

**Epworth Old Rectory
Lincolnshire**

**Preliminaries, Specification
Schedule Of Work
for
External Fabric Repairs**

March 2012

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1.0 **PRELIMINARIES**

1.1 **Names and Addresses**

- Employer:** The Trustees of Epworth Old Rectory
c/o The Rev. Dr. Claire Potter,
Development Manager,
Epworth Old Rectory,
1, Rectory Street,
Epworth,
North Lincolnshire, DN9 1HX
- Tel: 01427 872268
Email: curator@epwortholdrectory.org.uk
- Architect:** Rodney Melville & Partners Ltd,
10 Euston Place,
Leamington Spa,
Warwickshire.
CV32 4U
- Tel: 01926 881311
Fax: 01926 451766
- Contact: Stephen Oliver 07764 408881
stephen.oliver@rmpuk.com
- CDM Co-ordinator:** To be appointed

1.2 **Description of the Site**

- 1.2.1 **Location of the site:** Epworth Old Rectory is located off Rectory Street in Epworth, North Lincolnshire. It is signposted through the town.
- 1.2.2 **Access to the Site:** Vehicular access is available from Rectory Street.
- 1.2.3 **Site Visit:** The Contractor is recommended to visit the site before tendering and ascertain all local conditions and restrictions likely to affect the execution of the works. No claims arising from failure to do so will be considered.
- 1.2.4 **Keys can be obtained:** From Claire Potter, curator. Tel: 01427 872268.

1.3 **Description of Work**

1.3.1 **The works comprise External Fabric Repairs to:**

- Chimneys
- Roof Coverings
- Rainwater Disposal Goods
- External Walls
- Windows and Doors

1.4 **Drawings**

1.4.1 Refer to Schedule of Works Item 1.2.1 for drawings provided for tendering purposes.

1.5 **Pricing**

1.5.1 Fixed price tenders are to be submitted to the Architect on the attached 'Form of Tender'

1.5.2 Tenders are to be an all-inclusive price, based on the contract documents, including for all management costs; all preliminaries necessary to enable the proper and complete execution of the works; all temporary works including adapting and maintaining as necessary and cleaning away and making good.

1.5.3 Tendering procedure will be in accordance with the NJCC Code of Procedure for single-stage selective tendering.

1.5.4 The tender shall remain open for consideration for four weeks from the date fixed for the submission of tenders.

1.5.5 **The Architect is to be provided with a priced copy of the Schedule of Work at the time of tender, monied out in accordance with the tender submitted.** Costs relating to items which are not priced will be deemed to have been included elsewhere. Note that the Schedule of Work cross refers to drawings. Information on the drawings may be repeated in the Schedule of Work for pricing against.

1.5.6 Alterations and/or qualifications to the Schedule of Work must not be made without the written consent of the Architect. Tenders containing such alterations or qualifications may be rejected.

1.5.7 The tendering contractor is to check the tender documents on receipt for any discrepancies. Any queries arising during the tender period are to be raised promptly with the Architect in writing.

1.5.8 The Employer is not bound to accept the lowest or any tender and shall not be responsible for any costs incurred in the preparation of the tender.

2.0 **FORM OF CONTRACT**

2.1.1 The Form of Contract will be the Minor Works Building Contract 2011 (including all current amendments) issued by the Joint Contracts Tribunal. Clauses are to be amended as follows:

1st Recital: "External Fabric Repairs at Epworth Old Rectory, Lincolnshire".

2nd Recital: Drawings to be as listed in the Preliminaries.

3rd Recital: Delete, "Schedule of Rates".

Article 2: Contract sum to be entered.

Article 3: Insert "Rodney Melville & Partners".

Article 4: CDM Co-ordinator's name to be inserted.

Article 5: Main contractor's name to be entered.

Article 7: Arbitration to apply.

Contract Particulars.

4th Recital: Base Date: 7 days prior to tender return date.

4th Recital: CIS Scheme: The Employer is not a 'contractor'.

5th Recital: The project is notifiable.

6th Recital: Framework Agreement: Not applicable.

7th Recital: Supplementary Provisions: All apply.

7th Recital: Paragraph 6 nominees: To be completed.

Article 7: Arbitration: Article 7 and Schedule 1 apply.

1.1 CDM Planning Period: 14 days pending on the Date for Commencement

2.2: Date for commencement of works – to be agreed.
Date for completion – to be agreed.
The works are planned to take place during the summer of 2012.

2.8: Liquidated damages: at the rate of £750 per week.

2.10: Rectification period, to be 12 months.

4.3: Percentage to be 95%.

4.5: Percentage to be 97½%.

4.8.1: Period to be 3 months.

4.11 and Schedule 2 Contribution, levy and tax charges does not apply. Percentage not applicable.

5.3.2 Contractor's insurance, to be £5,000,000 (three million).

5.4A, B, C Insurance of the works: Clause 5.4B applies.

5.4B.1.2 Percentage to cover professional fees, to be 15%

7.2 Adjudication, delete all but "Royal Institute of British Architects".

Schedule 1 Arbitration, delete all but "Royal Institute of British Architects".

EXECUTION: the Contract will be executed under hand.

FIRM PRICE: the Contract will be completely firm price.

3.0 **GENERAL CONDITIONS AND OBLIGATIONS**

3.1 **Statutory Obligations:** Comply with statutory obligations and the regulations of any Local Authority, Public Service or Statutory Undertaker relating to the execution of the Works. Liaise with Local Authorities and all others concerned with the works.

3.2 **Notices, Fees and Charges:** Give all notices and pay all fees and charges required by any Local Authority, Public Service or Statutory Undertaker.

3.3 **Police:** Liaise with the Local Police regarding security during execution of the works.

3.4 **Security:** Keep the site secure at all times and prevent trespass. Do not trespass on adjacent property. Ensure that the security of adjacent property is not lessened by the works activities.

3.5 **Safety, Health and Welfare:** Comply with enactments, regulations and working rules relating to safety, health and welfare of work people.

3.6 **Use of Site:** Do not use the site for any purpose other than carrying out the Works.

3.7 **Advertising:** Do not display or permit advertising to be displayed on the site without consent of Architect.

3.8 **National Insurance Acts:** The Contractor shall allow for all payments to be made arising under the National Insurance Acts, and any contributions under the Redundancy Payments Scheme.

3.9 **Working Rules:** The Contractor is to make due allowance in his tender for all recognized payments to workmen under the National and Local Working Rules for the Building Industry including travelling time, guaranteed time, holidays with pay, subsistence and other allowances to imported labour and tool money.

3.10 **Overtime:** Provide for any overtime working that may be necessary to complete the Works. If overtime working is required for any other reason then written authority must first be obtained from the Architect and the method of reimbursement of the additional cost thereof agreed with the Architect before such overtime is worked.

3.11 **Antiquities:** The Contractor shall carefully take out and preserve for the use of the Employer all fossils, antiquities and other objects of interest and value which may be found during the progress of the works and shall immediately or as soon as conveniently may be after the discovery of such articles deliver the same into the possession of the Architect, uncleaned and as excavated.

3.12 **Noise Control:** Comply with statutory requirements relating to control of noise levels on site. Comply with BS5228 noise control on construction and open sites. No radios, personal stereos or the like are allowed on site.

3.13 **Fire Precautions:** Take all reasonable precautions to prevent loss or damage from fire. The contractor is to notify the Fire Brigade of the start of works, as well as on any day hot works are undertaken. No smoking is allowed on site or within the building. **Hot work is NOT allowed unless unavoidable.**

3.14 **Nuisance:** Take all necessary precautions to prevent nuisance from water, smoke, dust, rubbish and other causes.

3.15 **Public and Private Services:** Protect, uphold and maintain all services. Do not interfere with their operation without consent of the service authorities, or private owners or the Architect, as appropriate. If any interference occurs:-

1. Notify the Architect and appropriate service authority.
2. Make arrangements for the work to be made good without delay to the satisfaction of the service authorities or private owners as appropriate.

4.0 PROTECTION

4.1 **Generally:** Protect the works from any form of damage or deterioration due to weather, site activity or other causes. Prevent damage to existing buildings, contents, fences, gates, walls, roads, paved areas, graves, and other site features which are to remain in position during the execution of the works.

4.2 **Maintenance of Roads:** Keep approaches to the site clear of mud and debris.

4.3 **Trees and Shrubs:** Protect and preserve all trees and shrubs.

4.4 **Adjoining Property:** Take all reasonable precautions to prevent damage to public highways and to adjoining property.

4.5 **Pumping and Baling:** Allow for keeping any excavations and the Works free from water by pumping or other means as required.

5.0 GENERAL INSTRUCTIONS

5.1 **BSI Documents:** Reference to British Standards and Codes of Practice do not necessarily give year of issue or dates of amendment slips. The published version current at the date of the contract will apply.

5.2 **Manufacturer's Recommendations:** Means the manufacturer's recommendations or instructions, printed or in writing and current at the date of tender.

6.0 INSURANCES

6.1 The insurances referred to in the contract documents must be maintained in full force for the total duration of the Contract.

6.2 The policies of insurance must bear an endorsement indemnifying the Employer in like manner to the Contractor. If the Contractor's policies already bear a General Principals Endorsement automatically providing such indemnity to each and every Employer for whom

the Contractor works, such endorsement will be accepted as due compliance with this requirement but otherwise a specific endorsement must be provided.

7.0 PROGRESS

7.1 **Programme:** Prepare in an approved form (bar chart format) a programme chart for the Works, including the work of nominated sub-contractors and other work concurrent with the contract. The programme is to separately itemize different areas of work or trades. The Architect is to be advised in advance of all critical dates with regard to opening up for inspection, information required, covering up work and the like. Where opening up is required due allowance is to be made for inspection by relevant consultants, formulation of design solutions and instruction. Where samples are to be submitted, due allowance is to be made for inspection by the Architect and submission of further samples if necessary.

7.2 **Submission:** Of programmes will not relieve the Contractor of his obligations to apply in writing for instructions as required by the conditions of the contract.

7.3 **Receipt:** Of programmes by the Architect will neither affect the contract completion date nor relieve the Contractor of his responsibility to complete the Works by this date.

7.4 **Monitoring:** Record progress on a copy of the chart kept on site. Update or re-draft if any circumstances arise which affect the progress of the Works and submit copies of all revisions to Architect.

8.0 DAYWORKS

8.1 No work will be executed on a daywork basis without the prior approval of the Architect.

9.0 TEMPORARY WORKS AND SERVICES

9.1 **Roads:** Provide as necessary all temporary roads, tracks, crossings and hard-standing required for your own use.

9.2 **Buildings:** Provide as necessary all temporary sheds, offices, messrooms, sanitary accommodation and other temporary buildings required for your own use. The location of any such buildings is to be agreed with the Employer prior to erection. Site meetings with the Client and Architect will be held in the Old Rectory.

9.3 **Hoardings:** Provide all hoardings, barriers, covers and the like necessary for safety and weather protection.

9.4 **Water:** A water supply is available on site and will be made available for the use of the contractor. The contractor will be responsible for connecting to the supply. Provide all storage facilities and distribution as required.

9.5 **Water Disposal:** The contractor is to provide adequate means for water disposal to ensure that the works or existing fabric are not affected by water ingress.

9.6 **Lighting and Power:** A power supply is located in the building and will be made available for the contractor's use. The Contractor will be responsible for connecting to the supply. Provide

all equipment for lighting and power for the Works and make temporary arrangements for distributing about the site. Provide lighting for any temporary hoardings and the like.

- 9.7 **Telephone:** Provide for telephone communication on the site. A mobile telephone will be deemed acceptable.
- 9.8 **Lavatories:** One of the existing WCs will be made available for the contractor's use, on condition that it is well maintained.
- 9.9 **Parking:** There is a small car park adjacent to the Refectory, but parking spaces are limited and will need to be shared with staff and visitors. On street parking is available in front of the Old Rectory on condition that the neighbours are treated with respect.
- 9.10 **Deliveries:** The Contractor is to ascertain and implement the Local Authority's requirements for the control of site deliveries and vehicles given the parking restrictions outlined above. Deliveries can be made via the gates adjacent to the Refectory but parking of vehicles here is not permitted. Note that staff and visitors (ie. pedestrians) will be moving here and so vehicle movements on site will need to be carefully controlled.
- 10.0 **LABOUR/PLANT**
- 10.1 **Plant Costs:** Provide all plant, tools, temporary equipment, scaffolding and vehicles necessary for the execution of the works.
- 11.0 **SAMPLES AND APPROVAL**
- 11.1 **Samples**
- 11.1.1 Where approval of products or materials is specified submit samples or other evidence of suitability. Do not confirm orders or use materials until approval has been obtained. Retain approved samples on site for comparison with products and materials used in the Works. Remove when no longer required.
- 11.1.2 Where samples of finished work are specified obtain approval of stated characteristic(s) before proceeding with the Works. Retain approved samples on site for comparison with the Works. Remove samples which are not part of the finished Works when no longer required.
- 11.1.3 Where samples of materials or finishes are specified these are to be provided by the Contractor, for inspection by the Architect, at the earliest time possible after the contract has been let. Claims arising from failure to submit samples in good time will not be considered.
- 11.1.4 If samples of materials or finishes for inspection by the Architect are not approved in respect of the specification requirements then further samples are to be provided by the Contractor as necessary.
- 11.2 **Approval**
- 11.2.1 **Approval:** (and words derived therefrom) means the approval in writing of the Architect unless specified otherwise.

11.2.2 Where and to the extent that products, materials or work are specified to be approved or the Architect instructs or requires that they are to be approved, the same must be supplied and executed to comply with all other specification requirements and, in respect of the stated or implied characteristics be either:

- a) to the express approval of the Architect, or
 - b) to match a sample expressly approved by the Architect as a standard for the purpose.
- 11.2.3 Inspection or any other action by the Architect must not be taken as approval of materials, products or work unless the Architect so confirms in writing in express terms referring to:-

- a) Date of inspection.
- b) Part of the work inspected.
- c) Respects or characteristics which are approved.
- d) Extent and purpose of the approval.
- e) Any associated conditions.

12.0 **CONSTRUCTION (DESIGN & MANAGEMENT) REGULATIONS**

12.1 The Construction (Design and Management) Regulations 2007, will apply to this contract in full.

12.2 The Principal Contractor is to allow in his cost for complying with the requirements of the Regulations, his key duties being as follows:-

1. Arrange for competent and adequately resourced contractors to carry out the work where it is sub-contracted.
2. Ensure the co-ordination and co-operation of contractors.
3. Obtain from contractors the main findings of their Risk Assessments and details of how they intend to carry out high risk operations.
4. Ensure that contractors have information about risks on site.
5. Ensure that workers on site have been given adequate training.
6. Monitor Health and Safety performance.
7. Ensure that all workers are properly informed and consulted.
8. Make sure only authorised people are allowed on to site.

12.3 Inform the Architect in advance of all safety provisions and procedures (including those relating to materials which may be deleterious) which will require the compliance of the Employer or his representatives when visiting the site. Provide protective clothing and/or equipment for the Employer and his representatives as appropriate.

BRICKWORK**1.0 SECOND HAND OR NEW BROUGHT-IN BRICKS**

1.1 Shall conform to BS EN 771-1 2007 and are to be suitable in quality compatible with their use, i.e. Special Quality.

1.2 In respect of size, new and second hand brought-in bricks are to match the size of existing bricks. Sample bricks are to be provided for the Architect's approval. Attention is drawn to clause 12.5 of BS 3921 Summary (1975) of BS 3921:1974 which states that "the best evidence of ability to withstand frost damage is provided by brick which has been in service for some years". In general, second hand brought-in bricks are to be proven suitable for their proposed use and it is the Contractor's responsibility to ensure their suitability. The Architect will approve only the colour and texture of brought-in bricks.

2.0 SAND AND WATER

2.1 The sand shall be clean, sharp and coarse and of the correct colour and texture so that the new mortar, when dried out, will match the original colour and texture of the existing mortar. Aggregate size is to match as closely as possible the existing mortar sample to be matched subject to the width of the joint as detailed in the mortar and pointing specification. Sand to comply with BS EN 13139:2002.

2.2 Water to be clean and free from harmful matter in such quantities as would adversely affect the properties of the mortar. Test as directed any water not obtained from the mains.

3.0 LIME

3.1 Building limes shall be as specified in the Mortar and Pointing specification attached.

3.2 Lime putty is to be prepared by the traditional method of slaking lump lime.

4.0 CEMENT

4.1 Cement (OPC) is not permitted on site.

5.0 LIME PUTTY

5.1 Lump non-hydraulic lime shall be properly slaked, run to putty and matured for not less than three months.

5.2 Pre-prepared lime putty may be supplied from an approved source first agreed with the Architect.

6.0 COARSE STUFF

6.1 Lime and sand coarse stuff is to be prepared by mixing sand with the lime putty in the proportion of 3:1 or as instructed by the Architect with only sufficient water to make it workable. This should be left to stand for at least 14 days and preferably longer and is to be kept covered with damp sacking or polythene sheeting to prevent drying out.

BRICKWORK**7.0 SLATE DAMP-PROOF COURSE**

7.1 Shall conform to BS 743. Where directed lay two courses of slate horizontally to break joint, each fully bedded in mortar. Complete joint thickness between bricks is not to be more than 40mm.

8.0 PLASTICIZERS

8.1 Plasticizers or other additives are not to be used.

9.0 WORKMANSHIP

9.1 Shall be in accordance with BS 5628 Code of Practice for use of masonry Part 3:2005 "Materials and components, design and workmanship, Brick and block masonry".

10.0 HANDLING

10.1 Unload and handle bricks with care and reject those soiled, chipped or otherwise damaged. Unload and handle packaged bricks with proper mechanical plant where appropriate.

11.0 DRY WEATHER

11.1 Wet clay bricks the minimum necessary to prevent mortar drying out prematurely. Any fractures to pointing due to premature drying and shrinking are to be cut out and remade.

12.0 WET WEATHER

12.1 Protect freshly laid brickwork/blockwork during interruption through rain and at the completion of each day's work.

13.0 COLD WEATHER

13.1 Maximum and minimum thermometers are to be kept on site in winter and temperature records kept daily. No bricklaying is to be carried out where the new work will be exposed to frost or freezing conditions. No work is to be carried out when temperatures drop to 5°C and are falling. Work may recommence when temperatures increase to 3°C and are rising.

14.0 FROGS

14.1 In all loadbearing walls lay single frog bricks with frog uppermost and fill all frogs with mortar.

15.0 EXISTING WORK

15.1 Ensure all brought in bricks are the same dimension as the original and arrange courses to line up with existing work. Lay bricks on a full bed of mortar and fill all joints. Make bed and vertical joints of equal and consistent thickness to match the original. Where variations in the existing bond or dimensions occur inform the Architect before proceeding with repairs to this area.

BRICKWORK**16.0 BRICKWORK TO BE PLASTERED**

16.1 Rake out mortar joints to a minimum depth of 13mm as key for plaster or render coatings.

17.0 BOND

17.1 Where repairs are carried out by partial rebuilding, the bond is to match the existing bond of the wall to be repaired. In the absence of specific instructions build brickwork one brick thick and over in English bond and half brick walls including half brick leaves of cavity walls in stretcher bond.

18.0 BONDING

18.1 Lay bricks throughout the work with the cross joints in any course not less than a quarter of a brick from those in the course below. If headers insufficient in frequency to ensure adequate bonding build in stainless steel wall ties at frequencies to be agreed to improve wall bond.

19.0 JOINTS

19.1 Joints which are not to be visible in the finished work to be struck off with the trowel as the work proceeds.

20.0 MORTAR MIX

20.1 Where sound existing old pointing survives in good condition, the Architect will mark a section which is to be matched in respect of colour, texture and strength.

20.2 The mortar should be a little softer and more porous than the bricks themselves. It should match the original as closely as possible as approved by the Architect after careful preparation and submission of samples..

20.3 A trial area of pointing is to be executed for approval by the Architect in mortar as instructed.

21.0 POINTING

21.1 Fill joints solidly with approved mix finishing flush or very slightly back from face of brickwork in accordance with a sample panel to be approved by the Architect.

21.2 The pointing method should follow the original unless exceptionally poor workmanship is evident. A struck joint is to be avoided.

21.3 The joint should be finished by lightly trowelling it and, after the initial set has taken place, stippling a stiffish natural bristle brush over the mortar to expose the sand grains.

21.4 In dry weather the new pointing should be kept moist for a minimum of 28 days (but not wet) to ensure the set takes place slowly.

21.5 Any slight fractures due to shrinkage must be cut out and remade.

21.6 Any mortar which gets on to the face of the bricks must be completely removed before the mortar hardens.

CAST IRON RAINWATER GOODS**1.0 OVERHAUL AND REPAIR OF EXISTING RAINWATER GOODS**

- 1.1 Carefully remove existing gutters and downpipes, where instructed, retaining all components including original fixings, derust, set aside, protect and store for reuse in their original positions.
- 1.2 Make temporary arrangements to prevent rainwater discharging from the roof onto the building fabric. Connect temporary downpipes to gutter outlets where downpipes are removed for repair and discharge rainwater to an appropriate drainage point. Provide temporary gutters when gutters are removed for repair.
- 1.3 Repair or replace defective rainwater goods where cracked, heavily corroded or missing and similarly repair or replace fixings to match original. All repair materials are to match the original like for like unless otherwise instructed. Allow for stainless steel fixings where concealed within the building fabric. Prepare all ironwork by cleaning and wire brushing to remove all rust, treating against rust and redecorating.
- 1.4 Where instructed to do so, replace rainwater goods with similar to match original in all respects with particular attention to profiles and details. The Contractor is to ensure that discarded cast iron is sent for recycling.

2.0 PIPES AND FITTINGS**2.1 Spigot and Socket Pipes and Fittings**

- a) Down pipes and fittings are to be to BS 460:2002 and to match original. Pipes which are found to be defective and cannot be repaired after taking down, inspecting, cleaning and testing; are to be replaced.

Manufacturers: J & JW Longbottom Ltd. or similar approved.

- b) **Socket Type:** to match original in all respects.
- c) **Coating:** as BS 416-1:1990

2.2 Couplings and Adaptors

- a) **Exposed Pipework:** Only traditional cast iron joining methods, matching the original, for exposed pipes above ground and gutters to be used.
- b) **Concealed or Below Ground Pipework:** Type to match original and recommended by the manufacture of the pipe.

3.0 ACCESSORIES

- 3.1 **Concealed Pipe Sleeves:** Stainless steel, grade as specified.
- 3.2 **Fire Stopping:** Material – intumescent mastic.

CAST IRON RAINWATER GOODS**4.0 GUTTERS/GUTTER JOINTING MATERIALS AND FIXINGS**

4.1 **Cast Iron Gutters, Fittings and Accessories:** To BS 460:2002. Profile to match original. Samples of proposed matching profiles to be submitted for approval prior to ordering.

4.2 **Brackets for Cast Iron Gutters:** To be fitted as required BS 460:2002.

a) Material: Cast iron.

b) Profile: To suit gutter.

4.3 **Nuts and Bolts:** Galvanized mild steel or stainless steel to BS 3692:2001.

4.4 **Metal Washers:** Galvanized mild steel or stainless steel to BS 4320:1968.

5.0 HANDLING AND STORAGE OF MATERIALS

5.1 **Pipes, Gutters and Fittings:** Store under cover and clear of the ground. Stack pipes and gutters on level surface. Do not rest pipes on their sockets. Securely stake end pipes in bottom row to prevent collapse of stack.

5.2 **Pre-Packed Pipe Bundles:** Do not open until required for use.

6.0 INSPECTION BEFORE FIXING

6.1 **Inspection:** Inspect all pipes, gutters and fittings before fixing. Reject any which are defective.

6.2 **Damaged Coatings:** Make good damage to coatings, recoat or replace as instructed by the Architect.

7.0 PREPARATION BEFORE FIXING

7.1 **Cutting Pipes and Gutters:** Cut clean and square with equipment appropriate to the material. Remove burrs. All cut ends shall be made good/re-coated strictly in accordance with manufacturer's recommendations.

8.0 INSTALLATION AND FIXING

8.1 **British Standard:** Comply with BS EN 12056-3:2000, BS 8000-13:1989 and BS EN 12056-2:2000.

8.2 **Gradients and Heights:** Fix pipes and gutters to gradients and heights shown on drawings. See also 7.10 'Fall of Gutters'.

8.3 **Wall Spacer Plates:** Where the pipe is required to be projected from the wall, cast iron wall spacer plates shall be used.

8.4 **Fixing Ears:** Overhaul and redecorate fixing ears prior to refixing. Report to the Architect those which are found to be defective and cannot be repaired. New ears are to match the original in style and in every other respect. New ears and similar components are not to be ordered until a sample has been approved by the Architect.

CAST IRON RAINWATER GOODS

- 8.5 **Bends and Branches:** Do not use lobster back or mitre joint bends and branches. Curve branches in the direction of flow at connections.
- 8.6 **Branch Connections:** Make provision in the fixing of branch pipes to main vertical stacks to prevent shearing or deformation due to vertical movement.
- 8.7 **Access Points for Cleaning:** Fit all access covers and cleaning eyes as the work proceeds. In restricted access situations, locate to allow use of cleansing and testing apparatus. Locate to allow working space for other services in shared ducts.
- 8.8 **Protection of Unsleeved Pipes:** Wrap all unsleeved pipes passing through walls or slabs with protective bandage.
- 8.9 **Fire Stopping:** Insert around pipes penetrating cavity barriers, compartment walls and floors, ducts and other voids as shown on project drawings.
- 8.10 **Fall of Gutters:** Gutters to be installed with falls to the outlet unless originally designed to be level. Where gutters are set to a fall, the falls to be no less than 10mm in 350mm unless instructed otherwise. Under no circumstance is there to be any back fall.
- 8.11 **Gutter Joints:** Overlap in direction of flow.
- 8.12 **Gutter Supports:** Fix gutter brackets at not less than 1500mm centres screwed to structure, subject to matching original. Where brackets are not used fix gutter at manufacturer's recommended spacing or using preformed holes but at no more than 1000mm centres.
- 8.13 **Rainwater Outlets and Hoppers:** Overhaul and redecorate outlets and hoppers. Report to the Architect those which are found to be defective and cannot be repaired after taking down, cleaning, testing and inspection. New hoppers are to match the original in style and in every other respect, subject to approval.
- 9.0 **JOINTING EXTERNAL RAINWATER PIPEWORK**
- 9.1 **Cast Iron Spigot and Socket Pipes:** All rainwater downpipe are to be open jointed and lead wedged, unless instructed otherwise.
- 10.0 **JOINTING GUTTERS**
- 10.1 **Cast Iron Gutters:** Joint with manufacturer's recommended jointing materials and bolt together.
- 10.2 **Jointing to Existing Gutters:** Joint using fittings compatible with new and existing gutters. Leave joint in a watertight condition.
- 11.0 **ELECTRICAL BONDING**
- 11.1 **Electrical Bonding:** Ensure continuity in accordance with IEE Regulations before cutting into existing pipework.

CAST IRON RAINWATER GOODS**12.0 TESTING RAINWATER DISPOSAL SYSTEMS**

12.1 **Notice to Architect:** Inform the Architect to give him adequate opportunity to observe the interim and final tests.

12.2 **Notice to Statutory Authority:** Inform the Architect and give reasonable notice to appropriate Statutory Authority to enable observation of interim and final testing where required.

12.3 **Acceptance of Statutory Tests:** Provided that the statutory tests are of at least as high a standard as the tests described in this specification, the Architect may agree, in writing, to accept such tests in fulfillment of some or all of the tests specified.

12.4 **Facilities and Equipment:** Provide assistance, clean water and equipment, appliances and materials for interim testing throughout the progress of the work and for final test. Fix tee-pieces and plugs when and where required and seal off and remove as directed by the Architect.

12.5 **Records:** Keep records of all tests and supply a copy of each to the Architect.

12.6 Timing:

- a) Start testing after cement joints have set and other joints have been made.
- b) Commence interim testing as soon as practicable after completion of each pipe stack.
- c) Test work to be concealed to the satisfaction of the Architect before finally enclosing.
- d) Carry out final test after completion of all contract work and immediately prior to hand over to the Client.

12.7 **Removal of Obstructions:** Ensure that sections of the installation to be tested are completely clear of obstructions, debris and superfluous matter.

12.8 **Internal Systems:** Air test as follows:-

- a) Close ends of pipework to be tested with test plugs or bags as appropriate.
- b) Seal plugs in vertical pipework with mortar.
- c) Fit one test plug with tee-piece having a cock on each branch.
- d) Connect one branch of tee-piece to a manometer using a suitable flexible tube.
- e) Introduce air through the other branch of the tee-piece until a pressure equal to 38mm water gauge registers on the manometer scale.
- f) Maintain pressure for not less than 30 minutes without introducing further air.

12.9 **External Systems:** Test with water to satisfy the Architect that gutters are laid to the correct falls, drain effectively and that pipes and gutters are unobstructed.

CAST IRON RAINWATER GOODS

12.10 **Pre-Fabricated Units:** Ensure tests are carried out at manufacturer's works or place of fabrication.

12.11 **Defects:** Locate and remedy all defects and satisfactorily re-test as instructed before proceeding with further installation.

13.0 **DECORATION**

13.1 **Paint System:** A 4 coat system is the absolute minimum protection for an external pipework and rainwater goods, i.e. 1 primer, 1 undercoat and 2 gloss coats, (or 2 undercoats and 1 gloss coat) giving a minimum coating of 90 microns.

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CLAY TILING

- 1.0 **GENERAL:** Materials and workmanship shall be in accordance with the recommendations of BS EN 1304:2005 (clay roofing tiles and fittings), BS 5534:2003+A1:2011 (Code of Practice for slating and tiling) and BS 8000 Pt 6:1990.
- 2.0 **REPAIR OF EXISTING ROOFS:** Where the work involves repairing an existing roof it should be noted that the aim is not to renew or straighten old and crooked structure but, to set the roof in sound and healthy repair. Repairs to existing timber structure are to be as specified elsewhere.
- 3.0 **MATERIALS:**
- 3.1 **Clay Tiles** are to be new items as the sample approved by the Architect and in compliance with the requirements of BS EN 1304:2005. If so instructed by the Architect sound existing items may be reused, such items shall be free from cracks and fissures; cleaned of all lichen and moss growth; and be generally sound and suitable for their purpose. Only if specifically instructed by the Architect are second hand, brought in items to be used.
- 3.2 **Nails:** for fixing tiles are to be copper (to BS 1202 Pt 2) or if specifically instructed by the Architect, stainless steel. Nails for fixing battens are to be stainless steel of appropriate length and gauge.
- 3.3 **Underlay:** The underslating membrane is to be an untearable and breather type (Protect VP 400 by Glidevale Ltd. or similar approved). Laid in accordance with manufacturer's recommendations with minimum vertical lap of 150mm and with a horizontal lap of two rafters spacing widths, with an additional layer, not less than 600mm wide over the valleys, hips and ridge formation. The underlay should be allowed to sag slightly between rafters in order to prevent a build up of water behind the battens.
- 3.4 **Battens and Counter Battens:** to be sawn softwood and to be pressure impregnated with 'Tanalith E', Cacsol or similar approved preservative. Battens are to be free from any splits and shakes; wain permissible on one arris only, to be no more than one third width of any sound surface of occupance; moisture content to be below 20% at time of fixing. Battens are to be minimum sizes 25mm x 38mm for up to 450mm rafter (or counter batten) spacing and 50x25mm for up to 600mm rafter (or counter batten) spacing or as specified.
- 4.0 **WORKMANSHIP**
- 4.1 Tiles are to be laid to a batten gauge and lap in accordance with the manufacturer's recommendations. For traditional Common Old English Pantiles, a head lap of 75-100mm, and a side lap of 38-50mm is required, with tiles laid with closely abutting shouldering to best practice.
- 4.2 Tiles are to be nailed at every third course and:-
- the top two courses; complete.
 - at eaves; the double eaves course, including the short under eaves course.
 - at the end of each course; adjacent to abutments and verges.
 - at hips; all hip tiles, together with the two adjacent tiles.
 - at valleys; tiles adjacent to the purpose made valley tiles or lead lined valleys.
- 4.3 Where sound existing or second hand tiles are to be used, a sufficient number are to be predrilled for nailing to provide nailed courses every third course, in addition to the special situations outlined above. The Contractor is to allow for wastage in pre-drilling. Introduced nail holes are to be at least 25mm from each edge of the tile.

CLAY TILING

- 4.4 **Eaves Tiling:** is to have a proper under tile course of plain clay handmade tiles and is to be laid to match the existing detail, unless otherwise instructed by the Architect. Should any existing or new eaves gutter be provided, the eaves course should overhang by 38mm to 50mm.
- 4.5 **Verge Tiling:** is to be laid so as to prevent dripping of run off water, with tiles laid to match existing detail, unless otherwise instructed by the Architect. Generally form an under cloak of plain tiles bedded in mortar, with verge tiles similarly bedded on under cloak and pointed up with lime mortar (to specification). The mortar is to be lightly brushed over before completely curing to remove excessive latience and exposed sand grains. Tile bonding shall be carried out in `tile and a half` tiles, with now allowance for cut tiles. All tile edges are to be kept clean.
- 4.6 **Ridge Tiles:** shall be carefully bedded onto the top course and fully bedded at joints, in lime mortar (to specification). All joints shall be pointed in mortar with a neat brushed joint. Open ends and hollows of pantiles shall be filled with tile chips bedded in mortar, with exposed tile edges left clean.
- 4.7 **Hips:** shall be covered with bonnet hip tiles, to the Architect's approval, bedded in lime mortar and pointed with a neat joint cut back 12mm. Hip tiles are to course and bond with the general roof tiling, and all visible edges shall be left clean.
- 4.8 **Valleys:** shall be formed from purpose made valley tiles of the correct pitch and length, to the Architect's approval, to be laid dry and to course and bond with the general roof tiling.
- 4.9 **Lead Pitched Valleys:** shall be laid to match the existing detail if so approved by the Architect. Valleys shall be formed from 25x250mm sawn softwood boards (SC3 grade) and finished in Code 6 lead laid in accordance with the specification.
- 4.10 **Pointing:** to ridges and verges shall be in a 1(cement):1(lime):6(sand), to Architect's approval, using a fine aggregate. The Architect will direct what colour of dried mortar is to be achieved using the correct colour of sand. A sample of pointing is to be provided for the Architect's approval prior to undertaking any associated works. No chemical colouring agents are to be used.
- 4.11 **Lead Flashings:** shall be laid strictly in accordance with the specification and details:-
- a) All cover flashing unless otherwise specified shall be Code 5 lead, all soakers unless otherwise specified shall be Code 4 lead.
 - b) Apron flashings at hips, ridges, and valleys shall be lapped by a minimum of 150mm. Cover flashing shall be lapped by a minimum of 100mm.
 - c) Lead finish to gutters and valleys shall be dressed by a minimum of 150mm (vertically) up roof slope, over tilting fillet and under tiles, finished in a welted edge.
 - d) Welt back edge of lead aprons under asphalt to provide a key for the asphalt finish.
 - e) Turn top edges of cover flashing 25mm into joint of brick, block or stonework. Provide a welted edge finish and fix securely with lead wedges, pointing in lime mortar (to specification) when complete. Dress bottom edge down to lower edge of angled fillets at vertical abutments.

JOINERY REPAIRS**1.0 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.

2.0 SOFTWOOD FOR JOINERY

Is to comply with BS 1186:2002:Part 1 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:

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

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

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

3.0 HARDWOODS FOR JOINERY REPAIRS

3.1 To be of same species as existing work to be repaired and carefully selected to match grain size, direction and general characteristics.

3.2 Oak for joinery repairs to be European White Oak or American white oak of a general quality not less than that permitted in BS 1186 2002 Part 1

3.3 Frequency of knots and grain size and direction to be selected to match existing work where appropriate.

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

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

4.0 SUSTAINABLY MANAGED TIMBER

4.1 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.

JOINERY REPAIRS**5.0 PRESERVATIVE TREATMENT FOR JOINERY TIMBER**

5.1 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. See section on *Carpentry Repairs – Environmentally Friendly Version* for specification. The preservative and method of treatment to be as specified. Design of external joinery to eliminate/minimise exposed end grain. 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.

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

5.3 **Preservative Treatment Certificate:** provide the Architect with the certificate accompanying each consignment to site.

6.0 MATERIALS

6.1 **Plywood:** To BS 6556:1985 to be birch faced of thickness and bonding as specified. WBP ply is to be used in external situations.

6.2 **Blockboard and Laminboard:** To BS 3444:1972, thickness veneers bonding and number of plies as specified.

6.3 **Nails and Screws:** Nails to BS 1202:2002:Part 1 and screws to BS 1210:1963 each of suitable size and type.

6.4 **Synthetic Resin Adhesives:** To BS 1204:1993, Type WBP for exterior joinery and Type MR for interior joinery.

1. Where the thickness of the glue line will not exceed 0.13 mm use Close-Contact adhesive as Part 2 of the BS.
2. Where the thickness of the glue line will exceed 0.13 mm but will not exceed 1.3 mm use Gap-Filling adhesive as Part 1 of the BS.

6.5 **Doors and Windows:** Are to be as specified.

6.6 **Mastic:** One part polysulphide, colour to match joinery. Architect to advise.

7.0 WORKMANSHIP

7.1 **Quality of Workmanship:** To BS 1186:2002:Part 2. Cut and frame together as soon after commencement as possible.

7.2 **Tolerances:** Make all components to dimensions detailed or specified which unless otherwise stated are finished sizes, 3 mm having been allowed for the preparation of each surface.

JOINERY REPAIRS

- 7.3 **Arrises:** To be square edged unless otherwise specified.
- 7.4 **Screwing:** Pre-drill before screwing to avoid splitting.
- 7.5 **Pelleting:** Countersink screw heads 6 mm below timber surfaces which are to be clear finished. Glue in grain matched pellets not less than 6 mm thick and cut from matching timber. Finish flush with face.
- 7.6 **Holes and Cuts in Treated Timber:** Liberally brush two coats approved preservative to all holes and cuts formed after joinery has been treated.
- 7.7 **Drying Out Treated Timber:** Allow preservative to dry out to avoid damage to subsequent painting. Before allowing the timber to contact any other materials or components allow preservative to dry out to the specified moisture content and sufficient to avoid damage to any other material or components.
- 7.8 **Painting Joinery:** Joinery to be painted and prepared by planing smooth and adequately sanding, such that with the specified paint a finish free of surface defects is obtained.
- 7.9 **Carefully Prepare Hardwood Joinery:** To be clear finished or polished by planing smooth and adequately sanding to remove all machining and surface defects.
- 7.10 **Priming:**
1. Knot and prime with approved primer components fabricated off site and to be paint finished.
 2. Permit inspection and approval of components by Architect at joinery shop before priming.
 3. Ensure treated softwood has a moisture content not exceeding 17% before priming.
- 7.11 **Door Frames and Linings:** To be fixed to jambs with stainless steel screws sized to suit.
- 7.12 **Window Boards and Reveal Linings:** To be fixed with counter-sunk and pelleted stainless steel screws.
- 7.13 **Joinery Fixings:** Fixings to concrete and masonry to be with plugs and screws or as specified otherwise. Use durable proprietary plastic plugs let into drilled holes. Do not nail directly to masonry without approval. Do not use timber plugs.
- 7.14 **Packings and Grounds:** To be treated as specification. Do not use hardboard packing.
- 7.15 **Ironmongery:** Generally: to be specified. Assemble and fix in accordance with the manufacturer's recommendations. Use fastenings with matching finish supplied by the ironmongery manufacturer.

LEADWORK

- 1.0 **GENERAL:** The Contractor is to comply with BS 6915 lead sheet roof and wall coverings, subject to any qualifications set out below.
- 2.0 **SPECIFICATION OF LEAD SHEET:** Unless otherwise directed the Contractor is to confirm with the Architect, prior to tendering, whether cast lead sheet or milled lead sheet is required, and where cast lead sheet is required, whether flashings are to be of cast or milled lead.
- 3.0 **STRIPPING:** Carefully strip old defective lead from roofs where directed, load and transport from site and credit certified weights at rates to be agreed.
- 4.0 **RE-CASTING:** Cut out and remove all solder and impurities. Carefully cut out any inscriptions, records or previous re-castings, etc., and set aside for re-use as directed. Re-cast all remaining to existing weights or, if instructed by the Architect, to weights for new work as table below. Include for carriage to and from lead-casting works.
- 4.1 Cast new inscription and date into one sheet, as directed by the Architect.
- 5.0 **NEW LEAD SHEET:** Where milled lead is specified new lead sheet is to conform to quality laid down in BS 1178 : Milled Lead Sheet. Where sand cast lead is required it is to be fixed in accordance with the specification for milled lead.
- 5.1 Thicknesses are to conform to the following table. Where alternatives are given, the higher number is to be selected where the lead is likely to be walked on during the course of emergency access or maintenance.

		mm
Large areas of flat roofing, or roofing with traffic, outlets and chutes to valley and parapet gutters	Code 8	3.15/3.55
Parapet Gutters/valley (tapered) gutters	Code 7	3.15
Dormer roofs	Code 7	3.15
Swept and pitched roofs	Code 6	2.65
Valleys	Code 6	2.65
Weatherings to cornices, copings etc.	Code 6	2.65
Linings: for large tanks	Code 6	2.65
Dormer cheeks and roofs	Code 5	2.24
Vertical Cladding	Code 5	2.24
Chimney flashings Back gutter Apron and side flashings	Code 5	2.24

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		mm
Lead slates	Code 5	2.24
Hip and ridge saddles	Code 5	2.24
Flashings to rooflights and glazing	Code 5	2.24
Damp-proof courses	Code 5	2.24
Linings: Water storage tanks	Code 5	2.24
Soakers	Code 4	1.80
Cloaks in cavity walls	Code 4	1.80

- 6.0 **RE-LAYING LEADWORK:** Except where otherwise agreed by the Architect, the work throughout is to be carried out only by registered plumbers. All new lead is to be well and neatly dressed without injury, in sheets of specified sizes, securely fixed with copper nails and lead or copper tacks, joints where necessary being welted or 'burned' and not soldered, and proper provision being made for expansion and contraction.
- 7.0 **SPECIAL PRECAUTIONS:** Where excessive hammering etc is liable to cause damage to internal plasterwork or finishes, special precautions are to be taken to avoid vibration, including the use of screws instead of nails wherever directed.
- 8.0 **SHEET SIZES:** Any previous excessive sheet sizes are not to be reproduced unless specifically so instructed when the sheet thickness must be adapted accordingly.
- 8.1 New sheet sizes are to be shown on the drawings or otherwise not to exceed 3.0m between drips for Code 8, 2.5m for Code 7 and 2.25m for Code 6 on flat roofs and 2.5m between laps for Code 8, 2.4m for Code 7 and 2.25m for Code 6 on pitched roofs.
- 8.2 Joint spacings with the fall are not to exceed 750mm for Code 8 or 675mm for Code 6 and 7 on both flat and pitched roofs.
- 9.0 **SUBSTRUCTURE:** New timber for boarding and for repairs to substrate flat roofs and gutters to be of well-seasoned softwood (provided timber is unseen internally) Scandinavian Redwood, SC 3 grade, deal or pine, impregnated with approved preservative prior to fixing. Boarding is to be laid diagonally across roof or, where this is not possible, with the grain running in the direction of fall. All boarding is to be laid heart side up. All projecting nails to be driven well home and edges and irregularities planed off to provide a continuous supporting surface. Boarding to be ex 150 x 32mm, plain edged, sawn finished on the upper surface and regularised by planing the other side. Minimum thickness permissible 25mm. Boards, firrings and gutter bearers are to be treated using a Permethrin, Cypermethrin or Boron based organic solvent to BS 7507. Ensure moisture content is less than 20% before treatment and after treatment before fixing. Before application perform all necessary cutting and machining that is practicable. Liberally brush two coats of specified preservative to all holes and cuts formed after timber has been treated. Boards are to be loose butt jointed and skew nailed (alternate direction) with 75mm stainless steel round nails, heads punched below the surface. All finished falls must not be less than 1:60.

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- 9.1 Lead is to be laid directly onto the boards without an isolating layer. Where cast lead sheet is used it is to be laid with the sand cast face downward.
- 9.2 In conjunction with the above the roof space must be well ventilated, throughout, direct to the outside air. A continuous unbroken vapour barrier is to be provided to segregate moisture laden air in the building from the roof void where directed by the Architect.
- 10.0 **FIXING:** New sheets are to be fixed at the head with two staggered rows of copper nails with 10mm flat heads at 75mm centres and 25mm apart. Drips at the joint between the top of each sheet and the foot of the next are to be provided, each of 55mm for Code 6, or 60mm for Code 7 and 8 or 75mm splayed, as directed by the Architect. On inclined roofs exceeding 15° in pitch, drips may be replaced by overlaps to be at least 75mm deep measured vertically. The sides of all sheets are to be fixed with 0.6mm thick copper tingles 50mm wide, securely fixed using 2 no. brass or stainless steel screws and turned into hollow rolls. Clips to be at 600mm centres maximum for Code 7 and 8 and 500mm for lesser thicknesses. Alternatively, where directed, fixings may be made by dressing around wooden rolls with bossed ends and intersections. The foot of each sheet more than 750mm wide is to be similarly supported by copper clips. Where visible, copper clips are to be hot-dip coated with high lead content solder.
- 10.1 Lead 'dots' are to be formed to support all vertical faces as directed, whether or not these were originally so provided, and wiped over countersunk brass screws and washers at centres not exceeding 600mm in any direction.
- 11.0 **VERTICAL ABUTMENTS:** Against all vertical abutments to form 150mm min. upstands and protect with cover flashing inserted 25mm into walling, new grooves being cut for the purpose where necessary. Cover flashings are to be secured with lead wedges at 500mm centres pointed in with mortar and dressed down to at least 75mm over upstands. Sheets are not to exceed 1.5m length, to be lapped at least 100mm, and held at intervals of not more than 500mm by means of 50mm lead or 50mm copper clips hung on the top edge of the upstand and turned down behind flashings, then dressed back 25mm over outer face.
- 12.0 **VALLEYS:** Valley boarding, adapted and repaired as directed, is to be re-covered with Code 6 or 7 lead, dressed to slope of boarding. Tilting fillets are to be provided, fixed to the boarding to trim the roof battening and in a position to give a distance of a between the raking edges of the roof covering of 125mm and an overhang of 25 - 50mm (depending upon covering).
- 12.1 The lead lining is to be dressed over the fillet and finished with a welted edge. The lining is to be taken up the roof slope on each side, adequately supported, to give 150mm min. measured vertically between the sole of the gutter and the edge of the sheet.
- 12.2 Sheets should not exceed 2.25m between joints in length (Code 6) or 1.8m between joints (Code 5). Sheets should be secured with a row of copper clout nails at the head of each piece and a third of the way down each edge, 150mm apart. Over-nailing is to be avoided. Sheets are to be lapped 150mm minimum.
- 13.0 **RIDGES AND HIPS:** For hips steeper than 30° pitch to be covered with Code 5 lead in sheets not exceeding 1.8m in length (or 1.5m in the case of hips) with 150mm lap at joints (100mm for hips) dressed over rolls and 150mm to 165mm down slates on each side. All dressings to be firmly held at 600mm intervals by double lead clips 50mm wide (copper clips hot-dip coated

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with high lead content solder to be used for exposed situations) fixed under rolls and carried down under wings, then dressed back 25mm along upper face.

- 13.1 For planes less than 30°, laps to be increased to equivalent of 75mm vertical lap.
- 14.0 **GUTTERS:** Tapered gutters are to be (re)formed by the General Contractor in accordance with the Architects' detailed site instructions, with drips at intervals as specified above, and from width at least 150mm at lowest point. Parapet gutters are to be set out from a width at least 225mm at lowest point. Before re-fixing of slating/tiling, re-dress gutters with Code 7 lead carried 150mm up slope and over continuous tilting fillet and form welted edge. Form upstands and cover flashings at abutments as specified above.
- 15.0 **DORMERS:** Boarding to be made good by General Contractor, all as directed.
- 15.1 Cheeks to be recovered with BS Code 5 milled lead sheet dressed over top board and nailed thereto on reverse and also supported by wiped lead 'dots' as specified above. The front edge to be dressed around the corner post, securely copper nailed and welted back over nail heads. Tops of dormers to be recovered with Code 7 lead or copper fixing tabs at all exposed edges. Where visible, copper clips are to be hot-dip coated with high lead content solder.
- 15.2 Dormer and chimney aprons to be dressed at least 100mm around angles and to have 230mm inclined apron supported by lead clips at not more than 750mm intervals. Soakers against dormers and chimneys to be 25mm longer than slates and turned up under cover flashings and dormer cheek leadwork.
- 16.0 **DRESSINGS TO CORNICES AND LEDGES:** Copper clips to be incorporated into the welted joints which should be provided at max 1.5m c/s. Copper clips to be provided to retain front edge at max. 500mm c/s. Note that c/s may decrease depending on cornice depth and exposure and exact specification should be agreed with the Architect. Traditional dot intermediate fixings are to be avoided wherever possible.
- 17.0 **REPAIRS:** All soldered or inadequate patchings, iron nails and other temporary fixings to be cut out.
- 17.1 Repair by lap lead-burning on new pieces all of weight to match existing. Soldering is to be avoided at all costs and lead is not to be butt-jointed unless on specific instructions from the Architect. Re-dress and re-fix all loose and displaced leadwork as directed, making up with new lead or copper clips and copper fixing nails where these are deficient or inadequate.
- 18.0 **COMPLETION:** The operators must not leave site until the Architect has had the opportunity to inspect all roof plumbing works in detail. Leave all leadwork in a sound and weather-tight condition and remove all tools, plant and equipment and unused materials. Carefully clean out all gutters with wooden shovels; wash down and leave all tidy on completion.
- 19.0 **HOT WORKING:** No operation involving flame, hot air or arc welding and cutting equipment, brazing and soldering, blow-lamps, bitumen boilers and other equipment producing naked flame or heat (eg. high speed drilling of any hard material which may be combustible or near combustible material), shall be permitted on or within a building except:

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1. Where prefabrication and Hot Work can be carried out a minimum distance of 6 metres outside the building or adjacent buildings, and with no combustible materials within 10 metres of the Hot Work operation.
2. Where it is considered that there is no practical alternative to avoid the use of heat emitting apparatus – refer to the Architect.

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MORTAR AND POINTING**1.0 GENERAL REQUIREMENTS**

1.1 This specification is to be read in conjunction with (and forms an integral part of) the contract documents.

2.0 STANDARDS

2.1 Generally comply with the following standards: BS 5628 Part 3, Code of Practice for use of masonry; BS 5628-3:2001, Stone masonry. Subject to any qualifications given below.

3.0 MATERIALS**3.1 Sand**

3.1.1 The sand shall comply with BS 1200, being clean, sharp and coarse. For repair work the sand shall be of the correct colour and texture so that the new mortar, when dried out, will match the original colour and texture of the original or existing mortar (as appropriate). For new work the sand shall be of the correct colour and texture so that the new mortar, when dried out, will match the approved sample. The aggregate size is to be well graded to match as closely as possible the existing approved mortar sample and to be appropriate to the width of the joint.

3.1.2 The sand shall be free of clay, silt, organic matter and excessive fines. At least half its content shall be a quartz sand, blending from different sources may be necessary.

3.1.3 The maximum particle size and grading will be related to the joint width. For joints of approximately 10mm an acceptable grading would be:

- 10% retained on a 2.36mm sieve
- 15% on a 1.18mm sieve
- 20% on a 600 micron sieve
- 25% on a 300 micron sieve
- 25% on a 150 micron sieve
- 5% only finer than 150 microns

Where narrower or wider joints occur the grading will be adjusted to suit after discussion with the Architect. Generally the maximum particle size should be no less than one third of the joint width.

3.2 Water

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

3.3 Lime

3.3.1 The lime shall be as particularly specified by the Architect to suit the location.

3.3.2 **Non-hydraulic lime:** To comply with BS 890: 1995 and BS 6463: 1984/1987.

MORTAR AND POINTING

3.3.3 **Lime Putty:** Air/pure lime (ie. non-hydraulic lime) putty may be obtained from an approved supplier or prepared by the traditional method of slaking lump lime. Lime putty must comply with BS 890:1995 and BS 6463:1987. Hydrated non-hydraulic lime is not to be used unless specified.

3.3.4 **Hydraulic Lime:** Hydraulic lime is to comply with the French standard NFP13-310 and the European standard BS EN-459-1, 2 and 3. The particular traditional classification of hydraulic lime class C1, C2 or C3, will be specified by the Architect appropriate to conditions of existing masonry, exposure and anticipated weathering. Where required by the Architect, the hydraulic lime is to be obtained from one of the following suppliers:

- a) **Feebly hydraulic lime (Class C1):** The unburnt limestone only is available from Totternhoe Lime and Stone Co. Ltd., Totternhoe, Nr. Dunstable, Bedfordshire., LU6 2BU, tel: 01525 220300. Burning of the stone to produce feebly hydraulic lime has to be by special arrangement. The alternative is to add the appropriate proportions of a selected pozzolan to a non-hydraulic lime.
- b) **Moderately hydraulic lime (Class C2):** Hydraulic Lincolnshire Limes, supplied from Hydraulic Limes Ltd., The Lime Loft, Priestlands Lane, Sherborne, Dorset DT9 4HL, Tel/Fax: 01935 815290 Email:office@hydrauliclimes.co.uk
- c) **Eminently hydraulic lime (Class C3):** Socli Natural Hydraulic Lime (Castle) NHL 3.5, available from Lime Technology Ltd, Hampstead Farm, Binfield Heath, Henley on Thames, Oxfordshire, RG9 4LG, tel: 0845 603 1143.
- d) **Natural cement (Class D):** Jura-Cement-Fabriken, Talstrasse 13, CH-5103, Wildegg, Switzerland, Tel: 062 887 7666.

Prompt Cement, Vicat S.A., Tour GAN CEDEX 13, 92082 Paris La Defense, France, tel: 33 (0)1 41264850, fax: 33 (0)1 41264888 (Export Department).

3.3.5 The Contractor is to retain a 0.2mm mesh (200 micron) sieve on site at all times to enable fineness of the dry hydrate to be checked by sampling before use.

3.3.6 The lime supplier is to provide chemical analysis and mortar crushing strength test results using the dry hydrate currently produced on request.

3.4 **Hydraulic Lime Putty**

3.4.1 Hydraulic lime in accordance with clause 3.3.4 (a) above run to putty in accordance with the specific gravity and workability given for CL lime putty in BS EN 459. NHL 2 lime is to be used on the same day that it is run to putty. Hydraulic lime putty may be thinned to hydraulic lime grout as given in the Particular Specification, where the grouting of exceptionally fine ashlar joints (2mm or less) is required.

MORTAR AND POINTING**3.5 Pozzolanic Material**

3.5.1 This is to be ground brick or tile dust, obtainable from:-

Bulmer Brick and Tile Co.,
Bulmer,
Nr Sudbury,
Suffolk. CO10 7EF

Tel: 01787 269232

OR Metastar obtainable from:-

English China Clays,
St. Austell,
Cornwall. PL25 4DJ

Tel: 01726 818191

OR Moler, as particularly specified:

3.5.2 Particle size of brick dust and colour appropriate to specific site conditions to be given in the Particular Specification by the Architect.

3.6 Aggregate

3.6.1 The word "aggregate" in this context includes one or more of the following:- sand, broken or crushed stone and crushed brick. It also includes other crushed inert materials. If sand particles are not of the correct colour or size, or the aggregate in the existing mortar to be matched is composed of crushed or broken stone or other material, this is to be matched with a similar material.

3.7 Additives

3.7.1 No additives (pigments, plasticisers and the like) of any sort shall be incorporated in the mortar except in very special circumstances on express written instructions given by the Architect. Raw linseed oil, up to a maximum of 10% of the lime by volume, may be added to aid water-shedding properties of the mortar where appropriate following approval of trial samples by the Architect.

3.8 Ready Mixed Lime:Sand for Mortar

3.8.1 Only to be used from an approved source, agreed with the Architect. Any such ready mixed mortars are to comply with BS4721.

3.9 Transport, Storage and Handling of Materials

3.9.1 Approved sands shall be stored in clearly marked bags or bunkers and protected from inclement weather, site debris, leaves and the like. Quantities shall be based on the use of dry sand and accurate allowances made for bulking.

3.9.2 Lime putty is to be stored in clean containers, protected from contamination and kept in an excess of water to prevent carbonation.

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3.9.3 Hydraulic lime is to be supplied in bags which must be date stamped with the day of manufacture. Hydraulic lime over 3 months old must not be used. All bags must be delivered to site undamaged and dry without moisture penetration of the covering. Dry hydrate that has been exposed to the air or moisture in transit and in damaged bags is to be rejected.

3.9.4 Hydraulic lime must be stored in a dry weatherproof building with a raised floor. Record the date of delivery. No materials may be stored on the ground. Do not store bagged lime on site for more than six weeks.

4.0 **WORKMANSHIP**

4.1 **General**

4.1.1 The mortar shall be a little softer and more porous than the stones/bricks themselves and shall comply with BS4551:1998 parts 1 and 2 for mortars, screeds and plasters and BS4550:1989 part 3 sections 3.6 for methods of testing.

4.2 **Samples**

4.2.1 A range of sample mortar mixes are to be prepared for inspection by the Architect. For repair work the mixes are to match the existing mortar in respect of colour, texture and strength. The Architect will identify an area of existing mortar to be matched. For new work the sample mortar mixes are to be prepared as directed by the Architect.

4.2.2 The Contractor is to allow for blending and sieving sands from different sources, as necessary, to achieve appropriate grading, colour and texture.

4.2.3 If the Architect does not consider the sample mixes to be satisfactory in respect of the requirements of this specification, then further samples are to be provided by the Contractor as necessary.

4.2.4 Where applicable and sound existing pointing survives in good condition, the Architect will mark a section which is to be matched in respect of colour, texture and strength.

4.2.5 If specified, a trial area of pointing is to be executed on specially prepared sample panels (NOT THE EXISTING BUILDING FABRIC) for approval by the Architect using mortar as specified and approved.

4.2.6 A trial area of pointing is to be executed for approval by the Architect using mortar as specified and approved.

4.2.7 Where directed, the Contractor shall prepare a sample panel of masonry, executed in mortar mixes and pointing techniques as specified by the Architect, or to match existing work.

4.3 **Mortar Types and Mix**

4.3.1 **Mortar Mix:** Only after a sample has been approved by the Architect shall the Contractor prepare aggregate blended to the correct grading and/or coarse stuff. The Contractor should therefore be aware of the subsequent preparation and standing times, including initial and final setting times prescribed in this Specification for the various materials.

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- 4.3.2 Mix materials sufficiently to obtain a uniform colour and consistency and as specified elsewhere.
- 4.3.3 **Lime Putty:** Lump lime (quick lime) shall be properly slaked in an excess of water and stirred and hoed to ensure coagulation does not occur. All slaking must be carried out under controlled conditions which are to be strictly in accordance with the CDM regulations. The putty shall then be screened through gauze equivalent to a 2.36mm sieve to BS 410. Non-hydraulic lime shall then be left for at least 28 hours. Prior to batching all excess water shall be siphoned off. It shall then be matured for not less than three months. The putty at time of use to be strictly in accordance with BS890 and BS6463.
- 4.3.4 **Coarse Stuff; (Non-hydraulic lime):** The coarse stuff of one part air lime putty to four parts sand shall be batched by gauge box. A mix of 1:3 lime:sand may also be specified. If it is mixed in a mechanical mixer only the minimum amount of water to achieve mixing shall be added.
- 4.3.5 The coarse stuff of air lime and sand shall then be kept covered with damp sacking or polythene sheeting to prevent drying out, and stored for a period of two weeks.
- 4.3.6 **Hydraulic Lime:Sand Mixes:** Mortar is to be prepared using hydraulic lime and well graded aggregate of the appropriate particle size to suit the joint width.
- 4.3.7 For tendering purposes, assume the following basic mixes:
- a) 1:1 Class C1 feebly hydraulic lime:fine sharp aggregate (silver sand and/or stone dust) for ashlar joints and tracery. The aggregate size and proportion to the putty or grout is to be reduced in relation to joint width.
 - b) 1:2 Class C2 moderately hydraulic lime:graded aggregate for plain walling.
 - c) 1:2 Class C3 eminently hydraulic lime: graded aggregate for copings, chimneys and below ground up to 300mm above.
 - d) 1:3 Class C2 moderately or feebly hydraulic lime:aggregate for bedding mortar.
- 4.3.8 In exposed locations where the stone is hard and durable an eminently hydraulic lime may be used. Where the stone is very soft and the exposure low, a feebly hydraulic lime or fat lime (with or without pozzolanic additive) may be used subject to the work being carried out at an appropriate time of year. The addition of pozzolanic material, if required, will be specified by the Architect.
- 4.3.9 All mixing and handling equipment is to be kept clean. Containers, boards, tools, etc. shall be well cleaned before the next batch of mortar is mixed/used.
- 4.3.10 **Measures:** Constituents by volume in clean gauge boxes. Cement gauging boxes are to be kept dry at all times. Gauging by the shovel is strictly forbidden.

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- 4.3.11 **Mixing:** Hydraulic lime is to be added to dry aggregate when knocking up the appropriate mortar mix. The addition of water must be kept to the minimum. Additional workability if necessary may be achieved by increasing the mixing time not by adding water. A mechanical paddle mixer may be used; it must be correctly set to avoid crushing of the aggregate. All mortar is to be used within two hours of mixing.
- 4.4 **Preparation**
- 4.4.1 In preparation for repointing works, using hand tools only, rake out all loose jointing material to a depth of not less than twice the joint width. All raking/cutting shall leave a clean, square face at the back of the joint, so as to provide optimum contact with the new mortar.
- 4.4.2 The prepared face and joint should be carefully cleaned out with a natural bristle brush and thoroughly flushed out with clean water, avoiding unnecessary saturation. All dust and loose material must be removed, working from top to bottom of the wall.
- 4.4.3 All cutting out and cleaning works should be available for inspection prior to commencement of the repointing.
- 4.4.4 No cleaning agents or fungicides are to be used either before or after repair works, except on the express authority of the Architect.
- 4.4.5 Any sound pointing should be left undisturbed, even if it has weathered back behind the general wall face to as much as half the joint width. Generally, the existing mortar should be capable of being removed by raking out by hand with a blunt instrument, leaving the arrises of the brickwork or stone unharmed. A hammer and chisel should not be used unless permitted by the Architect. Under no circumstances should an angle grinder or similar tool be used.
- 4.4.6 Where it is desirable to remove damaging and unsightly cementitious pointing, experiments should be carried out to the approval of the Architect to ascertain the most appropriate method of removal and to limit damage caused to existing work.
- 4.5 **Pointing**
- 4.5.1 It is essential that the masonry is thoroughly dampened when pointing is commenced. If the joints have dried out before cleaning they must be re-wetted with a hand-held spray prior to placing of any new mortar. No water should be left lying within the prepared joint.
- 4.5.2 The mortar must be of minimum water content and should be pushed into the joint and firmly ironed in with the maximum possible pressure and minimum of over-working. Pointing irons should be used, not pointing trowels. The pointing irons may be cranked, bronze or steel flat of a width which will fit into the joint and ensure compaction over the full width. Compaction is therefore achieved throughout the depth of the joint each time mortar is placed rather than from the surface alone. The Contractor should be aware that it may be necessary for him to fabricate pointing irons to undertake the works.
- 4.5.3 If the joint is to be filled in one operation, the mortar must be almost crumbly and be ironed in very firmly.

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- 4.5.4 Repointing work should begin at the uppermost section of the wall and proceed downwards, ensuring that all the mortar is pressed well into the joints to achieve good compaction. Fill all the joints solidly with the approved mortar mix finishing very slightly back from the masonry and in accordance with the approved sample. The mortar is not to be spread or buttered onto the face of the masonry unless specified.
- 4.5.5 Where directed to produce a weathered, roughened finish to expose the aggregate, the mortar should be left to take its initial set and then stippled with a stiff bristle brush. The bristles should not be dragged across the face but tapped against it. Timing is critical. If this technique is applied too early the mortar will be removed too easily and the bond forming between the brick/stone and the mortar will be disrupted. If too late, it will be difficult to make the required impression.
- 4.5.6 The particular finish required (stippled, struck, double struck, tuck pointed) is to be specified by the Architect.
- 4.5.7 Any slight fractures due to shrinkage must be cut out and remade.
- 4.5.8 When placing the mortar ensure that it is placed in the joint and does not spread over the adjacent stone and cause any lime staining. Likewise, when finishing off ensure no lime is brushed or sponged over the face of the adjacent stones causing lime staining. Such lime staining will not be considered acceptable as a finished result.

5.0 PROTECTION AND CLEANING**5.1 General**

- 5.1.1 The work shall be protected from direct sun and rain for **a minimum of four weeks**, including the time after the joint surface finish has been applied, at an average temperature of 10°C until the face has dried and hardened. The period of protection must be increased relative to the slower carbonation rate that occurs at lower temperatures.
- 5.1.2 Protect all new work against frost, any joints damaged due to frost action is to be cut out and re-done in frost free conditions.
- 5.1.3 During dry weather all new pointing shall be kept continuously moist (but not wet) for a minimum of 4 weeks to ensure that the set takes place slowly. Damping down is to be done with a fine mist spray – not a jet of water – in several applications. Water must not be made to flow down the face of the work when damping down.
- 5.1.4 Turn back scaffold boards adjacent to brick faces at night or during heavy rain.
- 5.1.5 Any mortar or stains caused by the works on the face of the masonry must be completely removed before the mortar hardens.
- 5.1.6 Painting on horizontal surfaces – copings, paving and the like – is to be protected to prevent undue saturation in wet weather.

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5.2 **Frost**

5.2.1 Work must not be carried out during frost conditions. Frost must not be allowed to affect completed work before it has fully cured. Manufacturers of hydraulic limes are to guarantee the curing periods for the class of lime supplied.

5.2.2 Generally pointing and bedding mortar is not to be laid when the temperature is 5°C or below and falling. Work may re-commence when the temperature is 3°C or above and rising. The Contractor is to keep a maximum and minimum thermometer on site for the duration of the contract to record night and day time temperatures as directed.

6.0 **COMPLETION**

6.1 The Architect is to be advised at least one week in advance of when pointing will be complete in order that an inspection can be made prior to the removal of any scaffold.

6.2 Remove all tools, plant and equipment and used materials and debris.

6.3 On completion leave all clean neat and tidy to the satisfaction of the Architect.

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PAINTWORK**1.0 GENERALLY**

- 1.1 **Code Of Practice:** Comply with BS 6150 "Painting of Buildings".
- 1.2 **Paints:** Manufacturer to be agreed with Architect but must be applied in accordance with the makers' instructions and to follow specification below in principle.
- 1.3 **Preparation:** Allow to sweep out all rooms before applying coatings and protect all floors and fittings with sheets etc. Make good any damage done to adjacent surfaces.
- 1.4 All coats of paint to be thoroughly dry before the application of subsequent coats and to be rubbed down with sand paper between each coat.
- 1.5 All iron to be thoroughly cleaned of rust before paint is applied.
- 1.6 External painting is only to be done in good painting weather when it is free from moisture.
- 1.7 All colours to be selected by the Architect subject to sample areas being prepared.

2.0 METALWORK

- 2.1 **Preparation of Metalwork:** Thoroughly clean the surface to remove all dirt, grease etc. Remove all loosely adhering or defective paint by scraping back to a firm edge or, if necessary, completely stripping the surface. Remove all rust and loose millscale by chipping, scraping and wire brushing back to clean metal.
- 2.2 **Painting:** Prime all bare metal immediately with:

1 coat metal primer (red lead). When primer is hard paint with:
1 coat undercoat and
1 coat gloss or oil based matt finish as directed.

3.0 EXTERNAL RENDERED SURFACES

- 3.1 **Preparation:** Replace all suspect rendering and mouldings as directed by the Architect. Remove all loose material by scraping and bristle brushing. Rub down with glass paper all gloss paint. Allow to dry before painting.
- 3.2 **Painting:** Areas where flaking has occurred should be removed and scaled back to sound edge.

4.0 PREVIOUSLY PAINTED INTERIOR & EXTERIOR SURFACES

- 4.1 **Preparation:** If the existing paint is generally in good condition wash with soap and water, detergent solution or a suitable solvent to remove dirt, grease, wax polish etc and rub down glossy surfaces. Remove any poorly adhering or defective paint by scraping back to a firm edge.
- 4.2 Make good cracks and other imperfections and allow to dry out thoroughly. Prime and make good all areas exposed by the removal of paint as described for new surfaces.

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4.3 If the existing paint is flaking, blistered, poorly adhering or generally in poor condition, remove it completely and treat the surface as described for new surfaces.

5.0 PAINTING NEW WOODWORK

5.1 **Preparation:** Prime with wood primer, when primer is hard make good all cracks etc and paint with one undercoat and two coats gloss or matt finish as directed.

6.0 EMULSION PAINTED SURFACES

6.1 **Preparation:** If the existing emulsion paint is in good condition and firmly adhering clean down the surface. If in poor condition completely remove all the flaking, peeling and powdering coating. Make sure that all the remaining paint is sound and adheres firmly to its backing.

6.2 Cut out and make good cracks and imperfections and allow to dry.

6.3 **Paint:** Prime with thinned coat of emulsion and then apply two coats of emulsion paint.

6.4 **Interior Surfaces:** Apply the finishing material direct. If the surface is very porous, apply a sealing coat of thinned finishing material. Alternatively, if, after thorough preparation a residue of powdery material remains or the adhesion of the previous coating is suspect prime with:

6.5 1 coat of primer sealer to reduce the risk of subsequent flaking.

7.0 PAINTING NEW PLASTERWORK

7.1 **Paints:** To be as specified.

7.2 **Preparation:** Remove any plaster nibs, scum etc and stop in cracks or holes. Wipe off any deposits or efflorescence with a damp sponge and lightly abrade any over-trowelled 'glossy' areas of plaster with worn abrasive paper. Dust off leave to dry and ensure that no efflorescence recurs.

7.3 **Painting:** Where emulsion is specified, prime with a thinned coat of emulsion. Make good any defects with a plaster filler. Rub down and dust off, patch prime with thinned emulsion. Finish one or two full coats of emulsion specified as directed.

8.0 EXTERNAL PAINTS FOR WINDOWS, IRONMONGERY ETC.

8.1 **Primer First Coat:** As recommended by the manufacturer for the surfaces to be coated.

8.2 **Primer Second Coat:** As recommended by the manufacturer for the surfaces to be coated.

8.3 **Undercoat:** Paint colour to suit finish. As recommended by the manufacturer for the surface and paint system.

PAINTWORK**9.0 PREPARATION OF EXISTING METALWORK**

9.1 **Intact Painted Surfaces:** Wash down with detergent and warm water solution to remove grease and dirt.

9.2 Rusted Surfaces

1. chip, scrape or wire brush rusted areas back to bare metal.
2. rub down all surfaces with abrasive paper or block used wet and rinse with clean water and dry off with a soft cloth.
3. apply phosphoric acid type rust remover to base metal areas (unless clean).
4. prepare and prime bared areas.

10.0 PAINT APPLICATION TO WINDOWS, HINGES ETC**10.1 Priming**

1. Fabricated and cleaned metalwork to have one coat of primer 'first coat' and one coat of primer 'second coat' in the shop.
2. Any damaged or unpainted areas are to be primed with works primer before building-in on site.
3. Ensure all sharp edges, angles, corners etc are fully covered both in works and on site.
4. Allow minimum interval of 16 hours between priming coats.

10.2 Undercoat and Finish Coat

1. When window frames are installed on site clean down painted surfaces to remove mortar, grouting etc.
2. Brush apply in even thickness a single coat of both undercoat and finishing coat.
3. Ensure all sharp edges, angles, corners etc are fully covered on site.
4. Allow a minimum interval of 12 hours between coats.

11.0 SCHEDULE OF PAINT SYSTEMS

Substrate	Primer	Top coat
External timber	1 coat Rubbol Primer Plus	2 coats Rubbol Satura Plus
External ferrous metal	1 coat of Dulux Trade Zinc Phosphate Primer	2 coats Rubbol Satura Plus

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External non-ferrous metal (zinc, lead, brass, chrome, copper etc.)	1 coat Hammerite Special Metal Primer	2 coats Rubbol Satura Plus
External galvanised metal, aluminium (not anodised or cast),	1 coat Dulux Trade Metalshield Quick Drying Metal Primer	2 coats Rubbol Satura Plus
Internal timber	1 coat Rubbol BL Primer	2 coats Rubbol BL Satura
Internal ferrous metal	1 coat Dulux Trade Zinc Phosphate Primer	2 coats Rubbol BL Satura
Internal non-ferrous metal	1 coat Hammerite Special Metal Primer	2 coats Rubbol BL Satura

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SCAFFOLDING**1.0 HEALTH AND SAFETY REGULATIONS**

1.1 The Contractor shall comply with all legal obligations currently in force and in particular with the following:

- a) Health and Safety at Work Act 1974.
- b) Lifting Operations and Lifting Equipment Regulations 1998
- c) Provision and Use of Work Equipment Regulations 1998
- d) Construction (Health and Welfare) Regulations 1996
- e) Personal Protective Equipment at Work Regulations 1992
- f) Manual Handling Operations Regulations 1992
- g) Management of Health and Safety at Work Regulations 1992
- h) The Construction (Design & Management) Regulations 2007.

1.2 The Contractor shall ensure that a competent person inspects all material to be used for any scaffold prior to erection and inspect the completed scaffolding within 7 days of erection and prior to use.

1.3 Further inspections shall be carried out by a competent person within 7 days of any alteration to the scaffolding and after weather conditions likely to have affected its strength and stability, prior to use.

1.4 The Main Contractor is responsible for safety standards during erection, use and dismantling of the scaffold.

2.0 DESIGN OF SCAFFOLDING

2.1 The Contractor shall present to the Employer, the Architect and the CDM Co-ordinator his design for the scaffolding (including canopy if required), calculations and method statement at least 7 days prior to erection.

2.2 The Employer reserves the right to employ a suitably qualified Structural or Civil Engineer to check the design and to require amendments where he considers the design inadequate in terms of safety, serviceability and protection of the existing structure.

2.3 The Contractor shall have regard to all relevant British European standards in particular BS EN12811-1:2003, TG20:08:2011, BS 1139:2001 and BS 2482:2009 as latest amendments.

2.4 The scaffolding must either be capable of taking the weight of the materials or a loading bay must be provided adjacent to the working lift.

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- 2.5 The Contractor shall obtain the approval of the Architect prior to proposing the use of any scaffold fixings (temporary or permanent) which are attached to the building in any way. Putlog scaffolds are not permitted.
- 2.6 The Contractor shall, subject to safety requirements, avoid ties through window openings.
- 2.7 The Contractor must not assume that the existing building structure is in any way suitable or stable enough to provide wind bracing of the scaffolding structure.
- 2.8 **The Contractor is to make an assessment of the ground conditions on which the scaffolding is to bear. Where necessary carry out lead bearing tests to ensure the ground is adequate to carry the scaffold.**
- 2.9 The contractor is to ascertain and take into account the requirements of all sub-contractors when designing the scaffold.
- 2.10 On request the Contractor is to provide the following details:
- a) Scaffold design
 - b) Full set of drawings
 - c) Calculations
 - d) Number and location of working levels
 - e) Loading bays
 - f) Manufacturer's details for specialist equipment such as ladder beams and duster props, etc.
 - g) Method statements covering erection, use and dismantling
- 2.11 Variations to the design must be clearly documented and be submitted by the Principal contractor to the CDM Co-ordinator to be checked by a competent person.
- 2.12 **The use of 'wedge couplers' for connecting scaffold elements is not permitted.**
- 2.13 Contractors are to be members of the National Associate of Scaffold Contractors.

3.0 PROTECTION

- 3.1 The design and method of construction is to avoid causing damage whatsoever to the fabric of the building. In particular:
- a) No part of the scaffolding shall be placed in such a way that it abrades the structure or fabric of the building. Adequate timber bearers and soft packing should be used where scaffold is in contact with masonry. Scaffold caps will not be considered as adequate.
 - b) Plastic caps must be placed on all tube-ends adjacent to or likely to come into contact with the fabric of the building during erection, dismantling or as a consequence of lateral movement.
 - c) Scaffolding bearing on the roof must take account of the bearing capacity of the roof construction. Spreader boards should intervene between scaffolding and leadwork, the boards being placed so that rainwater run off is not impeded.

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- d) Extreme care shall be taken or temporary protection installed to avoid damage to windows, many of which may contain irreplaceable crown or painted glass of historical importance.
- e) In the event of authority so being given by the Architect, any scaffolding taken through window openings for bracing and tying in is to be adequately buffered to prevent damage to internal stonework, plasterwork and decorations. On no account is scaffolding to bear onto internal floors, panelling or other joinery or on to wall paints. All openings through the external wall are to be adequately protected against the ingress of rainwater, snow or blown dust and other debris.
- f) The scaffold is to be adequately earthed against lightening strikes.
- 3.2 **Landscaping:** Where plant and equipment is wheeled across paving or turf the Contractor is to take all reasonable precautions to avoid damage to surfaces. The Contractor is held responsible for making good any such damage.
- 3.3 **Underground Services:** Before erecting the scaffold the Contractor shall ascertain the location of external services below ground, concealed inspection chamber covers, etc., and shall take such precautions as may be necessary to avoid accidental damage and maintain access (to valves, rodding eyes, inspection chambers, culverts, etc.).
- 3.4 The Contractor shall fence off scaffolded area (or areas beneath scaffolding if of the cantilever type) to prevent public access to within 2.0m of any scaffolding.
- 3.5 The Contractor shall be responsible for monitoring the security of the scaffold both during and at the end of the working day, taking all precautions to prevent access into the building via this route.
- 4.0 **PUBLIC ACCESS**
- 4.1 During erection, modification or dismantling, care must be taken to exclude the public and staff from a clearly defined area around the work.
- 4.2 Authorised access thoroughfares must have effective protection in the form of fans, netting, sheeting, brick guards, etc. to protect persons from falling objects.
- 4.3 Ladders must not be left unattended when accessible to the public.
- 4.4 Ladders at ground floor level and other risk areas should be removed and securely locked away at the end of each working day.

1.0 GENERAL REQUIREMENTS

1.1 This specification is to be read in conjunction with (and forms an integral part of) the contract documents.

2.0 STANDARDS

2.1 Generally comply with the following standards: BS 5642, Parts 1 and 2, Specification for sills and copings; BS 5628 Part 1, structural use of unreinforced masonry BS 5390, Stone Masonry. Subject to any qualifications given below.

3.0 MATERIALS

3.1 Stone

3.1.1 Stone to be as specified and to match the approved samples and to be in accordance with the following clauses:-

3.1.2 Free from vents, cracks, fissures, discolouration and other defects that adversely affect strength or appearance.

3.1.3 Free from any defects on the faces visible in the completed work that could mar the appearance of the stonework.

3.1.4 Of proven durability and weather resistance and selected with regard to its suitability to local atmospheric conditions and the nature of the work to be carried out, and its location in the finished work. The Contractor is to confirm to the Architect the suitability of the stone.

3.1.5 To match samples of stone, sufficiently large to show natural variations and specified finishes, which are to be submitted for approval prior to ordering. A range of samples must be submitted, not single pieces.

3.1.6 Variations in colour and texture, natural to the source of stone, will only be acceptable within the range of samples supplied to and approved by the Architect. Variations in colour and texture outside the range of approved samples will be rejected.

3.1.7 The Contractor is to confirm in writing the quarry and/or bed of origin.

3.1.8 Stone from only one quarry bed is to be used throughout.

3.1.9 Stone is to be seasoned at the time of delivery to suit the purpose for which it is to be used.

3.1.10 Stone for ashlar repair work to be worked to suit the location where it is to be fixed. Finish to match the existing adjacent stonework **as approved sample** on all faces visible in the finished work.

3.1.11 Stone for new ashlar work to be dressed to specified finish and to match approved sample on all faces visible in the finished work.

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- 3.1.12 Stones for repairing random rubble to match the existing wall. To include sufficient bonding stones through the wall.
- 3.1.13 Stones for new random rubble wall to be as specified. To include sufficient bonding stones through the wall; minimum 1 no. bonding stone per 1m² of finished wall.
- 3.1.14 Stones for repairing coursed rubble to be roughly dressed to match the existing. To include sufficient bonding stone through the walls.
- 3.1.15 Stones for new coursed rubble to be roughly dressed as specified. To include sufficient bonding stones through the wall; minimum 1 no. bonding stone per 1m² of finished wall.
- 3.1.16 Stone for carving work to be specially selected to be consistent in grain and colour throughout. Supply sufficient quantity of stone for the carver to have ample scope for his/her work.
- 3.1.17 Samples of the specified stones for repair work are to be submitted for matching purposes. The samples are to match the existing stone in colour, texture, shape, size and surface finish as closely as possible. Where a particular stone has not been specified, the stone samples should be closely related geologically to the stone to be matched.
- 3.1.18 For new work, samples of the specified stone are to be submitted for approval of colour and texture. Such samples are to meet the specification requirements.
- 3.2 **Mortar**
- 3.2.1 Refer to specification for mortar.
- 3.3 **Metal Fixings**
- 3.3.1 Dowels, cramps and the like to be grade 316 Austenitic stainless steel.
- 3.3.2 Metal fixings to be set in resin if specified; resin to be two part polyester (Exchem Resifix 3 plus or similar approved).
- 3.3.3 Metal fixings to be set in mortar, as approved sample, if specified.
- 3.3.4 Metal fixings to be set in molten lead if specified.
- 3.4 **Damp-proof Course**
- 3.4.1 Generally to comply with BS 743, Specification for materials for damp-proof courses and BS 8215, Code of Practice for design and installation of damp-proof courses in masonry construction.
- 3.4.2 Lead damp-proof course, where specified to be BS 1178. To be code 5, coated with bitumen both sides.
- 3.4.3 Bitumen damp-proof courses to comply with BS 6398.
- 3.4.4 Polyethylene damp-proof courses to comply with BS 6515.

3.4.5 Slates to be sound second-hand or new slates, to be free from cracks and fissures. Lay slates in two courses horizontally, to break joint, each fully bedded in mortar. Complete bed joint thickness to be not more than 40mm. Where second-hand slates are used, the Contractor is to confirm to the Architect in writing the source of slate.

3.4.6 Pitch polymer dpc to be 'Hyload' dpc by Ruberoid Building Products or similar approved.

3.5 **Transport, Storage and Handling of Materials**

3.5.1 Transport stone with minimum handling. Stack carefully in vehicle with non-staining packing material to prevent damage.

3.5.2 Store stone on a clean, dry, free draining surface and prevent contact with soil.

3.5.3 Fairfaced stone is to be stored in stacks on battens, protected with non-staining packing material. Protect from moisture penetration and freezing with non-staining material. Stack stone in such a way as to minimize handling as pieces are selected and transferred for building in on site.

3.5.4 Provide adequate lifting plant to unload and handle stones into position.

3.5.5 Handle stones with tackle, crane or other mechanical aids as necessary.

4.0 **WORKMANSHIP**

4.1 **Setting Out and Working Drawings**

4.1.1 For repair work setting out points are to be taken from the existing building prior to carrying out repair work. Survey reference points should be taken and recorded to enable the correct placement of repairs.

4.1.2 The Architect is to be advised of any discrepancies in the alignment of existing work prior to carrying out repair work.

4.1.3 For new work, setting out is to be as specified.

4.1.4 Working drawings, where specified, are to be prepared and submitted to the Architect at least two weeks before cutting stonework.

4.2 **Preparation of Stone**

4.2.1 Unless specified otherwise, prepare stone so that the natural bed is:-

- a) Horizontal in plain walling.
- b) Vertical and at right angles to the wall face in cornices and other projecting stones.
- c) Horizontal in quoin stone or end stones which are to be specially selected compact non laminated stones.

- d) Parallel to the radial centre line of each stone and at right angles to the wall face in arches.
- 4.2.2 Mark the natural bed clearly on each stone before it leaves the quarry. Where it is not possible to determine the bed of the stone after extraction, the bed should be marked before quarrying and subsequently marked on each stone as cut.
- 4.2.3 For repair work stones are to be cut to full dimensions to match the existing joint layout and width of the existing masonry. Sufficient stone is to be allowed for to enable working to existing bed and perpnd joints, in particular on quoin stones.
- 4.2.4 For new stonework, work the exposed and joint faces of each stone to a square and plane surface, free from hollow or rough edges to the particular finishes as instructed to match the approved sample.
- 4.2.5 Where the specified stone cannot be obtained in sufficient bed depth to match the existing joint layout the Architect is to be advised before proceeding. Any variation in the orientation of the natural bed from that specified above is to be the subject of future instruction.
- 4.2.6 Mark each stone on an unexposed face, clearly, to indicate its position in the finished work.
- 4.3 **Working Stone**
- 4.3.1 Generally where new stonework is being installed to replace existing stonework, profiles and finishes are to match the existing. Samples are to be provided for approval by the Architect. Where existing stones are weathered, profiles are to be agreed with the Architect before proceeding. **The Contractor is not to assume that existing stone profiles will be the same around the existing building.** Stones are to be cut and profiled as necessary to suit their particular location. Where necessary stones are to be oversized to allow for final dressing in on site to ensure correct alignment and profile.
- 4.3.2 Work the exposed and joint faces of each stone to suit its location. Exposed and joint faces to be free from hollow or rough edges. Any saw marks are to be removed from exposed faces; where necessary this is to be done prior to construction to ensure accurate alignment in the finished work.
- 4.3.3 Cut and carve stone to accurate clean profiles before building in. In repair work final dressing-in is to be carried out in-situ to ensure accurate alignment with existing adjacent stones. **On no account dress off existing stones to suit new.** In new work, profiles and finishes are to be in accordance with the specification, drawings, schedule of work and approved sample.
- 4.3.4 Chase out mortices for joggles, dowels and cramps before delivery of stone to site.
- 4.3.5 Drill holes for dowels to be fixed to equal depth in adjacent stones.
- 4.3.6 Where particularly specified, cut 'V' shaped sinkings to coincide with those in the ends of adjacent stones for filling with mortar or lead, as specified, to form joggles.
- 4.3.7 Where particularly specified, cut dovetail channels in adjacent stones for cramps.

- 4.3.8 Where particularly specified, cut holes for anchor bolts of just sufficient tolerance for easy bolt entry.
- 4.3.9 For repair work, new stones are to be worked to dimensions and profiles of existing. **The pattern of joints in the existing stonework is to be matched unless specified otherwise.**
- 4.3.10 For new stonework, quoins are to be sized as specified, cut from one piece of stone unless specified otherwise.
- 4.3.11 For new stonework, sills are to be sized as specified, cut from one piece of stone unless specified otherwise.
- 4.3.12 For new stonework, jambs are to be sized as specified. Full section to be cut from one piece of stone unless specified otherwise.
- 4.3.13 For new stonework, facing stones are to be 100mm thick minimum, or as specified otherwise.
- 4.3.14 Copings for new stonework to be sized as specified. Full section to be cut from one piece of stone unless specified otherwise.
- 4.3.15 No work involving preparation or laying of mortar shall be carried out during frost conditions.

4.4 **Laying and Jointing**

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

4.5 Cutting out Decayed Stonework

- 4.5.1 Where stone “replacement” is specified cut out decayed stonework to accept new stones of minimum depth of 150mm from original face, unless specified otherwise. **NB:** the stone depth is a “minimum” requirement. Where necessary stones are to be of sufficient depth to ensure that the existing pattern of joints is preserved and that carved or moulded stones are adequately bedded. In particular quoins, jambs, copings and the like are to match existing sizes in all dimensions.
- 4.5.2 Where “piecing in” is specified, cut out decayed stonework to specified extent to accept new stone of minimum depth 75mm and otherwise as necessary to suit the location. Where piecing in is specified, joint widths are to be kept extremely fine. Where glue is used it is to be used in dabs and is not to form a continuous film.
- 4.5.3 The Contractor is to notify the Architect once the whole of the area to be repaired is fully accessible. The Architect shall indicate on site any variations to the work found to be necessary.
- 4.5.4 Where dressing back is required the Contractor shall inform the Architect if, in his/her opinion, it is necessary to dress back further, i.e. to a greater depth, than specified.
- 4.5.5 Stonework is to be adequately propped during the course of the works.
- 4.5.6 All iron cramps and the like encountered during the course of the works are to be removed and replaced with stainless steel fixings. The Architect is to be advised as and when such iron cramps are found.
- 4.5.7 Stonework is to be cut out with extreme care to ensure that no damage occurs to existing adjacent stones that are to be left in-situ. In particular, techniques that cause excessive vibration and/or dust are to be avoided. Any damaged or scarred stonework is to be replaced at the Contractor’s own cost. Piecing in or mortar repair will not be considered as acceptable remedial action. Total replacement will be necessary. The Architect is to be advised prior to undertaking such remedial action.
- 4.5.8 Where the Contractor anticipates that cutting out will not be possible without causing damage, the Architect is to be advised and provided with a method statement describing how potential damage will be controlled before proceeding with the work.

4.6 Samples

- 4.6.1 A range of samples of stone are to be provided, sufficiently large to show natural variations in the material and specified finishes. In particular, the range of samples should show any inclusions or other natural features that may occur in the material. From the range of samples provided, the Architect will select what variation in colour and texture is acceptable. The accepted range is to set the standard to be met.
- 4.6.2 For repair work samples of the finished face of the new stonework are to be submitted for approval by the Architect. Any dressed or tooled finish is to match the existing. An area of existing stonework will be marked up by the Architect for matching purposes.

4.6.3 For new work samples of the finished face are to be submitted for approval by the Architect.

4.7 **Mortar Mix**

4.7.1 The mortar should be a little softer and more porous than the stone itself. It should match the original as closely as possible in colour, texture and strength.

4.7.2 Refer to specification for mortar.

5.0 **PROTECTION AND CLEANING**

5.1 The Contractor is to cover arrises, mouldings, carvings and other finished work with adequate protection, securely fixed without damaging new or existing fabric, to ensure it is not damaged. Any damaged fabric is to be replaced at the Contractor's own cost. Piecing in or mortar repair will not be considered as acceptable remedial action. Total replacement will be necessary. The Architect is to be advised prior to undertaking such remedial action.

5.2 Keep face work clean and free from staining during construction until completion.

5.3 Clean off and leave stonework clean to the satisfaction of the Architect as the scaffolding is taken down.

5.4 All work should be adequately protected from frost damage. Any frost damaged work is to be cut out and replaced at the Contractor's own expense.

5.5 The work is to be protected from direct sun and rain and against rapid or excessive drying until the mortar has properly cured. Any work damaged as a result of inadequate protection is to be cut out and replaced at the Contractor's own expense.

5.6 Turn back scaffold boards adjacent to finished faces to prevent splashing during heavy rain.

5.7 Any mortar or stains caused by the works on the face of the masonry must be completely removed before the mortar hardens.

6.0 **COMPLETION**

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

6.2 All dust marks, staining, scuff marks and the like are to be carefully cleaned off. Extreme care is to be taken to ensure that no damage occurs to the new or existing fabric of the building. Any damage is to be made good at the Contractor's own expense.

6.3 Remove all tools, plant and equipment and used materials and debris.

6.4 On completion leave all neat and tidy to the satisfaction of the Architect.

1.0 **GENERAL**

1.1 **General Description of the Works**

1.1.1 The work is to comprise External Fabric Repairs to:-

- Chimneys
- Roof Coverings
- Rainwater Disposal Goods
- External Walls
- Windows and Doors

1.2 **Drawings**

1.2.1 This Schedule of Work is to be read in conjunction with the specification, contract preliminaries and the following drawings:-

Architect's Drawings

- 6472/ 01 Site Location Plan
- 02 Site Plan
- 03 Ground Floor Plan
- 04 Basement, First and Second Floor Plans
- 05 South Elevation Repairs
- 06 West Elevation Repairs
- 07 North Elevation Repairs
- 08 East Elevation Repairs
- 09 Window W3.2 survey
- 10 Roof Central Valley Gutter as Proposed
- 11 Roof Central Valley Gutter Dormer as Proposed
- 12 Roof Central Valley Gutter Lead Details
- 13 Attic Hatch W3.9 as Proposed

1.3 **Specification**

1.3.1 This Schedule of Work is to be read in conjunction with the specification clauses.

1.4 **Photographs**

1.4.1 Prior to commencement of the contract, the main Contractor is to take a full set of condition photographs, internally and externally, and issue a set of colour copies, annotated to indicate the date taken and location, to the Architect. It is acceptable to submit a CD of digital photographs with an appropriately referenced list.

1.5 **Method Statements**

1.5.1 The main Contractor is to provide Method Statements detailing the method of working for the following items:-

- Site set up including deliveries and parking.
- Erection and dismantling of scaffolding.

1.5.2 Under no circumstances will any work be allowed until Method Statements for all these items have been received, comments made and taken into account. Submission of Method Statements does not relieve the Contractor from any of his contractual obligations.

1.6 **Protection**

1.6.1 During the course of the contract, internal temporary protection is to be provided as follows:-

- Polythene sheeting in areas which are being travelled through to carry out works.

1.6.2 During the course of the contract, external temporary protection is to be provided as follows:-

- Protective padding between the scaffold and the fabric of the building.
- Clear plastic sheeting to outside of windows and all glass to provide a dust/water seal and protection from impact.
- Take care not to damage any of the garden features eg gate piers during deliveries.
- Tarpaulins and temporary sheeting to prevent rainwater entering the building via the central valley gutter during reroofing.

1.6.3 The museum will remain open and in use during the works.

1.6.4 Provide for a controlled means of waste disposal. No materials are to be thrown or dropped. Debris to be regularly swept up and removed as soon as it is created.

1.7 **Samples**

1.7.1 Before ordering or commencing work, provide samples of the following materials/ fittings/ finishes/ workmanship for inspection by the Architect:-

- Clipsham limestone
- Secondhand hand made red bricks, approx. size 220x110x48mm to match existing in colour and texture
- Tooling of new stonework.
- Hydraulic lime mortar for pointing and bedding. Allow for preparing 20 no. samples.
- Pointing samples showing finish to match existing, full and flush, set slightly back from arris, brushed back to expose aggregate and remove laitance.
- Lime mortar repairs, toned to match the bricks.
- Paint colours
- Paint application by brush
- Secondhand red clay pantiles to match existing
- Trial removal of plywood spandrel panel to one dormer for inspection purposes.
- Secondhand red clay chimney pot

1.7.2 Note that all secondhand materials are to be sourced from recognised reclaimed building material yards with verified provenance.

1.8 **Bats**

1.8.1 No bat activity has been noted to the building but the contractor is to remain vigilant and advise the Architect immediately on discovery of a bat.

1.9 Note on Window Repairs

- 1.9.1 External redecoration is required throughout. The opportunity is to be taken to improve draught-proofing of windows, but this is only required on one window for each room – the other windows are to be painted shut. The exact means of upgrading the sashes and overhauling them to correct operation is to comprise careful removal of upper and lower sashes, replacement of sash cords and weights as necessary, insertion of weather strips to perimeter and meeting stile (but NOT replacement for parting beads and staff beads with proprietary weather strips), and then re-assembly of sashes, ensuring ease of operation. External redecoration is to extend to those parts of opening sections which would become visible when the window is opened. A similar approach is to be adopted for the dormer casements, including removal of casements and refixing once they have been draught stripped. It would be acceptable to amend the windows which are selected for opening and those which are selected for painting shut, if for example one sash opens relatively freely already. An example of a proprietary system which may be adopted (subject to detailed agreement) would be that provided by:

Ventrolla,
 Ventrolla House, Crimple Court, Hornbeam Business Park, Harrogate, N. Yorks, HG2 8PB, Tel:
 01423 859 323 info@ventrolla.co.uk

1.10 On Completion

- 1.10.1 The Contractor is to undertake an internal clean of the building to remove all dust and debris consequent upon the works.
- 1.10.2 Following removal of the access scaffolding, temporary protection and site compound, external surfaces are to be returned to their existing condition. Allow for re-levelling, picking through to remove debris and re-seeding or re-turfing as necessary.
- 1.10.3 Clean down road adjacent to Rectory. Ensure no gullies are blocked with debris.

2.0 SCAFFOLDING

- 2.1 Allow for independent access scaffold externally in order to carry out the repairs described below. Take particular note of requirements for protection and reinstatement of surfaces as described in Section 1.0 above.
- 2.2 The scaffold is to be erected and dismantled taking extreme care to prevent any damage to the building. Any damage caused is to be made good at the Contractor's own expense.
- 2.3 The base of the scaffold is to be fitted with 4m high solid metal sheeting (NOT Heras fencing on edge) or similar incorporating a lockable door with escape latch, and also incorporating two fans to serve the two entrance doors.
- 2.4 On completion of the works, clear away scaffold and reinstate turf damaged by scaffolding.

3.0 CHIMNEYS

- 3.1 Allow for all preliminaries in connection with this section of the work.

3.2 **Chimney C1:**

- i. Record the capping detail and mark bricks on a drawing to allow for rebuilding to same pattern. Carefully dismantle capping and top 10. no. courses of brickwork and rebuild, reinstating brickwork in the same order. Replace 11 no. bricks. Prepare and repoint the remainder of the chimney, including lead wedging and repointing new code 5 milled lead flashings (using sealant to back of joint, with sand dashed on whilst green and repointing using NHL 5 lime mortar) with patination oil over.
- ii. Employ a chimney specialist (HETAS registered) to test the two flues serving the ground floor rooms, using a coring ball of 100mm diameter, smoke balls and a CCTV camera to ascertain whether the flues are suitable for solid fuel fires (to be installed in a later phase).
- iii. Allow a PROVISIONAL SUM of £2500 for works to allow the 2 ground floor flues to be used for solid fuel fires.
- iv. PROVISIONALLY allow for 4 no. new chimney pots – exact style to be agreed.

3.3 **Chimney C2:**

- i. Supply and install a new code 5 lead flashing to weather the top of the new copings – lead wedge and point up using sealant to back of joint, with sand dashed on whilst green and NHL 5 lime mortar facing. Apply patination oil over new lead.
- ii. PROVISIONALLY allow for 4 no. new chimney pots – exact style to be agreed.

3.4 **Chimney C3:**

- i. Prepare and repoint an area on the south elevation as shown on the drawing. Prepare and repoint the west elevation completely (not the capping). Prepare and repoint the north elevation completely. Prepare and repoint the cracks on the east elevation as shown. Replace 1 no. damaged machine made plain tile to right of chimney.
- ii. PROVISIONALLY allow the extra over cost for 100% repointing to this chimney.
- iii. PROVISIONALLY allow for 4 no. new chimney pots – exact style to be agreed.

4.0 **ROOF COVERINGS**

4.1 Allow for all preliminaries in connection with this section of the work.

4.2 Prepare and redecorate both hip irons.

4.3 **Roof R2:** Reset slipped pantile below chimney C2. Strip pantiles, battens and felt locally to left of dormer W3.5 and reroute the soil pipe so that it rises parallel with the rafters to a new outlet in the valley gutter roofs. Refelt in breathable felt, rebatten and reinstate pantiles. Assume 1 no new secondhand handmade pantile will be required.

4.4 **Roof R7:** Remove 2 redundant cables either side of dormer.

4.5 **Valley Gutter and adjacent Slopes:** Carry out the following works:

- i. Remove all silicone mastic which has been inserted to joints between pantiles. Prepare and repoint all joints with a well-haired NHL 5 lime mortar.
- ii. Allow the PROVISIONAL extra over cost of completely stripping the pantiles, battens and felt, and reroofing with new Protect VP400 breathable felt, new 25x38mm preservative treated battens and counterbattens, and refitting the pantiles, assuming 25 new pantiles will be required, ensuring that pantiles are correctly lapped (they have minimal laps at present). Allow for temporary tarpaulin sheeting to ensure rainwater is prevented during the works. Assume secret gutters at abutments will be retained as they are. Include for 1 new lead slate to vent the rerouted SVPo2.
- iii. PROVISIONALLY allow for removing and rebedding all the ridge tiles in NHL 5 lime mortar.
- iv. Allow a PROVISIONAL SUM of £4500 for 18 no. new vent tiles, assuming a sum of £250 each.
- v. PROVISIONALLY allow the extra over cost for releading the valley gutter in 7 and 8lb sand cast lead, to a new layout to reduce the bay size to suit current LSA recommendations, retaining the existing sump. Use new preservative treated softwood boarding, 25mm, for revised sub-structure. Apply patination oil to new lead. Assume temporary sheeting and tarpaulins supported on temporary bearers spanning between the ridges, not a full temporary roof, to ensure rainwater is prevented during the works. Refer to 7.50 below for alterations to access hatch W3.9.
- vi. PROVISIONALLY allow for replacing all the lead flashings, secret gutters and valleys in Code 5 milled lead, with patination oil over.
- vii. Supply and install a new purpose made lead slate to accommodate vent from rerouted soil pipe from roof R2 (see 4.3 above). Assume a new code 5 lead sleeve to PVC outlet.

5.0 **RAINWATER DISPOSAL GOODS**

5.1 Allow for all preliminaries in connection with this section of the work.

5.2 **Cornice Gutter to South, West and North (part) Elevations:** Redress lead on south elevation over 2 no. T-Pren joints. Prepare and redecorate joinery completely.

5.3 **Eaves Gutter to North Elevation:** Prepare and redecorate completely, using bitumen paint to interior of gutter.

5.4 **RWPo1:** Replace all oak bobbins. Prepare and redecorate full height.

5.5 **RWPo2:** Replace lower section in new cast iron. Replace all oak bobbins. Prepare and redecorate full height.

5.6 **RWPo3:** Replace all oak bobbins. Prepare and redecorate full height. Provide new code 5 milled lead cover to hopper.

5.7 **RWPo4:** Prepare and redecorate full height.

5.8 **RWPo5:** Prepare and redecorate full height.

- 5.9 **RWPo6:** Provide new code 5 milled lead cover to hopper. Replace all oak bobbins. Prepare and redecorate full height.
- 5.10 **SVPo2:** Prepare and redecorate full height. Refer to 4.3 above for rerouting vent section.
- 5.11 **SVPo3:** Prepare and redecorate full height.
- 5.12 **SVPo4:** Remove redundant soil pipe and hopper and make good all holes in masonry. Leave gully.
- 6.0 **EXTERNAL WALLS**
- 6.1 Allow for all preliminaries in connection with this section of the work.
- 6.2 **South Elevation:** Carry out repairs as shown on the drawings comprising:
- i. Prepare and repoint left hand brick quoins as shown, replacing 2 moulded quoin bricks, removing 4 no. fixing points and redecorating one old shutter fixing.
 - ii. Prepare and repoint part of window W1.1 head.
 - iii. Prepare and repoint at low level as shown below windows W1.1-W1.3, replacing 4 no. bricks and replacing 2 no. bullnosed plinth bricks.
 - iv. Prepare and repoint around head of window W1.2 as shown and replace 2 bricks.
 - v. Prepare and repoint top right of window W1.3.
 - vi. Prepare and repoint areas as shown to head of door D1.1.
 - vii. Prepare and repoint at low level to base of door D1.1 and replace 5 no. bricks.
 - viii. Insert stainless steel bed joint reinforcement above window W1.4, replace 1 brick and prepare and repoint as shown.
 - ix. Prepare and repoint to head of window W2.5 as shown.
 - x. Prepare and repoint small area between windows W2.5 and W2.6.
 - xi. Prepare and repoint large area at low level below windows W1.4-W1.6, replacing 37 no. bricks and replacing 1 bullnose plinth brick, removing 2 old fixings.
 - xii. Remove 5 old fixings either side of window W1.5 and make good holes.
 - xiii. Insert stainless steel bed joint reinforcement above window W1.6, repair 1 brick with a coloured mortar repair and prepare and repoint as shown.
- 6.3 **West Elevation:** Carry out repairs as shown on the drawings comprising:
- i. Carefully defrass sill to window W2.21.
 - ii. Remove 22 no. old fixings right of RWPo6 and make good holes.
 - iii. Prepare and repoint crack above window W1.17.
 - iv. Prepare and repoint below and left of window W1.17.
 - v. Prepare and repoint the whole of the plinth course.
 - vi. Replace 5 no. bricks at low level as shown.
 - vii. Prepare and repoint at low level as shown.
 - ix. Remove remains of dead ivy and live ivy, apply systemic herbicide.
- 6.4 **North Elevation:** Carry out repairs as shown on the drawings comprising:
- i. Replace 1 no. brick to bottom left of window W2.11.
 - ii. Prepare and repoint crack to left of window W2.11.
 - iii. Prepare and repoint top right of window W1.13.
 - iv. Prepare and repoint below sill of window W1.15.
 - v. Prepare and repoint bottom right of window W2.14.
 - vi. Remove 2 old fixings right of window W1.16 and make good holes.

- vii. Prepare and repoint right of door D1.6 and replace 5 no. bricks.
- viii. Replace 1 no. brick above window W2.16.

6.5 **East Elevation:** Carry out repairs as shown on the drawings comprising:

- i. Remove existing concrete copings and kneelers and replace in new Cream Clipsham limestone in NHL 5 lime mortar.
- ii. Replace 2 no. bricks towards apex of left hand gable.
- iii. Prepare and repoint to head of window W3.1 and carry out 2 no. mortar repairs to head.
- iv. Prepare and repoint to head of window W3.3.
- v. Prepare and redecorate 2 no. tie bar plates.
- vi. Remove fixing to sill of window W3.1 and make good holes with mortar repairs.
- vii. Pin and point crack to sill of window W3.2.
- viii. Prepare and repoint adjacent to right hand kneeler.
- ix. Replace 1 no. brick below window W2.8.
- x. Prepare and repoint to left and below window W2.9.
- xi. Prepare and repoint bottom left of window W2.9.
- xii. Remove 10 no. old fixings and make good holes.
- xiii. Replace brick above head of window W1.7.
- xiv. Prepare and repoint top left of window W1.8.
- xv. Prepare and repoint top right of window W1.9.
- xvi. Pin and point crack to sill of window W1.9.
- xvii. Prepare and repoint at low level as shown.
- xviii. Replace 75 no. bricks at low level, exact locations to be agreed.
- xix. Remove existing render to back of parapet and re-render in NHL 5 lime based render. Lead wedge and repoint all lead flashings.

7.0 **WINDOWS AND DOORS**

- 7.1 Allow for all preliminaries in connection with this section of the work.
- 7.2 **W1.1:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.3 **W1.2:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.4 **W1.3:** Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.5 **W1.4:** Piece in to replace rotten timber to base of right hand rail, using new hardwood suitable for painting. Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.6 **W1.5:** Piece in to replace rotten timber to base of right hand rail, using new hardwood suitable for painting. Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.7 **W1.6:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.8 **W1.7:** Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.9 **W1.8:** Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.

- 7.10 **W1.9:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.11 **W1.13:** Piece in to repair damaged right hand frame in new hardwood suitable for painting. Reputty all panes. Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.12 **W1.14:** Replace sill in new hardwood suitable for painting. Reputty all panes. Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.13 **W1.15:** Prepare and redecorate this window.
- 7.14 **W1.16:** Replace bottom rail of lower sash in new hardwood suitable for painting. Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.15 **W1.16a:** Prepare and redecorate this window.
- 7.16 **W1.17:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.17 **W1.18:** Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.18 **W1.19:** Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.19 **W1.20:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.20 **W2.1:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.21 **W2.2:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.22 **W2.3:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.23 **W2.4:** Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.24 **W2.5:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.25 **W2.6:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.26 **W2.7:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.27 **W2.8:** Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.28 **W2.9:** Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.29 **W2.10:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.30 **W2.11:** Remove moss from stone sill. Replace timber sill in new hardwood suitable for painting. Prepare and redecorate this window, painting it shut to prevent draughts.

- 7.31 **W2.12:** Prepare and redecorate this window.
- 7.32 **W2.13:** Prepare and redecorate this window.
- 7.33 **W2.14:** Prepare and redecorate this window, ensuring casements both open, but do not upgrade draught stripping.
- 7.34 **W2.15:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.35 **W2.16:** Replace broken pane in Polish P1 glass and reputty in position. Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.37 **W2.17:** Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.38 **W2.18:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.39 **W2.19:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.40 **W2.20:** Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.41 **W2.21:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.42 **W3.1:** Remove existing casements and strip down frame to allow inspection by Architect to establish whether old sash box survives. PROVISIONALLY allow for completely replacing the sash boxes, frame, weights, cords and sashes with new, in hardwood suitable for painting, to match the pattern of W3.2, using new Polish P1 glass in linseed oil putty.
- 7.43 **W3.2:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.44 **W3.3:** Prepare and redecorate this window, painting it shut to prevent draughts.
- 7.45 **W3.4:** Provide new code 5 milled lead cover flashing to verge with patination oil over. Rebed end ridge below new flashing. Replace sill with new hardwood suitable for painting. Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.46 **W3.5:** Provide new code 5 milled lead cover flashing to verge with patination oil over. Rebed end ridge below new flashing. Replace sill with new hardwood suitable for painting. Allow a PROVISIONAL SUM of £250 for works to bottom left hand corner of frame. Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.47 **W3.6:** Provide new code 5 milled lead cover flashing to verge with patination oil over. Rebed end ridge below new flashing. Piece in new hardwood suitable for painting to rotten bases of both side rails. Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.48 **W3.7:** Provide new code 5 milled lead cover flashing to verge with patination oil over. Rebed end ridge below new flashing. Remove both side cover strips. Piece in to base of left hand frame. Replace right hand frame completely. Replace both cover strips. Use new hardwood

suitable for painting. Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.

- 7.49 **W3.8:** Provide new code 5 milled lead cover flashing to verge with patination oil over. Rebed end ridge below new flashing. Piece in to bottom right of frame in new hardwood suitable for painting. Piece in bottom left of casement in new hardwood suitable for painting and provide new stainless steel angle bracket, set flush with the face of the timber. Overhaul the window to correct operation, upgrade draught stripping and prepare and redecorate.
- 7.50 **W3.9:** Carry out the following works:
- i. Remove lead roof and cheeks and allow a credit for salvage value. Carefully strip down window to its component parts to allow for alterations, ensuring adequate protection from rain throughout. Remove plasterboard locally to accommodate the works.
 - ii. Supply and install a new 200x100mm preservative treated softwood sole plate to raise the height of the sill.
 - iii. Reassemble the window structure at higher level including forming new roof section with back gutter detail, with new preservative treated softwood boarding over. Extend the drip at the front edge of the roof with a 75x75mm cyma moulded section of hardwood suitable for painting, with boarding over.
 - iv. Clad the roof and cheeks in new 7lb sand cast lead, with patination oil over. Include for ventilated eaves detail at the head of the cheeks using Nicholson Airkrak eaves vent (tel: 0845 0098 980) to ventilate below the lead flat. Provide new 25x25mm hardwood beads suitable for painting to secure the front edge of the cheek leadwork.
 - v. Supply and install 100mm Celotex FS5100 insulation between joists, ensuring a 50mm ventilation gap above. Supply and install 40mm Celotex FR5040 insulation with integral vapour control layer under the joists and relin with new plasterboard and skim. Make good internal plaster decorations in emulsion.
 - vi. Alter and amend the window frame as shown. Remove the mullion and clear away. Supply and install a pair of new wider casements with a staff beaded meeting stile, in hardwood suitable for painting, with new weather striping to perimeter and meeting stile, and reusing the old ironmongery. Prepare and redecorate all window joinery, ensuring correct operation.
- 7.50 **Do.1:** Prepare and redecorate this door, ensuring correct operation.
- 7.51 **D1.1:** Carry out the following works:
- i. Remove lead to canopy and replace in new 7lb sand cast lead turned up at wall face, with new code 5 milled lead flashing over, wedged and pointed (using sealant to rear of joint, dashed with sand whilst green and then finished in NHL 5 lime mortar). Apply patination oil to new lead.
 - ii. Carefully remove the panelled bases to both sides of the door frame and allow Architect to inspect and record detail behind. Refix panelled base on completion.
 - iii. Prepare and redecorate all joinery, ensuring correct operation of door.
- 7.52 **D1.5:** Prepare and redecorate this door, ensuring correct operation.
- 7.53 **D1.6:** Prepare and redecorate this door, ensuring correct operation.

8.0 **CONTINGENCY**

- 8.1 Allow a contingency sum of 7.5% of the total of Sections 1.0 – 7.0 in the Schedule of Work above (i.e. including the value of preliminaries).

COLLECTION PAGE

Schedule of Work (costs including preliminaries)

1.0	General	.....
2.0	Scaffolding	.....
3.0	Chimneys	.....
4.0	Roof Coverings	.....
5.0	Rainwater Disposal Goods	.....
6.0	External Walls	.....
7.0	Windows and Doors	.....
8.0	Contingency	.....

	Sub-total	.....
	VAT	.....

	TOTAL	.....

FORM OF TENDER

Tender for: **Epworth Old Rectory – External Fabric Repairs**

Sir(s)

I/We the undersigned, having read the Preliminaries, General Conditions, Specification and Schedule of Work delivered to me/us do hereby offer to execute and complete in accordance with the said conditions of contract the whole of the works described for the sum of:

.....(pounds)

(£.....) excluding VAT

To commence the work withinweeks of the date of instruction.

To complete the work withinweeks of the date for possession.

I/We agree that should obvious errors in pricing or errors in arithmetic be discovered before acceptance of this offer in the priced Schedule of Work submitted by me/us these errors will be dealt with in accordance with Alternative 2, contained in Section 6 of the 'Code of Procedure for Single Stage Selective Tendering 1989'.

This tender remains open for consideration for 9 months from the date fixed for the submission or lodgement of tenders.

Dated thisday of.....2012

Name

Address

.....

.....

Signature

Rodney Melville & Partners,
10 Euston Place,
Leamington Spa,
Warwickshire.
CV32 4U

Job No. 6472

APPENDIX A

Designer's Risk Assessment

APPENDIX B

Drawings

6472/01-13