for equipment, materials, and people throughout the asset for the duration of the project. Prior to undertaking actual building works, access routes and elements and/or components of significance should be thoroughly protected.
 - 3.2. Access routes should be carefully chosen to avoid proximity to vulnerable fabric, though this may be difficult for historic fabric. Mitigation measures should be implemented within the interior which may involve the use of foam padding and sheets or plywood or plastic padding for the protection of floors, staircase, and balustrades.
 - 3.3. Protective measures must be carefully cut to fit and fixed together to minimise the risk of them becoming trip hazards. Sheets are normally taped together at joints.
 - 3.4. Principal trafficked areas need to be checked regularly to ensure that they remain sound and have not moved.
 - 3.5. Vulnerable corners and projections may also need to be protected with foam rubber or expanding foam separated from the material by a sheet of polythene.
4. Incidental damage during repair or conservation work:
 - 4.1. Identify potential risks and look to reduce the likelihood of occurrence and severity, when undertaking any intervention or conservation works.

5. Water damage:

- 5.1. The exterior envelope of the asset must be maintained and protected at all times to reduce and limit potential water ingress issues.
- 5.2. As well as rain, other sources of moisture could be introduced during pointing, masonry cleaning and other conservation processes.
- 5.3. Gutters and downpipes which are disconnected and/or removed during construction works shall be reconnected immediately or temporary drainage system introduced.

300 References

1. Some standards in this specification may have been withdrawn by the British Standards Institution but remain appropriate and applicable for the traditional repair and reinstatement of historic building fabric. Copies of these withdrawn standards may be obtained online.

Ω End of Section

BUT07 Mortar and pointing

Clauses

100 Materials

1. Hydraulic lime mortar:

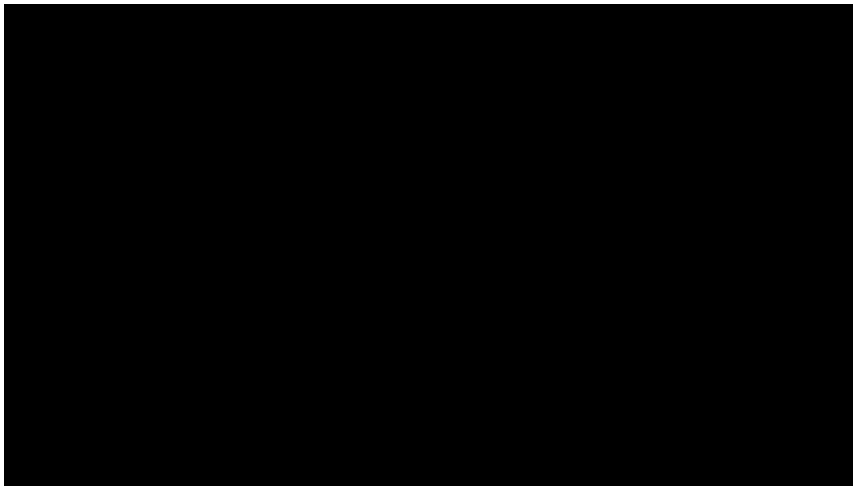
- 1.1. Hydraulic Lime Mortar 1:2½/3 using a moderately hydraulic Lime (St. Astier NHL 3.5 or similar approved) and well graded sand aggregates from 2.5mm down to 75 microns. Strength of mortar may be reduced to NHL 2 following analysis of existing mortars.

Suppliers to be consulted for variations in aggregates to achieve required distribution and colour.

Mixing and usage to be strictly in accordance with suppliers' recommendations.

2. Hydraulic lime:

- 2.1. Hydraulic Lime or pre-mixed hydraulic lime mortar may be obtained from:



3. Prompt natural cement:

- 3.1. 3 parts ollitic sand; ½ part hotlime; ½ part Vicat Prompt natural cement; 1 part sieved coal ash. Suppliers to be consulted for variations in aggregates to achieve required distribution and colour. Mixing and usage to be strictly in accordance with supplier's recommendations.

4. Mortar Testing: The lime supplier is to provide chemical analysis and mortar compressive strength test results in accordance with BS EN 459 using the dry hydrate currently produced on request.

101 Mortar mix

1. Mortar Mix: Only after a sample has been approved by the Architect shall the Contractor prepare aggregate blended to the correct grading and/or coarse stuff. The Contractor should therefore be aware of the subsequent preparation and standing times, including initial and final setting times prescribed in this Specification for the various materials.
2. Mix materials sufficiently to obtain a uniform colour and consistency and as specified elsewhere.
3. Lime Putty: Lump lime (quick lime) shall be properly slaked in an excess of water and stirred and hoed to ensure coagulation does not occur. All slaking must be carried out under controlled conditions which are to be strictly in accordance with the CDM regulations. The putty shall then be screened through gauze equivalent to a 2.36mm mesh sieve to BS 410:1999 and 2000 and ISO 3310. Non-hydraulic lime shall then be left for at least 48 hours. Prior to batching all excess water shall be siphoned off. It shall then be matured for not less than three months. The putty at time of use to be strictly in accordance with BS 890:1972, BS 6463:1999 and BS EN 459:2010.

4. Dowels Cramps and Joggles: Where it is necessary to secure newly prepared stone or refit existing stone that has become loose with mechanical means, dowels or cramps may be used. Dowels or cramps are to be phosphor bronze or 316 stainless steel grouted in with lime mortar or a lead pour between the stone and the fixing. Dowels shall be threaded or notched to aid purchase on the stone. Where these materials cannot be used a two-part epoxy resin may be used with prior agreement. The position, size and type of cramp or dowel are to be agreed with the architect before preparation is made to receive the fixing.
5. Where appropriate lead joggles may be used to align indented stones.
6. Coarse Stuff; (Non-hydraulic lime): The coarse stuff of one-part air lime putty to three parts sand shall be batched by gauge box. If it is mixed in a mechanical mixer only the minimum amount of water to achieve mixing shall be added.
7. The coarse stuff of air lime and sand shall then be kept covered with damp sacking or polythene sheeting to prevent drying out, and stored for a period of two weeks before use in the main work.
8. Hydraulic Lime:Sand Mixes: Mortar is to be prepared using hydraulic lime and well graded aggregate of the appropriate particle size to suit the joint width.
9. For tendering purposes, assume the following basic mixes: Exact proportions are to be agreed with the Architect on site following the preparation and testing of samples.
 - 9.1. Hydraulic limes, based on St. Astier NHL2:
 - 1 part NHL2; 1 part sieved Baston plastering sand; 1 part Baston sharp sand; 1 part Clipsham stone dust.
 - 1 part NHL2; 2 parts sieved Baston plastering sand; 1 part yellow building sand.
 - 9.2. Hydraulic Lime: Putty limes, based on mature Singleton Birch lime putty:
 - 1 part putty; 1.25 parts sieved Baston plastering sand; 0.5 part Baston sharp sand; 0.5 part Clipsham stone dust; 0.25 part yellow brick dust
 - 1 part putty; 1.5 parts Clipsham stone dust; 0.75 part yellow building sand; 0.25 part yellow brick dust.
 - 9.3. Hot limes, based on Singleton Birch ML90:
 - 1 part quicklime; 2.5 parts sieved Baston plastering sand; 1 part Baston sharp sand; 0.5 part yellow brick dust; 1 part Clipsham stone dust.
 - 1 part quicklime; 3 parts Clipsham stone dust; 1.5 part yellow building sand; 0.5 part yellow brick dust.
10. In exposed locations where the stone is hard and durable an eminently hydraulic lime may be used. Where the stone is very soft and the exposure low, a feebly hydraulic lime or fat lime (with or without pozzolanic additive) may be used subject to the work being carried out at an appropriate time of year or under protective covering and controlled ambient conditions. The addition of pozzolanic material, if required, will be specified by the Architect.
11. All mixing and handling equipment is to be kept clean. Containers, boards, tools, etc. shall be well cleaned before the next batch of mortar is mixed/used.
12. Measures: Constituents by volume in clean gauge boxes. Cement gauging boxes are to be kept dry at all times. Gauging by the shovel is strictly forbidden.
13. Mixing: Hydraulic lime is to be added to dry aggregate when knocking up the appropriate mortar mix. The addition of water must be kept to the minimum and should not exceed 75% of the lime by volume. Additional workability if necessary may be achieved by increasing the mixing time not by adding water. A mechanical paddle mixer may be used. If a roller pan mixer is used it must be correctly set to avoid crushing of the aggregate. All mortar is to be used within two hours of mixing.

102 Sand

1. Sand shall be Cumbria sand from Esk Quarry.
2. The sand shall comply with BS 1200:1976 and BS EN 13139:2002, being clean, sharp and coarse. For repair work the sand shall be of the correct colour and texture so that the new mortar, when dried out, will match the original colour and texture of the original or existing mortar (as appropriate). For new work, the sand shall be of the correct colour and texture so that the new

mortar, when dried out, will match the approved sample. The aggregate size is to be well graded to match as closely as possible the existing approved mortar sample and to be appropriate to the width of the joint.

N.B. BS 1200:1976 remains applicable in this specification for the traditional repair and reinstatement of historic building fabric and associated alterations.

3. The sand shall be free of clay, silt, organic matter and excessive fines. At least half its content shall be a quartz sand, blending from different sources may be necessary.
4. The maximum particle size and grading will be related to the joint width. All sand and aggregate must be evenly graded with no more than 35% and not less than 10% of any one grading retained on each consecutive sieve size. Sieve sizes that apply depending on mortar joints are 5.0, 2.36, 1.80, 0.6, 0.3, 0.15 and 0.075 mm.
5. Where narrower or wider joints occur the grading will be adjusted to suit after discussion with the Architect. Generally the maximum particle size should be no less than one third of the joint width.

103 Water

1. Water shall be clean and fresh, free from organic and harmful matter in such quantities as would adversely affect the properties of the mortar. Test in accordance with BS EN 1008:2002 any water not obtained from the mains.

104 Lime

1. Non-hydraulic Lime: To comply with BS 890: 1972, BS 6463: 1984/1987 and BS EN 459.

N.B. BS 890:1972 is also relevant for traditional feebly hydraulic and grey chalk limes. Although withdrawn by the BSI, BS 890:1972 remains applicable in this specification for the traditional repair and reinstatement of historic building fabric and associated alterations.

2. Lime Putty: Lime Putty: Air/pure lime (i.e. non-hydraulic lime) putty may be obtained from an approved supplier or prepared by the traditional method of slaking lump lime. Lime putty must comply with BS 890:1972 and BS 6463:1987. Hydrated non-hydraulic lime is not to be used unless specified.
3. Hydraulic Lime: Hydraulic lime is to comply with the French standard NFP13-310 and the European standard BS EN-459-1:2010, 2:2010 and 3:2011. The particular traditional classification of hydraulic lime class C1, C2 or C3, will be specified by the Architect appropriate to conditions of existing masonry, exposure and anticipated weathering. The traditional English and French classifications (C1, 2, 3 and D) are used below as recorded by Smeaton and Vicat in the 18th and 19th century. The traditional feebly (grey chalk) lime is not currently available and has been omitted from the present BS and EN 459 Standard. Where required by the Architect, the hydraulic lime is to be obtained from one of the following suppliers:

- 3.1. a) Feebly hydraulic lime (Class C1): Unburnt (grey chalk) limestone is available from:

Totternhoe Lime and Stone Co. Ltd
Totternhoe, Nr. Dunstable
Bedfordshire
LU6 2BU
Tel: 01525 220300

Burning of the stone to produce feebly hydraulic lime has to be by special arrangement. This is to be used for all fine ashlar joints and gauged brickwork with mortar joints of 2mm or less. An alternative method of obtaining a similar lime is to blend a freshly slaked non-hydraulic putty lime with a NHL 2. These vary from one manufacturer to another and therefore mix proportions must be tested before use in the main work.

- 3.2. a) Moderately Hydraulic lime (NHL 2) (Class C2): This is available from numerous suppliers but colour and strength vary. Mortar samples using the lime as well as the aggregate must be submitted and approved by the Architect before ordering lime for the

main work. Lime suppliers are to submit the whiteness index and compressive strength for their lime mixes at 2 years prior to the sample preparations. Available from:

- The Traditional Lime Co.
 - Ty-Mawr
 - Ecological Building Products
 - Ionic Building Supplies
- 3.3. a) Eminently hydraulic lime (NHL 3.5) (Class C3): Available as above. Also Socli natural hydraulic lime (Castle) NHL 3.5, available from:
- The Traditional Lime Co.
 - Ty-Mawr
- 3.4. a) Very high strength hydraulic lime (NHL 5) (Class D): Socli natural hydraulic lime available from the suppliers noted above.
4. Dry Hydrate Fineness: The Contractor is to retain a 0.2mm mesh (200 micron) sieve on site at all times to enable fineness of the dry hydrate to be checked by sampling before use.
5. Hydraulic Lime Putty: Hydraulic lime in accordance with above and from an approved manufacturer, run to putty in accordance with the specific gravity and workability given for CL lime putty in BS EN 459. NHL 2 lime is to be used on the same day that it is run to putty. Hydraulic lime putty may be thinned to hydraulic lime grout with an appropriate portion of fine aggregate as given in the Particular Specification, where the grouting of exceptionally fine ashlar joints and gauged brickwork (2mm or less) is required.
6. Aggregate: The word “aggregate” in this context includes one or more of the following:- sand, broken or crushed stone and crushed brick. It also includes other crushed inert materials. If sand particles are not of the correct colour or size, or the aggregate in the existing mortar to be matched is composed of crushed or broken stone or other material, this is to be matched with a similar material.
7. Additives: No additives (pigments, plasticisers and the like) of any sort shall be incorporated in the mortar except in very special circumstances on express written instructions given by the Architect. Raw linseed oil, up to a maximum of 3% of the lime by volume, may be added to aid water-shedding properties of the mortar where appropriate following approval of trial samples by the Architect.
8. Ready Mixed Lime:Sand for Mortar: Only to be used from an approved source, agreed with the Architect. Any such ready mixed mortars are to comply with BS 4721:1981 and BS EN 998:2003 and must not include Portland Cement.
9. Transport, Storage and Handling of Materials: Approved sands shall be stored in clearly marked bags or bunkers and protected from inclement weather, site debris, leaves and the like. Quantities shall be based on the use of dry sand and accurate allowances made for bulking.
10. Lime putty is to be stored in clean containers, protected from contamination and kept in an excess of water to prevent carbonation.
11. Hydraulic lime is to be supplied in bags which must be date stamped with the day of manufacture. Hydraulic lime over 3 months old must not be used. All bags must be delivered to site undamaged and dry without moisture penetration of the covering. Dry hydrate that has been exposed to the air or moisture in transit and in damaged bags is to be rejected.
12. Hydraulic lime must be stored in a dry weatherproof building with a raised floor. Record the date of delivery. No materials may be stored on the ground. Do not store bagged lime on site for more than ten weeks.

105 Fine aggregates

1. All sand shall be to BS 1199 and 1200:1976, well-graded non-staining clean sharp coarse sand, uncontaminated by clay/silt. Sand shall be selected so that when the mortar has dried out the colour will match the colour and texture of the original mortar, unless instructed otherwise in writing by the Architect.
2. For work requiring very fine joints in the masonry sand grain size may impede filling the joints. In these instances, fine stone dust or brick dust should replace the sand as the fine aggregate.

3. Suppliers of lime to be consulted on suitability of sands proposed. Ideally sand to be obtained from the supplier of the lime.

110 Pre-works

1. Before any re-pointing work is undertaken, a survey of the building / asset / structure, shall be carried out by the supervising officer and the contractor to determine the precise areas to be re-pointed. Often much of the old lime mortar raked out is sound and could, with advantage (appropriate access), have been left in place. It is essential that all pointing is carried out to match previously approved samples.

115 Preparation

1. In preparation for repointing works, using hand tools only, rake out all loose jointing material to a depth of not less than twice the joint width. All raking/cutting shall leave a clean, square face at the back of the joint, so as to provide optimum contact with the new mortar.
2. The prepared face and joint should be carefully cleaned out with a natural bristle brush and thoroughly flushed out with clean water, avoiding unnecessary saturation. All dust and loose material must be removed, working from top to bottom of the wall.
3. All cutting out and cleaning works should be available for inspection prior to commencement of the repointing.
4. No cleaning agents or fungicides are to be used either before or after repair works, except on the express authority of the Architect or in connection with treating root pockets.
5. Any sound pointing should be left undisturbed, even if it has weathered back behind the general wall face to as much as half the joint width. Generally, only rake out where the existing mortar is capable of being removed by raking out by hand with a blunt instrument, leaving the arrises of the brickwork or stone unharmed. A hammer and chisel should not be used unless permitted by the Architect.

Under no circumstances should an angle grinder or similar tool be used.

The definition of failed means that the pointing has cracked, been partially lost or created a water trap.

6. Any metalwork such as iron wedges found in the mortar joints will be recorded and then removed where possible.
7. Where it is desirable to remove damaging and unsightly cementitious pointing, experiments should be carried out to the approval of the Architect to ascertain the most appropriate method of removal and to limit damage caused to existing work.
8. Vegetation: Remove all growth from the walls and carefully grub out the roots. Treat the root pockets with a solution of sodium chlorate or with tebuthiuron weed-killer. Build up the root pockets reusing the original material in the mortar specified.

120 Application

1. Mortar should be plastic and workable but as stiff as possible. It should be pushed into the back of the joints in layers, avoiding large volumes of deep filling at all times.
2. On rubble elevations, many of which exist at the site / asset, pinning stones should be used to fill wide and deep joints in the same style as the original build. This will reduce the volume of mortar required and will assist the process of setting and final full carbonation. A good yardstick is to keep the joint thickness to no more than a "finger" thick, if the joints are wider than this, they should be pinned with compatible matching masonry.
3. A "well filled" joint is close to flush with the surrounding masonry / rubblework.

125 Pointing

1. It is essential that the masonry is thoroughly dampened when pointing is commenced. If the joints have dried out before cleaning, they must be re-wetted with a hand-held spray prior to placing of any new mortar. No water should be left lying within the prepared joint.
2. The mortar must be of minimum water content and should be pushed into the joint and firmly ironed in with the maximum possible pressure and minimum of over-working. Pointing irons should be used, not pointing trowels. The pointing irons may be cranked, bronze or steel flat of a width which will fit into the joint and ensure compaction over the full width. Compaction is therefore achieved throughout the depth of the joint each time mortar is placed rather than from the surface alone. The Contractor should be aware that it may be necessary for them to fabricate pointing irons to undertake the works.
3. If the joint is to be filled in one operation, the mortar must be almost crumbly and be ironed in very firmly.
4. Repointing work should begin at the uppermost section of the wall and proceed downwards, ensuring that all the mortar is pressed well into the joints to achieve good compaction. Fill all the joints solidly with the approved mortar mix finishing very slightly back from the masonry and in accordance with the approved sample. The mortar is not to be spread or buttered onto the face of the masonry unless specified.
5. Where directed to produce a weathered, roughened finish to expose the aggregate, the mortar should be left to take its initial set and then stippled with a stiff bristle brush. The bristles should not be dragged across the face but tapped hard against it. Timing is critical. If this technique is applied too early the mortar will be removed too easily and the bond forming between the brick/stone and the mortar will be disrupted. If too late, it will be difficult to make the required impression.
6. The particular finish required (stippled, struck, double struck, tuck pointed or galleted) is to be specified by the Architect on site according to the existing and adjacent.
7. Any slight fractures due to shrinkage must be cut out and remade prior to at practical completion of the contract and for final completion at the end of the defect's liability period.
8. When placing the mortar ensure that it is placed in the joint and does not spread over the adjacent stone and cause any lime staining. Likewise, when finishing off ensure no lime is brushed or sponged over the face of the adjacent stones causing lime staining. Such lime staining will not be considered acceptable as a finished result. Surplus lime on the face and arrises of masonry should be cleaned off immediately and all faces kept clean at all times to avoid staining.
9. Rake out all joints to a minimum depth of 35mm using a hooked knife or similar tool. Under no circumstances shall chisels or mechanical tools (disc cutters etc) be used. Extreme care must be taken to ensure no damage is caused to the stonework. Any stones damaged shall be replaced at the contractor's expense.
10. All raking out is to be inspected by the Architect prior to repointing. The works are to be co-ordinated such that preparation is carried out to agreed areas and made available for inspection by the Architect. The Contractor is to be given a minimum of 48 hours' notice for inspection.
11. All joints are to be filled to their full depth and pointed with a purpose made pointing bar with a diameter of 30mm. Where joints widen out due to erosion of the existing stone the pointing is to be kept back to ensure that a consistent visual joint is achieved. Care is to be taken to ensure that a free draining surface is always maintained or created. After the initial set of the mortar, it is to be stippled with a stiff bristled non-ferrous brush to give a texture to the pointing and to remove the smoothness of the pointing bar – giving a 'weathered' appearance.
12. It is essential that perpenders are allowed to run into horizontal bed joints without any clear definition or "lining" occurring such that the mortar should visually transfer from perpend to bed joint in a smooth manner.
13. Clean off any surplus or spread of mortar with a clean pointing trowel as work proceeds. Great care should be taken to minimise the spread of mortar as lime staining may occur.
14. Filling in pointing is to be carried out in small areas such that all operations can be completed within the working day with due notice being paid to any potential adverse weather conditions.
15. The work is to be kept clean from mortar spillage at all times. Completed areas are to be protected until cured.

140 Protection and cleaning

1. General: The work shall be protected from direct sun and rain for a minimum of four weeks (after application). The joint surface finish should be applied and tended at an average minimum temperature of 10°C until the face has dried and hardened. The period of protection must be increased relative to the slower carbonation rate that occurs at lower temperatures.
2. Protect all new work against frost, any joints damaged due to frost action is to be cut out, re-made in frost free conditions, and protected as above.
3. During dry weather, all new pointing shall be kept continuously moist (but not wet) for a minimum of 4 weeks to ensure that the set takes place slowly. Damping down is to be done with a fine mist spray – not a jet of water – in several applications. Water must not be made to flow down the face of the work when damping down. Allow for tending and spraying down for a minimum of three times a day during this period.
4. Turn back scaffold boards adjacent to brick faces at night and during heavy rain to avoid the disfiguration of finished work by abrasion and splashing.
5. Any mortar or stains caused by the works on the face of the masonry must be completely removed before the mortar hardens.
6. Pointing on horizontal surfaces – copings, paving and the like – is to be protected to prevent undue saturation in wet weather.
7. Frost: Work must not be carried out during frost conditions. Frost must not be allowed to affect completed work before it has fully cured. Manufacturers of hydraulic limes are to guarantee the curing periods for the class of lime supplied.
8. Generally pointing and bedding mortar is not to be laid when the temperature is 5°C or below and falling. Work may re-commence when the temperature is 3°C or above and rising. The Contractor is to keep maximum and minimum thermometers on site for the duration of the contract to record night and day time temperatures as directed.
9. Winter working and working when ambient temperatures are below 3°C may only proceed where the Contractor has provided sufficient protection and working conditions to ensure average 24-hour day temperatures for all application, preparation and aftercare of the mortar remain no lower than 8°C at all times.
10. Any work affected by the weather is to be cut out and replaced at the Contractor's expense.

150 Finishing

1. To ensure good compaction and adhesion within the joint, the mortar can be tamped firmly back with a stiff bristle brush as it starts to firm up. The timing of this is critical. If it is carried out too soon after placing, fines in the mix will be drawn to the surface and will form a dense skin, inhibiting the proper curing of the mortar. Once the surface of the mortar is firm (usually the next day) lightly scraping or brushing the surface to expose the aggregate can improve the appearance of the mortar and make the joints less visible.
2. When re-pointing joints should be raked back to approximately 25mm, thoroughly cleaned, including the top and bottom faces of the beds, ready for the new mortar. Pinning stones should not be removed, but if they are loose, they should be removed and put back during the re-pointing. Where a wall has previously been re-pointed and the pinning stones have been lost, suitable replacements should be used. The walls should be well washed to remove any dust and loose friable material making sure that the entire elevation is cleaned down to prevent staining on the walls. Impervious masonry should be dry when the work commences, however the original backing mortar should be kept damp.
3. Pointing deep joints should be done in layers of 20 - 25mm at a time, allowing the preceding layer to take up before applying the next.

160 Workmanship

1. The mortar shall be a little softer and more porous than the stones/bricks themselves and shall comply with BS4551:2005 parts 1 and 2 for mortars, screeds and plasters and BS4550:1989 part 3 sections 3.6 for methods of testing.

2. Samples: A range of sample mortar mixes are to be prepared for inspection by the Architect. For repair work the mixes are to match the existing mortar in respect of colour, texture and strength. The Architect will identify an area of existing mortar to be matched. For new work the sample mortar mixes are to be prepared as directed by the Architect.
3. The Contractor is to allow for blending and sieving sands from different sources, as necessary, to achieve appropriate grading, colour and texture.
4. If the Architect does not consider the sample mixes to be satisfactory in respect of the requirements of this specification, then further samples are to be provided by the Contractor as necessary.
5. Where applicable and sound existing pointing survives in good condition, the Architect will mark a section which is to be matched in respect of colour, texture and strength.
6. A trial area of pointing is to be executed on specially prepared sample panels (NOT THE EXISTING HISTORIC FABRIC) for approval by the Architect using mortar as specified and approved.
7. Where directed, the Contractor shall prepare a sample panel of masonry, executed in mortar mixes and pointing techniques as specified by the Architect, or to match existing work.

170 Completion

1. The Architect is to be advised at least two weeks in advance of when pointing will be complete in order that an inspection can be made prior to the removal of any scaffold.
2. Remove all tools, plant and equipment and used materials and debris.
3. On completion leave all clean neat and tidy to the satisfaction of the Architect.

300 References

1. Some standards in this specification may have been withdrawn by the British Standards Institution but remain appropriate and applicable for the traditional repair and reinstatement of historic building fabric. Copies of these withdrawn standards may be obtained online.

Ω End of Section

BUT08 Brick repair

Clauses

100 Materials

1. Brick:
 - 1.1. Bricks shall match existing in size, texture, bond, and colour. Samples shall be provided by the Contractor for approval and no final work shall be commenced on the repairs until the sample(s) have been approved in writing.
 - 1.2. Bricks shall be free from the presence of fungal attack, visible salts, paint, lime wash or other substances.
2. Ties:
 - 2.1. Ties to cavity work, where required, shall be as follows:
 - 2.1.1. a) where repair involves only the outer skin of cavity brickwork or solid masonry the ties shall be of a resin anchor type (Ancon Clarke ref. AC31) manufactured in austenitic stainless steel.
 - b) where repair involves both skins of cavity brickwork then ties shall be stainless steel fish tail ties to BS 1245: 1978) (Ancon Clarke ref. FVF).
 - c) where repair involves cavity wall tie replacement ties shall be stainless steel anchor resin ties of an approved type.
 - d) where repair involves rebuilding of solid masonry ties shall be stainless steel fish tail ties except where the existing bonding pattern allows header bricks to be used.
 - 2.2. All ties are to be manufactured in austenitic stainless steel by or other approved and agreed:

Ancon Clarke, Olive Grove Road, Sheffield S2 3GB.
3. Water:
 - 3.1. Water for the works shall be clean and fresh without pollutants. Where existing water supply is available within the building this may only be used with the Employers permission. In other cases, a lockable standpipe is to be erected to the approval of the Local Water Authority.
4. Mortar:
 - 4.1. Shall be lime mortar in accordance with specification as instructed. Seek confirmation prior to works.

105 Inspection

1. The Contractor should note that the tender documentation has been prepared based on visual inspection from ground level or from easily accessible parts, without the benefit of access scaffold. Further inspection will be required on completion of the access scaffold and the Contractor is allowed a period of 1 week for inspection and confirmation of the scope of the work in their programme.
2. The Contractor is encouraged to be represented during the inspection in order that they may contribute in any discussion regarding alternative methods of repair.
3. Notice:
4. Confirmation:
 - 4.1. Confirmation of the scope of the work will be the issue of revised drawings and confirmed by an Architects Instruction following completion of the inspection from the access scaffold.
5. Programme:
 - 5.1. The Contractor shall provide a programme of work based on the tender drawings before commencement of work on site. This programme shall indicate separately the erection

sequence for access scaffold, inspection period, order period and works on site for each area of work.

110 Protection, storage and cleaning

1. Protection of work area:
 - 1.1. Where large areas of masonry repairs are to be undertaken the scaffold is to be fully protected using a translucent non-combustible sheet such as Monaflex fixed to the outside of the scaffold.
2. Protection of the fabric:
 - 2.1. Any existing windows are to be protected with ply or particle board, in the areas adjacent to any area of work. Other features identified on the drawings are to be protected from damage.
 - 2.2. Where scaffold is erected internally or where scaffolding penetrates through into the building internal fittings shall be adequately protected.
3. Storage:
 - 3.1. Bricks should be stored in stacks on battens protected from moisture and freezing. Adequate care is to be taken to ensure that no damage occurs to the bricks during storage or handling.
4. Storage on scaffolding:
 - 4.1. Only bricks for immediate use shall be stored on the scaffold.
5. Protection of finished work:
 - 5.1. Protect all work from the weather and to ensure satisfactory curing of the mortar. Protection is to be maintained until completion of all work in that vicinity.
6. Cleaning of work:
 - 6.1. Keep face work clean and free from staining at all times.
 - 6.2. Clean off and rub down all brickwork as scaffold is taken down.
 - 6.3. If acid is used for cleaning down fully protect all windows and other areas liable to damage (e.g. paintwork etc.) Acid shall not be permitted if lime mortar has been used for pointing.

130 Cutting out of defective brickwork

1. The areas to be cut out shall be marked on site and approved/confirmed by the Architect prior to commencement of cutting out.
2. The brickwork shall be carefully cut out with chisels taking extreme care not to damage the arises of adjoining brickwork which may be being retained.
3. Any damage to adjoining areas will be made good at the contractor's expense.
4. The area is to be cleared of any mortar, debris etc and any defect in the backing masonry is to be reported to the Architect.
5. Where large areas of brick or block are to be removed the opening is to be propped with timber props ensuring that no damage is caused to adjoining brickwork.
6. Under no circumstances will the use of mechanical tools be permitted (disc cutters etc.)

150 Inserting new brickwork

1. The recess is to be thoroughly cleaned out and the adjoining brickwork is to be moistened to prevent the mortar "snatching".
2. New bricks or blocks are to be bedded on a bed (and backing where solid walls are involved) of 1:1:6 or 1:2:9 lime: sand: mortar as specified on the drawings. The mortar is to be prepared as described in the specification for lime mortar.
3. New brickwork is to be installed flush with the face of the building and ensuring that the bed joints and perpend joints are maintained consistent with the existing bricks/blocks.
4. The mortar is to be kept back 25mm from the face to facilitate later pointing.

5. Where brickwork is being inserted into worn areas of brickwork the new brick is to be set such that the face is in the line of the original face of the brickwork.
6. Where individual bricks or blocks are being replaced ties are not necessary.
Where larger areas of brickwork or terracotta blocks are to be removed then ties will be required to be located at centres as follows:
 - a) 900 mm centres horizontally and 450mm centres vertically with rows staggered.
 - b) 225 centres vertically within 300mm of any opening.
 - c) At closer centres if specified by the Structural Engineer or indicated on the drawings.

300 References

1. Some standards in this specification may have been withdrawn by the British Standards Institution but remain appropriate and applicable for the traditional repair and reinstatement of historic building fabric. Copies of these withdrawn standards may be obtained online.

Ω End of Section

BUT14

High quality joinery

Clauses

100 General

1. This specification covers all new high quality joinery.
2. All repairs, replacement, etc., will be scheduled and identified on drawings as appropriate and cross referenced to this specification.
3. For all new work this specification is to be read in conjunction with the drawings. Contractor fabrication drawings are to be provided for approval.
4. The Contractor is to satisfy themselves that they are in possession of adequate information prior to commencing any work.
5. 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.
6. 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.
7. No work shall commence until any such discrepancies have been resolved.
8. No claims arising from the Contractor's failure to comply with all above clauses will be permissible.
9. Machined samples of all timber shall be submitted to the Architect for approval. Where relevant the samples shall display the extremes of colour grain and texture variation. The approved samples will be retained as "control samples" against future deliveries. The samples shall have half the sample finished as the final finish specified with the remaining half unfinished.
10. Ensure that all delivered materials match the approved samples.
11. No orders for materials shall be confirmed by the joinery contractor until the representative samples have been approved.
12. The joinery sub-contractor is to ensure that they visit the site during the tender period to ensure that they are fully familiar with the conditions on site and to ensure that they are fully appreciative of the full scope of the works.
13. No subsequent claims arising from failure to inspect the site conditions will be entertained.

120 Components

1. Wood:
Manufacturer: By a firm currently registered under the British Woodworking Federation Accreditation Scheme.
2. Product reference: Contractor choice. Windows to match existing generally.
3. Timber: Generally, to BS EN 942
4. Species: Accoya A1 Class
5. Moisture content on delivery: 12-19% (or to match existing being fixed within 1%).
6. Finish as delivered: Prepared and primed for finishing on site. To be finished with a high-performance saturating wood oil for hardwoods. Product: Owatrol D1 Pro or equal approved.
7. Fixing: Screwed to timber framing.
8. The contractor shall provide fabrication drawings for comment, prior to order and manufacture.

130 Materials

1. All timbers shall be from a renewable source which is properly managed to ensure a sustainable supply.
2. Lippings, edgings, solid inserts, etc., shall be of solid timber.

3. All finished components are to be free from bow, twist, scratches, chipping, pimpling, depressions, glue spill, staining or any other defects, and shall be sanded to a smooth finish, free from sanding marks.

140 Fixings

1. All fixings shall be non-corrosive and of an approved type.
2. All screws shall be Stainless Steel 316 Minum Grade or Solid Brass due to timber choice.
3. Fixings which are visible on finished joinery will not be permitted.
4. Use fixing and joints methods and types, sizes, quantities and spacing of fastenings which are suitable having full regard to:
 - a) the nature and compatibility with the materials being fixed,
 - b) The recommendations of the manufacturers of the components and products being fixed or fixed to,
 - c) materials and loads to be supported,
 - d) conditions expected in use,
 - e) appearance subject to approval.

150 Environmental control

1. Ensure all components are stored in conditions appropriate to maintain the specified moisture content (10% to 12%) prior to manufacture, during machining, and subsequent storage.
2. Do not deliver any components or finished joinery to site until the correct conditions can be guaranteed to maintain the specified moisture content.
3. Do not fix any first fix backing framework, battens etc until conditions prevail to maintain a maximum moisture content of 18%.
4. Do not fix any joinery if the relative humidity is above 60%.
5. It is the joinery manufacturer's responsibility to ensure that the above conditions are satisfied, and the joinery sub-contractor will be responsible for replacing any component which is subsequently found to be defective due to movement of any description caused by variations in moisture content.
6. The joinery contractor is responsible for maintaining conditions in their stores and workshops and ensuring that the main contractor has provided the correct conditions on site prior to commencing any deliveries or installation.
7. Agree with the Main Contractor arrangements for maintaining the environment up to the date of Practical Completion of the works to ensure excessive movement does not occur.

160 Preparation and fabrication offsite

1. All internal joinery components shall be dried to achieve an average moisture content of 10-12% at the time of fixing. External joinery components will have a moisture content of between 13-19% on delivery.
2. All materials must be cut to the required sizes and acclimatised to end use conditions for a minimum of 4 weeks prior to being worked further.
3. Fabricate joinery components to BS EN 942:1996. Form sections out of solid timber except where specified. Carefully machine timbers to accurate lengths and profiles free from twist or bowing.
4. After machining all surfaces are to be smooth and free from tearing, woolliness, chip bruising and other machining defects.
5. Assemble with tight close-fitting joints with meeting surfaces to be perfectly flush to produce components free from distortion.

6. All fabrication is to be carried out in the joinery contractor's workshop unless prior written consent is given by the Architect for limited fabrication being carried out on site.
7. All joinery is to be manufactured to very strict tolerances to ensure the best possible finished product.
 - 7.1. Length + 2mm on the total length of the component.
Width + 1mm on the total width of the component.
Flatness + 1mm under a 1 metre straight edge.
Squareness + 1mm under a 1 metre straight edge.
8. Fix any panels setting out accurately, true to line and level, free from any undulations and lipping with any lines or joints (where specified) correctly aligned, straight and parallel to surrounding frame components unless otherwise specified. Make allowance for future movement caused by temperature variations and variations in humidity.
9. Fix all panels securely to prevent pulling away, bowing or other movement during use.
10. When using adhesives ensure that the surfaces to receive adhesive are sound, unfrozen, free from dust, grease and any other contamination likely to affect the bond. Where necessary clean the surfaces with materials recommended by the adhesive manufacturer for the purpose.
11. Components are to be checked for fit before applying adhesive. Surfaces should be of sufficient smoothness and evenness to suit gap filling and bonding characteristics of the adhesive where joints will not be visible and to ensure that all joints are a tight fit with no discernible gaps on surfaces which will be visible on the finished product.
12. Ensure that operatives observe the manufacturers and statutory requirements for storage and safe use of adhesives. Do not use adhesives in unsuitable environmental conditions or beyond the manufacturer's recommended shelf life. Safely dispose of any adhesive which has received prolonged exposure to air or has started to set prior to use.
13. Apply adhesives using recommended spreaders/applicators to ensure correct coverage. Bring surfaces together within recommended time period and apply pressure evenly over the full area of contact surfaces to be bonded ensuring that any clamps, presses etc. are cushioned to prevent marking or indentation of the timbers.
14. Remove surplus adhesive immediately using methods and materials recommended by the adhesive manufacturer and without damage to the affected surfaces.
15. Where preservative treated timber is specified carry out as much cutting and machining as possible prior to treatment. Re-treat all timber which is subsequently machined or cut with flood coats of a solution recommended for the purpose by the main treatment solution manufacturer.

165 Erection onsite

1. Check all dimensions of components and openings prior to commencing installation of any joinery works. Report any discrepancies to the Architect.
2. Nailing of joinery components will not be permitted if nails will be on exposed surfaces of the completed installation, with the exception of beads to panels or glazing. In these circumstances pins shall be punched below the surface of the wood and the hole filled with a suitable filler to precisely match the colour of the timber. Ensure that the filler is capable of receiving the specified finish and that it will not vary from the colour of the finished product on completion of all finishing treatments.
3. Any areas subsequently found not to match will be replaced at the contractor's expense.
4. Where nailing of joints etc. is permitted, use not less than 2 nails, and opposed skew nailing unless otherwise specified. Drive nails carefully to ensure that there is no splitting or crushing of the materials being fixed. Punch nail heads below the surface.
5. Any components which are split during nailing will not be accepted for final installation.

170 Protection

1. Ensure that after manufacture/fabrication all components are safely stored/packaged and protected from damage in conditions similar to those that will prevail in the building.

2. Do not deliver to site and do not remove protective packaging/coverings until immediately before components are required for fixing and the correct environmental conditions prevail.
3. Stack boards, panels, etc., on bearers and separated by spacers to prevent damage to or from projections.
4. Keep all components clean and dry and adequately protected from physical damage until Practical Completion. Protection will have to be removed for inspection/snagging but must be reinstated and maintained thereafter.

300 References

1. Some standards in this specification may have been withdrawn by the British Standards Institution but remain appropriate and applicable for the traditional repair and reinstatement of historic building fabric. Copies of these withdrawn standards may be obtained online.

Ω End of Section

BUT15

Glazing repairs

Clauses

100 General

1. Glaze: In accordance with the recommendations of BS 6262-4:2005 unless otherwise specified.
2. Rebates: Clean, dry and remove obstructions from rebates and grooves before priming or sealing surfaces prior to glazing.
3. Seal Surfaces of rebates, grooves and beads that will be in contact with putty as follows:
 - a) For painted softwood surrounds, one coat of primer.
 - b) For painted hardwood surrounds, one coat of primer and one undercoat of paint.
 - c) For galvanized steel surrounds, one coat of primer.
 - d) For stained joinery treat rebates and glazing beads with preservative coats.
4. See Painting and Decoration clauses for suitable primers.

105 Materials

1. Clear Float Glass:
Where specified to BS 952-1:1995, selected glazing quality, thickness as specified to match existing and adjacent.
2. Laminated Glass: Where specified to 6.4mm BS EN 14449

110 Glazing

1. Putty Glazing of Windows: Bed, sprig or clip as appropriate, and back and front putty the glass.

125 Removal and reinstatement of historic glazing

1. Materials: Historic glass, whether Crown, drawn or cylinder glass, is almost irreplaceable and only at considerable cost. All original glass is historically important and is to be conserved.
2. The greatest care must therefore be taken to avoid damaging historic glass.
3. Replacement glass will be specified by the Architect and is to match existing and adjacent.
4. Removal of Historic Glass: The conventional way to remove a pane from frame is with a glazier's hacking knife, which is inserted between the putty and wood at right angles to the glass and tapped down with a hammer. This method is ineffective with very old, hardened putty and it is probably that, if attempted, the glass will be broken.
5. To soften the old putty a modern chemical paint remover is to be employed such as Ronstrip. This particular type is of putty form and should be applied generously over the glazing putty to thickness of about 10mm ensuring that the Ronstrip is sealed completely from air with a number of overlapping strips of Sellotape or masking tape and left for 24 hours. The tape is then to be removed and the Ronstrip scraped off. It will then be possible to remove about 50% of the old putty behind. The process must be repeated, and the second application should soften sufficiently the remaining putty, including that around the edge of the glass.
6. When all putty has been removed the glazing sprigs (retaining pins) are to be carefully removed with sharp nosed pliers. When all the putty has been cleared from the front and edge of the glass the pane can then be gently pushed out from behind. Extreme care is needed to avoid cracking the sheet; thick ones are, in fact, more likely to break than thin ones, because they are less flexible. The pane is to be cleaned with soap and water.
7. Reglazing with Crown Sheet Glass: When reglazing with salvaged crown sheet the convex side should be outwards both for appearance and for better bedding of the pane into the frame. If flow

lines and other marks within the plane of the glass are noticeably curved (a sign of the spinning process of manufacture) it seems to be usual for the pane to be mounted so that these lines are convex upwards (or to either side).

8. Refixing: Workmanship shall comply with the recommendations of BS 6262:2005, and CP 152 (BS 6262:1982). CP 152 has been replaced by the BSI but remains applicable for the traditional repair and replacement of historic building fabric specified. Copies of the Code of Practice may be obtained on-line through the internet.
9. Where specified, new sheet glass shall conform to BS EN 572-1:2012.

300 References

1. Some standards in this specification may have been withdrawn by the British Standards Institution but remain appropriate and applicable for the traditional repair and reinstatement of historic building fabric. Copies of these withdrawn standards may be obtained online.

Ω End of Section

BUT17

Restoration of historic ironwork

Clauses

120 Techniques for renovation (cast iron)

1. Care must be taken to drill centrally to the bolt or stud, as the wrought iron will often be harder than the cast and the drill will tend to drift off away from centre, also drills will be prone to breakage as they cross the even harder zone of rust between the cast and the wrought iron. The usual technique is to drill an initial hole of a small diameter to locate the centre, and to open this out by degrees until the remains of the fixing can be removed and the hole re-tapped etc.
2. Repair of broken castings.

Welding repairs of cast iron decorative components are seldom satisfactory. The welds are not of the same strength as the casting and can crack, while heat stress can cause cracking elsewhere. Resulting distortion or misalignment cannot be rectified.

2.1. Alternative methods are;

- 2.1.1. a) Brazing, using oxy-acetylene and a brass filler rod. A good bond can be achieved with a lesser heat input than welding methods, but care must be taken that the surfaces to be brazed are tinned prior to filling the joint. Excess brass can be dressed by grinding or filing.
3. Where an old component exhibits a brittle failure through ordinary use, the temptation may be to replace it with a new one in malleable or s.g. iron, which are much stronger than the original grey irons. There is no track record with s.g. due to it being a relatively new material, and its long-term performance is unknown however, there is some evidence that the old malleable irons corrode rather more readily than grey iron. Also difficulty may be achieved in obtaining an acceptable quality in s.g. iron, particularly in thin castings, owing to its greater molten viscosity and hence reluctance to run into a complex mould.

130 Protection and finishing

1. Galvanising and zinc spraying have been mentioned and there are good reasons why these will not do. Galvanising depends upon dipping the work after cleaning in acid, in a bath of molten zinc, which leaves a rather thick layer of zinc on the surface. Drips frequently form which must be ground off. If you add to this that the small joints will remain full of acid after the treatment, it is easy to see why this process is not appropriate to delicate and complex wrought ironwork. Additionally, in certain circumstances, the galvanising process can deeply etch the surface of wrought iron causing irreversible damage to the piece. Zinc spraying is a far less brutal process. It is a hand method, which consists of removal of all mill scale by grit blasting, and the immediate application of a zinc coating with a type of flame gun. The objections to grit blasting have been enumerated above. Further, it is not possible to clean very small joints by grit blasting, from the physical restrictions imposed by the size of a grain of grit, neither is it possible to clean nor spray material which is not accessible to line of sight. The water traps in wrought ironwork are just such small joints and out-of-the-way places.
2. Owing to the natural ability of wrought irons to resist corrosion, it is sufficient to protect ironwork by a good coating of paint. However, I cannot stress too strongly that, in common with other items placed out of doors, such as woodwork, wrought ironwork needs regular maintenance. Chips and developing problems should be dealt with at the earliest dry opportunity, and the work should be painted at least every five years.
3. Wrought Iron minimal paint system product specification for 'Single Pack 4 Coat'

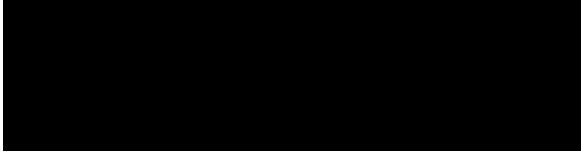
Stage 1 One coat of 'SigmaFast 20', an alkyd primer-undercoat

Stage 2 Two coats of 'AMERCOAT 4613', a MIO (Micaceous iron oxide) urethane alkyd undercoat/finish which can be over coated with suitable alkyd based topcoats.

Stage 3 One coat 'SigmaFast 40', a high solids alkyd based protective topcoat.

Colour/Ral No to be specified at time of order.

This paint system is available from;



Note; All ironwork should be adequately protected during transport and installation with any grazes or chips to paintwork made good on site, using primer on any exposed steel prior to topcoat.

Ω End of Section

BUT18

Metalwork, windows, leaded lights

Clauses

100 Techniques for restoration

1. Removal from site

- 1.1. In all cases with steel windows, the corrosion that is visible on the surface is much less severe than in the areas that are hidden and often in contact with stone or timber frame, therefore restoration is not possible to carry out correctly when the window is left insitu.

To be restored correctly a window needs to be removed and restoration works ideally carried out in workshop conditions, and it is frequently the case that iron components can be removed easily from site. In the case, however, of windows etc that may be fixed into stonework, usually in lead filled sockets, removal may not be possible without sacrificing expensive stonework. Lead may be removed from sockets by mechanical means, but this is very laborious and any attempt to melt the lead will inevitably result in failure and damaged stonework unless the socket can be held horizontally to enable the lead to run out. The Architect is to be consulted upon further investigation of fixing method for existing metal framed windows.

Whilst undergoing restoration the contractor should provide temporary glazing with ventilation within the existing opening if required.

2. Restoration process

- 2.1. The process for restoration will be tailored to suit the above needs and will generally feature the following procedures;

1. Record and photograph every item before any work commences. A window which is to be removed and repaired should be securely labelled to identify it, and a note made of its type and its position in the building, to ensure that it can be returned to its original location later.
2. Undertake spark test to identify classification of ferrous materials. Take a piece of existing metal framed window which is beyond repair (scrap).
3. Removal from site and insertion of temporary glazing.
4. De-glazing and dismantling of steel windows. Contractor is to inspect and analyse the scope of works required. The contractor will consult with the Architect prior to carrying out any further repair works.
5. Clean the frames by grit/shot-blasting to remove previous coatings and corrosion.
6. Removal of severely corroded sections and replacement with identical replicas using authentic material.
7. Repair and correct any major defects such as holes, broken sections or distortions.
8. All hinges re-machined/restored or replaced.
9. All handles, stays, etc. restored/repared. Exact replicas to be made to replace missing items.
10. All ironmongery from the existing windows shall be polished up to bring back the original character.
11. Straightening of distorted windows.
12. Paint finishing as section below.
13. Given the exposed nature of this elevation and the distortion seen to leaded lights, it is proposed to install mild steel – welded to frame if new (or metal as appropriate) rods across interior face, allow for fixing of eyelet to existing frames. Copper wire to be welded to lead came at junctions and fixed to rod. Allowance for 1 rod every other lead came.
14. Existing leaded lights re-fixed where possible with new glass cut to size to suit original arrangement – traditional putty fixed.
15. Remove temporary glazing.
16. Installation of refurbished window with stainless steel fixings and reputty as 1.3.4 to

exterior.

17. Make good any affected interior finishes.

Note: Where existing metal framed windows are beyond repair. Existing ironmongery, handles, stays etc should be carefully removed and retained for possible reuse with new like-for-like metal framed windows. Prior to tipping any elements, the contractor will consult with the Architect. Where elements cannot be reused, the contractor will source replicas to match the existing detail.

2.2. Existing leaded light

2.2.1. The process for restoration will be tailored to suit the above needs and will generally feature the following procedures;

1. Record and photograph every item before any work commences. A window which is to be removed and repaired should be securely labelled to identify it, and a note made of its type and its position in the building, to ensure that it can be returned to its original location later.
2. Contractor should appraise all areas of fixed glazing and update scope of works accordingly.
3. Repair and correct any major defects such as holes, broken sections or distortions including replacement of lead comes if required. Each lead came should be flat, smooth and straight at the edges.
4. Replace broken panes of glass with new to match existing size where required.
5. The exact detailing and requirement for this should be reviewed onsite with window specialist.
6. Ensure the new putty holding the quarries into the came-work is sound and providing a weather tight seal.

105 New metal framed windows

1. Where existing metal framed windows are beyond reasonable repair. New windows will be installed to match original arrangement.

Note: Where possible reuse existing ironmongery, salvaged from tipped frame.

2. New metal framed windows:

2.1. Manufacturer: Crittall-Windows Ltd OR equal approved
Tel: 01376530800

Reference: Corporate W20 range.

Glazing: Single glazed leaded lights to match existing with comes and ferramenta support rod as noted above.

Contractor will reuse existing retained leaded lights where possible and will consult with the Architect prior to purchase of new windows.

Arrangement: The layout/type of window will match existing with off-centre pivot openable windows.

Finish: Windows will be finished to match restored existing windows. Powder coating is not acceptable.

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

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.

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

2.2. Glass Installation Instructions (Metal Frames)

- 2.2.1. 1. Prepare the rebate: remove any old putty and sealant and clean thoroughly.
2. Primer the profile with (preferably) an oil based alkyd paint. Please contact us when using linseed oil based paints as these are not compatible with Kawo Elastokitt.
3. Apply the Kawo Elastokitt as a sealant in the rebate.
4. Put the glass in place, using wooden spacers (1.5mm on all sides) and secure with pin or screw.
5. Fill the clearance between glass and frame completely with the Kawo Elastokitt and use Elastokitt to create the putty line.
6. After 1-2 days the Elastokitt can be painted. The paint should cover the putty completely, overlapping onto the glass about 1-2mm. This is necessary to prevent water getting into the gap between the frame and glass, which can damage the metal frame and perimeter seal of the unit. This is essential to maintain the manufacturer's guarantee.
7. Kawo Elastokitt can be painted using both water and oil-based paints, however, water based paints can crack and discolour. Please note: particularly when using dark colours the surface of the putty can become slightly undulated. This is caused by natural components in the putty. This has only a visual effect and does not affect the quality.
8. Kawo Elastokitt is not compatible with linseed oil paints! When in doubt about the compatibility of certain paints with the installation products, please contact the manufacturer for advice. On the inside, use the Elastokitt to seal the gap between the glass and frame.

110 Paint removal

1. Metalwork is generally covered in paint and frequently a build-up of rust in water traps etc. Commonly, paint and some of the rust are removed by cleaning.

Safety Note: Metals pre-1960s were frequently coated with lead based paints. Care must therefore be taken, particularly with grit blasting, to ensure that operatives are protected and that The Control of Lead at Work Regulations 2002 (CLAW) are adhered to.

It should be noted, that removing all coatings from the metalwork can destroy evidence of previous historic paintwork. As such some paint samples, may be taken and if possible layers should be left behind in a small area where rust has not occurred to provide a context for future repair works.

120 Reassembly

1. When work is assembled, care should be taken to ensure that mating surfaces are protected by paint, as well as all visible surfaces.

The contractor will take great care and attention not to damage surrounding elements/assets. If elements/assets are damaged the contractor will repair/replace at their expense.

130 Installation of glazing to K6 Phone Box

1. Remove damaged/ defective glazing as identified by Architects to NBS Clause BUT15.125.
2. Install Laminated Glazing to BUT15.105.2 with following methodology: Ensure substrate is prepared for glazing as BUT15.100. Carefully apply clear silicone e.g. SIKA General Purpose Silicone (Clear) to vertical glazing nib (i.e. not the steel web). Offer glass up to silicone and press firmly with even distribution throughout pane. Ensure complete seal around perimeter of pane. Before silicone cures, fix painted steel glazing frame with fixing pins/ rivets and push-on starlock washers. Once silicone is cured, cut excess silicone from around pane with a sharp blade, being careful not to damage the glass.
3. Laminated glazing may be procured from www.redtelephonebox.com (though not stipulated).

131 Installation of signage to K6 Phone Box

1. Remove damaged/ defective glazing as identified by Architects to NBS Clause BUT15.125.
2. Install new glass "TELEPHONE" sign to same methodology as BUT18/130.
3. Glass 'TELEPHONE' sign may be procured from www.x2connect.com (though not stipulated).

300 References

1. Some standards in this specification may have been withdrawn by the British Standards Institution but remain appropriate and applicable for the traditional repair and reinstatement of historic building fabric. Copies of these withdrawn standards may be obtained online.

Ω End of Section

BUT24

Masonry cleaning / granite and marble

Clauses

100 General

1. Cleaning of all granite and marble surfaces is to be carried out after the completion of all other areas of cleaning operations unless instructed otherwise by the Architect.
2. All granite and marble surfaces are to be fully protected during all other cleaning operations to ensure that no chemicals, run off, etc from other areas come into contact with the polished surfaces of the stone.
3. Protection is to be maintained in place until all other cleaning operations are complete.

105 Materials

1. Water:
 - 1.1. Is to be clean, fresh water taken from a temporary connection to the existing incoming mains cold water supply or other approved source.
2. Granite Cleaning Agent:
 - 2.1. Vulpex neutral pH soap obtainable from Picreator Enterprises Ltd., 44 Park View Gardens, London. NW4 2PN Tel. 081-202-8972.

110 Equipment

1.
 - Buckets
 - Industrial wet vacuum
 - Sponges

120 Granite surfaces

1. Carry out all necessary protection measures as described elsewhere.
2. Brush off any dust etc. from surfaces to be cleaned.
3. Rinse surfaces to be cleaned with sponge and clean water.
4. Apply Vulpex neutral pH soap in accordance with the manufacturers instructions.
5. Thoroughly rinse by hand with clean water and sponges.
6. Collect any effluent or run off immediately with a industrial wet vacuum.

Ω End of Section

C40

Cleaning masonry/ concrete

General/ preparation

100 General

1. The cleaning of masonry on any part of this project shall only be undertaken by experienced operatives who have regularly been engaged in or specialise in restorative cleaning of external and internal masonry and shall produce references of such activity with the tender return. The sub-contractor shall be a member of the Stone Federation's surface cleaning contractors.
2. The operatives shall be fully conversant with the method of cleaning specified and have had previous experience and knowledge of the system. The operatives shall have attended training sessions on the use of all items of equipment or chemicals contained in the specification.
3. The scope of the work is clearly identified on the drawings and the tenderers are to visit the site to confirm for themselves, the difficulties in executing the work as specified and is to include for such within their tender.
4. No claim will be entertained for failure to appreciate the difficulties in executing the works.
5. Except where the cleaning is let as a main contract all access scaffolding will be provided by the main contractor. The sub-contractor is to advise the main contractor of their requirements during the tender stage (if known) or immediately on nomination.
6. Any alterations required to the scaffold to suit the sub-contractors needs arising out of their failure to inform the contractor in accordance with this clause will be charged to the sub-contractor.
7. Note: Cleaning using the DOFF / TORC system should only be undertaken by contractors on the approved list compiled by Stone Health Ltd and will be part of the Rosette Approved Contractors.
8. All areas to be cleaned shall be agreed with the Architect and Property Curator in advance and before any work shall commence.
9. Note restriction on air temperature noted below.

101 Preparation

1. Scope of work
 - 1.1. Stonework and masonry to exterior / interior elevations as indicated on marked up elevations.
2. Related repair / remedial works
 - 2.1. Are specified in section C41 and other project documentation. Ensure the following work has been carried out before the cleaning works commences appropriate access and protection of fixtures and fittings etc.
3. Removal of fittings
 - 3.1. Timing: before commencement of cleaning works.
 - 3.2. Disturbance to surfaces: minimise.
 - 3.3. Items for disposal: as noted on marked up elevations.
 - 3.4. Items to be kept for reuse: as noted on marked up elevations.
4. Vents and grilles
 - 4.1. Protect but do not seal up ventilation grilles, air bricks, or other ventilation opening without first seeking instructions.
5. Control and disposal of wash water and detritus
 - 5.1. Disposal: Safely. Obtain approvals from relevant authority.
6. Control of water
 - 6.1. Collect and divert to prevent ingress and damage to building fabric and adjacent areas.

- 6.2. Provide suitable temporary catchment boards / sheeting, gutters etc. to collect wash water and divert it to suitable discharge points.
- 6.3. Do not let wash water build up at outlets or above levels of flashings or anywhere where there is risk of it penetrating and causing damage to the building fabric.
- 6.4. Ensure that water does not penetrate interiors and damage finishes, etc. Monitor interior building and seek instructions when any signs of damp appear internally.
- 6.5. Above and below ground drainage systems: Keep free from detritus and maintain normal operation.
7. Brushing and scraping
 - 7.1. Before commencing any other methods of cleaning, remove loosely adhered deposits and heavy deposits of biological matter using suitable corrosion resistant brushes and scrapers / spatulas that do not abrade or gouge the surface. Do not use brushes with steel bristles.
8. Tooling
 - 8.1. To remove thick encrustations of dirt carbon and limescale etc. it is recommended, providing that:
 - The works is carried out by skilled and experienced stone masons.
 - None of the original surface / detail is removed unless agreed with the Conservation Professional.
9. Cold weather
 - 9.1. Cleaning procedures using water: Do not use when air temperature is at or below 5°C. Protect damp surfaces from frost.
 - 9.2. Chemical cleaning agents: Do not use when surface temperatures are below those recommended by manufacturer.
10. Cleaning generally
 - 10.1. Operatives: Appropriately trained and experienced for each type of cleaning works.
 - Evidence of training: submit on request.
 - 10.2. Control of Cleaning: Confine cleaning processes and materials to designated areas. Prevent wind drift.
 - 10.3. Detritus: Remove regularly. Dispose of safely.
 - 10.4. Monitoring: Frequently check results of cleaning compared to approved trial samples. If results established by trials are not achieved, seek instructions.
 - 10.5. Modifications to cleaning methods and materials: Seek instructions.
 - 10.6. Clean, collect and safely dispose of debris from scaffolding, ledges, etc. at the end of each day. Prevent debris falling to lower levels.
 - 10.7. Prevent marking of cleaned areas from dirt and debris splashing up from scaffold boards.
11. Record of cleaning works
 - 11.1. Written Report: Record cleaning methods and procedures used for each type of surface and deposit.
 - 11.2. Content: Relevant attributes of cleaning methods used including:
 - Equipment and settings.
 - Dwell times.
 - Number of applications.
 - Ambient temperature.
 - 11.3. Additional Documentation: General photographic survey before cleaning to identify heavy soiling.
 - 11.4. Submission: At completion of cleaning works.
12. Trial samples
 - 12.1. Trial Samples reference is required for all cleaning methods.

- 12.2. Surface: Masonry and stonework.
- 12.3. Location / Size: Location to be agreed but no less than 2sq.m per sample.
- 12.4. Type of soiling:
- Atmospheric soiling.
 - Biological growth
 - Bird droppings
 - Fire damage
 - Graffiti
- 12.5. Cleaning Methods: As specified above.
- 12.6. Records: Maintain written records for each trial area, including cleaning methods and conditions, to enable replication of results elsewhere.
13. Monitoring
- 13.1. Regularly monitor effects of each cleaning procedure against the degree of cleaning established by approval trial sample(s). Seek instructions immediately, wherever:
- Disruption to the surface occurs
 - Anticipated level of surface cleaning is not being achieved.
 - Discolouration or stains are revealed by cleaning.
- 13.2. Do not modify cleaning procedures or materials without approval from the Conservation Professional.

102 Health and safety

1. The Contractor shall be responsible for ensuring that all products used, and all procedures adopted comply in full with current Health and Safety requirements.
2. Ensure that all operations carried out in such a way that they do not represent a risk to health and safety of the general public or other operatives on site.

162 Protection

1. All surfaces not being cleaned shall be fully protected to ensure that no accidental over spray of cleaning occurs.
2. Where different cleaning techniques are specified for adjoining surfaces, the surfaces not being cleaned during either operation shall be fully protected.
3. Protection of surfaces shall include the following:
 - a) Windows to be boarded up with ply and covered in heavy duty polythene securely taped at all edges.
 - b) Painted surfaces not being redecorated shall be protected with heavy duty polythene and securely taped.
 - c) Areas of delicate carving and statues to be wrapped in polythene sheet tied into place.
4. Where cleaning is internal all fixtures and fittings which cannot be removed are to be fully protected. Statues and any areas of ornate carving are to be protected with ply box covers and heavy-duty polythene.
5. Decorative ironwork is to be fully protected. Where ironwork would puncture polythene a protective layer of expanded polystyrene, foam or similar approved material is to be taped in position prior to installing heavy duty polythene which shall be fully taped.
6. Furniture and fixtures are to be protected against damage with ply or MDF boards and covered with heavy duty polythene fully taped. Where loose furniture is involved, it may be moved to a central point(s) but will still require full protection.
7. The Contractor is to allow for all protection. Where the Architect considers the protection to be inadequate, the protection shall be augmented as directed at the Contractors own cost.
8. Protection shall be inspected at the start of each working day to ensure its integrity. Any defects noted shall be rectified by the Contractor prior to commencement of work.

9. No cleaning operations shall commence until all protection is in place.
10. No protection shall be removed until cleaning operations have been completed and have been inspected and approved by the Architect. Protection is to remain in place until "snagging" items have been completed and approved.
11. Polythene sheeting shall be fixed in such a way that water will run away from the protected items.
12. Protective sheeting shall be checked periodically to ensure that water is not penetrating the protection.
13. Adequate protection must be provided for the general public who may be able to come near to the area to be cleaned. Protective sheeting and temporary barriers shall be erected if necessary. Where laser cleaning is undertaken the protection must ensure that the laser beam cannot escape from the cleaning site and safety notices must be affected and fail-safe locking mechanism put in place to prevent unauthorised access to the cleaning area.
14. Where necessary temporary drainage channels or gutters and hose pipes shall be fitted to carry away waste water. These shall be fed into main drains via a sludge bucket.

175 Control and disposal of wash water and detritus

1. **Disposal:** Safely. Obtain approvals from relevant Authority.
2. **Control of wash water:** Collect and divert to prevent ingress and damage to building fabric and adjacent areas.
3. **Above and below ground drainage systems:** Keep free from detritus and maintain normal operation.

180 Cold weather

1. **Cleaning procedures using water:** Do not use when air temperature is at or below 5°C. Protect damp surfaces from frost.
2. **Chemical cleaning agents:** Do not use when surface temperatures are below those recommended by manufacturer.

190 Cleaning generally

1. **Timing:** Works may not start on site until all necessary approvals are received from the local planning authority , as appropriate
2. **Operatives:** Appropriately trained and experienced for each type of cleaning work.
 - 2.1. **Evidence of training:** Submit on request.
3. **Control of cleaning:** Confine cleaning processes and materials to designated areas. Prevent wind drift.
4. **Detritus:** Remove regularly. Dispose of safely.
5. **Monitoring**
 - 5.1. Frequently check results of cleaning compared to approved trial samples. If results established by trials are not achieved, seek instructions.
 - 5.2. Works to be inspected and approved in accordance with the requirements of the local planning authority.
6. **Modifications to cleaning methods and materials:** Seek instructions.

215 Record of cleaning works

1. **Written report:** Record cleaning methods and procedures used for each type of surface and deposit.
 - 1.1. **Content:** Relevant attributes of cleaning methods used including:
 - 1.1.1. Equipment and settings.
 - 1.1.2. Dwell times.
 - 1.1.3. Number of applications.

1.1.4. Ambient temperatures.

2. **Submission:** At completion of cleaning works.

232 Trial / sample panels

1. Although the basic cleaning method has been established there is a requirement for sample panels to be carried out to ensure that the Contractor is aware of the standard required. 3 sample panels of each substrate to be cleaned are to be carried out under the direction of the Architect in locations previously agreed with the Architect. Each sample panel will be approximately 2 square metre as item 'trial samples'.
2. Sample panels will be executed prior to commencement of the works and will be carried out by experienced operatives who will be working on the project. The purpose of the sample panels is:
 - a) to confirm the method, working pressures etc to be used.
 - b) to confirm the level of cleaning to be achieved.
 - c) to ensure that the site operatives are familiar from the start with the project requirements. For this reason, it is imperative that the operative executing the trials should be actively involved in the works.
3. Area around sample panels shall be protected as required for the main works.
4. The test clean area shall be inspected and approved by the Architect and Property Curator prior to the method being adopted.
5. Trial cleaning will be carried out on areas where the best method of cleaning needs to be determined. If polychromy or remnants of historic coatings have been identified, extreme care must be used to ensure that the cleaning method does not cause damage or loss.

Products/ equipment

315 DOFF cleaning system

1. Equipment: Stonehealth DOFF with DRS steam / water vacuum recovery unit.
2. Apply steam at the lowest pressure and allow when removing paint, the appropriate temperature that will remove/soften/loosen deposits without abrading or disrupting the surface(s). If removing biological growth, it may be possible to be removed at a lower temperature but to ensure that the re-growth does not occur, the full temperature of 150°C should be applied over the whole surface in order to kill off the spores. In such instances, there is no need to use a chemical biocide.

For each area / surface, establish the optimum settings (temperature, volume and pressure), nozzle type and distance of nozzle from substrate. Keep a written record of these variables but allow an operator to vary.

Assist removal of softened deposits with suitable corrosion resistant brushes and scrapers / spatulas that do not abrade or gouge the surface.

Method statements and Risk Assessments are appended to this document for information.

316 TORC abrasive cleaning

1. Equipment: Stonehealth TORC
2. Apply abrasive at the lowest pressure that will remove deposits whilst causing the minimum of abrasion to the surfaces(s). where deposits are ingrained seek instructions.

For each surface, establish the optimum settings (pressure and abrasive volume), nozzle type and distance of nozzle from the surface. Keep a written record of these variables.

Remove and collect dust and debris from each completed surface as work proceeds and finish by rinsing off thoroughly with clean water using a suitable low-pressure spray equipment.

Rinse debris / slurry thoroughly from each completed surface with clean water using suitable low-

pressure spray equipment. Do not allow slurry to dry out on the surface.

Method statements and Risk Assessments are appended to this document for information.

3. Read in conjunction with general and application notes in section.

317 Cleaning mineralic substrates

1. Equipment: Stonehealth CLEANFILM
2. Cleanfilm refers to the Stonehealth latex cleaning system for internal cleaning, without the use of water.

The areas to be cleaned will be examined by the Supervising Officer and those of historic or delicate nature will be noted for additional precautions. The said officer will be assisted by the Contractor or other participants having an understanding of the principle of the cleaning system. Considerations will include safety, substrate condition and proximity of other works.

Samples to several identified locations are to be undertaken prior to wholesale cleaning works being undertaken and should be agreed with CA. Due merit should be given to the following;

- a) Areas should be representative of the substrate, soiling and detail of the main works.
- b) Test panels should be positioned discreetly.
- c) Location of the test areas must be recorded and protected from further alteration.
- d) The parameters by which the result is obtained must be recorded.
- e) An acceptable test area should be retained as a control panel for the main works.
- f) Measures adopted as a result of tests must be attainable and controllable in the main works.

The cleaning of the building surface should be carried out by a capable operator, who has received instruction from Stonehealth Limited, into the correct use of Cleanfilm.

If the Test Supervisor is not familiar with Cleanfilm they should seek such information from Stonehealth Limited.

Method statements and Risk Assessments are appended to this document for information.

319 Steam cleaning

1. Areas of biological growth and superficial dirt can be carefully removed using the ThermoTech cleaning system on robust areas of ashlar work, and where appropriate, carving (see Jos cleaning). Water sprayers and small nylon bristle brushes can be used on carved and fragile elements of stonework.
2. Steam cleaning shall not be undertaken when the temperature drops below 4°C or is predicted to drop below 4°C.

325 JOS system

1. The ashlar will be cleaned using the JOS/VorTech system (large nozzle). A mixture of water, abrasive (dolomite or dolomite/calcite mix powder) and compressed air will be fired at the wall removing dirt and pollution crust. Using the Jos on the lowest effective setting, care must be taken not to 'burn' through the stone's surface and only the pollution/dirt layer must be removed. In many areas, softening of the black sulphation crust with the ThermoTech by gently passing over the area to be cleaned several times over a period of 1-3 days (depending on conditions) will assist the cleaning process.

326 Piccolo or studio torq

1. Mouldings and robust architectural detail can be cleaned with the Piccolo nozzle or Studio Torq, both of which are smaller versions of the JOS/Vortech system. These should be operated on the lowest possible setting to be effective. Dolomite or dolomite/calcite mix powder will be again be

used as the abrasive. Replica carvings which appear to be in sound condition may also be cleaned with this method following appropriate trials.

375 Poulticing

1. Areas which have stubborn pollution crusts or chemically induced stains, but where abrasive and laser cleaning methods cannot be used, may be cleaned with a poultice. Ammonium carbonate poultices will be applied to areas of black sulphation crust, percentages and dwell times to be determined on-site. Other areas of staining (such as graffiti) will require specific chemicals appropriate to the job, which will be referenced and recorded at the time of application. All run-off should be collected using sponges so as not to re-deposit lower down. Once removed the area should be flushed with plain water and gently scrubbed with a soft toothbrush to remove dirt and pollution.

Application

400 Removal of loosely adhered deposits

1. Timing: Before commencement of other cleaning methods.
2. Surfaces: Prevent damage, including abrasion.

405 General - application

1. Removal of Loosely Adhered Deposits: Timing: Before commencement of other cleaning methods. Surfaces: Prevent damage, including abrasion.
2. Biocide Application: Preparation: Remove loose growths. Surfaces: Prevent damage, including abrasion. Biocide Treatment: Appropriate solutions to kill growths and inhibit further growths. Dead growths: Remove.
3. Abrasive Blocks: Types: Suitable grades of carborundum or gritstone. Application: Lubricate with water. Remove detritus. Abrasive Power Tools: Prohibited.
4. Abrasives Cleaning: Surfaces: Minimise abrasion. Ingrained deposits: Seek instructions. Equipment Settings (including nozzle type and distance from surface): Adjust regularly to achieve optimum cleaning performance for each surface. Detritus: Remove with clean water.

462 Water spray cleaning (mounted nozzles)

1. Surfaces: Minimize water run-off. Prevent damage.
2. Adjustment of washing cycle and nozzle positions: Regularly to achieve optimum cleaning performance.

472 Pressurized water cleaning

1. Surfaces: Prevent damage, including abrasion.
2. Equipment settings (including nozzle type and distance from surface): Adjust regularly to achieve optimum cleaning performance for each surface.

482 Steam cleaning

1. Surfaces: Prevent damage, including abrasion.
2. Equipment settings (including nozzle type and distance from surface): Adjust regularly to achieve optimum cleaning performance for each surface.

515 Plain poulticing

1. Surfaces: Prevent damage, including abrasion.
2. Application: To wetted surfaces. Maintain contact with surfaces as poultice dries out.
3. Poultice reinforcement: Submit proposals
4. Drying: Prevent excessively rapid or localized drying out.

5. Spent poultice material: Do not reuse.

600 Completion

1. Obtain Conservation Professionals approval of cleaning to each area / surface and before of temporary protection.
2. After removal of temporary protection, thoroughly clean all glazing, window frames, doors, sills, and other affected surfaces.
3. Check that all gutters, hoppers, downpipes, and gullies are free from obstruction and debris arising from cleaning works.
4. Give the Conservation Professional two weeks' notice before striking each stage of scaffolding, to allow for final inspections.
5. Refix the following fittings: all items temporally removed and stored.
6. Complete all necessary documentation, review, and record final results with supportive drawings and photographs.

Ω End of Section

C41 Repairing/ renovating/ conserving masonry

Generally/ preparation

100 Inspection and drawings

1. Access:
 - 1.1. In any project involving masonry repairs the tender drawings will have been prepared from visual inspection only, usually without the benefit of access scaffold. **The Contractor is to allow in their programme a period of 2 weeks for confirmation and re-appraisal of the scope of the works to each area.**
 - 1.2. The Contractor is encouraged to be represented during the inspection in order that he may contribute in any discussion regarding alternative methods of repair.
2. Notice:
 - 2.1. The Contractor is to give a minimum of 48 hours' notice to the Architect of the completion of the access scaffold to each area.
3. Confirmation:
 - 3.1. Confirmation of the scope of the work will be the issue of revised drawings and confirmed by an Architects Instruction following completion of the inspection from the access scaffold.
4. Drawings:
 - 4.1. Where fabrication drawings are required to be prepared by the Contractor for specialist areas the Contractor shall submit duplicate copies of the drawings at least two weeks before confirmation of the order for the stonework is required. No cutting of the stonework shall commence until the drawings have been approved in writing by the Architect.
5. Programme:
 - 5.1. The Contractor shall provide a programme of work based on the tender information before commencement of work on site. This programme shall indicate separately the erection/alteration(s) sequence for access scaffold inspection period, order period and works on site for reach area of work.

105 Protection, storage, transport and cleaning

1. Protection of work area:
 - 1.1. Where large areas of masonry repairs are to be undertaken the scaffold is to be fully protected using a translucent non-combustible sheet such as Monaflex fixed to the outside of the scaffold.
2. Protection of the fabric:
 - 2.1. Any existing windows are to be protected with ply or particle board in the areas adjacent to any area of work. Other features identified on the drawings are to be protected from damage.
 - 2.2. Where scaffold is erected internally or where scaffolding penetrates through into the building internal fittings shall be adequately protected to protect the historic fabric from damage.
 - 2.3. The Contractor is to cover arrises, mouldings, carvings and other finished work with adequate protection, securely fixed without damaging new or existing fabric, to ensure it is not damaged. Any damaged fabric is to be replaced at the Contractor's own cost. Piecing in or mortar repair will not be considered as acceptable remedial action. Total replacement will be necessary. The Architect is to be advised prior to undertaking such remedial action.
 - 2.4. All work should be adequately protected from frost damage. Any frost damaged work is to be cut out and replaced at the Contractor's own expense.
 - 2.5. The work is to be protected from direct sun and rain and against rapid or excessive drying until the mortar has properly cured and strictly in accordance with the mortar and pointing

specifications. Any work damaged as a result of inadequate protection is to be cut out and replaced at the Contractor's own expense.

- 2.6. Turn back scaffold boards adjacent to finished faces to prevent splashing during heavy rain.
3. Storage:
 - 3.1. Stone should be stored in stacks on battens protected from moisture and freezing. Adequate care is to be taken to ensure that no damage occurs to the stone during storage or handling.
 - 3.2. Stone should be stored in a secure manner
4. Lifting:
 - 4.1. The Contractor shall provide adequate lifting gear to unload and handle stones into position.
5. Storage on scaffolding:
 - 5.1. Only stone for immediate use shall be stored on the scaffold.
6. Protection of finished work:
 - 6.1. Cover arrises, moulds, carving and other finished work to protect from accidental damage. Protection is to be maintained until completion of all work in that vicinity.
7. Cleaning of work:
 - 7.1. Keep facework clean and free from staining at all times.
 - 7.2. Clean off and rub down all stonework to the satisfaction of the Architect as the scaffolding is taken down.
 - 7.3. Any mortar or stains caused by the works on the face of the masonry must be completely removed before the mortar hardens.
8. Transport:
 - 8.1. Transport stone with minimum handling. Stack carefully in vehicle with non-staining packing material to prevent damage.
 - 8.2. Provide adequate lifting plant to unload and handle stones into position.
 - 8.3. Handle stones with tackle, crane or other mechanical aids as necessary.

110 Scope of work

1. **Schedule:** Refer to 'MCC War Memorials - SoW and Pricing Schedule'
2. **Records of masonry to be repaired:** Before starting work, use measurements and photographs as appropriate to record bonding patterns, joint widths, special features, etc.
3. **Identification of masonry units to be removed, replaced or repaired:** Mark clearly, but not indelibly, on face of masonry units or parts of units to be cut out and replaced. Transcribe markings to drawings/ photographs.

120 Site inspection

1. **Purpose:** To confirm type and extent of repair/ renovation/ conservation work shown on drawings and described in survey reports and schedules of work.
2. **Parties involved:** Contract administrator, Contractor's representative, Foreman mason. Structural engineer where appropriate.
3. **Timing:** At least 5 working days before starting each section of work
4. **Instructions issued during inspection:** Confirm in writing, with drawings and schedules as required, before commencing work

125 Removal of fittings/ fixtures

1. **Items unsuitable or not required for reuse:** As Outlined in 'MCC War Memorials - SoW and Pricing Schedule'
 - 1.1. **Disposal:** Obtain instructions

2. **Masonry fabric and surfaces:** Do not damage during removal and replacement of fittings/ fixtures. Repair as outlined in documentation.

130 Removal of plant growths from masonry

1. **Plants, root systems and associated soil/ debris:** Carefully remove from joints, voids and facework.
2. **Removal of roots:** Where growths cannot be removed completely without disturbing masonry seek instructions.
3. **Unwanted plants close to masonry:** Where removal of root system is not possible or desirable, cut through stem as close to the ground as possible. Remove bark from stump and apply herbicide paste. Leave stump to wither.

140 Record of work

1. **General:** Record work carried out to masonry clearly and accurately using written descriptions, sketches, drawings and photographs, as necessary.
2. **Documentation:** Submit on completion of the work.
 - 2.1. **Number of sets:** One hard copy and one digital copy

Workmanship generally

160 Protection of masonry units and masonry

1. **Masonry units:** Prevent overstressing during transit, storage, handling and fixing. Store on level bearers clear of the ground, separated with resilient spacers. Protect from adverse weather and keep dry. Prevent soiling, chipping and contamination. Lift units at designed lifting points, where provided.
2. **Masonry:** Prevent damage, particularly to arrises, projecting features and delicate, friable surfaces. Prevent mortar/ grout splashes and other staining and marking on facework. Protect using suitable nonstaining slats, boards, tarpaulins, etc. Remove protection on completion of the work.

165 Structural stability

1. **General:** Maintain stability of masonry. Report defects, including signs of movement that are exposed or become apparent during the removal of masonry units.

170 Disturbance to retained masonry

1. **Retained masonry in the vicinity of repair works:** Disturb as little as possible.
2. **Existing retained masonry:** Do not cut or adjust to accommodate new or reused units unless otherwise instructed.
3. **Retained loose masonry units and those vulnerable to movement during repair works:** Prop or wedge so as to be firmly and correctly positioned.

180 Workmanship

1. **Skill and experience of site operatives:** Appropriate for types of work on which they are employed.
 - 1.1. **Documentary evidence:** Submit on request.

181 Workmanship - Conservation Specific

1. All work shall comply with the general recommendations of B.S. 5390 section 5 Work on Site.
2. **NOTE:** Masonry repairs are to be undertaken only by an approved stone mason who is a member of The Heritage Contractors Section of the Stone Federation. None registered companies or unqualified personnel will not be permitted to work on site.
3. **Protection of Masonry Units and Masonry:**

- 3.1. Masonry Units: Prevent overstressing during transit, storage, handling and fixing. Store on level bearers clear of the ground, separated with resilient spacers. Protect from adverse weather and keep dry. Prevent soiling, chipping and contamination. Lift units at designed lifting points where provided.
- 3.2. Masonry: Prevent damage, particularly to arrises, projecting features and delicate, friable surfaces. Prevent mortar / grout splashes and other staining and marking on face work. Protect using suitable non-staining slats, boards, tarpaulins, etc. Remove protection on completion of the work.
4. Setting Out and Working Drawings:
 - 4.1. For repair work setting out points are to be taken from the existing structure prior to carrying out repair work. Survey reference points should be taken and recorded to enable the correct placement of repairs.
 - 4.2. The Architect is to be advised of any discrepancies in the alignment of existing work prior to carrying out repair work.
 - 4.3. For new work, setting out is to be as specified.
 - 4.4. Working drawings for each elevation are to be prepared and submitted to the Architect at least two weeks before cutting stonework.
 - 4.5. Full size profiles of all mouldings are to be submitted to the Architect prior to carving all of which is to be shown in the pre-contract programme.
 - 4.6. The cutting schedule for all stones is to be submitted to the Architect on request.

185 Adverse weather

1. **General:** Do not use frozen materials or lay masonry units on frozen surfaces.
2. **Air temperature:** Do not bed masonry units or repoint:
 - 2.1. In cement gauged mortars when ambient air temperature is at or below 3°C and falling or unless it is at least 1°C and rising, unless mortar has a minimum temperature of 4°C when laid and the masonry is adequately protected.
 - 2.2. In hydraulic lime:sand mortars when ambient air temperature is at or below 5°C and falling or unless it is at least 3°C and rising.
 - 2.3. In nonhydraulic lime:sand mortars in cold weather, unless approval is given.
3. **Temperature of the work:** Maintain above freezing until mortar has fully set.
4. **Rain, snow and dew:** Protect masonry by covering during precipitation, and at all times when work is not proceeding.
5. **Hot conditions and drying winds:** Prevent masonry from drying out rapidly.
6. **New mortar damaged by frost:** Rake out and replace.

Materials/ production/ accessories

220 Recording profiles

1. **Profiles:** Take measurements from existing masonry units, as instructed, to allow accurate matching of replacements.
2. **Recording in situ:** If there are no suitable joints to allow use of inserts, seek instructions.
3. **Drawings and templates:** Prepare as necessary. Templates must be clearly and indelibly marked to identify use and location.

241 Stone in accordance with Repairs Scope

1. Free from any defects on the faces visible in the completed work that could mar the appearance of the stonework.
2. Of proven durability and weather resistance and selected with regard to its suitability to local atmospheric conditions and the nature of the work to be carried out, and its location in the finished work. The Contractor is to confirm to the Architect the suitability of the stone.

3. To match samples of stone, sufficiently large to show natural variations and specified finishes, which are to be submitted for approval prior to ordering.
4. Variations in colour and texture, natural to the source of stone, will only be acceptable within the range of samples supplied to and approved by the Architect. Variations in colour and texture outside the range of approved samples will be rejected.
5. The Contractor is to confirm in writing the quarry and/or bed of origin.
6. Stone from only one quarry bed is to be used throughout.
7. Stone is to be seasoned at the time of delivery to suit the purpose for which it is to be used.
8. Stone for ashlar repair work to be worked to suit the location where it is to be fixed. Finish to match the existing adjacent stonework as approved sample on all faces visible in the finished work.
9. Stone for new ashlar work to be dressed to specified finish and to match approved sample on all faces visible in the finished work.
10. Stones for repairing existing random rubble to match the existing wall to include sufficient bonding stones through the wall.
11. Stones for new random rubble wall to be as specified. To include sufficient bonding stones through the wall; minimum 1 no. bonding stone per 1m² of finished wall.
12. Stones for repairing existing coursed rubble to be roughly dressed to match the existing and to include sufficient bonding stone through the walls.
13. Stones for new coursed rubble to be roughly dressed as specified. To include sufficient bonding stones through the wall; minimum 1 no. bonding stone per 1m² of finished wall.
14. Stone for carving work to be specially selected to be consistent in grain and colour throughout. Supply sufficient quantity of stone for the carver to have ample scope for their work.
15. Samples of the specified stones for repair work are to be submitted for matching purposes. The samples are to match the existing stone in colour, texture, shape, size and surface finish as closely as possible. Where a particular stone has not been specified, the stone samples should be closely related geologically to the stone to be matched.
16. For new work, samples of the specified stone are to be submitted for approval of the full range of colour and texture. Such samples are to meet the specification requirements.

245 Replacement stone units

1. **Sizes and profiles:** To match existing masonry. Maintain existing joint widths.
2. **Sinkings for fixings, joggles and lifting devices:** Accurately aligned and positioned in relation to existing masonry.
3. **Marking:** Mark each block/ dressing clearly and indelibly on a concealed face to indicate the natural bed and position in the finished work.
4. **Other requirements:** Refer to C41/241

250 Stone orientation

1. **Orientation of natural bed**
 - 1.1. **In plain walling:** Horizontal.
 - 1.2. **In projecting stones and copings:** Vertical and perpendicular to wall face.
 - 1.3. **In arches:** Perpendicular to line of thrust.

251 Laying of stone

1. **Natural bed:**
 - 1.1. New stonework shall be prepared such that the natural bed is:
 - a) Horizontal for plain walling works.

- b) Vertical and at right angles to wall face for cornices and other projecting stones.
 - c) Horizontal in quoin stones or end stones. These shall be specially selected to ensure that they are compact non-laminated stones.
- 1.2. Further bedding details are contained in B.R.E. publications for the relevant type of stone. These are summarised in diagrammatic form in the appendices.

252 Bedding

1. All stones shall be laid on a full and even bed of lime mortar based on "coarse stuff" unless specified elsewhere.

253 Joints

1. Horizontal and vertical joints are to match the existing joint size unless instructed differently by the Architect.

254 Face

1. Stones are to be placed such that their face is flush with the plane of the original stonework. Where new stone is being inserted adjacent to old worn surfaces the new stone shall be set to the face of the nearest unworn surface.

255 Ashlar blocks/ Dressings

1. Cutting and dressing stone: To true and regular surfaces, free from hollow or rough areas.

Dismantling/ rebuilding

310 Dismantling masonry for reuse

1. Masonry units to be reused: Remove carefully and in one piece.
 - 1.1. **Treatment:** Clean off old mortar, organic growths and dirt, and leave units in a suitable condition for rebuilding.
 - 1.2. **Identification:** Mark each unit clearly and indelibly on a concealed face, indicating its original position in the construction. Transcribe markings to drawings/ photographs.

320 Rebuilding

1. **Description:** Re-building of existing monument to match existing arrangement to ensure of sound structural construction.
2. **Replacement materials:** Stone, as clause 241
3. **Mortar:** As section BUT07
4. **Fixings:** Existing fixing arrangement to be recorded and advised if reinstating of existing arrangement is appropriate with conservation professional.
5. **Rebuilding:** To match previous face and joint lines, joint widths and bonding. Adequately bonded to retained work/ backing masonry, as appropriate.
6. **Joint surfaces:** Dampen, as necessary, to control suction.
7. **Laying masonry units:** On a full bed of mortar; perpend joints filled.
8. **Exposed faces:** Remove mortar and grout splashes immediately.
9. **Joints:** To match existing
10. **Other requirements:** Joints and face as per C41/253 and C41/254

Replacements and insertions

330 Preparation for replacement masonry

1. **Defective material:** Carefully remove to the extent agreed. Do not disturb, damage or mark adjacent retained masonry.
2. **Existing metal fixings, frame members, etc.:** Report when exposed.
3. **Redundant metal fixings:** Remove.
4. **Recesses:** Remove projections and loose material; leave joint surfaces in a suitable condition to receive replacement units. Protect from adverse weather if units are not to be placed immediately.

331 Repairs to stonework

1. General:
 - 1.1. All repairs will be identified during the inspection and will be indicated on the drawings.
 - 1.2. All areas for repair are to be marked up from the drawings on site by the Contractor and agreed with the Architect prior to commencing cutting out.
 - 1.3. The Contractor is to notify the Architect once the whole of the area to be repaired is fully accessible. The Architect shall indicate on site any variations to the work found to be necessary.
 - 1.4. Stonework is to be adequately propped during the course of the works.
 - 1.5. All iron cramps and the like encountered during the course of the works are to be removed and replaced with stainless steel fixings. The Architect is to be advised as and when such iron cramps are found.
 - 1.6. Stonework is to be cut out with extreme care to ensure that no damage occurs to existing adjacent stones that are to be left in-situ. In particular, techniques that cause excessive vibration and/or dust are to be avoided. Any damaged or scarred stonework is to be replaced at the Contractor's own cost. Piecing in or mortar repair will not be considered as acceptable remedial action. Total replacement will be necessary. The Architect is to be advised prior to undertaking such remedial action.
 - 1.7. Where the Contractor anticipates that cutting out will not be possible without causing damage, the Architect is to be advised and provided with a method statement describing how potential damage will be controlled before proceeding with the work.
2. Repair techniques:
 - 2.1. Repairs to stonework will be one of the following as noted on the drawings:
 - 2.1.1. A) Full block replacement.
B) Part block replacement.
C) Full face replacement
D) Partial face replacement
E) Carved work replacement.
F) Carved item replacement
G) Indent repair
H) Redressing
I) Crack injection/resin repair
J) Stitch repair
K) Plastic repair
 - 2.1.2. Note: lettered abbreviations A-K as above will be annotated across drawings where relevant. If letter is followed by a number, that number signifies the quantity of said repair within that location. For example, C2 would mean that 2 stones require a full-face replacement.
 - 2.1.3. Each repair technique is described below.

331 (A) Full block replacement (A)

1. Preparation:

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- 1.1. The existing stone block is to be cut out to its full depth and the backing masonry inspected.
2. Installation:
 - 2.1. New stone is to be inserted on a bed and backing of lime mortar. Mortar is to be kept back 25mm from the face of the stone to allow for later pointing.
3. Following memorials with Type A Repairs:
 - 3.1. None.

331 (B) Part block replacement (B)

1. Preparation:
 - 1.1. The existing stone block is to be cut out to an agreed line or as shown on the drawing to its full depth. The remaining edge of the block is to be hand dressed to form a new arris ensuring that the adjoining stones are not damaged in any way for ashlar work. The arris is to be formed perfectly plumb and true and at right angles to the face of the block. The backing masonry is to be inspected and any defects reported to the Architect. The backing masonry is to be drilled to receive resin anchors and the adjoining stones drilled to receive dowels.
2. Installation:
 - 2.1. New stone is to be bedded in lime mortar and cramped and doweled in position as detailed below.
3. Following memorials with Type B Repairs:
 - 3.1. None

331 (C) Full face replacement (C)

1. General:
 - 1.1. Where the stone is of sufficient thickness a 100mm indent repair is to be used. This repair may not be used on stone less than 200mm thick and in circumstances where the existing stone thickness varies the Contractor is to inform the Architect when the remaining thickness of the stone after removal of the face is less than 100mm.
2. Preparation:
 - 2.1. Existing block is to be cut back to a to a depth of 100mm from the front face of the surrounding stonework.
 - 2.2. The existing stone is to be drilled to receive resin anchors and the adjoining stones drilled to receive dowels.
3. Installation:
 - 3.1. The new stone slab is to be bedded in 1:2:9 cement:lime:sand mortar and cramped and doweled in position as detailed below. The mortar bed is to be kept back 25mm to allow for pointing.
4. Following memorials with Type C Repairs:
 - 4.1. None.

331 (D) Partial face replacement (D)

1. General:
 - 1.1. Where the stone is of sufficient thickness a 100mm indent repair is to be used. This repair may not be used on stone less than 200mm thick and in circumstances where the existing stone thickness varies the Contractor is to inform the Architect when the remaining thickness of the stone after removal of the face is less than 100mm.
2. Preparation:
 - 2.1. The existing block is to be cut back to a as agreed with the Architect or as indicated on the drawings to a depth of 100mm from the face of the surrounding stonework. A new arris is to

be formed by hand in the position agreed for ashlar work. The arris is to be plumb and true and square to the face of the stone.

3. Installation:
 - 3.1. The existing stone is to be drilled to receive resin anchors and the adjoining stones drilled to receive dowels.
 - 3.2. New stone slab is to be bedded in hydraulic lime mortar and cramped and doweled in position as detailed below. The mortar bed is to be kept back 25mm to allow for pointing.
4. Following memorials with Type D Repairs:
 - 4.1. None.

331 (E) Carved work replacement (E)

1. General:
 - 1.1. Where carved or projecting stones are identified for replacement, the decayed stone shall be cut back to a depth which will ensure that the centre of gravity of the stone to be inserted is contained within the line of the masonry wall. The minimum depth is to be 100mm, but the Contractor is to allow within their rates for any increased depth required to suit individual profiles.
2. Preparation:
 - 2.1. The section of decayed stonework is to be cut back to the lines agreed with the Architect and cleaned out of all debris and mortar and rinsed out with clean water.
 - 2.2. Any defect in the remaining stone is to be reported to the Architect.
3. Installation:
 - 3.1. New stone may be carved prior to placing but must be finished after placing to ensure satisfactory junction with the adjoining stones. Stone is to be bedded in lime mortar unless specified elsewhere and mortar is to be kept back 25mm from the face to facilitate later pointing.
 - 3.2. Backing stone is to be drilled to receive resin anchors and stainless-steel cramps and adjoining stones are to be drilled to receive dowels as detailed below. If the specified cramps and dowels cannot be achieved the Contractor is to advise the Architect is to instruct on alternatives after the decayed area has been cut out.
4. Following memorials with Type E Repairs:
 - 4.1. **Arbor Day Blackley Memorial :**
 - 0.5 linear m of moulded stone indent repair
 - 4.2. **The angel:**
 - 0.7 linear meter moulded stone indent repair

331 (F) Carved item replacement (F)

1. General:
 - 1.1. Where an entire item of carved work is specified for replacement then the original decayed item shall be carefully cut out, any existing dowels, cramps, etc are to be removed.
 - 1.2. New stone is to be specially selected for its compactness and is to be worked to the required profiles.
2. Installation:
 - 2.1. New stone may be carved prior to placing but must be finished after placing to ensure satisfactory junction with adjoining stones. Stone is to be bedded in lime mortar as specification, unless specified elsewhere and the mortar is to be kept back 25mm from the face to facilitate later pointing.
3. Following memorials with Type F Repairs:
 - 3.1. **Arbor Day Blackley Memorial :**
 - Central Sandstone plaque to be reinscribed

3.2. Collyhurst War Memorial:

- 480 x 800mm with matching inscription

331 (G) Indent repair (G)

1. General:

- 1.1. Cut out area of stone identified to a depth of 50mm for indents of 100mm, 65mm for indents up to 150mm and 75mm for indent repairs to a maximum of 300mm.

2. Preparation:

- 2.1. Carefully form neat arrises to all sides ensuring that no damage occurs to the adjoining stones. Carefully square off the back of the recess and clean out all debris, mortar etc.

3. Installation:

- 3.1. New stone is to be inserted on a bed of resin with arrises tight to the original stone. Joint thickness to the original arrises of the block is to be consistent with the original mortar joints.
- 3.2. Ensure that resin is kept back from the mortar joint positions by 25mm to facilitate later pointing.
- 3.3. Indent repair is to be fully supported until the resin has cured.

4. Following memorials with Type G Repairs:

4.1. Arbor Day Blackley Memorial :

- 220 x 130 x 375mm
- 880 x 120 x 200mm
- 600 x 200 x 150mm
- 150x 150 x 440mm

4.2. The Angel:

- 200 x 100 x 200mm
- 200 x 200x 150mm
- 150 x 100x 350 mm
- 2no. 200 x 200x 1200mm
- 250 x 100 x 250mm
- 200 x 100 x 200mm
- 200 x 100 x 200mm
- 300 x 100 x 300 mm
- 150 x 100 x 120 mm
- 250 x 100 x 250mm
- 3no. 300 x 100 x 300 mm

4.3. Collyhurst War Memorial :

- 100x 100x 120mm
- 2no 230 x 100 x800mm
- 230 x100 x 800mm
- 230 x 100 x 800mm

4.4. Rhondes Clock :

- 300 x 100x 400mm
- 2no. 300 x 100x 400mm

331 (H) Redressing (H)

1. General:

- 1.1. Where damage to stone is superficial this can be rectified by redressing the stone. The area to be redressed is to be agreed with the Architect on site.

- 1.2. When surface failure has occurred, the stonework can be redressed to its original profile. This should be undertaken by a skilled stonemason's. Generally, only 15-25mm of the eroded stone is removed to allow realignment to the original profile. This technique is used for eroded stone deeply embedded within a wall which itself has minimal decay, yet is disfigured.
- 1.3. Where dressing back is required the Contractor shall inform the Architect if, in their opinion, it is necessary to dress back further, i.e. to a greater depth, than specified. Must be agreed.
- 1.4. The redressing of stonework will generally remove all spalling / friable / sheered areas of masonry vulnerable to becoming loose.
2. Preparation:
 - 2.1. The stone is to be taken back the minimum possible to achieve a sound free draining surface using only hand tools.
 - 2.2. On many stones, a more robust descaling will be necessary due to the extent of delamination. This work is to be carried out in accordance with previously agreed samples. A sample will be requested during tender stage so that the contractor understands the extent of descaling necessary to some stones.
3. Finish:
 - 3.1. The redressed stone shall be finished to a smooth texture with minimum tooling marks visible.
 - 3.2. Where it is agreed that only part of the stone is to be redressed the redressed area is to be feathered neatly into the untreated area.
4. Following memorials with Type H Repairs:
 - 4.1. **Collyhurst War Memorial:**
 - 200 x 150mm
 - 115 x 800mm
 - 230 x 450mm
 - 2no. 230 x 800mm
 - 410 x 450mm
 - 410 x 450mm
 - 210 x 800mm
 - 210 x 200mm
 - 4.2. **Rhodes Clock :**
 - 200 x 400mm

331 (I) Crack injection / resin repair (I)

1. General:
 - 1.1. Resin repairs will only be used in limited areas where the blocks exhibit minor cracks that do not warrant the replacement of the whole block.
2. Materials:
 - 2.1. Resin: Resin shall be Jolly Stone Filler / Glue as manufactured by Ilpa or similar approved, colour to match existing terracotta blocks.
 - 2.2. Natural Pigments (black or brown) – obtainable from Womersley's of Heckmondwike.
3. Preparation:
 - 3.1. Any loose material is to be scraped away using a hacksaw blade and the joint widened sufficiently to accept the resin and washed out with a syringe and clean water to remove all dust and debris.
4. Installation:
 - 4.1. Resin is to be applied into the crack and finished flush with the surface of the terracotta unit. It is important to ensure that the resin is applied to the full depth of the crack and that it is completely filled. The block is then to be lightly polished using carborundum pads to

provide a smooth finish. If the colour of the block is lost through this process a natural pigment in a dilute of water is to be applied to the block to re-establish the colour.

- 4.2. A sample of the above process is to be prepared on a defective cut out block for the approval by the Architect prior to commencing this type of repair.
5. Following memorials with Type I Repairs:
 - 5.1. None

331 (J) Stitch repair (J)

1. Where specified the adjoin joints to both sides of the defect are to be raked out to a depth of 50mm (or as specified by the structural engineer) and to at least 450mm beyond the line of the defect.
2. Raked out joints are to be cleaned out of all debris.
3. Helical stainless-steel tie rods are to be inserted into the joints at the specified centres.
4. Joints are to be fully repointed with all mortar fully compacted and pointed to match the surrounding masonry.
5. Following memorials with Type J Repairs:
 - 5.1. The Antel:
 - 250mm Vertical Split
 - 5.2. Collyhurst War Memorial:
 - 500mm Vertical Split
 - 600mm Vertical split
 - 5.3. Rhondes Clock:
 - 3no. 500mm Split
 - 200mm Split

331 (K) Plastic repair (K)

1. General:
 - 1.1. Plastic repairs will normally not be used except in exceptional circumstances. It is essential that any plastic repair is correctly carried out to avoid damage to the adjoining stonework.
2. Preparation:
 - 2.1. Decayed and damaged stone is to be cut back to a minimum depth of 25mm from the face of the original stonework, or until sound stonework is located whichever is deeper. All loose material debris and mortar is to be removed and the recess thoroughly cleaned. The recess is to be rinsed in clean water.
3. Installation:
 - 3.1. Repair is to be carried out using a plastic mortar consisting of hydraulic lime and stone dust. Samples of repair mortar are to be prepared and approval obtained prior to commencement of repairs. The mix is to be adjusted to ensure that, when dry, the mortar matches the existing stone in colour and texture. The mortar mix should be softer than the stone to avoid future damage.
 - 3.2. Stainless steel reinforcement is to be secured with resin into the recess and the resin allowed to cure before commencing the repair.
 - 3.3. Moisten the recess and build up in maximum 10mm thick layers of repair mortar, to the required depth allowing each layer to cure before applying the next. The last layer shall be finished to profiles to match the adjoining stone.
4. Following memorials with Type K Repairs:
 - 4.1. None

332 Cutting out

1. Cutting out decayed stonework to permit new stones of the specified depth for the appropriate repair to be inserted. Cutting out can be carried out by mechanical means provided that extreme care is taken to ensure that the adjoining stones are not damaged. The stones should be cut to the central section's only by mechanical means ensuring that the perimeter is undamaged. The stone is then to be cut back by hand to the required depth.
2. If any damage occurs to adjoining stones, then the stone is to be replaced at the Contractors expense at the discretion of the Architect.
3. In certain areas previous plastic repairs may have to be removed. In this case the Contractor should note that the plastic repair may be harder than the original stonework and great care is to be exercised to ensure no unnecessary damage occurs to the existing stone.

333 Temporary support

1. Stonework above the course being cut out or dressed back shall be fully supported during the course of the works. Support should be by adequately sized timber props secured and wedged. Care should be taken to ensure that no damage is caused by the props to the adjoining stonework.

335 Cleaning out

1. All areas cut out to be cleared of debris mortar etc and washed clean. Care is to be taken not to saturate the stone.
2. Any defects noted in the stone after cutting back or in the masonry backing are to be reported to the Architect.

336 Moistening

1. Wherever new masonry is to be inserted the adjoining stones are to be moistened to ensure that the mortar does not "snatch". Do not saturate the stone.

337 Removal of organic growth

1. See separate specification clause.

338 Descaling

1. Where damage to stone is superficial this can be rectified by descaling the stone. The area to be descaled is to be agreed with the Architect on site.
2. The stone is to be taken back the minimum possible to achieve a sound free draining surface using hand tools only.
3. The descaled stone shall be finished to a smooth texture to avoid water traps.
4. Where it is agreed that only part of the stone is to be descaled the treated area is to be feathered neatly into the untreated area.

345 Preparation of stone

1. Unless specified otherwise, prepare stone so that the natural bed is:
 - 1.1. a) Horizontal in plain walling.
 - b) Vertical and at right angles to the wall face in cornices and other projecting stones.
 - c) Horizontal in quoin stone or end stones which are to be specially selected compact non laminated stones.
 - d) Parallel to the radial centre line of each arch stone and at right angles to the wall face in arches.
2. Mark the natural bed clearly on each stone before it leaves the quarry. Where it is not possible to determine the bed of the stone after extraction, the bed should be marked before quarrying and subsequently marked on each stone as cut.

3. For repair work stones are to be cut to full dimensions to match the original joint layout and width of the masonry. Sufficient stone is to be allowed for to enable working to original bed and perpendicular joints, in particular on quoin stones.
4. For new stonework, work the exposed and joint faces of each stone to a square and plane surface, free from hollow or rough edges to the particular finishes as instructed to match the approved sample.
5. Where the specified stone cannot be obtained in sufficient bed depth to match the existing joint layout the Architect is to be advised before proceeding. Any variation in the orientation of the natural bed from that specified above is to be the subject of future instruction.
6. Mark each stone on an unexposed face, clearly, to indicate its position in the finished work.
7. Only stone for immediate use shall be stored on the scaffold.

346 Working stone

1. Generally, where new stonework is being installed to replace existing stonework, profiles and finishes are to match the original. Samples are to be provided for approval by the Architect. Where existing stones are weathered, profiles are to be agreed with the Architect before proceeding. The Contractor is not to assume that existing stone profiles will be the same around the existing building. Stones are to be cut and profiled as necessary to suit their particular location. Where necessary stones are to be oversized to allow for final dressing in on site to ensure correct alignment and profile.
2. Work the exposed and joint faces of each stone to suit its location. Exposed and joint faces to be free from hollow or rough edges. All saw marks are to be removed from exposed faces to a depth of at least 10mm. Arises to all ashlar are to be chiselled to avoid straight lines when new ashlar are fixed together; where necessary this is to be done prior to construction to ensure accurate alignment in the finished work.

Noting the variance in tooled finishes across the site the Employer has prepared four samples for the Contractor. The Contractor is to retain these samples on site for comparison with finished work by the Architect. The Contractor is to familiarise themselves with the samples and provide their own samples for review and approval by the Architect and Property Curator.

3. Cut and carve stone to accurate clean profiles before building in. In repair work final dressing-in is to be carried out in-situ to ensure accurate alignment with existing adjacent stones. On no account dress off existing stones to suit new stone profiles. Allow for masonry lime mortar repairs to all adjacent existing stones to provide a smooth water shedding junction between new and old stones. In new work, profiles and finishes are to be in accordance with the specification, drawings, schedule of work and approved samples.
4. Chase out mortices for joggles, dowels and cramps before delivery of stone to site.
5. Drill holes for dowels to be fixed to equal depth in adjacent stones.
6. Where particularly specified, cut 'V' shaped sinkings to coincide with those in the ends of adjacent stones for filling with mortar grout or lead, as specified, to form joggles.
7. Where particularly specified, cut dovetail channels in adjacent stones for cramps.
8. Where particularly specified, cut holes for anchor bolts of just sufficient tolerance for easy bolt entry.
9. For repair work, new stones are to be worked to dimensions and profiles of the original. The pattern of joints in the original stonework is to be matched unless specified otherwise.

347 New stonework

1. Quoins are to be sized as specified and cut from one piece of stone unless specified otherwise.
2. Cills are to be sized as specified, cut from one piece of stone unless specified otherwise.
3. Jambs are to be sized as specified. Full section to be cut from one piece of stone unless specified otherwise.
4. Facing stones are to be 100mm thick minimum, or as specified otherwise.

5. Copings to be sized as specified. Full section to be cut from one piece of stone unless specified otherwise.
6. No work involving preparation or laying of mortar shall be carried out during frost conditions.

348 Laying and jointing

1. Lay stones on their natural bed, or as described in clauses for "Preparation of the Stone".
2. Lay stones on a full even bed of mortar, as agreed sample. Ensure that no hard lumps or the like are present in the mortar that could prevent even bedding.
3. In repair work, horizontal and vertical joints are to be of widths to match the original masonry, finished as approved sample, unless specified otherwise. An area of existing masonry will be marked up by the Architect for matching purposes.
4. In new work horizontal and vertical joints are to be of widths to match the approved sample or as specified otherwise. Joints to be finished as approved sample.
5. Ensure stone faces taking mortar are dampened as necessary to prevent premature drying out of the mortar.
6. All joints and joggles are to be filled solid.
7. All dowels, cramps, ties, metal fixings and the like are to be solidly and securely fixed as the work proceeds.
8. Random rubble wall to be laid as specified and to match existing and adjacent.
9. Coursed random rubble to be levelled at heights as specified and to match existing and adjacent.

385 Laying replacement masonry units

1. **Exposed faces of new material:** Keep to agreed face lines.
2. **Faces, angles and features:** Align accurately. Set out carefully to ensure satisfactory junctions with existing masonry and maintain existing joint widths.
3. **Joint surfaces:** Dampen to control suction as necessary.
4. **Laying units:** On a full bed of mortar, all joints filled.
5. **Exposed faces:** Keep clear of mortar and grout.

Tooling/ dressing stone in situ

450 Weathering ledges at joints

1. **Locations:** Where stones project or are recessed.
2. **Requirement:** Carefully weather the ledge, to approval.
3. **Method:** Suitably graded carborundum blocks or tooling as appropriate.

455 Descaling stone

1. **Requirement:** Carefully remove loose scaling and powdering from stones to the extent agreed.
2. **Method:** Suitable bristle brushes or carborundum blocks. Do not use wire brushes.

458 Redressing stone

1. **Requirement:** Carefully dress back stones to the extent agreed.
2. **Method:** Suitably graded carborundum blocks or tooling as appropriate.

Mortar repairs - Not Used

Crack repairs/ ties/ reinforcement

640 Pinning

1. Dowels/ Pins
 - 1.1. Standard: To BS EN 1090-1
 - 1.2. Type: To Structural Engineers specification. Allow as per Clause 641
 - 1.3. Diameter: To Structural Engineers specification. Allow for 8mm.
 - 1.4. Additional requirements: Allow provisionally for three dowels per stone
2. Resin: Low viscosity resin to approval, Allow as per clause 641
3. Holes: Drill carefully, sloping downwards into background. Remove drilling dust and debris and keep dry.
4. Filling holes
 - 4.1. Check that dowel lengths are correct before filling with resin.
 - 4.2. Use sufficient resin so that when the dowel is inserted the resin is dispersed to achieve an effective repair.
5. Exposed faces: Keep clean and free from resin stains. Use temporary plugging material and/ or isolating membranes as necessary.
6. Clearances: Keep ends of ties and resin back from face of masonry.
7. Making good after resin has cured: Stone Plugs as per Architect's confirmation.

641 Pinning - note

1. Where an area appears to be vulnerable due to non-structural fracturing or finer cracks, and the stone is generally sound, pinning will be used to secure the element in-situ. This will be carried out in threaded Grade 316 stainless steel bar or notched phosphor bronze with the dowel(s) fixed to minimise failure and grouted and packed with lime mortar. Where adhesive is required in addition to dowels, epoxy resin should be used to spot stick the joint and secure the dowel. If necessary, polyester resin may be used in addition to epoxy to spot stick and help secure stone elements where a faster 'set' is required, however, polyester should not be used externally in isolation. Resin should not be used along a crack in such a way to cause a barrier to natural movement of moisture through the stone.

Grouting rubble filled cores - Not Used

Pointing/ repointing

820 Pointing

1. Further information : For Pointing preparation, specification and execution, refer to section BUT07

840 Pointing with tools/ Irons

1. General: Press mortar well into joints using pointing tools/ irons that fit into the joints, so that they are fully filled.
2. Face of masonry: Keep clear of mortar. Use suitable temporary adhesive tape on each side of joints where necessary. Finish joints neatly.

900 Completion

1. The Architect is to be advised at least two weeks in advance of when the works will be complete in order that an inspection can be made prior to the removal of any scaffold.

2. All dust marks, staining, scuff marks and the like are to be carefully cleaned off. Extreme care is to be taken to ensure that no damage occurs to the new or existing fabric of the building. Any damage is to be made good at the Contractor's own expense.
3. Remove all tools, plant and equipment and used materials and debris.
4. On completion leave all neat and tidy to the satisfaction of the Architect.

Ω End of Section

H71

Lead sheet fully supported roof and wall coverings/ flashings

Types of leadwork

100 General:

1. The extent of lead work on the roofs is identified on the following drawings:
2. The work involves:

250 Weathering to New Timber Case

1. Description: Cornice and top of new timber case.
2. Substrate: New timber
3. Sheet underlay: Building paper to BS 1521, Class A1
4. Type of lead: Rolled to BS EN 12588
 - 4.1. Thickness: 2.00 or 2.24 mm (Code 5)
5. Joints: Laps (100 mm minimum)
 - 5.1. Spacing: Not applicable
6. Edge details: 25mm drip with leadwork formed around terne coated stainless steel clip.
7. Fixing: Determined by contractor
8. Accessories: Weld to create corner upstands.

General requirements/ preparatory work

510 Workmanship generally

1. Standard: In accordance with BS EN 14783 and BS EN 12588 and to BS 6915 and latest edition of 'Rolled lead sheet. The complete manual' published by the Lead Sheet Training Academy.
2. Fabrication and fixing: To provide a secure, free draining and completely weathertight installation.
3. Operatives: Trained in the application of lead coverings/ flashings. Submit records of experience on request.
4. Preforming: Measure, mark, cut and form lead prior to assembly wherever possible.
5. Marking out: With pencil, chalk or crayon. Do not use scribes or other sharp instruments without approval.
6. Bossing and forming: Straight and regular bends, leaving sheets free from ripples, kinks, buckling and cracks.
7. Solder: Use only where specified.
8. Sharp metal edges: Fold under or remove as work proceeds.
9. Finished work: Fully supported, adequately fixed to resist wind uplift but also able to accommodate thermal movement without distortion or stress.
10. Protection: Prevent staining, discolouration and damage by subsequent works.

515 Lead-welding

1. In situ lead-welding: Not permitted.

520 Lead sheet

1. Production method
 - 1.1. Rolled, to BS EN 12588, or

- 1.2. Machine cast and BBA-certified, or
- 1.3. Sand cast, from lead free from bitumen, solder, other impurities, inclusions, laminations, cracks, air, pinholes and blowholes; to code thicknesses but with a tolerance (by weight) of $\pm 10\%$.
2. **Identification:** Labelled to show compliance with the harmonized standard (hEN) BS EN 14783, where appropriate, and detail of the thickness/ code, weight and type.

640 Timber for use with leadwork

1. **Quality:** Planed, free from wane, pitch pockets, decay and insect attack (ambrosia beetle excepted).
2. **Moisture content:** Not more than 22% at time of fixing and covering. Give notice if greater than 16%.
3. **Preservative treatment:** Organic solvent as section Z12 and Wood Protection Association Commodity Specification C8.

641 Timber:

1. Timber for roof decks etc. shall be 100x25mm straight edged softwood boards (Siberian Larch or Baltic Whitewood) butt jointed to match existing.
2. Timbers shall be planed, free from wane, pitch pockets decay and insect attack.
3. Moisture content shall not be more than 15% at the time of covering.

643 All bases

1. 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.
2. 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.

650 Laying sheet underlay

1. **Handling:** Prevent tears and punctures.
2. **Laying:** Butt or overlap jointed onto a dry substrate.
 - 2.1. **Fixing edges:** With copper or stainless steel staples or clout nails.
 - 2.2. Do not lay over roof edges but do turn up at abutments.
 - 2.3. **Wood core rolls:** Fixed over sheet underlay.
 - 2.4. **Protection:** Keep dry and cover with lead at the earliest opportunity.

Fixing lead

710 Fixings

1. **Nails to timber substrates:** Copper clout nails to BS 1202-2, or stainless steel (austenitic) clout nails to BS 1202-1.
 - 1.1. **Shank type:** Annular ringed, helical threaded or serrated.
 - 1.2. **Shank diameter:** Not less than 2.65 mm for light duty or 3.35 mm for heavy duty.
 - 1.3. **Length:** Not less than 20 mm or equal to substrate thickness.
2. **Screws to concrete or masonry substrates:** Brass or stainless steel.
 - 2.1. **Diameter:** Not less than 3.35 mm.
 - 2.2. **Length:** Not less than 19 mm.
 - 2.3. **Washers and plastic plugs:** Compatible with screws and lead.
3. **Screws to composite metal decks:** Self tapping as recommended by the deck and lead manufacturer/ supplier for clips.

760 Continuous clips

1. **Manufacturer:** Contractor's choice
2. **Material:** Material: Terne coated stainless steel
 - 2.1. **Temper:** BS EN 1172, designation R220 in welts, seams and rolls, R240 elsewhere.
 - 2.2. **Stainless steel continuous clips**
 - 2.2.1. **Thickness:** 0.38mm
 - 2.2.2. **Grade:** BS EN 10088-1, 1.4301(304).
3. **Dimensions**
 - 3.1. **Width:** To suit detail.
4. **Fixing clips:** Secure at 75 mm centres.
5. **Fixing lead sheet:** Welt edge around continuous clip and dress down.

770 Wedge fixing into joints/ Chases

1. **Joint/ chase:** Rake out to a depth of not less than 25 mm.
2. **Lead:** Dress into joint/chase.
 - 2.1. **Fixing:** Lead wedges at not more than 450 mm centres, at every change of direction and with at least two for each piece of lead.
3. **Sealant:** Lime based mortar to match original.
 - 3.1. **Application:** As section Z22.

Jointing lead

810 Forming details

1. **Method:** Bossing or lead-welding except where bossing is specifically required.
2. **Lead-welded seams:** Neatly and consistently formed.
 - 2.1. **Seams:** Do not undercut or reduce sheet thickness.
 - 2.2. **Filler strips:** Of the same composition as the sheets being joined.
 - 2.3. **Butt joints:** Formed to a thickness one third more than the sheets being joined.
 - 2.4. **Lap joints:** Formed with 25 mm laps and two loadings to the edge of the overlap.
3. **Bossing:** Carried out without thinning, cutting or otherwise splitting the lead sheet.
 - 3.1. **Details where bossing must be used:**

811 Forming details notes

1. Details may be formed by bossing or lead welding 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.
2. Bossing must be carried out without thinning cutting or otherwise splitting the lead sheet.

970 Patination oil

1. **Manufacturer:** Submit proposals
 - 1.1. **Product reference:** Submit proposals
2. **Location:** To all new leadwork.
3. **Application:** As soon as practical, apply a smear coating to lead, evenly in one direction and in dry conditions. To be completed as soon as leadwork installed prior to any wet weather.

Ω End of Section

M60

Painting/clear finishing

Coating systems

100 General

1. Code of Practice: Comply with BS 6150:2006 "Painting of Buildings" – Code of Practice.
2. Paints: Manufacturer to be agreed with Architect but must be applied in accordance with the makers' instructions and to follow the specification below in principle.
3. Preparation: Allow for sweeping out all areas before applying coatings and protect all floors and fittings with sheets etc. Make good any damage done to adjacent surfaces.
4. All coats of paint to be thoroughly dry before the application of subsequent coats and to be rubbed down with sand paper between each coat.
5. All iron to be thoroughly de-rusted and cleaned of rust before paint is applied.
6. External painting is only to be done in good painting weather when it is free from moisture.
7. All colours to be selected by the Architect subject to sample areas being prepared.
8. Permit manufacturers to inspect work in progress and take samples of their materials from site if requested.

190 Gilding

1. Description: Gilding to Granit Inscription
2. Surfaces: Existing Granite
 - 2.1. Preparation:
 - Degrease and provide key
 - Ensure surfaces are clean and dry
 - Remove all loose and defective coatings
3. Initial/ priming coat: Sealer as recommended by gilding applicator
 - 3.1. Number of coats: One
4. Undercoat: As recommended by gilding applicator
 - 4.1. Number of coats: One
5. Base coat: As recommended by gilding applicator
 - 5.1. Number of coats: Two
6. Gilding
 - 6.1. Applicator: Submit proposals
 - 6.2. Adhesive: As recommended by gilding applicator
 - 6.3. Leaf: Gold
 - 6.3.1. Quality: 23.5ct
 - 6.3.2. Colour: To match existing
7. Finish coat: As recommended by gilding applicator
 - 7.1. Number of coats: As recommended by gilding applicator
8. Other requirements: Prepare method statement, Prepare sample and Submit record of execution

195 Special coating to Existing Bronze Finish

1. Description: To bronze plaques and Statutory
2. Manufacturer: Submit proposals
3. Surfaces: Refer to 'MCC War Memorials - SoW and Pricing Schedule'

- 3.1. Preparation: To specialists recommendations
- 4. Initial coats: Microcrystalline wax layer applied hot
 - 4.1. Number of coats: 1no
- 5. Finishing coats: Microcrystalline wax applied cold.
 - 5.1. Number of coats: 2
- 6. Requiriements: Ensure new Wax compatible with existing finish as per clause 220. Allow for 1no. text/sample in discreet location prior to full application.

Generally

215 Handling and storage

- 1. Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.
- 2. Materials from more than one batch: Store separately. Allocate to distinct parts or areas of the work.

220 Compatibility

- 1. Coating materials selected by contractor
 - 1.1. Recommended by their manufacturers for the particular surface and conditions of exposure.
 - 1.2. Compatible with each other.
 - 1.3. Compatible with and not inhibiting performance of preservative/fire-retardant pretreatments.

280 Protection

- 1. 'Wet paint' signs and barriers: Provide where necessary to protect other operatives and general public, and to prevent damage to freshly applied coatings.

300 Control samples

- 1. Sample areas of finished work: Carry out, including preparation, as outlined in Schedule
- 2. Types of coating Location
- 3. Approval of appearance: Obtain before commencement of general coating work.

Preparation

400 Preparation generally

- 1. Standard: In accordance with BS 6150.
- 2. Refer to any pre-existing CDM Health and Safety File.
- 3. Refer to CDM Construction Phase Plan where applicable.
- 4. Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- 5. Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
- 6. Substrates: Sufficiently dry in depth to suit coating.
- 7. Efflorescence salts: Remove.
- 8. Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
- 9. Surface irregularities: Remove.
- 10. Joints, cracks, holes and other depressions: Fill flush with surface, to provide smooth finish.
- 11. Dust, particles and residues from preparation: Remove and dispose of safely.

12. Water based stoppers and fillers
 - 12.1. Apply before priming unless recommended otherwise by manufacturer.
 - 12.2. If applied after priming: Patch prime.
13. Oil based stoppers and fillers: Apply after priming.
14. Doors, opening windows and other moving parts
 - 14.1. Ease, if necessary, before coating.
 - 14.2. Prime resulting bare areas.

421 Preparation of existing metalwork

1. Intact Painted Surfaces:
 - 1.1. Wash down with detergent and warm water solution to remove grease and dirt.
2. Rusted Surfaces:
 - 2.1. Chip, scrape or wire brush rusted areas back to bare metal.
 - 2.2. Rub down all surfaces with abrasive paper or block used wet and rinse with clean water and dry off with a soft cloth.
 - 2.3. Apply phosphoric acid type rust remover to base metal areas (unless clean).
 - 2.4. Prepare and prime bared areas.

425 Ironmongery

1. **Removal:** Before commencing work: Remove ironmongery from surfaces to be coated.
2. **Hinges:** Confirm with Architect prior to redecoration works
3. **Replacement:** Refurbishment as necessary; refit when coating is dry.

430 Existing ironmongery

1. **Refurbishment:** Remove old coating marks. Clean and polish.

440 Previously coated surfaces generally

1. **Preparation:** In accordance with BS 6150, clause 11.5.
2. **Contaminated or hazardous surfaces:** Give notice of:
 - 2.1. Coatings suspected of containing lead.
 - 2.2. Substrates suspected of containing asbestos or other hazardous materials.
 - 2.3. Significant rot, corrosion or other degradation of substrates.
3. **Suspected existing hazardous materials:** Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
4. **Removing coatings:** Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.
5. **Loose, flaking or otherwise defective areas:** Carefully remove to a firm edge.
6. **Alkali affected coatings:** Completely remove.
7. **Retained coatings**
 - 7.1. Thoroughly clean to remove dirt, grease and contaminants.
 - 7.2. Gloss-coated surfaces: Provide key.
8. **Partly removed coatings**
 - 8.1. **Additional preparatory coats:** Apply to restore original coating thicknesses.
 - 8.2. **Junctions:** Provide flush surface.
9. **Completely stripped surfaces:** Prepare as for uncoated surfaces.

451 Previously coated cast iron - Sandblast cleaning

1. Operatives
 - 1.1. Trained/ experienced in blast cleaning.
 - 1.2. Submit evidence of training/ experience on request.
2. Dust and nuisance: Minimize. prevention must be taken due to likelihood of lead paint present.

461 Previously coated wood

1. Degraded or weathered surface wood: Take back to provide suitable substrate.
2. Degraded substrate wood: Repair with sound material of same species.
3. Exposed resinous areas and knots: Apply two coats of knotting.

471 Preprimed wood

1. Areas of defective primer: Take back to bare wood and reprime.

490 Previously coated steel

1. Defective paintwork: Remove to leave a firm edge and clean bright metal.
2. Sound paintwork: Provide key for subsequent coats.
3. Corrosion and loose scale: Take back to bare metal.
4. Residual rust: Treat with a proprietary removal solution.
5. Bare metal: Apply primer as soon as possible.
6. Remaining areas: Degrease.

Application

711 Coating generally

1. Application standard: In accordance with BS 6150, clause 9.
2. Conditions: Maintain suitable temperature, humidity and air quality during application and drying.
3. Surfaces: Clean and dry at time of application.
4. Thinning and intermixing of coatings: Not permitted unless recommended by manufacturer.
5. Overpainting: Do not paint over intumescent strips or silicone mastics.
6. Priming coats
 - 6.1. Thickness: To suit surface porosity.
 - 6.2. Application: As soon as possible on same day as preparation is completed.
7. Finish
 - 7.1. Even, smooth and of uniform colour.
 - 7.2. Free from brush marks, sags, runs and other defects.
 - 7.3. Cut in neatly.
8. Doors, opening windows and other moving parts: Ease before coating and between coats.

716 Schedule of paint systems

1. Schedule:

Substrate	Primer	Top coat
St Johns Roll of Honour - Timber SubstrateRhodes Clock - Door	1 No Coat Little Green Intelligent All Surface Primer	2 No Coats Little Greene Exterior Eggshell Intelligent Paint
K6 Telephone Boxes - Cast Iron Metalwork and Timber	1 coat K6 - Pink Primer from X2 Connect Ltd	2 coats of K6 Red Currant Paint from X2 Connect Ltd

- Note: The above paint systems are to be applied strictly in accordance with the manufacturer's recommendations.

720 Priming joinery

- Preservative treated timber:** Retreat cut surfaces with two flood coats of a suitable preservative before priming.
- End grain:** Coat liberally allow to soak in, and recoat.

770 External doors

- Bottom edges:** Prime and coat before hanging doors.

Ω End of Section



Specification created using NBS Chorus