Bacup Shopfront HSHAZ

Restoration Specification
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Contents

1.0 WORK IN LISTED BUILDINGS

1.1 WORK IN LISTED BUILDINGS

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

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

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

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

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

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

Any discrepancies found within this document by the Contractor

should be brought to the attention of the Architect at the time of tendering.

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.

2.0 ACCESS SCAFFOLDING

2.1 DESIGN

2.1.1 The design of all scaffolding will be the responsibility of the Contractor and is to be in accordance with the recommendations of BS 5973: 1990 "Code of Practice for access and Working Scaffold and special scaffold staircases in Steel" or as updated.

2.1.2 Compliance with the various Acts and regulations listed in BS 5973 is the responsibility of the Contractor.

2.1.3 Compliance with all aspects of Health and Safety during erection, using and dismantling is the responsibility of the Contractor.

2.1.4 The design of the scaffold is to take account of the requirements of all trades which will require access, use as a working platform or storage. No claims will be entertained for additional scaffold or for amending scaffold already erected to suit the requirements of trades contained within the specification and the tendered works as a whole.

2.2 PROPOSALS

2.2.1 The Contractor is to submit his proposals for the scaffold on or before the date for possession and not less than 7 days before commencement of the scaffold.

2.2.2 The Contractors proposals are to include clear drawings and structural calculations in duplicate sufficient to prove the stability of the proposed temporary structures in accordance with BS 5973: 1990. Drawings will be provided to the Architect and the Structural Engineer.

These drawings will clearly indicate positions where any scaffold is to be tied back to the fabric of the building and the proposed method of fixing.

2.2.3 No scaffolding shall be commenced on site until the Contractors

proposals have been submitted and agreed with the Architect/Structural Engineer. Agreement of the Contractors proposals does not relieve the Contractor of his responsibilities to ensure full compliance of all requirements.

2.3 PROGRAMME

2.3.1 Prior to commencement of any scaffolding the Contractor shall submit a programme indicating the commencement date, and completion date.

2.3.2 Prior to striking the scaffold the contractor will submit a programme indicating the period for dismantling for each area of scaffolding.

2.3.3 Scaffold is required for inspection purposes prior to confirmation of scope of the work and the Contractor is to indicate this period on his programme and ensure that his proposals are submitted early enough to ensure that this period is not compromised.

2.3.4 The programme is to take account of all the requirements of the sub-contractors who require the use of the scaffold.

2.4 ERECTION REQUIREMENTS

2.4.1 All scaffold tubing and fittings are to be galvanised and in good condition and free from corrosion. Rusty components will not be accepted.

2.4.2 No steel component (including capped tubes) is to be in contact with the fabric of the building except where specific approval has been given.

2.4.3 Where it is necessary to brace the scaffold from the structure then timber packing of a minimum thickness of 20mm is to be placed between the scaffolding and the masonry.

2.4.4 No scaffolding shall rest on any roof coverings unless agreed in writing prior to commencement.

2.4.5 The ends of ALL scaffold tubes are to be protected with plastic caps

which are to be fitted prior to delivery to site. Where it is necessary to cut scaffold tubes during erection the end is to be re-capped immediately.

2.4.6 Scaffold tubes are not to encroach within 50mm of the surface of the building except where required for support or stabilising. This is to prevent accidental damage to the fabric by minor movement of the scaffold. Where such support is required the scaffold shall be separated from the building fabric by 20mm timber packers to prevent Scarring of the fabric by scaffold tubes.

2.4.7 Where it is necessary to brace scaffold through window or door openings the existing finishes are to be protected with 20mm thick timber packers both internally and externally. The opening is to be boarded up with access only for the scaffold tubes.

2.5 SUPERVISION

2.5.1 The Contractor is to exercise particular care in supervising the erection and dismantling of the scaffold to ensure that no damage occurs to the fabric of the building.

2.5.2 It should be noted that in many instances damage to the historic fabric cannot easily be rectified. Any damage due to the scaffold use, erection or dismantling will be rectified at the Contractors expense.

2.5.3 Any area of scaffold not complying with section 1.4 above will not be used for any purpose.

2.6 SECURITY

2.6.1 All external scaffolding shall be designed and erected so as to prevent unauthorised access by sheeting (whether ply or steel) to a minimum height of 3 metres at the base. 'Herras' mesh fencing is not considered a suitable alternative.

2.6.2 Sheeting which forms part of the perimeter hoarding for the site will

also need to comply with constraints for site hoarding specified elsewhere within the preliminaries for the project.

2.6.3 Access to the scaffold is to be via a single point of entry and a lockable door through the barrier described above.

2.6.4 Ladders to the lower lifts are to be removed at night.

2.6.5 Any areas which may be accessible from adjoining structures, roofs, etc are to be similarly protected by boarding or by other approved means.

2.6.6 Scaffolding shall be alarmed at all times.

2.6.7 Adequate measures must be taken to prevent unauthorised access from all elevations. Which could include floodlights and motion detectors as well as CCTV cameras.

2.7 PROTECTION

2.7.1 The covering to pavements is to be double boarded with visqueen between.

2.7.2 The contractor is to satisfy all the requirements of the Local Authority and Highways department.

2.7.3 All surfaces at ground level are to be suitably protected to prevent the scaffold damaging existing external and internal finishes.

2.7.4 Where internal scaffold is to be erected full protection will be required under all scaffolding except with prior written consent.

2.7.5 Ensure any architectural features or areas prone to damage are suitably protected.

2.7.6 All entrance doors, fire exits etc are to be kept clear of obstructions and are to be lined at the top and both sides.

2.8 DISMANTLING

2.8.1 Ensure all necessary care is taken to ensure that no damage occurs to the fabric of the building.

2.8.2 Scaffold tubes should be carefully lowered to ground level and not thrown or dropped.

2.8.3 No dismantled components shall be left on site outside working hours unless housed within a secure compound area.

2.9 TEMPORARY PROTECTION AGAINST THE ELEMENTS

2.9.1 A temporary roof is not to be provided as part of the works however, protection to side walls and public walkways under the scaffold are to be allowed for as is the temporary sheeting of opened roofs and gutters.

2.9.2 Any damage arising to the building fabric from the failure of temporary sheeting will be made good at the contractors expense. Sheeting for side walls shall be reinforced translucent sheets which are self-extinguishing and flame retardant (e.g. Monaflex). Details of any alternative proposals shall be submitted for approval with the tender.

2.9.3 All sheeting shall be adequately secured against wind uplift etc.

2.9.4 All sheeting shall be checked by a competent person once a week and a signed record kept onsite. Any defects are to be rectified immediately.

2.9.5 All areas are to be maintained as watertight at all times.

2.10 CERTIFICATES

2.10.1 Copies of all handover certificates issued by the scaffolding sub-contractor shall be forwarded to the Architect upon receipt by the Main Contractor.

2.10.2 Copies of all test certificates for hoists shall be forwarded to the Architect on receipt by the Main Contractor.

2.10.3 No scaffolding shall be used unless handover certificates and test certificates have been issued.

3.0 REMOVAL OF REDUNDANT FIXTURES AND FITTINGS

3.1 GENERAL

3.1.1 Make allowance for the removal of all redundant fixtures and fittings ensuring all debris, dirt and redundant items create by the works are safely removed from site.

3.1.2 The works shall include safe isolation and strip out of all redundant electrical and mechanical services associated with the works.

3.1.3 Ensure adequate waste facilities are provided to ensure all waste is sorted out on site appropriately, segregated and disposed of for recycling / reclamation where possible.

3.1.4 Ensure all onsite materials and activities are carried out to avoid any damage to local wildlife, plant life and/or habitats.

3.1.5 The works shall be thoroughly cleaned, all splashes, deposits, temporary markings, coverings and rubbish shall be removed before leaving the site.

3.1.6 The works shall be in accordance with BS 7671 – Requirements for electrical installation and BS 7430 – Code of Practice for Earthing and carried out by a suitably qualified professional.

3.1.7 Main power supplies are to be retained at all times.

3.2 REMOVAL OF REDUNDANT WIRING

3.2.1 Redundant cables shall be disconnected and removed. Making good to the locally affected area, inline with the restoration specification.

3.2.2 Cables shall be handled with care and every effort made to avoid damage to other cables, to other service and to the building fabric.

3.3 REMOVAL OF REDUNDANT SATELLITE DISH

3.3.1 The redundant satellite shall be disconnected and removed. Making

good to the locally affected area, inline with the restoration specification.

3.3.2 Removal of a satellite dish shall be handled with care and every effort made to avoid damage the building fabric.

3.4 REMOVAL OF REDUNDANT LIGHT FITTING

3.4.1 Redundant light fittings shall be disconnected and removed. Making good to the locally affected area, inline with the restoration specification.

3.4.2 Cables shall be handled with care and every effort made to avoid damage to other cables, to other service and to the building fabric.

4.0 HYDRAULLIC LIME MORTAR

4.1 PRODUCT

Hydraulic Lime Mortar

4.1.1 Repointing

Mortar to constitute 1 part Lime: 1 part soft sand: 1 part grit sand: ½ part well graded grit aggregate (from 5mm down to 75 microns) using a moderately hydraulic Lime (St. Astier NHL 3.5 or similar approved). For pointing to ashlar stone the graded grit is to be replaced by equal amounts of grit sand. 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.

PENDING ANALYSIS OF EXISTING MORTARS

4.1.2 Sample Panels

The tenderer is to allow for carrying out 3 test panels each approximately 1 square metre under the direction of the Architect using the method described below. Work to the rest of the stonework shall not commence until the test panel has been approved by the Architect.

4.2 MATERIALS

4.2.1 Hydraulic lime

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

a) Contact: Mark Womersley
Womersley Associates
Walkley Lane
Heckmondwike
WF16 0PG
Tel: 01925 400651 Fax: 01924 403489
Email: info@womersleys.co.uk

b) Limetec – LMR Traditional
126 Olympic Avenue
Milton Park
Abingdon
Tel: 01235434300
Email: info@limetec.co.uk

c) Wenlock Lime Ltd
The Coats Kiln
Stretton Road
Much Wenlock
TF13 6DG
Tel: 01925 728611 Fax: 01925 728361

d)Telling Lime Products Limited
Primrose Avenue
Fordhouses
Wolverhampton
WV10 8AW
Tel: 01902 709777 Fax: 01902 398777

4.2.2 Fine Aggregates

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.

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.

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

4.3 WEATHER AND PROTECTION

4.3.1 Cold Weather Working

No work involving the preparation of mortar or the laying of stonework shall be undertaken when the temperature is 5 degrees centigrade falling or below 4 degrees centigrade when the temperature is rising.

4.3.2 Protection

All work is to be protected from the frost and rain with hessian sheets for a minimum of 7 days or until the mortar has cured if longer.

In warm weather, the work is to be similarly protected with hessian sheets which should be kept moist at all times to avoid curing occurring too quickly.

4.3.3 Damage due to Weather

Any work affected by the weather is to be cut out and replaced at the Contractor's expense.

4.4 PROTECTION AND GOOD WORKING PRACTICE

4.4.1 For all mortar work, best practice requires proper curing and aftercare against the effects of drying winds, strong sunlight, rain and frost. Lime mortar may require slightly longer curing times. Where scaffolding is in place, fine mesh debris netting securely fixed to the outside of the scaffold gives basic protection to the working area slowing down strong wind whilst allowing good natural light for

the works. Securely fixed haps or polythene placed over plywood sheeting on to the top of the scaffold from the wall heads or just below the gutters will ensure that rain does not wash down the face of the walls.

4.4.2 Scaffolding should always be erected in such a manner as to allow the highest point of the building to be protected. In an ideal world, a temporary roof would be desirable, however the costs may be prohibitive. As regards external protection the work should be covered with hessian sheets, polythene or both. Polythene should never come in contact with the work. Accurate records of the minimum and maximum temperatures below the covers should be taken daily, with provision to record these over weekends and holiday breaks. To avoid rapid drying and consequent high shrinkage, especially in hot or windy weather conditions keep all work damp by repeatedly applying a fine mist of clean potable water, if necessary several times a day, until the mortar has hardened.

4.4.3 Re-pointing

Before any re-pointing work is undertaken, a survey of the building should 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, have been left in place. It is essential that all pointing is carried out to match previously approved samples.

4.4.4 Preparation

Joints should be thoroughly cleaned from top to bottom after pre-wetting the wall. Use brushes, low pressure compressed air or wash out the joints with a hose. Remove all loose materials and dust. This is important as dust that is left in the joints will deplete the bond.

4.4.5 Application

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. On rubble elevations, many of which exist at the hotel and the Well House, 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.

A "well filled" joint is close to flush with the surrounding masonry / rubblework.

4.4.6 Finishing

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.

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.

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.

5.0 MASONARY REPAIRS

5.1 GENERALLY / PREPARATION

5.1.1 Scope of Work

Schedule: Generally, as description and schedule of works.

Records of Masonry to be Repaired: Before starting work, use measurements and photographs as appropriate to record bonding patterns, joint widths, specific features, etc.

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.

5.1.2 Site Inspection

Purpose: To confirm type and extent of repair / renovation / conservation work shown on drawings and described in survey reports and schedules of works.

Parties involved:

- Contract Administrator
- Foreman mason; and
- Structural engineer

Timing: To suit contractors programme of work.

Instructions issued during inspection: Confirm in writing, with drawings and schedules as required, before commencing work.

5.1.3 Removal of Fittings / Fixtures

Items to be removed, and reinstated on completion of repair work: all items fixed to fabric indicated for reuse.

- Identification: Attach labels or otherwise mark items using durable, non-permanent means, to identify location and describe re-fixing instructions, where applicable.
- Treatment following removal: as schedule.
- Storage: Protect against damage, and store until required.
- Storage location: onsite.
- Reinstatement: Refit in original locations using original installation methods.

Items unsuitable or not required for reuse: to be tipped.

Masonry fabric and surfaces: Do not damage during removal and replacement of fittings / fixtures.

5.1.4 Removal of Plant Growths from Masonry

Plants, root systems and associated soil/debris: Carefully remove from joints, voids and face work.

Removal of roots: Where growths cannot be removed completely without disturbing masonry seek instructions.

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.

5.1.5 Record of Work

General: Record work carried out to masonry clearly and accurately using written descriptions, sketches, drawings and photographs, as necessary.

Specific records:

1. Annotated elevation drawings to identify the location of each individual repair.
2. Photographs of damaged areas prior to removal of any material.
3. Sketches and drawings for each unique item to be replaced, fully dimensioned.
4. Photographs of each repair area following removal of the material.
5. Photographs of the finished repair.

All information is to be cross referenced and fully annotated.

5.1.6 Structural Stability

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

Disturbance to Retained Masonry

Retained masonry in the vicinity of repair works: Disturb as little as possible.

Existing retained masonry: Do not cut or adjust to accommodate new or reused units.

Retained loose masonry units and those vulnerable to movement during repair works: Prop or wedge so as to be firmly and correctly positioned.

5.2 WORKMANSHIP

5.2.1 All work shall comply with the general recommendations of B.S. 5390 section 5 Work on Site.

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.

5.2.2 Protection of Masonry Units and Masonry

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.

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.

5.3 INSPECTION AND DRAWINGS

5.3.1 Access

In any project involving masonry repairs the tender drawings will have been prepared from visual inspection only, usually without the benefit of an access scaffold. *The Contractor is to allow in there programme a period of 2 weeks for confirmation and appraisal of the scope of the works to each area.*

The Contractor is encouraged to be represented during the inspection in order that he may contribute in any discussion regarding alternative methods of repair.

1.2.2 Notice

The Contractor is to give a minimum of 48 hours' notice to the Architect of the completion of the access scaffold to each area.

5.3.2 Confirmation

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.

5.3.3 Scaffold

The Contractor shall ensure that all access scaffold alterations are complete and in accordance with the specification and that handover certificates have been issued before inviting inspection. Inspection will not be carried out if the scaffold is not in accordance with the specification.

5.3.4 Drawings

In most cases all working drawings will be provided by the Architect. 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.

5.3.5 Programme

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/alteration(s) sequence for access scaffold inspection period, order period and works on site for reach area of work.

5.4 MATERIALS

5.4.1 Stone

Stone is to be selected to match existing **[sandstone]** in texture and colour. Wherever possible stone is to be obtained from the original quarry.

Representative samples shall be provided for final selection. Samples should be weathered samples from all areas of the quarry currently being exploited as there may be colour/texture variations between beds within the quarry.

Where dressed stone is to be used then samples of new stone with a dressed face shall also be provided for approval.

Where stone has a tooled face then samples of new stone with a tooled face shall also be provided for approval.

Whilst provisional orders may be placed no confirmation shall be issued until samples have been approved by the Architect.

All stone shall be free from vents, cracks, fissures, mineral veins, discoloration and clay pockets. No stone for the project should contain any defect which will adversely affect the strength or appearance of the stone.

5.4.2 Dowels and Cramps

All dowels and cramps are to be as manufactured by Ancon Clarke Ltd., Olive Grove Road, Sheffield. S2 3GB (or equal approved) and are to be manufactured in austenitic stainless steel to B.S. 1449 Part 2 1983. Typical details for cramping are contained in the appendix to the specification.

Bronze cramps may also be used subject to prior written approval.

5.4.3 Resin

All resins shall be approved in writing before use. The Contractor is to supply full technical details of proposed resins with his tender or where the work is additional to the contract, not less than 2 weeks before intended use.

5.4.4 Water

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 stand pipe shall be erected to the approval of the local water authority.

5.4.5 Mortar

Hydraulic lime mortar as specification clause 4.0

5.5 PROTECTION, STORAGE AND CLEANING

5.5.1 Protection of Work Area

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.

5.5.2 Protection of the Fabric

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.

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.

5.5.3 Storage

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.

5.5.4 Lifting

The Contractor shall provide adequate lifting gear to unload and handle stones into position.

5.5.5 Storage on Scaffolding

Only stone for immediate use shall be stored on the scaffold.

5.5.6 Protection of Finished Work

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.

5.5.7 Cleaning of Work

Keep facework clean and free from staining at all times.

Clean off and rub down all stonework as scaffold is taken down.

5.6 DISMANTLING / REBUILDING

5.6.1 Masonry units to be reused: Remove carefully and in one piece.

- Treatment: Clean off old mortar, organic growths and dirt, and leave units in a suitable condition for rebuilding.
- Identification: Mark each unit clearly and indelibly on a concealed face, indicating its original position in the construction. Transcribe markings to drawings / photographs.

5.6.2 Rebuilding

Replacement materials: as indicated in specification and drawings.

Mortar: as section RS5 and RS7.

- Mix: as section RS5 and RS7.
- Sand source / type: as section RS5 and RS7.

Fixings: Cramps and dowels as clause as section RS5 and RS7.

Rebuilding: To match previous face and joint lines, joint widths and bonding. Adequately bonded to retained work / backing masonry, as appropriate.

Joint Surfaces: Dampen, as necessary, to control suction.

Laying masonry units: On a full bed of mortar; perpend joints filled.

Exposed faces: Remove mortar and grout splashes immediately.

Joints: To match existing.

5.7 LAYING OF STONE

5.7.1 Natural Bed

New stonework shall be prepared such that the natural bed is:

- Horizontal for plain walling works.
- Vertical and at right angles to wall face for cornices and other projecting stones.
- Horizontal in quoin stones or end stones. These shall be specially selected to ensure that they are compact non-laminated stone

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.

5.7.2 Bedding

All stones shall be laid on a full and even bed of hydraulic lime mortar as specification clause RS3.

5.7.3 Joints

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

5.7.4 Face

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.

5.8 REPAIRS TO STONEWORK

5.8.1 General

All repairs will be identified during the inspection and will be indicated on the drawings. Refer to 8965 drawings for details, along with any other fabric repair drawing.

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.

5.8.2 Repair Techniques

Repairs to stonework will be one of the following as noted on the 8965 drawings.

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. Crack injection/resin repair.

I. Redressing.

J. Stitch repair.

K. Plastic repair.

Each repair technique is described below and highlighted on the drawings.

5.8.3 Cutting Out

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. This work should be undertaken by skilled stonemasons only.

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.

If any damage occurs to adjoining stones then the stone is to be replaced at the Contractors expense at the discretion of the Architect.

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.

5.8.4 Temporary Support

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.

5.8.5 Existing Ferrous Cramps

Where iron cramps are encountered during the course of the works they are to be brought to the attention of the Architect. Unless instructed otherwise they are to be removed and replaced with non-ferrous cramps.

5.8.6 Cleaning Out

All areas cut out to be cleared of debris mortar etc and washed clean. Care is to be taken not to saturate the stone.

Any defects noted in the stone after cutting back or in the masonry backing are to be reported to the Architect.

5.8.7 Moistening

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.

5.9 (A) FULL BLOCK REPLACEMENT

5.9.1 Preparation

The existing stone block is to be cut out to its full depth and the backing masonry inspected.

New stone is to be inserted on a bed and backing of 1:2:9 cement lime sand mortar. Mortar is to be kept back 25mm from the face of the stone to allow for later pointing.

5.10 (B) REPLACEMENT OF PART OR FULL BLOCK

5.10.1 Preparation

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.

5.10.2 Installation

New stone is to be bedded in hydraulic lime mortar and cramped and doweled in position.

5.11 (C) FULL FACE REPLACEMENT

5.11.1 General

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.

5.11.2 Preparation

Existing block is to be cut back to a depth of 100mm from the front face of the surrounding stonework.

The existing stone is to be drilled to receive resin anchors and the adjoining stones drilled to receive dowels.

5.11.3 Installation

The 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.

5.12 (D) PARTIAL FACE REPLACEMENT

5.12.1 General

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.

5.12.2 Preparation

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.

5.12.3 Installation

The existing stone is to be drilled to receive resin anchors and the adjoining stones drilled to receive dowels.

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.

5.13 (E) INDENT REPAIR

5.13.1 General

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.

5.13.2 Preparation

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.

5.13.3 Installation

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 are to be consistent with the original mortar joints.

Ensure that resin is kept back from the mortar joint positions by 25mm to facilitate later pointing.

Indent repair is to be fully supported until the resin has cured.

5.14 (F) STITCH REPAIR

5.14.1 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.

5.14.2 Raked out joints are to be cleaned out of all debris.

5.14.3 Helical stainless-steel tie rods are to be inserted into the joints at the specified centres.

5.14.4 Joints are to be fully repointed with all mortar fully compacted and pointed to match the surrounding masonry.

5.15 (G) CRACK INJECTION

5.15.1 General

Crack injection will only be used in limited areas where other forms of repair cannot satisfactorily be executed without significant loss of the historic fabric.

5.15.2 Preparation

Any loose material is to be scraped away using a hacksaw blade and the joint washed out with a syringe and clean water to remove all dust and debris.

5.15.3 Installation

Resin is to be injected into the crack and finished flush to the stonework. It is important to ensure that the resin is injected to the full depth of the crack and that it is completely filled. No resin should be visible on the surface of the stonework.

A cured sample of the resin is to be approved by the Architect prior to commencing repair.

Where the crack is too wide to be repaired with resin then the crack shall be filled with 1:2:9 cement:lime:sand mortar pushed back firmly into the crack ensuring that the crack is completely filled.

The use of mortar repairs rather than resin is to be subject to the Architects approval.

5.16 (H) REDRESSING

5.16.1 General

When surface failure has occurred, the stonework can be redressed to its original profile. This should be undertaken by a skilled stonemasons'. 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.

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 prior to the contractor carrying out any further works.

The redressing of stonework will generally remove all spalling / friable / sheered areas of masonry vulnerable to becoming loose.

5.16.2 Preparation

The stone is to be taken back the minimum possible to achieve a sound free draining surface using hand tools as appropriate.

5.16.3 Installation

If the existing stone had a tooled face, the new stone will be tooled to match the original detail.

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.

5.17 (J) PLASTIC REPAIR

5.17.1 General

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.

5.17.2 Preparation

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.

5.17.3 Installation

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.

Stainless steel reinforcement is to be secured with resin into the recess and the resin allowed to cure before commencing the repair.

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.

5.18 REPAIR TO DECORATIVE CARVING, RE-TOOLING / FACING

5.18.1 General

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.

New stone is to be specially selected for its compactness and is to be worked to the required profiles.

If any damage occurs to adjoining stones then the stone is to be replaced at the Contractors expense at the discretion of the Architect.

Cutting out decayed stonework to permit new stones of the

specified depth for the appropriate repair to be inserted. Cutting out by hand tools. No mechanical tools to be used without permission of the architect.

Where iron cramps are encountered during the course of the works they are to be brought to the attention of the Architect. Unless instructed otherwise they are to be removed and replaced with non ferrous cramps.

5.18.2 Installation

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 a traditional 1:3 lime : sand mortar unless specified elsewhere and the mortar is to be kept back 25mm from the face to facilitate later pointing.

5.19 REPAIR TO CARVED MASONRY

5.19.1 General

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.

New stone is to be specially selected for its compactness and is to be worked to the required profiles.

If any damage occurs to adjoining stones then the stone is to be replaced at the Contractors expense at the discretion of the Architect.

Cutting out decayed stonework to permit new stones of the specified depth for the appropriate repair to be inserted. Cutting out by hand tools. No mechanical tools to be used without permission of the architect.

Where iron cramps are encountered during the course of the works

they are to be brought to the attention of the Architect. Unless instructed otherwise they are to be removed and replaced with non ferrous cramps.

5.19.2 Installation

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 a traditional 1:3 lime : sand mortar unless specified elsewhere and the mortar is to be kept back 25mm from the face to facilitate later pointing.

6.0 POINTING OF ASHLAR

6.1 GENERAL

6.1.1 Contractor's attention is drawn to the fact that the joints between stones are extremely fine and will demand a great deal of care and attention on site to the preparation, filling and pointing.

6.2 SAMPLE PANELS

6.2.1 The tenderer is to allow for carrying out two test panels each approximately 1 metre square under the direction of the Architect, using the methods described below. Work to the rest of the stonework should not commence until the test panel has been approved by the Architect. The location of the test panels is to be agreed with the Architect prior to commencement.

Tenderer is to allow for several sample mixes using different coloured fine aggregate to obtain a satisfactory colour for the pointing.

6.3 PREPARATION

6.3.1 All joints are to be raked out to a depth of 25mm using a fine-toothed saw blade or hooked knife. Extreme care is to be taken to avoid damage to the arris or dislocation of the stone. ***Under no circumstances shall chisel and bolsters be used.***

Under no circumstances will the use of mechanical tools be permitted (disc cutters etc.)

6.3.2 There are power tools that use oscillating blades to clean out joints; care must be taken with these, especially if the stone is softer than

the mortar, as the blade can slide off the mortar and cut into the stone.

6.3.3 Joints are to be flushed out using a large (30cc) hypodermic syringe and clean water until the water runs clear.

6.3.4 The tenderer is to allow for the insertion of a backing 'rod'. This item is to be confirmed during the preparation of the sample area.

6.3.5 The backing rod is to be fine waxed string or string coated with petroleum jelly, stretched and twisted several times prior to inserting to the back of the prepared joint with a knife blade.

6.4 FILLING AND POINTING

6.4.1 Mortar is to be as described in the lime mortar specification 4.0

6.4.2 Filling is to be by the taping and pointing method.

6.4.3 The prepared joints are to be covered with 50mm heavy duty carpet tape applied to the stone. The tape is to be slit along the joint line with a sharp knife. It should be noted that the stone will need to be dry for the tape to adhere.

6.4.4 The mortar is to be introduced into damp joints and compressed with a purpose made pointing iron/key. Mortar is to be thoroughly compacted into the joints.

6.4.5 The mortar is to be pointed firmly into the joints and finished with a very slight recess (not more than 1mm deep).

6.4.6 Adhesive tape is to be carefully removed ensuring that no residue of adhesive is left on the stone.

6.4.7 Clean off any surplus or spread of mortar with a clean pointing trowel.

6.5 PROGRESS

6.5.1 The works are to be co-ordinated such that preparation is carried out to agreed areas and made available for inspection by the

Architect/Employer's Representative. The Contractor is to give at least 48 hours' notice for inspection.

6.5.2 No taping or filling of joints is to proceed until preparation has been inspected and approved by Architect.

6.5.3 Taping, filling and pointing is to be carried out in small areas such that all operations in one area can be completed within the working day with due notice being paid to any potential adverse weather conditions.

6.5.4 The work is to be kept clean from mortar spillage at all times.

6.5.5 When pointing commences only area which can be successfully completed during the normal working day are to be attempted giving due regard to the weather conditions/forecast.

6.5.6 Completed areas are to be protected until cured.

7.0 BRICK REPAIR

7.1 MATERIALS

7.1.1 Brick

Bricks shall match the 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.

Bricks shall be free from the presence of fungal attack, visible salts, paint, lime wash or other substances.

7.1.2 Ties

Ties to cavity work shall be as follows:

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.

- All ties are to be manufactured in austenitic stainless steel by:
- Ancon Clarke, Olive Grove Road, Sheffield S2 3GB.

7.1.3 Water

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.

7.1.4 Mortar

Shall be lime mortar in accordance with specification as instructed, or as referred to in the specification 4.0.

7.2 INSPECTION

7.2.1 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 his programme.

7.2.2 The Contractor is encouraged to be represented during the inspection in order that he may contribute in any discussion regarding alternative methods of repair.

7.2.3 Notice

The Contractor is to give 48 hours' notice to the Architect of the completion of the access scaffold to each area.

7.2.4 Confirmation

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.

7.2.5 Scaffold

The Contractor shall ensure that all access scaffold is complete and in accordance with the specification and that handover certificates have been issued before inviting inspection. Inspection will not be

carried out if the scaffold is not in accordance with the specification.

7.2.6 Programme

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.

7.3 PROTECTION, STORAGE AND CLEANING

7.3.1 Protection of Work Area

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.

7.3.2 Protection of the Fabric

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.

Where scaffold is erected internally or where scaffolding penetrates through into the building internal fittings shall be adequately protected.

7.3.3 Storage

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.

7.3.4 Storage on Scaffolding

Only bricks for immediate use shall be stored on the scaffold.

7.3.5 Protection of Finished Work

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.

7.3.6 Cleaning of Work

Keep face work clean and free from staining at all times.

Clean off and rub down all brickwork as scaffold is taken down.

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.

7.4 CUTTING OUT OF DEFECTIVE BRICKWORK

7.4.1 The areas to be cut out shall be marked on site and approved/confirmed by the Architect prior to commencement of cutting out.

7.4.2 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.

7.4.3 Any damage to adjoining areas will be made good at the contractor's expense.

7.4.4 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.

7.4.5 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.

7.4.6 Under no circumstances will the use of mechanical tools be permitted (disc cutters etc.)

7.5 INSERTING NEW BRICKWORK

7.5.1 The recess is to be thoroughly cleaned out and the adjoining

brickwork is to be moistened to prevent the mortar "snatching".

7.5.2 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.

7.5.3 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.

7.5.4 The mortar is to be kept back 25mm from the face to facilitate later pointing.

7.5.5 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.

7.5.6 Where individual bricks or blocks are being replaced ties are not necessary.

7.5.7 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.

8.0 POINTING OF BRICKWORK

8.1 GENERAL

8.1.1 Contractor's attention is drawn to the fact that in some cases the joints between bricks are extremely fine and will demand a great deal of care and attention on site to the preparation, filling and pointing.

8.1.2 Pointing should commence from the top of the building and work down when undertaking fabric repair works.

8.2 SAMPLE PANELS

8.2.1 The tenderer is to allow for carrying out two test panels each approximately 1 metre square under the direction of the Architect, using the methods described below. Work to the rest of the brickwork should not commence until the test panel has been approved by the Architect. The location of the test panels is to be agreed with the Architect prior to commencement.

8.2.2 Tenderers are to allow for several sample mixes using different coloured fine aggregate to obtain a satisfactory colour for the pointing.

8.3 PREPARATION

8.3.1 All joints are to be raked out to a depth of 25mm using a fine-toothed saw blade or hooked knife. Extreme care is to be taken to avoid damage to the arris of the brick. Under no circumstances shall chisel and bolsters be used.

8.3.2 Under no circumstances will the use of mechanical tools be permitted (disc cutters etc.)

8.3.3 Joints are to be flushed out using clean water until the water runs clear. Where very fine joints are encountered a large hypodermic syringe shall be used to flush the joints.

8.4 FILLING AND POINTING

8.4.1 Mortar is to be as specified in accordance with the Mortar specification RS3.

8.4.2 The mortar is to be introduced into damp joints and compressed with a purpose made pointing iron/key of approximately 30mm diameter giving a shallow "bucket handle" joint. Mortar is to be thoroughly compacted into the joints.

8.4.3 Care is to be taken to eliminate lines of mortar occurring on joint intersections, mortar should flow visually from perpend to bed joints.

8.4.4 Clean off any surplus or spread of mortar with a clean pointing trowel.

8.4.5 The joint is to be lightly brushed as mortar is achieving its first set to remove the mechanical smoothness left by the pointing iron.

8.5 PROGRESS

8.5.1 The works are to be co-ordinated such that preparation is carried out to agreed areas and made available for inspection by the Architect/Employer's Representative. The Contractor is to give at least 48 hours' notice for inspection.

8.5.2 No filling of joints is to proceed until preparation has been inspected and approved by Architect.

8.5.3 Filling and pointing is to be carried out in small areas such that all operations in one area can be completed within the working day with due notice being paid to any potential adverse weather conditions.

8.5.4 The work is to be kept clean from mortar spillage at all times.

8.5.5 When pointing commences only area which can be successfully completed during the normal working day are to be attempted giving due regard to the weather conditions/forecast.

8.5.6 Completed areas are to be protected until cured.

8.6 CLEANING

8.6.1 Clean down all areas on completion using clean water and bristle brushes only.

8.6.2 Acid cleaners should not be used when lime mortar is present.

9.0 MASONRY CLEANING: GENERAL REQUIREMENTS

9.1 GENERAL

9.1.1 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.

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.

9.1.2 The scope of the work is clearly identified on the drawings and the tenderers are to visit the site to confirm for himself the difficulties in executing the work as specified and is to include for such within his tender.

Refer to drawing nr. 8965 for further details and accompanying information.

No claim will be entertained for failure to appreciate the difficulties in executing the works.

9.1.3 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.

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.

9.1.4 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.

9.2 PREPARATION

9.2.1 Scope of Work

Stonework and masonry to exterior / interior elevations as indicated on marked up elevations.

9.2.2 Related Repair / Remedial Works

Are specified elsewhere. Ensure the following work has been carried out before the cleaning works commences: appropriate access and protection of windows / fixtures and fittings etc.

9.2.3 Removal of Fittings

Timing: before commencement of cleaning works.

Disturbance to surfaces: minimise.

Items for disposal: as noted on marked up elevations.

Items to be kept for reuse: as noted on marked up elevations.

9.2.4 Vents and Grilles

Protect but do not seal up ventilation grilles, air bricks, or other ventilation opening without first seeking instructions.

9.2.5 Control and Disposal of Wash Water and Detritus

Disposal: Safely. Obtain approvals from relevant authority.

9.2.6 Control of Water

Collect and divert to prevent ingress and damage to building fabric and adjacent areas.

Provide suitable temporary catchment boards / sheeting, gutters etc. to collect wash water and divert it to suitable discharge points.

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.

Ensure that water does not penetrate interiors and damage finishes, etc. Monitor interior building and seek instructions when any signs of damp appear internally.

Above and below ground drainage systems: Keep free from detritus and maintain normal operation.

9.2.7 Brushing and scraping

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.

9.2.8 Tooling

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 CA.

9.2.9 Cold Weather

Cleaning procedures using water: Do not use when air temperature

is at or below 5®C. Protect damp surfaces from frost.

Chemical cleaning agents: Do not use when surface temperatures are below those recommended by manufacturer.

9.2.10 Cleaning Generally

Operatives: Appropriately trained and experienced for each type of cleaning works.

Evidence of training: submit on request.

Control of Cleaning: Confine cleaning processes and materials to designated areas. Prevent wind drift.

Detritus: Remove regularly. Dispose of safely.

Monitoring: Frequently check results of cleaning compared to approved trial samples. If results established by trials are not achieved, seek instructions.

Modifications to cleaning methods and materials: Seek instructions.

9.2.11 Record of Cleaning Works

Written Report: Record cleaning methods and procedures used for each type of surface and deposit.

Content: Relevant attributes of cleaning methods used including:

- Equipment and settings.
- Dwell times.
- Number of applications.
- Ambient temperature.

Additional Documentation: General photographic survey before cleaning to identify heavy soiling.

Submission: At completion of cleaning works.

9.2.12 Trial Samples

Trial Samples reference is required for all cleaning methods.

Surface: Masonry and stonework.

Location / Size: Location to be agreed but no less than 2sq.m per sample.

Type of soiling:

- Atmospheric soiling.
- Biological growth
- Bird droppings
- Fire damage

Cleaning Methods: As specified below.

Records: Maintain written records for each trial area, including cleaning methods and conditions, to enable replication of results elsewhere.

9.2.13 Cleaning Generally

Use operatives who are skilled Stonehealth Approved, having been trained and experienced with the equipment, materials and procedures for the type(s) of cleaning and surfaces specified. Provide evidence of their training and experience to the CA on request.

Confine cleaning to designated area(s) / surfaces. Do not allow cleaning agents or residues to stray onto adjacent or protected surfaces.

Clean, collect and safely dispose of debris from scaffolding, ledges, etc. at the end of each day. Prevent debris falling to lower levels.

Prevent marking of cleaned areas from dirt and debris splashing up

from scaffold boards.

9.2.14 Monitoring

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.

Do not modify cleaning procedures or materials without approval from the CA.

9.3 HEALTH AND SAFETY

9.3.1 The Contractor shall be responsible for ensuring that all products used and all procedures adopted comply in full with current Health and Safety requirements.

9.3.2 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.

9.4 SAMPLE PANELS

9.4.1 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 1.2.12.

9.4.2 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 and

b) 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.

9.4.3 Area around sample panels shall be protected as required for the main works.

9.5 PROTECTION

9.5.1 All surfaces not being cleaned shall be fully protected to ensure that no accidental over spray of cleaning occurs.

9.5.2 Where different cleaning techniques are specified for adjoining surfaces the surfaces not being cleaned during either operation shall be fully protected.

9.5.3 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.

9.5.4 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.

9.5.5 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.

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.

9.5.6 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.

9.5.7 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.

9.5.8 No cleaning operations shall commence until all protection is in place.

9.5.9 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.

9.6 PRODUCTS / EQUIPMENT

9.6.1 Compatibility of Chemical Products

Products: Compatible and produced by the same manufacturer.

9.6.2 Surface Biocides

Types: Registered by the Health and Safety Executive (HSE) and listed on the HSE website under non-agricultural pesticides.

9.6.3 DOFF STEAM CLEANING

Equipment Type: Stonehealth DOFF with DRS steam / water vacuum recovery unit.

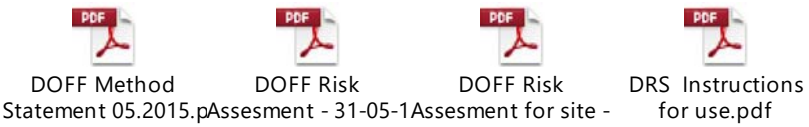
Apply steam at the lowest pressure and allow when removing paint, the appropriate temperature that will remove/soften/loosen deposits without abrading or disrupting the surface(s). If removing biological growth, it may be possible to be removed at a lower temperature but to ensure that the re-growth 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.



9.6.4 TORC ABRASIVE CLEANING

Equipment type: Stonehealth TORC

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.


TORC Method Statement 05.2015.p


TORC Risk Assesment 2 - 31-05


TORC Risk Assesment for site -


HSD - Dolomite 05-15.pdf

9.6.5 CLEANING MINERALIC SUBSTRATES

Equipment Type: Stonehealth CLEANFILM

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;

Areas should be representative of the substrate, soiling and detail of the main works.

Test panels should be positioned discreetly.

Location of the test areas must be recorded and protected from further alteration.

The parameters by which the result is obtained must be recorded.

An acceptable test area should be retained as a control panel for the main works.

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.


Clean-Film Method Statement 05-2015.p


Clean-Film Instructions for Use

9.6.6 MASONRY SEALING

Equipment Type: Stonehealth PREVOSIL WB

Application: as recommended by manufacturer.

Samples to several identified locations (4 number) are to be undertaken prior to wholesale sealing of masonry works being undertaken and should be agreed with CA.


Prevosil WB HSD 05.2015.pdf

9.7 APPLICATION

9.7.1 Removal of Loosely Adhered Deposits

Timing: Before commencement of other cleaning methods.

Surfaces: Prevent damage, including abrasion.

9.7.2 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.

9.7.3 Abrasive Blocks

Types: Suitable grades of carborundum or gritstone.

Application: Lubricate with water. Remove detritus.

Abrasive Power Tools: Prohibited.

9.7.4 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.

9.8 COMPLETION

9.8.1 Obtain CA's approval of cleaning to each area / surface and before of temporary protection.

After removal of temporary protection, thoroughly clean all glazing, window frames, doors, sills and other affected surfaces.

Check that all gutters, hoppers, downpipes and gullies are free from obstruction and debris arising from cleaning works.

Give the CA two weeks' notice before striking each stage of scaffolding, to allow for final inspections.

Refix the following fittings: all items temporally removed and stored.

Complete all necessary documentation, review and record final results with supportive drawings and photographs.

10.0 MASONRY CLEANING: REMOVAL OF ORGANIC GROWTH

10.1 MATERIALS

10.1.1 Hot Box Water Jet

The use of a 'DOFF' Hot Box water cleaning system or similar approved is considered the most appropriate way to effectively kill off all organic growth other than significant 'woody growth'. This should be used in preference to a biocide unless directed otherwise.

DOFF system to be used in conjunction with DRS steam / water vacuum recovery unit.

BS 8221-1:2012 Code of practice for cleaning and surface repair of buildings. Cleaning of natural stone, brick, terracotta and concrete.

DOFF cleaning system uses steam as the cleaning agent. A normal water supply is taken into the high-pressure pump where the pressure is increased to the required level before it enters the hot-box. The temperature is increased up to 150◦C if necessary before it passes to the heat resistant nozzle where special jets direct the steam onto the surface to be cleaned. The DOFF system will effectively remove paint, bitumen, oil and grease, chewing gum, algae etc from virtually all surfaces including brick, stone, concrete, tiles, terracotta, wood, stucco. Consult with Stone Health, Tel: 01453540600, www.stonehealth.com where additional specifications / information can be provided.

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 as per *RS8 1.2.13* above.

Sample areas should always be undertaken prior to commencement

of wholesale cleaning package(s) as per RS8 1.4 above.

10.1.2 Biocide

The biocide is to be Epicuro Anti-Algae as manufactured by Epicuro Protective Materials, Cardinal House, 39/40 Albemarle Street, London, W1S 4TE.

Where alternative proprietary biocides are proposed they shall be based on a quaternary ammonium compound which is to be subject to the Architects approval.

The biocide should not contain calcium chloride, which will cause a build-up of soluble salts. Where there is any possibility of run off onto limestones then the biocide should not contain zinc or magnesium silicofluoride. Use only biocides with a current Health and Safety Executive number and approved by them for the purpose intended and shall comply with all current pesticide legislation.

Confirmation of this is to be forwarded to the architect prior to commencement of the works.

10.1.3 Water

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 shall be erected to the approval of the local water authority.

10.2 EQUIPMENT

1. Non-ferrous soft wire brushes.
2. Knife blades.
3. Pneumatic garden spray with adjustable nozzle.
4. Rubber gloves.

5. Safety mask.

6. Safety goggles.

10.3 PROTECTION

10.3.1 Protect all flowerbeds, landscaped areas etc, with polythene sheeting prior to commencement.

10.3.2 Do not spray near unprotected personnel and animals.

10.3.3 Ensure that pollution of waterways, drainage etc. does not occur as a result of treatment.

10.4 HEALTH AND SAFETY

10.4.1 Biocide should be one approved by the HSE Pesticide Registration Division.

10.4.2 The Contractor shall be responsible for ensuring that all products used and all procedures adopted comply in full with current Health and Safety requirements.

10.4.3 Contractor shall ensure all recommended Personal Protection Equipment be worn by his operatives.

10.4.4 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. Include for all temporary protection and carrying out work "out of hours" to minimise risks.

10.5 STORAGE

10.5.1 Ensure all materials are stored in sealed containers clearly marked with their contents. Undiluted biocides should only be stored in the manufacturer's original containers.

10.5.2 Biocides should only be diluted in such quantities as can be used during the working day. Diluted biocides should not be stored overnight, but any surplus material at the end of the working day should be disposed of to the satisfaction of the Local Authority.

10.5.3 Any biocides stored on site shall be kept in securely locked areas with toxic hazard signs.

10.6 PREPARATION

10.6.1 Remove as much plant growth, moss, lichens etc. with a knife blade and wire brush as necessary.

10.6.2 Ensure that no damage is caused to the stone by the removal of plant growth. If any damage is encountered restrict removal to the removal of moss only.

10.7 APPLICATION

10.7.1 Treatment with biocides should not be undertaken during wet weather or immediately after prolonged periods of wet weather.

10.7.2 The air temperature should be above 5°C during application.

10.7.3 Prepare a solution of quaternary ammonium-based biocide to the manufacturer's specification.

10.7.4 Fill a pneumatic garden-type sprayer two-thirds full with the diluted biocide. Adjust the nozzle to a coarse spray setting. There should be sufficient pressure at the wand nozzle, after pumping the container, to saturate the surface of the masonry without causing excessive 'bounce back' and spray drift.

10.7.5 Apply a flood coat. Commence at the top of the vertical surface to be treated and move across horizontally and slowly to allow approximately 100mm run down. The next horizontal pass should be made across the previous run down.

10.7.6 Leave the treated area for a minimum of two weeks and a maximum of four weeks to allow the growth to die off. Brush off as much dead growth as possible with dry soft bristle brushes, making sure that any adjacent gutters and hoppers are kept clear.

10.7.7 Prepare a second solution of a proven long-lasting biocide to the manufacturer's specification.

10.7.8 Fill a second pneumatic sprayer with the diluted biocide and apply

in the same manner as (1.7.3) above.

10.7.9 Allow the surface to absorb and carry out a second application of proprietary biocide as above to prevent re-colonisation of the cleaned stone.

11.0 PAINT AND CLEAR FINISHING

11.1 PAINT(S)

11.1.1 SATIN PAINT: [NEW / EXISTING EXTERNAL JOINERY (DOORS, WINDOWS, COMPONENTS ETC)]

Manufacturer: Approved Accoya Coating Partner

- Anker Stuy Coatings UK Ltd Tel: +44 (0) 1733 215444
- Remmers (UK) Ltd Tel: +44 (0) 1293 594010
- AkzoNobel (Sikkens) Tel: +44 (0) 1254 687950
- Teknos GBI Tel: +44 (0) 1869 208005

Preparation: To ne inline with manufacturers recommendations

Product reference: TBC

Finishing Coat: TBC

Colour: TBC with Architect.

Undercoat: TBC

To be read in conjunction with manufacturers recommendations.


rubbol_satura_plus.pdf


rubbol_primer_plus.pdf

Surface Preparation:

The timber surface must be abraded, clean and dry and free from dust, dirt, wax and grease. Remove surface mold and algae using a fungicidal solution. The moisture content of the timber must not exceed 8%. This figure will be 8% or lower for interior timbers. Resinous residues may be removed using a suitable solvent. Knotting may be used to reduce extractive discoloration, however,

knotting is not always fully effective in "sealing in" resin. Degrease any exposed bare timber surface by wiping with a cloth dampened in a suitable solvent. Certain timber species contain high levels of natural wood extractives or exudates and some softwood can be highly resinous

New Timber:

Where a preservative treatment to softwood and hardwood is necessary, such as timbers in Durability Class 3, Class 4 (in ground contact) and 5 (marine) apply Cetol WP 567 BPD Impregnating Primer at a rate of 120 – 160 ml / m2. Cetol WP 567 must be fully dry before the application of Rubbol Primer plus.

Do not use on substrates which have had water-repellent preservative pre-treatments applied. Where possible, the first coat should be applied to all parts of the component prior to fixing.

Note: Discoloration of paint especially noticeable within light colours may occur over knots and resinous areas present in the wood. Particular attention with regards to preparation should be given to wood such as Oak, Teak, Cedar, Douglas Fir, Mahogany and Idigbo, etc., which contain oil and water-soluble tannin which may impair the drying, hardening or adhesion of surface coatings and discolour the finished surface.

Damaged and Decayed Timber:

All damaged or decayed timber must be removed and replaced, cutting at least 25mm into sound timber. When splicing in new sections consider whether the timber species' natural durability is sufficient. Brush apply Cetol WP 567 BPD Impregnating Primer at a rate of 120 – 160 ml / m^2.

Thoroughly treat timbers, especially end grain sections, and ensure they are fully dry before splicing in. Secure with non-ferrous fixings

and fill all voids surrounding the spliced-in area with the Componex WR Primer/Filler system.

Previously Coated Surfaces:
De-nib using a fine grade nylon abrasive pad or a fine grade (P240 or finer) wet or dry silicon carbide abrasive paper, in the direction of the grain. Do not break through the surface coating. Remove all dust.

Where there is localised damage, or deterioration has occurred as a result of exposure of the factory coating for longer than 3 months affected areas should be thoroughly sanded back to a sound substrate.

11.1.2 SATIN PAINT [EXISTING / NEW INTERIOR PAINTED WOODWORK / METALWORK]

Manufacturer: Approved Accoya coating partner for paint to woodwork.

- Anker Stuy Coatings UK Ltd Tel: +44 (0) 1733 215444
- Remmers (UK) Ltd Tel: +44 (0) 1293 594010
- AkzoNobel (Sikkens) Tel: +44 (0) 1254 687950
- Teknos GBI Tel: +44 (0) 1869 208005
- Dulux Trade Tel: 0333 222 7070

Product reference: [Dulux Satinwood].
Surfaces: [New and unpainted interior woodwork and metalwork].

Colours: [to be dealt with on a room by room basis – exact colours TBC. – SAMPLE PANELS TO BE CARRIED OUT].
Preparation: To be read in conjunction with manufacturers recommendations.

dulux-trade-satinwood-tds.pdf

Primer and Undercoat:

New or bare surfaces should be primed with an appropriate Dulux Trade primer.

New or unpainted interior wood:

To get the best results, ensure surfaces to be painted are sound, clean and dry (new surfaces particularly must be fully dry) and free from all defective or poorly adhering material such as dirt, grease and wax. New or bare surfaces should be primed with an appropriate Dulux Trade primer. Thoroughly rub down previously painted surfaces, using 'wet flatting' methods where possible, then wipe off with a damp, lint free cloth. Special precautions should be taken during surface preparation of pre-1960s paint surfaces over wood and metal as they may contain harmful lead. Any surface defects should be filled with an appropriate Polycell Trade Polyfilla.

Previously painted interior wood:

Ensure all surfaces are sound, clean, dry and free from dirt, grease and other contamination. Remove any areas of old paint which are peeling or blistering as flaking or peeling can occur if you paint over weak paint layers. Blend and 'feather' the edges of areas of old paint, as this helps to smooth out the surface.

Fill any cracks, holes and open joints with an appropriate filler. Lightly sand the surface to improve paint adhesion. Patch prime any bare knotty or resinous areas.

Note: For metalwork follow manufacturer's ''Dulux Trade' advice for surface preparation prior to redecoration.

11.1.3 SATIN PAINT [EXISTING / NEW FERROUS METALS (RAINWATER GOODS / BALCONIES / DECORATIVE ELEMENTS ETC)]

Manufacturer: [Dulux Trade as 1.1.1].

Surfaces: [Existing / new ferrous metals].

Colours: [to be dealt with on a room by room basis – exact colours TBC. – SAMPLE PANELS TO BE CARRIED OUT].

Product reference: [Metalshield Satin]

Preparation: To be read in conjunction with manufacturers recommendations.

541 - Dulux
Metalshield Satin.pc

Primer and Undercoat:

New or bare surfaces should be primed with an appropriate Metalshield primer from Dulux Trade.

New or unpainted metalwork:

To get the best results, ensure surfaces to be painted are sound, clean and dry (new surfaces particularly must be fully dry) and free from all defective or poorly adhering material such as dirt, grease or wax. New or bare surfaces should be primed with an

appropriate Metalshield primer from Dulux Trade. Thoroughly rub down previously painted surfaces, using 'wet flatting' methods where possible, then wipe off with a damp, lint free cloth. Special precautions should be taken during surface preparation of pre-1960s paint surfaces over wood and metal as they may contain harmful

lead.

11.2 GENERALLY

11.2.1 HANDLING AND STORAGE

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

11.2.2 COMPATIBILITY

Coating materials selected by contractor:

Recommended by their manufacturers for the particular surface and conditions of exposure.

Compatible with each other. -Compatible with and not inhibiting performance of preservative/fire retardant pre-treatments.

11.2.3 PROTECTION

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

11.2.4 INSPECTION BY COATING MANUFACTURERS

General: Permit manufacturers to inspect work in progress and take samples of their materials from site if requested.

11.2.5 PREPARATION

PREPARATION GENERALLY

Standard: To BS 6150, Section 4.

Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.

Substrates: Sufficiently dry in depth to suit coating.

Efflorescence salts: Remove.

Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.

Surface irregularities: Abrade to a smooth finish.

Joints, cracks, holes and other depressions: Fill with stoppers/ fillers. Work well in and finish off flush with surface. Abrade to a smooth finish.

Fill with stoppers/ fillers. Work well in and finish off flush with surface: Abrade to a smooth finish.

Water based stoppers and fillers: Apply before priming unless recommended otherwise by manufacturer.

If applied after priming: Patch prime.

Oil based stoppers and fillers: Apply after priming.

Doors, opening windows and other moving parts:Ease, if necessary, before coating.

Prime resulting bare areas.

11.2.6 EXISTING IRONMONGERY

Refurbishment: Remove old coating marks. Clean and polish.

11.2.7 PREVIOUSLY COATED SURFACES GENERALLY

Preparation standard: To BS 6150, Section 6.

Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.

Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.

Alkali affected coatings: Completely remove.

- Contaminated surfaces: Give notice of:
- Coatings suspected of containing lead.
- Substrates suspected of containing asbestos.
- Significant rot, corrosion or other degradation of substrates.

Retained coatings:

- Thoroughly clean to remove dirt, grease and contaminants.
- Gloss coated surfaces: Abrade to provide a key.

Partly removed coatings:

- Additional preparatory coats: Apply to restore original coating thicknesses.
- Junctions: Abrade to give a flush surface.
- Completely stripped surfaces: Prepare as for uncoated surfaces.

11.2.8 PREVIOUSLY COATED WOOD

Degraded or weathered surface wood: Abrade to remove.

Degraded substrate wood: Repair with sound material of same species.

Exposed resinous areas and knots: Apply two coats of knotting.

11.2.9 PREPRIMED WOOD

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

11.2.10 UNCOATED WOOD

General: Abrade to a smooth, even finish with arrises and moulding edges lightly rounded or eased.

Heads of fasteners: Countersink sufficient to hold stoppers/fillers.

Resinous areas and knots: Apply two coats of knotting.

11.2.11 ORGANIC GROWTHS

Dead and loose growths and infected coatings: Scrape off and remove from site.

Treatment biocide: Apply appropriate solution to growth areas and surrounding surfaces.

Residual effect biocide: Apply appropriate solution to inhibit re-establishment of growths.

11.2.12 PREVIOUSLY PAINTED WINDOWS FRAMES

Paint encroaching beyond glass sight line: Remove.

Loose and defective putty: Remove.

Putty cavities and junctions between previously painted surfaces and glass: Clean thoroughly.

Finishing:

Patch prime, reputty as necessary, and allow to harden.

Seal and coat as soon as sufficiently hard.

11.3 APPLICATION

11.3.1 COATING GENERALLY

Application standard: To BS 6150, Section 5.

Conditions: Maintain suitable temperature, humidity and air quality during application and drying.

Surfaces: Clean and dry at time of application.

Thinning and intermixing of coatings: Not permitted unless

recommended by manufacturer.

Overpainting: Do not paint over intumescent strips or silicone mastics.

Priming coats:

- Thickness: To suit surface porosity.
- Application: As soon as possible on same day as preparation is completed.

Finish:

- Even, smooth and of uniform colour.
- Free from brush marks, sags, runs and other defects.
- Cut in neatly.

11.4 PRIMING JOINERY

11.4.1 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.

11.5 WORKSHOP COATING OF CONCEALED JOINERY SURFACES

11.5.1 General: Apply coatings to all surfaces of components.

11.6 CONCEALED METAL SURFACES

General: Apply additional coatings to surfaces that will be concealed when component is fixed in place.

- Components: Backs of rainwater pipes.
- Additional coatings: n/a.

11.7 EXTERNAL DOORS

11.7.1 Bottom edges: Prime and coat before hanging doors.

11.8 BEAD GLAZING TO COATED WOOD

11.8.1 Before glazing: Apply first two coats to rebates and beads.

11.9 PUTTY GLAZING

Setting: Allow putty to set for seven days.

Sealing:

- Within a further 14 days, seal with an oil based primer.
- Fully protect putty with coating system as soon as it is sufficiently hard.
- Extend finishing coats on to glass up to sight line.
- Install putty.

12.0 INTERIOR DECORATING

12.1 MICROPORUS PAINT TO INTERNAL PLASTERED SURFACES

12.1.1 General

Manufacturer: Farrow and Ball.

- Product reference: Dead flat finish
- Colour: TBC

Surfaces: Lime plaster walls and ceilings

12.2 PREVIOUSLY PAINTED WALLS

12.2.1 If the wall you are intending to paint is of even porosity and you are not making a significant colour change, you can simply apply two coats of your chosen colour directly to the wall (allowing the correct drying time between coats).

12.2.2 If the wall is uneven or highly porous then apply a diluted coat of your chosen colour (dilute with approximately 10% of water and apply as a 'mist' coat). Then simply apply two full (undiluted) coats in your chosen colour, allowing the correct drying time between coats.

12.2.3 If you are making a significant colour change apply one coat of Farrow & Ball Wall & Ceiling Primer & Undercoat, in the correct colour tone (REFER TO MANUFACTURER'S RECOMMENDATIONS) for your top coat (and allowing a minimum of 4 hours drying time between coats). Then follow with two coats of your chosen colour to promote adhesion and full colour depth. If you are painting onto a glossy or oil based surfaces, sand the surface down, then clean thoroughly with a detergent. Apply one coat of Farrow & Ball Wall & Ceiling Primer & Undercoat, in the correct colour tone (REFER TO MANUFACTURER'S RECOMMENDATIONS) for your top coat (and allowing a minimum of 4 hours drying time between coats). Then follow with two coats of your chosen colour to promote adhesion

and full colour depth.

12.3 NEW / UNPAINTED PLASTER

12.3.1 If your plaster is new non powdery and sound you can simply apply a diluted coat of Farrow & Ball Wall & Ceiling Primer & Undercoat, in the correct colour tone (REFER TO MANUFACTURER'S RECOMMENDATIONS) for your top coat (see dilution details below) before applying two full coats of your chosen colour. If your plaster surface is powdery, flaky or unstable, apply one coat of Farrow & Ball Masonry & Plaster Stabilising Primer to bond the plaster and seal the surface, followed by one coat of Farrow & Ball Wall & Ceiling Primer & Undercoat (REFER TO MANUFACTURER'S RECOMMENDATIONS)

12.4 USING INTERIOR CAULKS & SEALANTS

12.4.1 Where small gaps and cracks require filling or sealing, best results are achieved with an acrylic based decorators' caulk which is a water-based, flexible filler. Use the minimum of caulk necessary as a smaller bead will dry quicker and will be less prone to cracking.

12.4.2 Follow the manufacturer's application instructions and drying times (typically 2 – 3 hours) before applying your chosen Farrow & Ball finish. For Dead Flat – 2 coats may be applied directly (allowing a minimum of 4 hours drying time between coats).

12.5 PAINTING OVER INTERIOR WALL FILLERS

12.5.1 For best results always use a filler which has the same porosity and density as the surface which is being repaired. Fillers which have a different porosity or density may lead to visible differences in colour or tone. Follow the filler manufacturer's application instructions and drying times then apply a diluted coat (20 – 25%) of Farrow & Ball Wall & Ceiling Primer & Undercoat in the correct colour tone (REFER TO MANUFACTURER'S RECOMMENDATIONS) for your top coat (and allowing a minimum of 4 hours drying time between coats). Then follow with two coats of your chosen colour to promote

adhesion and full colour depth.

12.5.2 Please note: British Standard 6150:2006 recommends a typical drying time for new plaster of 7 days for every 5mm thickness. Suggested maximum dilution rates: Bare dry skim plaster/dry lined walls = up to 20% water Bare dry plaster board = up to 15% water Patch filled plaster = up to 20% water

12.5.3 NB: The dilution rate will depend on the porosity of the surface. We recommend you test the level of dilution on a patch to determine the level of dilution required. If you do not want to apply a primer and undercoat, as an alternative, you can dilute the top coat (of your chosen colour) with approximately 10% water and apply as a "mist" coat. Please note: When porous plasters are not sufficiently prepared, difficulties in application, variation in sheen or uneven colour may occur.

13.0 HIGH QUALITY JOINERY – WINDOWS / DOORS / COMPONENTS

13.1 GENERAL

13.1.1 This specification covers all new / repaired high quality joinery.

13.1.2 All repairs, replacement, etc., will be scheduled and identified on drawings as appropriate and cross referenced to this specification.

13.1.3 For all new work this specification is to be read in conjunction with the drawings.

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

13.1.5 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.

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.

13.1.6 No claims arising from the Contractors failure to comply with 1.1.4 or 1.1.5 above will be permissible.

13.1.7 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.

Ensure that all delivered materials match the approved samples.

No orders for materials shall be confirmed by the joinery contractor until the representative samples have been approved.

13.1.8 The joinery sub-contractor is to ensure that he/she visits the site during the tender period to ensure that he is fully familiar with the conditions on site and to ensure that he is fully appreciative of the full scope of the works.

No subsequent claims arising from failure to inspect the site conditions will be entertained.

13.1.9 All openings are to be individually measured and sizes noted. Sizes should not be solely derived from the existing panels.

13.2 COMPONENTS

13.2.1 TIMBER REPAIRS TO WINDOWS / DOORS: GENERALLY

WOOD:

- Manufacturer: By a firm currently registered under the British Woodworking Federation Accreditation Scheme.
  - Product reference: Accoya
- Timber: Accoya, to BS EN 942
- Species: selected to match existing.
- Moisture content on delivery: 12-19% (or to match existing being fixed within 1%).
- Finish as delivered: Prepared and primed for finishing on site if to be painted.
- Fixing: Screwed to timber framing as

13.3 MATERIALS

13.3.1 TIMBER FOR JOINERY

To be subjected to controlled drying to achieve a moisture content at time of fixing not exceeding 12% for internal work and 17% for external work. The moisture content is to be correctly maintained

until the building is handed over. Provide evidence of moisture content at time of fabrication and/or delivery.

13.3.2 All timbers shall be from a renewable source which is properly managed to ensure a sustainable supply.

13.3.3 Lippings, edgings, solid inserts, etc., shall be of solid timber.

13.3.4 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.

13.3.5 Sustainably managed timber is timber that has been harvested according to FSC Forest Stewardship principles and certified as such. These principles have regard to biological diversity, ecosystems, water, soil, landscape, the future integrity of the forest, the rights of indigenous people, the forestry workers and other issues.

13.4 FIXINGS

13.4.1 All fixings shall be non-corrosive and of an approved type.

13.4.2 All nails shall be to BS 1202.

13.4.3 All screws shall be to BS 1210. Where screws are used these will be counter sunk and oak pelleted.

13.4.4 Fixings which are visible on finished joinery will not be permitted.

13.4.5 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.

13.5 ENVIRONMENTAL CONTROL

13.5.1 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.

13.5.2 Do not deliver any components or finished joinery to site until the correct conditions can be guaranteed to maintain the specified moisture content.

13.5.3 Do not fix any first fix backing framework, battens etc until conditions prevail to maintain a maximum moisture content of 18%.

13.5.4 Do not fix any joinery if the relative humidity is above 60%.

13.5.5 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.

The joinery contractor is responsible for maintaining conditions in his stores and workshops, and ensuring that the main contractor has provided the correct conditions on site prior to commencing any deliveries or installation.

13.5.6 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.

13.6 PREPARATION AND FABRICATION OFF SITE

13.6.1 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.

13.6.2 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.

13.6.3 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.

After machining all surfaces are to be smooth and free from tearing, woolliness, chip bruising and other machining defects.

Assemble with tight close fitting joints with meeting surfaces to be perfectly flush to produce components free from distortion.

13.6.4 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.

13.6.5 All joinery is to be manufactured to very strict tolerances to ensure the best possible finished product.

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.

13.6.6 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.

Fix all panels securely to prevent pulling away, bowing or other movement during use.

13.6.7 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.

13.6.8 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.

13.6.9 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.

13.6.10 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.

Remove surplus adhesive immediately using methods and materials recommended by the adhesive manufacturer and without damage to the affected surfaces.

13.6.11 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.

13.7 PROTECTION

13.7.1 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.

13.7.2 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.

13.7.3 Stack boards, panels, etc., on bearers and separated by spacers to prevent damage to or from projections.

13.7.4 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.

13.8 ERECTION ON SITE

13.8.1 Check all dimensions of components and openings prior to commencing installation of any joinery works. Report any discrepancies to the Architect.

13.8.2 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 match precisely 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.

Any areas subsequently found not to match will be replaced at the contractor's expense.

13.8.3 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.

Any components which are split during nailing will not be accepted for final installation.

13.9 WINDOW REPAIRS GENERALLY

13.9.1 REPLACEMENT WINDOW INSTALLATION:

Standard: To BS 8213-4.

13.9.2 REPAIRS TO EXISTING PAINTED WOOD WINDOWS:

Manufacturer: Repair Care. Unit 19, Darwell Park, Mica Close, Amington, Tamworth, Staffordshire, B77 4DR. Tel: 01827302517. E: salesuk@repair-care.com

- Product: Dry Fix / Flex 4.
- Method: Refer to manufacturers document 'a guide to specifying pre-paint repairs'. All contractors who are expected to carry out the work should be familiar with the System prior to tendering and be fully trained before commencing on site.
- Locations: To be agreed in advance with CA.

13.9.3 BURNT SAND MASTIC: BETWEEN FRAMES AND STONE REVEALS:

Manufacturer: Womersleys Ltd. Tel: 01924400651. E: info@womersleys.co.uk

- Product: Traditional Burnt Sand Mastic.
- Colour: Samples to be provided, to achieve natural appearance. The mastic should not be overpainted.
- Preparation: before pointing, ensure that all wide gaps between the frames and masonry are tightly packed with well haired lime mortar, that has been allowed to cure and harden.
- Application: Working with a Mastic Box or a small hawk and a proprietary mastic trowel press the mastic firmly into the angle of

the frame / jamb and filling from the bottom up, forming the mastic joint to a neat 45-degree angle. Keep tools wiped with an oiled cloth during the application. After forming the angle, starting from a corner, press a clean oiled mastic trowel tightly against the face of the timber frame and masonry jamb and carefully press and draw the trowel to create a neat regular fillet. Clean away any excess mastic and wipe the finished timber edges on completion. For mastic to sills, ensure the mastic does not bridge any drips and is left recessed behind the drip check.

13.9.4 TIMBER REPAIRS GENERALLY:

The purpose of repair is to replace or reinforce those parts of the window or door that have decayed so badly that they can no longer function as intended.

Wherever possible, repairs to window frames should be carried out in-situ, particularly where the frame is inbuilt and cannot be easily removed without damaging the window or the surrounding wall. Sashes and casements can usually be removed without damage for repair either onsite or in a joiner's workshop.

Prior to undertaking any works. The windows in question should be carefully recorded with photographs and some basic measurements. Sashes, casements and other parts should be appropriately labelled to ensure that they go back in the correct positions. Any historic glass and its characteristics should also be recorded.

Following assessment of each window including identification of areas of decay / missing timber components / damaged glass etc, appropriate repair works can be proposed which suit the situation. In most instances the decayed timber in question can be salvaged in-situ with resin-based repairs undertaken.

Types of repairs include the following;

- Spliced repairs

- Resin-based repairs
- Wholesale replacement – like-for-like

13.9.5 Spliced Repairs (timber to timber repairs);

Repairs should be made by carefully cutting away damaged or decayed timber and piecing in timber inserts which are shaped to obtain the maximum strength and match the existing profiles. The new timber should be worked to the line of the existing timber following any existing deformations in the line of the window.

Timber inserts should be designed so that water is directed towards the outer face of the timber and cannot lie on or enter the repair joint.

Timber inserts should ideally match / be similar to the host material to which it is replacing in species, moisture content, grain orientation and growth rate. Inserts should be glued to the host material, screwed and or pinned with stainless steel fixings. Loose joints in otherwise sound joinery should be reassembled, glued and wedged or secured with pins as appropriate. See *'Image 100'* for typical splice repair details.

13.9.6 Resin-Based Repairs;

The use of Resin repairs is to be considered where, small areas of loss can be made good with fillers as opposed to cutting out and splicing in new timber. The decay is to be cut away and proprietary polyester or epoxy resin repair undertaken. This is an effective way of maximising the amount of original fabric retained. Refer to section 1.9.2 above for proposed product and guidance.

13.9.7 FILLING AND PATCHING:

- Fill small holes less than 3mm dia and scratches in polished timber with Brummer filler.
- Fill larger holes 3mm to 15mm with tapered pellets fitted so that

the grain runs with the filled timber. Select pellets from identical timber matched for grain and colour. Glue pellets, finish flush with surface.

- Fill larger holes with patches of identical timber let into the surface. Patches must taper in depth and be glued and must be matched for grain and colour. Finish flush with surface.

13.9.8 NEW TIMBER SECTIONS:

- New items must be exactly as drawn. Full size sections must match exactly.
- New items made to match must be copied exactly in all particulars. Carvings must be identical in all aspects to the original.
- New items must be finished by hand. All machine marks must be removed. A surface which is not dead flat is preferred.

13.9.9 GENERAL REQUIREMENTS FOR WORKMANSHIP:

- It is essential that as much of the original work as possible should be protected and preserved.
- The desired finished result is not that the woodwork should look new. It should look as old as it is but well cared for.

13.9.10 QUALITY STANDARDS:

Reference is made to the following documents which establishes the desired approach and standards in the repair of historic timber windows;

- SPAB Technical Pamphlet No.13 – repair of wood windows.
- Historic England – traditional windows, their care, repair and upgrading.

It is expected that a copy will be obtained by the contractor for retention and use on site and will be brought to the attention of relevant labourers.

13.9.11 RENEW HARDWOOD TIMBER BEADS:

Species: Well-seasoned European Oak.

Renew to match existing – all dimensions, mouldings and fixing details.

Record works photographically and log location and date as appropriate.

13.9.12 HARDWOOD FOR JOINERY REPAIRS:

Generally, to be of same species as existing work to be repaired and carefully selected to match grain size, direction and general characteristics. Until reviewed and confirmed, allow for the following:

- Species: Well-seasoned European Oak.
- Quality: Generally, to BS EN 942' free from decay and insect attack.
- Appearance class: Class J2.
- Treatment: British Wood Preserving and Damp Proofing Association Commodity Specification C8; Service life: 60 years.
- Moisture content on delivery: 12-16%.

All timber is to be from sustainably managed sources. Provide Architect with reliable certification.

All timber is to be of UK origin unless otherwise agreed by the Architect.

13.9.13 SOFTWOOF FOR JOINERY

Is to comply with BS 1186:1986:Part 1 (Note the 1986 issue is correct for matching historic joinery, the 1991 revision is not appropriate).and to be generally free from checks, shakes, pitch pockets, plugs, inserts, sapwood joints laminations boxed heart, pith

or pinholes. Particular types to be as follows:

- External use - European Redwood Class 1S
- Internal use - painted finish - European Redwood or Western Hemlock Class 1
- Internal use - clear finish - Douglas Fir Class 1S or other approved for all surfaces.

All timber is to be from sustainably managed sources. Provide Architect with reliable certification.

All timber is to be of UK origin unless otherwise agreed by the Architect.

13.9.14 REPAIR OF MEMBERS – CUTTING OUT MEMBERS:

- Extent of timber removal: Cut out full cross section of member where wood is defective or decayed, plus 50mm of sound wood.
- Distance from face of support to cut end of existing timber: Obtain instructions if dimension exceeds 200mm.

13.10 PRESERVATIVE TREAMENT FOR JOINERY TIMBER

13.10.1 No internal joinery is to be preservative treated unless specified or instructed. Timber in contact with damp masonry, e.g. below dpc level, is to be preservative treated. External softwood joinery is to be treated with a boron type preservative such as 'Timbor' rods. Before application, perform all necessary cutting and machining that is practicable but do not assemble. Doors however may be treated after machining and final assembly. Ensure that moisture content is less than 20% before treatment and after treatment before fixing.

13.10.2 Where bats are found, or the evidence of roosting bats, preservative chemicals are not to be used without the express approval of the Architect.

13.10.3 Preservative Treatment Certificate: provide the Architect with

the certificate accompanying each consignment to site.

13.10.4 Treatment to minimise environmental/ecological impact based generally and especially in connection with use where bats are present. The following are products which are deemed acceptable for use as stated. Alternatives may only be used upon proof of their low impact.

13.10.5 New Timber

Vacuum/pressure treatment to be carried out by licensed processors. Type of treatment to suit timber use.

- 'Tanalith E' pressure treatment, process type to suit timber use.
- Vacsol - Aqua and Vacsol - Azure, Arch Timber Protection
- For other methods of application see existing timber below.

13.10.6 Existing Timber

Brush or spray applied products include:

- ProBor DB solution or ProBor 10, Safeguard Chemicals Limited. ProBor 20 gel for thicker sections
- Boracol 10 RH and Boracol 20 Dual Purpose, Biokil Chemicals Ltd.
- Borax Wood Preservative, Biofa, available from Mike Wye & Associates
- Or similar boron-based product is the preferred choice.

Solvaq FLX F/I, Sovereign Chemicals Limited, contains fungicides with a safe insecticide, is good but less preferable than the boron products above.

Inaccessible, large/very large dimension timbers and window joinery, applied by injection

- Boracol 40 Paste, Biokil Chemicals Ltd.

- ProBor 50, Safeguard Chemicals Limited.

Timber frequently subject to damp in excess of 28% moisture content such as window joinery.

Boron Timber Rods (preservative filled glass rods), Biokil Chemicals Ltd. or equivalent

13.10.7 No internal carpentry is to be preservative treated unless specified or instructed. Structural timber in contact with damp masonry, e.g. below DPC level, is to be preservative treated. External softwood carpentry is to be treated only if specified, as the main form of protection is a well-maintained paint or stain coating.

13.10.8 Take advice where bats or evidence of bats is found and inform Architect immediately. It is a criminal offence to disturb bats or to damage their roosts. Only use timber treatments approved by English Nature. Their document dated March 2006 or later version, 'Remedial Timber Treatment Products Suitable for Use In Bat Roosts' lists approved proprietary products.

13.11 LIFING OF FLOORBOARDS

13.11.1 The following are guidelines regarding the removal of floorboards without causing damage to boards. The precise method of working is the responsibility of the Contractor.

13.11.2 The first board to be lifted is to be carefully selected. Ideally it should have previously been lifted and re-fixed with screws.

13.11.3 If this is not possible, select a board which is relatively short, with at least one end in good condition, not against a wall and with a gap at one end.

13.11.4 Using a block of wood or a hardened steel plate to protect the adjacent boards, work around the edge of the board to be lifted with a 6" bolster, levering to try to loosen the board, taking great care at all times not to damage the boards. Then using the same technique work along the sides at one end until the end is free.

Place a batten below the free end and gradually move this toward the next set of nails to raise them up. Remove the batten and carefully pull out the nails. Continue to remove the first board completely.

13.11.5 Removal of boards after the first should be continued in the same fashion and with the same protective measures. Additional wooden blocks may be required for example when lifting floorboards with a crowbar.

13.11.6 All boards are to be identified on their underside with a reference or number, also recorded on a drawing, to ensure that they are re-fixed in their existing locations.

Extract from 'Historic England – Traditional Windows repair document'

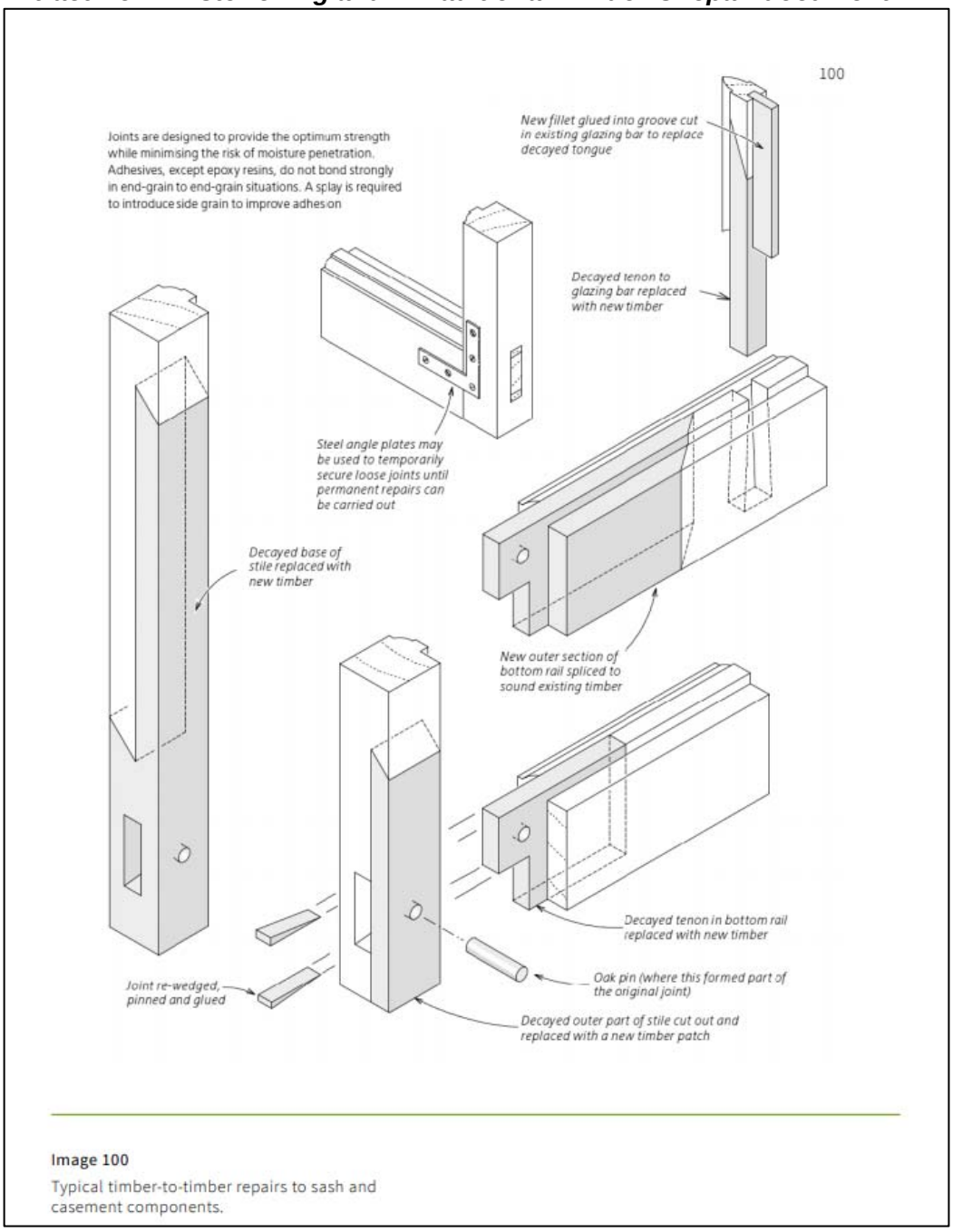


Image 100

Typical timber-to-timber repairs to sash and casement components.

14.0 GLAZING REPLACEMENT

14.1 REMOVAL OF GLASS/ PLASTICS FOR REUSE

14.1.1 Existing glass/ plastics and glazing compound, beads, etc: Remove carefully, avoiding damage to frame, to leave clean, smooth rebates free from obstructions and debris.

14.1.2 Deterioration of frame/ surround: Submit report on defects revealed by removal of glazing.

14.1.3 Affected areas: Do not reglaze until instructed.

14.1.4 Reusable materials: Clean glass/ plastics, beads and other components that are to be reused.

14.2 MATERIAL SAMPLES

14.2.1 Representative samples of designated materials: Submit before cutting panes.

- Sample size (minimum): 600 x 300 mm.
- Designated materials: 6mm Toughened and laminated hand drawn glass.

14.3 WORKMANSHIP GENERALLY

14.3.1 Glazing generally: To BS 6262.

14.3.2 Integrity: Glazing must be wind and watertight under all conditions with full allowance made for deflections and other movements.

14.3.3 Dimensional tolerances: Panes/ sheets to be within ± 2 mm of specified dimensions.

14.3.4 Materials:

Compatibility: Glass/ plastics, surround materials, sealers, primers and paints/ clear finishes to be used together to be compatible.

Avoid contact between glazing panes/units and alkaline materials

such as cement and lime.

14.3.5 - Protection: Keep materials dry until fixed. Protect insulating glass units and plastics glazing sheets from the sun and other heat sources.

14.4 PREPARATION

14.4.1 Surrounds, rebates, grooves and beads: Clean and prepare before installing glazing.

14.5 GLASS GENERALLY

14.5.1 Standards: To BS 952 and relevant parts of:

- BS EN 572 for basic soda lime silicate glass.
- BS EN 1096 for coated glass.
- BS EN 1748-1 for borosilicate glass.
- BS EN 1748-2 for ceramic glass.
- BS EN 1863 for heat strengthened soda lime silicate glass.
- BS EN 12150 for thermally toughened soda lime silicate safety glass.
- BS EN 12337 for chemically strengthened soda lime silicate glass.
- BS EN 13024 for thermally toughened borosilicate safety glass.
- BS EN ISO 12543 for laminated glass and laminated safety glass.

14.5.2 Panes/ sheets: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.

14.5.3 Edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

14.6 HEAT SOAKING OF THERMALLY TOUGHENED GLASS

- Standard: To BS EN 14179.
- Holding period (minimum): 8 hours.
- Mean glass temperature: 290° ± 10°C.

- Certified evidence of treatment: Submit.
- Designated locations: TBC

14.7 REINSTALLING GLASS TO EXISTING WINDOWS

14.7.1 Bead fixing: Use same technique to fix beading as was originally implemented. Ensure all fixings are regular at a maximum of 150mm centers, punched below wood surface and filled using a suitable filler. Wood surface sanded to smooth finish and prepared for repainting.

14.7.2 Pane material: 6mm Toughened and laminated hand drawn glass - ARCHITECT TO APPROVE SAMPLE BEFORE REMOVAL OF EXISTING GLAZING

14.7.3 Surround/ bead: Hardwood - PROFILE TO MATCH EXISTING.

- Preparation: Paint primer .
- Bead location: As per original window chamfer .
- Bead fixing: Submit proposal .

14.7.4 Finished thickness of back bedding after inserting glazing (minimum): 3 mm.

14.7.5 Front bedding: Applied to fill voids.

14.7.6 Beads: Bedded in glazing compound and fixed securely.

14.7.7 Visible edge of glazing compound: Finished internally and externally with a smooth

15.0 ROLLER SHUTTER

15.1 GENERAL

TYPE: Tube and link roller shutter in a brick bond configuration.

MATERIAL: Aluminum

FINISH: TBC

OPERATION: Electric

Size:TBC

15.2 MANUFACTURER

Security Direct (equal or approved by architect)

HEAD OFFICE:-
Security Direct Product Ltd
Bentley
HU17 8PP

15.2.1 Shutter to be fixed internally and fully encased.

15.2.2 Installation: To installed as per manufacturers recommendations.

15.2.3 Gaps between frames and supporting construction: Filled as necessary in accordance with requirements for certification and/ or door/ doorset manufacturer's instructions.

16.0 CEILING REPAIRS

16.1 PREPARATION

16.1.1 Carefully remove carpet from affected areas setting aside for re-use. Where carpet cannot be lifted from areas below repairs, the area is to be protected with viqueen taped to the skirting boards and overlaid with ply or MDF.

16.1.2 Remove insulation from ceiling void, carefully clean out all areas with soft brushes and hand held vacuum cleaner, ensuring that all areas are clean.

16.1.3 Plaster key and laths are to be inspected and checked throughout the specified area. The contractor is to allow within his programme an appropriate period of time for detailed inspection by the Architect to enable final instructions to be issued for the work.

16.1.4 Defective areas of ceiling are to be propped using felt pads on 12mm ply bearers on timber studding.

16.1.5 Exceptional care is to be taken supporting areas around details particularly where papier maché work may be present.

16.1.6 All timbers including joists and laths are to be inspected for decay by specialist timber Preservation Company and a report issued to the Architect for consideration of further treatment.

16.2 LATHS

16.2.1 Where existing laths are spaced too close thus preventing adequate key for the plaster alternate laths are to be cut through and removed.

16.2.2 When existing laths are decayed these are to be cut out with a hacksaw blade and snapped off.

16.2.3 In areas where ceiling has collapsed or is missing new laths are to be fixed with split or riven oak or hazel laths. These are to be 39mm

wide with 10mm gaps between laths and are to be secured with stainless steel or copper wires. Laths are to be cut on joist lines with additional timber battens fixed to the side of the joists to enable ends of new and existing laths to be staggered, with existing laths re-nailed at the junction.

16.3 INDIVIDUAL BRIDGE REINFORCEMENT

16.3.1 This method is to be used in areas where isolated laths have been removed or where small areas of plaster nibs have been lost.

16.3.2 Old plaster and laths are to be thoroughly cleaned and treated with a thin coating of PVA solution (1 part PVA to 10 parts / water) in order to control suction and prevent rapid removal of water from the new plaster. From key to adjacent joists with 75mm brass screws left projecting 38mm from the joists.

16.3.3 The area is to be filled with retarded superfine plaster of Paris.

16.4 BULK REINFORCEMENT

16.4.1 This technique is applicable to areas when the fixings to the laths have become loose from the joists.

16.4.2 Old plaster and laths are to be cleaned thoroughly and treated with a thin coating of PVA solution (1 part PVA to 10 parts water) in order to control suction and to prevent rapid removal of water from the new plaster.

16.4.3 Complete support to the area is to be provided by 6mm gauge stainless steel or copper mesh formed into troughs turned up the side of the joists.

16.4.4 Retarded plaster of Paris is to be poured over the existing plaster and the mesh pushed into the initial thin coat prior to fixing via 25 x 38 treated sw battens fixed with brass or stainless steel screws to the side of the existing joists.

16.4.5 A second coat of plaster is to be applied after the installation of the mesh tray but prior to the setting of the initial coat to give a total

thickness of 15mm with a splayed fillet to the side of the joists.

16.4.6 Adequate setting time is to be allowed prior to the removal of any propping to the ceiling below.

16.4.7 In areas where plaster nibs have failed but the laths are secure. The above method may be used but substantiating hessian resin instead of wire trays. The resin is still to be secured by treated battens.

16.5 REPAIRS TO UNDERSIDE

16.5.1 On completion of the reinforcement, cracks to underside of the ceiling can be repaired.

16.5.2 Larger cracks should be carefully cut out with a sharp chisel or knife to form a dovetail key. All cracks shall then be cleaned thoroughly by hand vacuum cleaners or by air blasting. After cleaning the cracks should be cleaned by hand spraying with water.

16.5.3 Fill material shall be a lime or gypsum plaster to match the existing.

16.6 REPAIRS TO DETAILS

16.6.1 Where cornice or other embellishment has become loose, this is to be secured back to the timber structure with galvanised steel, copper or stainless steel wire drilled through the features and secured to brass screws into the joists and recessed into the detail.

16.6.2 Areas of damage are to be made good for completion with fibrous plaster where small sections of cornice are missing wire reinforcement is to be installed and the detail "run in" with fibrous plaster.

16.6.3 Larger such replacement of cornice etc are to be by pre cast fibrous plaster sections manufactured from moulds taken from the existing profiles.

16.6.4 Loose details may be secured into the timber structure from below by brass screws and washers recessed into the detail with the surface made good.

16.7 PLASTER

Lime Plaster

Render coat lime plaster (9mm) 1 part lime putty 3 parts sand. Coarse stuff is to be reinforced with hair well beaten in, at a rate of 7 kg/m³. Render coat is to be cross keyed with a lath scratcher.

Floating coat (6mm) 1 part lime putty to 3 parts sand reinforced with hair as above. Floating coat to be keyed with a devils float.

Setting coat (3mm); 3 parts lime putty to 2 parts sand setting coat is to be laid on with a laying on trowel, trowelled and floated and made compact by scouring with a cross grained wood float lubricated with water to prevent shrinkage cracking.

Lime Plaster gauged with Gypsum

Render coat (9mm) 1 part gypsum, 1 part lime putty, 6 parts sand.

Floating coat backing coat (6mm) 1 part gypsum, 1 part lime putty, 6 parts sand.

Setting coat finishing coat (3mm) 1 part gypsum, 1 part lime putty.

16.7.1 Lime Plaster

Materials

Fine Aggregates

All sand shall be to BS 1200, non-staining clean sharp coarse sand. 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.

Lime Putty

Lime putty shall be made from quick lime which has been freshly burned and properly slaked, run to putty and matured for not less than two weeks.

Prepared lime putty shall be obtained from one of the following:

1. Whitford Sand Lime & Mortar Co
   Bedw,
   Whitford Road
   Holywell
   Clwyd
   CH9 9AE Tel. 01352 - 714144

2. Rose of Jericho
   Kettering
   Northamptonshire Tel. 01536-73439

3. Masons Mortar
   61 - 67 Trafalgar Lane
   Leith
   Edinburgh Tel. 0131-5550503

4. Bleaklow Industries Limited
   Hassop Avenue, Hassop
   Bakewell
   Derbyshire DE45 1NS Tel. 01246-582284

Lime putty made from dry hydrate or an acetylene by-product (Lamotex) is not acceptable. Before ordering the contractor is to gain confirmation that the putty has been prepared from Quick Lime.

Additives

Under no circumstances will the addition of any additives to the plaster be permitted.

Water

Water from 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 stand pipe shall be erected to the approval of the local water authority.

16.7.2 Weather and Protection

Cold Weather Working

No work involving the preparation of plaster shall be undertaken when the temperature is 5 degree centigrade falling or below 4 degrees centigrade when the temperature is rising.

Protection

All work is to be protected from the frost. In warm weather the work is to be similarly damped down to prevent curing occurring too quickly.

Damage Due To Weather

Any work affected be the weather is to be cut out and replaced at the Contractor's expense.

17.0 RENEWAL OF RAINWATER GOODS

17.1 MATERIALS

17.1.1 Cast Iron Rainwater Pipes and Shoes:

Cast iron rainwater pipes to be generally single / double socketed 4" (to be confirmed – to match existing to Manor House) diameter pipes unless otherwise noted on the drawings, conforming to the dimensional requirements of BS 460: 1964, and manufactured by J & J W Longbottom Ltd or equal approved manufacturer.

17.1.2 Fittings:

Include for all necessary fittings to each section of pipework, including square and obtuse bends, union sockets with fixing ears, shoes, side and anti-splash shoes, single branch fittings, offsets, holderbats, inspection pieces, and rainwater hoppers.

17.1.3 Jointing

Joints at the sockets of the components should incorporate a hemp gasket, and be sealed with a bedding of red lead and white putty (or approved polysulphide sealant). Where pipes / components are cut on site, the ends shall be cut clean and square with burrs removed. All cut ends shall be made good/recoated in accordance with the manufacturer's recommendations prior to decoration and fixing.

17.1.4 Fixing:

Socketed rainwater and soil pipes are to have hardwood bobbins fitted behind ears to give a minimum 38mm projection from wall face to facilitate decoration. Fixing to the walls is by means of 8mm stainless steel screws through ears and bobbins into plastic plugs in the walls.

17.1.5 Finish:

After cutting to finished installed sizes all components are to be

primed, and painted as per the attached Dulux System M2312ALK. Colour to match existing. Existing cast iron components are to be repainted as per attached Dulux System M2334ALKG. Colour to match existing.

17.1.6 Cast Iron Rainwater Heads:

All rainwater heads to be replaced are to be ornamental cast iron fittings conforming to the dimensional requirements of BS 460: 1964, and manufactured by J & J W Longbottom Ltd or equal approved.

17.1.7 Gutters:

All gutters are to be 5" cast iron (unless otherwise stated) manufactured by J & J W Longbottom Ltd or equal approved manufacturer. Fixed onto new cast iron rise and fall brackets (to match existing) embedded into wall. All new brackets to be half round brackets to match existing.

Gutters and RWPs internally are to receive 2 coats of bitumen paint.

17.2 INSTALLATION GENERALLY

17.2.1 Install to ensure the complete discharge of rainwater from the building without leaking.

17.2.2 Obtain all replacement components for each type of pipework from the same manufacturer unless specified otherwise.

17.2.3 Provide access fittings and rodding eyes as necessary in convenient locations to permit adequate cleaning and testing of pipework.

17.2.4 Provide for thermal and building movement when fixing and jointing and ensure that clearances are not reduced as fixing proceeds.

17.2.5 Where not specified, use plated, sherardized, galvanized or nonferrous fastenings, suitable for the purpose and background, and compatible with the material being fixed or fixed to.

17.3 Pipework

17.3.1 Fix securely at specified centres plumb and/or true to line with additional supports as necessary to support pipe collars, particularly at changes in direction.

17.3.2 Make changes in direction of pipe runs only where shown on drawings unless otherwise approved.

17.4 TESTING

17.4.1 Before striking the scaffold test all gutters by blocking outlets and filling to overflow level. Leave filled gutters for 5 minutes and then inspect for leaks. Inform architects one week in advance of testing so as they may be present.

18.0 ROOF REPAIRS – GENERAL REQUIREMENTS

18.1 EXISTING ROOF COVERINGS

18.1.1 To be read alongside drawing package and fabric repair works.

18.1.2 Roof coverings to roofs identified for re-roofing are to be retained and over roofed to ensure no damage occurs to the existing roof deck or structure.

18.1.3 Existing tiles are to be carefully removed and sound slates are to be stored for possible re-use.

18.1.4 Unless stated otherwise existing lead coverings flashings and gutter linings etc are to be removed. The credit for scrapped material is to be included within the contractor's rates.

18.1.5 Prior to removal consult with Project Architect for approval.

18.1.6 No salvaged materials are to be stored on the scaffold or on the existing roof. Materials reclaimed for re-use are to be stored at ground level and protected from damage and theft.

18.2 PROGRAMME

18.2.1 A detailed programme for the roof works shall be submitted to the Architect prior to any works being undertaken.

18.2.2 The programme shall indicate the sequence of all work to each individual area of roof works and shall indicate the periods for erection of temporary roof, removal of roof coverings, inspection of the roof structure, repairs to the roof structure, remodelling of gutters, the recovering of roofs, removal of temporary roof together with all other associated works at roof level.

18.3 INSPECTION

18.3.1 The contractor is to allow a period for inspection of the existing roof structure/decking after the removal of the roof coverings. A period of 7 days shall be allowed for each roof area for inspection and

confirmation of instruction/repairs.

18.3.2 The contractor is to give the Architect 2 working days' notice prior to the roof structure being ready for inspection.

18.4 HEALTH AND SAFETY

18.4.1 The contractor shall ensure that all necessary precautions are taken to ensure the safety of all operatives, site visitors etc at all times.

18.5 REMOVAL OF EXISTING COVERINGS

18.5.1 Carefully remove existing coverings ensuring as many tiles are reclaimed for re-use as possible.

18.5.2 Where existing battens have been laid on timber boards and tiles have been bedded on lime mortar ensure all lime mortar and battens are removed and the boards are brushed clean for inspection.

18.5.3 Ensure all roof voids are kept clear of inflammable material and debris and that they are vacuumed clean of all dust on completion of the works.

18.6 STORAGE OF MATERIALS

18.6.1 Only limited use of scaffold or existing roof structure or roofs shall be permitted for the storage of materials.

18.6.2 Materials should generally be stored at ground level in secure areas.

18.6.3 Only sufficient materials for the operatives to use in a working day should be brought to roof level.

18.6.4 Where materials are stored at roof level they should be distributed evenly to ensure existing structure or scaffold is not overloaded.

18.6.5 Materials should not be stored on completed roof areas.

18.7 REPAIR OR REPLACEMENT OF EXISTING TIMBERS

18.7.1 Once the existing coverings are removed the Architect will inspect the timber structure and issue such instructions as are necessary with regard to the repair or replacement of any defective timbers.

18.7.2 No defective timbers shall be removed until inspected by the Architect even if these are identified for replacement on the drawings. The intention will generally be to retain as much of the original timber as possible.

18.7.3 Where existing timbers are a softwood species replacement timbers shall be vacuum pressure impregnated timber of a section to match the existing. Timber treatment shall be carried out in strict accordance with British Standard. Timber shall be delivered to site with a moisture content no great than 20% and shall be stored in such a way that the moisture content is not increased prior to use.

18.7.4 Treatment certificates are to be forwarded to the Architect on receipt.

18.7.5 Where existing timbers form part of a hardwood timber framed structure the replacement timbers shall comply in full with the requirements of the timber frame specification.

18.7.6 All battens are to be replaced with new treated softwood battens to sections as specified elsewhere.

18.7.7 All framework for concealed gutters shall be in treated timber. Gutters boards shall be formed from 75x25mm straight edged treated softwood.

18.8 LEADWORK

18.8.1 All leadwork shall be in accordance with the Lead Development Association recommendations and shall be carried out by an approved contractor who is a member of the Lead Contractors Association.

18.8.2 Cast lead whether machine cast or cast by hand, shall not be used. All lead shall be milled to BS 1178.

18.9 ACCESSORIES

18.9.1 Chimney C Cap

Pot Diameter: Large Pots Up to 350mm diameter

Colour: Terracotta

Material: Toughened Plastic

Use: Disused chimneys

18.9.2 Terracotta Ventilation Cap

Redbank Clay Flue Ventilator. Commonly known as a Sailors Cap or Pepper Pot cowl.

Used to weather clay chimney pots, whilst allowing the chimney flue to ventilate.

For use with disused Chimneys only

18.10 WORKMANSHIP

18.10.1 All work shall be carried out in accordance with BS 5534 part 1 and 2 "Code of Practice for slating and tiling" and BS 8000: Part 6 "Code of Practice for Workmanship and Building Sites - slating and tiling".

19.0 ROOF REPAIRS – LEAD WORK

19.1 REQUIREMENTS

19.1.1 All leadwork shall be undertaken by trained operatives employed by a contractor who is a member of Lead Contractors Association.

19.1.2 All workmanship shall be in accordance with the Lead Sheet Associations recommendations as contained in the Lead Sheet Manual - a guide to good building practice Volume 1 to 3 and current updates.

19.1.3 Working Practices shall comply with the Health and Safety Executive COP2 "Control of lead at work - approved code of practice".

19.1.4 All work shall comply with BS 5250 "Code of Practice for control of construction in buildings".

19.2 MATERIALS

19.2.1 Lead Sheet

Lead sheet shall be milled lead sheet to BS 1178 unless stated otherwise. The minimum height of lead shall not be less than that recommended in BS 6915 "Specification for design and construction of fully supported lead sheet roofs and wall coverings".

19.2.2 Underlay

Building paper to BS 1521, Class A.

19.2.3 Plywood

Shall only be used where specified and shall be in accordance with BS 1210. Plywood shall be WBP grade.

19.2.4 Copper Nails

Copper nails for fixing lead shall be in accordance with BS 1202 part 2.

19.2.5 Wood Screws

Shall be in accordance with BS 1210.

19.2.6 Timber

For gutter linings, roof decks etc shall be 100x25mm straight edged boarding with a 2mm gap between adjoining boards.

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

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

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

19.3 WORKMANSHIP

19.3.1 General

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

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

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

Ensure that finished leadwork is fully supported.

19.3.2 Lead Welding

In situ lead welding is permitted where specified subject to completion of a "hot work permit" form and compliance with its

requirements. Lead chutes will require onsite welding.

19.3.3 Layout

Agree setting out of joints drips and laps with the Architect prior to commencing work.

19.3.4 Control Samples

Complete an agreed area of finished work and obtain approval of appearance and detail from the Architect before proceeding with the remainder of the works. The sample area(s) shall be selected so as to reflect the problems likely to be encountered on the majority of the work.

19.3.5 Existing Lead to Be Retained

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

19.3.6 Existing Lead to Be Removed

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

19.3.7 Replacement of Existing Lead

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

19.3.8 Existing Bases

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

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

19.3.9 All Bases

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

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

19.4 FIXING AND JOINTING

19.4.1 Head Fixing Of Lead Sheet

Unless specified elsewhere secure top edge of lead sheets with two rows of fixings 25mm and 50mm from the top edge of the sheet at 75mm centres to each row and evenly spaced and staggered. Additional fixings may be required in the top third of larger sheets, in accordance with the recommendations of the Lead Sheet Association.

19.4.2 Fixings

Fix lead sheet to timber substrates using copper clout nails to BS 1202 part 2 table 2 with annular ring, helical ring or serrated shank, length not less than 20mm, shank diameter not less than 3.35mm

and head diameter not less than 8mm, or similar stainless steel (austenitic) clout nails with diameter not less than 2.65mm.

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

19.4.3 Clips

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

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

19.4.4 Wood Cored Roll Joints

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

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

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

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

19.4.5 Welted Joints

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

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

19.4.6 Drips - Roofs up To 3 degree Pitch

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

19.4.7 Drips - Roofs over 3 degree Pitch

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

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

19.4.8 Forming Details

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

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

19.4.9 Fixing Into Joints

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

Dress lead into joint or chase and up back face. Fix into back face

with stainless steel screws, washers and plastic plugs at minimum 450 centres with a minimum number of 2 fixings per piece of lead.

Joint to be pointed as indicated on the drawings.

19.4.10 Finishing

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

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

19.5 LEAD SHEET COVERINGS / FLASHINGS

19.5.1 GUTTER LININGS:

Substrate: Existing/new timber boarding.

- Preparation: Remove all latents.
  Underlay: non-woven needle punched polyester geotextile that has a weight of between 200 and 220g/m2.
- Type of lead: Rolled to BS EN 12588.
- Lead: Code 7 unless specified differently on the drawings.
- Pre-treatment: Chalk emulsion to underside of lead as supplied by Rowan Technologies Ltd. Tel: 0161-748-3644, applied to manufacturers recommendations.
- Joints in direction of fall: 45x45mm new wood cored rolls.
- Spacing: Dependant of code of lead. Follow LSA recommendations.
- Cross joints: Wood cored roll at gutter watershed.
  - Spacing: Refer to drawings
  - Outlets: Refer to drawings.

19.5.2 LEAD SHEET ROOFING:

Substrate: new timber boarding and 45x45 solid wood rolls.

Lead: Code 8 cut and dressed to shape for fixing by roofer as specified on drawings.

Underlay: non-woven needle punched polyester geotextile that has a weight of between 200 and 220g/m2.

Horizontal Junctions in Sheets: Form with wood cored rolls at max. 650mm centres, and with 40mm splashlap, in accordance with Lead Sheet Association recommendations.

Vertical Junctions in Sheets: Solid wood rolls from roof are to continue to the vertical face. Saddle pieces are to be welded insitu, they can be supported in the horizontal position as shown on drawings. The top can then be welded after the lead has been turned down. The undercloak should be nailed to the roll and the overcloak secured with clips. The capping pieces will be formed by part bossing and part insitu welding.

- - Joints in direction of fall: 45x45mm new wood cored rolls.
- - Spacing: Dependant of code of lead. Follow LSA recommendations.

19.5.3 LEAD CLADDING:

Substrate: new timber boarding and 45x45 solid wood rolls.

Lead: Code 7 cut and dressed to shape for fixing by roofer as specified on drawings.

Underlay: non-woven needle punched polyester geotextile that has a weight of between 200 and 220g/m2.

The individual panels of lead are secured at the head with three rolls of fixings. When using wood rolls for vertical joints additional nails are fixed into the top third of the undercloak.

The bottom edge should be turned around a continuous stainless steel angle. Lead should be dressed over a wood roll. The end of

the wood roll should be bossed short of the drip as shown on separate drawings.

- Joints in direction of fall: 45x45mm new wood cored rolls.
- Spacing: Dependant of code of lead. Follow LSA recommendations.
- Lighting fittings: Follow LSA recommendations.

19.5.4 COVER FLASHINGS:

- Lead: Code 5 in lengths not exceeding 1500 mm.
- End to end joints: Laps of not less than 100 mm.
- Cover: Overlap to upstand of not less than 75 mm.
- Fixing: Lead wedges into bed joint and clips to bottom edge at laps and 450 mm centres.

19.5.5 SOAKERS AND STEP FLASHINGS TO RAKING ABUTMENTS

Soakers:

Lead: Code 4 cut and dressed to shape for fixing by roofer.

Dimensions:

Length: Slate / tile gauge + lap + 25 mm.

Upstand: Not less than 75 mm. Refer to LSA recommendations.

Underlap: Not less than 100 mm. Refer to LSA recommendations.

Step and cover flashings:

Lead: Code 5 in lengths not exceeding 1500 mm.

End to end joints: Laps of not less than 100 mm.

Cover: Overlap to soaker upstands of not less than 65 mm.

Fixing: Lead wedges at every course.

19.5.6 SACRIFICIAL LEAD FLASHINGS

Code 4 lead clipped to gutter linings at max 500mm centres at the foot of rainwater run off to the eaves slates, and at the base of the gutter to project beyond the line of the slates by a minimum of 50mm, refer to drawings for details.

20.0 ROOF REPAIRS – PLAIN TILES

20.1 MATERIALS

20.1.1 Plain Tiles.

Where specified existing tiles are to be retained and stored for reuse. The tiles are to be sorted for size and shape and any broken, delaminating or otherwise unsuitable tiles are to be discarded.

Additional tiles shall be obtained from an approved source and shall be hand selected to match the existing tiles. Samples shall be submitted to the architect for approval prior to ordering materials.

20.1.2 Roofing Felts

Untearable breathable felt shall be to BS 747.

20.1.3 Clay Tiles

Base: Existing timber roof structure with new battens to main roof slopes, or masonry and battens to areas of tile hanging.

Pitch: Existing / to match existing.

Underlay: Tyvek Supro permeable underlay or equal approved.

Centres: Coinciding with rafters / trusses.

Battens: As clause 11.4.2 size 38 x 25 mm.

Fixing: As clause 11.5

Supplier and reference: Samples to be supplied to match existing.

20.1.4 Valley with Valley Tiles

Ensure that continuous support is provided for ends of tiling battens on each side of

valley. Cover valley with a strip of underlay not less than 600mm

wide underlapping

general underlay. Cut adjacent tiles and tile-and-a-half tiles so that valley tiles course

in and fit neatly. Note that it is not necessary to mechanically fix the valley tiles.

20.1.5 Nails

Nails shall comply with BS 1202 Part 2 and 3.

Nails for fixing battens should penetrate the rafters by a minimum of 40mm.

Nails for fixing tiles should be hung on battens to a minimum depth of 15mm but should not penetrate the felt.

20.1.6 Timber

All timbers used for both structural, secondary and detail components with the roof construction shall be pressure impregnated preservative treated softwood.

All timbers shall comply with the recommendations of BS 4978 "Specification for softwood grading for structural use" and BS 5534.

All treatment shall be in accordance with the recommendations of the British Wood Preserving Association.

20.1.7 Mortar

Mortar for bedding ridge tiles etc. is to be 1:1:6 mortar. The sand aggregate is to be selected to give a pigmentation similar to the ridge tiles. Samples are to be approved.

20.2 WORKMANSHIP

20.2.1 All work shall comply with BS 5534 parts 1 and 2 code of practice for slating and tiling.

20.2.2 All workmanship shall comply with BS 8000 Part 6 Code of Practice for workmanship on building sites, slating and tiling.

20.2.3 All work shall be undertaken by suitably qualified and experienced roofers.

20.3 EXISTING ROOF COVERINGS

20.3.1 Existing roof coverings shall be removed in sections small enough to ensure that adequate temporary provision can be made to prevent water ingress into the building/structure. Further sections can only be removed once the previous section has been made watertight.

20.3.2 Existing coverings are to be carefully removed to ensure the maximum amount of material capable of being reused is retained, and to minimise any disturbance to the structure below.

20.3.3 On removal of the roof covering allow for inspection of the roof timbers by the architect or appointed Timber Treatment Specialist. Any timbers found to be rotten are to be replaced with new treated timber of similar section unless otherwise directed.

20.3.4 Allow a credit for the scrap value of any lead to be removed from the site.

20.3.5 Carefully sort all tiles removed from the roof and retain all sound slates in secure storage for inspection/approval by the architect.

20.4 FIXING

20.4.1 Underlay

All underlay shall comply with BS 5545 Part 1 1990 and BS 747 where the underlay is not full supported it shall be breathable geotextile felt to BS 744 and BS 5534.

For an unsupported installation with a roof pitch between 15 and 30 degrees the minimum horizontal lap should be 150mm. Where the underlay is supported this may be reduced to 100mm.

Ensure that the underlay does not tear or rip and that no gaps occur

at the laps. Any torn underlay should be replaced before tiling commences.

Underlay shall be fixed using 3.35mm diameter 20mm long extra-large felt nails manufactured in copper or galvanised steel.

The underlay shall be fixed in such a manner that it cannot touch the underside of the tiles even if subjected to wind pressure from below.

20.4.2 Battens

All battens shall be free from knots and decay. Where battens are cut the cut ends shall be treated with a brush applied compatible preservative. Size of battens should be as described in BS 5534 "Code of Practice for Slating and Tiling" unless larger dimensions are specified. For buildings with a ridge height less than 7.2mm above ground level battens shall be nailed using 3.35mm diameter 65mm length smooth round or ring shank galvanised steel nails to BS 5534.

At hips and valleys battens should be treated to allow a board 225mm wide to be installed to permit fixing of cut tiles.

Battens shall be set out to ensure that battens are at 90 deg. to the direction of water runoff.

Battens shall be set out such that joints do not occur on the same rafter within 4 rows of battens and that within the zone joints do not occur on adjoining rafters.

All joints shall be centred over rafters and fully supported by and nailed to the rafter.

All structure shall be checked for line prior to commencing felting and battening and any discrepancies reported to the Architect.

20.4.3 Cutting

No tile shall be cut to less than 2/3rds of its original width. Where

details would require smaller cut 'tile and a half' shall be used.

20.5 TILING

20.5.1 Lowest course tiling have an under eaves course which should be head nailed. Both under eaves course and first full course of tile should overhang the eaves by 50mm and should align to form a neat straight edge.

20.5.2 Remaining courses should be twice nailed every tile except top row and so that the tails of all courses are parallel and are finished in clean straight lines.

20.5.3 All tiles shall be laid half bond.

20.5.4 Verges should be finished with alternating tile and tile and a half courses.

20.5.5 Verges should not overhang their support by more than 50mm. Underlay should be well lapped and laid beneath under cloak tiles. Under cloak tiles should be bedded in mortar stuck to the line of the wall.

20.5.6 Point up in 1:1:6 mortar all verges.

20.5.7 Clay ridge tiles are to be match existing bedded in mortar and struck off as work progresses. Fill ends of ridges with tile slips and point up in coloured mortar.

20.5.8 Ridge tiles should also be mechanically fixed in accordance with BS 5534. Top course of tiles shall all be twice nailed on every tile.

20.5.9 Hips shall be clay hip tiles to match existing. A hip iron to BS 5534 should be fixed at the base of the hip with 12 gauge galvanised screws.

20.5.10 Install additional piece of underlay 600mm wide overlapping the normal underlay and over the hip rafter.

20.5.11 Hip tiles are to be bedded in mortar and secured in accordance with BS 5534. Mortar shall be struck off as work proceeds.

20.5.12 Any fixings in hip and ridge riles are to be sealed with mastic.

20.5.13 All joints in hip tiles shall fit closely and be pointed up. Exposed end of hip shall be filled with tile slips and pointed in mortar.