H4154 The Almonry - Structural Elements Specification

20 December 2019

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C20
Demolition

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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 indicated on Contract Drawings .
  - 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: Site waste management plan development and proposals .
- Format of report: PDF .

120 EXTENT OF DECONSTRUCTION/ DEMOLITION

- General: Subject to retention requirements specified elsewhere, deconstruct/ demolish structures down to levels indicated on Contract drawings.

130 GROUNDWORKS

- Old foundations, slabs and the like: Break out in locations and to the extents stated.
- Contaminated material: Remove, and carry out remediation required by the Enforcing Authority.

140 BENCH MARKS

- Unrecorded bench marks 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: Asindicated on the Contract drawings.

SERVICES AFFECTED BY DECONSTRUCTION/ DEMOLITION

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 deconstruction/ demolition work: 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.

250 LIVE FOUL AND SURFACE WATER DRAINS

- Drains and associated manholes, inspection chambers, gullies, vent pipes and fittings:
  - Protect; maintain normal flow during deconstruction/ demolition.
  - Make good any damage arising from deconstruction/ demolition work.
  - Leave clean and in working order at completion of deconstruction/ demolition work.
- Other requirements: None.

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.
- Minimum notice to adjoining owners and all affected occupiers: 72 hours, if shutdown is necessary during changeover.

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.

DECONSTRUCTION/ DEMOLITION WORK

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.

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 indicated on Contract Drawings.
- Parts which are to be kept in place: Protect.
- Interface between retained structures and deconstruction/ demolition: Cut away and strip out with care to minimize making good.

370 PARTLY DEMOLISHED STRUCTURES

- General: Leave 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.

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.

450 SITE CONDITION AT COMPLETION

- Debris: Clear away and leave the site in a tidy condition.
- Other requirements: None.

MATERIALS ARISING

510 CONTRACTOR'S PROPERTY

- Components and materials arising from the deconstruction/ demolition work: Property of the Contractor except where otherwise provided.
- Action: Remove from site as work proceeds where not to be reused or recycled for site use.

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.
- Evidence of compliance: Submit full details and supporting documentation.
  - Verification: Allow adequate time in programme for verification of compliance.

C41
Repairing/ Renovating/ Conserving masonry

C41 Repairing/ Renovating/ Conserving masonry

To be read with Preliminaries/ General conditions

GENERALLY/ PREPARATION

110A SCOPE OF WORK
- Where Architect's schedule refers to removal of vegetation, crack repairs, replacement of eroded stones/bricks and the like.
- Records of masonry to be repaired: Before starting work, use measurements and photographs as appropriate to record bonding patterns, joint widths, special features, etc.
- Identification of masonry units to be removed, replaced or repaired: Mark clearly, but not indelibly, on face of masonry units or parts of units to be cut out and replaced. Transcribe markings to drawings/ photographs.

120A SITE INSPECTION
- Purpose: To confirm type and extent of repair/ renovation/ conservation work shown on drawings and/or described in survey reports and schedules of work.
- Parties involved: Contractor's representative, Architect and/or Structural Engineer as necessary.
- Timing: At least 5 working days before starting each section of work.

125A REMOVAL OF FITTINGS/ FIXTURES
- Items to be removed, and reinstated on completion of repair work: to be agreed.
  - Identification: Attach labels or otherwise mark items using durable, non-permanent means, to identify location and describe refixing instructions, where applicable.
  - Storage: Protect against damage, and store until required.
    Storage location: On site.
  - Reinstatement: Refit in original locations using original installation methods.
- Items unsuitable or not required for reuse: to be agreed.
  - Disposal: Obtain instructions.
- Masonry fabric and surfaces: Do not damage during removal and replacement of fittings/ fixtures.

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

140A RECORD OF WORK
- General: Record work carried out to masonry clearly and accurately using written descriptions, sketches, drawings and photographs, as necessary

WORKMANSHIP GENERALLY

150 POWER TOOLS
- Usage for removal of mortar: Not permitted.

155 PUTLOG SCAFFOLDING

- Usage: Not permitted.

160 PROTECTION OF MASONRY UNITS AND MASONRY

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

165 STRUCTURAL STABILITY

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

170 DISTURBANCE TO RETAINED MASONRY

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

180 WORKMANSHIP

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

185 ADVERSE WEATHER

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

220 RECORDING PROFILES

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

245 REPLACEMENT STONE UNITS

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

250 STONE ORIENTATION

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

255 ASHLAR BLOCKS/ DRESSINGS

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

DISMANTLING/ REBUILDING

310 DISMANTLING MASONRY FOR REUSE

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

320A REBUILDING Where specified

- Replacement materials: Refer to F10 & F20.
- Mortar: As M20
- Rebuilding: To match previous face and joint lines, joint widths and bonding. Adequately bonded to retained work/ backing masonry, as appropriate.
- Joint surfaces: Dampen, as necessary, to control suction.
- Laying masonry units: On a full bed of mortar; perpend joints filled.
- Exposed faces: Remove mortar and grout splashes immediately.
- Joints: Flush.
- Other requirements: None.

REPLACEMENTS AND INSERTIONS

330 PREPARATION FOR REPLACEMENT MASONRY

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

340A REPLACEMENT OF STONE
Refer to F20

365A REPLACEMENT OF BRICKS

- Refer to F10 all

385 LAYING REPLACEMENT MASONRY UNITS

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

410A CORRODED FIXINGS

- Removal: Cut out carefully, causing the least possible disturbance to surrounding masonry. Remove associated rust debris.
- Replace with compatible fixings

415 STONE PINNINGS FOR RUBBLE STONEWORK

- Material for pinnings: Matching sandstone, closely spaced .
- Placing: Tamp pinnings firmly into fresh mortar. Ensure mortar is thoroughly compacted into voids and that levelling and load distribution functions of pinnings are retained.

TOOLING/ DRESSING STONE IN SITU

455 DESCALING STONE

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

MORTAR REPAIRS

510 PREPARATION FOR MORTAR REPAIRS

- Repair area: Scribe area of masonry to be removed using straight horizontal and vertical lines parallel to joints. Where repair area abuts joints, maintain existing joint widths and do not bridge joints.
- Decayed masonry: Cut back carefully to a minimum depth of 20 mm to a sound background. Where the depth of removal exceeds 50 mm, seek instructions.
- Precautions: Do not weaken masonry by removing excessive material. Do not damage adjacent masonry.
- Top and vertical reveals of repair area: Undercut.

540 APPLYING MORTAR

- Surfaces to receive mortar: Clean, and free from dust and debris. Dampen to control suction.
- Applying coats: Build up in layers to specified thickness. Apply mortar firmly, ensuring good adhesion with no voids. Form a mechanical key to undercoats by combing or scratching to produce evenly spaced lines.
  Allow each layer to achieve an initial set before applying subsequent coats. Prevent each layer from drying out rapidly by covering immediately with plastics sheeting and/ or dampening intermittently with clean water.
- Finishing mortar coat: Form accurately to required planes/ profiles, and finish flush with adjacent masonry.
- Protection: Protect completed repairs from adverse weather until mortar has set.

550 SCRAPED FINISH TO MORTAR REPAIRS

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

CRACK REPAIRS

610A MORTAR REPAIR OF CRACKS

- Mortar:
  - Mix: As M20.
    Preparation: Clean out cracks to remove debris, dust and dirt. Dampen recesses, as necessary, to control suction.
- Applying mortar: Press well into cracks so that they are fully filled. Ensure that mortar does not encroach upon exposed faces. Finish mortar flush with masonry face.
- Other requirements: None.

POINTING/ REPOINTING

810 PREPARATION FOR REPOINTING

- Existing mortar: Working from top of wall downwards, remove mortar carefully, without damaging adjacent masonry or widening joints, to a minimum depth of 20 mm.
  - Loose or friable mortar: Seek instructions when mortar beyond specified recess depth is loose or friable and/ or if cavities are found.
- Raked joints: Remove dust and debris.

820A POINTING BRICK & STONEWORK GENERALLY

- Preparation of joints: Dampen joints, as necessary, to control suction.
- Mortar:
  - Mix: As M20.
    Joints profile/ finish: Flush.
- Other requirements: None.

840 POINTING WITH TOOLS/ IRONS

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

C51
Repairing/ Renovating/ Conserving timber

C51 Repairing/ Renovating/ Conserving timber

To be read with Preliminaries/ General conditions

GENERAL

110A INSPECTION
- Purpose: To confirm nature and extent of repair/ renovation/ conservation work shown on drawings and described in survey reports and/or schedules of work.
- Parties involved: Contractor's representative, Architect and/or Structural Engineer as necessary.
- Timing: At least 5 days before starting each section of work.

130 OPENING UP
- Purpose: To reveal previously concealed areas of structure or fabric not recorded during initial surveys.
- Extent: To be agreed.
- Timing: Give notice before starting opening up.
  - Period of notice: At least two working days.
- Retained building structure/ fabric: Do not damage or destabilize.

STRUCTURAL REPAIRS/ ALTERATIONS

210A TIMBER SECTION STRENGTHENING/ REPAIR
- Precise form and extent of remedial works to be agreed following opening up:

PRODUCTS

310 STRUCTURAL SOFTWOOD (GRADED DIRECT TO STRENGTH CLASS) FOR STRUCTURAL USE GENERALLY
- Grading standard: To BS 4978, BS EN 14081-1, or other national equivalent and so marked.
- Strength class to BS EN 338: C24.
- Treatment:
  - Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8.
    Design service life: Not applicable .
  - Fire retardant treatment: None required.
- Moisture content (maximum) at time of installation: 20%.
- Other requirements: Wane not permitted.

450 STAINLESS STEEL BOLT ASSEMBLIES Where required
- Bolts: To BS EN ISO 3506-1.
  - Designation: A2-70.
- Nuts and washers: To suit grade of bolt.
  - Washer size:
    In contact with timber: Diameter: 2 times bolt diameter; thickness: 0.2 times bolt diameter.
    In contact with steel section/ plate (required when surface finish may be damaged by nut or bolt head rotating): To BS 4320.

480 SCREWS Where required
- Standard: As section Z20.
- Material: Stainless steel.
- Tensile strength (minimum): 550 N/mm².
- Finish as delivered: None.

490 COACH SCREWS Where required
- Standard: To DIN 571.
- Material: Stainless steel.
- Tensile strength (minimum): 550 N/mm².
- Finish as delivered: None.

EXECUTION

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

610 TEMPORARY SUPPORTS/ PROPPING
- General: Provide adequate temporary support at each stage of repair work to prevent damage, overstressing or uncontrolled collapse of any part of the structure.
- Bearings for temporary supports/ propping: Suitable to carry loads throughout repair operations.

650 DIMENSIONS GENERALLY
- Site dimensions: Take as necessary before starting fabrication.
  - Discrepancies with drawings: Report without delay and obtain instructions before proceeding.

660 CROSS SECTION DIMENSIONS OF STRUCTURAL SOFTWOOD AND HARDWOOD
- Dimensions: Dimensions in this specification and shown on drawings are target sizes as defined in BS EN 336.
- Tolerances: The tolerance indicators (T1) and (T2) specify the maximum permitted deviations from target sizes as stated in BS EN 336, clause 4.3:
  - Tolerance class 1 (T1) for sawn surfaces.
  - Tolerance class 2 (T2) for further processed surfaces.

720 TEMPORARY REMOVAL AND REINSTATEMENT OF FITTINGS/ FIXTURES
- Items to be removed, and reinstated on completion of repair work:
  - Identification: Attach labels or otherwise mark items using durable, non-permanent means, to identify location and refixing instructions, where applicable.
  - Treatment following removal: if and as scheduled by the Architect.
  - Storage: Protect against damage, and store until required.
    Storage location: On site.
  - Reinstatement: Refit in original locations using original installation methods.
- Items unsuitable or not required for reuse: Obtain instructions regarding disposal.

730 PARTIAL REMOVAL OF EXISTING DECORATIVE/ PROTECTIVE FINISH if and as required
- Extent: Remove minimum necessary to expose damaged or decayed wood. Feather the edge of remaining coating around repair site.
- Method: Careful abrasion using moistened waterproof abrasive paper.

750 CLEANING DIRTY OR STAINED WOOD

- Generally: Scrub with neutral pH soap and clean, warm water.
- Old varnish: Remove using mixture of turpentine (not turpentine substitute) and acetone in proportions determined by experiment, followed by washing down.

770 REPAIR OF COMPRESSION MEMBERS - PIECING IN

- Defective wood: Remove only decayed or defective wood. Finish cut-outs to clean, regular profiles.
- Timber inserts: Cut accurately to fit. Glue and pin in place. Lie of grain to match as closely as possible that of parent timber.
- Joint profile: To match remaining original section.

780 REPAIR OF DISTORTED TIMBER MEMBERS

- Generally: Repair to shape that member has assumed.

790A PEGS FOR MORTISE AND TENON JOINTS IN STRUCTURAL TIMBER

- Wood species: Oak.
- Condition: Dry,
- Shape: Octagonal and tapered.
- Second hand pegs: Do not use.
- Peg holes: Slightly offset such that when pegs are driven home, sections being joined are pulled together (draw boring)

COMPLETION

910 MECHANICALLY FASTENED JOINTS

- General: Inspect accessible bolted, coach screwed and timber pegged joints and tighten fasteners if necessary.
  - Timing: On Completion and at end of Defects Liability Period or Rectification Period.

D20
Excavating and filling

D20 Excavating and filling

4 SITE INVESTIGATION
- Report: See Preliminaries section A12.

10 PREPARATORY WORK
- Trees, shrubs and hedges to be removed: Cut down, grub up main roots and fill voids.
- Larger trees: Not applicable.
- Trees to be retained: Protect area around the trunk and do not use for building purposes or material storage.
  - Size of area: Not applicable.
- Clear site of rubbish and vegetation. Grub up large roots.
- Arisings: Remove from site.

23A EXCAVATIONS

Excavations will be subject to a watching brief by the project archaeologist who must be advised insufficient time prior to any excavation in order to arrange for any site inspections that may be necessary.

25 INSPECTING FORMATIONS
- Notice: Make advance arrangements for inspection of formations for foundations and filling .

30 OBSTRUCTIONS
- Recorded foundations, beds, drains, etc: Break out and seal off drain ends. Remove contaminated earth.
- Unrecorded foundations, beds, basements, filling, tanks, service pipes, drains, etc: Give notice.

30A OBSTRUCTIONS
- With reference to Clase 23A above, do not remove any discovered obstructions or artefacts without referring to the archaeologist
- Recorded foundations, beds, drains, etc: Break out and seal off drain ends. Remove contaminated earth.
- Unrecorded foundations, beds, basements, filling, tanks, service pipes, drains, etc: Give notice.

40A SURPLUS EXCAVATED MATERIAL
- Remove all surplus material from site.

50 HAZARDOUS, AGGRESSIVE OR UNSTABLE MATERIALS
- Generally: Do not import or use fill materials which would, either in themselves or in combination with other material or ground water, give rise to a health hazard, damage to building structures or instability in the filling.

53 WATER
General: Keep excavations free from water until foundations and below ground constructions are completed.

55 PLACING FILL GENERALLY

- Excavations and areas to be filled: Free from loose soil, rubbish and standing water.
- Freezing conditions: Do not use frozen materials or materials containing ice. Do not place fill on frozen surfaces.
- Fill against structures, membranes or buried services: Place and compact in a sequence and manner which will ensure stability and avoid damage.

60 BACKFILLING AROUND FOUNDATIONS

- Under oversite concrete and pavings: Hardcore.
- Under grassed or landscaped areas: Material excavated from the trench, laid and compacted in 300 mm layers.

62 FROST SUSCEPTIBILITY

- General: Except as allowed below, fill must be non frost-susceptible as defined in Highways Agency 'Specification for Highway Works', clause 801.17.
- Frost-susceptible fill: Use only within the external walls of buildings below spaces that will be heated. Protect from frost during construction.

65 HARDCORE

- Fill: Granular material, free from harmful matter and excessive dust or clay, well graded, all pieces less than 75 mm in any direction, and in any one layer only one of the following:
  - Crushed hard rock or quarry waste.
  - Crushed concrete, brick or tile, free from plaster.
  - Gravel or hoggin.
- Filling: Spread and level both backfilling and general filling in layers not exceeding 150 mm. Thoroughly compact each layer.

75 BLINDING TO HARDCORE

- 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 provide a closed smooth surface.
- Permissible deviation on surface level: +0 -25mm.

E10
Mixing/ Casting/ Curing in situ concrete

E10 Mixing/ Casting/ Curing in situ concrete

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

20 DESIGNATED CONCRETE For reinforced concrete raft foundation
- Designation: RC35/45.
- Fibres: Not required.
- Aggregates:
  - Size (maximum): 20 mm.
  - Coarse recycled aggregates: Not permitted.
  - Additional aggregate requirements: None.
- Special requirements for cement/ combinations: None.
- Consistence class: Contractor's choice.
- Chloride class: Normal.
- Admixtures: None.
- Additional mix requirements: None.

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

50 PREMATURE WATER LOSS
- Requirement: Prevent water loss from concrete laid on absorbent substrates.
  - Underlay: Polyethylene sheet 250 micrometres thick.
  - Installation: Lap edges 150 mm.

60 PLACING AND COMPACTING
- Surfaces to receive concrete: Clean, with no debris, tying wire clippings, fastenings or free water.
- Timing: Place as soon as practicable after mixing and while sufficiently plastic for full compaction.
- Temperature limitations for concrete: 30°C (maximum) and 5°C (minimum). Do not place against frozen or frost covered surfaces.
- Compaction: Fully compact to full depth to remove entrapped air especially around reinforcement, cast-in accessories, into corners of formwork and at joints. Continue until air bubbles cease to appear on the top surface.
  - Methods of compaction: To suit consistence class and use of concrete.

70 CURING AND PROTECTING
- Evaporation from surfaces of concrete: Prevent throughout curing period.
  - Surfaces covered by formwork: Retain formwork in position and, where necessary to satisfy curing period, cover surfaces immediately after striking.
  - Top surfaces: Cover immediately after placing and compacting. Replace cover immediately after any finishing operations.
- Curing periods:
  - Surfaces which in the finished building will be exposed to the elements, and wearing surfaces of floors and pavements: 10 days (minimum).
  - Other structural concrete surfaces: 5 days (minimum).
- Protection: Protect concrete from shock, indentation and physical damage.

E30
Reinforcement for in situ concrete

E30 Reinforcement for in situ concrete

20 RIBBED BAR REINFORCEMENT AS DRAWINGS

- Standard: To BS 4449.
  - Strength grade: B500B.

30 FABRIC REINFORCEMENT AS DRAWINGS

- Standard: To BS 4483.
- Strength grade: B500B.

40 CONDITION OF REINFORCEMENT

- At time of placing concrete: Free from corrosive pitting, loose mill scale, loose rust and contaminants which may adversely affect the reinforcement, concrete, or bond between the two.

55 LAPS IN REINFORCEMENT

- Laps in bar reinforcement (minimum): To bar bending Schedule.
- Laps in fabric reinforcement (minimum): 400mm.

70 FIXING REINFORCEMENT

- Standard: To BS 7973-1 and -2.
- Installation: Provide adequate support, tie securely and maintain the specified cover.
  - Tying wire: 16 gauge black annealed. Prevent intrusion into the concrete cover.

F10
Brick/ block walling

F10 Brick/ block walling

1 TO BE READ IN CONJUNCTION WITH ARCHITECTS SPECIFICATION

5A FACING BRICKWORK Where indicated on drawings
- Bricks: To BS EN 771-1.
  - Manufacturer: Submit proposals.
    Product reference: Submit proposals.
  - Recycled content: Submit proposals.
  - Special shapes: None.
- Mortar: As section Z21.
  - Standard: Not applicable.
  - Mix: As specified in M20.
- Bond: To match existing.
- Joints: Flush.

10 RECLAIMED FACING BRICKWORK Only if accepted by the Architect
- Reclaimed bricks: To match existing.
  - Condition: Sound, free from mortar and deleterious matter.
  - Supplier/ source: Submit proposals.
  - Format: To match existing.
- Mortar: As section Z21.
  - Standard: Not applicable.
  - Mix: As specified in M20.
- Bond: To match existing.
- Joints: Flush.

45 ENGINEERING BRICKWORK IN MANHOLES
- Bricks: To BS EN 771-1.
  - Manufacturer: Contractor's choice.
    Product reference: Contractor's choice.
  - Type: HD.
  - Mean compressive strength: Greater than or equal to 75 N/mm².
  - Category: II.
  - Water absorption: Equal to or less than 4.5%.
  - Freeze/ thaw category: F2.
  - Active soluble salts content category: S2.
  - Additional requirements: None.
- Mortar: As section Z21.
  - Standard: To BS EN 998-2.
  - Mix: 1:0.25:3 cement:lime:sand.
  - Additional requirements: None.
- Bond: English.
- Joints: Flush.

51 BASIC WORKMANSHIP

- Bond where not specified: Half lap stretcher.
- Mortar joints: Fill all 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.
- Quoins and advance work: Rack back.
- Locations for equal levelling of cavity wall leaves:
  - 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.
- Lift height (maximum) for walling using cement gauged or hydraulic lime mortar: 1.2 m above any other part of work at any time.
- Daily lift height (maximum) for walling using cement gauged or hydraulic lime mortar: 1.5 m for any one leaf.
- Lift height (maximum) for walling using thin joint mortar glue: 1.3 m above any other part of work at any time.

55 FACEWORK

- Commencement of facework: Not less than 150 mm below finished level of adjoining ground or external works level.
- Brick/ block selection: Do not use units with damaged faces or arrises.
- Cut masonry units: Where cut faces or edges are exposed cut with table masonry saw.
- Coursing brickwork and concrete blockwork: Evenly spaced using gauge rods. To produce satisfactory junctions and joints with built-in elements and components.

60 ALTERATIONS/ EXTENSIONS

- Coursing: Line up with existing work.
- Block bonding new walls to existing: Unless agreed otherwise cut pocket requirements as follows:
  - Width: Full thickness of new wall.
  - Depth (minimum): 100 mm.
  - Vertical spacing: As follows:
  - Brick to brick: 4 courses high at 8 course centres.
  - Block to block: Every other course.
  - Pocket joints: Fully filled with mortar.
- New and existing facework in the same plane: Bonded together at every course to achieve continuity of bond and coursing.
- Support of existing work: Fully consolidate joint above inserted lintel or masonry with semidry mortar to support existing structure.

66 FIRE STOPPING

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

90A CRACKED BRICKS IN EXISTING FACEWORK

- Replacement: Prior to repointing adjacent cracked joints, cut out and replace with matching sound bricks to approval.
- Jointing mortar: As section Z21.
  - Standard: Not applicable.
  - Mix: Compatible with existing.

91 CRACKED JOINTS IN EXISTING FACEWORK WHICH IS NOT TO BE REPOINTED

- Crack width determining need for joint remedial work: 2.0 mm.
- Preparation: Cut out joints to form a rectangular recess of 15-20 mm depth. Clean and dampen joints sufficiently to control suction.
- Joint profile: To match existing.
- Repointing mortar: As section Z21.
  - Standard: Not applicable.
  - Mix: Compatible with existing.

95 REPOINTING

- Preparation: Cut out joints to form a rectangular recess of 15-20 mm depth. Clean and dampen joints sufficiently to control suction.
- Joint profile: Flush .
- Mortar: As section Z21.
  - Standard: Not applicable.
  - Mix: Compatible with existing.

F20
Natural stone rubble walling

F20 Natural stone rubble walling

10A RUBBLE WALLING - COURSED RANDOM RUBBLE

- Stone: To BS EN 771-6
  - Petrological family: Sandstone.
  - Colour: Buff brown.
  - Origin: To match existing.
  - Supplier: Submit proposals.
    Product reference: Random.
  - Size: To match existing.
  - Quality: Seasoned and free from cracks, vents, fissures or other defects deleterious to strength, durability or appearance.
  - Additional requirements: None.
- Mortar: As section Z21.
  - Standard: Not applicable.
  - Mix: As specified in M20 .
  - Sand: As specified in Z21.
- Joints: Flush.

20 LAYING GENERALLY

- Absorbent stones: Dampen in warm weather to reduce suction.
- Mortar joints:
  - Laying: Full bed of mortar with all joints and voids filled.
  - Appearance: Neat and consistent.
- Natural bed of stones: Appropriate to properties of stones and positions in walling.
- Appearance and bonding: Consistent overall appearance, good bond, and satisfactory junctions and joints with built-in elements and components.
  - Random walling: Avoid long continuous vertical joints.
  - Quoins and jambs: Large stones dressed to a regular shape.
- Cleanliness: Keep facework clean.

25 WALLING BELOW GROUND LEVEL

- Extent of facework below finished level of adjoining ground or external works (minimum): 150 mm.

30 CAVITY WALLS

- Regularity: Dress stones to give consistent leaf thickness and maintain full cavity width.

40A FINISH TO JOINTS

- General: After the initial set has taken place, tamp with a stiff bristle brush to remove laitance/ excess fines and give a coarse texture.

G10
Structural steel framing

G10 Structural steel framing

10A DESIGN
- Design standard: The structural steelwork has been designed to BS5950-1:2000.
- Completion of design: Detail steelwork Not required.
  - Loading requirements: As specified or otherwise calculable.
- Fixings to foundations/ walls: As drawings.

15 SPECIFICATION STANDARD
- Standard: Comply with latest edition of National Structural Steelwork Specification (NSSS CE Marking version).
- References to Engineer in NSSS and NSSS CE Marking version: For the purpose of this contract, interpret such references as being the person named as administering the contract on behalf of the Employer.

17 GENERAL STEEL SECTIONS For steel portal frame
- Standard: To BS EN 10025-2.
- Grade: S275JR.
- Source: Obtain steel from a source accredited to a national or internationally accepted quality standard.

40 BOLT ASSEMBLIES
- Designation: Black bolts to BS 4190, grade 8.8 .
  - Threading: Full length.
- Nuts and washers: To suit grade of bolt, as NSSS, clause 2.3.2 and NSSS CE Marking version, clause 2.4.3.
- Coating applied by manufacturer: Sherardized.

50 COLUMN BASES
- Levels: Adjust using steel shims or folding wedges no larger than necessary, positioned symmetrically around perimeter of base plate. Do not use a single central pack.
- Accuracy of erection: Check, and correct errors before filling and bedding beneath bases and carrying out other adjacent work.

55 MORTAR FILLING/ BEDDING OF COLUMN BASES
- Bolt pockets: Completely filled with neat cement slurry.
- Spaces beneath base plates: Completely filled with 1:1 cement:fine aggregate mortar, just fluid enough to pour, tamped well as filling proceeds. Provide temporary shuttering as necessary.
- Cement: Portland cement BS EN 197-1 - CEM I 42.5 or 52.5.
- Fine aggregate: To BS EN 12620, grade 0/4 or 0/2 (MP).

65A SHOP PRIMING to structural steelwork
- Use/ location: Steel Portal Frame.
- Shop preparation: Blast cleaning to BS EN ISO 8501-1, preparation grade Sa 2½.
- Primer: Two pack epoxy.
  - Manufacturer: Contractor's choice.
    Product reference: Contractor's choice.
  - Dry film thickness: To manufacturers recomendations.
- Special requirements: None.

G20
Carpentry/ timber framing/ first fixing

G20 Carpentry/ timber framing/ first fixing

2 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.

5 STRUCTURAL SOFTWOOD FOR STRUCTURAL USE GENERALLY

- Grading standard: To BS 4978, BS EN 14081-1, or other national equivalent and so marked.
  - Timber of a target 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 'DRY' or 'KD' (kiln dried).
  - Timber graded undried (green) and specified for installation at higher moisture contents: Clearly marked as 'WET' or 'GRN'.
- Strength class to BS EN 338: C24.
- Treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8, Service life: 40 years .

30 SELECTION AND USE OF TIMBER

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

32 NOTCHES, HOLES AND JOINTS IN TIMBER

- Notches and holes: Position in relation to knots or other defects such that the strength of members will not be reduced.
- Scarf joints, finger joints and splice plates: Do not use without approval.

40 MOISTURE CONTENT

- Moisture content of wood and wood based products at time of installation: Not more than:
  - Covered in generally unheated spaces: 24%.
  - Covered in generally heated spaces: 20%.
  - Internal in continuously heated spaces: 20%.

41 BOLT/ SCREW ASSEMBLIES Forming ridge beam connections .

- Designation: Black cup and countersunk head bolts to BS 4933.
- Size: As shown on drawings.
  Coating applied by manufacturer: Sherardized.
- Nuts and washers: Material grade and finish to suit bolts
- Washer dimensions: Diameter/ side length of washers in contact with timber faces to be minimum 3 times bolt diameter, with a thickness not less than 0.25 times bolt diameter.

43A BOLTED JOINTS

- Bolt spacings where indicated on drawings
- Holes for bolts: Located accurately and drilled to diameters as close as practical to the nominal bolt diameter and not more than 2 mm larger.
- Washers: Placed under bolt heads and nuts that would otherwise bear directly on timber. Use spring washers in locations which will be hidden or inaccessible.
- Bolt tightening: So that washers just bite the surface of the timber. Ensure that at least one complete thread protrudes from the nut.
  - Checking: At agreed regular intervals. Tighten as necessary.

55 JOISTS GENERALLY

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

60 JOISTS ON HANGERS

- Hangers: Bedded directly on and hard against supporting construction. Do not use packs or bed on mortar.
- Joists: Cut to leave not more than 6 mm gap at each end. Rebated to lie flush with underside of hangers.
- Fixing to hangers: A nail in every hole.

65 JOIST HANGERS GENERAL USE.

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Material/ finish: Galvanized low carbon steel sheet.
- Size: To suit joist, design load and crushing strength of supporting construction.