Specification and Pre-Construction H&S Information
for
Fabric repairs and re-ordering

STOCKLAND BRISTOL
St Mary Magdalene

Job No: 0281

Churchcare Code: 601532

Date: 13 Feb 2025
Revision: A

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Revisions

Rev	Date	Action / Notes
A	13.02.2025	Client amendments

1 INTRODUCTION

1.1. The project comprises the repair and conservation of the church building and internal re-ordering.

1.2. The document has been prepared in support of a Faculty application. A Statement of Need and a Statement of Significance has been prepared by the PCC and accompanies this documentation.

1.3. The Drawings and Specification has been prepared so that proposals can be assessed by the Diocese. In due course, a quantified Schedule of Works will be prepared so that Contractor tenders can be obtained.

1.4. In preparing this document, Chantrey Conservation Architects Ltd have taken on the two different Principal Designer roles as required by the Construction (Design and Management) Regulations 2015 and the new Building Safety Act. As such, the document seeks to also provide Pre-Construction Health and Safety documentation for the Client to discharge their H&S obligations and to allow a Principal Contractor to be appointed.

1.5. The last quinquennial inspection report was undertaken by Marcus Chantrey, AABC, RIBA in April 2024 and cross reference should be made to this document.

2 BACKGROUND INFORMATION

2.1. Summary Description of the Church

2.1.1. Stockland Bristol is located at the foot of the Steart peninsula and is approximately 5 mile northeast of Bridgwater. The village is recorded in the Domesday Book under the name Stocheland and the Bristol name was added as a result of its ownership by the Bristol Corporation from 1541-1839.

2.1.2. Thomas Daniel (1792 – 1854), a Merchant Venturer and sugar merchant and sometimes referred to as the 'King of Bristol' is known to have speculated at the time of emancipation of the slaves and much of his wealth is believed to have come about this way. In 1838, Daniel's son, Thomas Daniel of Stoodleigh, purchased the 707-acre estate of Bristol Stockland from the Bristol Corporation and having previously purchased the advowson, he then rebuilt the church and Stockland Manor (1860) for his son, Henry Daniel the vicar between 1857 and 1883. The medieval church was demolished/rebuilt in 1865. The design has been attributed to Oswald Arthur of Plymouth but an article in the Somerset Free Press assigns the design to T S Hack of Bristol and following his sudden death, to Godwin & Crisp.

2.1.3. The church comprises chancel, nave, north aisle, north vestry, south porch, south chapel and west tower. The church is built of blue lias stone, probably with a brick core with Bath Stone dressings under plain clay tiled roofs. The roof tiles were Staffordshire Brown and the floor tiles by Godwin of Hereford.

2.1.4. The church is Grade II listed although it is not within a Conservation Area. The church is on Historic England's 'at risk' register. The 'at risk' description is as follows:

Parish church built in 1865 of blue lias rubble stone. Designed by Arthur of Plymouth for the Daniel family of Stockland Manor. Roofs need re-covering and there are a number of slipped tiles. Structural stability is poor with cracking to window surrounds and major fracture through the tower, loose and bulging stonework. Some repairs to valley gutter and one window which was blown in, were carried out in 2017 and in 2019 the kneeler and copings to the vestry gable were reset. The parish is putting together proposals for repair but the church remains in a very poor state.

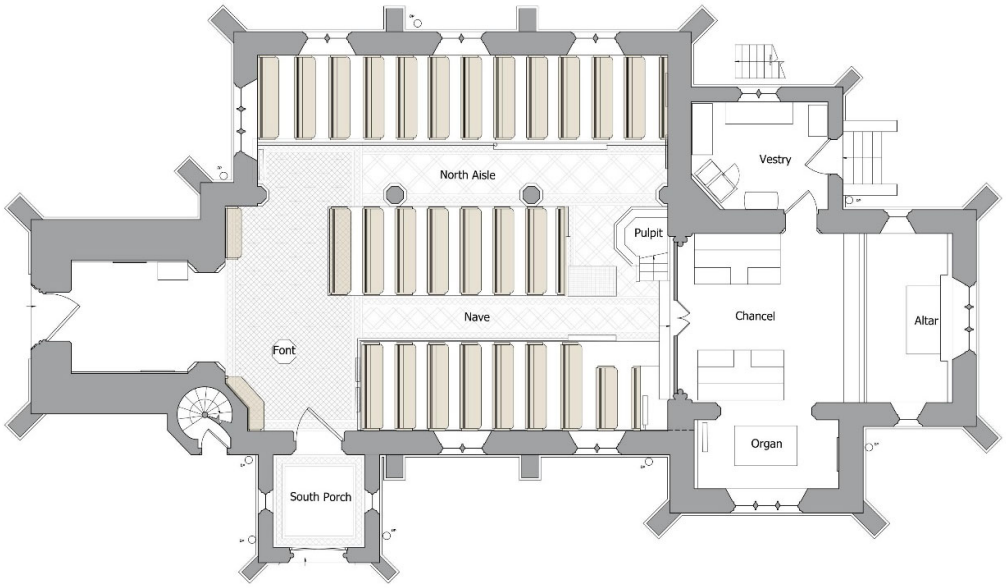
2.1.5. The font is early perpendicular and comprises an octagonal bowl with pointed quatrefoils and underside foliage and shields. The screen is part late 15th century and comprises four-light tracery, undercut foliage along the rail and crocketed ogee base panels. The outer panels and cornice are by Bligh Bond and date to the 1920s. The pulpit dates from 1867.

2.1.6. The listing description is as follows:

Parish church. 1865 from documents; on the site of an earlier parish church; for Daniel family of Stockland Manor (qv); by Arthur of Plymouth. Coursed and squared blue lias rubble, Bath Stone dressings, tile roofs with bracketted eaves, copings with cruciform finials. Decorated style with much buttressing; nave with a north aisle and South porch, West tower, chancel with a heated north vestry and a South chapel. Three stage tower, diagonal buttresses to first and second stages, parapet pierced with quatrefoils, stair turret, 2-light bell chamber openings with louvres 3-light West window, West door, carved heads stops. Three bay nave, 2-light windows; single bay chancel, 2-light window and a lancet, 3-light West window; 3-light South window to short South chapel. Plain interior, plastered walls, tile floors wagon roofs to nave and chancel, that to nave unceiled; scissor braced roof to north aisle. Arcade on octagonal piers. Both the octagonal font and the chancel screen are C15, reused from the earlier church; the latter

restored and installed by F Bligh Bond c1920 as a memorial to the fallen of the Great War. Remainder of fittings of 1865; notable the stone pulpit with 10 detached Purbeck shafts, similarly the reredos. Much C19 stained glass, that to chancel by Clayton and Bell. Two re-sited C17 tablets to South chapel, 2 C19 tablets. Bells of 1865. Well balanced and precise copy of a Decorated building. Thomas Daniel was the rector. (Pevsner, Buildings of England South and West Somerset, 1958).

2.1.7.



Above: Plan of the church in 2025.

2.2. Condition Statement

2.2.1. The Condition Summary from the QQ is as follows:

Roofs
The condition of the roofs of the church varies from good to poor with batten slippage to the south slope of the nave roof. Patch repair and maintenance needs to continue to the other roofs.

Rainwater Goods
The rainwater goods around the church are functional but multiple stop ends are missing. All the water discharges directly into the below ground drainage about which we know little. The rainwater goods need decoration.

Masonry
The walls of the church are in poor condition particularly at high level where the gables lean backwards and many of the coping stones are dislodged, allowing water into the head of the wall. The condition of the pointing is poor and there are multiple areas of cement pointing which is trapping water causing the blue lias stone to swell, which in turn is causing further problems.

Windows
The condition of the windows is poor with some stone jambs misaligned as a result of the swelling of the blue lias stone. Tie bars are present in most windows, and these are rusting causing damage to the stonework.

Tower
The condition of the tower roof is fair, but the condition of the tower masonry is poor and locally very poor with the upper part of the vice turret in exceptionally bad condition. An iron ring around the base of the vice turret is causing damage. Missing sections of string course need to be reinstated.

Interior
The interior of the church is in fair condition, but light levels are poor, and the interior is unwelcoming for this reason. The walls include multiple cracks, and some repairs are required to the tiled floor.

Churchyard
The churchyard is well maintained and the condition the boundary walls is fair.

2.3. Description of the Works

2.3.1. The works comprise:

- Repointing to all of the external walls.
- The rebuilding of the upper part of the vice turret.
- Stitching of cracks to the tower walls.
- Stitching and rebuilding delaminating inner skin of brickwork
- Tower parapet rebuilding.
- New tower lead roof.
- Nave south roof and vestry south roof recovered.
- Vestry lead valley gutter remodelled.
- Copings reset with new DPC installed.
- Loose quoins and dressings reset.
- Localised stone conservation.
- Windows releaded with new tie bars.
- Below ground surface water drainage repairs and new gullies.
- New handrails to churchyard steps and basement.
- Bells rehung and bell-frame strengthened
- Level access into the churchyard created.
- Ground levels raised to create level access into the church.
- New accessible WC installed with Trench Arch drainage.
- North aisle pews removed and floor lowered.
- New Kitchenette.
- New screen between north aisle and nave.
- The relocation of the two war memorials.
- The rehanging of the prayer boards.
- Removal of redundant heating installation and radiators.
- New lighting including emergency lighting.
- New electric heating in the north aisle and refurbished areas.
- Floor and plaster repairs.

2.3.2. In parallel with the Faculty application, Planning Permission has been applied for the changes in external appearance and an application has been made to the Environment Agency for the construction of the Trench Arch drainage system.

3 PRELIMINARIES

3.1. Contract

3.1.1. The Contract Documents will be prepared by the Quantity Surveyor in due course as part of the Round 2 grant from the NLHF, but the contract is likely to be a JCT Intermediate Form of Contract.

4 PRE-CONSTRUCTION H&S INFORMATION

4.1. CDM Regulations - Health & Safety

4.1.1. Under the Construction (Design and Management) Regulations 2015, the Client is a 'commercial client' and therefore has responsibilities. The Client has contractual control, appoints designers and contractors, and determines the money, time and resource for the project.

4.1.2. The Principal Contractor must prepare a Construction Phase Plan before the construction phase begins. This responsibility includes providing Method Statements, Risk Assessments and COSHH information to the Client and the Principal Designer in advance of commencing any works. All Contractors must comply with the CDM Regulations to ensure a safe place of work and a safe system of operation.

4.1.3. Prior to commencing works, the Contractor shall provide evidence of Employer's and Public Liability Insurance.

4.1.4. Chantrey Conservation Architects Ltd (CCA) are appointed as the Principal Designers for the project. Through the preparation of this document, CCA have taken on the Principal Designer role and will continue to do so through to completion of the project. A Schedule of Risks for the project is included in this document. This document includes input from other members of the Design Team.

4.1.5. The project is notifiable to the HSE where construction will last longer than 30 working days **and** involve more than 20 workers at any one time, **or** where the work exceeds 500 individual worker days. This project is assumed to be notifiable.

4.1.6. There is a requirement for the Client to appoint a Principal Contractor where more than one contractor is involved on site. The Contractor needs to understand that work must not be sub-contracted without taking on the role of Principal Contractor under the CDM Regulations. All costs associated with the Principal Contractor's responsibilities and duties are deemed to have been included.

4.1.7. The Contractor must not commence works until the Construction Phase Health & Safety Plan has been prepared and submitted to the Client and the Principal Designer. The Contractor or Principal Contractor is to develop the Plan using the Pre-Tender H&S information contained within this document. Pre-Tender H&S documentation has been prepared and in addition to this document, any drawings or reports referred to or contained within the Tender Documents should also be referred to. This document has not set out to identify commonplace hazards and risks.

4.1.8. At the completion of the works, the Contractor is to supply information for inclusion in the Client's Health and Safety file. This information is to include the supplier and source of materials used, as well as the names and addresses of every sub-contractor engaged in the contract together with a brief description of the works carried out.

4.2. The Site

4.2.1. The church is located approximately 7 miles northwest of Bridgwater.

4.2.2. There is parking on the road outside and by agreement during the day at the Club which is close-by.

4.2.3. The post code is: The post code is: TA5 2PZ.

4.3. Existing Utilities and Services

4.3.1. The CDM Regulations require that where a Health & Safety File exists, the Client must ensure it is available for inspection by any person who may need information for the purposes of complying with the Regulations.

4.3.2. Electricity - The mains incoming electrical supply enters the churchyard at high level with the cable fixed to the wall of the tower. The wiring then descends the outer wall to the Distribution Board located at high level on the west wall of the vestry.

4.3.3. Electricity - The Contractor is to include for the provision of any temporary connections for use on the site. For temporary light fittings, no halogen or other 'hot' lamp fittings are to be used on site.

4.3.4. Electricity - The Contractor must pay for the electricity used to undertake the works. No responsibility will be accepted for the consequences of failure or restriction in supply. Electricity is not to be used for any heating except by prior agreement, and in this instance, meter readings will need to be taken.

4.3.5. Gas – There is no gas supply near to the church.

4.3.6. Oil – There is no oil storage tank on church land.

4.3.7. Water - There is no mains incoming water supply serving the church, but a new supply is proposed. Once installed, water is available for use during the works. The Contractor must include for the provision of any temporary connections and storage, should this be required. The Contractor should satisfy themselves that the water pressure is adequate for the purposes intended. Water use can be negotiated with neighbours.

4.3.8. Drainage - The precise routing of surface water drains is not known but soakaways are assumed to exist. No chemicals, water or other liquid containing cement, lime, paint of other non-organic products are to be disposed of down drains.

4.3.9. Services generally - Before starting work, check and mark position of utilities/services and establish if they might be impacted or adversely affected by the proposed works.

4.4. Asbestos

4.4.1. An Asbestos Register/Management Plan exists for the building, and this will be made available to the Contractor to inspect. Asbestos is assumed or known to exist:

- In the safe in the vestry.
- Redundant boiler rope seals in the subterranean boiler room.
- Redundant boiler gaskets in the subterranean boiler room.

4.4.2. An Asbestos Demolitions and Refurbishment Survey will be required in advance of the work commencing but should asbestos be suspected or discovered during the works, then the work should stop until a professional assessment has been undertaken.

4.5. Fire

4.5.1. The Fire Risk Assessment will be made available to the Contractor by the Client.

4.5.2. The Fire Joint Code of Practice does not apply on account of the scale of the project but no rubbish may be burnt on site and smoking on site is not permitted. Good site management must take place at all times to minimise the risk and opportunity for fire.

4.5.3. All Hot Works must be pre-planned and undertaken fully in accordance with the requirements set down by the church building's insurers. Site welding of lead should wherever possible be undertaken 6 metres away from the building.

4.6. Access and Security

4.6.1. The church is normally open between the hours of 9am and 5pm.

4.6.2. Arrangements to visit the site can be made by contacting: John McVerry by email: john@heritageandcommunity.com

4.6.3. Any technical queries should be addressed to the Architect – Marcus Chantrey of Chantrey Conservation Architects Ltd. Tel: 07856 828406 or by email at: marcus@ccarch.co.uk

4.6.4. It is intended that the church will be closed, with worship undertaken elsewhere, when works are taking place internally but once complete, it is hoped the church can be reopened even if external works are continuing.

4.6.5. The Contractor is to provide appropriate Welfare Facilities to carry out the works as required by H&S legislation. By pre-arrangement, the Club close-by is making its WC facilities available for the Contractor's use without charge. WC facilities must be kept clean at all times with a thorough clean undertaken once a week.

4.6.6. Additionally, the Contractor should allow to bring in all the necessary accommodation and similarly the intention is that this accommodation can be placed in the Club carpark. There are no direct costs but upon completion the carpark is to be re-tarmacked in full. The precise siting of temporary accommodation is to be agreed at the Pre-Start meeting but please cross refer to Drg No: 0281-000-3 which indicates the allowed extent of the temporary accommodation.

4.6.7. The Contractor is responsible for the erection and maintenance of any site security fencing as well as the safe storage of all materials required to undertake the works. A fenced off area, up to 5 metres x 5 metres, is permissible in the churchyard, but a larger area can be requested if needed. Location to be discussed and agreed in advance of the site set-up.

4.6.8. The normal working hours are assumed to be between 7.30am to 5pm from Monday to Friday with no noisy working before 8am. Weekend working is not permitted accept by prior agreement. Music playing devices without headphones are also not permitted.

4.6.9. The Contractor must keep an accurate record of all personnel on site.

4.6.10. The Contractor is to provide all the plant and equipment required to undertake the works described. All equipment must be used appropriately and serviced regularly and must comply with Statutory Regulations. Appropriate PPE must be worn at all times.

4.6.11. Consent for parking a skip and for any road or pavement closures will be the responsibility of the Contractor.

4.6.12. The Contractor is to promptly clear away all rubbish and spoil arising from the work.

4.7. Schedule of Risks / Risk Analysis

	Activity, element or material that is a Hazard or Risk	Initial Risk	Design, mitigation or risk reduction actions	Residual Risk
4.7.2.	Excavations for drainage, new water supply and Trench Arch.	3	Trenches to be suitably protected.	2
4.7.3.	Basement stairs	4	Install temporary edge protection once post and wire fence has been removed.	2
4.7.4.	Confined spaces	4	Assess risks and manage.	2
4.7.5.	Burials - Unstable ground condition	3	Spreaders to base of scaffold poles.	2
4.7.6.	Underground services	2	Use CAT scanner and check Statutory Authority and PCC records.	1
4.7.7.	High level power lines - Electrocution	4	Visual survey. Ensure wires are armoured or sheathed. Seek advice from Electricity supplier. Incoming supply to be upgraded with new connection.	2
4.7.8.	Electrics – Electrocution	3	Identity all known routes.	2
4.7.9.	Asbestos – Asbestosis and Mesothelioma	2	Cross refer to Management Plan. Demolitions and Refurbishment survey.	1
4.7.10.	Gas installation	1	Gas supply previously terminated. No gas on site	1
4.7.11.	High level access – Risk of Falling from scaffold and roofs.	5	Install handrails to all edges including tower balustrading.	2
4.7.12.	Delamination of walls – falling plaster and masonry	4	Ensure temporary propping is in place before dismantling or disturbing walls. Sequencing carefully planned and temporary works designed. Vestry walls are a particular concern.	2
4.7.13.	Window tracery	4	Ensure temporary propping is in place before dismantling window stonework.	2
4.7.14.	Falling glass	4	Glazier to assess condition and stability of glass as early as possible. Loose glass to be removed.	2
4.7.15.	Loose quoins	5	Identify loose masonry and where required install temporary support or remove.	2
4.7.16.	Masonry including path paving slabs – Heavy items	3	Use appropriate lifting equipment.	2

4.7.17.	Bells	5	Heavy lifting and open bell hatches. All bell works led by bells specialists.	2
4.7.18.	Clock weight enclosure	4	Ensure edge protection is in place.	1
4.7.19.	Clock weights	3	Remove weights whilst works are taking place.	1
4.7.20.	Roofs – Removal of roof coverings – Batten slippage and failure.	4	Install temporary battens if required.	1
4.7.21.	Tower Staircase	3	Steep steps and rise of falling. Install handrail.	2
4.7.22.	Lead – Weight of large sheets	3	Use appropriate lifting equipment. Source lead to the correct size and cut to size at ground level.	2
4.7.23.	Lime products	3	Follow best practice guidance.	2
4.7.24.	Lead products – Lead Oxide	3	Follow best practice guidance. Vacuum the surface as the existing leadwork is removed.	1
4.7.25.	Birds – Droppings and Psittacosis	4	Specialist decontamination required before works commence.	1
4.7.26.	Bats – Rabies and other viruses	3	Be aware of the potential for bats. Wear PPE if bats and bat droppings are encountered.	2
4.7.27.	Site security – Public safety	4	Ensure site barriers, notices and protection.	1
4.7.28.	Roads and pavement working	4	Install notices and if necessary, traffic control to protect workforce.	2
4.7.29.	Difficult access	2	Appropriately sized vehicles brought to site.	1
4.7.30.	Working at height (e.g. wiring and Halo installation)	5	Use scaffold towers where appropriate	2

4.7.31. The aim to Eliminate, Reduce, Specify, Segregate and Inform (ERSSI)
Key – Risk Evaluation or Residual Risk
1 - Low
2 - Low to Medium
3 - Medium
4 – Medium to High
5 - High

4.8. Protection

4.8.1. Generally – The Contractor is responsible for protecting the church building, its contents and grounds generally from the effects of the construction. In addition, every effort must be made to install protection that is appropriate for the works being undertaken and to minimise the risk of injury to persons. The Contractor will be required to make good at their expense any damage or loss arising out of the failure to provide adequate care and protection. Adequate safeguards must be taken to protect against theft and/or vandalism.

4.8.2. Organ – The organ is to be protected in advance of the works commencing. The protection is to comprise 2 layers of polythene sheet. The Contractor should price and assume responsibility for installing the sheeting as well as its removal at the end of the works. In some instances, the

Client/PCC may prefer to arrange for their organ builder to do this. The item will be discussed at the Pre-start meeting.

4.8.3. External Monuments – Monuments outside the church, in the contract area or on the route for deliveries should be protected for the duration of the works to prevent accidental damage. The physical protection should comprise softwood framing and either OSB or plywood, and where necessary, padding. The protection should be installed to minimise the change in environmental conditions around the monument.

4.8.4. Internal Monuments – The font, pulpit and all monuments inside the church and within the contract area should be appropriately protected to prevent both dust and accidental physical damage.

4.8.5. Windows – All windows within the contract area where scaffolding is to be erected are to be protected from accidental impact damage with the use of twin polycarbonate sheeting.

4.8.6. Furniture / pews – For works inside the church, the pews and chancel screen is to be protected with dust sheets.

4.8.7. Tower – The clock workings and graffiti on the walls of the Ringing Chamber are to be protected from physical damage and dust.

4.8.8. Services - Provide protection, as appropriate, to enable the safe undertaking of the works. Ensure that drains and gullies remain clear at all times. Do not dispose of materials down drains and ensure that they remain free-flowing at the end of the works.

4.8.9. Churchyard – Ensure no damage to trees either above or below ground and take care to avoid compaction of the ground around trees. The works must be undertaken in accordance with the attached Method Statement prepared by Atworth Arboriculture.

4.8.10. Paths and hard-landscaped surfaces are to be protected from physical damage and kept free of mud and debris. Grass in heavily trafficked areas is to be protected to minimise compaction and subsequent damage to the soil through compaction. No weedkillers or fertilisers are to be used with this the confines of the churchyard and no new grass seed is to be introduced to the site.

4.8.11. Personal protection – Have available at least 2no safety helmets to BS EN 397 and 2no high visibility waistcoats for client or consultant use if required.

4.9. Programme & Progress Reports

4.9.1. Before commencing works, the Contractor must prepare a master programme for the works which should include planning and mobilisation by the Contractor and details of all sub-contractor work.

4.9.2. The Contractor should proceed regularly and efficiently until the completion of the works. Progress reports should be prepared every 4 weeks and discussed at monthly progress meetings.

4.9.3. The Contractor should notify the Architect and the Quantity Surveyor as soon as any extra unforeseen works become apparent. Additional works should not proceed without clear formal instruction. In some instances, guidance may need to be obtained from the Diocese.

4.9.4. For works where Building Regulation approval is required for the works, the Principal Contractor must prepare and share a Change Control Plan as an integral part of the Construction Phase Plan.

4.10. Archaeology and Ecology

4.10.1. The building is of high archaeological importance and the Contractor must immediately report any fossils, antiquities, bones and other objects of interest or value discovered during the works. All finds remain the possession of the Client. Should articulated human remains be found then works must stop immediately and advice sought from the Diocese. The extent of any Watching Brief is to be set by the Diocese and must be adhered to.

4.10.2. Bats or other protected species are known to be present in and around the building. A Preliminary Ecological Appraisal has been undertaken, winter surveys have been completed and summer surveys are planned for the spring. A strategy for working with and around the bats will be developed and the works will need to be undertaken in accordance with the Licence which will in all likelihood be required by Natural England. Care must be taken not to disturb bats or their roosts and if bats are discovered, then the advice and services of an Ecologist should be sought. Some of the works will need to be undertaken with an Ecologist in attendance.

5 SPECIFICATION AND WORKMANSHIP CLAUSES

C40 **Cleaning Masonry**
C41 **Repairing / renovating/ conserving masonry**
C51 **Repairing / renovating / conserving timber**
C52 **Fungus/Beetle Eradication**
D20 **Excavating & Filling**
E11 **Limecrete – Mixing /casting / curing**
G20 **Carpentry/timber framing/first fixing**
H60 **Plain roof tiling**
H71 **Lead sheet roofing**
H75 **Stainless steel roofing**
K10 **Gypsum board dry linings / partitions / ceilings**
K21 **Wood strip/ board fine flooring / linings / floorboards**
L20 **Doors / shutters / hatches**
L40 **Glazing – Traditional Leaded windows**
M20 **Plastered / rendered/ roughcast coatings**
M40 **Stone / concrete/ quarry / ceramic tiling / mosaics**
M60 **Painting / clear finishing**
N10 **General fixtures / furnishings / equipment**
N11A **Servery / kitchen fittings / furnishing and equipment**
N13 **Sanitary appliances and fittings**
P10 **Sundry insulation / proofing work**
P20 **Unframed isolated trims / skirtings / sundry items**
P31 **Holes, chases, covers and supports for services**
Q25 **Slab / brick / sett / cobble pavings**
R10 **Rainwater drainage systems**
R11 **Above ground foul drainage**
R12 **Below Ground drainage**
V90 **Electrical systems**
Z10 **Purpose made joinery**
Z11 **Purpose made metalwork**
Z20 **Fixings and adhesives**
Z21 **Mortars**

C40
Cleaning masonry

General/ preparation

110 Scope of work

1. *The removal of biological growths and vegetation from masonry .*
2. *The removal of sooty and organic deposits from the surface of masonry.*
3. *The removal of sulphation from protected stone surfaces*

120 Related repair and remedial works

Work to be carried out before cleaning work: *Vegetation removal.*

Work to be carried out after cleaning work: *Repointing*
Mortar repairs
Stone replacement
Limewashing and sheltercoating

142 Removal of fittings

Timing: *Before commencement of cleaning work*

Disturbance to surfaces: *Minimize.*

160 Protection

Surfaces not designated for cleaning: *Prevent damage, including marking and staining.*

Openings: *Prevent ingress of water, cleaning agents, and detritus.*

Vents and grilles: *Seek instructions before sealing up.*

Temporary mechanical fastenings

In masonry: *Locate in joints.*

In other surfaces: *Seek instructions.*

175 Control and disposal of wash water and detritus

Disposal: *Safely. Obtain approvals from relevant Authority.*

Control of wash water: *Collect and divert to prevent ingress and damage to building fabric and adjacent areas.*

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

190 Cleaning generally

Timing: *Works may not start on site until trials have been undertaken and the approach agreed.*

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

Evidence of training: *Submit on request.*

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

Detritus: *Remove regularly. Dispose of safely.*

Monitoring

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

Works to be inspected and approved in accordance with the requirements of the local planning authority.

Modifications to cleaning methods and materials: *Seek instructions.*

215 Record of cleaning works

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

Content: *Relevant attributes of cleaning methods used including:*

Equipment and settings.

Dwell times.

Number of applications.

Ambient temperatures.

Additional documentation: *Take photos of works in progress.*

Submission: *At completion of cleaning works.*

230 A Water washing and brushing

Trial sample reference: *001*

Surface: *Limestone*

Location/ Size: *Allow area 500mm x 200mm. Location to be agreed.*

Type of soiling: *Atmospheric soiling and biological growths*

Cleaning methods: *Gentle brushing and scraping combined with low pressure cold water washing.*

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

230 B Therma Tech Cleaning

Supplier: *Restorative Techniqes*

Trial sample reference: *002*

Surface: *Limestone*

Location/ Size: *Allow area 500mm x 200mm. Location to be agreed.*

Type of soiling: *Atmospheric soiling, Biological growths, Flexible paints, Chewing Gum, Wax and Oil.*

Cleaning methods: *High temperature carefully controlled steam cleaning. Undertake in accordance with guidance supplied by Restorative Techniques. Trial different nozzle types. The operative must be trained and experienced in the use of this equipment.*
For pricing purposes allow for 2 passes generally with additional passes undertaken in conjunction with poultice cleaning of heavy deposits.
For use on rendered surfaces, use high temperature and low pressure to minimise the risk of damage to the surface.

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

230 C Ammonium Carbonate Poultice

Supplier: *Restorative Techniques*

Trial sample reference: *003*

Surface: *Limestone*

Location/ Size: *Allow area 200mm x 200mm. Location to be agreed.*

Type of soiling: *Sooty deposits, salts and sulphation*

Softening Agent: : *Deionised water*

Cleaning methods: *Trial different concentrations of 2%, 5% and 10% and dwell times and combine with water washing and gentle brushing. Thick deposits to be carefully removed manually or with tools. The physical breaking down of the surface of thick areas is important in advance of the first application.*
For pricing purposes, assume 10% concentration in 2no applications with a third application to the worst affected areas. Assume that the 3rd application applies to 25% of the areas identified as requiring poultice cleaning.

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

Products/ equipment - Not Used

Application

412 Removal of loosely adhered deposits

Timing: *Before commencement of other cleaning methods.*

Surfaces: *Prevent damage, including abrasion.*

422 Biocide application

Preparation: *Remove any dead material and dampen dry growths*

Surfaces: *Prevent damage, including abrasion.*

Biocide treatment: *Appropriate solutions to kill growths and inhibit further growths.*

Dead growths: *Remove.*

432 Tooling

Tooling of surfaces: *Not permitted*

482 Steam cleaning

Surfaces: *Prevent damage, including abrasion.*

Equipment settings (including nozzle type and distance from surface): *Adjust regularly to achieve optimum cleaning performance for each surface.*

515 Plain poulticing

Surfaces: *Prevent damage, including abrasion.*

Application: *To wetted surfaces. Maintain contact with surfaces as poultice dries out.*

Poultice reinforcement: *Contractor's choice*

Drying: *Prevent excessively rapid or localized drying out.*

Spent poultice material: *Do not reuse.*

600 Limewater

Surfaces: *Stonework requiring mortar repair and sheltercoating.*

Application: *To surfaces in advance of conservation works. Sponge off any excess in advance of subsequent application. Do not let the stone dry our between application.*

Ω End of Section

C41
Repairing/ renovating/ conserving masonry

Generally/ preparation

110 Scope of work

Identification of masonry units to be removed, replaced or repaired: *Mark clearly, but not indelibly, on face of masonry units or parts of units to be cut out and replaced. Transcribe markings to drawings/ photographs.*

120 Site inspection

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

Parties involved: *Contractor's representative, Structural engineer & Architect*

Timing: *At the start of the project and when new areas of scaffolding are erected.*

125 Removal of fittings/ fixtures

Items to be removed, and reinstated on completion of repair work: *Noticeboards and signs.*

Identification: *Attach labels or otherwise mark items using durable, non-permanent means, to identify location and describe refixing instructions, where applicable.*

Treatment following removal: *As scheduled elsewhere.*

Storage: *Protect against damage, and store until required.*

Storage location: *On-site*

Reinstatement: *Refit in original locations using original installation methods.*

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

130 Removal of plant growths from masonry

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

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

Unwanted plants close to masonry: *Where removal of root system is not possible or desirable, cut through stem as close to the ground as possible. Remove bark from stump and apply herbicide paste. Leave stump to wither.*

Retained plants close to masonry: *Discuss extent of pruning required to permit access.*

140 Record of work

General: *Record work carried out to masonry clearly and accurately. Mark up drawings and take photographs, as necessary.*

Documentation: *Submit on completion of the work.*

Number of sets: *One*

Workmanship generally

150 Power tools

Usage for removal of mortar: *Not permitted*

155 Putlog scaffolding

Usage: *Not permitted*

160 Protection of masonry units and masonry

Masonry units: *Prevent overstressing during transit, storage, handling and fixing. Store on level bearers clear of the ground, separated with resilient spacers. Protect from adverse weather and keep dry. Prevent soiling, chipping and contamination. Lift units at designed lifting points, where provided.*

Masonry: *Prevent damage, particularly to arrises, projecting features and delicate, friable surfaces. Prevent mortar/ grout splashes and other staining and marking on facework. Protect using suitable nonstaining slats, boards, tarpaulins, etc. Remove protection on completion of the work.*

165 Structural stability

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

170 Disturbance to retained masonry

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

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

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

180 Workmanship

Skill and experience of site operatives: *Appropriate for types of work on which they are employed.*

Documentary evidence: *Submit on request.*

185 Adverse weather

General: *Do not use frozen materials or lay masonry units on frozen surfaces.*

Air temperature: *Do not bed masonry units or repoint:*

In cement gauged mortars when ambient air temperature is at or below 3°C and falling or unless it is at least 1°C and rising, unless mortar has a minimum temperature of 4°C when laid and the masonry is adequately protected.

In hydraulic lime:sand mortars when ambient air temperature is at or below 5°C and falling or unless it is at least 3°C and rising.

In nonhydraulic lime:sand mortars in cold weather, unless approval is given.

Temperature of the work: *Maintain above freezing until mortar has fully set.*

Rain, snow and dew: *Protect masonry by covering during precipitation, and at all times when work is not proceeding.*

Hot conditions and drying winds: *Prevent masonry from drying out rapidly.*

New mortar damaged by frost: *Rake out and replace.*

190 Control samples

General: Complete an area of each of the following types of work, and arrange for inspection before proceeding with the remainder: …….

Pointing removal and raking out to blue lias stonework. Area approx 1m x 1m.
New pointing to blue lias stonework. Area approx 1m x 1m.
New pointing to ashlar stonework. Area approx 1m x 1m or a minimum of 1 linear metre
New pointing to paving. Area approx 1m x 1m.

Material/ production/ accessories

215 Material samples

Representative samples of designated materials: *Submit before placing orders.*

Designated materials: *All new stone types as Scheduled in C41/240.*

Retention of samples: *Unless instructed otherwise, retain samples on-site for reference. Protect from damage and contamination.*

220 Recording profiles

Profiles: *Take measurements from existing masonry units, as instructed, to allow accurate matching of replacements.*

Recording in situ: *If there are no suitable joints to allow use of inserts, seek instructions.*

Drawings and templates: *Prepare as necessary. Templates must be clearly and indelibly marked to identify use and location.*

240 C Bath Stone - Hartham Park - Top Bed

Standard: *To BS EN 771-6*

Supplier: *Lovell Stone Group Ltd*

Type: *Hartham Park - Top Bed - Supply sample for on site approval*

Quality: *Free from vents, cracks, fissures, discolouration, or other defects that may adversely affect strength, durability or appearance. Thoroughly seasoned, dressed and worked in accordance with shop drawings prepared by the supplier.*

Finish: *60 grit fine rubbed.*

240 F Blue Lias

Standard: *To BS EN 771-6*

Supplier: *Purnell's Ashen Cross Quarry or other of the Contractor's Choice and subject to approval.*

Quality: *Free from vents, cracks, fissures, discolouration, or other defects that may adversely affect strength, durability or appearance. Thoroughly seasoned, dressed and worked in accordance with shop drawings prepared by the supplier.*

Finish: *Guillotined - 4 sides.*
Blend of standard bed heights (5"-5.5") with 'jumpers' additionally sought with 6"-7" bed heights. Allow for 25% 'jumpers'.
Depth - 4"- 6" and random lengths cut as required to match the coursing of the Bath Stone quoins.
Sample of guillotined stone to be agreed to match the existing on the church.

245 Replacement stone units

Sizes and profiles: *To match existing masonry. Maintain existing joint widths.*

Sinkings for fixings, joggles and lifting devices: *Accurately aligned and positioned in relation to existing masonry.*

Marking: *Mark each block/ dressing clearly and indelibly on a concealed face to indicate the natural bed and position in the finished work.*

250 Stone orientation

Orientation of natural bed

In plain walling: *Horizontal.*

In projecting stones and copings: *Vertical and perpendicular to wall face.*

In arches: *Perpendicular to line of thrust.*

255 Ashlar blocks/ Dressings

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

258 Existing templates

General: *Templates for replacement stones are available for making copy templates.*

260 Bricks (A)

Standard: *To BS EN 771-1.*

Manufacturer: *Wienerberger*

Product reference: *Stock Brick - Warnham Red Stock*

Size: *215mm 102.5mm x 65mm*

Special shapes: *Not required*

261 B Staffordshire Blue Clay bricks

Standard: *To BS EN 771-1.*

Manufacturer: *Ketley Brick Company*

Contact details

Address: *Dreadnought Works, Dreadnought Road, Pensnett, Brierley Hill, West Midlands. DY5 4TH*

Telephone: *01384 78361*

Web: *www.ketley-brick.co.uk*

Email: sales@ketley-brick.co.uk

Product reference: *Staffordshire Blue Class 'A' facing brick - Solid ~~or perforated~~*

Size: *215mm x 102.5mmx 65mm*

281 Fixings

Description: *Dowels and cramps*

Standard: *To BS EN 845-3*

Type: *Submit proposals.*

Material: *Austenitic stainless steel - Grade 316 due to marine location.*

Size, strength and number: *As necessary to resist loads likely to occur during the life of the building, and to prevent lateral displacement or pulling apart of the construction.*

Dismantling/ rebuilding

310 Dismantling masonry for reuse

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

Treatment: *Clean off old mortar, organic growths and dirt, and leave units in a suitable condition for rebuilding.*

Identification: *Mark each unit clearly and indelibly on a concealed face, indicating its original position in the construction. Transcribe makings to drawings/ photographs.*

New Item: *Record the locations of all sound and corroding fixings. Agree extent of fixing re-use with the architect.*

320 Rebuilding of parapet

Description: *Rebuilding tower Bath Stone parapet. Stone reused wherever possible. All cramps removed and replaced.*

Replacement materials: *Bath Stone as C41/240C.*

Mortar: *As section Z21.*

Standard: *BS EN 998-2*

Mix: *1:2½ NHL 3.5 hydraulic lime:sand as C41/820.*

Sand source/ type: *To be agreed.*

Fixings: *Cramps and dowels, as clause 281. NB: Grade 316 required.*

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

Joint surfaces: *Dampen, as necessary, to control suction.*

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

Exposed faces: *Remove mortar and grout splashes immediately.*

Joints: *Flush and to match the approved sample.*

Other requirements: *Each stone carefully numbered before disassembly.*
Pin fractures where found. Allow for 10no pins.
Undertaken localised mortar repairs and water traps filled.

321 Rebuilding of upper stage of vice turret

Description: *Rebuilding upper stage of vice turret. Bath Stone dressings, quoins, string courses and grotesques to be reused. Internal masonry lining stone also to be reused.*

Replacement materials: *New Blue lias plain walling as C41/240F.*

Mortar: *As section Z21.*

Standard: *BS EN 998-2*

Mix: *1:2½ NHL 3.5 hydraulic lime:sand as C41/820.*

Sand source/ type: *To be agreed.*

Fixings: *Cramps and dowels, as clause 281. NB Grade 316 required.*

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

Joint surfaces: *Dampen, as necessary, to control suction.*

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

Exposed faces: *Remove mortar and grout splashes immediately.*

Joints: *Flush and to match the approved sample.*

Other requirements: *Each stone numbered before careful disassembly.*
Mortar repairs to grotesques and fill all water traps.
Pin fractured stones and allow for 50no pins of various sizes..
Remove all cramps and iron ring beam.
Strapping as Engineer's detail.

Replacements and insertions

330 Preparation for replacement masonry

Defective material: *Carefully remove to the extent agreed. Do not disturb, damage or mark adjacent retained masonry.*

Existing metal fixings, frame members, etc.: *Report when exposed.*

Redundant metal fixings: *Remove.*

Recesses: *Remove projections and loose material; leave joint surfaces in a suitable condition to receive replacement units. Protect from adverse weather if units are not to be placed immediately.*

340 Replacement of stone

Stone: *As clause C41/240.*

Bedding depths: *Full bed. Assume 150mm for pricing purposes, not less than 100mm and to match the existing.*

Mortar: *As section Z21.*

Standard: *BS EN 998-2*

Mix: *1:2½ nonhydraulic lime putty:sand*

Sand source/ type: *Stone dust and sand to match the existing.*

Fixings: *Dowels and cramps, as clause 281. Replace corroded fixings, as clause 410*

Joints: *Agree on site with the Architect but assume flush and to match the existing.*

350 Stone inserts

Description: *To decay stonework where scheduled on drawings or as described in the Schedule of Work*

Stone: *As Clause C41/240 and to match the existing*

Finish: *Flush and to match existing.*

Preparation and insertion: *As clause 395.*

Mortar: *As section Z21.*

Standard: *BS EN 998-2*

Mix: *1:2½ nonhydraulic lime putty:sand/stone dust.*

Sand source/ type: *Fine sand / stone dust.*

Fixings: *Replacement cramps, as clause 410*

Joints: *Very fine where 'pieced-in'.*

355 Stone adhesive repair

Description: *To small fractured stonework.*

Stone: *Existing stone*

Finish: *Flush and to match existing.*

Preparation and insertion: *Ensure stone is thoroughly clean with loose material from the rear removed. If necessary remove small amounts of stone from the rear to allow a tight fit.*

Adhesive: *Resin based to approval*

Joints: *Very fine with no adhesive visible.*

Other requirements: *Mortar repairs as C41/520 to damaged edges or cracks*

385 Laying replacement masonry units

Exposed faces of new material: *Keep to agreed face lines.*

Faces, angles and features: *Align accurately. Set out carefully to ensure satisfactory junctions with existing masonry and maintain existing joint widths.*

Joint surfaces: *Dampen to control suction as necessary.*

Laying units: *On a full bed of mortar, all joints filled.*

Exposed faces: *Keep clear of mortar and grout.*

390 Grouting joints

Grout mix: *Non-hydraulic lime*

Joints that cannot be fully filled with bedding mortar: *Grout thoroughly around replacement masonry units.*

Grouting: *Keep grout back from exposed face to allow for the depth of pointing, using an approved temporary sealing material. Prevent grout staining exposed face.*

395 Installing stone inserts

Pockets to receive inserts

Cut out accurately. Undercut sides of pocket where necessary to provide space for bonding material.

Adjust depth so that insert stands proud of existing stone for finishing in situ.

Clean out thoroughly.

Inserts: *Cut to the smallest rectangular shape necessary to replace the defective area and provide a firm seating. Install accurately and securely.*

Exposed faces: *Keep clear of bonding material.*

Existing joint widths: *Maintain. Do not bridge joints.*

405 Bonded dowels for securing masonry

Standard: *To BS EN 1090-1*

Dowels: *Austenitic stainless steel - Grade 316.*

Adhesive: *Epoxy resin*

Holes for dowels: *Suitably sized and accurately aligned in masonry background and in rear of replacement/ insert stone; clean and dry.*

Other requirements: *Do not use adhesive to bond stones at joints unless instructed.*

410 Corroded fixings

Removal: *Cut out carefully, causing the least possible disturbance to surrounding masonry. Remove associated rust debris.*

Replacement: Compatible fixings as clause C41/281.

415 Stone pinnings for rubble stonework

Material for pinnings: *Fragments of clay tile*

Placing: *Tamp pinnings firmly into fresh mortar. Ensure mortar is thoroughly compacted into voids and that levelling and load distribution functions of pinnings are retained.*

420 Temporary distance pieces for joints in ashlar stonework

Material: *Lead or stainless steel.*

Removal: *When mortar/ grout is sufficiently strong to take loading without compression.*

Tooling/ dressing stone in situ

455 Descaling stone

Requirement: *Carefully remove loose scaling and powdering from stones to the extent agreed.*

Method: *Suitable bristle brushes or carborundum blocks. Do not use wire brushes.*

Mortar repairs

510 Preparation for mortar repairs

Repair area: *Scribe area of masonry to be removed using straight horizontal and vertical lines parallel to joints. Where repair area abuts joints, maintain existing joint widths and do not bridge joints.*

Decayed masonry: *Cut back carefully to a minimum depth of 20 mm to a sound background. Where the depth of removal exceeds 50 mm, seek instructions.*

Precautions: *Do not weaken masonry by removing excessive material. Do not damage adjacent masonry.*

Top and vertical reveals of repair area: *Undercut.*

515 A Wire reinforcement for mortar repairs

Material: Austenitic stainless steel, phosphor bronze or copper alloy wire, 3mm diameter.

Armatures: *Form to suit profiles of mortar repair and provide effective reinforcement.*

Cover to reinforcement: *Not less than 18 mm.*

Installation: *Drill holes into background to receive reinforcement, and bond firmly with a suitable epoxy resin.*

520 Mortar repairs to stonework

Undercoats: *As section Z21.*

Standard: *BS EN 998-2*

Mix: *1:2½ Non-hydraulic lime: sand/stone dust*

Sand source/ type: *Sand:stone dust mix; proportions determined by site trials*

Building up: *In layers where necessary, each layer not exceeding 12 mm.*

Finishing coat: *To match approved samples.*

Standard: *BS EN 998-2*

Mix: *1:3 nonhydraulic lime putty:sand and stone dust*

Sand source/ type: *Sand:stone dust mix; proportions determined by site trials*

Finished thickness: *6 mm*

Finish: *Samples for each stone type to be agreed on site.*

521 Mortar repairs to Blue Lias walling

Description: *Mortar repairs to individual stones to consolidate the stone in advance of, and in conjunction with repointing. Each stone to be considered on an individual basis in accordance with percentages identified on the drawings. The focus is on the upper stages of the tower and vice turret and sections of the South Porch.*

Preparation: *Work over the surface of the stone to remove loose material and all cement mortars.*

Undercoats: *As section Z21.*

Standard: *BS EN 998-2*

Mix: *1:2½ Non-hydraulic lime: sand/stone dust*

Sand source/ type: *Sand:stone dust mix; proportions determined by site trials*

Building up: *All cracks, fissures and depressions to be carefully filled in layers where necessary and include stone slithers to minimise shrinkage. The express aim is to remove water traps and opportunities for water to enter the stone. Armatures to be avoided unless absolutely necessary and with Architect approval.*
Repointing of deep voids needs to progress in parallel but where existing pointing is in good condition it should be retained.

Finishing coat: *To match approved samples.*

Standard: *BS EN 998-2*

Mix: *1:3 nonhydraulic lime putty:sand and stone dust*

Sand source/ type: *Sand:stone dust mix; proportions determined by site trials*

Finished thickness: *Varies*

Finish: *The surface is to be textured with brushing and bagging.*
Mortar colours adjusted to suit colour variations in the stone.
Prepare at three different mortar colours to be used alone or mixed.
All mortar repairs to be carefully protected, kept damp and allowed to cure slowly checking for shrinkage and cracking.

Sample: *1m2 sample area to be prepared and agreed on site.*

Sheltercoating: *Apply a sheltercoat to individual stones as M60/11A. Prepare 5no slight colour variations for use alone or mixed to match the colour of each stone.*

540 Applying mortar

Surfaces to receive mortar: *Clean, and free from dust and debris. Dampen to control suction.*

Applying coats: *Build up in layers to specified thickness. Apply mortar firmly, ensuring good adhesion with no voids. Form a mechanical key to undercoats by combing or scratching to produce evenly spaced lines.*

Allow each layer to achieve an initial set before applying subsequent coats. Prevent each layer from drying out rapidly by covering immediately with plastics sheeting and/ or dampening intermittently with clean water.

Finishing mortar coat: *Form accurately to required planes/ profiles, and finish flush with adjacent masonry.*

Protection: *Protect completed repairs from adverse weather until mortar has set.*

550 Scraped finish to mortar repairs

Procedure: *Finish final coat of repair mortar proud of existing masonry face. When mortar is set, but not too hard, scrape back to required face line using fine saw blade or other suitable means, to achieve required finish.*

Crack repairs/ ties/ reinforcement

610 Mortar repair of cracks

Preparation: *Clean out cracks to remove debris, dust and dirt. Dampen recesses, as necessary, to control suction.*

Applying mortar: *Press well into cracks so that they are fully filled. Ensure that mortar does not encroach upon exposed faces. Finish mortar flush with masonry face.*

640 Pinning loose or fractured masonry

Dowels/ Pins

Standard: *To BS EN 1090-1*

Type: *Austenitic stainless steel threaded rods*

Diameter: *3mm, 4mm or 6 mm to suit the situation.*

Additional requirements: *Penetration into background not less than 100 mm*

Resin: *Low viscosity resin to approval*

Holes: *Drill carefully, sloping downwards into background. Remove drilling dust and debris and keep dry.*

Filling holes

Check that dowel lengths are correct before filling with resin.

Use sufficient resin so that when the dowel is inserted the resin is dispersed to achieve an effective repair.

Exposed faces: *Keep clean and free from resin stains. Use temporary plugging material and/ or isolating membranes as necessary.*

Clearances: *Keep ends of ties and resin back from face of masonry.*

Making good after resin has cured: *Ensure that no resin in visible on the surface in finished work.*

675 Joint reinforcement

Existing construction: *Solid rubble stonework*

Joint width: *10 ± 2 mm*

Reinforcement system

Standard: *To BS EN 1090-1*

Manufacturer: *Contractor's Choice*

Product reference: *Submit proposals*

Grout: *Not required*

Installation: *Remove existing mortar without damaging adjacent masonry or widening joints. Form recess to depth recommended by reinforcement manufacturer. Remove dust and debris. Install reinforcement using methods recommended by manufacturer.*

Joints: *Repoint, as clause 820.*

692 Making good to tie and dowel insertion holes using core drilled plugs

Plugs: *Cut plug from masonry face before drilling hole for each tie/ dowel. Where resulting plug is unusable, prepare plug from matching material.*

Plug diameter: *Smallest practicable.*

Holes: *Clean.*

Method of securing plug: *A spot of epoxy resin and nonhydraulic lime:sand mortar*

Joints: *Fine and flush.*

Finished appearance: Obtain approval for first two holes before completing remainder.

Grouting rubble filled cores

710 Preparation for grouting

Grouting holes: *Drill in joints at horizontal and vertical centres to suit coursing and to achieve an effective distribution of grout so that, on completion, all voids in masonry are filled.*

Maximum height of each grout pour: *Regulate to prevent disruption to masonry.*

Open joints in masonry: *Seal with an approved temporary material to prevent leaking of grout. Leave weep holes every two or three courses to assist in flushing out dust and debris, and to prove effectiveness of grouting. Locate temporary seal back from facework to allow for specified repointing. Seek instructions if repointing precedes grouting.*

712 Flushing out

Timing: *Before grouting.*

Requirement: *Flush out core of masonry walls using clean water delivered under moderate pressure through grouting holes.*

740 Application of grouting

Grouting: *Continuous operation during each lift. Allow grout to set before commencing subsequent lifts.*

Monitoring: *Monitor grouting carefully and continuously at each delivery point (flow and delivery pressure), and at adjacent/ opposite wall faces, to ensure that there is an effective distribution of grout with no leaking, staining, or disruption to the masonry.*

Temporary seals: *Remove on completion of grouting and leave joints in a suitable condition for repointing.*

Pointing/ repointing

810 Preparation for repointing

*Existing mortar: Working from top of wall downwards, remove mortar carefully, without damaging adjacent masonry or widening joints, to a minimum depth of 2½ times the joint width eg 25mm for a 10*mm joint*. For fine joints use a mason's saw or hacksaw blade. All cement mortar to be removed. Where cement pointing is to be cut out, it is to be undertaken with great care by hand and without the use of electrical tools. In association with pointing removal, defrass the surface of the stone removing loose material. Some areas will require 100% repointing but other areas approximately 75% repointing and in some instances in short lengths. Extent of pointing removal to be agreed on site with the Architect but where existing original lime mortar is in good condition and the joints are very tight, the existing lime mortar should be retained..*

Loose or friable mortar: *Seek instructions when mortar beyond specified recess depth is loose or friable and/ or if cavities are found.*

Raked joints: *Remove dust and debris by brushing and gentle washing. Sample area of raking out to be agreed on site.*

820 Pointing to Blue Lias Stone (A)

Description: *Pointing to coursed blue lias stone.*

Preparation of joints: *Rake out existing mortar which is failing. Carefully brush away loose mortar and de-frass stonework. Dampen joints, as necessary, to control suction. Include for deep-pack pointing and voids - include for 10% deep-pack pointing to all areas.*

Mortar: *As section Z21.*

Standard: *BS EN 998-2*

Mix: ***CHURCH WALLS: 1:2½. NHL 2.0 hydraulic lime:sandfor blue lias walling to the existing church and tower walls and including the Bath Stone quoins. Skyward facing joints in stonework to be repointed as C41/822. CHURCHYARD BOUNDARY WALLS & REBUILT MASONRY INCLUDING TOP OF VICE TURRET AND TOWER PARAPET: 1:2½. NHL 3.5 hydraulic lime:sand.***

Sand source/ type: *Coarse, smooth, sharp and well-graded.*

Joint profile/ finish: *Flush and to match the approved sample*

Other requirements: *Pack deep voids and stabilise any loose masonry in advance of repointing.*

821 Pointing to brickwork

Preparation of joints: *Rake out existing mortar which is failing . Remove cement mortar. Carefully brush away loose mortar. Dampen joints, as necessary, to control suction.*

Mortar: *As section Z21.*

Standard: *BS EN 998-2*

Mix: *1:½:2½ nonhydraulic lime putty: pozzolanic admixture:sand*

Sand source/ type: *To be agreed and to suit joint width.*

Joint profile/ finish: *Flush and to match the approved sample*

822 Pointing to skyward facing masonry (Highly exposed and very vulnerable to washing out)

Description: *Pointing to skyward facing surfaces including copings, upper surfaces of parapets, buttress tabling and plinths.*

Preparation of joints: *Rake out existing mortar which is failing . Remove cement mortar. Carefully brush away loose mortar. Dampen joints, as necessary, to control suction.*

Mortar: *As section Z21.*

Standard: *BS EN 998-2*

Mix: *1:2½. NHL 5.0 hydraulic lime:sand*

Sand source/ type: *To be agreed and to suit joint width.*

Joint profile/ finish: *Flush and to match the approved sample*

823 Pointing to ashlar stonework

Preparation of joints: *Rake out existing mortar which is failing. Remove cement mortar. Carefully brush away loose mortar. Dampen joints, as necessary, to control suction.*

Mortar: *As section Z21.*

Standard: *BS EN 998-2*

Mix: *1:½:2½ nonhydraulic lime putty: pozzolanic admixture:sand, externally and 1:3 ready-mixed nonhydraulic lime putty:sand, internally.*

Sand source/ type: *Allow 3 parts Warmwell, 2 parts yellow pit sand and 1 part fine stone dust (Bath Stone).*

Joint profile/ finish: *Flush and to match the approved sample*

840 Pointing with tools/ Irons

General: *Press mortar well into joints using pointing tools/ irons that fit into the joints, so that they are fully filled.*

Face of masonry: *Keep clear of mortar. Use suitable temporary adhesive tape on each side of joints where necessary. Finish joints neatly.*

860 Brushed finish to joints

Timing: *After initial mortar set has taken place remove laitance and excess fines by brushing, to give a coarse texture. Do not compact mortar.*

Ω End of Section

C51
Repairing/ renovating/ conserving timber

General

110 Inspection

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

Parties involved: *Architect and Contractor's representative and in some instances also the Structural Engineer.*

Timing: *As soon as possible and at least 7 days before starting each section of work*

Instructions issued during inspection: *Will be confirmed in writing, with drawings and schedules as required.*

130 Opening up

Purpose: *To reveal previously concealed areas of structure or fabric not recorded during initial surveys.*

Extent: *To be agreed*

Timing: *Give notice before starting opening up.*

Period of notice: *At least two working days*

Retained building structure/ fabric: *Do not damage or destabilize.*

150 Timber procurement

Timber (including timber for wood-based products): *Obtained from well-managed forests and/ or plantations in accordance with:*

The laws governing forest management in the producer country or countries.

International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).

Documentation: *Provide either in accordance with the chain of custody certification scheme requirements:*

documentary evidence (that has been or can be independently verified) regarding the provenance of all timber supplied; or

evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.

Chain of Custody Certification scheme: *Contractor's choice in accordance with UK Government timber procurement policy (UKTPP), i.e. FSC, GiB or PEFC*

160 Timber supplier

Supplier: *Contractor's Choice*

Structural repairs/ alterations

240 End repairs – lap

Defective timber: *Cut out where instructed but keep as much historic timber as possible. Treat in situ as C52.*

Products

310 Structural softwood (graded direct to strength class)

Description: *For Structural use generally*

Strength class to BS EN 338: *Generally C16 or C24 and as scheduled.*

Treatment

Preservative treatment: *Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8*

Design service life: *30 years*

Moisture content (maximum) at time of installation: *16%*

Other requirements: *No Sapwood.*

320 Structural softwood (strength class not specified)

Species: *Douglas Fir for rafters, joists and wall-plates and Siberian Larch for gutter boarding.*

Grading standard: *To the appropriate BS EN 14081-1 compliant standard.*

Grade: *GS to BS 4978*

Treatment

Preservative treatment: *Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8.*
None required for Siberian Larch.

Design service life: *30 years*

Moisture content (maximum) at time of installation: *16%*

Other requirements: *No Sapwood.*

330 Structural hardwood (graded direct to strength class)

Description: *Oak for rafters or joists to match existing or where scheduled.*

Strength class to BS EN 338: *As specified by the Structural Engineer*

Surface finish: *Sawn*

Treatment

Preservative treatment: *Protection Association Commodity Specification C8*

Design service life: *30 years*

Moisture content (maximum) at time of installation: *16%*

Other requirements: *No sapwood.*

340 Structural hardwood (strength class not specified)

Description: *Oak for rafters or joists to match existing or where scheduled.*

Species: *European Oak*

Grading standard: *To the appropriate BS EN 14081-1 compliant standard.*

Grade

Temperate hardwoods: *To BS 5756 and as specified by the Structural Engineer.*

Surface finish: *Sawn*

Treatment

Preservative treatment: *Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8*

Design service life: *30 years*

Moisture content (maximum) at time of installation: *16%*

Other requirements: *No sapwood*

360 Softwood for joinery repairs

Species: *To match existing but for pricing purposes assume Douglas fir.*

Quality: *Generally to BS EN 942; free from decay and insect attack (except pinhole borers).*

Appearance Class:: *J2 for glazing bars, balusters and timber components with a cross section of less than 20mm x 20mm.*
J10 for doors, windows and joinery where unpainted.
J30 for doors, windows and joinery where painted.
Classes J40 or J50 are unacceptable.
Knots on arrises are not permitted.

Treatment: *As C52/48 for all external joinery or joinery in high risk areas or poorly heated buildings.*

Moisture content on delivery: *13-19% for external joinery.*
12-16% for unheated buildings.
9-13% for buildings with heating providing room temperature in the range 12-21 degrees Celsius.

New Item: *All joinery shall be assembled in the best manner possible.*

370 Hardwood for joinery repairs

Species: *To match existing and for pricing purposes assume English Oak.*

Quality: *Generally to BS EN 942; free from decay and insect attack (except pinhole borers).*

Appearance Class:: *J2 for glazing bars, balusters and timber components with a cross section of less than 20mm x 20mm.*
J10 for doors, windows and joinery where unpainted.
J30 for doors, windows and joinery where painted.
Classes J40 or J50 are unacceptable.
Knots on arrises are not permitted.

Treatment: *As C52/48 for all external joinery or joinery in high risk areas or poorly heated buildings.*

Moisture content on delivery: *13-19% for external joinery.*
12-16% for unheated buildings.
9-13% for buildings with heating providing room temperature in the range 12-21 degrees Celsius

420 Stainless steel sections and plates

Description: *For repairs to structural timber*

Standard: *To BS EN 10088.*

Grade: ~~*1.4301 (Grade 304) generally*~~
1.4401 (Grade 316) for marine environments

Source: *Obtain steel from a source accredited to a national or internationally accepted quality standard.*

480 Screws

Description: *For general use*

Standard: *As section Z20.*

Material: *Stainless steel*

Tensile strength (minimum): *550 N/mm²*

Finish as delivered: *None*

490 Coach screws

Description: *For general use*

Standard: *To DIN 571*

Material: *Stainless steel*

Tensile strength (minimum): *550 N/mm².*

Finish as delivered: *None*

Execution

600 Workmanship

Skill and experience of site operatives: *Appropriate for types of work on which they are employed.*

Documentary evidence: *Submit on request.*

610 Temporary supports/ propping

General: *Provide adequate temporary support at each stage of repair work to prevent damage, overstressing or uncontrolled collapse of any part of the structure.*

Bearings for temporary supports/ propping: *Suitable to carry loads throughout repair operations.*

620 Protection of timber and wood components before and during installation

Storage: *Keep dry, under cover, clear of the ground and with good ventilation. Support sections/ components on regularly spaced, level bearers on a dry, firm base.*

Handling: *Do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.*

650 Dimensions generally

Site dimensions: *Take as necessary before starting fabrication.*

Discrepancies with drawings: *Report without delay and obtain instructions before proceeding.*

660 Cross section dimensions of structural softwood and hardwood

Dimensions: *Dimensions in this specification and shown on drawings are target sizes as defined in BS EN 336.*

Tolerances: *The tolerance indicators (T1) and (T2) specify the maximum permitted deviations from target sizes as stated in BS EN 336, clause 4.3:*

Tolerance class 1 (T1) for sawn surfaces.

Tolerance class 2 (T2) for further processed surfaces.

665 Cross section dimensions of non-structural softwood

Dimensions: *Dimensions in this specification and shown on drawings are finished sizes.*

Maximum permitted deviations from finished sizes: *As stated in BS EN 1313-1, clause 6 for sawn sections.*

670 Cross section dimensions of non-structural hardwood

Dimensions: *Dimensions in this specification and shown on drawings are finished sizes.*

Maximum permitted deviations from finished sizes: *As stated in BS EN 1313-2:*

Clause 6 for sawn sections.

Clause NA.3 for further processed sections.

680 Warping of timber

Bow, spring, twist and cup: *Not greater than the limits set down in BS 4978 or BS EN 14081-1 for softwood, or BS 5756 for hardwood*

690 Processing treated timber

Cutting and machining: *Carry out as much as possible before treatment.*

Extensively processed timber: *Retreat timber sawn lengthways, thicknessed, planed, ploughed, etc.*

Surfaces exposed by minor cutting and/ or drilling: *Treat with two flood coats of a solution recommended by main treatment solution manufacturer.*

710 A Reuse of timber

Timber should not be reused or re-purposed unless specifically described or subsequently agreed on site with the Architect.

720 Temporary removal and reinstatement of fittings/ fixtures

Items to be removed, and reinstated on completion of repair work

Identification: *Attach labels or otherwise mark items using durable, non-permanent means, to identify location and refixing instructions, where applicable.*

Treatment following removal: *See advice from the Architect*

Storage: *Protect against damage, and store until required.*

Storage location: *On site in a safe location.*

Reinstatement: *Refit in original locations using original installation methods.*

Items unsuitable or not required for reuse: *Obtain instructions regarding disposal.*

750 Cleaning dirty or stained wood

Generally: *Scrub with neutral pH soap and clean, warm water.*

Old varnish: *Remove using mixture of turpentine (not turpentine substitute) and acetone in proportions determined by experiment, followed by washing down.*

760 A Repair of members - Cutting out members

Extent of timber removal: Agree extent of timber removal on site with Architect. In general, the minimal amount of timber should be removed to undertake an effective repair.

Cuts should be made wherever possible to any water away from the joints or other vulnerable areas.

770 Repair of compression members – piecing in

Defective wood: *Remove only decayed or defective wood. Finish cut-outs to clean, regular profiles.*

Timber inserts: *Cut accurately to fit. Glue and pin in place. Lie of grain to match as closely as possible that of parent timber.*

Joint profile: *To be discussed on site and agreed with the Architect. Joint profiles could include:*

- *Splayed Scarf*
- *Halved Scarf*
- *Scarf with folding wedges*
- *Slip tenon*
- *Face patch*

Cross refer to the Schedule of Works or drawing.

Finish:: *The repair is to be finished by hand and to match the existing as close as possible.*

780 Repair of distorted timber members

Generally: *Repair to shape that member has assumed.*

810 Bolted joints with connectors

Connector location: *Where not otherwise shown, spacings, end and edge distances are to be not less than Standard values to BS EN 1995-1-1, section 8.9 for split ring and shear plate connectors, and BS EN 1995-1-1, section 8.10 for toothed plate connectors.*

Centres of bolt holes: *Not more than 2 mm from positions shown on drawings.*

Assembly: *Do not crush timber, deform washers or overstress bolts.*

860 Moisture content checking

Procedure: *Check moisture content of timber sections with an approved electrical moisture meter.*

Test results: *Keep records of all tests. If moisture content falls outside specified range obtain instructions.*

Completion

910 Mechanically fastened joints

General: *Inspect accessible bolted, coach screwed and timber pegged joints and tighten fasteners if necessary.*

Timing: *On Completion and at end of Defects Liability Period or Rectification Period.*

Ω End of Section

C52
Fungus/ beetle eradication

Clauses

12 A Timber treatment

Carry out in conjunction with the Main Contract Works: *In association with undertaking the works, advise the Architect of the presence of active beetle activity and/or fungal decay. Timber treatment is to be undertaken sparingly for the treatment of both Deathwatch beetle and Common Furniture Beetle as the treatments also kill the beetles' natural insectorial predators.*

15 Drying out of building fabric

Drying conditions: *Establish as soon as possible.*

30 Beetle infestation

Infected timber: *Cut, scrape and trim back to sound timber where heat treatment is not employed. Remove debris immediately and dispose of safely at a tip approved by a waste regulation authority. Prevent contamination of other parts of the building.*

37 Timber preservatives/ Masonry fungicides generally

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

Application: *In accordance with statutory conditions of approval given on product labels and manufacturer's recommendations.*

48 Timber preservative treatment

Description: *Fungicidal and insecticidal treatment to rafter feet, sole plates and wall-plates as part of repairs and opening up. Advise if other areas of decay or vulnerability are revealed and then agree treatment areas with the Architect.*

Manufacturer: *Wykamol*

Product reference: *Lignum Pro 156*

Treatment method: *Spray or apply by brush.*

48 A Timber preservative treatment

Description: *Fungicidal and insecticidal treatment to high risk joist and beam ends where embedded in the wall or cut. Agree treatment areas with the Architect.*

Manufacturer: *Wykamol*

Product reference: *Wykabor 20.1 Gel*

Treatment method: *Apply by brush or injection into pre-drilled holes.*

Ω End of Section

D20
Excavating and filling

To be read with preliminaries/ general conditions.

10 Tree roots

Protected area: *Do not cut roots within precautionary protection area.*
Undertake works fully in accordance with Method Statement by Atworth Arboriculture Ltd

Excavation in protected area

Method: *By hand*

Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.

Backfill: *With excavated material. Do not add enrichment.*

12 Site clearance

Timing: *Before topsoil stripping, if any.*

General: *Clear site of rubbish, debris and vegetation. Do not compact topsoil.*

Treatment: *Do not apply herbicide*

20 Stripping topsoil

General: *Before beginning general excavation or filling, strip topsoil from areas where there will be regrading, buildings, pavings/ roads and other areas shown on drawings.*
Unless stated otherwise, all excavated material is consecrated and must remain on site and to be redistributed around the churchyard.
Any bone fragments to be collected and set aside for reburial by the vicar during the works. Should articulated bones be discovered then works must stop immediately with advice sought from the Architect.

Depth

Remove to an average depth of: *200 mm*

Give notice where the depth of topsoil is difficult to determine.

Handling: *Handle topsoil for reuse or sale in accordance with BS 3882.*

Around trees: *Do not remove topsoil from below the spread of trees to be retained.*
Cross refer to Method Statement prepared by Atworth Arboriculture Ltd.

Site storage: *Keep separate from excavated sub-soil*

40 Excavated topsoil removal

General: *Retain on site.*

45 Surplus subsoil

Excavated material: *Remove from site to a licensed tip. NB: There may be a Condition that material to be disposed off needs to be first sifted through by an archaeologist to remove any bone fragments.*

50 Hazardous, aggressive or unstable materials

Generally: *Do not import or use fill materials which would, either in themselves or in combination with other materials or groundwater, give rise to a health hazard, damage to building structures or instability in the filling, including material that is:*

Frozen or containing ice.

Organic.

Contaminated or noxious.

Susceptible to spontaneous combustion.

Likely to erode or decay and cause voids.

With excessive moisture content, slurry, mud or from marshes or bogs.

Clay of liquid limit exceeding 80 and/ or plasticity index exceeding 55.

Unacceptable, class U2 as defined in the 'Specification for highway works', clause 601.

65 Hardcore filling

Fill: *Granular material, free from excessive dust, well graded, all pieces less than 75 mm in any direction.*

Permitted materials in any one layer.

Permitted materials in any one layer

Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.

Crushed concrete, crushed brick or tile, free from plaster, timber and metal.

Crushed non-expansive slag.

Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.

Well-burned non-plastic colliery shale.

Natural gravel.

Filling: *Spread and level in 150 mm maximum layers. Thoroughly compact each layer.*

Ω End of Section

E11
Mixing/ casting/ curing Limecrete

Clauses

21 Limecrete - Ty-Mawr Sublime Floor

Description: Ty-Mawr's SubLime Floor system.

Sub-base: Lay a geotextile membrane followed by 150mm minimum of Geocell Foamglass aggregate from Ty Mawr lime. Where possible increase thickness to 200mm but the aim is to minimise the archaeological impact. Cover with geotextile.

Slab thickness: 100mm minimum including geogrid and clip rails for underfloor heating. Standard fibre reinforcement required.

Protection: Protect the surface of the concrete whilst it cures. Maintain good air flow.

Additional requirements: 40mm cork board edging strip to protect against cold bridging and to allow for movement.

60 Placing and compacting

Surfaces to receive concrete: *Clean, with no debris, tying wire clippings, fastenings or free water.*

Timing: *Place as soon as practicable after mixing and while sufficiently plastic for full compaction.*

Temperature limitations for concrete: *30°C (maximum) and 5°C (minimum). Do not place against frozen or frost covered surfaces.*

Compaction: *Fully compact to full depth to remove entrapped air especially around reinforcement, cast-in accessories, into corners of formwork and at joints. Continue until air bubbles cease to appear on the top surface.*

Methods of compaction: *To suit consistence class and use of concrete.*

70 Curing and protecting

Evaporation from surfaces of concrete: *Prevent throughout curing period.*

Surfaces covered by formwork: *Retain formwork in position and, where necessary to satisfy curing period, cover surfaces immediately after striking.*

Top surfaces: *Cover no sooner than 12 hours after placing. .*

Curing periods

Floor slabs: *Foot traffic should be avoided for a minimum of 7-10days.*

Protection: *Protect concrete from shock, indentation and physical damage for at least 2-3 weeks or longer if possible.*

Ω End of Section

G20
Carpentry/ timber-framing/ first fixing

Clauses

2 Timber procurement

Timber (including timber for wood-based products): *Obtained from well-managed forests/ plantations.*

The laws governing forest management in the producer country or countries.

International agreements such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Documentation: *Provide either in accordance with chain of custody certification scheme requirements:*

Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied. or

Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.

Chain of Custody Certification scheme:

5 Structural softwood

Description: *For joists, rafters or studwork.*

Grading standard: *To the appropriate BS EN 14081-1-compliant standard.*

Grade: *GS to BS 4978*

Strength class to BS EN 338: *C16 for studwork unless described otherwise.*
C24 for joists, rafters and trimmers unless described otherwise.

Treatment: *Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8, service life: 40 years*

30 Selection and use of timber

Timber members damaged, crushed or split beyond the limits permitted by their grading: *Do not use.*

32 Notches, holes and joints in timber

Notches and holes: *Position in relation to knots or other defects so that the strength of members will not be reduced.*

Scarf joints, finger joints and splice plates: *Do not use without approval.*

35 Processing treated timber

Cutting and machining: *Carry out as much as possible before treatment.*

Extensively processed timber: *Retreat timber sawn lengthways, thicknessed, planed, ploughed, etc.*

Surfaces exposed by minor cutting/ drilling: *Treat with two flood coats of a solution recommended by main treatment solution manufacturer.*

40 Moisture content

Moisture content of wood and wood-based products at time of installation: *Not more than:*

Covered in generally unheated spaces: *24%.*

Covered in generally heated spaces: *20%.*

Internal in continuously heated spaces: *20%.*

43 Bolted joints

Bolt spacings (minimum): *To BS EN 1995-1-1, section 8.5.*

Holes for bolts: *Located accurately and drilled to diameters as close as practical to the nominal bolt diameter and not more than 2 mm larger.*

Washers: *Placed under bolt heads and nuts that would otherwise bear directly on timber. Use spring washers in locations which will be hidden or inaccessible.*

Bolt tightening: *So that washers just bite the surface of the timber. Ensure that at least one complete thread protrudes from the nut.*

Checking: *At agreed regular intervals. Tighten as necessary.*

50 Additional supports

Provision: *Position and fix additional studs, noggings and/ or battens to support edges of sheet materials, and wall/ floor/ ceiling-mounted appliances, fixtures, etc. shown on drawings.*

Material properties: *Timber to be of adequate size and have the same treatment as adjacent timber supports.*

70 Trimming openings

Trimmers and trimming joists: *Not less than 25 mm wider than general joists.*

Ω End of Section

H60
Plain roof tiling

To be read with preliminaries/ general conditions.

3 Roof tiling - Relaying the existing tiles

Description: *To nave south slope.*

Substrate: *Existing rafters*

Pitch: *As existing.*

Underlay: *Vapour-permeable underlay as clause 22*

Direction: *Parallel to eaves.*

Head-lap (minimum): *150 mm*

Battens

Size: *38 x 25 mm (Assumes rafter spacing is 450mm or less)*

Fixing: *65 x 3.35 mm stainless steel annualar ring shank nails*

Tiles: *Existing plain clay tiles*

Head-lap (minimum): *To match the existing which is assumed to be 65 mm.*

Fixing

Fixing of local areas: *Two nails per tile in every course around south west corner for an area approx 2m2.*

Fixing of general areas: *Two nails per tile in every fifth course*

4 Roof tiling - New tiles

Description: *To vestry south slope. (Salvaged tiles reused on nave roof to make up any shortfall.)*

Substrate: *Existing rafters*

Pitch: *As existing.*

Underlay: *Vapour-permeable underlay as clause 22*

Direction: *Parallel to eaves.*

Head-lap (minimum): *150 mm*

Battens

Size: *38 x 25 mm (Assumes rafter spacing is 450mm or less)*

Fixing: *65 x 3.35 mm stainless steel annualar ring shank nails*

Tiles: *Clay to BS EN 1304*

Manufacturer: *Dreadnought*

Product reference: *Handmade classic range*

Pattern: *Plain*

Colour: *To match existing.*
Purple Brown or Bronze or other of the Contractor's choice
Contractor to provide samples.

Size: *To match the existing*

Head-lap (minimum): *To match the existing which is assumed to be 65 mm*

Fixing

Fixing of general areas: *Two nails per tile in every fifth course*

20 Remove existing tiling

General: *Carefully remove tiles, battens, underlay, etc. with minimum disturbance of adjacent retained tiling.*
Assume tiles to be removed in the presence of an ecologist.

Undamaged tiles: *Clean each tile by hand and set aside for reuse.*

22 Vapour-permeable underlay

Manufacturer: *TLX*

Product reference: *Bat Safe Breather Membrane*

25 Underlay

Handling: *Do not tear or puncture.*

Laying: *Maintain consistent tautness allowing the material to drape slightly (at least 10mm) in accordance with the manufacturer's recommendations.*

Vertical laps (minimum): *100 mm wide, coinciding with supports.*

Fixing: *Copper 20 x 3 mm extra-large clout head nails.*

Eaves: *Where exposed, use an external grade (UV-resistant) underlay or a proprietary eaves support product.*

Penetrations: *Use proprietary underlay seals or cut underlay neatly.*

Ventilation paths: *Do not obstruct.*

30 Battens / Counterbattens

Timber: *Sawn softwood.*

Species: *In accordance with BS 5534, clause 4.11.1.*

Permissible characteristics and defects: *Not to exceed limits in BS 5534, Annex D.*

Grading: *Contractor's choice*

Moisture content at time of fixing and covering (maximum): *22%.*

Preservative treatment: *As section Z12 and Wood Protection Association Commodity Specification C8. Bat Safe.*

32 Batten fixing

Setting out: *Align parallel to ridge in straight horizontal lines to gauge of tiles. Align on adjacent areas.*

Batten length (minimum): *Sufficient to span over three supports.*

Joints in length: *Square-cut. Butt centrally on supports. Joints must not occur more than once in any group of four battens on one support.*

Additional battens: *Provide where unsupported laps in underlay occur between battens.*

Fixing: *Each batten to each support. Splay fix at joints in length.*

35 Tile fixing

General: *Fix tiling and accessories to make the whole sound and weathertight at earliest opportunity.*

Exposed fittings and accessories: *To match tile colour and finish.*

Setting out: *To true lines and regular appearance. Lay tiles to a half lap bond with joints slightly open. Align tails.*

Cut tiles: *Cut only where necessary, to give straight, clean edges.*

Ends of courses: *Use tile and a half tiles to maintain bond and to ensure that cut tiles are as large as possible.*

Top and bottom courses: *Use eaves/ tops tiles to maintain gauge.*

Perimeter tiles

Verges, abutments and each side of valleys and hips: *Twice nail end tile in every course.*

Eaves and top edges: *Twice nail two courses of tiles or clip as appropriate.*

Fixings: *Copper or stainless steel nails. Galvanised nails not permitted.*

37 Local and general fixing areas

Definitions

Local areas: *Bands of tiling around all edges or obstructions of each plane of the roof. Calculate extent of each band in accordance with BS 5534, section 5.*

General areas: *Remaining areas of roof tiling.*

40 Mortar bedding/ pointing

Mortar: *As section Z21, 1:2.5 Hydraulic Lime - NHL 5.0.*

Weather: *Do not use in wet or frosty conditions or when imminent.*

Preparation of tiles and accessories to be bedded: *Wet and drain surface water before fixing.*

Appearance: *Finish neatly as work proceeds and remove residue.*

66 Metal valleys

Underlay: *Cut over tilting fillets to lap onto metal valley. Do not lay under metal.*

Roof tiles: *Cut adjacent tiles to fit neatly.*

Bedding: *On mortar on fibre cement undercloaks laid loose each side of valleys.*

Valley width between tiles: *Not less than 100mm*

77 Mortar-bedded ridges

Underlay: *Lay courses over ridge.*

Overlaps (minimum) 100 mm.

Ridges tiles: *Existing clay ridge tiles to be reused. Tiles to be cleaned of existing mortar.*

Ω End of Section

H71
Lead sheet fully supported roof coverings/ flashings

To be read with preliminaries/ general conditions.

1 Leadwork Generally

All leadwork should be carried out by skilled plumbers trained in lead working. All leadwork must be carried out in accordance with 'Lead Sheet in Roofing - The Ultimate Guide to Best Practice' as published by the Lead Contractors Association.

During the removal of lead if an underlay is revealed, then a check for the presence of asbestos must be undertaken before commencing removal.

3 Lead sheet fully supported roof covering - Wood core rolls

Covering system: *Cast lead and batten rolls*

Insulation: *Not required*

Membrane: *Not required*

Substrate: *New or existing timber boarding and as described on drawings or in the Schedule of Works.*

Preparation: *Make good existing, as clause 77*

Sheet underlay: *Not required*

Lead

Type: *Sand cast lead laid with the textured surface face down.*

Thickness: *As shown on drawings or as described in the Schedule of Works and complying with the following maximum bay sizes for roofs with a pitch of up to 10 degrees.*
Code 7 (Bay size 2500mm x 675mm)
Code 8 (Bay size 3000mm x 750mm)

Joints in direction of fall: *Wood-cored roll with splashlap dressed away from the prevailing wind direction.*
Wood core rolls 45mm x 45mm round and tapering to a flat base or to match the existing. New, loose or removed rolls to be secured with brass or stainless steel countersunk screws.

Spacing: *As existing*

Cross joints: *Drip with splash lap*

Spacing: *As existing*

Accessories:

Apply chalk slurry coat to underside of lead and allow to dry before laying. The chalk should be applied to give a 150-200m micrometre thick coating.

Fixings:: *Ensure existing retained battens are securely fixed.*
New batten rolls to match the profile of the existing with splayed ends.

10 Gutter linings

Substrate: *Existing or new timber boarding*

Preparation: *Ensure all existing boarding is well fixed with no protruding nails. Remove any protruding nails and refix boarding. Ensure min 1 in 80 falls.*

Sheet underlay: *Building paper to BS 1521, Class A1*

Lead

Type: *Sand cast laid with the textured surface face down.*
~~*Rolled to BS EN 12588*~~

Thickness: *As described on drawings and Schedule of Works*
Always comply with the following maximum bay sizes:
Code 7 (Bay size 2500mm x 675mm)
Code 8 (Bay size 3000mm x 750mm)

Code 9 (Bay size 3500mm x 750mm)
Code 10 (Bay size 4000mm x 750mm)
Code 11 (Bay size 4500mm x 750mm)

Cross joints: *Drips with splashlaps as Clause 94.*
Drip min 60mm high unless agreed or stated otherwise.

Spacing: *As shown on drawings and no more than maximum recommended lead bay size.*

Outlets: *As existing.*

Accessories: *Apply chalk slurry coat to underside of lead and allow to dry before laying*
Propriety expansion joints (T-Pren or similar) not permissible unless specifically stated.

15 Valley gutter linings to slate/ tile roofs

Sheet underlay: *Building paper to BS 1521, Class A1*

Lead

Type: *Rolled to BS EN 12588*

Thickness: *Code 6*

Laying: *Over and beyond tilting fillets. In lengths not more than 1500 mm.*

Cross joints: Lapped not less than 150mm for a roof pitch of over 40 degrees; 175mm for a roof pitch of between 35 and 40 degrees; 200mm for a roof pitch of between 30 and 35 degrees; 250mm for a roof pitch of between 25 and 30 degrees and 300mm for a roof pitch of between 20 and 25 degrees. .

Fixing: *Welt edges. Nail top edge of each sheet. Dress bottom edge neatly into eaves gutter.*

16 Open/secret gutter slated/tiled gable

Sheet underlay: *Building paper to BS 1521, Class A1*

Lead

Type: *Rolled to BS EN 12588*

Thickness: *Code 6*

Width: *100mm wide (75mm minimum permissible)*

Depth : *25mm minimum*

Upstand height: *65mm minimum above upper surface of tiling.*

Laying: *In lengths not more than 1500 mm.*
Cover flashings as H71/35.

Cross joints: Lapped not less than 150mm for a roof pitch of over 40 degrees; 175mm for a roof pitch of between 35 and 40 degrees; 200mm for a roof pitch of between 30 and 35 degrees; 250mm for a roof pitch of between 25 and 30 degrees and 300mm for a roof pitch of between 20 and 25 degrees. .

Fixing: *Welt edges. Nail top edge of each sheet only. Dress bottom edge neatly.*

35 Cover flashings

Lead

Type: *Rolled to BS EN 12588*

Thickness: *Code 6*

Dimensions

Lengths: *Not more than 1500 mm.*

End to end joints: *Laps of 150mm due to exposed location.*

Cover: *Overlap to upstand not less than 75 mm.*

Fixing

Top edge: *Lead wedges into bed joint to a depth of 35mm.*
Welt the top edge of the flashing where inserted into the wall to assist with preventing water ingress should the pointing fail.

Ensure that the lead is very securely wedged before repointing and take particular attention towards the ends of each length of flashing.
If the joint is wide or inconsistent, the tuck-in can be extended and turned up the back of the chase and screw fixed with non-ferrous screws and washers.

Bottom edge: *Clips.*

Material: *Lead with trimmed corners of a consistent shape.*

Spacing: *300mm generally or 500mm in sheltered areas.*

42 Soakers

Description: *Soakers to plain clay tiling /slating.*

Lead soakers

Lead

Type: *Rolled to BS EN 12588*

Thickness: *Code 5*

Dimensions

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

Upstand: *Not less than 75 mm.*

Underlap: *Not less than 100 mm.*

43 Lead DPC under copings

Description: *Lead DPC undercopings.*

Lead:

Type : *Rolled to BS EN 12588*

Thickness: *Code 5*

Length: *Not more than 1500mm with 100mm overlap.*

Surface treatment: *Apply 2no coats of bituminous paint to surfaces in contact with mortar and dust with sand prior whilst tacky and prior to apply mortar.*

Finishing: *Dress down external face of masonry approx 20mm with a tidy and continuous line.*

60 Materials and workmanship generally

Lead production method: *Rolled, to BS EN 12588 generally or Sand Cast where specified.*

Identification: *Labelled or colour marked for thickness/ code, weight and type.*

Workmanship standard: *To BS 6915 and latest editions of 'Lead Sheet in Roofing'. The ultimate guide to best practice published by the Lead Contractor's Association.*

Fabrication and fixing: *To provide a secure, free draining and weathertight installation.*

Marking out: *Do not use scribers or other sharp instruments to mark out lead without approval.*

Solder: *Use only where specified.*

Finished leadwork: *Fully supported, adequately fixed to resist wind uplift but also able to accommodate thermal movement without distortion or stress.*

Protection: *Prevent staining or damage to the lead by other works by installing temporary protection as and when required.*

62 Lead-welding

In situ lead-welding: *In-situ welding is to be undertaken only when absolutely necessary.*
Where possible, welding should be undertaken at least six metres away from the building.
When in-situ welding is required, this must be carried out fully in accordance with the Hot Works Permit and associated Conditions as required by the Insurers.
Hot Works permits need to be prepared on daily basis.

Hot Works permits should be circulated daily with the procedure documented at the Pre-Start meeting. WhatsApp is permissible to provide evidence of signed documents.

64 Sheet underlay - Building Paper

Manufacturer: *Contractor's Choice*

Product reference: *Building Paper to BS 1521 Class A*

Installation:: *Install across the roof slope and with a minimum 200mm weather lap. Where used, wood core rolls should be fixed over the building paper.*
Building paper can be used in conjunction with chalk slurry.

75 Timber for use with leadwork

Quality: *Planed, free from wane, pitch pockets, decay and insect attack (ambrosia beetle excepted).*

New or replacement boards: *Siberian Larch.*

Moisture content: *Not more than 22% at time of fixing and covering. Give notice if greater than 16%.*

Preservative treatment: *Organic solvent as section Z12 and Wood Protection Association Commodity Specification C8.*

76 Laying sheet underlay

Handling: *Prevent tears and punctures.*

Laying: *Butt or overlap jointed onto a dry substrate.*

Fixing edges: *With copper or stainless steel staples or clout nails.*

Do not lay over roof edges.

Turn up at abutments.

Wood core rolls: *Fixed over underlay.*

Protection: *Keep dry and cover with lead at the earliest opportunity.*

77 Preparation of existing timber substrates

Remedial work: *Adjust boards to level and securely fix. Punch in protruding fasteners, and plane or sand to achieve an even surface.*

Defective boards: *Give notice.*

Moisture content: *Not more than 22% at time of covering. Give notice if greater than 16%.*

Fixing boards: *All edges must be fully supported.*
For new or relaid boarding, lay with penny joints which should be no more than 5mm for Codes 5 & 6 and 10mm for Codes 7 & 8.

78 Fixing lead sheet

Top edge: *Secured with two rows of fixings, 25 and 50 mm from edge.*

Fixings

Nails to timber substrates: *Copper clout nails to BS1202-2 , or stainless steel (austenitic) clout nails to BS 1202-1.*

Shank type: *Annular ringed, helical threaded or serrated.*

Length: *Not less than 20 mm or equal to substrate thickness.*

Screws to concrete or masonry substrates: *Brass or stainless steel.*

Diameter: *Not less than 3.35 mm.*

Length: *Not less than 19 mm.*

Washers and plastics plugs: *Compatible with screws.*

80 Clips

Material

Lead clips: *Cut from sheets of the same thickness/ code as sheet being secured.*

Dimensions

Width: *50 mm where not continuous.*

Length: *To suit detail.*

Fixing clips: *Secure each to substrate with either two screw or three nail fixings not more than 50 mm from edge of lead sheet. Use additional fixings where lead downstands exceed 75 mm. Install clips at 300mm centres unless in a sheltered location.*

Fixing lead sheet: *Welt clips around edges and turn over 25 mm.*

83 Wedge fixing into joints/ chases

Joint/ chase: *Rake out to a depth of not less than 25 mm.*

Lead: *Dress into joint/ chase.*

Fixing: *Lead wedges at not more than 450 mm centres, at every change of direction and with at least two for each piece of lead.*

91 Wood-cored roll joints without splash lap

Wood core

Size: *45 x 45 mm round tapering to a flat base 25 mm wide.*

Fixing to substrate: *Brass or stainless steel countersunk screws at not more than 300 mm centres.*

Undercloak: *Dress half way around core.*

Copper or stainless steel clips: *Fix to core at not more than 450 mm centres. Do not restrict thermal movement of the undercloak.*

Overcloak: *Dress around core with edge welted around ends of clips, finishing 5 mm clear of main surface.*

94 Drips with splash laps (For roofs with a pitch up to 3 degrees)

Underlap: *Dress into rebate along top edge of drip.*

Fixing: *One row of nails on centre line of rebate.*

Overlap: *Dress over drip and form a 40 mm splash lap.*

98 Smartwater

All new and existing leadwork within the works area is to be treated with Smartwater. The Smartwater is to be applied as recommended by the supplier and Insurers. The client will supply the product to the Main Contractor and the client will register the product.

99 Patination oil (newer)

New Item: *Do not use unless specifically instructed.*

100 Graffiti and Plumber Plaques

Plumbers plaques provide an important record of previous works undertaken. All plaques should be carefully removed, set aside and re-welded to the leadwork at the completion of the works.

Graffiti in form of footprints and other marks are important and some should be carefully cut out and refixed to the leadwork. Undertake a careful inspection of the lead prior to removal. Where graffiti is found, the extent of the graffiti to be retained is to be agreed with the Architect.

For large areas of leadwork, the Contractor should include to install their own plaque recording the date of the works and the name of the lead contractor.

Ω End of Section

H75
Stainless steel strip/ sheet fully supported roof coverings/ flashings

To be read with preliminaries/ general conditions.

3 Stainless steel sheet fully supported roof covering

Covering system: *Traditional sheet. All work to be undertaken by a roofing contractor who is a Member of the Federation of Traditional Metal Roofing Contractors.*

Minimum pitch: 1 in 80.

Fire performance: *Not required*

Insulation: *Not required*

Sarking or roof boarding: *N/a*

Membrane: *Vapour permeable sheet in accordance with BS EN 13859-1*

Substrate: *New timber boarding*

Preparation: *Make good, as clause 53*

Stainless steel

Standard: *BS EN 14783*

Grade: *1.4401 (316)*

Finish: *2S Terned*

Thickness: *0.50 mm*

Other requirements: *Code 6 lead flashings at masonry abutments.*

40 Materials design and workmanship generally

Stainless steel strip/ sheet: *To BS EN 14783, BS EN 10088-4, and BS EN ISO 9445-1 or BS EN ISO 9445-2.*

Design and workmanship: *to British Stainless Steel Association latest publications and the Federation of Traditional Metal Roofing Contractors' 'UK Guide to Good practice in fully supported metal roofing and cladding'.*

Fabrication and fixing: *To provide a secure, free-draining and completely weathertight installation.*

Preforming: *Measure, mark, cut and form stainless steel prior to assembly wherever possible. Use scribers discreetly. Do not use other sharp instruments.*

Folding: *With presses to give straight, regular and tight bends, leaving panels free from ripples, kinks, buckling and cracks.*

Avoiding sharp edges: *Remove as work proceeds.*

Sealants: *Do not use in joints to attain waterproofing.*

Solder: *Use only where specified.*

Finished stainless steel work: *Fully supported, adequately fixed to resist wind uplift and able to accommodate thermal movement without distortion or stress.*

Protection: *Prevent staining, discolouration and damage by subsequent works.*

42 Soldering

In situ soldering: *Not permitted on the roof or within 6 metres of the building.*

50 Timber for use with stainless steel work

Quality: *Planed, free from wane, pitch pockets, decay and insect attack (ambrosia beetle excepted).*

Moisture content: *Not more than 22% at time of fixing and covering.*

Preservative treatment: *Organic solvent as section Z12 and Wood Protection Association Commodity Specification C8.*

51 Sheet underlay

Manufacturer: *Rothoblaas*

Product reference: *Traspir Metal Mat*

52 Laying sheet underlay

Handling: *Prevent tears and punctures.*

Laying: *Butt jointed onto a dry substrate.*

Fixing edges: *With stainless steel staples or 20 x 3 mm extra large head clout nails.*

Do not lay over eaves and drip/ step stainless steel underlaps.

Protection: *Keep dry and cover with stainless steel at the earliest opportunity.*

72 Drip/ Step joints

Strip/ sheet from below step: *Fold up full height of upstand and fix to top edge.*

Stainless steel underlap

Cover to roof slope: *Not less than 100 mm with anticapillary welt at top edge.*

Projection: *25 mm for forming into drip welt, and 40 mm downstand.*

Fixing: *To roof slope at 200 mm centres.*

Strip/ sheet from above step: *Fold around underlap projection and single welt to form a drip.*

Ω End of Section

K10
Gypsum board dry linings/ partitions/ ceilings

To be read with preliminaries/ general conditions.

16 Lining on timber - Foil Backed

Description: *New partition walls and ceilings*

Substrate: *Timber studs or joists at 400mm maximum centres*

Linings: *12.5 mm Gyproc Duplex WallBoard (Foil backed plasterboard)*

Fixing: ***Stainless steel screws*** *at 300mm centres to walls and 230mm centres to ceilings*

Finishing: *Skim coat plaster - Thistle Multifinish*

Accessories: *Plastic beads/ stops recommended by board manufacturer. Do not use galvanised beads or stops.*

Other requirements: *Fully tape all joints.*
Fire-stopping around service penetrations.

19 Lining on timber - Tile Backer for Walls

Description: *Partition Walls*

Substrate: *Timber studs 400mm maximum centres*

Linings: *12.5 mm Glasroc H TileBacker*

Fixing: *Stainless steel screws at 300mm centres*

Installation

60 Ceilings

Sequence: *Fix boards to ceilings before installing dry lined walls and partitions.*

Orientation of boards: *Fix with bound edges at right angles to supports and with ends staggered in adjacent rows.*

Two layer boarding: *Stagger joints between layers.*

65 Dry lining generally

General: *Use fixing, jointing, sealing and finishing materials, components and installation methods recommended by board manufacturer.*

Standard:

Gypsum plasterboard to BS EN 520.

Gypsum fibre board to BS EN 15283-2.

Evidence of compliance: *Submit Declaration of Performance (DoP).*

Cutting gypsum boards: *Neatly and accurately without damaging core or tearing paper facing.*

Cut edges: *Minimize and position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners.*

Finishing: *Neatly to give flush, smooth, flat surfaces free from bowing and abrupt changes of level.*

67 Skim coat plaster finish

Plaster type: *As recommended by board manufacturer*

Thickness: *2-3 mm.*

Joints: *Fill and tape except where coincident with metal beads.*

Finish: *Tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks.*

69 Installing beads/ stops

Cutting: *Neatly using mitres at return angles.*

Fixing: *Securely using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate.*

Finishing: *After joint compounds/ plasters have been applied, remove surplus material while still wet from surfaces of beads exposed to view.*

70 Additional supports

Framing: *Accurately position and securely fix to give full support to:*

Partition heads running parallel with, but offset from main structural supports.

Fixtures, fittings and service outlets. Mark framing positions clearly and accurately on linings.

Board edges and lining perimeters, as recommended by board manufacturer to suit type and performance of lining.

75 New wet laid bases

Dpcs: *Install under full width of partitions/ freestanding wall linings.*

Material: *Bituminous sheet or plastics.*

85 Acoustic insulation infill between studs/joints Type A

Fitting insulation: *Closely butted joints and no gaps. Use fasteners to prevent slumping or displacement.*

Services

Electrical cables overlaid by insulation: *Size accordingly.*

Ceilings: *Cut insulation around electrical fittings, etc.*

87 Sealing gaps and air paths

Sealing: *Apply sealant to perimeter abutments and around openings as a continuous bead with no gaps.*

Application: *To clean, dry and dust free surfaces as a continuous bead with no gaps.*

Gaps greater than 6mm between floor and underside of gypsum board: *After sealing, fill with joint compound.*

90 Seamless jointing

Cut edges of boards: *Lightly sand to remove paper burrs.*

Filling and taping: *Fill joints, gaps and internal angles with jointing compound and cover with continuous lengths of tape, fully bedded.*

Protection of edges/ corners: *Reinforce external angles, stop ends, etc. with specified edge/ angle bead.*

Finishing: *Feather out jointing compound to give a flush, smooth, seamless surface.*

Nail/ screw depressions and minor indents: *Fill with jointing compound to give a flush surface.*

Minor imperfections: *Remove by light sanding.*

91 Vertical joints

Joints: *Centre on studs.*

Partitions: *Stagger joints on opposite sides of studs.*

Two layer boarding: *Stagger joints between layers.*

92 Horizontal joints

Surfaces exposed to view: *Horizontal joints not permitted. Seek instructions where height of partition/ lining exceeds maximum available length of board.*

Two layer boarding: *Stagger joints between layers by at least 600 mm.*

Edges of boards: *Support using additional framing.*

Two layer boarding: *Support edges of outer layer.*

94 Fixing gypsum board to timber

Fixing to timber: *Securely at the following centres (maximum):*

Screws to partitions/ wall linings: *300 mm. Reduce to 200 mm at external angles.*

Screws to ceilings: *230 mm - As recommended by Gyproc for Moisture Resistance Plasterboard situations.*

Position of nails/ screws from edges of boards (minimum)

Bound edges: *10 mm.*

Cut/ unbound edges: *13 mm.*

Position of nails/ screws from edges of timber supports (minimum): *6 mm.*

Finishing - Not Used

Ω End of Section

K21
Wood strip/ board fine flooring/ linings

To be read with preliminaries/ general conditions.

10 Wood laminate flooring

Substrate: *New limecrete slab.*

Preparation: *Levelling screed*

Strips/ Boards

Standard: *To BS EN 14342*

Evidence of compliance: *Submit.*

Manufacturer/ Supplier: *Vastern Timber*

Product reference: *Engineered British Oak Flooring.*

Wood species (wearing layer): *English Oak*

Width: *200mm wide and random lengths.*

Thickness : *20mm*

Fixing : *Adhesive fixed in accordance with supplier's recommendations.*

Finish: *Supplied unfinished. Lightly sand the floor and then seal with Osmo Polyx Oil as M60/16B.*

Other requirements: *Supply a sample for client approval.*

50 Existing wood flooring

Condition: *Boards securely fixed and acceptably level. Protruding fasteners punched in or countersunk.*

51 Lifting existing floorboards

Condition: *Boards securely fixed and acceptably level. Protruding fasteners punched in or countersunk.*

65 Workmanship generally

Moisture content of timber supports: *12-14%.*

Methods of fixing and fasteners: *As section Z20 where not specified.*

Protection: *Protect from dirt, stains and damage using suitable coverings and boards laid as the work proceeds.*

80 Expansion provision

Expansion gaps

Edges of flooring parallel to lie of boards: *Against North wall only.*

Ends of flooring: *10mm cork edging strip.*

Spacer blocks and debris: *Removed before fixing skirtings.*

85 Environmental conditions

General requirements prior to starting work specified in this section: *Building weathertight, wet trades completed and affected areas dried out.*

90 Finish to flooring

Strips/ Boards: *Sanded to give a clean, smooth and flush surface free from score marks.*

Ω End of Section

L20
Doors/ shutters/ hatches

To be read with preliminaries/ general conditions.

10 Timber procurement

Timber (including timber for wood-based products): *Obtained from well-managed forests and/ or plantations in accordance with:*

The laws governing forest management in the producer country or countries.

International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).

30 Wood doors

Description: *Internal doors*

Materials: *Generally to* BS EN 942.

Species: *European oak*

Appearance Class: *J20*

Assembly

Adhesive: *PVAC to* BS EN 204, *Class D4*

Joinery workmanship: *As section Z10.*

Accuracy: *To* BS 4787-1

Preservative treatment: *Organic solvent as section Z12 and WPA Commodity Specification C5; desired service life: 30 years*

Moisture content on delivery: *9–13%*

Finish as delivered: *Fully sanded in preparation for staining and sealing as M60/16A*

52 Wood door frames/linings

Description: *Internal doors*

Materials: *Generally to* BS EN 942

Species: *European Oak*

Appearance Class: *J20*

Assembly

Adhesive: *PVAC to* BS EN 204, *Class D4*

Joinery workmanship: *As section Z12.*

Preservative treatment: *Organic solvent as section Z12 and WPA Commodity Specification C5; desired service life: 30 years*

Moisture content on delivery: *9–13%*

Finish as delivered: *5mm chamfered arris to exposed edges.*
Fully sanded in preparation for staining and sealing as M60/16A.

Fixing: *Plugged and screwed, as section Z20*

Spacing of fixings (frames not predrilled): *Maximum 150 mm from ends of each jamb, adjacent to each hanging point and at 600 mm maximum centres.*

85 Fixing ironmongery generally

Fasteners: *Supplied by ironmongery manufacturer.*

Finish/ Corrosion resistance: *To match ironmongery.*

Holes for components: *No larger than required for satisfactory fit/ operation.*

Adjacent surfaces: *Undamaged.*

Moving parts: *Adjusted, lubricated and functioning correctly at completion.*

Ω End of Section

L40
Traditional leaded windows

To be read with preliminaries/ general conditions.

16 Repair and conservation of plain glazing and stained glass

Glazing

Generally: *In accordance with BS 6262 series. All works is to be undertaken by a glass conservator with appropriate experience of working with historic plain glazing and/or stained glass.*
Windows should be numbered and recorded in accordance with CVMA numbering system.
Accreditation is preferred.

Integrity: *Wind and watertight under all conditions. Make full allowance for deflections and other movements.*

Glass

Standards: *Generally to BS 952-1, BS 952-2 and to the relevant parts.*

Quality: *Free from scratches. Thickness to match the existing removed. The glass should be selected to match the existing as close as possible.*

Removal: *Glazed units are to be labelled and removed carefully by hand.*

In association with removal, the existing opening is to be protected and infilled either with twin-wall polycarbonate sheeting (for light transmission) or OSB woodboard or similar (min 18mm thickness). In all instances, the window must be secure and appropriately weathertight.

Advise the architect of any stonework damage or movement which requires investigation or repairs prior the return and re-fixing of the glass.

The removed lights carefully wrapped and transported to the glaziers' workshop where they are to be carefully stored until their repair and reinstation. Provide appropriate support to prevent damage during transit.

Assessment: *Undertake a workshop based assessment of the glazing unit. Record glass types and damage etc and prepare a rubbing of each light. Assess leading sizes and advise if different sizes are present.*

For plain glazing, photograph any areas of historic interest and identify the various glass types present. The glass in the leaded lights to be refurbished may contain different types and thickness of historic glass including cylinder, crown, sheet or broad glass amongst others. In principle, all historic glass is to be retained and reset in the same position where it was found. Discuss replacement of inappropriate modern glass with the Architect.

For stained glass, photograph the unit from both sides and identify any variations from the original proposals.

The extent of full or partial releading is to be agreed with the architect if not expressly stated in the Schedule of Works or on drawings.

In particular, record glazier's signatures, date stamps or other graffiti.

Existing Glass: *For plain glazing, each light is to be carefully cleaned with distilled water mixed with a few drops of methylated spirit. Clean with soft brushes and cloths and polish with chamois leather.*

In principle, all coloured and painted glass is to be retained. Each piece of glass is to be assessed for damage and paint loss and then consolidated and/or cleaned. Undertake cleaning trials to establish the most appropriate method of cleaning. Dry cleaning to be undertaken with small brushes and a vacuum and scalpel cleaning if monitored with a binocular microscope. Wet cleaning trials to include the use of cotton wool and solvents, deionised water and ethanol.

Consolidation of glass paint, where paint is in imminent danger of loss, should be undertaken using an appropriate consolidant such as Paraloid B-72.

For stained glass, all works to be carried out under the guidance of conservation accredited stained glass

conservators.

Where glass is cracked or damaged, different repair approaches should be considered. Historic glass should not be grozed. Where not specifically described in the Schedule of Works or on the drawings, the options should be discussed with the Architect should include the following:

A) The introduction of a small profile repair lead where cracking is present in historically important or significant glass.
B) The copper foil technique (Tiffany)
C) Edge bonding. (Generally only for glass not directly exposed to the weather unless EPG or a backing glass is proposed).
D) Strap repairs.
E) Replacement with a new quarry to match the existing. For plain glazing, historic glass is to be replaced where glass is missing through damage or where at least two or more cracks are present.

If new glass is required, the glass should be engraved with initials and dated.

Leading: *The conservation and retention of historic leading remains the priority but leading can deteriorate to the point that full releading is required. Record any dates or marks on the original leading.*

New leading should match the original/existing unless specifically agreed otherwise. Install date stamps.

Glazier's cement should be to a traditional leaded light cement.

Refixing: *Ensure all rebates are clean and take care with the alignments.*
Keep casements closed until putty has set.
Perimeter repointing to be undertaken using NHL 3.5 Hydraulic Lime mixed 1 part lime to 3 parts sand / stone dust as Z21. The mix should aim to match the colour of the stone as close as possible.
Ensure all drainage holes are clear.

Hoppers and casements: *As Clause L40/17*

Tie Bars / Ferramenta: *As Clause L40/18*

Window guards: *As Clause L40/19*

Completion: *At completion, ensure both surfaces of the window are clean.*
All work be recorded in a Post-Conservation report.

17 Hoppers and casements

Following the removal of the glass, remove the metal frame and clean with water and/or steam.

Work over the surface removing all corrosion and rust but retain historic paint surfaces where in good condition. Agree the most appropriate cleaning technique with the Architect. Sympathetic approaches should include steam cleaning and wire brushing. Take care not to damage galvanised surfaces if present.

Agree any metal repairs using new metals to match the existing. Any welding should be full depth and must be thoroughly ground down. Jointing methods should be replicated where possible.

For a full overhaul, all moving components should be disassembled, cleaned, painted and reassembled. Refixed frames should use non-ferrous screws. For a light overhaul, disassembly is not required but easing and adjusting is required.

Decoration: All tie bars and ferramenta should be painted as M60/14.

Leave full operational.

18 Ferramenta and Tie Bars

New tie bars: New tie bars are to be executed in stainless steel with steel sourced to closely match the size and shape of the existing. Grade 304 (1.4301) or Grade 316 (1.4401) for marine environments.
New tie bars should be painted as M60/14.

Retained tie bars: Where shaped bars are present, these should be removed and retipped with stainless steel of the same dimensions and then refixe

Ferrementa: All ironwork is to be retained
Where ferramenta is present, it should be opened up around the tips to allow full decoration.

Copper ties: 1.6mm annealed bare copper.

Decoration: All tie bars and ferramenta should be painted as M60/14. Decorate prior to installation and then make good any minor damage and tidy up around the mortar.

19 Window Guards for leaded windows

Carefully remove decayed guards if appropriate and undertaken mortar and masonry repairs as C41. Reuse existing fixings holes where possible and make good any redundant fixing holes. Remove all evidence of ferrous fixings.

Where specified, undertaken poultice cleaning of the cill if iron oxide or verdigris staining is present. Cross refer to Section C40.

Prepare a full size templates of each of the lights to the existing window with the guards set within, not in front of the stonework.

Fabricate new powder coated stainless steel guards. Type: 3" x 1/2" x 12 swg stainless steel mesh with 6mm perimeter wiring. Stainless steel grade 304 (1.4301) generally or Grade 316 (1.4401) for marine environments. Finish: Semi-matt powder coated finished. Colour: Black.

Install new guards using stainless steel fixings and copper or stainless steel wires with nylon rawl plugs. Ensure the guards are secure with no movement.

80 Ironmongery

Fixing: *In accordance with any third-party certification conditions applicable. Assemble and fix carefully and accurately, using fasteners with matching finish supplied by ironmongery manufacturer. Do not damage ironmongery and adjacent surfaces.*

Checking/ adjusting/ lubricating: *Carry out at completion and ensure correct functioning.*

Ω End of Section

M20
Plastered/ rendered/ roughcast coatings

To be read with preliminaries/ general conditions.

50 Gypsum plaster skim coat on plasterboard

Plasterboard: *Standard plasterboard, foil-backed plasterboard and moisture resistant plasterboard 12.5 mm unless stated otherwise and to BS EN 520, Type A*

Preparation: *All joints taped and skimmed prior to skim coat*

Plaster: *Board finish/ plaster to BS EN 13279-1, class B.*

Manufacturer: *British Gypsum*

Product reference: *Thistle Multi-Finish*

Thickness: *2-5 mm in 2 passes*

Finish: *Smooth but not polished.*

57 Non-Hydraulic Lime:sand Plaster (Internal - Mixed on site)

Substrate: *Existing masonry (brickwork or stone) or lathes on studwork or ceiling joists.*

Preparation: *Replace any decayed timber lathing. Ensure masonry surfaces have been appropriately raked out and are dust free.*

Lime supplier: : *Limebase Products Ltd or other of the Contractor's Choice. Lime supplied as M20/69.*

Undercoats

Mix: *1:2.5 with hair reinforcement as M20/83 for the scratch coat only.*

Sand: *To BS EN 13139, grading to approval To BS EN 13139. Sand should be sharp well graded sand and not marine sand.*

Thickness (excluding dubbing out and keys): *Scratch coat 8-12mm. Where a good mechanical is not easily created, apply a slurry scat coat to the wall surface in advance of the scratch coat.*

Floating coat 6mm to 10mm (no hair)

Cross scratch plaster coatings and comb render coatings.

Final coat

Mix: *3 parts kiln dried and sieved silver sand to 2 parts lime putty. No hair. Ensure that the mix is prepared at least 7 days before use and then thoroughly knock-up before use.*

Sand: *To BS EN 13139.*

Thickness: *3-6 mm in two passes*

Finish: *Smooth and to match adjacent areas unless specifically requested otherwise.*

Accessories: *Do not use beads unless specifically stated. If beads are specified they must be stainless steel and secured with stainless steel screws.*

Other requirements: *Never add water to the mix. Mixing must be thorough and for a minimum of 15 minutes.*

Prepare a sample area of 1m^2 for approval.

Discuss possible use of a Pozzlanic additive with the architect if considered beneficial.

57 A Non-Hydraulic Lime:sand Plaster (Internal - Pre-mixed)

Substrate: *Existing masonry (brickwork or stone) or lathes on studwork or ceiling joists.*

Preparation: *Replace any decayed timber lathing. Ensure masonry surfaces have been appropriately raked out and are dust free.*

Lime Supplier: *Limebase Products Ltd or other of the Contractor's Choice - Contractor to submit proposals.*

Scratch coat and floating coat: *UP4 from Limebase or equivalent.*

Thickness: *Scratch coat 8-12mm with hair reinforcement as M20/83. Where a good mechanical is not easily created, apply a slurry scat coat to the wall surface in advance of the scratch coat.*
Floating coat 6mm to 10mm (no hair)

Finish: *Cross scratch plaster coatings and comb render coatings.*

Final coat

Mix: *FP14 from Limebase*

Thickness:

3-6mm in two passes.

Finish: *Smooth and to match adjacent areas unless specifically requested otherwise.*

Accessories: *Do not use beads unless specifically stated. If beads are specified they must be stainless steel and secured with stainless steel screws.*

Other requirements: *Never add water to the mix. Mixing must be thorough and for a minimum of 15 minutes.*

Prepare a sample area of 1m^2 for approval.

65 Mixing

Render mortars (site-made)

Batching: *By volume using gauge boxes or buckets.*

Mix proportions: *Based on damp sand. Adjust for dry sand.*

Lime:sand: *Mix thoroughly. Allow to stand, without drying out, for at least 16 hours before using.*

Mixes: *Of uniform consistence and free from lumps.*

Contamination: *Prevent intermixing with other materials.*

67 Cold weather

General: *Do not use frozen materials or apply coatings on frozen or frost bound substrates.*

Internal work: *Take precautions to prevent damage to internal coatings when air temperature is below 3°C.*

External work: *Avoid when air temperature is at or below 5°C and falling or below 3°C and rising.*

69 Ready prepared lime putty

Type: *Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.*

Maturation: *In pits/ containers that allow excess water to drain away.*

Density of matured lime putty: *1.3-1.4 kg/L.*

Maturation period before use (minimum): *90 days.*

Storage: *Prevent drying out or wetting. Protect from frost.*

71 Suitability of substrates

General: *Suitable to receive coatings. Sound, free from contamination and loose areas.*

Cutting, chasing, making good, fixing of conduits and services outlets and the like: *Completed.*

Tolerances: *Permitting specified flatness/ regularity of finished coatings.*

Cleanliness: *Free from dirt, dust, efflorescence and mould, and other contaminants incompatible with coatings. Ensure surfaces are suitably wetted in advance of the application of new plasters or renders.*

74 Existing damp affected plaster/ render

Plaster affected by rising damp: *Extent of removal to be agreed on site with the architect. Historic plaster should be retained wherever possible. Should historic decoration be encountered then works should cease immediately and advice sought from the architect.*

Perished and salt contaminated masonry

Mortar joints: *Rake out to a minimum depth of 25mm unless agreed otherwise.*

Masonry units: *The masonry must be free from dust, dirt, mould and efflorescence and anything incompatible with the new coatings.*

Drying out substrates: *Every effort should be made to slowly dry out saturated substrates prior to re-rendering. Render should be removed as early as possible in the contract to maximise the amount of drying time.*

Faults in substrate (structural deficiencies, additional sources of damp, etc.): *Submit proposals and discuss with architect.*

76 Removing defective existing plaster

Plaster for removal: *Loose, soft, friable, badly cracked, affected by efflorescence or otherwise irreparably damaged. Extent of plaster removal to be agreed on site prior to works commencing. Historic plaster should be retained wherever possible. Should historic decoration be encountered then works should cease immediately and advice sought from the architect.*

Hollow, detached areas: *Seek advice from the architect as hollow areas are not necessarily loose and at risk of falling. Hollow areas can also be reattached.*

Removing defective plaster: *Cut back to a square, and slightly undercut sound edge for smooth plasters and to a feathered edge for coarse renders. Do not undercut the lower edge for external renders.*

Additionally rake out joints in the masonry to a depth of 25mm unless agreed otherwise. This is to ensure a good mechanical key.

Faults in substrate (structural deficiencies, additional sources of damp, etc.): *Discuss on site with the architect.*

Cracks

Fine hairline cracking/ crazing: *Leave*

Other cracks: *Small cracks should be cleaned of all loose material, the plaster should then be wetted with limewater and then filled with an hydraulic lime putty mixed with a small amount of fine sand or stone dust. Apply with a soft brush.*

Dust and loose material: *Remove from exposed substrates and edges.*

79 Gypsum plasterboard backings

Type: To BS EN 520 Type A.

Core density (minimum): *650 kg/m³.*

Exposed surface and edge profiles: *Suitable to receive specified plaster finish.*

80 plasterboard backings to timber

Fixings, accessories and installation methods: *As recommended by board manufacturer.*

Fixing: *At the following centres (maximum):*

Screws to partitions/ walls: *300 mm. Reduce to 200 mm at external angles. Stainless steel.*

Screws to ceilings: *230 mm. Stainless steel*

Position of nails/ screws from edges of boards (minimum)

Bound edges: *10 mm.*

Cut/ unbound edges: *13 mm.*

Position of nails/ screws from edges of supports (minimum): *6 mm.*

Nail/ screw heads: *Set below surface. Do not break paper or gypsum core.*

Additional framing supports

Fixtures, fittings and service outlets: *Accurately position to suit fasteners.*

Board edges and perimeters: *To suit type and performance of board.*

Joints

Ceilings

Bound edges: *At right angles to supports and with ends staggered in adjacent rows.*

Two layer boarding: *Stagger joints between layers.*

Partitions/ walls

Vertical joints: *Centre on studs. Stagger joints on opposite sides of studs.*

Two layer boarding: *Stagger joints between layers.*

Horizontal joints:

Two layer boarding: *Stagger joints between layers by at least 600 mm. Support edges of outer layer.*

Joint widths (maximum): *3 mm.*

End joints: *Stagger between rows.*

Two layer boarding: *Stagger joints between layers.*

Joint reinforcement tape: *Apply to joints and angles except where coincident with metal beads.*

81 Beads/ stops for internal use

Standard: *In accordance with BS EN 13914-2.*

Material: *Stainless steel to BS EN 13658-1*

New Item: *Only use beads where specifically identified*

83 Hair reinforcement to scratch coats

Materials: *Goat or cow hair between 25mm and 100m long. The hair should be strong and soft.*

Application rate: *Allow 2kg of hair for each tonne of plaster for ceilings and 1kg of hair for each tonne of plaster for walls.*

Quality: *Hair must be clean and sterile.*

Application: *All hair must be added to the mix just before application. Tease the hair before mixing in thoroughly. Ensure an even distribution of hair in the mix.*

84 New lathes

New lathes should match the existing unless stated otherwise. This includes timber species, thickness, lengths, spacing and whether they are sawn or split. For pricing purposes assume riven oak lathes. Unless otherwise stated, new lathes should secured with stainless steel ring shanked nails.

86 Crack control at junctions between dissimilar solid substrates

Locations: *Where defined movement joints are not required. Where dissimilar solid substrate materials are in same plane and rigidly bonded or tied together.*

Crack control materials

Isolating layer: *Building paper to BS 1521.*

Metal lathing: *Stainless steel ribbed expanded metal only with stainless steel fixings.*

Installation: *Fix metal lathing over isolating layer. Stagger fixings along both edges of lathing.*

Width of installation over single junctions

Isolating layer: *150 mm.*

Lathing: *300 mm.*

Width of installation across face of dissimilar substrate material (column, beam, etc. with face width not greater than 450 mm)

Isolating layer: *25 mm (minimum) beyond junctions with adjacent substrate.*

Lathing: *100 mm (minimum) beyond edges of isolating layer.*

87 Application of coatings

General: *Apply coatings firmly and achieve good adhesion.*

Appearance of finished surfaces: *Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.*

Accuracy: *Unless agreed otherwise, finish to a true plane, to correct line and level, with angles and corners to a right angle unless specified otherwise, and with walls and reveals plumb and square.*

Drying out: *Prevent excessively rapid or localized drying out bywetting.*

Keying undercoats: *Cross scratch plaster coatings and comb render coatings. Do not penetrate undercoat.*

94 Flatness/ surface regularity

Sudden irregularities: *Not permitted.*

Deviation of plaster surface: *Measure from underside of a straight edge placed anywhere on surface.*

Permissible deviation (maximum) for plaster not less than 13 mm thick: *Unless agreed otherwise, 3 mm in any consecutive length of 1800 mm.*

Ω End of Section

M40
Stone/ concrete/ quarry/ ceramic tiling/ mosaic

To be read with preliminaries/ general conditions.

5 Tiling to Walls (A)

Tiles: *Ceramic wall tiles to WCs /kitchenette*

Manufacturer/ Supplier: *Topps Tiles*

Product reference: *Metro*

Colour: *To be agreed. Samples required.*

Finish: *Gloss / Matt*

Size: *200mm x 100mm*

Thickness: *8mm*

Background/ Base: *Hardibacker as Clause 27.*

Bedding

Walls: *Adhesive bed notched trowel method, as clause 50*

Adhesive to BS EN 12004-1: *Ardex X11 W tile adhesive*
or Contractor's Choice

Joint width: *As spacer lugs*

Grout: *Ardex Flex - FS*

Colour: : *35 Colour choices. To be agreed.*

Movement joints: *None*

Accessories: *Sealant to BS EN ISO 11600. Sealant to be fungal and mould resistant. Contractor's Choice. Colour: White.*

Samples: *Allow to supply 5no samples.*

7 Geometric / Encaustic Tiling to Floors

Tiles: *Geometric and encaustic tiles to floor*

Manufacturer/ Supplier: *Craven Dunnhill Jackfield*

Product reference: *Geometric tiles to BS6431 Part 6. Place order early as there is often a significant lead-in time.*

Colour: *To match the existing.*
Obtain samples of standard colours from the supplier.
Obtain samples of the following: Red; Black; Linen; Beige; Harvest; Coffee; Stone; Chocolate.

Finish: *Unglazed porcelain*

Size: *Precision cut by the manufacturer as required to match the existing.*

Thickness: *12mm*

Background/ Base: *Existing screed.*
New lime screed.

Bedding

Floors: *Adhesive bed notched trowel method, as clause 50*

Adhesive to BS EN 12004-1: *Sesil Adhere Cal Tile adhesive (Hydraulic Lime). 3mm thickness.*

Joint width: *To match the existing but assume 1mm -2mm.*

Grout: *Mapei Flexible grout to BS WN 13888.*

Type/ classification: *CG2WA*

Colour:: *To match existing and to be agreed on site*

Lifting tiles for relaying:: *Accurately record the existing pattern and where appropriate carefully label tiles. Set aside all good tiles for cleaning and relaying. Retain as many existing tiles as possible and agree extent of tile disposal with the architect. Where tiles have been lifted and need to be relaid include to cut back the bedding mortar to create allow a 3mm bed.*

Cleaning tiles for reuse:: *Clean all tiles which require lifting. Remove mortar and other deposits from all surfaces. Assume a combination of Symperonic A, HG tile Cleaner; HG Extra or other products as proposed and trialed by the contractor to remove deposits of glue, mortar and grout from the surface of the tiles. Do not use metal scourers or wire brushes as these risk damaging the surface of the tile. For any removed salt covered tiles, the surface should be brushed down and then subjected to repeated cycles of washing and drying to remove salts. Undertake trials.*

Repairing broken tiles:: *Where broken encaustic tiles need to be lifted and relaid, where possible these should be repaired by glueing using Paraloid B72 or similar to be agreed.*

Detaching tiles:: *Around the edges of lifted tiles, secure the retained tiles by injecting Paraloid B44 mixed with acetone as a grout under the tiles for improved adhesion.*

Cleaning tiles prior to finishing:: *To the area as described, ensure that the surface of the tiles is clean and free from dirt and other deposits.*

Finishing: : *With the floor tiles clean and dry apply 2 coats of Liberon 'Stone Floor Shine' in accordance with the manufacturer's recommendations.*

15 New backgrounds/ bases

Background drying times (minimum)

Brick/block walls: *six weeks.*

Rendering: *two weeks.*

Gypsum plaster: *four weeks.*

Base drying times (minimum)

Concrete slabs: *six weeks.*

Cement:sand screeds: *three weeks.*

20 Existing backgrounds/ bases generally

Efflorescence, laitance, dirt, loose and defective material: *Remove and make good defective areas with materials compatible with background/base and bedding.*

Deposits of oil, grease and other materials incompatible with the bedding: *Remove.*

Tile, paint and other nonporous surfaces: *Clean.*

Wet backgrounds: *Dry before tiling.*

Paint with unsatisfactory adhesion: *Remove so as not to impair bedding adhesion.*

25 New plaster

Plaster: *Dry, solidly bedded, free from dust and friable matter.*

Plaster primer: *Apply if recommended by adhesive manufacturer.*

27 Fibre-reinforced cement boards

Type: *Tile backer board*

Manufacturer: James Hardie Building Products Ltd

Contact details

Address: *7 The Priory*
Old London Road
Canwell
Sutton Coldfield
B75 5SH

Telephone: +44(0)1213113480

Web: www.jameshardie.co.uk

Email: info@jameshardie.co.uk

Product reference: Hardie® Backer Tile Backerboard (Hardie® Backer 12 mm Tile Backerboard)

Standard: *To BS EN 12467.*

Fire rating: *To BS EN 13501-1, A1-s1, d0.*

Weather resistance: *To BS EN 12467, category C.*

Bending strength: *To BS EN 12467, class 2.*

Sheet size

Nominal thickness: *As drawings 6 mm or 12mm.*

Length: *1200 mm.*

Width: *800 mm.*

Edges: *Square.*

Colour: *Natural grey.*

CompressiveStrength: *45 MPa.*

Flexural strength: *12 MPa.*

Maximum weight: *200 kg/m².*

Accessories: *Screws for wood frames.*

Fixing system: *Stainless steel screws.*

Application: *As recommended by manufacturer*

Joints: *Close butt.*

Treatment: *Seal with waterproof reinforcing tape bedded and covered in adhesive, feather edges*

Penetrations: *Seal.*

Accessories: *None*

30 Fixing generally

Colour/ shade: *Avoid unintended variations within tiles for use in each area/ room.*

Variegated tiles: *Mix thoroughly.*

Adhesive: *Compatible with background/ base.*

Cut tiles: *Neat and accurate.*

Fixing: *Provide adhesion over entire background/ base and tile backs.*

Final appearance: *Before bedding material sets, make adjustments necessary to give true, regular appearance to tiles and joints.*

Deviation of surface: *Measure from underside of a 2 m straightedge with 3 mm thick feet placed anywhere on surface. The straightedge should not be obstructed by the tiles/ mosaics and no gap should be greater than 6 mm, i.e. a tolerance of*

Surplus bedding material: *Clean from joints and face of tiles/ mosaics.*

32 Mortar bedding

Bedding mix

Cement: *Portland to BS EN 197-1, type CEM I/42.5.*

Sand for walls: *Fine aggregate to BS EN 13139.*

Grading designation: *0/2 (CP or MP) category 2 fines.*

Sand for floors: *Fine aggregate to BS EN 13139.*

Grading designation: *0/4 (MP) category 1 fines and between 20-66% passing a 0.5 sieve.*

Batching: *Select from:*

Batch by weight.

Batch by volume: *Permitted on the basis of previously established weight:volume relationships of the particular materials. Use accurate gauge boxes. Allow for bulking of damp sand.*

Mixing: *Mix materials thoroughly to uniform consistence. Use a suitable forced action mechanical mixer. Do not use a free fall type mixer.*

Application: *At normal temperatures use within two hours. Do not use after initial set. Do not retemper.*

35 Setting out

Joints: *True to line, continuous and without steps.*

Joints on walls: *Horizontal, vertical and aligned round corners.*

Joints in floors: *Parallel to main axis of space or specified features.*

Cut tiles: *Minimize number, maximize size and locate unobtrusively.*

Joints in adjoining floors and walls: *Align.*

Joints in adjoining floors and skirtings: *Align.*

Movement joints: *Where locations are not indicated, submit proposals.*

Setting out: *Agree on site with the Architect.*

40 Tile skirtings

Bedding: Solid to wall on Cement-based adhesive.

50 Adhesive bed – notched trowel method to walls

Application: *By 3 mm floated coat of adhesive to dry background. Comb surface.*

Tiling: *Press tiles firmly onto float coat.*

60 Adhesive bed – notched trowel and buttering method to floors

Application: *Floated coat of adhesive to dry base and comb surface.*

Tiling: *Apply coat of adhesive to backs of dry tiles. Fill any profiles. Press tiles firmly onto float coat.*

Finished adhesive thickness: *Within range allowed by manufacturer.*

70 Grouting

Sequence: *Grout when bed/ adhesive has set sufficient to prevent disturbance of tiles.*

Joints: *6 mm deep (or depth of tile if less). Free from dust and debris.*

Grouting: *Fill joints completely, tool to profile, clean off surface. Leave free from blemishes.*

Profile: *Flush*

Polishing: *When grout is hard, polish tiling with dry cloth.*

75 Sealant movement joints

Manufacturer: *Contractor's choice*

Product reference: *Contractor's choice*

Joints: *Extend through tiles and bedding to base/ background. Centre over joints in base/ background.*

Sealant: *2-part polysulfide to approval*

Colour: *To be agreed*

Preparation and application: *As section Z22.*

Ω End of Section

M60
Painting/ clear finishing

To be read with preliminaries/ general conditions.

10 B Soft Distemper

Manufacturer: *Rose of Jericho*

Product reference: *Soft Distemper*

Surfaces: *Existing and new plastered surfaces.*

Preparation: *All surfaces should be sound, clean, dry and free from dirt, oil, grease and other contamination. Previously distempered surfaces should be wiped or washed free of all powdery surface material. Porous surfaces should be primed with one coat of Claircolle. New lime plastered surfaces must be allowed to carbonate and dry for at least four weeks prior to application. Any algae or mould must be treated with a fungicide and making good and filling should be carried out with a material appropriate to the substrate.*

Prepare fully in accordance with manufacturer's recommendations.

It is not recommended that distemper be applied to emulsion and other modern paint types in poorly heated areas such as churches.

Finishing coats: *2no top coats. Apply in accordance with manufacturer's recommendations.*

Colour:: *To be agreed and from the standard RofJ range*

10 A Emulsion paint for WCs

Manufacturer: *Dulux*

Product reference: *Easycare Washable and Tough*

Surfaces: *Existing and new plastered surfaces*

Preparation: *Ensure surfaces are clean and dry and free from grease. Remove all loose and defective coatings and prepare in accordance with manufacturer's recommendations.*

Finishing coats: *3no top coats*

Colour:: *To be agreed.*

10 D Permeable Matt Emulsion paint

Manufacturer: *Rose of Jericho*

Product reference: *Permeable Matt Emulsion*

Surfaces: *Existing and new plastered surfaces*

Preparation: *All surfaces should be sound, clean, dry and free from dirt, oil, grease and other contamination. The paint can be applied to lining paper and previously emulsion painted surfaces. Newly plastered surfaces should be dry prior to application. Porous surfaces should be primed with a mist coat of paint diluted with up to 10% water. Any algae or mould must be treated with a fungicide and making good and filling should be carried out with a material appropriate to the substrate. Prepare fully in accordance with manufacturer's recommendations.*

Initial coats: *1 no priming coat to all surfaces.*

Finishing coats: *Permeable Matt emulsion*

Number of coats: *2no top coats*

Colour:: *To be agreed but from the standard range.*

11 Pure Limewash

Manufacturer: *Rose of Jericho*
Limebase
Farrow & Ball
Contractor's Choice

Product reference: *Pure Limewash*

Surfaces: *Existing and new plastered surfaces*

Preparation: *Remove all loose and defective coating and ensure all surfaces are sound, clean, dry and free from dirt, grease and other contamination.*

Finishing coats: *4no coats internally on previously limewashed surfaces.*

6no coats externally and on new plastered surfaces internally.

Notes: *New lime plastered surfaces must be allowed to have carbonated for at least one month prior to application. Ideally new plaster should be allowed to carbonate and dry for longer to further reduce the risk of staining being drawn through.*

Should any historic paint schemes be discovered during preparation then further advice should be sought from the architect.

Ensure limewash is well mixed prior to application.

Include to dampen surfaces in advance of application to prevent quick-drying. Coating should be applied thinly and well worked into the surface. Protect limewashed surfaces to prevent fast drying.

Colour: : *Allow for Venetian White. Provide 4no colour options for client approval.*

11 A Sheltercoat

Manufacturer: *Rose of Jericho*
Limebase
or other of the Contractor's Choice

Product reference: *Sheltercoat - Colour to be agreed*

Surfaces: *Existing cleaned stone surfaces*

Preparation: *Ensure all mortar repairs have been fully completed and that all surfaces are sound, clean, dry and free from dirt, grease and other contamination.*

Apply 5no coats of Limewater as C40/600 to dampen the stonework.

Finishing coats: *Allow to apply 3no coats.*

Notes: *New lime plastered surfaces must be allowed to have carbonated for at least one month prior to application.*

Should any historic paint schemes be discovered during preparation then further advice should be sought from the architect.

Dampen surfaces in advance of application to prevent quick-drying. Ensure the sheltercoat is well mixed prior to application. Coating should be applied thinly and well worked into the surface. Protect sheltercoated surfaces to prevent fast drying.

Colour: : *To match the cleaned stone.*

13 Fungicide

Description: *To all plastered walls prior to redecoration.*

Manufacturer: *Rose of Jericho*

Product reference: *Fungicidal wash*

Surfaces: *Existing plastered and painted surfaces prior to redecoration.*

Preparation: *As manufacturer/supplier recommendations.*

Application:: *Thoroughly rinse off after treatment and use sponges internally.*

Protection:: *Ensure that there is a physical barrier to prevent contact with unprotected persons or animals until the product has dried.*

Disposal:: *Prevent surface run- off from entering drains and water courses.*

14 Exterior Metalwork (Hinges and Nail heads) and Window Ferramenta

Description: *To iron and steel as described on drawings or in the Schedule of Works*

Manufacturer: *Industrial Paint Services S W Ltd*

Contact details

Address: *Unit 16 C*
Leeway Industrial Estate
Newport
NP19 4SL

Telephone: *01633 290405*

Product reference: *Micaceous Iron Oxide - Ref No 67E (Manor Paint)*

Surfaces: *Uncoated and previously painted steel and iron*

Preparation: *Degrease and provide key. Ensure surfaces are clean and dry. Remove all loose and defective coatings.*

Finishing coats

Number of coats: *3*

14 B Exterior metalwork to large areas including rainwater goods

Manufacturer: *Rustoleum (Tor Coatings Ltd)*

Supplier: : *Contractor's Choice*

Contact details

Address: *Unit 2, White Rose Way, Follingsby Park, Gateshead, Tyne & Wear, NE10 8YX.*

Telephone: *01914 113 146*

Web: *www.rust-oleum.eu*

Product reference: *Rustoleum Alkythane Top Coat (Satin Black - Code 7575)*

Surfaces: *New and existing cast iron rainwater goods*

Preparation: *Remove all loose and defective coatings. Degrease and provide key. Ensure surfaces are clean and dry.*

Initial coats: *For rubbed down metalwork, prime with Rustoleum 769 damp proof primer. Colour: Standard red/brown.*

For bright metal and all transit primed new metalwork and where existing metalwork is in good decorative condition, prime with Rustoleum 569 (Quick drying metal primer).

For galvanised metal, stainless steel or aluminium, prime with Rustoleum 3202 Galvinoleum Primer.

Finishing coats: *Satin*

Number of coats: *2no top coats.*

For dismantled goods, apply all coats prior to reassembly and include to make good any damage that occurs during reassembly.

16 A Interior Wood Oil

Manufacturer: Rubio Monocoat UK

Contact details

Address: *Rubio Monocoat UK, Unit 1, Pipers Lane*
Purley Chase Industrial Estate
Nuneaton
Warwickshire
United Kingdom
CV10 0RG

Telephone: 0800 688 9661

Web: www.rubiomonocoat.co.uk

Email: info@rubiomonocoat.co.uk

Product reference: *Oil Plus 2C*

Surfaces: *New plywood furniture and new oak furniture*

Preparation: *In accordance with manufacturer's recommendations*

Finishing coats: *1*

Colour: *Provide 4no colour options for client consideration.*

16 B Floor Sealant (Osmo Polyx Oil)

Description: *Sealant to new wood flooring*

Manufacturer: *Osmo*

Product reference: *Polyx Hard Wax Oil - Clear - Satin*

Surfaces: *New oak laminate flooring*

Preparation: *Fill any knots or holes and touch-in.*

Finishing coats: *2 - Apply thinly in accordance with the supplier's recommendations.*

22 Handling and storage

Coating materials: *Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.*

Materials from more than one batch: *Store separately. Allocate to distinct parts or areas of the work.*

28 Protection

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

Furniture, memorials and fittings:: *Ensure appropriate protections are in place at all times to protect against paint specks and spillages.*

30 Preparation generally

Standard: *In accordance with BS 6150.*

Refer to any pre-existing CDM Health and Safety File and CDM Construction Phase Plan where applicable.

Risk assessments and method statements for suspected hazardous materials: *Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.*

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

Substrates: *Sufficiently dry in depth to suit coating.*

Efflorescence salts, dirt, grease and oil: *Remove. Give notice if contamination of surfaces/ substrates has occurred.*

Surface irregularities: *Provide smooth finish.*

Organic growths and infected coatings

Remove with assistance of biocidal solution.

Apply residual effect biocidal solution to inhibit regrowth.

Joints, cracks, holes and other depressions: *Fill with stoppers/ fillers. Provide smooth finish.*

Dust, particles and residues from preparation: *Remove and dispose of safely.*

Water-based stoppers and fillers

Apply before priming unless recommended otherwise by manufacturer.

If applied after priming: *Patch prime.*

Doors, opening windows and other moving parts

Ease, if necessary, before coating.

Prime resulting bare areas.

32 Previously coated surfaces generally

Preparation: *In accordance with BS 6150.*

Contaminated or hazardous surfaces: *Give notice of:*

Coatings suspected of containing lead.

Substrates suspected of containing asbestos or other hazardous materials.

Significant rot, corrosion or other degradation of substrates.

Risk assessment and method statement for hazardous materials: *Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.*

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

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

Alkali affected coatings: *Completely remove.*

Retained coatings

Thoroughly clean.

Partly removed coatings

Apply additional preparatory coats.

Junctions: *Provide flush surface.*

Completely stripped surfaces: *Prepare as for uncoated surfaces.*

35 Fixtures and fittings

Risk assessment and method statement for hazardous materials: *Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.*

Removal: Before commencing work: Ironmongery, cover plates and other surface mounted fixtures. Carefully label all removed items so that they can be refixed in the same place..

Replacement: *Refurbish as necessary, refit when coating is dry.*

36 Ironmongery

Removal: *Before commencing work remove ironmongery from surfaces to be coated.*

Carefully label all removed items so that they can be re-fixed in the same position.:

37 Wood preparation

General: *Provide smooth, even finish with lightly rounded arrises.*

Degraded or weathered surface wood: *Take back surface to provide suitable substrate.*

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

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

Resinous areas and knots: *Apply two coats of knotting.*

Defective primer: *Take back to bare wood and reprime.*

39 Steel preparation

Areas of defective primer, corrosion and loose scale: *Take back to bare metal. Reprime as soon as possible.*

Defective paintwork: *Remove to leave a firm edge and clean bright metal.*

Sound paintwork: *Provide key for subsequent coats.*

Corrosion and loose scale: *Take back to bare metal.*

Residual rust: *Treat with a proprietary removal solution.*

Bare metal: *Apply primer as soon as possible.*

Remaining areas: *Degrease.*

41 Masonry and rendering preparation

Loose and flaking material: *Remove. Prepare in accordance with paint supplier's recommendations.*

43 Plaster preparation

Nibs, trowel marks and plaster splashes: *Scrape off.*

Overtrowelled 'polished' areas: *Provide suitable key.*

Depressions around fixings: *Fill with stopper/ filler.*

45 Previously painted window frames

Paint encroaching beyond glass sight line: *Remove.*

Loose and defective putty: *Remove.*

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

Finishing

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

Seal and coat as soon as sufficiently hard.

55 Existing gutters

Dirt and debris: *Remove from inside of gutters.*

Defective joints: *Clean and seal with suitable jointing material.*

Suspected hazardous materials: *Submit method statement.*

61 Coating generally

Application: *In accordance with BS 6150,*

Conditions: *Maintain suitable temperature, humidity and air quality.*

Surfaces: *Clean and dry at time of application.*

Thinning and intermixing: *Not permitted unless recommended by manufacturer.*

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

Priming coats: *Apply as soon as possible on same day as preparation is completed.*

Finish

Even, smooth and of uniform colour.

Free from brush marks, sags, runs and other defects.

Cut in neatly.

Doors, opening windows and other moving parts: *Ease before coating and between coats.*

80 Linseed oil putty glazing

Setting: *Allow putty to set for seven days.*

Sealing

Within a further 14 days, seal with a solvent-borne primer.

Fully protect putty with coating system as soon as it is sufficiently hard.

Extend finishing coats on to glass up to sight line.

Ω End of Section

N10
General fixtures/ furnishings/ equipment

To be read with preliminaries/ general conditions.

10 Purpose-made kitchenette/servery unit (A)

Description: *Kitchenette*

Drawing: *Cross refer to Drg No 009 for kitchenette*

Manufacturer: *Contractor's Choice*

Timber: *To BS EN 942.*

Species: *European Oak*

Appearance class: *J2*

Moisture content on delivery: *9 to 13%*

Wood-based boards: *Carcassing: Oak veneer-faced plywood or blockboard manufactured to an approved national standard, 19 mm thick, class 10 bonding quality to BS EN 314-2, appearance class E to BS EN 635-2 with sanded grade surface finish*

Other materials: *40mm leathered granite worktop.*

Finishes: *M60/16A*

Joinery workmanship: *As section Z10.*

Other requirements: *Franke undermounted stainless steel sink - Cross refer to drawing.*
Bronze hinges from TBKS.

Ω End of Section

N11 A
Severy/kitchen fittings, furnishings and equipment

To be read with preliminaries/ general conditions

30 Sinks, taps, traps and wastes

Description: *Sinks to kitchenette*

Sinks

Standard: *To BS EN 13310*

Manufacturer: *Franke Holding AG*

Product reference: *As drawings*

Configuration: *As drawings*

Overall size: *As drawings*

Material: *Stainless steel*

Taps: *Mixer*

Manufacturer: *Franke Holding AG*

Product reference: *As drawings*

Compatibility: *M&E Contractor to confirm compatibility with Hot Water heater*

Material: *Chromed steel*

Wastes: *Semi integrated with overflow*

Standard: *To BS EN 274-1, -2 and -3*

Traps: *Tubular, P type*

Standard: *To BS EN 274-1, -2 and -3*

Manufacturer: *Contractor's choice*

Product reference: *Contractor's choice*

Size: *DN40 and to fit sink*

Depth of seal (minimum): *75 mm*

Accessories: *None*

40 Appliances - Fridge

Item: *Refrigerator*

Manufacturer: *To be agreed*

Product reference: *To be agreed*

Colour and finish: *To be agreed*

Service connections: *Mains electricity*

Execution

65 Installation generally

Fixings and adhesives: *As section Z20.*

Services: *As sections S90 and V90*

70 Installing units and worktops

General: *Well fitting, stable and secure.*

75 Installing appliances

Connections: *Provide to electric and hot and cold water services.*

80 Installing sinks, taps and wastes

Water supply: *According to BS EN 806-2 and -4.*

Taps

Fixing: *Secure, watertight seal with the appliance.*

Positioning: *Hot tap to left of cold tap as viewed by the user of the appliance.*

Wastes

Bedding: *Waterproof jointing compound.*

Fixing: *With resilient washer between appliance and backnut.*

85 Sealant bedding and pointing

Application: *As section Z22.*

Pointing: *Between units and splash backs.*

90 Installing trims and mouldings

Lengths: *Un-jointed between angles or ends of runs.*

Angle joints: *Mitred*

Ω End of Section

N13
Sanitary appliances and fittings

To be read with preliminaries/ general conditions.

11 Sanitaryware

Description: *WCs - Sanitaryware as described on drawings*

Manufacturer: Armitage Shanks

Contact details

Address: *Armitage*
Old Road
Rugeley
Staffordshire
WS15 4BT

Telephone: +44 (0)870 122 8822

Web: www.idealspec.co.uk

Email: info@thebluebook.co.uk

Standard:: *To Defra WC suite performance specification or equivalent approved by the relevant water company.*

WC Pans: *Standard: To BS EN 33 and BS EN 997, Class 2.*

WC Pan Connector: *To BS 5627, colour to match pan*

WC Flushing arrangement: *Drop valve, WRAS-approved.*

Flush Volume: *Dual flush 6 or 4 L*

WC Seat: *To BS 1254 and Kitemarked, colour to match pan*

Sinks - wastes and traps: *To BS EN 274-1, -2 and -3.*

WC Cisterns: *Back to wall concealed unless otherwise described on the drawings.*

Basin water supply temperature: *43°C*

55 WC Fixtures and Fittings

New Item: *Toilet towel dispensers, Toilet roll holders, Soap dispensers etc as indicated on drawings.*

Manufacturer: Dolphin Solutions

Contact details

Address: *Southpoint*
Compass Park
Junction Road
Bodiam
East Sussex
TN32 5BS

Telephone: +44 (0)1424 202224

Web: www.dolphinsolutions.co.uk

Email: info@dolphinsolutions.co.uk

Material: *Stainless steel*

63 Glass mirrors

Description: *Mirrors to WCs*

Manufacturer: *Contractors choice*

Type: *4 mm clear float glass*

Size: *Cut to suit size as drawings.*

Protective backing: *Mirror backing foil.*

68 Sealant for pointing

Standard: *To BS EN ISO 11600*

Class: *F20 HM*

Type: *Silicone*

Manufacturer: *Bostik/ Contractors choice*

Product reference: *Bostik S31 or other. Submit proposal - Mould resistance resistance required.*

Colour: *To be agreed.*

70 Installation generally

Standards: *In accordance with BS 6465-1, -2 and -3.*

Assembly and fixing: *Fix appliances securely to structure, without taking support from pipelines, level and plumb and so that surfaces designed to fall drain as intended.*

Fasteners: *Non-ferrous or stainless steel.*

Jointing and bedding compounds: *Recommended by manufacturers of appliances, accessories and pipes, to form watertight joints between appliances and backgrounds (except cisterns) and between appliances and discharge pipes.*

Supply and discharge pipework: *Fix before appliances.*

Timing: *Tiled backgrounds, other than splashbacks, complete before fixing appliances. Do not overstress tiles when fixing appliances.*

On completion: *Components and accessories working correctly with no leaks.*

Labels and stickers: *Remove.*

73 Installing sanitary appliances and fittings

Extent

Sanitary appliances: *As drawings.*

Water supply fittings: *As drawings.*

Accessories: *As drawings*

75 Installing cisterns

Cistern operating components: *Obtain from cistern manufacturer.*

Inlet and flushing valves: *Match to pressure of water supply.*

Internal overflows: *Into pan, to give visible warning of discharge.*

External overflows: *Fix pipes to falls, and locate to give visible warning of discharge. Agree position.*

76 Installing taps

Fixing: *Secure against twisting.*

Seal with appliance: *Watertight.*

Positioning: *Hot tap to left of cold tap as viewed by user of appliance.*

77 Installing wastes and overflows

Bedding: *Waterproof jointing compound.*

Fixing: *With resilient washer between appliance and backnut.*

81 Sealant bedding and pointing

Bedding: *Bed and point basins to underside of vanity units*

Pointing: *Joints between appliances and splashbacks. Joints between appliances and walls*

Ω End of Section

P10
Sundry insulation/ proofing work

To be read with preliminaries/ general conditions.

51 Mineral wool acoustic insulation

Manufacturer: Knauf Insulation Ltd

Contact details

Address: *Knauf Insulation Limited*
Stafford Road
St Helens
Merseyside
WA10 3LZ

Telephone: +44 (0)1744 766 666

Web: www.knaufinsulation.co.uk

Email: technical.uk@knaufinsulation.com

Product reference: *Acoustic Insulation Roll*

Material: *Glass Mineral Wool*

Recycled content: *Not applicable*

Thickness: *100mm*

Installation requirements

Supports: *Projecting nails*

Joints: *Boards butted, no gaps.*

Ω End of Section

P20
Unframed isolated trims/ skirtings/ sundry items

To be read with preliminaries/ general conditions.

20 Hardwood Skirtings

Description: *Vestry*

Quality of wood and fixing: *To BS 1186-3.*

Species: *European oak*

Class: *1*

Moisture content at time of fixing: *9 -13%*

Preservative treatment: *Water-based microemulsion as section Z12, service life 60 years*

Profile: *Rectangular with chamfer*

Finished size: *118mm x 19mm with 5mm chamfer to exposed edges. Height to match coved tile skirtings.*

Finish as delivered: *As M60/16A*

Fixing: *Plugged, screwed and pelleted.*

80 Installation generally

Joinery workmanship: *As section Z10.*

Metal workmanship: *As section Z11.*

Methods of fixing and fasteners: *As section Z20 where not specified.*

Straight runs: *To be in one piece, or in long lengths with as few joints as possible.*

Running joints: *Location and method of forming to be agreed where not detailed.*

Joints at angles: *Mitre, unless shown otherwise*

Position and level: *To be agreed where not detailed.*

Ω End of Section

P31
Holes, chases, covers and supports for services

Clauses

20 Notches and holes in structural timber

General: *Avoid if possible.*

Sizes: *Minimum needed to accommodate services.*

Position: *Do not locate near knots or other defects.*

Notches and holes in same joist: *Minimum 100mm apart horizontally.*

Notches in joists

Position: *Locate at top. Form by sawing down to a drilled hole.*

Depth (maximum): *0.125 times joist depth.*

Distance from supports: *Between 0.07 and 0.25 span.*

Holes in joists

Position: *Locate on neutral axis.*

Diameter (maximum): *0.25 times joist depth.*

Centres (minimum): *3 times diameter of largest hole.*

Distance from supports: *Between 0.25 and 0.4 of span.*

Notches in roof rafters, struts and truss members: *Not permitted.*

Holes in struts and columns: *Locate on neutral axis.*

Diameter (maximum): *0.25 times minimum width of member.*

Centres (minimum): *3 times diameter of largest hole.*

Distance from ends: *Between 0.25 and 0.4 of span.*

Performance: *Maintain fire resistance in accordance with EN 13051-2.*

40 Sealing around services

Description:

Standard: *To BS 6214.*

Service: *Electrical conduits; Gas pipes; Hot and cold water pipes; Soil vent pipes; Telecommunications; and network cabling; Overflow/Vent pipes; Waste pipes*

Location: *Walls and floors*

Sealing material: *Silicone sealant*
Intumescent sealant
Tightly rammed mineral wool

Method: *Completely fill gaps with sealant and finish neatly*

Requirements: *Prevent insect ingress.*
Prevent the spread of fire where appropriate.

Performance: *Maintain fire resistance in accordance with EN 13051-2.*

Verification: *Installer's competencies*

Ω End of Section

Q25
Slab/ brick/ sett/ cobble pavings

To be read with preliminaries/ general conditions

11 Laying pavings – general

Appearance: *Smooth and even with regular joints and accurate to line, level and profile.*

Falls: *To prevent ponding.*

Bedding of paving units: *Firm so that rocking or subsidence does not occur or develop.*

Bedding/ Laying course: *Consistently and accurately graded, spread and compacted to produce uniform thickness and support for paving units.*

Slopes: *Lay paving units upwards from the bottom of slopes.*

Paving units: *Free of mortar and sand stains.*

Cutting: *Cleanly and accurately, without spalling, to give neat junctions with edgings and adjoining finishes.*

16 Levels of paving

Permissible deviation from specified levels (generally)

Generally: *+/-6 mm.*

Height of finished paving above features

At gullies: *+6 to +10 mm.*

At drainage channels and kerbs: *+3 to +6 mm.*

21 Protection

Cleanliness: *Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.*

Materials storage: *Do not overload pavings with stacks of materials.*

Handling: *Do not damage paving unit corners, arrises, or previously laid paving.*

Mortar-bedded pavings: *Keep free from traffic after laying:*

Pedestrian traffic (minimum): *Four days*

Access: *Restrict access to paved areas to prevent damage from site traffic and plant.*

50 Natural stone slabs

Description: *External Paving*

Standard: *To* BS EN 1341.

Supplier: *Forest of Dean Stone Firms Ltd*

Product reference: *ISO 9001*

Petrographical description/ stone type: *Forest of Dean Pennant Sandstone - Blue only*

Finish: *Bush hammered*

Sizes: *600mm wide and random lengths. 50mm thick.*

Arrises: *Square*

Breaking strength: *Class 2*

Slip resistance: *PTV to* BS EN 16165 *of 45*

64 Geotextile sheet

Description: *Below laying course*

Manufacturer: *Contractor's Choice*

Product reference: *Contractor's Choice - IS0 9001 - certified*

Recycled content: *Contractor's Choice*

66 Sand/ fine aggregate for unbound laying course and jointing of concrete flag paving

Description: *To Concrete Paving slabs*

Standard: *To* BS 7533-4*, unbound construction laying course and jointing material.*

Purity: *Free from deleterious salts, contaminants, lime and cement.*

Procurement: *Obtain from one source and ensure consistent grading.*

72 Laying geotextile sheet overlays

Location: *Immediately below the laying course.*

Laying: *Fit neatly at edge restraints and other features that interrupt the laying course, e.g. drainage fittings, channels, manholes and kerbs.*

Edge detail: *Turn sheet up to form an upstand against features, height not less than thickness of the laying course.*

Width: *1000 mm*

Jointing: Lap by 300 mm.

76 Laying flag and slab paving – mortar laying course and jointing

Standard generally: *In accordance with* BS 7533-4.

Flag installation and cutting: *To* Interpave *publication* Concrete flag paving.

Laying course

Nominal thickness: *30 mm before laying paving slabs*

Laying and jointing: *Hydraulic Lime - NHL 5.0*

Joint width (nominal): *6 mm*

82 Tooled joints in mortar-bedded units

Joints: *Completely filled with bedding mortar as work proceeds.*

Joint width: *6 mm*

Finish: *Neat flush profile.*

Ω End of Section

R10
Rainwater drainage systems

To be read with preliminaries/ general conditions.

12 Cast iron gutters

Standard: *To BS 460, except for shape and dimensions*

Manufacturer: *J & J W Longbottom or other of the Contractor's choice*

Product reference: *Cast iron gutters*

Profile: *Ogee shaped to match existing*

Jointing type: *Spigot and socket*

Nominal size: *To match existing*

Finish as supplied: *Transit primed ready for full priming.*

Brackets: *Fascia fixed - Not required*

Accessories: *Stop ends sourced to match the existing.*

Fixing: *Stainless steel screws.*

Jointing: *Low modulus silicone sealant or specialist rubberised bitumen gutter mastic to match paint colour. Do not overtighten nuts. Remove excess sealant and ensure that the installation is water-tight. All bolts, sealant and any visible fixings to be painted-in to match guttering.*

Decoration: *As M60/14C.*
Additionally decorate inner surfaces of gutters with 2 coats of black bituminous paint.

32 Cast iron pipework

Standard: *To BS EN 877, Agrément certified.*

Manufacturer: *J & J W Longbottom or other of the Contractor's choice*

Product reference: *Cast iron downpipe*

Coupling type: *Spigot and socket*

Nominal size: *Rectangular to match the existing.*
6' lengths for new sections.

Finish as supplied: *Transit primed and ready for full priming.*

Brackets: *Traditional socket and spigot with ears*

Fixings: *Stainless steel treaded bar resin fixed with dome headed stainless steel nuts. Use lightly abraded stainless tube as spacers over the threaded bar. All stainless to be primed and painted.*

Accessories: *Shoes sourced to match the existing downpipe sizes.*
Offsets to suit plinth.

Jointing: *Joints in downpipes should not be sealed. If required, install lead wedges around the joint to centralise the pipe.*

Decoration: *As M60/14C.*

50 Installation generally

Electrolytic corrosion: *Avoid contact between dissimilar metals where corrosion may occur.*

Discharge of rainwater: *Complete, and without leakage or noise nuisance.*

Components: *Obtain from same manufacturer for each type of pipework and guttering.*

Allowance for thermal and building movement: *Provide and maintain clearance as fixing and jointing proceeds.*

Fixings and fasteners: *As section Z20.*

Protection

Fit purpose made temporary caps to prevent ingress of debris.

Fit access covers, cleaning eyes and blanking plates as the work proceeds.

60 Gutters laid to fall

Setting out: *To true line and even gradient to prevent ponding or backfall. Position high points of gutters as close as practical to the roof and low points not more than 50 mm below the roof.*

Joints: *Watertight.*

Roofing underlay: *Protected by DPC dressed into gutter.*

70 Pipework

Fixing: *Securely, plumb and/ or true to line with additional supports as necessary to support pipe collars, particularly at changes in direction.*

Cut ends of pipes and gutters: *Clean and square with burrs and swarf removed.*

92 Gutter test

Preparation: *Temporarily block all outlets.*

Testing: *Fill gutters to overflow level and after 5 minutes closely inspect for leakage.*

Ω End of Section

R11
Above ground foul drainage systems

To be read with preliminaries/ general conditions.

11 Plastics branch pipework

Materials and standards: *Plastics to BS EN 1451-1, BS EN 1455-1 or BS EN 1566-1, Kitemark certified*

Manufacturer: Contractor's choice

Product reference: *Contractor's choice*

Nominal sizes: *DN 40*

Colour: *White*

Jointing: *Solvent welded*

Fixing: *Plastics brackets at 500 mm centres*

21 PVC-U soil/ vent pipework and wc branches

Description: - *FOR DISCHARGE STACKS AND BRANCHES*

Standard

To BS EN 1329-1, Kitemark certified; or

To BS 4514, Kitemark certified.

Manufacturer: Contractor's choice

Product reference: *Contractor's choice*

Nominal sizes: *DN 110*

Colour: *Contractor's choice*

Jointing: *Contractor's choice*

Fixing: *Plastics brackets at 1800 mm centres*

Accessories: *Air admittance valves*

45 Air admittance valves

Standard: *To BS EN 12380 or Agrément certified.*

Minimum air flow rate: *To BS EN 12056-2.*

Manufacturer: *Contractor's choice*

Product reference: *Contractor's choice*

Position: *Vertical.*

Unheated locations: *Fit manufacturer's insulating cover.*

50 Installation generally

Standards: *To BS EN 12056-5.*

Components: *From same manufacturer for each type of pipework.*

Electrolytic corrosion: *Avoid contact between dissimilar metals where corrosion may occur.*

Plastics and galvanized steel pipes: *Do not bend.*

Allowance for thermal and building movement: *Provide and maintain clearance as fixing and jointing proceeds.*

Concealed or inaccessible surfaces: *Decorate before starting work specified in this section.*

Protection

Purpose made temporary caps: *Fit to prevent ingress of debris.*

Access covers, cleaning eyes and blanking plates: *Fit as the work proceeds.*

Drainage from appliances: *Quick, quiet and complete, without blockage, crossflow, backfall, leakage, odours, noise nuisance or risk to health.*

Access: *Provide access fittings in convenient locations to permit cleaning and testing of pipework.*

60 Fixing pipework

Pipework: *Fix securely plumb and/ or true to line. Fix discharge stack pipes at or just below socket collar or coupling.*

Branches and low gradient sections: *Fix with uniform and adequate falls to drain efficiently.*

Externally socketed pipes and fittings: *Fix with sockets facing upstream.*

Additional supports: *Provide as necessary at junctions and changes in direction.*

Vertical pipes: *Provide a load bearing support not less than every storey level. Tighten fixings as work proceeds so that every storey is self-supporting.*

Wall and floor penetrations: *Isolate pipework from structure, e.g. with pipe sleeves.*

Masking plates: *Fix at penetrations if visible in the finished work.*

Expansion joint sockets: *Fix rigidly to the building.*

Fixings: *Allow the pipe to slide.*

Cut ends of pipes: *Clean and square with burrs and swarf removed.*

65 Electrical continuity

Joints in metal pipes with flexible couplings: *Make with clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.*

69 Installing air admittance valves

Position: *Vertical, above flood level of highest appliance served and clear of insulation materials (other than the manufacturer's insulating cover).*

Connection to discharge stack: *Allow removal for rodding, e.g. ring seal.*

Roof spaces and other unheated locations: *Fit manufacturer's insulating cover.*

70 Pipework airtightness test

Preparation

Open ends of pipework: *Temporarily seal using plugs.*

Test apparatus: *Connect a 'U' tube water gauge and air pump to pipework via a plug or through trap of an appliance.*

Testing: *Pump air into pipework until gauge registers 38 mm.*

Required performance: *Pressure of 38 mm is to be maintained without loss for at least three minutes.*

72 Pre-handover checks

Temporary caps: *Remove.*

Permanent blanking caps, access covers, rodding eyes, floor gratings and the like: *Secure complete with fixings.*

Ω End of Section

R12
Below ground drainage systems

To be read with preliminaries/ general conditions.

4 Concrete

Description:

Standard: *To BS 8500-2*

Concrete: *Designated, GEN1*

14 Pipes, bends and junctions – PVC-U – solid wall

Description: *For Foul and/or Surface water drainage*

Standard: *To BS EN 1401-1, with flexible joints.*

Class: *SN8 below ground to minimise risk of deflection or distortion.*

Manufacturer: *Contractor's Choice*

Product reference: *Contractor's Choice*

Recycled content: *Contractor's choice*

Sizes: *DN 110*

Application area code: *UD.*

17 Lower part of trench – general

Trench up to 300 mm above crown of pipe: *Vertical sides, width as small as practicable.*

Width (minimum): *External diameter of pipe plus 300 mm.*

18 Type of subsoil

General: *Where type of subsoil at level of crown of pipe differs from that stated for the type of bedding, surround or support, give notice.*

19 Formation for beddings

Timing: *Excavate to formation immediately before laying beddings or pipes.*

Mud, rock projections, boulders and hard spots: *Remove. Replace with consolidated bedding material.*

Local soft spots: *Harden by tamping in bedding material.*

Inspection of excavated formations: *Give notice.*

21 Laying pipelines

Laying pipes: *To true line and regular gradient on even bed for full length of barrel with sockets (if any) facing up the gradient.*

Ingress of debris: *Seal exposed ends during construction.*

Timing: *Minimize time between laying and testing.*

22 Jointing pipelines

Connections: *Durable, effective and free from leakage.*

Junctions, including to differing pipework systems: *With adaptors intended for the purpose.*

Cut ends of pipes: *Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.*

Jointing or mating surfaces: *Clean and, where necessary, lubricate immediately before assembly.*

Allowance for movement: *Provide and maintain appropriate clearance at ends of spigots as fixing and jointing proceeds.*

Jointing material: *Do not allow to project into bore of pipes and fittings.*

27 Class P support for PVC -U solid pipes

Description: *To pipes, bends and junctions*

Type of subsoil: *Unknown*

Granular material: *Natural*

Sizes: *To Water Industry Specification WIS 4-08-02 (as amended by WIS 4-08-02A, 2008).*

Bedding

Material: *Granular, compacted over full width of trench.*

Thickness (minimum): *100 mm.*

Pipes: *Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.*

Initial testing before placing support: *Required*

Support

Material: *Granular.*

Depth: *To slightly above crown of pipe.*

Compaction: *By hand.*

Backfilling

Material and depth

Protective cushion of selected fill to 300 mm above crown of pipe; or

Additional granular material, to 100 mm above crown of pipe.

Compaction: *By hand in 100 mm layers.*

39 Class Z surround

Description: *For use where it is necessary to maintain the stability of adjacent structures.*

Type of subsoil: *Unknown*

Blinding

Material: *Concrete.*

Thickness (minimum): *25 mm.*

Width: *Full width of trench.*

Allow to set before proceeding.

Pipes

Temporary support: *Folding wedges of compressible board. Prevent flotation.*

Clearance under pipes (minimum): *100 mm.*

Adjust pipes to line and gradient.

Initial testing before placing surround: *Required*

Surround

Material: *Concrete.*

Depth: *To 150 mm above crown of pipe.*

Width: *Full width of trench.*

Vertical construction joints

Location: *At face of flexible pipe joints.*

Material: *18 mm thick compressible board precut to profile of pipe.*

Socketed pipes: *Fill gaps between spigots and sockets with resilient material to prevent entry of concrete.*

41 Concrete surround for pipe runs near foundations

Class Z surround: *Provide in locations where bottom of trench is lower than bottom of foundation and as follows (horizontal clear distance between nearest edges of foundations and pipe trenches):*

Trenches less than 1 m from foundations: *Top of concrete surround not lower than bottom of foundation.*

Trenches more than 1 m from foundations: *Top of concrete surround not lower than D mm below bottom of foundation, where D mm is horizontal distance of trench from foundation, less 150 mm.*

44 Bends at base of soil stacks

Type: *Nominal rest bends*

Radius to centreline of the pipe (minimum): *200 mm*

Height of invert of horizontal drain at base of stack below centreline of lowest branch pipe (minimum): *450 mm*

Bedding: *Do not impair flexibility of pipe couplings.*

Material: *Concrete.*

50 One piece gullies and covers

Description: *Gullies as shown on drawings*

Standards: *To BS EN 1253-1, -2, -3, -4 and -5; or*

Cast iron: *To BS 437 and Kitemark-certified, or Agrément-certified.*

Clay: *To BS EN 295-1 and Kitemark-certified, or Agrément-certified.*

Concrete: *To BS 5911-6 and Kitemark-certified, or Agrément-certified.*

Plastics: *To BS 4660 and Kitemark-certified, or Agrément-certified.*

Polypropylene: *To BS EN 1852-1.*

79 Access covers and frames

Description: *Foul manholes as drawings*

Standard: *To BS EN 124.*

Types: *Double seals and grease*

Manufacturer: Contractor's choice

Product reference: *Contractor's choice*

Material: *Grey cast iron*

Sizes: *As drawings*

Loading grades to BS EN 124: *A15*

Edging trims: *Not required*

84 Testing and inspection

Dates for testing and inspection: *Give notice.*

85 Initial testing of pipelines

Before testing

Cement mortar jointing: *Leave 24 h.*

Solvent welded pipelines: *Leave 1 h.*

Method: *Block open ends of pipelines to be tested and pressurise. Air test short lengths to BS EN 1610.*

89 Water testing of manholes and inspection chambers

Timing: *Before backfilling.*

Standard

Exfiltration: *To BS EN 1610.*

Method: *Testing with water (method W).*

Infiltration: *No identifiable flow of water penetrating the chamber.*

91 Backfilling to pipelines

Backfilling above top of surround or protective cushion: *Material excavated from trench, compacted in layers 300 mm (maximum) thick.*

Heavy compactors: *Do not use before there is 600 mm (total) of material over pipes.*

94 Backfilling under roads and pavings

Backfilling from top of surround or protective cushion up to formation level: *Granular sub-base material, laid and compacted in 150 mm layers.*

97 Removal of debris and cleaning

Preparation: *Lift covers to manholes, inspection chambers and access points. Remove mortar droppings, debris and loose wrappings.*

Timing: *Before cleaning, final testing, CCTV inspection if specified, and immediately before handover.*

Cleaning: *Thoroughly flush pipelines with water to remove silt and check for blockages. Rod pipelines between access points if there is any indication that they may be obstructed.*

Washings and detritus: *Do not discharge into sewers or watercourses.*

Covers: *Securely replace after cleaning and testing.*

Ω End of Section

V90
Electrical systems

General

100 Electrical Installation - Generally

*All electrical works is to be carried out by an NICEIC, ECA or NAPIT commercially registered electrical contractor with full scope membership. NICEIC Domestic installers, ELECSA, BSI, STROMA or other Part 'P' only electricians are **not** acceptable.*

Due to the challenges of wiring in churches and the more protracted routes that need to be taken to minimise holes and visual impact, it is imperative that the electrical contractor visits site and satisfies themselves as to the relevant local conditions.

The electrical contractor should draw the architect's attention to any cabling found during the works which is unsafe. The assumption is that new cabling will be required in the works areas as described in the Schedule of Works or on drawings but opportunities to discuss the reuse of cabling are encouraged where existing cabling is found in good condition.

Where new cabling is required to replace existing cabling, the assumption should be that the route follows the existing.

Where new surface mounted cabling is fixed to stone or wood or other materials and is visible, the cabling should be painted to match the surround. In some instances, the choice of cable colour will avoid the need for decoration.

The details of new holes or openings in the fabric of the building need to be agreed with the Architect when the routing is discussed on site.

The wiring systems permitted for use in churches comprise:
A) Mineral insulated metal sheathed cables.
B) Cables draw into heavy-gauge high impact plastic conduit.
C) FP200 Gold (or a direct equivalent fire rated cable) at high level or protected against mechanical damage at low level.
D) Steel Wired Armoured Cable (SWA/LSF)
*Please be advised that the introduction of new PVC Twin & Earth cabling and mini plastic trunking is **not** acceptable.*

The electrician must assess what access equipment is required to undertake the works and the cost of this must be included.

Any temporary wiring must comply with BS7671.

At the completion of any electrical works, an Electrical Installation Certificate is to be supplied with all results recorded in line with the IET Wiring Regulations BS7671. The Inspecting and Testing electrician must hold City & Guilds 2391-51 & 2391-52 or EAL 4337 & 4338 qualifications.

Z10
Purpose-made joinery

To be read with preliminaries/ general conditions.

110 Fabrication

Standard: *To BS 1186-2.*

Sections: *Accurate in profile and length, and free from twist and bowing. Formed out of solid unless shown otherwise.*

Machined surfaces: *Smooth and free from tearing, wooliness, chip bruising and other machining defects.*

Joints: *Tight and close fitting.*

Assembled components: *Rigid. Free from distortion.*

Screws: *Provide pilot holes.*

Screws of 8 gauge (4 mm diameter) or more and screws into hardwood: *Provide clearance holes.*

Countersink screws: *Heads sunk at least 2 mm below surfaces visible in completed work.*

Adhesives: *Compatible with wood preservatives applied and end uses of timber.*

120 Cross section dimensions of timber

General: *Dimensions on drawings are finished sizes.*

Maximum permitted deviations from finished sizes

Softwood sections: *To BS EN 1313-1:-*

Clause 6 for sawn sections.

Hardwood sections: *To BS EN 1313-2:-*

Clause 6 for sawn sections.

Clause NA.3 for further processed sections.

130 Preservative treated wood

Cutting and machining: *Completed as far as possible before treatment.*

Extensively processed timber: *Retreat timber sawn lengthways, thicknessed, planed, ploughed, etc.*

Surfaces exposed by minor cutting and/ or drilling: *Treat as recommended by main treatment solution manufacturer.*

140 Moisture content

Wood and wood-based products: *Maintained within range specified for the component during manufacture and storage.*

250 Finishing

Surfaces: *Smooth, even and suitable to receive finishes.*

Arrises: *Eased unless shown otherwise on drawings.*

End grain in external components: *Sealed with primer or sealer as section M60 and allowed to dry before assembly.*

Ω End of Section

Z11
Purpose-made metalwork

Products

310 Materials generally

Grades of metals, section dimensions and properties: *To appropriate British Standards. When not specified, select grades and sections appropriate for the purpose.*

Prefinished metal: *May be used if methods of fabrication do not damage or alter appearance of finish, and finish is adequately protected.*

Fasteners: *To appropriate British Standards and, unless specified otherwise, of same metal as component being fastened, with matching coating or finish.*

Fabrication

515 Fabrication generally

Contact between dissimilar metals in components: *Avoid.*

Finished components: *Rigid and free from distortion, cracks, burrs and sharp arrises.*

Moving parts: *Free moving without binding.*

Corner junctions of identical sections: *Mitre.*

520 Cold formed work

Profiles: *Accurate, with straight arrises.*

527 Welding

Welding procedures

Method and standard: *Metal arc welding to BS EN 1011-1 and -2 for steel and TIG welding to BS EN 1011-3 for stainless steel.*

Preparation

Joint preparation: *Clean thoroughly.*

Surfaces of materials that will be self-finished and visible in the completed work: *Protect from weld splatter.*

Jointing

Joints: *Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.*

Strength requirements: *Welds to achieve design loads.*

Heat straightening: *Obtain approval*

Complex assemblies: *Agree priority for welding members to minimize distortion caused by subsequent welds.*

Tack welds: *Use only for temporary attachment.*

Jigs: *Provide to support and restrain members during welding.*

Lap joints: *Minimum 5 x metal thickness or 25 mm, whichever is greater.*

Weld terminations: *Clean and sound.*

Finishing

710 Finishing welded and brazed joints visible in complete work

Standard: *To BS EN ISO 8501-3.*

Preparation grade: *P3 for visible areas in public areas.*
P1 where hidden.

Butt joints: *Smooth, and flush with adjacent surfaces.*

Fillet joints: *Neat.*

Grinding: *Grind smooth where indicated on drawings.*

745 Preparation for application of coatings

General: *Complete fabrication, and drill fixing holes before applying coatings.*

Paint, grease, flux, rust, burrs and sharp arrises: *Remove.*

780 Galvanizing

Standard: *To BS EN ISO 1461.*

Preparation

Vent and drain holes: *Provide in accordance with BS EN 14713-1 and -2. Seal after sections have been drained and cooled.*

Components subjected to cold working stresses: *Heat treat to relieve stresses before galvanizing.*

Welding slag: *Remove.*

Component cleaning: *To BS EN ISO 8501-3.*

Grade: *St 2½*

Ω End of Section

Z20
Fixings and adhesives

Products

310 Fasteners generally

Materials: *To have:*

Bimetallic corrosion resistance appropriate to items being fixed.

Atmospheric corrosion resistance appropriate to fixing location.

Appearance: *Submit samples on request.*

320 Packings

Materials: *Non-compressible, corrosion proof.*

Area of packings: *Sufficient to transfer loads.*

340 Masonry fixings

Light duty: *Plugs and screws.*

Heavy duty: *Expansion anchors or chemical anchors.*

350 Plugs

Type: *Proprietary types to suit substrate, loads to be supported and conditions expected in use.*

390 Adhesives generally

Standards

Hot-setting phenolic and aminoplastic: *To BS 1203.*

Thermosetting wood adhesives: *To BS EN 12765.*

Thermoplastic adhesives: *To BS EN 204.*

Execution

610 Fixing generally

Integrity of supported components: *Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.*

Components, substrates, fixings and fasteners of dissimilar metals: *Isolate with washers/ sleeves to avoid bimetallic corrosion.*

Appearance: *Fixings to be in straight lines at regular centres.*

620 Fixing through finishes

Penetration of fasteners and plugs into substrate: *To achieve a secure fixing.*

630 Fixing packings

Function: *To take up tolerances and prevent distortion of materials and components.*

Limits: *Do not use packings beyond thicknesses recommended by fixings and fasteners manufacturer.*

Locations: *Not within zones to be filled with sealant.*

670 Pelleted countersunk screw fixing

Finished level of countersunk screw heads: *Minimum 6 mm below timber surface.*

Pellets: *Cut from matching timber, match grain and glue in to full depth of hole.*

Finished level of pellets: *Flush with surface.*

700 Applying adhesives

Surfaces: *Clean. Adjust regularity and texture to suit bonding and gap filling characteristics of adhesive.*

Support and clamping during setting: *Provide as necessary. Do not mark surfaces of or distort components being fixed.*

Finished adhesive joints: *Fully bonded. Free of surplus adhesive.*

Ω End of Section

Z21
Mortars

Cement gauged mortars

110 Cement gauged mortar mixes

Specification: *Proportions and additional requirements for mortar materials are specified elsewhere.*

120 Sand for site made cement gauged masonry mortars

Standard: *To BS EN 13139.*

Grading: *0/2 (FP or MP).*

Fines content where the proportion of sand in a mortar mix is specified as a range (e.g. 1:1: *5-6):*

Lower proportion of sand: *Use category 3 fines.*

Higher proportion of sand: *Use category 2 fines.*

Sand for facework mortar: *Maintain consistent colour and texture. Obtain from one source.*

160 Cements for mortars

Cement: *To BS EN 197-1 and CE marked.*

Types: *Portland cement, CEM I.*

Portland limestone cement, CEM II/A-L or CEM II/A-LL.

Portland slag cement, CEM II/B-S.

Portland fly ash cement, CEM II/B-V.

Strength class: *32.5, 42.5 or 52.5.*

White cement: *To BS EN 197-1 and CE marked.*

Type: *Portland cement, CEM I.*

Strength class: *52.5.*

Sulfate resisting Portland cement

Types: *To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked.*

To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.

Strength class: *32.5, 42.5 or 52.5.*

Masonry cement: *To BS EN 413-1 and CE marked.*

Class: *MC 12.5.*

210 Making cement gauged mortars

Batching: *By volume. Use clean and accurate gauge boxes or buckets.*

Mix proportions: *Based on dry sand. Allow for bulking of damp sand.*

Mixing: *Mix materials thoroughly to uniform consistency, free from lumps.*

Mortars containing air entraining admixtures: *Mix mechanically. Do not overmix.*

Working time (maximum): *Two hours at normal temperatures.*

Contamination: *Prevent intermixing with other materials.*

Lime:sand mortars

310 Lime:sand mortar mixes

Specification: *Proportions and additional requirements for mortar materials are specified elsewhere.*

320 Sand for lime:sand masonry mortars

Type: *Sharp, well graded and appropriate for the purpose described. In some instances, sands will need to be sieved. This could include the following:*
Chard Coarse Stock
Hurn Coarse Sand (Quartz and Flint)
Westerham washed sand
Fine yellow washed pit sand
Holme sand
Ginger Building sand
Silver sand
Fine, medium and coarse washed sand of the Contractor's choice
Ham Hill Stone dust
Bath Stone dust
Lias Stone dust
Hornton Brown stone dust
Portland Stone dust
Stone dust appropriate to the stonework and colour.

Quality, sampling and testing: *To BS EN 13139.*

Grading/ Source: *As specified elsewhere in relevant mortar mix items or as detailed in mortar analysis reports. Sands must not be marine dredged to avoid the risk of salts.*

330 Ready prepared lime putty

Type: *Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.*

Maturation: *In pits/ containers that allow excess water to drain away.*

Density of matured lime putty: *1.3-1.4 kg/litre.*

Maturation period before use (minimum): *90 days*

335 Ready prepared lime putty

Manufacturer: *Contractor's Choice but options include:*
Limebase Products Ltd
Rose of Jericho Ltd
Mike Wye
H J Chard & Sons

Maturation period before use (minimum): *90 days*

340 Pozzolanic additives for nonhydraulic lime:sand mortars

Manufacturer/ Supplier: *Contractor's Choice but option include:*
Limebase Products Ltd
Rose of Jericho Ltd

Product reference: *Argical M1000*
Pulverised Fuel Ash
Crushed brick and tile
Contractor to submit proposal.

Mixing: *Mix thoroughly into mortar during knocking up.*

360 Making lime:sand mortars generally

Batching: *By volume. Use clean and accurate gauge boxes or buckets.*

Mixing: *Mix materials thoroughly to uniform consistency, free from lumps.*

Contamination: *Prevent intermixing with other materials, including cement.*

370 Site prepared nonhydraulic lime:sand mortars

Mixing: *Mix materials thoroughly by compressing, beating and chopping. Do not add water.*

Equipment: *Roller pan mixer or submit proposals.*

Maturation period before use (maximum): *Seven days*

380 Ready to use nonhydraulic lime:sand mortars

Manufacturer: *Limebase or Contractor's Choice*

Product reference: *Contractor to submit proposals*

Materials:

Lime putty slaked directly from quicklime to BS EN 459-1 and mixed thoroughly with sand.

Maturation period before use (maximum): *Seven days*

390 Knocking up nonhydraulic lime:sand mortars

Knocking up before and during use: *Achieve and maintain a workable consistency by compressing, beating and chopping. Do not add water.*

Equipment: *Roller pan mixer or submit proposals.*

400 Making hydraulic lime:sand mortars

Mixing hydrated hydraulic lime:sand: *Follow the lime manufacturer's recommendations for each stage of the mix.*

Water quantity: *Only sufficient to produce a workable mix.*

Working time: *Within limits recommended by the hydraulic lime manufacturer.*

Ω End of Section