Maritime and Coastguard Agency

SPECIFICATION OF WORKS

H M Coastguard, Common Lane, Beer, EX12 3AG.

MCA SPECIFICATION
JUNE 2020

CONFIDENTIAL

Maritime and Coastguard Agency

SPECIFICATION OF WORKS

H M Coastguard, Common Lane, Beer, EX12 3AG.

WORKS SPECIFICATION: CONFIDENTIAL

PROJECT NO. 70050786

OUR REF. NO. MCA SPECIFICATION

DATE: JUNE 2020

WSP

Kings Orchard
1 Queen Street
Bristol
BS2 0HQ

Phone: +44 117 930 6200

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	For client comment	For tender issue		
Date	09/06/20	15/06/20		
Prepared by	Bradley Smith	Bradley Smith		
Signature				
Checked by	John Bird	John Bird		
Signature				
Authorised by	Kevin Cornelius	Kevin Cornelius		
Signature				
Project number	70050786	70050786		

CONTENTS

INTRODUCTION

This document comprises the Specification for the construction works at H M Coastguard, Common Lane, Beer, EX12 3AG.

If the contractor's submission is considered acceptable the Contractor will be required to proceed in accordance with the Specification and to enter into a fixed price lump sum contract to complete the works.

This Contract is being tendered under a traditional single stage procurement process. The Contractor is therefore required to submit a fully compliant tender return for the project, in accordance with the tender procedures detailed within the specification.

OVERVIEW OF PROJECT AND FURTHER WORKS

The purpose of the project is to undertake the demolition of the existing rear extension at the station and erect a new larger extension to house the coastguard's new emergency rescue vehicle.

The new extension will consist of traditional masonry walls and a timber pitched roof. Internal partitions will consist of timber studwork walls to provide space for a WC and a store cupboard.

The project is to commence as soon as reasonably possible and the Contractor's Programme will be of key consideration at tender review stage. As the site will be occupied by residents for the duration of the works, the project must be effectively managed to cause minimal disruption whilst maintaining the welfare of the residents surrounding the site during the construction process.

INSTRUCTIONS TO TENDERERS

GENERAL

- The instructions to Tenderers will not form any part of any contract between the Maritime and Coastguard Agency (MCA) (hereinafter referred to as the Employer) and the Tenderer.

- Tenders must be submitted in accordance with the following instructions. Tenders not complying with these instructions maybe rejected by the Employer whose decisions are final.

- **The completed tender is to be returned to and received by the Maritime and Coastguard Agency (MCA) (the employer) via email to contracts@mcga.gov.uk no later than 12 noon, Friday 24th of July. Emails should have the following in the subject line: Tender Documents – Beer.**

- **All questions concerning the project should be emailed to the Maritime and Coastguard Agency (MCA) (the employer) via email to: contracts@mcga.gov.uk no later than 12 noon, Friday 17th of July. Emails should have the following in the subject line: Questions – Beer.** In the interests of transparency, all tender Q&A will be answered in a new document uploaded to Contracts Finder to enable responses to be viewed by all interested parties.

- The tender document must be treated as private and confidential. Tenderers should not release details of the tender document other than on an 'In Confidence' basis to those who have a legitimate need to know or whom they need to consult for the purpose of preparing the tender.

- The Employer is not responsible for nor will it pay for any costs, expenses or losses incurred by the Tenderer in the preparation of the tender.

TENDER DOCUMENTS

- The Tenderer shall obtain for themselves all the information necessary to submit a compliant tender and shall carefully consider all the tender documents. They shall satisfy themselves as to the project requirements.
- The Tender documentation includes – Preliminaries, Specification and Works Information, Schedule of Works, Tender drawings (70050786-BEER10 / 70050786-BEER11 / 70050786-BEER12) and Pre-construction Information.

PREPARATION OF TENDERS

- The tender shall be completed in English and in pounds sterling.
- All rates and percentages shall be given in pound sterling (GBP).
- The tender rates and percentages shall remain valid for 60 days.
- Enquiries regarding the tender shall be dealt with until two days before the tender submission date. If the tender submission date should be extended, then the last enquiries date will be extended.

TENDER SUBMISSION

- The tenderer shall complete and submit the following:
  - Priced WSP Schedule of Works for Builders works.
  - Names of any Sub-Contractors to be used on the construction project.
  - Contractors Offer
  - Draft programme with lead times
  - Contractors Health and Safety Questionnaire with Method Statements and Risk Assessments directly relating to the works.
- **Late tenders will not be accepted.**

TENDER EVALUATION

- The tender assessment will be based on:
  - Quality of the submission – 60%
  - Price – 40%

QUALITY

Quality will be assessed and weighted against the following criteria:

- PC Method Statement - 20%
- Workmanship Quality - 20%
- Similar Projects – 15%
- Breakdown of Business – 15%
- Safety Method Statement – 20%
- Health and Safety Accreditation – 15%
- Evidence of policy and performance of sustainability - 5%

Marks will be awarded on the following scale

5 – Proposal fully meets the requirement

3 – Proposal does not fully meet the requirement but is nevertheless acceptable

1 – Proposal falls below the requirement

0 – Proposal either inadequate or not addressed

Failure to reach a mark of 3 on any of the quality criteria will lead to elimination from the tender process.

The best score will be given a rating of 100 and all other scores adjusted by base lining to 100. These are then multiplied by the weighting percentage.

PRICING

The lowest priced tender is given 100 points. Other higher priced tenders who have achieved the quality score minimum is baselined against the best priced tender i.e. 1 percentage point is deducted from the score of each tender for each percentage point above the best price. The scores are then multiplied by the weighting factor.

The two scores are then added together and ranked.

- The Employer does not bind themselves to accept the lowest tender or even any tender at all. The tender is to remain open for acceptance by the Employer for sixty days. If this period is likely

to be exceeded, the Employer will initially seek to negotiate an extension of that period with the Tenderer.

- The Employer may specify additional requirements or agree detail conditions of the contract with a selected Tenderer at any point prior to the formal contract award.

AWARD OF THE CONTRACT

- The anticipated contract award date will be: **31st July 2020.**
- A pre-contract meeting will be held shortly after the contract as been awarded to the successful Contractor. This meeting will include the raising and discussion of issues with regards to the works and programme etc. The date for this meeting will be confirmed once the contract has been awarded to the successful Contractor.
- Contract period is provisionally estimated as being 6 weeks on site. This project, at this point, has not been deemed to be notifiable to the HSE under the CDM Regulations 2015. If it is found that the project is found to be notifiable within the contractors submitted programme this will be considered for notification to the HSE if awarded.

PRELIMINARIES

A10 PROJECT PARTICULARS

110 THE PROJECT

- Name: MCA Beer – Coastguard Extension
- Nature: Construction of an Extension
- Location: Devon.
- Length of contract: TBC.

120 EMPLOYER (CLIENT)

- Name: Maritime and Coastguard Agency
- Address: H M Coastguard, Common Lane, Beer, EX12 3AG.
- Contact: Gail Robertson
- Telephone: 020381 72481
- Email: contracts@mcga.gov.uk

130 PRINCIPAL CONTRACTOR

- Name: TBC
- Address: TBC
- Contact: TBC
- Telephone: TBC
- Email: TBC

140 PROJECT MANAGER (HEREIN REFERRED TO AS 'PM')

- Name: WSP
- Address: WSP, 3rd Floor Kings Orchard, Queen Street, Bristol, BS2 0HQ.
- Contact: Bradley Smith / Simon Budd
- Telephone: (07944304907 / 01179302099) / (02920769159 / 07713500490)
- Email: Bradley.smith@wsp.com / simon.budd@wsp.com

150 PRINCIPAL DESIGNER

- Name: WSP
- Address: WSP, 3rd Floor Kings Orchard, Queen Street, Bristol, BS2 0HQ.
- Contact: Bradley Smith / Matthew Cox
- Telephone: (07944304907 / 01179302099) / (01179306432/ 0787 674 8057)
- Email: Bradley.smith@wsp.com / matthew.cox@wsp.com

A11 TENDER AND CONTRACT DOCUMENTS

110 TENDER DOCUMENTS

- The tender documents are:
  - The Specification compromising Preliminaries, Specification and Works Information.
  - Pre-construction information.

- The following drawings: 70050786-BEER10, 70050786-BEER11, 70050786-BEER12.

A12 THE SITE/EXISTING BUILDINGS

110 THE SITE

- The site is located on Common Lane within the Devonshire coastal town of Beer. The full address of the site is H M Coastguard, Common Lane, Beer, EX12 3AG. The background to the instruction follows requirements for increased floor space within the garage area to house a new emergency rescue vehicle. The building is currently single storey and operates as a coastguard station.

120 EXISTING BUILDING ON / ADJACENT TO THE SITE

- Description: The existing coastguard station was designed by P M Andrews and then built in the 1940's. The coastguard station is mid-terrace property with residential houses either side. The building is single storey with solid masonry external walls and a cut timber pitched roof.

140 EXISTING UTILITIES AND SERVICES

- Drawings: (Information shown is indicative only): None available. Contactor to carry out.
- Other information: As a part of the desk study for this project the drainage authority were contacted about any objections to constructing within 3m of a public sewer that is within the vicinity of the proposed extension. No issues were raised by the drainage authority with the proposed project.

180 HEALTH AND SAFETY FILE

- Availability for inspection: The Health and Safety File for the site/building may be seen by appointment during normal office hours at: H M Coastguard, Beer.
- Arrangements for inspection: Contact Bradley Smith.

200 ACCESS TO THE SITE

- Description: access is via the B3174 heading south to Beer.
- Limitations: From the A3052 many of the roads are single lane and can be narrow in places. WSP does not recommend large vehicles approaching the site because of a tight turning circle from the road to the front of the property.

210 PARKING

- Restrictions on parking of the Contractor's and employees' vehicles: Arrangement of car parking is to be done through liaison with the MCA contracts manager. This arrangement should be discussed during the pre-start meeting for the project.

230 SURROUNDING LAND / BUILDING USES

- General: Adjacent or nearby uses or activities are as follows: The property being mid-terrace has residential properties either side. Access to the rear of the building is through a shared access route with the neighbouring properties. No bodies of water immediately surround the site.

240 HEALTH AND SAFETY HAZARDS

- General: An R&D survey has been conducted prior to any works commencing and this report is available as a part of the tender documentation.
- Information: The accuracy and sufficiency of this information is not guaranteed by the Employer or the Employers representative. Ascertain if any additional information is required to ensure the safety of all persons and the Works. For detailed hazards, the Contractor is to refer to the Pre-construction information as a part of the tender documentation.

250 SITE VISITS

- Assessment: Ascertain the nature of the site, across thereto and all local conditions and restrictions likely to affect the execution of the Works.
- Arrangements for visit: Contact Bradley Smith.

A13 DESCRIPTION OF THE WORKS

120 THE WORKS

- Description: The project will involve the demolition of the existing flat roof extension at the rear of the property. This will be replaced with the construction of a single storey larger rear extension with a pitched roof above. The new extension will provide additional floor space, a new WC and storage cupboard.

A20 CONTRACT

NEC3 SHORT FORM

- The Conditions of Contract: Covered under the NEC3 Short Form contract for MCA Beer – Coastguard Station Extension.

CONTRACT DATA

THE EMPLOYER

- Maritime and Coastguard Agency, Spring Place, 105 Commercial Road, Southampton, SO15 1EG, United Kingdom.

THE WORKS

- The Works: Summarised and defined in the Contract Data section of the Contract.

THE SITE

- The Site: H M Coastguard, Common Lane, Beer, EX12 3AG.

STARTING DATE

- The starting date is TBA following tender return.

COMPLETION DATE

- The completion date is TBA following tender return.

PERIOD FOR REPLY

- The period for reply is one week.

DEFECTS DATE

- The defects date is 52 weeks after completion.

DEFECTS CORRECTION PERIOD

- The defects correction period is 4 weeks.

DELAY DAMAGES

- The delay damages are TBA.

RETENTION

- The retention is 5% for all interim payments. The penultimate payment is set at 2.5%.

ADJUDICATOR

- The Adjudicator is:
  - Name: Royal Institution of Chartered Surveyors
  - Address: Surveyor Court, Westwood Way, Coventry, CV4 8JE.

- Telephone: 024 7669 4757
- Email: contactrics@rics.org

LIMITATION OF LIABILITY

- The Contractor is not liable to the Employer for loss of or damage to the Employer's property in excess of: £1,000,000 for any one event.

INSURANCE

- The Employer provides building insurance. The contractor is to provide details of the current insurance cover and attach relevant certificates including;
  - Public Liability Insurance
  - Professional Indemnity Insurance
  - Product Liability Insurance

INSURANCE COVER

- The minimum amount of cover for the third insurance stated in the Insurance Table is £1million pounds.
- The minimum amount of cover for the fourth insurance stated in the Insurance Table is £1 million pounds.

ADJUDICATOR NOMINATING BODY

- The body is RICS.

TRIBUNAL

- The tribunal is: Arbitration

ARBITRATION

- If the tribunal is arbitration, the arbitration procedure is Construction Industry Model Arbitration Rules (CIMAR).

ADDITIONAL CONDITIONS

- Not applicable.

PRICE LIST

PRICE LIST

- Pricing the Works: By schedule of work.
- Basis for valuation of variations: Shall be agreed between contract administrator and contractor.

DRAWINGS

- Drawings applicable to this contract:
  - Listed in clause A11 110.

SPECIFICATIONS

- The Specification documents:
  - Preliminaries
  - Specification including Preliminaries.

CONSTRAINTS ON HOW THE CONTRACTOR PROVIDES THE WORKS

- Construction hazards: As clause 8.
- Material hazard: As clause 8.8.
- Choice of subcontractor for specific categories of work: All subcontractors must be approved by the Client.
- Employers rules and regulations: As clause 12.

REQUIREMENTS FOR THE PROGRAMME

- Programme:
  - Submission as clause 6.2 210.
  - Updating as clause 6.2 210.

SERVICES AND OTHER THINGS PROVIDED BY THE EMPLOYER

- Employer to provide:
  - Services: Electricity and Water

A30 TENDERING / SUBLETTING / SUPPLY

MAIN CONTRACT TENDERING

110 SCOPE

- General: These conditions are supplementary to those stated in the Invitation to Tender and on the form of tender.

145 TENDERING PROCEDURE

- General: In accordance with NBS Guide to Tendering for Construction Projects.
- Errors: Alternative 2 is to apply.

160 EXCLUSIONS

- Inability to tender: Immediately inform if any parts of the work as defined in the tender documents cannot be tendered.
- Relevant parts of the work: Define those parts, stating reasons for the inability to tender.

170 ACCEPTANCE OF TENDER

- Acceptance: No guarantee is offered that any tender will be recommended for acceptance or to be accepted, or that reasons for non-acceptance will be given.
- Costs: No liability is accepted for any cost incurred in the preparation of any tender.

180 CDM PLANNING PERIOD

- Minimum: 2 weeks.

190 PERIOD OF VALIDITY

- Period: After submission or lodgement, keep tender open for consideration (unless previously withdrawn) for not less than 60 days.
- Date for possession/commencement: See section A20.

PRICING/SUBMISSION OF DOCUMENTS

210 PRELIMINARIES IN THE SPECIFICATION

- The Preliminaries / General conditions sections (A10-A41 Inclusive) must not be relied on as complying with sMM7 / NRM2.

220 PRICING OF PRELIMINARIES

- Charges: If the contractor requires interim payments to include fixed and time related charges for specific items in the Preliminaries, those charges must be clearly shown against the items.

250 PRICED DOCUMENTS

- Alterations: Do not alter or qualify the priced documents without written consent. Tenders containing unauthorised alterations or qualifications may be rejected.
- Measurements: Where not started, ascertain from the drawings.

- Deemed included: Costs relating to items, which are not priced, will be deemed to have been included elsewhere in the tender.
- Submit with tender.

310 TENDER

- General: Tenders must include for all work shown or described in the tender documents as a whole or clearly apparent as being necessary for the complete and proper execution of the Works.

480 PROGRAMME

- Programme of work: Prepare a summary showing the sequence and timing of the principal parts of the Works and period for planning/mobilisation. Itemise any work which is excluded.
- Submit with tender.

500 TENDER STAGE METHOD STATEMENTS

- Method statements: Prepare, describing how and when the following is to be carried out:
    - Working at height – Working off scaffolding or access towers in the construction of the rear extension.
- Submit with tender.

510 ALTERNATIVE METHOD TENDERS

- General: In addition to and at the same time as tendering for the Works as defined in the tender documents, alternative methods of construction/ installation may be submitted for consideration. Alternatives, which would involve significant changes to other work, may not be considered.
- Alternative tenders: Such alternatives will be deemed to be alternative tenders and each must include a complete and precise statement of the effects on cost and programme.
- Safety method statement: Carry out a health and safety risk assessment for each alternative and where appropriate provide a safety method statement suitable for incorporation in the Health and Safety Plan.
- Full technical data: Submit for each alternative together with details of any consequential amendments to the design and/ or construction of other parts of the Works.
- Submit with tender.

530 SUBSTITUTE PRODUCTS

- Details: If products of different manufacture to those specified are proposed, submit details with the tender giving reasons for each proposed substitution. Substitutions, which have not been notified at tender stage, may not be considered.
- Compliance: Substitutions accepted will be subject to the verification requirements of clause A31 200.

550 HEALTH AND SAFETY INFORMATION

- Content: Describe the organisation and resources to safeguard the health and safety of operatives, including those of subcontractors, and of any person whom the Works may affect.

- Include:
  - A copy of the contractor's health and safety policy document, including risk assessment procedures.
  - Records of previous Health and Safety Executive enforcement action.
  - Records of training and training policy.
  - The number and type of staff responsible for health and safety on this project with details of their qualifications and duties.
- Submit with tender.

570 OUTLINE CONSTRUCTION PHASE HEALTH AND SAFETY PLAN

- Content: Submit the following information within one week of request:
  - Method statements on how risks from hazards identified in the pre-construction information and other hazards identified by the contractor will be addressed.
  - Details of the management structure and responsibilities.
  - Arrangements for issuing health and safety directions.
  - Procedures for informing other contractors and employees of health and safety hazards.
  - Selection procedures for ensuring competency of other contractors, the self-employed and designers.
  - Procedures for communications between the project team, other contractors and site operatives.
  - Arrangements for cooperation and coordination between contractors.
  - Procedures for carrying out risk assessment and for managing and controlling the risk.
  - Emergency procedures including those for fire prevention and escape.
  - Arrangements for ensuring that all accidents, illness and dangerous occurrences are recorded.
  - Arrangements for welfare facilities.
  - Procedures for ensuring that all persons on site have received relevant health and safety information and training.
  - Arrangements for consulting with and taking the views of people on site.
  - Arrangements for preparing site rules and drawing them to the attention of those affected and ensuring their compliance.
  - Monitoring procedures to ensure compliance with site rules, selection and management procedures, health and safety standards and statutory requirements.
  - Review procedures to obtain feedback.

590 SITE WASTE MANAGEMENT PLAN

- Person: responsible for developing the Plan: The Contractor.
- Content: Include details of:
  - Principle Contractor for the purposes of the regulations.
  - Location of the site.
  - Description of the project.
  - Estimated project cost.
  - Types and quantities of waste that will be generated.
  - Resource management options for these wastes including proposals for minimisation/reuse/recycling.
  - The use of appropriate and licensed waste management contractors.

- Record keeping procedures
- Waste auditing protocols.

- Submit with tender.

599 FREEDOM OF INFORMATION

- Records: Retain, make available for inspection and supply on request information reasonably required to allow response to requests made under the provisions of the Freedom of Information Act.
- Determination: Submit requests received. Do not supply information outside the project participants without express written permission.
- Confidentiality: Maintain at all times.

A31 PROVISION, CONTENT AND USE OF DOCUMENTS

DEFINITIONS AND INTERPRETATIONS

110 DEFINITIONS

- Meaning: Terms, derived terms and synonyms used in the preliminaries / general conditions and specification are as stated therein or in the appropriate British Standard or British Standard glossary.

120 COMMUNICATION

- Definition: Includes advise, inform, submit, give notice, instruct, agree, confirm, seek or obtain information, consent or instructions, or make arrangements.
- Format: In writing to the person named in clause A10 140 unless specified otherwise.
- Response: Do not proceed until response has been received.

130 PRODUCTS

- Definitions: Materials, both manufactured and naturally occurring, and goods, including components, equipment and accessories, intended for the permanent incorporation in the Works.
- Includes: Goods, plant, materials, site materials and things for incorporation into the Works.

135 SITE EQUIPMENT

- Definition: All appliances or things of whatsoever nature required in or about the construction for completion of the Works but not materials or other things intended to form or forming part of the Permanent Works.
- Includes: Construction appliances, vehicles, consumables, tools, temporary works, scaffolding, cabins and other site facilities.

140 DRAWINGS

- Definitions: Design activities and drawing definitions.
- CAD data: In accordance with BS 1192.

160 TERMS USED IN SPECIFICATION

- Remove: Disconnect, dismantle as necessary and take out the designated products or work and associated accessories, fixings, supports, linings and bedding materials. Dispose of unwanted materials. Excludes taking out and disposing of associated pipework, wiring, ductwork or other services.
- Fix: Receive, unload, handle, store, protect, place and fasten in position and disposal of waste and surplus packaging including all labour, materials and site equipment for that purpose.
- Supply and fix: As above but including supply of products to be fixed. All products to be supplied and fixed unless stated otherwise.
- Keep for reuse: Do not damage designated products or work. Clean off bedding and jointing materials. Stack neatly, adequately protect and store until required by the Employer/ Purchaser or for use in the Works as instructed.
- Make good: Execute local remedial work to designated work. Make secure, sound and neat. Excludes redecoration and/ or replacement.

- Replace: Supply and fix new products matching those removed. Execute work to match original new state of that removed.
- Repair: Execute remedial work to designated products. Make secure, sound and neat. Excludes redecoration and/ or replacement.
- Refix: Fix removed products.
- Ease: Adjust moving parts of designated products or work to achieve free movement and good fit in open and closed positions.
- Match existing: Provide products and work of the same appearance and features as the original, excluding ageing and weathering. Make joints between existing and new work as inconspicuous as possible.
- System: Equipment, accessories, controls, supports and ancillary items, including installation, necessary for that section of the work to function.

170 MANUFACTURER AND PRODUCT REFERENCE

- Definition: When used in this combination:
    - Manufacturer: The firm under whose name the particular product is marketed.
    - Product reference: The proprietary brand name and/ or reference by which the particular product is identified.
- Currency: References are to the particular product as specified in the manufacturer's technical literature current on the date of the invitation to tender.

200 SUBSTITUTION OF PRODUCTS

- Products: If an alternative product to that specified is proposed, obtain approval before ordering the product.
- Reasons: Submit reasons for the proposed substitution.
- Documentation: Submit relevant information, including:
    - manufacturer and product reference;
    - cost; availability;
    - relevant standards;
    - performance;
    - function;
    - compatibility of accessories;
    - proposed revisions to drawings and specification;
    - compatibility with adjacent work;
    - appearance;
    - copy of warranty/ guarantee.
- Alterations to adjacent work: If needed, advise scope, nature and cost.
- Manufacturers' guarantees: If substitution is accepted, submit before ordering products.

210 CROSS REFERENCES

- Accuracy: Check remainder of the annotation or item description against the terminology used in the section or clause referred to.
- Related terminology: Where a numerical cross-reference is not given the relevant sections and clauses of the specification will apply.

- Relevant clauses: Clauses in the referred to specification section dealing with general matters, ancillary products and execution also apply.
- Discrepancy or ambiguity: Before proceeding, obtain clarification or instructions.

220 REFERENCED DOCUMENTS
- Conflicts: Specification prevails over referenced documents.

230 EQUIVALENT PRODUCTS
- Inadvertent omission: Wherever products are specified by proprietary name the phrase 'or equivalent' is to be deemed included.

240 SUBSTITUTION OF STANDARDS
- Specification to British Standard or European Standard: Substitution may be proposed complying with a grade or category within a national standard of another Member State of the European Community or an international standard recognised in the UK.
- Before ordering: Submit notification of all such substitutions.
- Documentary evidence: Submit for verification when requested. Any submitted foreign language documents must be accompanied by certified translations into English.

250 CURRENCY OF DOCUMENTS
- Currency: References to published documents are to the editions, including amendments and revisions, current on the date of the Invitation to Tender.

260 SIZES
- General dimensions: Products are specified by their co-ordinating sizes.
- Timber: Cross section dimensions shown on drawings are:
    - Target sizes as defined in BS EN 336 for structural softwood and hardwood sections.
    - Finished sizes for non-structural softwood or hardwood sawn and further processed sections.

DOCUMENTS PROVIDED ON BEHALF OF THE EMPLOYER

410 ADDITIONAL COPIES OF DRAWINGS/ DOCUMENTS
- Copies: Two of each contract drawing and contract document will be issued free of charge (not counting any certified copies).
- Additional copies: Issued on request and charged to the Contractor.

440 DIMENSIONS
- Scaled dimensions: Do not rely on.

460 THE SPECIFICATION

- Coordination: All sections must be read in conjunction with Main Contract Preliminaries/ General conditions.

DOCUMENTS PROVIDED BY CONTRACTOR / SUBCONTRACTOR / SUPPLIERS

630 TECHNICAL LITERATURE

- Information: Keep on site for reference by all supervisory personnel:
  - Manufacturers' current literature relating to all products to be used in the Works. Relevant British, EN or ISO Standards.

640 MAINTENANCE INSTRUCTIONS AND GUARANTEES

- Components and equipment: Obtain or retain copies, register with manufacturer and hand over on or before completion of the Works.
- Information location: In Building Manual.
- Emergency call out services: Provide telephone numbers for use after completion. Extent of cover: 9AM-5PM weekdays only.

A32 MANAGEMENT OF THE WORKS

GENERALLY

110 SUPERVISION

- General: Accept responsibility for coordination, supervision and administration of the Works, including subcontracts.
- Coordination: Arrange and monitor a programme with each subcontractor, supplier, local authority and statutory undertaker, and obtain and supply information as necessary for coordination of the work.

115A The Principal Contractor must have the following minimum requirements: -

- All operatives to have a minimum of working at height / UKATA 2 asbestos awareness / CSCS carded / DBS checked
- On site supervision
- First Aid trained operatives.
- NEBOSH accredited Contract Managers to be utilised for the duration of the works.
- Principal contractor to confirm any other relevant accreditations within tender return.

130 INSURANCE CLAIMS

- Notice: If any event occurs which may give rise to any claim or proceeding in respect of loss or damage to the Works or injury or damage to persons or property arising out of the Works, immediately give notice to the Employer, the person named in clause A10/140 and the Insurers.
- Failure to notify: Indemnify the Employer against any loss, which may be caused by failure to give such notice.

140 CLIMATIC CONDITIONS

- Information: Record accurately and retain:
    - Daily maximum and minimum air temperatures (including overnight).
    - Delays due to adverse weather, including description of the weather, types of work affected, and number of hours lost.

PROGRAMME / PROGRESS

210 PROGRAMME

- Master programme: Immediately when requested and before starting work on site submit in an approved form a master programme for the Works, which must include details of:
    - Work stages or elements of the construction as appropriate for the Works.
    - Design and production information provided by the Contractor/ Subcontractors/Suppliers, including inspection and checking (see Section A31).

- Planning and mobilisation by the Contractor.
- Earliest and latest start and finish dates for each activity and identify all critical activities.
- Running in, adjustment, commissioning and testing of all engineering services and installations.
- Work by or on behalf of the Employer the nature and scope of which, the relationship with preceding and following work and any relevant limitations, are suitably defined in the Contract Documents.

- Exclusions: Where and to the extent that the programme implications for work which is not so defined are impossible to assess the Contractor should exclude it and confirm this when submitting the programme.
- Submit two copies.

250 MONITORING

- Progress: Record on a copy of the programme kept on site.
- Avoiding delays: If any circumstances arise which may affect the progress of the Works submit proposals or take other action as appropriate to minimize any delay and to recover any lost time.

255 VARIATIONS

- Content: Notwithstanding the Contractor's obligations under the Contract written notice must also be given of all other causes which apply concurrently.

260 SITE MEETINGS

- General: Site meetings will be held to review progress and other matters arising from administration of the Contract.
- Frequency: One pre-start meeting, one construction phase meetings and one handover meeting.
- Location: H M Coastguard, Common Hill, Beer, Devon, EX12 3AG.
- Accommodation: Ensure availability at the agreed time of such meetings.
- Attendees: Attend meetings and inform subcontractors and suppliers when their presence is required.
- Chairperson (who will also take and distribute minutes): Employer's representative/Contract Administrator.

CONTROL OF COST

420 REMOVAL/ REPLACEMENT OF EXISTING WORK

- Extent and location: Agree before commencement.
- Execution: Carry out in ways that minimize the extent of work.

A33 QUALITY STANDARDS / CONTROL

STANDARDS OF PRODUCTS AND EXECUTIONS

110 INCOMPLETE DOCUMENTATION

- General: Where and to the extent that products or work are not fully documented, they are to be:
  - Of a kind and standard appropriate to the nature and character of that part of the Works where they will be used.
  - Suitable for the purposes stated or reasonably to be inferred from the project documents.
- Contract documents: Omissions or errors in description and/or quality shall not vitiate the Contract nor release the Contractor from any obligations or liabilities under the Contract.

120 WORKMANSHIP SKILLS

- Operatives: Appropriately skilled and experienced for the type and quality of work.
- Registration: With Construction Skills Certification Scheme.
- Evidence: Operatives must produce evidence of skills/qualifications when requested.

130 QUALITY OF PRODUCTS

- Generally: New. (Proposals for recycled products may be considered).
- Supply of each product: From the same source or manufacturer.
- Whole quantity of each product required to complete the Works: Consistent kind, size, quality and overall appearance.
- Tolerances: Where critical, measure a sufficient quantity to determine compliance.
- Deterioration: Prevent. Order in suitable quantities to a programme and use in appropriate sequence.

135 QUALITY OF EXECUTION

- Generally: Fix, apply, install or lay products securely, accurately, plumb, neatly and in alignment.
- Colour batching: Do not use different colour batches where they can be seen together.
- Dimensions: Check on-site dimensions.
- Finished work: Not defective, e.g. not damaged, disfigured, dirty, faulty, or out of tolerance.
- Location and fixing of products: Adjust joints open to view so they are even and regular.

140 COMPLIANCE

- Compliance with proprietary specifications: Retain on site evidence that the proprietary product specified has been supplied.
- Compliance with performance specifications: Submit evidence of compliance, including test reports indicating:
- Properties tested.

- Pass/fail criteria.
- Test methods and procedures.
- Test results.
- Identity of testing agency.
- Test dates and times.
- Identities of witnesses.
- Analysis of results.

150 INSPECTIONS

- Products and executions: Inspection or any other action must not be taken as approval unless confirmed in writing referring to:
    - Date of inspection.
    - Part of the work inspected.
    - Respects or characteristics which are approved.
    - Extent and purpose of the approval.
    - Any associated conditions.

160 RELATED WORK

- Details: Provide all trades with necessary details of related types of work. Before starting each new type or section of work ensure previous related work is:
    - Appropriately complete.
    - In accordance with the project documents.
    - To a suitable standard.
    - In a suitable condition to receive the new work.
- Preparatory work: Ensure all necessary preparatory work has been carried out.

170 MANUFACTURER'S RECOMMENDATIONS/ INSTRUCTIONS

- General: Comply with manufacturer's printed recommendations and instructions current on the date of the Invitation to tender.
    - Changes to recommendations or instructions: Submit details.
    - Ancillary products and accessories: Use those supplied or recommended by main product manufacturer.
    - Agrément certified products: Comply with limitations, recommendations and requirements of relevant valid certificates.

180 WATER FOR THE WORKS

- Mains supply: Clean and uncontaminated.
- Other: Do not use until:
    - Evidence of suitability is provided.

- Tested to BS EN 1008 if instructed.

220 APPROVAL OF PRODUCTS

- Submissions, samples, inspections and tests: Undertake or arrange to suit the Works programme.
- Approval: Relates to a sample of the product and not to the product as used in the Works. Do not confirm orders or use the product until approval of the sample has been obtained.
- Complying sample: Retain in good, clean condition on site. Remove when no longer required.

230 APPROVAL OF EXECUTION

- Submissions, samples, inspections and tests: Undertake or arrange to suit the Works programme.
- Approval: Relates to the stated characteristics of the sample. (If approval of the finished work as a whole is required this is specified separately). Do not conceal or proceed with affected work until compliance with requirements is confirmed.
- Complying sample: Retain in good, clean condition on site. Remove when no longer required.

320 SETTING OUT

- General: Submit details of methods and equipment to be used in setting out the Works.
- Levels and dimensions: Check and record the results on a copy of drawings. Notify discrepancies and obtain instructions before proceeding.
- Inform: When complete and before commencing construction.

330 APPEARANCE AND FIT

- Tolerances and dimensions: If likely to be critical to execution or difficult to achieve, as early as possible either:
  - Submit proposals; or
  - Arrange for inspection of appearance of relevant aspects of partially finished work.
- General tolerances (maximum): To BS 5606, tables 1 and 2.

410 SERVICES REGULATIONS

- New or existing services: Comply with the Byelaws or Regulations of the relevant Statutory Authority.

420 WATER REGULATIONS/ BYELAWS NOTIFICATION

- Requirements: Notify Water Undertaker of any work carried out to or which affects new or existing services and submit any required plans, diagrams and details.
- Consent: Allow adequate time to receive Undertaker's consent before starting work. Inform immediately if consent is withheld or is granted subject to significant conditions.

430 WATER REGULATIONS/ BYELAWS CONTRACTOR'S CERTIFICATE

- On completion of the work: Submit (copy where also required to the Water Undertaker) a certificate including:
    - The address of the premises.
    - A brief description of the new installation and/ or work carried out to an existing installation.
    - The Contractor's name and address.
    - A statement that the installation complies with the relevant Water Regulations or Byelaws.
    - The name and signature of the individual responsible for checking compliance.
    - The date on which the installation was checked.

435 ELECTRICAL INSTALLATION CERTIFICATES

- Submit: When relevant electrical work is completed.
- Original certificate: To be lodged in the Building Manual.

445 SERVICE RUNS

- General: Provide adequate space and support for services, including unobstructed routes and fixings.
- Ducts, chases and holes: Form during construction rather than cut.
- Coordination with other works: Submit details of locations, types/ methods of fixing of services to fabric and identification of runs and fittings.

450 MECHANICAL AND ELECTRICAL SERVICES

- Final tests and commissioning: Carry out so that services are in full working order at completion of the Works.
- Building Regulations notice: Copy to be lodged in the Building Manual.

510 SUPERVISION

- • General: In addition to the constant management and supervision of the Works provided by the Contractor's person in charge, all significant types of work must be under the close control of competent trade supervisors to ensure maintenance of satisfactory quality and progress.
- • Replacement: Give maximum possible notice before changing person in charge or site agent.

540 DEFECTS IN EXISTING WORK

- Undocumented defects: When discovered, immediately give notice. Do not proceed with affected related work until response has been received.
- Documented remedial work: Do not execute work which may:
    - Hinder access to defective products or work; or

- Be rendered abortive by remedial work.

550 ACCESS FOR INSPECTION

- Removal: Before removing scaffolding or other facilities for access, give notice of not less than one week.

560 TESTS AND INSPECTIONS

- Timing: Agree and record dates and times of tests and inspections to enable all affected parties to be represented.
- Confirmation: One working day prior to each such test or inspection. If sample or test is not ready, agree a new date and time.
- Records: Submit a copy of test certificates and retain copies on site.

580 CONTINUITY OF THERMAL INSULATION

- Record and report: Confirm that work to new, renovated or upgraded thermal elements has been carried out to conform to specification. Include:
  - The address of the premises.
  - The Contractor's name and address.
  - The name, qualification and signature of the competent person responsible for checking compliance.
  - The date on which the installation was checked.
- Submit: Before completion of the Works.
- Copy: To be lodged in the Building Manual.

610 PROPOSALS FOR RECTIFICATION OF DEFECTIVE PRODUCTS/ EXECUTIONS

- Proposals: Immediately any execution or product is known, or appears, to be not in accordance with the Contract, submit proposals for opening up, inspection, testing, making good, adjustment of the Contract Sum, or removal and re-execution.
- Acceptability: Such proposals may be unacceptable and contrary instructions may be issued.

710 WORK BEFORE COMPLETION

- General: Make good all damage consequent upon the Works. Temporary markings, coverings and protective wrappings: Remove unless otherwise instructed.
- Cleaning: Clean the Works thoroughly inside and out, including all accessible ducts and voids. Remove all splashes, deposits, efflorescence, rubbish and surplus materials.
- Cleaning materials and methods: As recommended by manufacturers of products being cleaned and must not damage or disfigure other materials or construction.
- COSHH dated data sheets: Obtain for all materials used for cleaning and ensure they are used only as recommended by their manufacturers.

- Minor faults: Touch up in newly painted work, carefully matching colour and brushing out edges. Repaint badly marked areas back to suitable breaks or junctions.
- Moving parts of new work: Adjust, ease and lubricate as necessary to ensure easy and efficient operation, including doors, windows, drawers, ironmongery, appliances, valves and controls.

720 SECURITY AT COMPLETION

- General: Leave the Works secure with, where appropriate, all accesses closed and locked.
- Keys: Account for and adequately label all keys and hand over to Employer with itemised schedule, retaining duplicate schedule signed by Employer as a receipt.

730 MAKING GOOD DEFECTS

- Remedial work: Arrange access with Project Manager.
- Rectification: Give reasonable notice for access to the various parts of the Works.
- Completion: Notify when remedial works have been completed.

SECURITY / SAFETY / PROTECTION

110 PRECONSTRUCTION INFORMATION

- Location: Integral with the project Preliminaries, including but not restricted to the following sections:
    - Description of project: Sections 3.
    - Environmental restrictions and on-site risks: Section 6 and 8.
    - Significant design and construction hazards: Section 13.
    - The Health and Safety File: Section 10.

120 EXECUTION HAZARDS

- Common hazards: Control by good management and site practice.
- Significant hazards: The design of the project includes the following:
    - Hazard: Working at Height.
    - Precautions assumed: contractors are approved for working at height.
    - Specification reference: Section 13.
    - Hazard: Excavations
    - Precautions assumed: contractors are approved for carrying out excavation works.
    - Specification reference: Section 13.

130 PRODUCT HAZARDS

- Hazardous substances: Asbestos.

- Common hazards: R&D survey to be conducted prior to site mobilisation with removal of asbestos where found to be present. Contractor to make themselves familiar with this document.
- Significant hazards: None identified. Contractor to confirm any hazardous materials to be used.

140 CONSTRUCTION PHASE HEALTH AND SAFETY PLAN

- Submission: Present to the Employer/ Client no later than with tender docs.
- Confirmation: Do not start construction work until the Employer has confirmed in writing that the Construction Phase Health and Safety Plan includes the procedures and arrangements required by the CDM Regulations.
- Content: Develop the plan from and draw on the Outline Construction Phase Health and Safety Plan, and the Pre-tender Health and Safety Plan/ Preconstruction information.

150 SECURITY

- Protection: Safeguard the site, the Works, products, materials, and any existing buildings affected by the Works from damage and theft.
- Access: Take all reasonable precautions to prevent unauthorized access to the site, the Works and adjoining property.
- Special requirements: Remove ladders and tools/equipment, keep building locked shut and ensure left secure at the end of the day.

160 STABILITY

- Responsibility: Maintain the stability and structural integrity of the Works and adjacent structures during the Contract. Contractor to identify the depth and location of neighbouring excavations prior to construction commencement.
- Design loads: Obtain details and support as necessary. Undermining of existing foundations is to be avoided.

170 OCCUPIED PREMISES

- Extent: Existing buildings will be occupied and/or used during the Contract as follows: main building.
- Works: Carry out without undue inconvenience and nuisance and without danger to occupants and users.
- Overtime: If compliance with this clause requires certain operations to be carried out during overtime, and such overtime is not required for any other reason, the extra cost will be allowed, provided that such overtime is authorized in advance and is approved by any planning conditions in place for working times in a residential area. To be agreed following appointment.

190 OCCUPIER'S RULES AND REGULATIONS

- Compliance: Conform to the occupier's rules and regulations affecting the site.
- Copies:

- Location: see PM for further information.

Arrangements for inspection: as above.

200 MOBILE TELEPHONES AND PORTABLE ELECTRONIC EQUIPMENT

- Restrictions on use: Radios are not to be used on site.

210 EMPLOYER'S REPRESENTATIVES SITE VISITS

- Safety: Submit details in advance, to the Employer or the person identified in clause A10/140, of safety provisions and procedures (including those relating to materials, which may be deleterious), which will require their compliance when visiting the site.
- Protective clothing and/ or equipment: Provide and maintain on site for the Employer and the person stated in clause A10/140 and other visitors to the site.

PROTECT AGAINST THE FOLLOWING

330 NOISE AND VIBRATION

- Standard: Comply with the recommendations of BS 5228-1, in particular clause 7.3, to minimize noise levels during the execution of the Works.
- Noise levels from the Works: Maximum level: 60 dB(A) when measured from outside the building.
- Equipment: Fit compressors, percussion tools and vehicles with effective silencers of a type recommended by manufacturers of the compressors, tools or vehicles.
- Restrictions: Do not use:
  - Adhere to the working hours for the site project.
  - Radios or other audio equipment or permit employees to use in ways or at times that may cause nuisance.
  - Pneumatic tools shall be fitted with an integral silencer and/or purpose made muffler.

340 POLLUTION

- Prevention: Protect the site, the Works and the general environment including the atmosphere, land, streams and waterways against pollution.
- Contamination: If pollution occurs inform immediately, including to the appropriate Authorities and provide relevant information.

360 NUISANCE

- Duty: Prevent nuisance from smoke, dust, rubbish, vermin and other causes.
- In periods of dry weather, dust control measures shall be employed including wheel washing and damping down. Any stockpiles of materials which are likely to give rise to windblown dust, shall

be sheeted, wetted or so located as to minimise any potential nuisance. Lorries carrying waste material from the site shall be covered or sheeted at all times.

- Surface water: Prevent hazardous build-up on site, in excavations and to surrounding areas and roads.

370 ASBESTOS CONTAINING MATERIALS

- Prior to any intrusive works operatives are to review the R&D survey for the site.
- Intrusive works to only be carried out in the areas that the R&D survey specifically covers.
- Duty: Report immediately any suspected materials discovered during execution of the Works.
    - Do not disturb.
    - Agree methods for safe removal or encapsulation.

371 DANGEROUS OR HAZARDOUS SUBSTANCES

- Duty: Report immediately suspected materials discovered during execution of the Works.
    - Do not disturb.

Agree methods for safe removal or remediation.

380 FIRE PREVENTION

- Duty: Prevent personal injury or death, and damage to the Works or other property from fire.
- Standard: Comply with Joint Code of Practice 'Fire Prevention on Construction Sites', published by the Construction Confederation and The Fire Protection Association (The 'Joint Fire Code').

390 SMOKING ON SITE

- Smoking on site: Not permitted.

400 BURNING ON SITE

- Burning on site: Not permitted.

410 MOISTURE

- Wetness or dampness: Prevent, where this may cause damage to the Works.
- Drying out: Control humidity and the application of heat to prevent:
    - Blistering and failure of adhesion.
    - Damage due to trapped moisture.
    - Excessive movement.

420 INFECTED TIMBER/ CONTAMINATED MATERIALS

- Removal: Where instructed to remove material affected by fungal/insect attack from the building, minimize the risk of infecting other parts of the building.
- Testing: carry out and keep records of appropriate tests to demonstrate that hazards presented by concentrations of airborne particles, toxins and other microorganisms are within acceptable levels.

430 WASTE

- Includes: Rubbish, debris, spoil, surplus material, containers and packaging.
- General: Minimize production. Prevent accumulations. Keep the site and Works clean and tidy.
- Handling: Collect and store in suitable containers. Remove frequently and dispose off site in a safe and competent manner:
    - Non-hazardous material: In a manner approved by the Waste Regulation Authority.
    - Hazardous material: As directed by the Waste Regulation Authority and in accordance with relevant regulations.
- Recyclable material: Sort and dispose at a Materials Recycling Facility approved by the Waste Regulation Authority.
- Voids and cavities in the construction: Remove rubbish, dirt and residues before closing in.
- Waste transfer documentation: Retain on site.

PROTECT THE FOLLOWING

510 EXISTING SERVICES

- Confirmation: Notify all service authorities, statutory undertakers and/or adjacent owners of proposed works not less than one week before commencing site operations.
- Identification: Before starting work, check and mark positions of utilities/services. Where positions are not shown on drawings obtain relevant details from service authorities, statutory undertakers or other owners.
- Work adjacent to services:
    - Comply with service authority's/statutory undertaker's recommendations.
    - Adequately protect and prevent damage to services: Do not interfere with their operation without consent of service authorities/ statutory undertakers or other owners.
- Identifying services:
    - Below ground: Use signboards, giving type and depth;
    - Overhead: Use headroom markers.
- Damage to services: If any results from execution of the Works:
    - Immediately give notice and notify appropriate service authority/ statutory undertaker.
    - Make arrangements for the work to be made good without delay to the satisfaction of service authority/ statutory undertaker or another owner as appropriate.
    - Any measures taken to deal with an emergency will not affect the extent of the Contractor's liability.

- Marker tapes or protective covers: Replace, if disturbed during site operations, to service authority's/ statutory undertakers' recommendations.

520 ROADS AND FOOTPATHS

- Duty: Maintain roads and footpaths within and adjacent to the site and keep clear of mud and debris.
- Damage caused by site traffic or otherwise consequent upon the Works: Make good to the satisfaction of the Employer, Local Authority or other owner.

530 EXISTING TOPSOIL/SUBSOIL

- Duty: Prevent over compaction of existing topsoil and subsoil in those areas which may be damaged by construction traffic, parking of vehicles, temporary site accommodation or storage of materials and which will require reinstatement prior to completion of the Works.
- Protection: Before starting work submit proposals for protective measures where required.

540 RETAINED TREES/ SHRUBS/ GRASSED AREAS

- Protection: Preserve and prevent damage, except those not required.
- Replacement: Mature trees and shrubs if uprooted, destroyed, or damaged beyond reasonable chance of survival in their original shape, as a consequence of the Contractor's negligence, must be replaced with those of a similar type and age at the Contractor's expense.

550 RETAINED TREES

- Protected area: Unless agreed otherwise do not:
    - Dump spoil or rubbish, excavate or disturb topsoil, park vehicles or plant, store materials or place temporary accommodation within an area which is the larger of the branch spread of the tree or an area with a radius of half the tree's height, measured from the trunk.
    - Sever roots exceeding 25 mm in diameter. If unintentionally severed give notice and seek advice.
    - Change level of ground within an area 3 m beyond branch spread.

555 WILDLIFE SPECIES AND HABITATS

- General: Safeguard the following: ensure waste procedures are followed as detailed.
- Protected habitats and species: Upon discovery immediately advise. Do not proceed until instruction is received.
- Education: Ensure employees and visitors to the site receive suitable instruction and awareness training.

560 EXISTING FEATURES

- Protection: Prevent damage to existing buildings, fences, gates, walls, roads, paved areas and other site features, which are to remain in position during execution of the Works.

570 EXISTING WORK

- Protection: Prevent damage to existing work, structures or other property during the course of the work.
- Removal: Minimum amount necessary.
- Replacement work: To match existing.

580 BUILDING INTERIORS

- Protection: Prevent damage from exposure to the environment, including weather, flora,

fauna, and other causes of material degradation during the course of the work.

610 ESPECIALLY VALUABLE/ VULNERABLE ITEMS

- Protection: Ensure provision and maintenance of special protective measures to prevent damage to the following:

- neighbouring properties should be considered for protection during the works because of their close proximity in relation to the proposed works.

• Method statement: Submit within one week of request describing special protection to be

provided.

A36 FACILITIES / TEMPORARY WORK / SERVICES

110 SPOIL HEAPS, TEMPORARY WORKS AND SERVICES

- Location: Give notice and details of intended siting.
- Maintenance: Alter, adapt and move as necessary. Remove when no longer required and make good.

210 ROOM FOR MEETINGS

- Facilities: Employer to provide use of the MCA office on site. Contractor to provide all other necessary welfare facilities.

260 SANITARY ACCOMMODATION

- Requirement: Provide sanitary accommodation for the Employer/ Purchaser, and other members of the consultant team, either separate or shared with the Contractor's supervisory staff. Maintain in clean condition and provide all consumables.

280 ACCOMMODATION USE/ LOCATION

- Restrictions:
  - Location: MCA office.

340 NAME BOARDS/ ADVERTISEMENTS

- Name boards/ advertisements: Allowed.

420 LIGHTING AND POWER

- Supply: Electricity from the Employer's mains may be used for the Works as follows:
  - Metering: Free of charge.
  - Point of supply: TBA in the pre-start meeting
  - Available capacity: TBC
  - Frequency: 50 Hz.
  - Phase: 240v.
  - Current: Alternating.
- Continuity: The Employer will not be responsible for the consequences of failure or restriction in supply.

430 WATER

- Supply: The Employer's mains may be used for the Works as follows:

- Metering: Free of charge.
- Source: TBA in the pre-start meeting.
- Location of supply point: TBA.
- Conditions/ Restrictions: Prevention of excessive use or use when not required.

- Continuity: The Employer will not be responsible for the consequences of failure or restriction in supply.

510 TEMPERATURE AND HUMIDITY

- Levels required by the Employer: Maintain the following:
  - Records to be kept of weather conditions.

550 THERMOMETERS

- General: Provide onsite and maintain in accurate condition a maximum and minimum thermometer for measuring atmospheric shade temperature, in an approved location.

570 PERSONAL PROTECTIVE EQUIPMENT

- General: Not required.

A37 OPERATION / MAINTENANCE OF THE FINISHED WORKS

110 THE BUILDING MANUAL

- Responsibility: The Contractor.
- Content: Obtain and provide comprehensive information for owners and users of the completed Works. Include an overview of the main design principles and describe key components and systems within the finished Works, so affording a complete understanding of the Works, including all buildings and their systems to enable efficient and safe operation and maintenance.
- Format: Electronic.
- Number of copies: Distribution to PD/PM and Employer.
- Delivery to: CA by minimum of two weeks prior to PC.

115 HEALTH AND SAFETY INFORMATION

- Content: Obtain and provide the following information: Manufacturer's information for all products and equipment plus COSHH sheets. Any maintenance information.
- Format: electronic and hard copy.
- Deliver to: PM no later than: 2 weeks before PC.

155 CONTENT OF THE BUILDING MANUAL

- General: Details of the property, the parties, fire safety strategy, operational requirements and constraints of a general nature.
- Building fabric: Design criteria, maintenance details, product details, and environmental and trafficking conditions.
- Building services: Description and operation of systems, diagrammatic drawings, record drawings, identification of services, product details, equipment settings, maintenance schedules, cleaning information, consumable items, spares and emergency procedures.
- Documentation: Guarantees, warranties, maintenance agreements, test certificates and reports.

160 PRESENTATION OF BUILDING MANUAL

- Format: A4 size, plastics covered, loose leaf, four ring binders with hard covers, each indexed, divided and appropriately cover titled.
- Selected drawings needed to illustrate or locate items mentioned in the Manual: Where larger than A4, to be folded and accommodated in the binders so that they may be unfolded without being detached from the rings.
- As-built drawings: The main sets may form annexes to the Manual.

190 MAINTENANCE SERVICE

- Scope; provide a comprehensive maintenance service for the following items of plant and equipment: Include all planned preventative maintenance, as set out within the maintenance schedule and replacement of all consumable items.

- Terms: Contractor to provide out of hours telephone numbers during the Defects Correction Period for Critical and Non-critical events.
- Commencement: At the end of PC.
- Duration: 12 months from the end of the PC date.

A41 CONTRACTOR'S GENERAL COST ITEMS: SITE ACCOMMODATION

110 SITE ACCOMMODATION

- Details: Site accommodation required or made/ not made available by the Employer: See section A36.

SPECIFICATION AND WORKS INFORMATION

C20 DEMOLITION

To be read with Preliminaries/ General conditions.

GENERAL REQUIREMENTS

110 DESK STUDY/ SURVEY

- Scope: Before starting deconstruction/ demolition work, examine available information, and carry out a survey of:
  - the structure or structures to be deconstructed/ demolished,
  - the site on which the structure or structures stand, and
  - the surrounding area.
- Report and method statements: Submit, describing:
  - Form, condition and details of the structure or structures, the site and the surrounding area. Extent: As drawing 70050786-BEER10.
  - Type, location and condition of features of historical, archaeological, geological or ecological importance.
  - Type, location and condition of adjoining or surrounding premises that might be adversely affected by removal of the structure or structures or by noise, vibration and/ or dust generated during deconstruction/ demolition.
  - Identity and location of services above and below ground, including those required for the Contractor's use, and arrangements for their disconnection and removal.
  - Form and location of flammable, toxic or hazardous materials, including lead-based paint, and proposed methods for their removal and disposal.
  - Form and location of materials identified for reuse or recycling, and proposed methods for removal and temporary storage.
  - Proposed programme of work, including sequence and methods of deconstruction/demolition.
  - Details of specific pre-weakening required.
  - Arrangements for protection of personnel and the general public, including exclusion of unauthorized persons.
  - Arrangements for control of site transport and traffic.
  - Special requirements: Results of tests to determine the precise nature of hazardous materials.

120 EXTENT OF DECONSTRUCTION/ DEMOLITION

- General: Refer to drawing 70050786-BEER10.

130 GROUNDWORKS

- Old foundations, slabs and the like: Break out in locations and to the extents stated.
- Contaminated material: Refer to Pre-construction information.
- Excavations to be advised by Archaeological guidance.

140 BENCHMARKS

- Unrecorded benchmarks and other survey information: Give notice when found. Do not remove marks or destroy the fabric on which they are found.

150 FEATURES TO BE RETAINED

- General: Keep in place and protect the following: As per drawing 70050786-BEER10.

210 SERVICES REGULATIONS

- Work carried out to or affecting new and/ or existing services: Carry out in accordance with the byelaws and/ or regulations of the relevant Statutory Authority.

220 LOCATION OF SERVICES

- Services affected by the Works: Locate and mark positions.
- Mains services marking: Arrange with the appropriate authorities for services to be located and marked. Marking standard: In accordance with National Joint Utilities Group ‘Guidelines on the positioning and colour coding of underground utilities’ apparatus

230 SERVICES DISCONNECTION ARRANGED BY CONTRACTOR

- General: Arrange with the appropriate authorities for disconnection of services and removal of fittings and equipment owned by those authorities prior to starting deconstruction/ demolition.

240 DISCONNECTION OF DRAINS

- General: Locate, disconnect and seal disused foul and surface water drains.
- Sealing: Permanent, and within the site.
- Removal where detailed.

250 LIVE FOUL AND SURFACE WATER DRAINS

- General: Protect drains and fittings still in use. Keep free of debris and ensure normal flow during deconstruction/ demolition work.
- Damage: Make good damage arising from deconstruction/ demolition work. Leave clean and in working order at completion of deconstruction/ demolition work.

260 SERVICE BYPASS CONNECTIONS

- General: Provide as necessary to maintain continuity of services to occupied areas of the site on which the deconstruction/ demolition is taking place and to adjoining sites/ properties.
- Notice: Give adequate notice to adjoining owners and all affected occupiers if shutdown is necessary. Shutdowns and notice periods are to be managed by the Employer where required.

270 SERVICES TO BE RETAINED

- Damage to services: Give notice and notify relevant service authorities and/ or owner/ occupier regarding damage arising from deconstruction/ demolition.
- Repairs to services: Complete as directed, and to the satisfaction of the service authority or owner.

310 WORKMANSHIP
- Standard: Demolish structures in accordance with BS 6187.
- Operatives: Appropriately skilled and experienced for the type of work. Holding, or in training to obtain, relevant CITB Certificates of Competence.
- Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of deconstruction/ demolition to be used.

320 GAS OR VAPOUR RISKS
- Precautions: Prevent fire and/ or explosion caused by gas and/ or vapour from tanks, pipes, etc.

330 DUST CONTROL
- General: Reduce airborne dust by periodically spraying deconstruction/ demolition works with an appropriate wetting agent. Keep public roadways and footpaths clear of mud and debris.
- Lead dust: Submit method statement for control, containment and clean-up regimes.

340 HEALTH HAZARDS
- Precautions: Protect site operatives and general public from hazards associated with vibration, dangerous fumes and dust arising during the course of the Works.

345 NOISE CONTROL
- Operation of noisy works such as use of heavy plant, noisy equipment or operations and deliveries shall not take place outside of the hours given:
    - Monday – Friday 08:00-17:00
    - Saturday 8.00-13.00
    - No noisy activities on Sundays or Bank Holidays.

347 CONTROL OF VIBRATION
- The contractor shall devise methods to ensure that vibration controlled by demolition is kept within the following limits.
- Any residential property:
    - As measured at: Foundation level.
    - Maximum allowable ppv (mm/s): 5.
    - Reason: to prevent damage.
    - As measured at internal floor.
    - Maximum allowable ppv (mm/s): 1.

350 ADJOINING PROPERTY
- Temporary support and protection: Provide. maintain and alter, as necessary, as work proceeds. Do not leave unnecessary or unstable projections.

- Defects: Report immediately on discovery.
- Damage: Minimize. Repair promptly to ensure safety, stability, weather protection and security.
- Support to foundations: Do not disturb.

360 STRUCTURES TO BE RETAINED
- Extent: As drawing 70050786-BEER10.
- Parts which are to be kept in place: Protect or remove and safely store for later use.
- Interface between retained structures and deconstruction/ demolition: Cut away and strip out with care to minimise making good.

370 PARTLY DECONSTRUCTED/ DEMOLISHED STRUCTURES
- General: Leave partly in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse. Make secure outside working hours.
- Temporary works: Prevent overloading due to debris.
- Access: Prevent access by unauthorized persons.

380 DANGEROUS OPENINGS
- General: Provide guarding at all times, including outside of working hours. Illuminate during hours of darkness.
- Access: Prevent access by unauthorized persons.

390 ASBESTOS-CONTAINING MATERIALS – KNOWN OCCURRENCES
- General: Materials containing asbestos are known to be present in: Refer to R&D survey.
- Removal: By contractor licensed by the Health and Safety Executive, and prior to other works starting in these locations.

391 ASBESTOS-CONTAINING MATERIALS – UNKNOWN OCCURRENCES
- Discovery: Give notice immediately of suspected asbestos-containing materials when discovered during deconstruction/ demolition work. Avoid disturbing such materials.
- Removal: Submit statutory risk assessments and details of proposed methods for safe removal.

410 UNFORESEEN HAZARDS
- Discovery: Give notice immediately when hazards, such as unrecorded voids, tanks, chemicals, are discovered during deconstruction/ demolition.
- Removal: Submit details of proposed methods for filling, removal, etc.

442 SITE SURFACE AT COMPLETION
- Levels: Grade the site to follow the levels of adjacent areas.

450 SITE CONDITION AT COMPLETION
- Debris: Clear away and leave the site tidy on completion.

511 EMPLOYER'S PROPERTY
- Components and materials to remain the property of the Employer: Property of the Employer except where otherwise provided.

- Protection: Maintain until these items are removed by the Employer or reused in the Works, or until the end of the Contract.

520 RECYCLED MATERIALS

- Materials arising from deconstruction/ demolition work: Can be recycled or reused elsewhere in the project, subject to compliance with the appropriate specification and in accordance with any site waste management plan.

D20 EXCAVATING AND FILLING

To be read with Preliminaries/ General conditions.

GENERALLY/ THE SITE

112 SITE INVESTIGATION REPORT

- Geotechnical report – R01 GI Report.

145 VARIATIONS IN GROUND WATER LEVEL

- Give notice: if levels encountered are significantly different from levels in the site investigation report or previously measured.

150 EXISTING SERVICES, FEATURES AND STRUCTURES

- Services: See section A12 for locations.
- Site features to be retained: See section A12 for details.
- Structures: See section A34 for details of protection.

160 TEMPORARY WORKS

- Temporary works will be provided by the Contractor to the following: Suitable compacted hard surface for siting of scaffold stanchions and Acro Props to existing roof structure during demolition phase.
- No damage will be permitted to any of the structures in the vicinity of the works.
- The Trade Contractor is to liaise with the Demolition Trade Contractor with regard to the general arrangement of the temporary works, allowable deflection and loads, support locations, method of dismantling etc.
- The Trade Contractor shall provide a method statement in respect of all works in the vicinity of temporary works, to the Contractor for approval, prior to works commencing on site.
- The Trade Contractor shall allow ten working days for approval of said method statement.

168 SITE CLEARANCE

- Timing: Before topsoil stripping, if any.
- General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.

240 ADJACENT EXCAVATIONS

- Requirement: When an excavation encroaches below a line drawn at an angle from the nearest formation level of another higher excavation, the lowest excavation, all work within it and backfilling thereto, must be completed before the high excavation is made.
- Angle of line below horizontal: 45 degrees.
- Backfill material: Compacted type 1 hardcore or around foundations to be lean mix concrete.

244 EXCAVATIONS ADJACENT TO EXISTING FOUNDATIONS

- Exploratory trial pits to be excavated adjacent to neighbouring properties to locate to underside of existing foundations.
- Backfill material to new excavation: Lean mix concrete.

248 BACKFILL TO EXCAVATIONS LOWER THAN FOUNDATION FORMATION LEVEL
- Critical level:
  - Distance between near faces of foundation and lower excavation less than 1 m: 0mm
- Backfill material:
  - Below critical level: Lean mix concrete.
  - Above critical level: Lean mix concrete.

250 PERMISSIBLE DEVIATIONS FROM FORMATION LEVELS
- Beneath mass concrete foundations: ±25 mm.
- Beneath ground bearing slabs and r.c. foundations: ±15 mm.
- Embankments and cuttings: ±50 mm.
- Ground abutting external walls: ±50 mm, but such as to ensure that finished level is not less than 150 mm below dpc.

255 ACCURACY – LINEAR DIMENSIONS
- Permissible deviations from linear dimensions generally: 20mm.

260 INSPECTING FORMATIONS
- Give notice: Make advance arrangements for inspection of formations for foundations and filling formations.
  - Notice (minimum): Standard notice period for Building Regulations site inspection.
- Preparation: Just before inspection remove the last 150 mm of excavation.
- Trim to required profiles and levels.
  - Loose material: Remove.
- Seal: Within 4 hours of inspection, seal formations with blinding concrete, concrete, hardcore or another specified fill.

270 FOUNDATIONS GENERALLY
- Give notice if:
- A natural bearing formation of undisturbed subsoil is not obtained at the depth shown on the drawings.
- The formation contains soft or hard spots or highly variable material.

275 FOUNDATIONS BEARING
- Requirement: Foundations are designed to bear on:
- Loadbearing strata.
- Safe bearing capacity (minimum): 100kn/m2
- Give notice: If the material at the design depth of the foundation does not comply with this description or contains soft or hard spots or highly variable material.

290 FOUNDATIONS IN MADE UP GROUND
- Depth: Excavate down to a natural formation of undisturbed subsoil.

- Discrepancy: Give notice if this is greater or less than depth given.

310 UNSTABLE GROUND
- Generally: Ensure that the excavation remains stable at all times.
- Give notice: Without delay if any newly excavated faces are too unstable to allow earthwork support to be inserted.
- Take action: If instability is likely to affect adjacent structures or roadways, take appropriate emergency action.

320 RECORDED FEATURES
- Recorded foundations, beds, drains, manholes, etc.: Existing storm drains to be broken out and sealed, for relocation. Foul sewer to be accommodated as drawings.
- Contaminated earth: Remove and disinfect as required by Local Authority.

330 UNRECORDED FEATURES
- Give notice: If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.

360 EXCESS EXCAVATION
- Excavation taken wider than required:
  - Backfill: Approved granular material or concrete as instructed.
- Excavation taken deeper than required:
  - Backfill: Granular material of the type designed to be laid on the correct formation level, or concrete, as instructed.

415 EXCAVATED TOPSOIL REMOVAL
- General: Remove from site.

441 SURPLUS SUBSOIL
- Excavated material: Cart away and dispose where in excess amount not required for any regrading.

450 WATER
- Generally: Keep all excavations free from water until:
  - Formations are covered.
  - Below ground constructions are completed.
  - Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
- Drainage: Form surfaces of excavations and fill to provide adequate falls.
- Removal of water: Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses with silt laden water.

454 GROUND WATER LEVEL, SPRING OR RUNNING WATER
- Give notice: If it is considered that the excavations are below the water table.
- Springs/Running water: Give notice immediately if encountered.

457 PUMPING

- General: Do not disturb excavated faces or stability of adjacent ground or structures.
- Pumped water: Discharge without flooding the site or adjoining property.
- Sumps: Construct clear of excavations. Fill on completion.
  - Locations: Submit proposals.

460 PERMANENT DRAINAGE SYSTEM

- Disposal of water from the excavations through system: Not permitted.

500 PROPOSED FILL MATERIALS

- Details: Submit full details of proposed fill materials to demonstrate compliance with specification, including:
  - Type and source of imported fill.
  - Proposals for processing and reuse of material excavated on site.
  - Test reports as required elsewhere.
- Timing: At least 21 days before filling.

505 RECYCLED MATERIALS

- All recycled materials are to be processed under the WRAP Aggregates Programme.
- With regard to the use of recycled materials as Class 1A, B, C or 6F2, the following shall apply: -
- Main Components:
  - At least 80% by weight of crushed gravel or crushed concrete aggregate.
  - At most 10% by weight of other broken stony material, the particles of which shall have a particle density of at least 2.1Mg/cu m.
- Additional Elements
  - At most 10% by weight of other crushed stone or stony material.
- Impurities
  - At most 1% of non-stony material (plastic, plaster, rubber, etc.)
  - At most 0.1% decomposable organic matter such as wood and vegetable remain.
  - At most 2% asphalt.
- It is important that the above stringent requirements regarding material composition are consistently met and that this is demonstrated by laboratory testing and certification at commencement and during the filling operation at intervals to be proposed by the Trade Contractor and confirmed by the Contractor.
- It is the Trade Contractor's responsibility to demonstrate that the requirements of the specification are met. Typical testing will include
  - Compaction Tests - vibratory hammer method.
  - Gradings.
  - 10% fines.
  - Frost Heave - dependent on gradings.

510 HAZARDOUS, AGGRESSIVE OR UNSTABLE MATERIALS

- General: Do not use fill materials which would, either in themselves or in combination with other materials or ground water, 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.

512 LIMITATION OF SULFATE CONTENT IN FILL MATERIALS

- Test specification: To BS 1377-3.
- Sulfate content: Expressed as SO3.
  - Water soluble sulfate (maximum): 1000mg/L in 2:1 water/ soil extract.
  - Total potential sulfate (maximum): 0.6%.
  - Oxidizable sulphides (maximum): No requirement.
- Certificates of test result: Submit.

520 FROST SUSCEPTIBILITY

- General: Except as allowed below, fill must be non-frost susceptible as defined in the 'Specification for highway works', clause 801.8.
- Test reports: If the following fill materials are proposed, submit a laboratory report confirming they are non-frost susceptible:
  - Fine grained soil with a plasticity index less than 20%.
  - Coarse grained soil or crushed granite with more than 10% retained on a 0.063 mm sieve.
  - Crushed chalk.
  - Crushed limestone fill with average saturation moisture content in excess of 3%.
  - Burnt colliery shale.
- Frost-susceptible fill: May only be used:
  - At depths below the finished ground surface greater than: Not permitted
  - Within the external walls of buildings below spaces that will be heated. Protect from frost during construction.
  - Where frost heave will not affect structural elements.

530 PLACING FILL

- Surfaces of excavations and areas to be filled: Free from loose soil, topsoil, organic material, rubbish and standing water.
- Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost.
- Replace and recompact if not damaged after thawing.
- Adjacent structures, membranes and buried services:
  - Do not overload, destabilise or damage.
  - Submit proposals for temporary support necessary to ensure stability during filling.
  - Allow 14 days (minimum) before backfilling against in situ concrete structures.
- Layers: Place so that only one type of material occurs in each layer.
- Earthmoving equipment: Vary route to avoid rutting.

535 COMPACTION GENERALLY

- General: Compact fill not specified to be left loose as soon as possible after placing.

- After compaction: Surface of each layer must be well closed, showing no movement under compaction plant, and without cracks, holes, ridges, loose material and the like.
- Defective areas: Remove and recompact to full thickness of layer using new material.

540 BENCHING IN FILL
- Adjacent areas: If during filling the difference in level between adjacent areas of filling exceeds 600mm, cut into edge of higher filling to form benches 600mm minimum and height equivalent to depth of a layer of compacted filling.
- New filling: Spread and compact to ensure maximum continuity with previous filling.

617 TYPE 1 UNBOUND MIXTURE
- Fill: To 'Specification for highway works', clauses 801 and 803:
  - Crushed rock (other than argillaceous rock).
  - Coarse crushed concrete aggregate.
  - Recycled aggregates.
  - Crushed non-expansive slag to clause 801.2.
  - Well-burned non-plastic colliery shale.
- Amendments to requirements in the 'Specification for highway works': None.
- Filling: To 'Specification for highway works', clause 802.

626 COMPACTED GENERAL FILL
- Suitable material: Materials arising from excavations on the site
- Excavated material: Select suitable material and keep separate.
- Filling: Spread and level material in layers. As soon as possible thoroughly compact each layer.
- Proposals: Well in advance of starting work submit details of proposed:
  - Materials to be used, including quantities of each type.
  - Type of plant.
  - Maximum depth of each compacted layer.
  - Minimum number of passes per layer.

640 STARTER LAYER OF COMPACTED FILLING
- Fill: Suitable hard granular material. Compact thoroughly.
- Thickness: 450mm.

650 PROTECTION OF COMPACTED FILLING
- Temporary protective filling: Before allowing construction traffic, raise level of compacted cohesive soil filling at least 150 mm above formation level using properly compacted temporary filling.
- Removal: Remove temporary protective filling from site before permanent construction.

700 BACKFILLING AROUND FOUNDATIONS
- Under oversite concrete and paving's: Hardcore as clause 710.
- Under grassed or soil areas: Material excavated from the trench, laid and compacted in 300 mm maximum layers.

710 HARDCORE FILLING

- Fill: Granular material, free from excessive dust, well graded, all pieces less than 75 mm in any direction, minimum 10% fines value of 50 kN when tested in a soaked condition to BS 812-111.
- Material: 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.
  - Natural sand.
- Filling: Spread and level in 150 mm maximum layers. Thoroughly compact each layer.

730 BLINDING

- Surfaces to receive sheet overlays or concrete:
  Blind with:
  - Concrete where shown on drawings; or
  - Sand, fine gravel, or other approved fine material applied to fill interstices. Moisten as necessary before final rolling to provide a flat, closed, smooth surface.
- Sand for blinding: To BS EN 12620, grade 0/4 or 0/2 (MP).
- Permissible deviations on surface level: +0-25mm.

E05 IN SITU CONCRETE CONSTRUCTION GENERALLY

To be reading in conjunction with the Preliminaries

220 STRUCTURAL DESIGN PROVIDED

- Description: As drawings.
- Requirements:
  - Generally: As section B50.
- Production/ execution records: In accordance with the designated code of practice.

223 STRUCTURAL DRAWINGS AND SCHEDULES

- Standards:
  - Drawings: To BS EN ISO 3766

225 TEMPERATURE RECORDS

- Requirement: Throughout period of concrete construction record:
  - Daily: Maximum and minimum atmospheric shade temperatures.
  - Under adverse temperature conditions: Temperature at commencement and end of placing.
- Equipment: Contractor's choice.
  - Location: In the shade, close to the structure.

235 OPENINGS, INSERTS AND FIXINGS

- Requirement: Collate all information.
- Submit: Details where openings, inserts and fixings can only be accommodated by adjustments to reinforcement.
- Locate reinforcement: To ensure specified minimum cover at openings and inserts and to be clear of fixing positions.

290 ACCURACY OF CONSTRUCTION

- Setting out: To BS 5964-1.
- Geometrical tolerances: To BS 5606.
  - Conflicts: Notwithstanding tolerances specified elsewhere, do not exceed requirements for compliance with the designated code of practice.
  - Substitution of alternative requirements: None.

300 LEVELS OF STRUCTURAL CONCRETE FLOORS

- Tolerances (maximum)
  - Level of floor: To match existing internal ground floor level.
  - Steps in floor level: ±10mm.

E10 MIXING/CASTING/CURING IN SITU CONCRETE

To be read in conjunction with Preliminaries/General conditions.

CONCRETE

101 SPECIFICATION

- Concrete generally: To BS 8500-2.
- Exchange of information: Provide concrete producer information required by BS 8500-1, clauses 4 and 5.

103 RESPONSIBLE SOURCING OF CONCRETE

- The concrete supplier shall be certified under the BES 6001 responsible sourcing scheme or an equivalent Environmental Management System (EMS).
- The certification grade shall be: Very Good.

104 EMBODIED CARBON OF MIXES

- The contractor shall state the “cradle to gate” Embodied Carbon of all concrete mixes in line with BS EN 15978.

132 DESIGNED CONCRETE: CONCRETE FOUNDATIONS

- Embedded metal: As drawing.
- Compressive strength class (cylinder/ cube minimum): As drawing.
- Target density (oven-dry): Not applicable.
- Fibres: Not required.
- Aggregates:
  - Size (maximum): As drawing.
  - Type/ Density: As drawing.
  - Coarse recycled aggregates: Not applicable.
  - Additional aggregate requirements: Not applicable.
- Design chemical class: As geotechnical investigation report.
- Limiting values for composition:
  - Water: cement ratio (maximum): As drawing.
  - Cement/ combination content (minimum): As drawing.
  - Cement/ combination content (maximum): As drawing.
  - Air content in situ (minimum): As drawing.
- Consistence class: As drawing.
- Permitted cement/ combinations: As drawings.
- Chloride class: As geotechnical investigation report.
- Admixtures: Concrete producers choice.
- Colour: Not applicable.
- Additional mix requirements: Not applicable.

MATERIALS, BATCHING AND MIXING

215 READY MIXED CONCRETE

- Production plant: Currently certified by a body accredited by UKAS to BS EN ISO/IEC 17065 for product conformity certification of ready-mixed concrete.
- Source of ready-mixed concrete: Obtain from one source if possible. Otherwise, submit proposals.
  - Name and address of depot: Submit before any concrete is delivered.
  - Delivery notes: Retain for inspection.
- Declarations of nonconformity from concrete producer: Notify immediately.

221 INFORMATION ABOUT PROPOSED CONCRETES

- Submit when requested:
  - Details listed in BS 8500-1, clauses 5.2.
  - Additional information: Data concerning the anticipated rate of strength gain.

225 CHANGES TO SPECIFICATION

- Changes to specification of fresh concrete (outside concrete producer's responsibility): Prohibited.

230 INTERRUPTION OF SUPPLY DURING CONCRETING

- Elements without joints: Where elements are detailed to be cast in a single pour without joints, make prior arrangements for a back-up supply of concrete.
- Elsewhere:
  - Preparation: Manage pour to have a full face and have materials available to form an emergency construction joint while concrete can still be worked.
  - Before pour is completed: Submit location and details of joint, make proposals for joint preparation.

305 DRYING SHRINKAGE:

- Drying shrinkage of concrete (maximum): 0 .075%.
  - Test method: To BS EN 1367-4.

310 RECYCLED AGGREGATE

- Standard: To BS 8500-2, clause 4.3 and BS EN 12620.
- Type: Contractors choice, subject to approval by the Engineer.
- Source: Contractors choice.
- Quality control: Contractors choice, subject to approval by Engineer.
- Limitations on use:
  - Concrete strength class (maximum): C40/50
  - Permitted exposure classes: DC-1
- Additional restrictions on content:
  - Acid-soluble sulfate content (maximum): Category AS.
  - Alkali-aggregate reactivity: Do not use aggregate containing reactive silica.
- Test method:
  - Determination of chloride content: Contractors choice
  - Determination of alkali content: Contractors choice.
- Frequency of testing: As agreed with Engineer.

- Other requirements: None.

490 PROPERTIES OF FRESH CONCRETE
- Adjustments to suit construction process: Determine with concrete producer. Maintain conformity to the specification.

PROJECT TESTING/CERTIFICATION

505 PROJECT TESTING OF CONCRETE – GENERAL
- Testing: To BS 8500-1, Annex B.
  - Nonconformity: Obtain instructions immediately.
- Recording: Maintain complete correlated records including:
  - Concrete designation.
  - Sampling, site tests, and identification numbers of specimens tested in the laboratory.
  - Location of the parts of the structure represented by each sample.
  - Location in the structure of the batch from which each sample is taken.

508 REGULAR PROJECT TESTING OF CONCRETE
- Tests: Compressive strength and consistence.
- Tests for consistence class of self-compacting concrete: Slump flow to BS EN 12350-8.
- Consistence testing period: 1 h.
- Sampling:
  - Cubes to be 150mm.
  - Point: At point of discharge from delivery truck.
  - Rate: One sample per 30m3 for compressive testing.
  - Sample: Each sample to comprise 6No cubes, 2No for testing at 7 days, 2No for testing at 28 days, and 2No spare for testing only if required.
- Other requirements: Cubes for early age strength testing to be stored under same conditions as concrete in members.

PLACING/ COMPACTION/ CURING AND PROTECTING

610 CONSTRUCTION/ SEQUENCE/ TIMING REQUIREMENTS
- Foundation to be cast to allow minimum of 7-day strength gain before erection of masonry work.

620 TEMPERATURE OF CONCRETE
- Objective: Limit maximum temperature of concrete to minimize cracking during placing, compaction and curing. Take account of:
  - High temperatures and steep temperature gradients: Prevent build-up during first 24 hours after casting. Prevent coincidence of maximum heat gain from cement hydration with high air temperature and/ or solar gain.
  - Rapid changes in temperature: Prevent during the first seven days after casting.
- Proposals for meeting objective: Submit.

630 PREMATURE WATER LOSS

- Requirement: Prevent water loss from concrete laid on absorbent substrates.
  - Underlay: Select from:
    Polyethylene sheet: 250 micrometres thick.
    Building paper: To BS 1521, grade B1F.
  - Installation: Lap edges 150 mm.

640 CONSTRUCTION JOINTS
- Location of joints: As drawing.
- Preparation of joint surfaces: As section E40.

642 POUR SEQUENCE
- Requirement: Minimise movement from early-age contractions.
  - Submit proposals for location, size, sequence and timing of pours where not shown on drawings.

648 ADVERSE TEMPERATURE CONDITIONS
- Requirement: Submit proposals for protecting concrete when predicted ambient temperatures indicate risk of concrete freezing or overheating.

650 SURFACES TO RECEIVE CONCRETE
- Cleanliness of surfaces immediately before placing concrete: Clean with no debris, tying wire clippings, fastenings or free water.

670 TRANSPORTING
- General: Avoid contamination, segregation, loss of ingredients, excessive evaporation and loss of workability. Protect from heavy rain.
- Entrained air: Anticipate effects of transport and placing methods in order to achieve specified air content.

680 PLACING
- Records: Maintain for time, date and location of all pours.
- 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), unless otherwise specified. Do not place against frozen or frost covered surfaces.
- Continuity of pours: Place in final position in one continuous operation up to construction joints. Avoid formation of cold joints.
- Discharging concrete: Prevent uneven dispersal, segregation or loss of ingredients or any adverse effect on the formwork or formed finishes.
- Thickness of layers: To suit methods of compaction and achieve efficient amalgamation during compaction.
- Poker vibrators: Do not use to make concrete flow horizontally into position, except where necessary to achieve full compaction under void formers and cast-in accessories and at vertical joints.

690 COMPACTING

- General: Fully compact concrete to full depth to remove entrapped air. Continue until air bubbles cease to appear on the top surface.
  - Areas for particular attention: Around reinforcement, under void formers, cast-in accessories, into corners of formwork and at joints.
- Consecutive batches of concrete: Amalgamate without damaging adjacent partly hardened concrete.
- Methods of compaction: To suit consistence class and use of concrete.

720A VIBRATORS
- General: Maintain sufficient numbers and types of vibrator to suit pouring rate, consistency and location of concrete and spacing of reinforcement.
- External vibrators: Obtain approval for use.

730 PLASTIC SETTLEMENT
- Settlement cracking: Inspect fresh concrete closely and continuously wherever cracking is likely to occur, including the top of deep sections and at significant changes in the depth of concrete sections.
  - Timing: During the first few hours after placing and whilst concrete is still capable of being fluidized by the vibrator.
- Removal of cracks: Revibrate concrete.

810 CURING GENERALLY
- Requirement: Keep surface layers of concrete moist throughout curing period, including perimeters and abutments, by either restricting evaporation or continuously wetting surfaces of concrete.
  - Surfaces covered by formwork: Retain formwork in position and, where necessary to satisfy curing period, cover surfaces immediately after striking.
  - Top surfaces: Cover immediately after placing and compacting. If covering is removed for finishing operations, replace it immediately afterwards.
- Surface temperature: Maintain above 5°C throughout the specified curing period or four days, whichever is longer.
- Records: Maintain details of location and timing of casting of individual batches, removal of formwork and removal of coverings. Keep records on site, available for inspection.

840 PROTECTION
- Prevent damage to concrete, including:
  - Surfaces generally: From rain, indentation and other physical damage.
  - Surfaces to exposed visual concrete: From dirt, staining, rust marks and other disfiguration.
  - Immature concrete: From thermal shock, physical shock, overloading, movement and vibration.
  - In cold weather: From entrapment and freezing expansion of water in pockets, etc.

E20 FORMWORK FOR IN SITU CONCRETE

To be read with Preliminaries/ General conditions

GENERALLY/ PREPARATION

110 LOADINGS

- Requirement: Design and construct formwork to withstand the worst combination of the following:
  - Total weight of formwork, reinforcement and concrete.
  - Construction loads including dynamic effects of placing, compacting and construction traffic.
  - Wind and snow loads.

113 RESPONSIBLE SOURCING

- Timber used for formwork should be responsibly sourced.

155 TIMBER FORMWORK – PROCUREMENT

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

170 WORK BELOW GROUND: FOUNDATIONS

- Casting vertical faces against faces of excavation: Not permitted.

CONSTRUCTION

310 ACCURACY

- General requirement for formwork: Accurately and robustly constructed to produce finished concrete in the required positions and to the required dimensions.
- Formed surfaces: Free from twist and bow (other than any required cambers).
- Intersections, lines and angles: Square, plumb and true.

315 SUBSTRUCTURE FORMWORK AND UNDER SLAB INSULATION

- Cutting: Neat and accurate to edges, and around penetrations and down stands.
- Laying: Tightly butted and fully supported on firm, even substrate.
- Vertical faces: Stiffen as necessary to act as shutter.
- Formwork/ insulation surfaces: Protect from indentation by spacers and other items.

- Joints in formwork/ insulation and with edge structure and penetrations: Seal to prevent penetration of concrete.
- Concrete placement: Restrain formwork/ insulation against movement.

320 JOINTS IN FORMS
- Requirements including joints in form linings and between forms and completed work:
  - Prevent loss of grout, using seals where necessary.
  - Prevent formation of steps. Secure formwork tight against adjacent concrete.

330 INSERTS, HOLES AND CHASES
- Positions and details:
  - Dimensioned on drawings provided on behalf of the Employer: Do not change without consent.
  - Undimensioned or from other sources: Submit proposals.
- Positioning relative to reinforcement: Give notice of any conflicts well in advance of placing concrete.
- Method of forming: Fix inserts or box out as required. Do not cut hardened concrete without approval.

335 BOX OUTS
- Sealing: provide shuttering to prevent ingress of grout during concreting. Reinforcement should continue across the void.
- Protection: exposed reinforcement must be protected from corrosion or damage of any kind, whether mechanical or chemical. Box outs must be left in such a way that water cannot enter the void and must be covered so that they are not a hazard to site personnel.

340 KICKERS
- Method statement: Submit proposals including means of achieving quality of concrete consistent with that specified for the column or wall.
  - Kicker height: 300mm.

350 FORM TIES
- Metal associated with form ties/ devices: Prohibited within cover to reinforcement. Compatible with reinforcement metal.

470 RELEASE AGENTS
- Use: All formwork.
- General: Achieve a clean release of forms without disfiguring the concrete surface.
- Product types: Compatible with formwork materials, specified formed finishes and subsequent applied finishes. Use the same product throughout the entire area of any one finish.
- Protection: Prevent contact with reinforcement, hardened concrete, other materials not part of the form face, and permanent forms.

480 SURFACE RETARDERS
- Use: obtain approval.
- Reinforcement: Prevent contact with retarder.

STRIKING

510 STRIKING FORMWORK

- Timing: Prevent any disturbance, damage or overloading of the permanent structure.

521 MINIMUM PERIOD FOR RETAINING FORMWORK/ TEMPORARY SUPPORTS IN POSITION

- Concrete strength at time of formwork removal (minimum): 7 days.
- Assumptions: None.
  - Before removing formwork: Submit proposals if assumptions will not be realised.
- Method to be used in assessing early age strength of concrete: Temperature matched curing (TMC) of cube samples to BS 1881-130.

FORMED FINISHES

613 ORDINARY FINISH

- Location: All formed finishes.
- Finish: Faces fully compacted. Formed surfaces free from major blemishes and honeycombing. Steps at joints to be less than 5mm.

F10 BRICK/ BLOCK WALLING

To be read with Preliminaries/ General conditions

TYPES OF WALLING

355 CONCRETE COMMON BLOCKWORK

- Blocks: To BS EN 771-3.
  - Manufacturer: Contractor's preference.

Product reference: Based on Contractors choice.

- Configuration: Based on Contractors choice.
- Compressive strength: 7N

Mean value: Not applicable.

Characteristic value: Not applicable

Category: Based on Contractors choice.

- Freeze/ thaw resistance: Based on Contractors choice.
- Thermal properties: Based on Contractors choice.
- Recycled content: Based on Contractors choice.
- Work sizes (length x width x height): Based on Contractors choice.
  Tolerance category: Based on Contractors choice.
- Special shapes: Based on Contractors choice.
- Additional requirements: Based on Contractors choice.

- Mortar: As section Z21.
  - Standard: To BS EN 998-2.
  - Additional requirements: None
- Bond: Stretcher bond.

395 DAMP PROOF COURSE BRICKWORK

- Bricks to BS EN 771-1.
  - Manufacturer: Contractor's choice to match existing.
    Product reference: Based on contractor's choice
  - Water absorption: Equal to or less than 4.5%
  - Net dry density: Equal to or greater than 2200 kg/m³.
  - Freeze/ thaw category: F2.
  - Active soluble salts content category: S2.
- Mortar: As section Z21.
  - Standard: To BS EN 998-2
- Bond: To match existing.
- Joints: To match existing.

WORKMANSHIP GENERALLY

440 CONDITIONING OF CONCRETE BRICKS/ BLOCKS

- Autoclaved concrete bricks/ blocks delivered warm from manufacturing process: Do not use.
- Age of non-autoclaved concrete bricks/ blocks: Do not use until at least four weeks old.

- Avoidance of suction in concrete bricks/ blocks: Do not wet.
  - Use of water retaining mortar admixture: Submit details.

460 MORTAR DESIGNATIONS

- Mix proportions: For a specified designation select a mix from the following:
  - Designation (i) (BS EN 998-2 M12 equivalent):
    1:0-¼:3 (Portland cement:lime:sand with or without air entraining additive).
    1:3 (Portland cement:sand and air entraining additive).
  - Designation (ii) (BS EN 998-2 class M6 equivalent):
    1:½:4-5 (Portland cement:lime:sand with or without air entraining additive).
    1:3 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
    1:2½-3½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
    1:3-4 (Portland cement:sand and air entraining additive).
  - Designation (iii) (BS EN 998-2 class M4 equivalent):
    1:1:5-6 (Portland cement:lime:sand with or without air entraining additive).
    1:3½-4 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
    1:4-5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
    1:5-6 (Portland cement:sand and air entraining additive).
  - Designation (iv) (BS EN 998-2 class M2 equivalent):
    1:2:8-9 (Portland cement:lime:sand with or without air entraining additive).
    1:4½ (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
    1:5½-6½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
    1:7-8 (Portland cement:sand and air entraining additive).
- Batching: Mix proportions by volume.
- Mortar type: Continuous throughout any one type of masonry work.

500 LAYING GENERALLY

- Mortar joints: Fill vertical joints. Lay bricks, solid and cellular blocks on a full bed.
- AAC block thin mortar adhesive and gypsum block adhesive joints: Fill vertical joints. Lay blocks on a full bed.
- Clay block joints:
  - Thin layer mortar: Lay blocks on a full bed.
  - Interlocking perpends: Butted.
- Bond where not specified: Half lap stretcher.
- Vertical joints in brick and concrete block facework: Even widths. Plumb at every fifth cross joint.

520 ACCURACY

- Courses: Level and true to line.
- Faces, angles and features: Plumb.

- Permissible deviations:
  - Position in plan of any point in relation to the specified building reference line and/ or point at the same level ± 10 mm.
  - Straightness in any 5 m length ± 5 mm.
  - Verticality up to 3 m height ± 10 mm.
  - Verticality up to 7 m height ± 14 mm.
  - Overall thickness of walls ± 10 mm.
  - Level of bed joints up to 5 m (brick masonry) ± 11 mm.
  - Level of bed joints up to 5 m (block masonry) ± 13 mm.

545 LEVELLING OF SEPARATE LEVELS

- Locations for equal levelling of cavity wall leaves: As follows:

- Every course containing vertical twist type ties or other rigid ties.
- Every third tie course for double triangle/ butterfly ties.
- Courses in which lintels are to be bedded.

560 COURSING BRICKWORK

- Gauge: Four brick courses including bed joints to 300mm.

561 GAUGING BRICKWORK WITH EXISTING

- Gauge: Line up with existing brick courses.

595 LINTELS

- Bearing: Ensure full length masonry units occur immediately under lintel ends.

620 BLOCK BONDING NEW WALLS TO EXISTING

- Pocket requirements: Formed as follows:
  - Width: Full thickness of new wall.
  - Depth (minimum): 100 mm.
  - Vertical spacing:
    Brick to brick: 4 courses high at 8 course centres.
    Block to block: Every other course.
- Pocket joints: Fully filled with mortar.

635 JOINTING

- Profile: Consistent in appearance to match existing.

645 ACCESSIBLE JOINTS NOT EXPOSED TO VIEW

- Jointing: Struck flush as work proceeds.

665 POINTING: TO BRICKWORK ABOVE DPC

- Joint preparation: Remove debris. Dampen surface.

- Mortar: As section Z21.
  - Standard: To BS EN 998-2.
  - Mix: Contractor's choice.
- Profile: To match existing.

671 FIRE STOPPING
- Avoidance of fire and smoke penetration: Fit tightly between cavity barriers and masonry. Leave no gaps.

690 ADVERSE WEATHER
- General: Do not use frozen materials or lay on frozen surfaces.
- Air temperature requirements: Do not lay bricks/ blocks:
  - In cement gauged mortars when at or below 3°C and falling or unless it is at least 1°C and rising.
  - In hydraulic lime: sand mortars when at or below 5°C and falling or below 3°C and rising, or as manufacturer's/ supplier's recommendations.
  - In thin layer mortars when outside the limits set by the mortar manufacturer.
- Temperature of walling during curing: Above freezing until hardened.
- Newly erected walling: Protect at all times from:
  - Rain and snow.
  - Drying out too rapidly in hot conditions and in drying winds.

830 CLEANLINESS
- Facework: Keep clean.
- Mortar on facework: Allow to dry before removing with stiff bristled brush.
- Removal of marks and stains: Rubbing not permitted.

F30 ACCESSORIES/ SUNDRY ITEMS FOR BRICK/ BLOCK/ STONE WALLING

To be read with Preliminaries/ General conditions:

CAVITIES

110 CONCRETE FILL TO BASE OF CAVITY

- Concrete generally: To BS EN 206 and BS 8500-2.
- Concrete type: Lean mix.
  - Workability: High.
- Extent: Maintain 75 mm between top of fill and external ground level and a minimum of 225 mm between top of fill and ground level dpc.
- Placement: Compact to eliminate voids.

120 CLEANLINESS

- Cavity base and faces, ties, insulation and exposed dpc's: Free from mortar and debris.

132 PERPEND JOINT PLASTICS WEEP HOLES

- Manufacturer: Contractor's choice.
- Product reference: Based on contractor's choice
- Locations: Through outer leaf immediately above base of cavity, at cavity trays, stepped dpc's and external openings. 75 mm above top of cavity fill at base of cavity.
- Provision: At not greater than 1000 mm centres and not less than two over each opening.

155 PARTIAL FILL CAVITY INSULATION

- Insulation: Celotex or similar approved.
- Manufacturer: Celotex or similar approved.
  - Product reference: Based on contractor's choice.
- Recycled content: Based on contractor's choice
- Face size (nominal length x width): Based on contractor's choice
- Thickness (nominal): 50mm. To be building regulations compliant.
- Thermal conductivity: To be building regulations compliant.
- Reaction to fire class: To be building regulations compliant.
- Placement: Continuous and free of mortar and debris.

180 CAVITY CLOSERS

- Manufacturer: Contractor's choice.
  - Product reference: Based on contractor's choice.

REINFORCING/ FIXING ACCESSORIES

214 CAVITY WALL TIES: FOR ALL CAVITY WALLS

- Standard: To BS EN 845-1.
  - Type: Ancon stainless steel RT2 or similar approved.

- Manufacturer: Ancon.
  - Product reference: Ancon stainless steel RT2 or similar approved.
- Material/ finish: Austenitic stainless steel - material/ coating reference 1
- Sizes: 225mm.
- End types: As product.
- Embedment length (minimum): 60mm
- Movement: Non-tolerant.
- Additional requirements: N/A

214 CAVITY WALL TIES: FOR TYING INTO EXISTING WALLS
- Standard: To BS EN 845-1.
  - Type: Ancon stainless steel SDV or similar approved.
- Manufacturer: Ancon.
  - Product reference: Ancon stainless steel SDV or similar approved.
- Material/ finish: Austenitic stainless steel - material/ coating reference 1
- Sizes: 200mm.
- End types: As product.
- Embedment length (minimum): 60mm
- Movement: Non-tolerant.
- Additional requirements: N/A

225 FIXING TIES IN MASONRY CAVITY WALLS
- Embedment in mortar beds (minimum): 50 mm.
- Placement: Sloping slightly downwards towards outer leaf, without bending. Drip centred in the cavity and pointing downwards.
- Spacing: Staggered in alternate courses.
  - Horizontal centres: As drawing.
  - Vertical centres: As drawing.
- Provision of additional ties: Within 225 mm of reveals of unbonded openings and at the vertical reveals of unsupported masonry.
  - Spacing: As drawing.

241 WALL STARTERS/CONNECTORS
- Standard: To BS EN 845-1.
  Manufacturer: Contractor's choice.
  - Product reference: Based on contractor's choice.
- Material/ Finish: Based on contractors' choice.
- Sizes: Based on contractor's choice.
- End type: Based on contractor's choice.

FLEXIBLE DAMP PROOF COURSES/ CAVITY TRAYS

320 DAMP PROOF COURSES – PLASTICS
- Standard: To BS EN 14909
- Manufacturer: Contractor's choice.
  - Product reference: Based on contractor's choice.

- Material: Ethylene propylene.
- Additional requirements: Not applicable.

345 SITE FORMED FLEXIBLE SHEET CAVITY TRAYS – PLASTICS

- Standard: To BS EN 14909
- Material: Contractors choice.
- Manufacturer: Contractor's choice.
  - Product reference: Based on contractor's choice
- Additional requirements: Not applicable

370 PREFORMED CAVITY TRAYS – ALTERNATIVE

Manufacturer: Contractor's choice.
- Product references and locations: Based on contractor's choice.
Placement: To provide a free draining and watertight installation.

INSTALLATION OF DPCS/ CAVITY TRAYS

415 INSTALLATION OF HORIZONTAL DPCS

- Placement: In continuous lengths on full even bed of fresh mortar, with 100 mm laps at joints and full laps at angles.
- Width: At least full width of leaf unless otherwise specified. Edges of dpc not covered with mortar or projecting into cavity.
- Overlying construction: Immediately cover with full even bed of mortar to receive next masonry course.
- Overall finished joint thickness: As close to normal as practicable.

425 INSTALLATION OF GROUND LEVEL DPCS

- Joint with damp proof membrane: Continuous and effectively sealed.

465 SEALING OF DPCS
- Overlap and junctions: Seal with adhesive recommended by DPC manufacturer.

475 INSTALLATION OF SITE FORMED CAVITY TRAYS
- Requirements to prevent downward ingress of water:
  - Profiles: To match those shown on drawings. Firmly secured.
  - Joint treatment: Use continuous length wherever possible, otherwise lap at least 100 mm and seal to produce a free draining and watertight installation.
  - Horizontal cavity trays: Support using cavity closer.
  - Sloping cavity trays: Prevent sagging.
  - Cleanliness: Free from debris and mortar droppings.

485 INSTALLATION OF CAVITY TRAYS OVER OPENINGS AND OTHER CAVITY BRIDGING'S

- Length: To extend not less than 150 mm beyond ends of lintels/ bridgings.

515 DPC/ CAVITY TRAY LEADING EDGE IN FACEWORK

- Treatment at face of masonry: Finish flush and clear of mortar at the following locations: Generally

560 INSTALLATION OF VERTICAL DPCS GENERALLY

- Form: In one piece wherever possible.
  - Joints: Upper part overlapping lower not less than 100 mm.

JOINTS

610 MOVEMENT JOINTS WITH SEALANT: GROUND FLOOR SLAB

- Joint preparation and sealant application: As section Z22.
- Filler: Closed cell polyethylene foam.
  - Thickness: To match design width of joint.
  - Manufacturer: Contractor's choice.
  - Product reference: Based on contractor's choice.
  - Placement: Build in as work proceeds with no projections into cavities and to correct depth to receive sealant system.
- Sealant:
  - Designation: ISO 11600-F-20LM.
  - Manufacturer: Contractor's choice.
  - Product reference: Based on contractor's choice.
  - Colour: To match surrounding concrete floor finish.

650 POINTING IN FLASHINGS

- Joint preparation: Free of debris and lightly wetted.
- Pointing mortar: As for adjacent walling.
- Placement: Fill joint and finish flush.

660 PINNING UP TO SOFFITS:

- Top joint of loadbearing walls: Fill and consolidate with mortar.

PROPRIETARY SILLS/ LINTELS/ COPINGS/ DRESSINGS

745 PRECAST CONCRETE LINTELS

- Standard: To BS EN 845-2.
- Manufacturer: Contractor's choice.
  - Product reference: Based on contractor's choice.
- Sizes: As drawings.

- Placement: Bed on mortar used for adjacent work.
  - Bearing length (minimum): 150mm.

755 PREFABRICATED STEEL LINTELS

- Standard: To BS EN 845-2.
- Manufacturer: Catnic or similar approved.
  - Product reference: Based on contractor's choice.
- Types: Standard duty insulated steel.
- Material/ finish: Based on contractor's choice.
- Sizes: As drawings.
- Placement: Bed on mortar used for adjacent work.
  - Bearing length (minimum): 150mm.

850 WALL PLATES

- Placement: On full bed of mortar to correct horizontal level.

G20 CARPENTRY / TIMBER FRAMING / FIRST FIX

To be read with Preliminaries/ General conditions

GENERAL

105 TIMBER PROCUREMENT

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

160 GRADING AND MARKING OF SOFTWOOD

- Timber of a target/ finished thickness less than 100 mm and not specified for wet exposure: Graded at an average moisture content not exceeding 20% with no reading being in excess of 24% and clearly marked as 'DG'.
- Timber wet graded and specified for installation at higher moisture contents: graded at an average moisture content above 20% and unmarked.
- Structural timber members cut from large graded sections: Regraded to approval and marked accordingly.

PRODUCTS

210 STRUCTURAL SOFTWOOD (GRADED DIRECT TO STRENGTH CLASS): JOISTS

- Grading standard: To BS EN 14081-1 and BS 4978, or other suitable national equivalent and so marked.
- Strength class to BS EN 338: C24
- Treatment:
  - Preservative treatment: None required.
    Design service life: Not applicable.
  - Flame retardant treatment: Not applicable.

WORKMANSHIP GENERALLY

401 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.

420 WARPING OF TIMBER

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

430 SELECTION AND USE OF TIMBER

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

435 NOTCHES, HOLES AND JOINTS IN TIMBER

- Notches and holes:
  - General: Avoid if possible.
  - Sizes: Minimum needed to accommodate services.
  - Position: Do not locate near knots or other defects.
  - In same joist: Minimum 100 mm apart horizontally.
  - Notches in joists:
    Position: Locate at top. Form by sawing down to a drilled hole.
    Depth (maximum): 0.15 x joist depth.
    Distance from supports: Between 0.1 and 0.2 x span.
  - Holes in joists:
    Position: Locate on neutral axis.
    Diameter (maximum): 0.25 x joist depth.
    Centres (minimum): 3 x 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 x minimum width of member.
    Centres (minimum): 3 x diameter of largest hole.
    Distance from ends: Between 0.25 and 0.4 of span.
- Scarf joints, finger joints and splice plates: Do not use without approval.

450 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%.

510 PROTECTION

- Generally: Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.
- Timber and components: Store under cover, clear of the ground and with good ventilation. Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack.
- Trussed rafters: Keep vertical during handling and storage.

JOINTING TIMBER

570 JOINTING/ FIXING GENERALLY:

- Generally: Where not specified precisely, select methods of jointing and fixing and types, sizes and spacings of fasteners in compliance with section Z20.

630 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 in the completed building.
- 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 up to Completion. Tighten as necessary.

ERECTION AND INSTALLATION

780 WALL PLATES

- Position and alignment: To give the correct span and level for trusses, joists, etc.
- Bedding: Fully in fresh mortar.
- Joints: At corners and elsewhere where joints are unavoidable use nailed half lap joints. Do not use short lengths of timber.

784 JOISTS GENERALLY

- Centres: Equal, and not exceeding designed spacing.
- Bowed joists: Installed with positive camber.
- End joists: Positioned approximately 50 mm from masonry walls.

790 STANDARD JOIST HANGERS

- Standard: To BS EN 845-1.
- Size and type: To suit joist, design load and crushing strength of supporting construction.
- Material/ finish: Stainless steel

820 VERTICAL RESTRAINT STRAPS: ROOF

- Type: Flat.
  Manufacturer: Contractor's choice.

- Product reference: Based on contractor's choice.

Material/ finish: Stainless steel.

Size:

- Cross section: Not less than: As drawings.
- Length: As drawings.

Centres: As drawings.

Fixing: As drawings.

- To timber members fix across 3 joists with 2 screws per joist and solid bridging between at max 1000mm centres.
- To masonry with not less than two screws evenly spaced, with at least one screw located within 150 mm of the bottom end of each strap.

830 LATERAL RESTRAINT STRAPS: ROOF

- Manufacturer: Contractor's choice.
  - Product reference: Based on contractor's choice.
- Material/ finish: Stainless steel.
- Size: Not less than as drawings.
- Fixing: To top of joists/ rafters/ ties at not more than centres shown on drawings.
  - Ensure that cranked end is in tight contact with cavity face of wall inner leaf and is not pointing upwards.
- Straps spanning joists/ rafter/ ties running parallel to wall: Fix noggings and packs tightly beneath straps.
  - Size of noggings and packs: Not less than three quarters of joist/ rafter/ tie depth and not less than 38 mm thick.
  - Notching: Notch joists so that straps fit flush with surface. Do not notch rafters/ ties.

840 STRUTTING TO FLOOR JOISTS:

- Type: One of the following:
  - Herringbone strutting: At least 38 x 38 mm softwood.
  - Solid strutting: At least 38 mm thick softwood and at least three quarters of joist depth.
- Fixing: Between joists as follows:
  - Joist spans of 2.5 to 4.5 m: One row at centre span.
  - Joist spans over 4.5 m: Two rows equally spaced.
  - Strutting must not project beyond top and bottom edges of joists.
- Outer joists: Blocked solidly to perimeter walls.

900 EAVES VENTILATORS

- Manufacturer: Redland or similar approved.
  - Red Vent Eaves Ventilation system or similar approved.

950 FASCIA'S: uPVC

- Manufacturer: Contractor's choice.
  - Product reference: Based on contractor's choice.
- Material: uPVC.
- Finish: As delivered.
- Colour: White

- Nominal depth: As shown on drawings.
- Edge profile: To match existing.
- Support: As drawings.
  - Provide additional support at joints.
- Fixings: As manufacturers recommendations.
- Installer: A contractor approved by the system manufacturer.

H60 PLAIN ROOF TILING

To be read with Preliminaries/ General conditions

TYPES OF TILING

105 CLAY ROOF TILING

- Substrate: As drawings.
- Pitch: As drawings
- Underlay: Vapour permeable underlay as clause 235.
  - Direction: Parallel to eaves.
  - Head-lap (minimum): 75mm.
- Battens:
  - Size: 38x25mm.
  - Fixing: 65 x 3.35 mm galvanized annular ring shank nails.
- Tiles: To BS EN 490, noninterlocking.
  - Manufacturer: Submit proposals for client approval.
    Product reference: As per proposals.
  - Pattern: To match existing.
  - Colour: To match existing
  - Size: To match existing
  - Head-lap (minimum): 65 mm.
  - Fixing:
    Fixing of local areas: Two nails per tile in every course.
    Fixing of general areas: Two nails per tile in every course.

235 VAPOUR PERMEABLE UNDERLAY

- Manufacturer: Tyvek or similar approved manufacturer.
  - Product reference: DuPont Tyvek Supro or similar approved.
- Standard: To BS EN 13162.
  - Reaction to fire: Manufacturer's standard.
  - Water vapour transmission (minimum): Manufacturer's standard.
  - Resistance to water penetration: Manufacturer's standard
  - Tensile strength (minimum): Manufacturer's standard
  - Tear resistance (minimum): Manufacturer's standard

240 UNDERLAY

- Laying: Maintain consistent tautness.
- Vertical laps (minimum): 100 mm wide, coinciding with supports and securely fixed.
- Fixing: Galvanized steel, copper or aluminium 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 to give a watertight fit around pipes and components.
- Ventilation paths: Do not obstruct.

245 BATTENS/ COUNTER BATTENS - TREATED

- 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: Factory pre-graded with site check for grading to take account of knots, wane, fissures and splits.
  - Moisture content at time of fixing and covering (maximum): 22%.

265 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.

275 TILING FIXING

- Setting out: Lay tiles to a half lap bond with joints slightly open. Align tails.
- 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 for tiles: Nails/clips recommended by tile manufacturer.

280 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 and Annex H.
  - General areas: Remaining areas of roof tiling.

ROOF TILING EDGES/ JUNCTIONS/ FEATURES

305 GENERALLY

- Fittings and accessories: As recommended by tile manufacturer, do not improvise.
  - Exposed fittings and accessories: To match tile colour and finish.
- Cut tiles: Cut only where necessary, to give straight, clean edges.

- Flashings: Fix with or immediately after tiling. Form neatly.

345 VENTILATED EAVES WITH INTEGRATED GRILLES/ TRAYS

- Fascia grilles and ventilator trays:
  - Manufacturer: Contractor's choice.
    Product reference: Based on contractor's choice.
  - Fix to carry underlay, form drip into gutter and provide free passage of air over insulation.
- Undercourse and first course tiles: Fix with tails projecting 50 mm over gutter or to centre of gutter, whichever dimension is the lesser.

455 MORTAR BEDDED VERGES WITH NAILED UNDERCLOAK

- Underlay: Carry over full width of verge.
- Undercloak: Fibre cement sheet.
  - Position: Over underlay, level with underside of tiling battens, sloping towards verge.
  - Projection: 38-50 mm beyond face of gable tiling.
  - Fixing: Nails.
- Tiling battens: Carry onto undercloak and finish 100 mm from verge edge.
- Verge tiles:
  - Bedding: Flush with undercloak on 75 mm wide bed of mortar.
  - Fixing: Nails. Do not displace or crack mortar.

605 GRP VALLEYS

- Underlay: Lay as recommended by GRP valley manufacturer.
- GRP valleys:
  - Manufacturer: Contractor's choice.
    Product reference: Contractors' choice.
- Roof tiles: Cut adjacent tiles to fit neatly.
  - Bedding. On mortar on GRP valleys.
  - Valley width between tiles: 100mm.
-

700 DRY VENTILATED RIDGES

- Underlay: Provide air gap at apex.
- Dry ridge fixing battens: To suit manufacturers system.
- Dry ridge tiles:
  - Manufacturer: Contractor's choice.
    Product reference: Contractor's choice.
- Ridge terminals:
  - Manufacturer: Contractor's choice.
    Product reference: Contractor's choice.

K10 GYPSUM BOARD DRY LININGS/ PARTITIONS/ CEILINGS

To be read with Preliminaries/ General conditions

TYPES OF DRYLINING

245 CEILING LINING ON TIMBER: ROOF VOID
- Background: Joists at 600mm centres.
- Linings: 12.5mm plasterboard.
  - Fixings: Annular ring shank clout head plasterboard nails

  Finishing: Skim coat plaster.
  - Primer/ Sealer: Not required.

275 ENCASEMENT ON TIMBER FRAMING: NEW TIMBER STUDWORK WALLS
- Timber framework: 75x50mm CLS timber with noggins at 600mm centres.
- Linings: 12.5mm plasterboard either side of studwork.
  - Fixing: Annular ring shank clout head plasterboard nails

  Finishing: Skim coat plaster.
  - Primer/ Sealer: Not required.

GENERAL/ PREPARATION

335 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.

COMPONENTS

400 GYPSUM BOARDS GENERALLY:
- Standard:
  - Gypsum plasterboard to BS EN 520.
  - Gypsum fibre board to BS EN 15283-2.
  - Evidence of compliance: All sheets to be CE marked. Submit Declaration of Performance (DoP).

401 GYPSUM PLASTERBOARD
- Type: To BS EN 520, type A.
- Core density (minimum): 650 kg/m³.
- Reaction to fire: Manufacturer's standard.
- Water vapour resistance factor: Manufacturer's standard.

- Thermal conductivity: Manufacturer's standard.
- Other BS EN 520 characteristics: None.
- Recycled content: Contractors choice.
- Exposed surface and edge profiles: Clean and undamaged.

INSTALLATION

435 DRY LININGS GENERALLY

- General: Use fixing, jointing, sealing and finishing materials, components and installation methods recommended by board manufacturer.
- 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.
- Fixings boards: Securely and firmly to suitably prepared and accurately levelled backgrounds.
- Finishing: Neatly to give flush, smooth, flat surfaces free from bowing and abrupt changes of level.

445 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.

510 SEALING GAPS AND AIR PATHS:

- Location of sealant: To perimeter abutments and around openings.
  - Pressurized shafts and ducts: At board-to-board and board-to-metal frame junctions.
- Application: To clean, dry and dust free surfaces as a continuous bead with no gaps.
  - Gaps greater than 6 mm between floor and underside of gypsum board: After sealing, fill with jointing compound.

560 JOINTS BETWEEN BOARDS:

- Tapered edged gypsum boards:
  - Bound edges: Lightly butted.
  - Cut/ unbound edges: 3 mm gap.
- Square edged plasterboards: 3 mm gap.
- Square edged gypsum fibre boards: 5 mm gap.

565 VERTICAL JOINTS:

- Joints: Centre on studs.
  - Partitions: Stagger joints on opposite sides of studs.
  - Two-layer boarding: Stagger joints between layers.

570 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.

610 FIXING GYPSUM BOARD TO TIMBER:
- Fixing to timber: Securely at the following centres (maximum):
  - Nails: 150 mm.
  - Screws to partitions/ wall linings: 300 mm. Reduce to 200 mm at external angles.
  - Screws to ceilings: 230 mm.
- 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

650 LEVEL OF DRY LINING ACROSS JOINTS
- Sudden irregularities: Not permitted.
- Joint deviations: Measure from faces of adjacent boards using methods and straightedges (450 mm long with feet/ pads) to BS 8212, clause 3.3.5.
  - Tapered edge joints:
    Permissible deviation (maximum) across joints when measured with feet resting on boards: 3mm.
  - External angles:
    Permissible deviation (maximum) for both faces: 4 mm.
  - Internal angles:
    Permissible deviation (maximum) for both faces: 5 mm.

670 SEAMLESS JOINTING TO GYPSUM BOARDS:
- 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 paper tape, fully bedded.
- Protection of edges/ corners: Reinforce external angles, stop ends, etc. with specified edge/ angle bead.
- Finishing: Apply jointing compound. Feather out each application beyond previous application to give a flush, smooth, seamless surface.
- Nail/ screw depressions: Fill with jointing compound to give a flush surface.
- Minor imperfections: Remove by light sanding.

L20 DOORS/ SHUTTERS/ HATCHES

To be read with Preliminaries/ General conditions

120 NON-FIRE RESISTING PEDESTRIAN DOORS/ DOOR ASSEMBLIES/ DOOR SETS

- Provide certified evidence, in the form of a product conformity certificate or engineering assessment, that each pedestrian door/ doorset/ assembly supplied will comply with the specified requirements to BS EN 14351-1. Such certification must cover door and frame materials, glass and glazing materials and their installation, essential and ancillary ironmongery, hinges and seals.
- Components and assemblies will be marked to the relevant CE marking European product standard (hEN), national product standard and/ or third-party certification rating.

PRODUCTS

410 WOOD DOORSETS

- Manufacturer: Howdens or similar approved manufacturer.
  - Product reference: For client approval.
- Finish as delivered: Ready for painting.

EXECUTION

710 PROTECTION OF COMPONENTS

- General: Do not deliver to site components that cannot be installed immediately or placed in clean, dry, floored and covered storage.
- Stored components: Stacked on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

750 FIXING DOORSETS

- Timing: After associated rooms have been made weathertight and the work of wet trades is finished and dried out.

790 FIXING OF WOOD FRAMES

- Spacing of fixings (frames not predrilled): Maximum 150 mm from ends of each jamb and at 600 mm maximum centres.

830 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.

850 LOCATION OF HINGES

- Primary hinges: Where not specified otherwise, positioned with centre lines 250 mm from top and bottom of door leaf.

M10 CEMENT BASED LEVELLING/ WEARING SCREEDS

To be read with Preliminaries/ General conditions

520 WOOD FLOATED FINISH: NEW CONCRETE FLOOR

- Finish: Slightly coarse, even texture with no ridges or steps.

M12 RESIN FLOORING

To be read with Preliminaries/ General conditions

110 RESIN FLOORING: GROUND FLOOR SLAB FINISH

- Substrate: Existing concrete slab.
  - Preparation: Required and as carried out by an approved sub-contractor.
- Resin flooring system to BS EN 13813:
  - Evidence of compliance: Submit.
  - Manufacturer: Flowcrete.
  - Primer reference: Manufacturer's recommendation.
  - Resin flooring reference: Flowfast Quarts
  - Application: As carried out by an approved sub-contractor.
  - Colour: Grey 704.
  - Surface finish/ treatment: As carried out by an approved sub-contractor.
- Flatness/ Surface regularity:
  Sudden irregularities: Not permitted.
  Classification of surface regularity to BS 8204-6: As product specification.
- Slip resistance: Pendulum test value to BS 7976-2 or in accordance with BS 8204-6, Annex B: As product specification.

PREPARATION OF SUBSTRATES

220 SURFACE HARDNESS OF SUBSTRATES

- General: Substrates must restrain stresses that occur during setting and hardening of resin.
- Test for surface hardness: To BS EN 12504-2 using a rebound hammer.
- Areas of non-compliance: Submit remedial proposals.

230 PREPARATION OF SUBSTRATES GENERALLY

- Chases/ Saw cuts: Cut/ break out at skirtings, free edges, movement joints, etc. for termination of resin flooring.
- Blow holes, cavities, cracks, etc.: Fill with repair product recommended by resin flooring manufacturer.
- Cleanliness: Remove surface contaminants, debris, dirt and dust.
- Surface texture: Suitable to accept resin flooring and achieve a full bond over the complete area.

240 EXISTING SUBSTRATES

- Preparation: Remove surface imperfections, ingrained contaminants, coatings and residues.
  - Contaminated areas: Submit proposals for removal and repair.

LAYING FLOORING

310 WORKMANSHIP

- Operatives:
  - Trained/ Experienced in the application of resin floorings.
  - Evidence of training/ experience: Submit on request.
- Fillers and incorporated aggregates: Thoroughly mix in to ensure wetting. Avoid over-vigorous mixing resulting in excessive air entrainment.
- Scattered aggregates: Broadcast onto wet surface of resin.
  - Appearance: Consistent.
- Curing: Allow appropriate periods between coats and before surface treatments and trafficking/ use.

400 BOND STRENGTH OF RESIN FLOORING

- Contact surfaces: Substrate and fully cured resin flooring.
- Bond: In accordance with manufacturer's performance data.
- Test: To BS 8204-6, clause 11.4 and BS EN 1542.

420 FREE EDGES OF RESIN FLOORING

- Transition to abutting floor finishes: Straight and smooth.

M20 PLASTERED/ RENDERED/ ROUGHCAST COATINGS

To be read with Preliminaries/ General conditions

120 CEMENT:LIME:SAND ROUGHCAST (HARLING): NEW EXTERNAL BLOCKWORK WALLS

- Substrate: Concrete common blockwork.
  - Preparation: Rake back joints and apply a coat of PVA to blockwork to seal the surface.
- Cement:lime:sand mortar:
  - Type: Ready to use, retarded mortar or ready-mixed lime:sand.
  - Pigment: To match existing.
- Undercoats:
  - Mix (cement:lime:sand): 1:2:4.
    Cement type: OPC
- Final coat:
  - Mix (cement:lime:sand:coarse aggregate): 1:4:8.
    Cement type: OPC
  - Coarse aggregate: To BS EN 12620.
  - Finish: Roughcast.

GENERAL

421 SCAFFOLDING

- General: Prevent putlog holes and other breaks in coatings.

MATERIALS AND MARKING OF MORTAR

497 COLD WEATHER

- General: Do not use frozen materials or apply coatings on frozen or frost bound substrates.
- External work: Avoid when air temperature is at or below 5°C and falling or below 3°C and rising. Maintain temperature of work above freezing until coatings have fully hardened.
- Internal work: Take precautions to enable internal coating work to proceed without detriment when air temperature is below 3°C.

PREPARING SUBSTRATES

510 SUITABILITY OF SUBSTRATES

- Soundness: Free from loose areas and significant cracks and gaps.
- 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.

531 ROUGHENING FOR KEY

- Substrates: Roughen thoroughly and evenly.
  - Depth of surface removal: Minimum necessary to provide an effective key.

634 BEADS/ STOPS: BELL CAST BEAD
- Manufacturer: Contractor's choice.
  - Product reference: Based on contractor's choice.
- Material: Galvanized steel.

636 BEADS/ STOPS FOR EXTERNAL USE
- Standard: In accordance with BS EN 13914-1, Table 4.
- Material: [Stainless steel to BS EN 13658-2].

640 BEADS/ STOPS GENERALLY
- Location: External angles and stop ends except where specified otherwise.
- Corners: Neat mitres at return angles.
- Fixing: Secure, using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate.
  - Beads/ stops for external render: Fix mechanically.
- Finishing: After coatings have been applied, remove surplus material while still wet, from surfaces of beads/ stops exposed to view.

EXTERNAL RENDERING

810 APPLICATION GENERALLY
- Application of coatings: Firmly and in one continuous operation between angles and joints. Achieve good adhesion.
- Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.
  - Accuracy: 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: Prevent excessively rapid or localized drying out.

820 DUBBING OUT FOR RENDERING
- General: Correct substrate inaccuracies.
- Thickness of any one coat (maximum): 16 mm.
  - Total thickness (maximum): 20 mm, otherwise obtain instructions.
- Mix: As undercoat.
- Application: Achieve firm bond. Allow each coat to set sufficiently before the next is applied. Comb surface of each coat.

840 UNDERCOATS GENERALLY
- General: Rule to an even surface. Comb to provide a key for the next coat. Do not penetrate the coat.
- Undercoats on metal lathing: Work well into interstices to obtain maximum key.

866 FINAL COAT – ROUGHCAST (HARLING) FINISH
- Finish: Left as cast with an even thickness and texture.

880 CURING AND DRYING

- General: Prevent premature setting and uneven drying of each coat.
- Curing coatings: Keep each coat damp by covering with polyethylene sheet and/ or spraying with water.
  - Curing period (minimum): As the hydraulic lime manufacturer's recommendations.
  - Final coat: Hang sheeting clear of the final coat.
- Drying: Allow each coat to dry thoroughly, with drying shrinkage substantially complete before applying next coat.
- Protection: Protect from frost and rain.

M40 STONE/ CONCRETE/ QUARRY. CERAMIC TILING/ MOSAIC

To be read with Preliminaries/ General conditions.

110 TILING TO: WC SPLASHBACK

- Tiles:
  - Manufacturer/ Supplier: Metro.
    Product reference: Metro White Wall Tiles
  - Colour: White
  - Finish: Ceramic.
  - Size: 200x100mm.
  - Thickness: 6.5mm.
- Background/ Base: Blockwork.
  - Preparation: Clean surface with bonding agent.
- Bedding: Tile adhesive as per manufacturers recommendations.
- Joint width: As per manufacturer's recommendations.
- Grout: Wall tile grout.
  - Colour: Grey.

GENERAL

210 SUITABILITY OF BACKGROUNDS

- Background/ base tolerances: To permit specified flatness/ regularity of finished surfaces given the permissible minimum and maximum thickness of bedding.
- New background drying times (minimum):
  - Concrete walls: 6 weeks.
  - Brick/ block walls: 6 weeks.
  - Rendering: 2 weeks.
  - Gypsum plaster: 4 weeks.
- New base drying times (minimum):
  - Concrete slabs: 6 weeks.
  - Cement:sand screeds: 3 weeks.

PREPARATION

310 EXISTING BACKGROUNDS GENERALLY

- Efflorescence, laitance, dirt and other loose material: Remove.
- Deposits of oil, grease and other materials incompatible with the bedding: Remove.
- Tile, paint and other nonporous surfaces: Clean.
- Wet backgrounds: Dry before tiling.

FIXING

510 FIXING GENERALLY

- Colour/ shade: Unintended variations within tiles for use in each area/ room are not permitted.
  - Variegated tiles: Mix thoroughly.
- Adhesive: Compatible with background/ base. Prime if recommended by adhesive manufacturer.
- Use of admixtures with cementitious adhesives: Only admixtures approved by adhesive manufacturer.
- 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 when viewed under final lighting conditions.
- Surplus bedding material: Clean from joints and face of tiles without disturbing tiles.

530 SETTING OUT
- Joints: True to line, continuous and without steps.
  - Joints on walls: Horizontal, vertical and aligned round corners.
  - Joints in floors: Parallel to the main axis of the space or specified features.
- Cut tiles: Minimize number, maximize size and locate unobtrusively.

MOVEMENT JOINTS/ GROUTING/ COMPLETION

875 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 a dry cloth.

885 COLOURED GROUT
- Staining of tiles: Not permitted
- Evaluating risk of staining: Apply grout to a few tiles in a small trial area. If discoloration occurs apply a protective sealer to tiles and repeat trial.

M50 RUBBER/ PLASTICS/ CORK/ LINO/ CARPET TILING/ SHEETING

To be read with Preliminaries/ General conditions.

155 PVC SHEET FLOORING IN SPECIAL WET AREAS: WC

- Base: Concrete slab
  - Preparation: Ensure substrate is dry and clean.
- Fabricated underlay: Manufactures recommendations.
- Flooring roll: PVC to BS EN 13553.
  - Manufacturer: Polysafe Safety Flooring
    Product reference: Polysafe Hydro
  - Slip potential:
    Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum) to BS 7976-1, -2 and -3: As product specification.
    Surface roughness (Rz) (minimum) to BS 1134: As product specification.
  - Recycled content: As product specification.
  - Width: To suit area.
  - Thickness: 2mm.
  - Colour/ pattern: Woodland Grey H4770
- Adhesive (and primer if recommended by manufacturer): Manufacturers recommendations.
- Finishing: None.

GENERAL REQUIREMENTS

210 WORKMANSHIP GENERALLY

- Base condition after preparation: Rigid, dry, sound, smooth and free from grease, dirt and other contaminants.
- Finished coverings: Accurately fitted, tightly jointed, securely bonded, smooth and free from air bubbles, rippling, adhesive marks and stains.

251 LAYOUT – SEAMS IN ROLL MATERIALS

- Setting out: Minimise occurrences of seams and cross seams.

330 COMMENCEMENT

- Required condition of works prior to laying materials:
  - Building is weathertight and well dried out.
  - Wet trades have finished work.
  - Paintwork is finished and dry.
  - Conflicting overhead work is complete.
  - Floor service outlets, duct covers and other fixtures around which materials are to be cut are fixed.
- Notification: Submit not less than 48 hours before commencing laying.

340 CONDITIONING

- Prior to laying: Condition materials by unpacking and separating in spaces where they are to be laid. Maintain resilient flooring rolls in an upright position. Unroll carpet and keep flat on a supporting surface.
- Conditioning time and temperature (minimum): As recommended by manufacturer with time extended by a factor of two for materials stored or transported at a temperature of less than 10°C immediately prior to laying.

350 ENVIRONMENT
- Temperature and humidity: Before, during and after laying, maintain approximately at levels which will prevail after building is occupied.
- Ventilation: Before during and after laying, maintain adequate provision.

PREPARING BASES

410 NEW BASES
- Suitability of bases and conditions within any area: Commencement of laying of coverings will be taken as acceptance of suitability.

430 NEW WET LAID BASES
- Base drying aids: Not used for at least four days prior to moisture content testing.
- Base moisture content test: Carry out in accordance with BS 5325, Annexe A or BS 8203, Annexe A.
  - Locations for readings: In all corners, along edges, and at various points over area being tested.
- Commencement of laying coverings: Not until all readings show 75% relative humidity or less.

440 SUBSTRATES TO RECEIVE THIN COVERINGS
- Trowelled finishes: Uniform, smooth surface free from trowel marks and other blemishes. Abrade suitably to receive specified floor covering material.

LAYING COVERINGS

640 ADHESIVE FIXING GENERALLY
- Adhesive type: As specified, as recommended by covering/ underlay, manufacturer or as approved.
- Primer: Type and usage as recommended by adhesive manufacturer.
- Application: As necessary to achieve good bond.
- Finished surface: Free from trowel ridges, high spots caused by particles on the substrate, and other irregularities.

M60 PAINTING/ CLEAR FINISHING

To be read with Preliminaries/ General conditions.

110 EMULSION PAINT: NEW INTERNAL STUDWORK WALLS

- Manufacturer: Dulux or similar approved product.
  - Product reference: Eggshell or similar approved product.
- Surfaces: Plasterboard.
  - Preparation: As manufacturer's guidelines.
- Initial coats: Single mist coat of Dulux Matt or similar approved product.
  - Number of coats: One.
- Finishing coats: Dulux Matt or similar approved product.
  - Number of coats: Two.
  - Colour: Magnolia.

110 EMULSION PAINT: NEW INTERNAL CEILINGS

- Manufacturer: Dulux or similar approved product.
  - Product reference: Eggshell or similar approved product.
- Surfaces: Plasterboard.
  - Preparation: As manufacturer's guidelines.
- Initial coats: Single mist coat of Dulux Matt or similar approved product.
  - Number of coats: One.
- Finishing coats: Dulux Matt or similar approved product.
  - Number of coats: Two.
  - Colour: To match existing.

130 GLOSS PAINT: NEW INTERNAL DOORS

- Manufacturer: Dulux.
  - Product reference: Trade high gloss
  - Preparation: Knot stop and rubbed down.
- Initial coats: Primer.
  - Number of coats: One.
- Undercoats: Dulux Trade High Gloss (or similar approved).
  - Number of coats: Two.
- Finishing coats: Dulux Trade High Gloss (or similar approved).
  - Number of coats: One.
  - Colour: Coastguard Blue RAL 5002.

170 MASONRY COATING: NEW INTERNAL BLOCKWORK WALLS

- Manufacturer: Sandtex (or similar approved).

- Product reference: Ultra Smooth Masonry Paint (or similar approved)

Surfaces: New internal blockwork faces.

- Preparation: Stop, rubdown and prepare.

- Initial coats: As manufacturers guidelines.
- Undercoats: None.
- Finishing coats: Sandtex Ultra Smooth Masonry Paint (or similar approved).
  - Number of coats: Two.
  - Colour: To match existing.

170 MASONRY COATING: NEW EXTERNAL ROUGHCAST RENDERED WALLS
- Manufacturer: Sandtex (or similar approved).
- Product reference: Ultra Smooth Masonry Paint (or similar approved)

Surfaces: New internal blockwork faces.
- Preparation: Stop, rubdown and prepare.
- Initial coats: As manufacturers guidelines.
- Undercoats: None.
- Finishing coats: Sandtex Ultra Smooth Masonry Paint (or similar approved).
  - Number of coats: Two.
  - Colour: To match existing.

220 COMPATIBILITY
- Coating materials selected by contractor:
  - Recommended by their manufacturers for the particular surface and conditions of exposure.
  - Compatible with each other.
  - Compatible with and not inhibiting performance of preservative/fire retardant pre-treatments.

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

PREPARATION

400 PREPARATION GENERALLY
- Standard: In accordance with BS 6150.
- Refer to any pre-existing CDM Health and Safety File if one is present for the building.
- Refer to CDM Construction Phase Plan where applicable.
- Suspected existing hazardous materials: Prepare risk assessments and method statements covering 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: Remove.
- Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
- Surface irregularities: Remove.
- Joints, cracks, holes and other depressions: Fill flush with surface, to 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.
- Oil based stoppers and fillers: Apply after priming.
- Doors, opening windows and other moving parts:
  - Ease, if necessary, before coating.
  - Prime resulting bare areas.

420 FIXTURES AND FITTINGS
- Removal: Before commencing work remove fixtures and fittings that can be.
- Replacement: Refurbish as necessary, refit when coating is dry.

425 IRONMONGERY
- Removal: Before commencing work: Remove ironmongery from surfaces to be coated.
- Replacement: Refurbishment as necessary; refit when coating is dry.

APPLICATION

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

N13 SANITARY APPLIANCES AND FITTINGS

To be read with Preliminaries/ General Conditions

PRODUCTS

300 WCS AND CISTERNS
- WC standard: Armitage Shanks
- Type: Carlton or similar approved. Proposals for approval by client.

335 WASHBASINS:
- Standard: Armitage Shanks
  Manufacturer: Chelsea or similar. Proposals for approval by client.

442 PAPER TOWEL DISPENSERS
- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Material: Plastic.
- Finish/ Colour: White.

462 TOILET PAPER HOLDERS:
- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Material/ finish: Metal.
- Finish/ Colour: Chrome.

EXECUTION

610 INSTALLATION GENERALLY
- Assembly and fixing: Surfaces designed to falls to drain as intended.
- Fasteners: Nonferrous or stainless steel.
- Supply and discharge pipework: Fix before appliances.
- Fixing: Fix appliances securely to structure. Do not support on pipework.
- Jointing and bedding compounds: Recommended by manufacturers of appliances, accessories and pipes being jointed or bedded.
- Appliances: Do not use. Do not stand on appliances.
- On completion: Components and accessories working correctly with no leaks.
- Labels and stickers: Remove.

613 COMPATIBILITY OF COMPONENTS:
- General: Each sanitary assembly must consist of functionally compatible components, preferably obtained from a single manufacturer.

620 NOGGINGS AND BEARERS:
- Noggings, bearers, etc. to support sanitary appliances and fittings: Position accurately. Fix securely.

630 TILED BACKGROUNDS OTHER THAN SPLASHBACKS:
- Timing: Complete before fixing appliances.
- Fixing appliances: Do not overstress tiles

650 INSTALLING WC PANS:
- Floor mounted pans: Screw fix and fit cover caps over screw heads. Do not use mortar or other beddings.
- Seat and cover: Stable when raised.

670 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 location where not shown on drawings.

710 INSTALLING TAPS:
- Fixing: Secure against twisting.
- Seal with appliance: Watertight.
- Positioning: Hot tap to left of cold tap as viewed by user of appliance.

720 INSTALLING WASTES AND OVERFLOWS:
- Bedding: Waterproof jointing compound.
- Fixing: With resilient washer between appliance and backnut.

P10 SUNDRY INSULATION/ PROOFING WORK

To be read with Preliminaries/ General conditions

TYPES OF INSULATION

125 INSULATION LAID BETWEEN CEILING TILES/ JOISTS

- Manufacturer: Knauf or similar approved
  - Product reference: Earthwool 44 or similar approved.
- Material: Glass wool to BS EN 13162.
- Recycled content: Not applicable.
- Thickness: Depth of joists.
- Installation requirements:
  - Installation standard: As manufacturer's guidelines.
  - Joints: Butted, no gaps.
  - Insulation at perimeter: Carried over wall plates.
  - Eaves ventilation: Unobstructed.
  - Service holes: Sealed, and debris removed before laying insulation.
  - Electric cables overlaid by insulation: Sized accordingly.

P20 UNFRAMED ISOLATED TRIMS/ SKIRTING/ SUNDRY ITEMS

To be read with Preliminaries/ General conditions

110 SOFTWOOD: SKIRTINGS GENERALLY

- Quality of wood and fixing: To BS 1186-3.
  - Species: Contractor's choice.
- Preservative treatment: Not required.
- Fire rating: Not applicable.
- Profile: To match existing.
  - Finished size: To match existing.
- Finish as delivered: Natural.
- Fixing: Nailed at timber stud centres.

110 SOFTWOOD: ARCHITRAVES TO DOOR FRAMES

- Quality of wood and fixing: To BS 1186-3.
  - Species: Contractor's choice.
- Preservative treatment: Not required.
- Fire rating: Not applicable.
- Profile: To match existing.
  - Finished size: To match existing.
- Finish as delivered: Natural.
- Fixing: Nailed.

R10 RAINWATER DRAINAGE SYSTEMS

To be read with Preliminaries/ General conditions

350 PVC-U GUTTERS

- Standard: To the relevant parts of BS EN 607 and BS EN 1462, Kitemark certified.
- Manufacturer: Contractor's choice to match existing.
  - Product reference: Based on contractor's choice.
- Recycled content: Based on contractor's choice.
- Profile: To match existing.
- Nominal size: To match existing.
- Colour: Black to match existing.
- Brackets: To match existing.
  - Fixings: To match existing.
    Size: To match existing.

360 SEALANTS FOR GUTTERS

- Type: Low modules silicone sealant.

420 PVC-U PIPEWORK: DOWNPIPES

- Standard: To BS EN 12200-1, Kitemark certified.
- Manufacturer: Contractor's choice to match existing.
  - Product reference: Based on contractor's choice.
- Recycled content: Based on contractor's choice.
- Section: To match existing and suitable for gutters.
- Nominal size: To match existing and suitable for gutters.
- Colour: Black to match existing.
- Brackets: To match existing.
  - Fixings: To match existing.
    Size: To match existing.

EXECUTION

605 INSTALLATION GENERALLY

- Plastics pipes: Do not bend.
- Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
- Protection:
  - Fit purpose made temporary caps to prevent ingress of debris.
  - Fit access covers, cleaning eyes and blanking plates as the work proceeds.

610 FIXING AND JOINTING GUTTERS

- Joints: Watertight.
- Brackets: Securely fixed.
  - Fixings: Fixed into fascia board.

Fixing centres: As manufacturer's guidelines.
- Additional brackets: Where necessary to maintain support and stability, provide at joints in gutters and near angles and outlets.

- Roofing underlay: Dressed into gutter.

615 SETTING OUT EAVES GUTTERS – TO FALLS

- 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.
- Outlets: Align with connections to below ground drainage.

635 FIXING PIPEWORK

- Pipework: Fix securely, plumb and/ or true to line.
- 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 to support junctions and changes in direction.
- Vertical pipes:
  - Provide a loadbearing support at least at every storey level.
  - Tighten fixings as work proceeds so that every storey is self-supporting.
  - Wedge joints in unsealed metal pipes to prevent rattling.
- Wall and floor penetrations: Isolate pipework from structure.
  - Pipe sleeves: As section P31.
  - Masking plates: Fix at penetrations if visible in the finished work.
- Expansion joint pipe sockets: Fix rigidly to buildings. Elsewhere, provide brackets and fixings that allow pipes to slide.

640 FIXING VERTICAL PIPEWORK

- Bracket fixings: Plugged and screwed into masonry.
- Distance between bracket fixing centres (maximum): As manufacturer's guidelines.

650 JOINTING PIPEWORK AND GUTTERS:

- General: Joint with materials and fittings that will make effective and durable connections.
- Jointing differing pipework and gutter systems: Use adaptors intended for the purpose.
- Cut ends of pipes and gutters: 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.
- Junctions: Form with fittings intended for the purpose.
- Jointing material: Strike off flush. Do not allow it to project into bore of pipes and fittings.
- Surplus flux, solvent jointing materials and cement: Remove.

660 JOINTING EXTERNAL PIPEWORK

- PVC-U: Solvent welded.

COMPLETION

910 GUTTER TEST

- Preparation: Temporarily block all outlets.
- Testing: Fill gutters to overflow level and after 5 minutes closely inspect for leakage.

920 IMMEDIATELY BEFORE HANDOVER:

- Construction rubbish, debris, swarf, temporary caps and fine dust which may enter the rainwater system: Remove. Do not sweep or flush into the rainwater system.
- Access covers, rodding eyes, outlet gratings and the like: Secure complete with fixings.

R11 ABOVE GROUND FOUL DRAINAGE SYSTEMS

To be read with Preliminaries/ General conditions

SYSTEM PERFORMANCE

220 COLLECTION AND DISTRIBUTION OF FOUL WATER:

- General: Quick, quiet and complete, self-cleansing in normal use, without blockage, crossflow, backfall, leakage, odours, noise nuisance or risk to health.
- Pressure fluctuations in pipework (maximum): ±38 mm water gauge.
- Water seal retained in traps (minimum): 25 mm.

PRODUCTS

365 PVC-U PIPEWORK: SANITARY FOUL WASTE

- Standard: To BS EN 1329-1, Kitemark certified.
  - Weather resistance, connectors to WC pans, opening dimensions of access fittings, design of swept fittings, standoff dimensions of pipe and fitting brackets and requirements for adaptors and plugs: To BS 4514.
- Manufacturer: OSMA or similar approved.
  - Product reference: based on manufacturer's selection.
- Colour: White.
- Brackets: Plastic pipe clips, white.

EXECUTION

610 FIXING PIPEWORK:

- Pipework: Fix securely plumb and/ or true to line. Fix discharge stack pipes at or close 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 to support 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.

630 JOINTING PIPEWORK - GENERALLY:

- General: Joint with materials, fittings and techniques that will make effective and durable connections.
- Jointing 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.
- Junctions: Form with fittings intended for the purpose.
- Jointing material: Do not allow it to project into bore of pipes and fittings.
- Surplus flux, solvent jointing materials and cement: Remove from joints.

Z20 FIXINGS AND ADHESIVES

To be read with Preliminaries/ General conditions.

310 FIXINGS AND FASTENERS GENERALLY

- Integrity of supported components: Selected 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 or sleeves to avoid bimetallic corrosion.
- General usage: To recommendations of fastener manufacturers and/ or manufacturers of components, products or materials fixed and fixed to.
- Fixings: To be in straight lines, at regular centres.

320 PACKINGS

- Materials: Non-compressible, corrosion proof.
- Area of packings: Sufficient to transfer loads.

330 NAILED TIMBER FASTENERS

- Nails:
  - Steel: To BS 1202-1 or BS EN 10230-1.
  - Copper: To BS EN 1202-2.
  - Aluminium: To BS 1202-3.

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.

370 WOOD SCREWS

- Type:
  - Wood screws (traditional pattern).
    Standard: To BS 1210.
  - Wood screws.
    Pattern: Parallel, fully threaded shank or twin thread types.
- Washers and screw cups: Where required are to be of same material as screw.

390 ADHESIVES GENERALLY

- Standards:
  - Hot-setting phenolic and amino plastic: 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.

650 NAILED TIMBER FIXING

- Penetration: Drive fully in without splitting or crushing timber.
- Surfaces visible in completed work: Punch nail heads below wrot surfaces.
- Nailed timber joints: Two nails per joint (minimum), opposed skew driven.

660 SCREW FIXING

- Finished level of countersunk screw heads:
  - Exposed: Flush with timber surface.
  - Concealed (holes filled or stopped): Sink minimum 2 mm below 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.

Z21 MORTARS

To be read with Preliminaries/ General conditions.

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.

131 READY-MIXED LIME:SAND FOR CEMENT GAUGED MASONRY MORTARS

- Standard: To BS EN 998-2.
- Lime: Nonhydraulic to BS EN 459-1.
  - Type: CL 90S.
- Pigments for coloured mortars: To BS EN 12878.

135 SITE MADE LIME:SAND FOR CEMENT GAUGED MASONRY MORTARS

- Permitted use: Where a special colour is not required and in lieu of factory made ready-mixed material.
- Lime: Nonhydraulic to BS EN 459-1.
  - Type: CL 90S.
- Mixing: Thoroughly mix lime with sand, in the dry state. Add water and mix again. Allow to stand, without drying out, for at least 16 hours before using.

160 CEMENTS FOR MORTARS

- Cement: To BS EN 197-1 and CE marked.
  - Types: Portland cement, CEM I.
    Portland limestone cement, CEM ll/A-L or CEM ll/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:
  - Type: To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked.
    To BS EN 197-1 fly ash cement, CEM ll/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.

180 ADMIXTURES FOR SITE MADE CEMENT GAUGED MORTARS

- Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
- Other admixtures: Submit proposals.
- Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

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.

Z22 SEALANTS

To be read with Preliminaries/ General conditions.

120 SUITABILITY OF JOINTS

- Pre-sealing checks:
  - Joint dimensions: Within limits specified for the sealant.
  - Substrate quality: Surfaces regular, undamaged and stable.
- Joints not fit to receive sealant: Submit proposals for rectification.

130 PREPARING JOINTS

- Surfaces to which sealant must adhere:
  - Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.
  - Clean using materials and methods recommended by sealant manufacturer.
- Vulnerable surfaces adjacent to joints: Mask to prevent staining or smearing with primer or sealant.
- Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.
  - Backing strip and/ or bond breaker installation: Insert into joint to correct depth, without stretching or twisting, leaving no gaps.
- Protection: Keep joints clean and protect from damage until sealant is applied.

160 APPLYING SEALANTS

- Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice or snow.
- Environmental conditions: Mix and apply primers and sealants within temperature and humidity ranges recommended by manufacturers. Do not dry or raise temperature of joints by heating.
- Sealant application: Unless specified otherwise, fill joints completely and neatly, ensuring firm adhesion to substrates.
- Sealant profiles:
  - Butt and lap joints: Slightly concave.
  - Fillet joints: Flat or slightly convex.
- Protection: Protect finished joints from contamination or damage until sealant has cured.

Kings Orchard
1 Queen Street
Bristol
BS2 0HQ

wsp.com