

Cantilever Balcony Supports - Lot 3 Medium Rise

16 February 2017

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C

Demolition/ Alteration/ Renovation

C10
Site survey

C10 Site survey

To be read with Preliminaries/ General conditions.

SURVEYS

- 115 PRELIMINARY SURVEY On receipt of the order to proceed
- Qualifications of survey author: Contractor's choice.
 - Area to be surveyed: The extended site being in the ownership of the client - e.g., an order for work to Block 2 -9 Bassett Green Court would require a preliminary inspection of the land upon which Blocks 2 -9, 10 - 15, 16 - 25, 26 - 31 and 32 - 41 are situated.
 - Objectives:
 - Visible or suspected hazards: Record general positions/ forms of visible/ suspected hazards, including asbestos containing products, overhead cables and particularly difficult vehicular access, .
 - Designation of areas within/ adjacent to site: Record boundaries/ type of designation within, or adjacent to, the site, including the extent of the estate, vehicular and pedestrian routes and routes necessary to for the access of maintenance plant such as lawn mowers - access to the grounds maintenance contractor is to be maintained through out the works.
 - Protected habitats/ species outside designated areas: Record general positions of sightings or evidence of species including suspected protected European/ UK animal species.
 - Methodology:
 - Specific requirements: Do not use intrusive survey techniques. Avoid disturbing natural features or wildlife.
 - Permissible survey techniques: Contractor's choice.
 - Reference data: The following information is provided: as orders are raised a location plan will be issued for each site to be included in the Contract.
 - Preliminary survey report: Submit.
 - Timing: Submit proposals including the preferred location for site set up and vehicular access at the earliest opportunity.

125 SITE SURVEY TOPOGRAPHIC AND RADAR

- Qualifications of survey author: Contractor's choice.
- Area to be surveyed: In connection with Stage One of the Works, the area of the site applying to the individual block being that occurring below and 1m beyond the area of the balcony and associated stairs and bridges and to include a level survey of the soffit and the upper surface to the balcony and stairs.
- Site datum: Datum point to be determined by Contractor via temporary bench mark.
- Objectives:
 - General: Establish/ record positions, dimensions and levels including pavements, landlord's and tenants fixtures and fittings likely to affect the works and to mark up on site the proposed portion for foundation pads to posts. The levels to the concrete soffit are required to assist in the pre-fabrication design of the new welded steel support framework so that shims are kept to a maximum of 10mm depth. The level survey to the upper surface of the balcony is to ensure that the new roofing system is designed to correct falls to achieve efficient discharge of rainwater into the existing rainwater outlets. The Contractor's roofing specialist is to provide the design for CA approval. The radar survey is required to accurately plot underground services and other obstructions likely to affect the placement of columns. .
 - Features: Record positions, dimensions and levels including
 - the underground rainwater drainage system from all gulleys to the first inspection chamber including cover and invert levels
 - access covers;
 - fences;
 - gates and stiles;
 - gullies;
 - isolated trees; and
 - kerbs
 - Fixtures such as handrails, sheds key boxes etc .
- Methodology: Do not use intrusive survey techniques. Avoid disturbing natural features or wildlife.
 - Permissible survey techniques: Contractor's choice.
- Control points: Establish and record measuring stations/ targets to facilitate future remeasuring.
 - Standards: To BS 5964-1 and -2.
 - Type: Contractor's choice.
- Dimensional accuracy:
 - Angular: Contractor's choice.
 - Horizontal: Contractor's choice.
 - Vertical: Contractor's choice.
- Source data for reference/ verification: The following information is provided: None.
- Site survey report: Submit.
 - Timing: Submit proposals.

COMPLETION

915A DOCUMENTATION - ELECTRONIC - FOR ALL SURVEYS DRAWINGS TO BE AUTOCAD NOTE: THERE ARE NO EXISTING DRAWINGS

- Storage medium: Submit files electronically in DWG and PDF format.
- File naming: By address.

C11
Site investigation

C11 Site investigation

250 TRIAL PITS AND TRENCHES

- Purpose: To determine the presence of asbestos containing materials or other likely obstruction to the construction of the concrete pad foundations to all columns - the trial pits are effectively the excavation necessary to the formation of the pad foundations and are to be formed in advance of the main body of the works so as to provide time for the notification and disposal of asbestos containing material and amendments to the design where found necessary..
- Locations: To the locations identified on the drawings for the placement of concrete pad foundations to support the new steel posts to the front of the balcony or other location determined by the result of the radar survey previously undertaken by the contractor..
- Full depth: As drawings.
- Hand dig: Contractor's choice.
- Minimum trench width: As drawings.
- Minimum base area of pits: As drawings.
- Protection: Contractor's choice.
- Backfill material: Submit proposals.
- Reinstatement: Submit proposals.

C41

Repairing/ Renovating/ Conserving masonry

C41 Repairing/ Renovating/ Conserving masonry

To be read with Preliminaries/ General conditions

GENERALLY/ PREPARATION

- 110A SCOPE OF WORK
- Schedule: Minor miscellaneous repair to brickwork and pointing to elevations affected by rusted balustrade fixings.
- 120 SITE INSPECTION
- Purpose: To confirm type and extent of repair/ renovation/ conservation work shown on drawings and described in survey reports and schedules of work.
 - Parties involved: Contract administrator and Contractor's representative.
 - Timing: At least 2 working days before starting each section of work.
 - Instructions issued during inspection: To be confirmed by the CA.
- 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.

WORKMANSHIP GENERALLY

- 150 POWER TOOLS
- Usage for removal of mortar: Permitted only with prior approval.
- 155 PUTLOG SCAFFOLDING
- Usage: Not permitted.
- 160 PROTECTION OF MASONRY UNITS AND MASONRY
- Masonry units: Prevent overstressing during transit, storage, handling and fixing. Store on level bearers clear of the ground, separated with resilient spacers. Protect from adverse weather and keep dry. Prevent soiling, chipping and contamination. Lift units at designed lifting points, where provided.
 - Masonry: Prevent damage, particularly to arrises, projecting features and delicate, friable surfaces. Prevent mortar/ grout splashes and other staining and marking on facework. Protect using suitable nonstaining slats, boards, tarpaulins, etc. Remove protection on completion of the work.
- 165 STRUCTURAL STABILITY
- General: Maintain stability of masonry. Report defects, including signs of movement that are exposed or become apparent during the removal of masonry units.
- 170 DISTURBANCE TO RETAINED MASONRY
- Retained masonry in the vicinity of repair works: Disturb as little as possible.
 - Existing retained masonry: Do not cut or adjust to accommodate new or reused units.
 - Retained loose masonry units and those vulnerable to movement during repair works: Prop or wedge so as to be firmly and correctly positioned.

180 WORKMANSHIP

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

185 ADVERSE WEATHER

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

190 CONTROL SAMPLES

- General: Complete an area of each of the following types of work, and arrange for inspection before proceeding with the remainder: Repointing - undertake sample area no less than 500 x 500mm for approval.

MATERIAL/ PRODUCTION/ ACCESSORIES

215 MATERIAL SAMPLES

- Representative samples of designated materials: Submit before placing orders.
 - Designated materials: None.
- Retention of samples: Unless instructed otherwise, retain samples on site for reference. Protect from damage and contamination.

220 RECORDING PROFILES

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

260 BRICKS

- Manufacturer: Contractor's choice.
 - Product reference: Submit proposals.
- Size: To match existing.
- Special shapes: None.
- Recycled content: Submit proposals.

DISMANTLING/ REBUILDING**REPLACEMENTS AND INSERTIONS**

- 365 REPLACEMENT OF BRICKS to walkway elevation where damaged by handrail and other fixings related to the balcony
- Bricks: Clay as clause 260.
 - Mortar: As section Z21.
 - Mix: As section Z21.
 - Sand source/ type: Well graded crushed stone to approval.
 - Fixings: Not required.
 - Joints: To match existing.
 - Other requirements: None.
- 390 GROUTING JOINTS
- Grout mix: As section Z21.
 - Joints that cannot be fully filled with bedding mortar: Grout thoroughly around replacement masonry units.
 - Grouting: Keep grout back from exposed face to allow for the depth of pointing, using an approved temporary sealing material. Prevent grout staining exposed face.

CRACK REPAIRS/ TIES/ REINFORCEMENT

- 610 MORTAR REPAIR OF CRACKS Mortar repair of cracks to walkway elevation where cracked/damaged
- Mortar: As section Z21.
 - Mix: Submit proposals.
 - Sand source/ type: Submit proposals.
 - 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: Grout deep voids as clause 720.

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 twice joint thickness
 - 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.
- 820 POINTING to walkway area where required
- Preparation of joints: As clause 810.
 - Mortar: As section Z21.
 - Mix: Submit proposals.
 - Sand source/ type: Crushed stone fine pointing sand to approval.
 - Joints profile/ finish: to match existing.
 - Other requirements: Grout deep voids as clause 720.
- 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.

C90

Alterations - spot items

C90 Alterations - spot items**GENERAL**

110 DESCRIPTIONS

- Location of spot item descriptions: Schedule of work.

120 EMPLOYER'S PROPERTY

- Components and materials arising from alterations that are to remain the property of the Employer: None.
 - Protection: Maintain until items listed above are removed by the Employer or reused in the Works, or until the end of the Contract.
- Special requirements: The temporary metal propping installed at most sites by the Client remains the property of the Client and is to be carefully dismantled and securely stored on site for collection by others when confirmed that it is safe to do so by the Contract Administrator .

130 RECYCLED MATERIALS

- Materials arising from alterations: May 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.

D

Groundwork

D20
Excavating and filling

D20 Excavating and filling

To be read with Preliminaries/General conditions

GENERALLY/THE SITE

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.

155 INITIAL SITE SURVEY AND EXCAVATIONS

It is known that services are present in the ground close to or at the location of the proposed new foundations.

It therefore may be necessary to adjust the position of the foundations to avoid the services and to provide a bridging detail as shown on the drawings.

Contamination may also be present, e.g asbestos.

In the event that asbestos is discovered, the Engineer / Client shall be notified immediately, and this must be dealt with in accordance with all relevant legislation, the Client's relevant procedures, and to the satisfaction of the Client and all other relevant legislative bodies..

To avoid any delays arising from unknown services or asbestos, the contractor will be required to excavate for the foundations at the start of work on each block or area to survey for the presence of services and / or asbestos.

To avoid unecomomical working and temporary backfilling of excavations, the excavations shall be concreted to form the permanent foundations immediately wherever possible.

Where services are located, the foundations shall be repositioned in agreement with the Engineer and ,if necessary, the relevant authorities, using the bridging detail or other detail as necessary.

CLEARANCE/EXCAVATING

164 TREE ROOTS

- Protected area: Do not cut roots within precautionary protection area.
 - Size of area: TBC by arboriculturist..
- Excavation in protected area:
 - Method: By hand..
 - Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
- Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
- Cutting:
 - Make clean smooth cuts with no ragged edges.
 - Pare cut surfaces smooth with a sharp knife.
 - Treatment of cut roots: In accordance with arboriculturists requirements..
- Backfill: As dug material, enriched with fertilizer etc. as directed by arboriculturist..

170 REMOVING SMALL TREES, SHRUBS, HEDGES AND ROOTS

- Identification: Clearly mark trees to be removed.
- Small trees, shrubs and hedges: Cut down
- Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas
- Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group safety leaflets.

- 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.
- 260 INSPECTING FORMATIONS
- Give notice: Make advance arrangements for inspection of formations for foundations and filling formations.
 - Notice (minimum): 3 days.
 - 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 concrete.
- 265 INSPECTING FORMATIONS IN SAND AND GRAVEL
- Notice for inspection (minimum): 3 days.
 - Preparation: Just before inspection remove the last 150 mm of excavation. Trim to required profiles and levels and mechanically compact formation.
 - Seal: Within 4 hours of inspection, seal formations with concrete.
- 267 INSPECTION OF FORMATIONS IN SHRINKABLE SOILS
- Inspect formation: For signs of conducting and fine moisture absorbing roots.
 - Give notice: If significant quantities of roots are visible in the formation or in the bottom 75 mm of the walls of the excavation.
- 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.
- 276 FOUNDATION BEARING
- Requirement: Foundations are designed to bear on:
 - Safe bearing capacity (minimum): 50 kN/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.
- 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.

DISPOSAL OF MATERIALS

- 415 EXCAVATED TOPSOIL REMOVAL
- General: Remove from site.
- 441 SURPLUS SUBSOIL
- Excavated material: Stockpile in temporary storage heaps.
 - Retained material: Spread and level surplus subsoil on site.
 - Locations: All bases. .
 - Protected areas: Do not raise soil level within root spread of trees that are to be retained.
 - Remaining material: Remove from site.
- 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 .
- 520A FROST SUSCEPTIBILITY
- Fill must be non frost-susceptible as defined in Highways Agency '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.

D30
Piling

D30 Piling

To be read with Preliminaries/ General conditions.

TENDERING

GENERAL

120 PILING GENERALLY

This section provides a very basic specification for piling. It has been included to cover the possibility that, in a very small number of locations, piled foundations may be required due to adverse ground conditions or obstructions by underground services preventing the use of traditional pad foundations. In this event, additional or revised drawings will be provided to show the requirements for piles, including loadings. It is anticipated that pile loads will not exceed 50 kN compression, and that some form of mini pile would be suitable. The type of pile is to be agreed with the Engineer at the time.

130 PILES

- Standard: To SPERW, sections B2-B6, as appropriate to the pile type.
- Permitted types: Contractor's choice. Note, it is anticipated that driven steel tube piles may be the most suitable, due to the relatively small loads required. However, other methods may be adopted if the Contractor considers these to be more practical and economic..
- Project specification: Submit proposals to cover the SPERW requirements in clause B1.2 and listed under this heading for the chosen pile type.
- Other requirements: None.

210 CONTRACTOR DESIGN

- Structural requirements:
 - Generally: As section B50.
 - Modifications: None.
- Design responsibility:
 - Piles: Complete design of piles in accordance with the designated code of practice to satisfy specified performance criteria.
 - Other: None.
- Pile layout: Refer to drawings.
- Performance criteria for piles: Refer to drawings.
- Other requirements: None.
- Submission of information: As required by SPERW, table B1.1 and elsewhere, as appropriate for the pile type, materials and tests specified.
 - Amendments to requirements specified in SPERW for information required:
 - Prior to commencing design: None.
 - Prior to commencing the works: Confirmation that installation of piles will not damage adjacent structures/ services.

EXECUTION

610 METHOD STATEMENT

- Requirement: Submit proposed method of installation to achieve the design parameters, including:
 - Details of equipment.
 - Programme showing sequence and resources.
 - Confirmation that performance requirements for load and settlement will be achieved.

615 RECORDS AND SUBMISSION OF INFORMATION DURING THE WORKS

- Generally: As required in SPERW, tables B1.1, B1.6 and elsewhere, as appropriate for the pile types, materials and tests specified.
- Amendments to requirements: None.

685 EXCAVATED MATERIAL

- Disposal: Contractor's responsibility.

E

In situ concrete/Large precast concrete

E05

In situ concrete construction generally

E05 In situ concrete construction generally

To be read with Preliminaries/General conditions.

220A STRUCTURAL DESIGN PROVIDED

- Description: STAIRCASES AND BASES ETC..
- Requirements:
 - Generally: As shown on drawings.
 - Additional requirements: None.
- Production/ execution records: In accordance with the designated code of practice..

221 STRUCTURAL DESIGN PROVIDED

- Standards:
 - Design to BS8110-1 and -2.
 - Drawings to BS EN ISO 4157-1
 - Reinforcement Schedules: to BS8666
- Finished Product: To comply with the requirements of the design standard.
 - Additional Requirements: n/a
- Production / Execution Records : n/a

223 STRUCTURAL DRAWINGS AND SCHEDULES

- Standards:
 - Drawings: To Standard methods of detailing concrete' published by The Institution of Structural Engineers.
 - Reinforcement schedules: To BS 8666.

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 EN 13670, Tolerance Class 1.
 - Conflicts: Notwithstanding tolerances specified elsewhere, do not exceed requirements for compliance with the designated code of practice.
 - Substitution of alternative requirements: none.

410 IN SITU CONCRETE CONSTRUCTION - SUPERVISION/ CHECKING

- Standard: To BS EN 13670, Execution Class 1.

- 430 SURFACE CRACKING Visible Concrete
- Method of measurement: graduated magnifying devices, templates and feeler gauges..
 - Critical crack width: 0.3 mm .
 - Action: Should cracks occur that are wider than the critical crack width:
 - Survey: Frequency and extent of such cracks and investigate cause.
 - Report: Findings together with recommendations for rectification.

E10

Mixing/casting/curing in situ concrete

E10 Mixing/casting/curing in situ concrete

To be read with Preliminaries/General conditions.

CONCRETE

- 101 SPECIFICATION
- Concrete generally: To BS 8500-2.
 - Exchange of information: Provide concrete producer with information required by BS 8500-1, clauses 4 and 5.
- 105 DESIGNATED CONCRETE MASS CONCRETE FOUNDATIONS
- Designation: GEN3.
 - 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: S3..
 - Chloride class: Cl 1.0.
 - Admixtures: None..
 - Additional mix requirements: None.
- 108 DESIGNATED CONCRETE REINFORCED CONCRETE ABOVE GROUND
- Designation: RC32/40.
 - Reinforcement: High Yield Steel strength grade B500B.
 - Aggregates:
 - Size (maximum): 20 mm.
 - Coarse recycled aggregates: Not permitted.
 - Additional aggregate requirements: None.
 - Special requirements for cement/ combinations: None.
 - Consistence class: S3.
 - Chloride class: Cl 0.40.
 - Admixtures: Concrete producer's choice.
 - Additional mix requirements: None.

MATERIALS, BATCHING AND MIXING

- 215 READY-MIXED CONCRETE
- Production plant: Currently certified by a body accredited by UKAS to BS EN 45011 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, clause 5.2.
 - Additional information: None..

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.

415 ADMIXTURES

- Calcium chloride and admixtures containing calcium chloride: Do not use .

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.
- Sampling:
 - Point: At point of discharge from delivery truck.
 - Rate: 4 Cubes per concrete delivery.
- Other requirements: Cubes for early stage strength testing to be stored under same conditions as concrete in members.

520 TESTING LABORATORY

- Laboratory: Accredited by UKAS or other national equivalent.
 - Name and UKAS reference number: Submit well in advance of making trial mixes or concrete for use in the works.

530 TESTS RESULTS

- Submission of reports: Within one day of completion of each test.
 - Number of copies: Three.
- Reports on site: A complete set, available for inspection.

550 BROKEN CUBES FROM FAILED STRENGTH TESTS

- Nonconformity: Keep separately the pieces of each cube which fail to meet the conformity requirements for individual results.
- Period for keeping cubes: Obtain instructions.

PLACING/ COMPACTING/ CURING AND PROTECTING**610 CONSTRUCTION/ SEQUENCE/ TIMING REQUIREMENTS**

- For RC Staircases. .

620 TEMPERATURE OF CONCRETE

- Application: For RC Staircases..
- 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 .

635 CONSTRUCTION JOINTS NOT PERMITTED

- Location: Not permitted to any concreting works unless agreed with Engineer..

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 .

660 INSPECTION OF SURFACES

- Notice: Give notice to allow inspections of reinforcement and surfaces before each pour of concrete.
 - Period of notice: Obtain instructions.
- Timing of inspections: When reinforcement and formwork are ready for concreting.

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.

720 VIBRATORS

- General: Maintain sufficient numbers and types of vibrator to suit pouring rate, consistency and location of concrete .
- 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.

811 COVERINGS FOR CURING

- Sheet coverings: Suitable impervious material .
- Curing compounds: Selection criteria:
 - Curing efficiency: Not less than 75% or for surfaces exposed to abrasion 90% .
 - Colouring: Fugitive dye .
 - Application to concrete exposed in the finished work: Readily removable without disfiguring the surface .
 - Application to concrete to receive bonded construction/ finish: No impediment to subsequent bonding .
- Interim covering to top surfaces of concrete: Until surfaces are in a suitable state to receive coverings in direct contact, cover with impervious sheeting held clear of the surface and sealed against draughts at perimeters and junctions .

812 PREVENTING EARLY AGE THERMAL CRACKING

- Deep lifts or large volume pours: Submit proposals for curing to prevent early age thermal cracking, taking account of:
 - Temperature differentials across sections .
 - Coefficient of thermal expansion of the concrete .
 - Strain capacity of the concrete mix (aggregate dependent) .
 - Restraint .

818 CURING PERIODS GENERALLY

- Minimum periods: When not otherwise indicated, to BS EN 13670 Annex F 8.5.

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

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.

132 PROPPING

- General: Prevent deflection and damage to the structure. Carry down props to bearings strong enough to provide adequate support throughout concreting operations.
- Method statement: Submit proposals for prop bearings and sequence of propping/ repropping and backpropping.
 - Timing of submission: To be agreed between the permanent works designer and the temporary works coordinator. .

170 WORK BELOW GROUND - FOUNDATIONS

- Casting vertical faces against faces of excavation: Permitted providing the face of the excavation is stable..
 - Requirements: Submit proposals for maintaining stability of excavated faces and preventing contamination of concrete by loose soil.

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 UNDERSLAB INSULATION

- Cutting: Neat and accurate to edges, and around penetrations and downstands.
- 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.

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): 66% of 28 day strength.
- Assumptions: None.
 - Before removing formwork: Submit proposals if assumptions will not be realised.
- Method to be used in assessing early age strength of concrete: Submit proposals.

FORMED FINISHES**610 BASIC FINISH**

- Location: Faces below ground level.
- Finish: Faces fully compacted and cover to reinforcement provided.

620 PLAIN FINISH

- Location: Staircases and Balcony Slabs.
- Finish: Even and dense. Arrange formwork panels in a regular pattern as a feature of the surface.
- Permissible deviation of surfaces:
 - Sudden irregularities (maximum): 3 mm.
 - Gradual irregularities (maximum): 3 mm, when measured from the underside of a 1 m straightedge, placed anywhere on surface.
- Variations in colour:
 - Permitted: Those caused by impermeable formwork linings.
 - Not permitted: Those caused by contamination or grout leakage.
- Surface blemishes:
 - Permitted: Blowholes less than 10 mm in diameter and at an agreed frequency.
 - Not permitted: Voids, honeycombing, segregation and other large defects.
- Formwork tie holes: In a regular pattern and filled with matching mortar.

750 ARRISES, MARGINS AND JUNCTIONS

- Requirements:
As drawings.

E30

Reinforcement for in situ concrete

E30 Reinforcement for in situ concrete

To be read with Preliminaries/ General conditions.

REINFORCEMENT

110 QUALITY ASSURANCE OF REINFORCEMENT

- Standards:
 - Reinforcement: To BS 4449, BS 4482, BS 4483 or BS 6744.
 - Cutting and bending: To BS 8666.
- Source of reinforcement: Companies holding valid certificates of approval for product conformity issued by the UK Certification Authority for Reinforcing Steels (CARES).

140 PLAIN BAR REINFORCEMENT

- Standard: To BS 4482.
- Strength grade: 250.

150 RIBBED BAR REINFORCEMENT

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

210 STANDARD FABRIC REINFORCEMENT

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

WORKMANSHIP

310 CUTTING AND BENDING REINFORCEMENT

- General: To schedules and to BS 8666.
- Bending on site, including minor adjustments: Obtain instructions.

320 PROTECTION OF REINFORCEMENT

- Dropping from height, mechanical damage and shock loading: Prevent.
- Cleanliness of reinforcement at time of pouring concrete: Free from corrosive pitting, loose mill scale, loose rust and contaminants which may adversely affect the reinforcement, concrete, or bond between the two.

425 LAPS NOT DETAILED ON DRAWINGS

- Laps in bar reinforcement (minimum): 40 x bar diameter.
- Laps in fabric reinforcement (minimum): 32 x mesh bar diameter.
- Laps at corners: Avoid four layer build-up.

451 FIXING REINFORCEMENT

- Standard: To BS 7973-1 and -2.
- Installation: In addition to any spacers and chairs shown on drawings or schedules, provide adequate support, tie securely and maintain the specified cover.
- Tying:
 - Wire type: 16 gauge black annealed. Use stainless steel wire for stainless steel reinforcement.
 - Ends of tying wire: Prevent intrusion into the concrete cover. Remove loose ends.
- Compatibility of metals: Prevent contact between ordinary carbon steel and stainless or galvanized reinforcement.

470 TOLERANCES ON COVER

- Tolerance (maximum): 5mm. .
- Checking specified cover dimensions: Before concreting check that cover dimensions will be achieved.

510 RUST STAINING

- Staining of surfaces of concrete which will be exposed to view in the finished work: Prevent.

G

Structural/Carcassing metal/timber

G10
Structural steel framing

G10 Structural steel framing

To be read with Preliminaries/ General conditions.

GENERAL REQUIREMENTS/ INFORMATION

110A CONTRACTOR'S DESIGN OF JOINTS All Steelwork

- Design concept: Refer to drawings..
- Design responsibility: Design connections and detail steelwork and connections.
 - Other responsibilities: None.
- Structural requirements:
 - Design: Complete in accordance with the designated code of practice to satisfy specified performance criteria.
 - Connections: All connections to steelwork to be based on the principles of the details shown on the drawings, but modified as necessary to suit individual circumstances. All steelwork is exposed to view and therefore a high quality of detailing, finishes and workmanship is required to make the steelwork and in particular the joints visually pleasing. All welds are to have a smooth, consistent, regular profile, and are to be continuous around corners etc. All bolt ends are to have plastic caps finished to match the main steelwork..
 - Fixings to foundations and walls: As drawings.
 - Additional requirements: Joints have been designed to minimise movement of the structure, and in particular the balustrades and their components. Where welded joints are shown on the drawings, substitution of other methods of jointing will not be permitted. All steelwork is to be galvanised as below and powder coated as described elsewhere in the drawings and documents.
- Design and production information: As Preliminaries section A31..

113 SURVEY BY CONTRACTOR

Prior to commencement of fabrication drawings for each block, the Contractor shall survey each block to determine the levels and falls of the balcony slabs.

It is intended that the steelwork shall be erected with all handrails and beams level within normal tolerances.

The level of the balcony slabs is known to vary within each block and it is essential that the steelwork fabrication takes account of this.

The principal dimensions are shown on the drawings, but the height of balustrade posts may need to be adjusted to suit the differences in the level of the slab and to maintain a clear height of 1100 mm above the finished floor level at the edge of the slab.

Generally all steelwork has to be set out from a datum point at the lowest point of the slab on each block.

Survey information to comprise CAD drawings in .dwg format to include location plans, plans and levels.

- 115 DESIGN CONSTRAINTS - GENERAL
- Members forming bracing systems or girders of lattice construction: Unless detailed or instructed otherwise, position so that their lines of action intersect at a point.
 - Bolts:
 - Diameter (minimum): 16 mm.
 - Number per connection (minimum): Two, unless otherwise indicated.
 - Other requirements: Choose bolt dimensions to ensure that threads do not occur in shear plane of joint..
 - Punching of bolt holes: Not permitted.
 - Welds: At least 6 mm fillet.
 - Other constraints: See drawings..
- 117 DESIGN CONSTRAINTS - STEELWORK TO BE GALVANIZED
- Steel grades: Do not use steel downgraded from a higher specification.
 - Detail design: Avoid details that will increase the risk of initiating liquid metal assisted cracking (LMAC).
 - Particular restrictions: None.
 - Other requirements:
 - Drill holes for bolts;
 - Grind exposed cut edges and notches; and
 - Seal vent and drainage holes in hollow sections using non - ferrous plugs.
- 123A DRAWINGS AND CALCULATIONS PREPARED BY CONTRACTOR
- Information required: As submission schedule.
 - General arrangement drawings: Submit before preparing calculations. Clearly identify:
 - Individual steel members.
 - Conflicts with other work.
 - Proposed changes to contract drawings.
 - Member and joint calculations: Submit before preparing fabrication drawings.
 - Allow 10 working days for review of drawings and calculations.
- 125 SPECIFICATION STANDARD
- Standard: Comply with latest edition of National Structural Steelwork Specification (NSSS).
 - Additional requirements: None.
 - Document availability: For the duration of the work, at fabrication shop and on site.
 - References to Engineer in NSSS: For the purpose of this contract, interpret such references as being to the person named in section A10 as Consulting Structural Engineer.
 - Exceptions: None.
- 130 GENERAL STEEL SECTIONS AND PLATES Generally
- Standard: To BS EN 10025-2.
 - Grade: S275J0.
 - Options: None.
 - Source: Obtain steel from a source accredited to a national or internationally accepted quality standard.
 - Other requirements: Steel to be galvanised to have a carbon equivalent value not exceeding 0.44.
- 135 HOLLOW STEEL SECTIONS Generally
- Standard: To BS EN 10210-1.
 - Grade: S355J2H.
 - Options: None.
 - Source: Obtain steel from a source accredited to a national or internationally accepted quality standard.
 - Other requirements: Steel to be galvanised to have a carbon equivalent value not exceeding 0.44.

FABRICATION

- 180 NOTIFICATION OF COMMENCEMENT
- Notice: Give notice before fabrication is due to start.
 - Period of notice (minimum): Five working days .
- 195 HARD STAMPING
- Usage: Not permitted except as indicated on drawings.
- 215 HOLLOW SECTIONS
- Insides of sections: Debris and moisture removed before sealing ends and openings.
- 225 STEELWORK TO BE GALVANIZED
- Cutting, drilling and shop welding: Complete before galvanizing.
 - Vent and drain holes: Provide as necessary.
 - Locations: Submit proposals.
 - Sealing: Required, submit proposals .
- 256 SITE WELDING
- Usage: Not Permitted.

BOLT ASSEMBLIES

- 302 NON-PRELOADED BOLT ASSEMBLIES
- Designation: Black bolts to BS 4190, grade 8.8 .
 - Threading: To suit design criteria..
 - Nuts and washers: To suit grade of bolt, as NSSS, clause 2.3.
 - Coating applied by manufacturer: Galvanized.
 - Other requirements: Specialist bolts shall be used where necessary to connect into hollow sections, and shall be galvanised.
- 305 PROPRIETARY ANCHORS
- Manufacturer: Hilti or similar approved..
 - Product reference: HIT-HY-70 and HIT-HY-200 or similar approved..
 - Anchor type: Resin Anchors..
 - Material: Galvanised Carbon steel..
- 370 GALVANIZED COATING TO BOLT ASSEMBLIES
- Standard: To BS 7371-6.
 - Galvanizing: Applied by fastener manufacturer. Passivated and lubricated if no additional coatings are specified. Nuts tapped after galvanizing.
 - Use/location: Generally..
- 390 SEALED HOLLOW SECTIONS
- Holes: Sealed to prevent access of moisture.
 - Method of sealing: Submit proposals..

ERECTION**405A ERECTION METHOD STATEMENT**

- To be submitted at least 14 days before erection of steelwork, including the provision of drawings if required.
- Details to include : -
 - Method and sequence of erection.
 - Type of craneage/lifting and time required.
 - Calculation of erection stresses where appropriate.
 - Details of any temporary works including fixing details needed for stability during erection prior to the stability being achieved by the permanent works design. These details should include all temporary propping/bracing proposals that are to be utilised during erection.

410 PRE-ERECTION CHECKS

- Scope: At least 7 days before proposed erection start date, check the following:
 - Foundations and other structures to which steelwork will be attached: Accuracy of setting out.
 - Holding down bolts: Position, protruding length, slackness and condition.
- Inaccuracies and defects: Report without delay.
- Permission to commence erection: Obtain.

425 MODIFICATIONS

- Steelwork: Do not modify without approval.
- Temporary fabrication/ erection attachments: Remove and "Make Good" finishes to the original specification.

440 COLUMN BASES

- Levels: Adjust using steel shims or folding wedges no larger than necessary.
- Location of shims/ wedges: Position symmetrically around perimeter of base plate. Do not use a single central pack.
- Give notice: If space beneath any column base is outside specified limits for bedding thickness.
- Accuracy of erection: Check, and correct errors before filling and bedding beneath bases and carrying out other adjacent work.

441 MORTAR FILLING/ BEDDING OF COLUMN BASES

- Bedding thickness range: 25 - 40 mm..
- Bolt pockets: Completely filled with neat cement slurry.
- Spaces beneath base plates: Completely filled as follows:
 - Spaces 0-25 mm deep: Obtain instructions.
 - Spaces 25-50 mm deep: 1:1 cement:sand mortar, just fluid enough to pour. Tamped well as filling proceeds. Provide temporary shuttering as necessary.
 - Spaces 50-80 mm deep: 1:2 cement:sand mortar, just damp, tamped well against properly fixed supports as filling proceeds.
- Cement: Portland cement BS EN 197-1 - CEM I 42.5 or 52.5.
- Sand: To BS EN 12620, grade 0/4 or 0/2 (MP).
- Additives: Non - shrink grout..

443 PROPRIETARY FILLING/ BEDDING OF COLUMN BASES

- Bedding thickness range: 25 - 40mm..
- Preparation: Concrete surfaces scarified to provide a good mechanical key.
 - Bolt pockets and spaces beneath base plates: Completely filled with non - shrink grout..

447 BONDED ANCHORS

- Holes: Clean and free from dust at time of installing anchor.
- Permeable sleeves: Use in conditions where otherwise the loss of bonding agent would be unacceptably high.
- Other requirements: As manufacturers recommendations..

PROTECTIVE COATINGS

521 ALTERNATIVE MANUFACTURERS

- Short list of manufacturers: Obtain coating materials from one only of the following: Contractor's choice.
- Selected manufacturer: Submit details before ordering materials.

550 POST-GALVANIZING INSPECTION

- Inspector: Submit, on request, evidence of training and competence in visual inspection for liquid metal assisted cracking.
- Components for which visual inspection is not required (procedure PGI-0): Not applicable..
- Components requiring additional inspection:
 - Procedure PGI-2A: None..
 - Procedure PGI-2B: None..
- Timing: Before erection of steelwork or application of other coatings.
- Action in event of non compliance:
 - Submit: Full records of all post-galvanising inspections, drawing attention to any erected components that are required to be quarantined.
 - Procedure PGI-3: Carry out on all quarantined components, and submit report.
 - Sites of suspected defects: Remove zinc coating by grinding back to bright metal for a distance of not less than 50 mm around each defect and from a similar area on opposite face of member and inspect.
 - Remedial actions: Submit proposals.

PROTECTIVE COATING SYSTEMS

625 GALVANIZING TO BLAST CLEANED STEEL

- Use/ location: All Steelwork.
- Preparation: Blast cleaning to BS EN ISO 8501-1, preparation grade Sa2½ using chilled angular iron grit grade G24 to give a coarse surface profile, followed by chemical cleaning.
- Galvanizing: To BS EN ISO 1461.
 - Minimum mean coating thickness: 140 micrometres.
- All steelwork to be powder coated in accordance with section Z31.

PREPARATION FOR PAINTING

725 MANUAL CLEANING OF NEW STEELWORK

- Preparation: Remove fins, burrs, sharp edges, weld spatter, loose rust and loose scale.
- Surface finish: Clean but unpolished to BS EN ISO 8501-1, grade St 2.
- Finishing: Thoroughly degrease and clean down. Remove any consequent rusting back to grade St 2. Prime without delay.

760 GALVANIZED FASTENERS

- Treatment: After steelwork erection and before applying site coatings, thoroughly degrease and clean. Etch prime.

PAINTING

810 ENVIRONMENTAL CONDITIONS

- General requirements prior to starting coating work:
 - Surfaces: Unaffected by moisture or frost.
 - Steel temperature: At least 3°C above dew point, with conditions stable or improving, and not high enough to cause blistering or wrinkling of the coating.
 - Relative humidity: Below 85%.

815 COATINGS

- Surfaces to be coated: Clean, dust free and suitably dry. Previous coats to be adequately cured.
- Multiple coats of same material: Use different tints to assist checking of complete coverage.
- Penultimate coat: Colour recommended by paint manufacturer to suit top coat colour.
- Finish required: Smooth and even, of uniform thickness and colour, free from defects.

850 JUNCTIONS WITH CONCRETE

- Exposed steelwork partially embedded or encased in concrete: Apply two coats of bituminous coating locally to the steel/concrete junction.
- Bituminous coating: To BS 6949, type 1, class A..

H Cladding/Covering

H20

Rigid sheet cladding

H20 Rigid sheet cladding

To be read with Preliminaries/General conditions.

TYPE(S) OF SHEET CLADDING

- 150A SHEET CLADDING Glass Balcony Panels
- Support structure: New Steel Framework and posts.
 - Board/ Sheet:
 - Manufacturer: Contractor's Choice.
 - Material: Toughened Glass to BS EN 12150.
 - Thickness: 10mm.
 - Finish/ Colour: Clear.
 - Fasteners: To Structural Engineer's design and in strict accordance with the laminated panle manufacturer's or glass manufacturer's requirements. Fasteners shall be of stainless steel, and shall be isloted from the galvensied steel tabs by suitable isolating washersor similar..
- Number and location: As per drawings. The Contactor must ensure that the type of fixing used and the spacing between fixings is in strict accordance with the manufacturers requirements for the type and thickness of the glass used..
- Manifestation is required to all balcony end panels i.e., to prevent impact by birds flying along the balcony length.
- The panels shall also comply with the requirements of BS 6180 and BS 6399 Pts 1 & 2 in respect of structural loadings and be able to safely span the specified distance between fixings as shown on the drawings.
- 155A SHEET CLADDING Decorative high pressure compact laminate to EN 438 - 6: 2005
- Support structure: New Steel Framework and posts.
 - Board/ Sheet:
 - Manufacturer: Contractor's Choice.
 - Product reference: See the attachment below labelled DHPCL DATA SHEET for the minimum performance data requirements .
 - Material: Decorative high pressure compact laminate to EN 438 - 6: 2005 of thickness suitable to use and consisting of wood based fibres (paper and/or wood) impregnated with thermosetting resins and surface layers on both sides having decorative colours or designs. An Electron Beam Cured (EBC) transparent top coat layer is to be included to enhance weather and light protecting properties. These components are to be bonded with simultaneous application of heat (≥ 150 degrees C / ≥ 302 degrees F) and high specific pressure (\geq MPa) to obtain a homogeneous non-porous material with increased density and integral decorative surface. The panels are to be of appropriate fire retardancy for their use. .
 - Thickness: To the manufacturer's recommended minimum thickness for use as a balcony panel and to the dimensions and fixing centres required by the design drawings .
 - Finish/ Colour: To be available in all commonly available RAL colours to both sides of the panel .
 - Fasteners: To the manufacturer's requirements for use as balcony side restraint panels .
- Number and location: To the positions and centres shown on the design drawings .
- Other requirements: The panels must comply in all respects with British Standard requirements for use as a balcony side restraint panel, including hard body and soft body and spread of flame limitations.The panels shall also comply with the requirements of BS 6180 and BS 6399 Pts 1 & 2 in respect of structural loadings and be able to safely span the specified distance between fixings as shown on the drawings. . .

L

Windows/Doors/Stairs

L30

Stairs/ ladders/ walkways/ handrails/ balustrades

L30 Stairs/ ladders/ walkways/ handrails/ balustrades

To be read with Preliminaries/ General conditions.

PRELIMINARY INFORMATION/ REQUIREMENTS

- 107 COMPLETION OF DESIGN To Structural Engineer's design
- Requirement: Complete the detailed design to satisfy specified performance criteria and coordinate with the detailed design of related and adjacent work.
 - Standard: To Building Regulations (E&W) Approved Document M.
 - Structural requirements: As section B50.
 - Additional requirements: None.
 - Design and production information: As Preliminaries section A31.
 - Timing of submissions: As Preliminaries section A31.
- 130 SITE DIMENSIONS
- Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
 - Designated items: Balustrade either supported from new metal beam separate to balcony or from the balcony itself, as per the parameters in the Structural Engineer's typical drawings and the elevation drawings to be issued in relation to each block with the Order.

COMPONENTS

- 270 STAIRS Concrete Precast or Insitu where necessary to replace existing
- Component material, grade, finish as delivered:
 - Treads: Ceramic Tile.
Slip resistance value of integral tread – water wet (minimum): To comply with building regulations .
Slip resistance value of integral nosing – water wet (minimum): To comply with building regulations.
 - Colour of integral nosing: To match existing.
 - Risers: To match existing.
 - Strings: To match existing.
 - Newels: To match existing.
 - Guarding: To match existing.
 - Handrails: To Structural Engineer's drawings and specification.
Lower handrail: Not required.
 - Workmanship:
 - Joinery: N/A.
 - Metalwork: To Structural Engineer's drawings and specification.
 - Other requirements: To Structural Engineer's drawings and specification.

- 550 PURPOSE MADE BALUSTRADES As per Structural Engineer's drawings and specification.
- Component material, grade and finish as delivered:
 - Guarding: Minimum 10 mm toughened glass, Class A to BS 6206 or Decorative High Density Composite Laminate given in Section H above.
 - Handrails: As per Structural Engineer's drawings and specification..
Lower handrail: Not required.
 - Workmanship:
 - Joinery: Not applicable.
 - Metalwork: To section Z11.
 - Other requirements: As per Structural Engineer's drawings and specification. The panels shall also comply with the requirements of BS 6180 and BS 6399 Pts 1 & 2 in respect of structural loadings..
 - Fixing: As per Structural Engineer's drawings and specification.
 - Centres: As per Structural Engineer's drawings and specification.
- 560 PROPRIETARY BALUSTRADES Contractor's choice to match Structural Engineer's design and specification on drawings S001 to S007
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Component material and finish as delivered:
 - Guarding: As per Structural Engineer's drawings and specification..
 - Handrails: As per Structural Engineer's drawings and specification..
Lower handrail: Not required.
 - Other requirements: As per Structural Engineer's drawings and specification and particularly to withstand thermal expansion and contraction.
 - Fixing: As per Structural Engineer's drawings and specification..
 - Centres: As per Structural Engineer's drawings and specification..
- 570 PURPOSE MADE HANDRAILS Contractor's choice to match Structural Engineer's design and specification on drawings S001 to S007
- Component material, grade and finish as delivered:
 - Handrails: As per Structural Engineer's drawings and specification..
 - Brackets: As per Structural Engineer's drawings and specification..
 - Workmanship:
 - Joinery: Not applicable.
 - Metalwork: To section Z11.
 - Other requirements: As per Structural Engineer's drawings and specification S001 to S007 and particularly to withstand thermal expansion and contraction.
 - Fixing: As per Structural Engineer's drawings and specification. The handrails shall also comply with the requirements of BS 6180 and BS 6399 Pts 1 & 2 in respect of structural loadings..
 - Centres: As per Structural Engineer's drawings and specification..
- 580 PROPRIETARY HANDRAILS Contractor's choice to match Structural Engineer's design and specification on drawings S001 to S007
- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
 - Component material and finish as delivered:
 - Handrails: As per Structural Engineer's drawings and specification..
 - Brackets: As per Structural Engineer's drawings and specification..
 - Other requirements: As per Structural Engineer's drawings and specification and particularly to withstand thermal expansion and contraction.
 - Fixing: As per Structural Engineer's drawings and specification..
 - Centres: As per Structural Engineer's drawings and specification.

INSTALLATION

620 PRIMING/SEALING/PAINTING

- Surfaces inaccessible after assembly/installation: Before fixing components, apply full protective/decorative treatment/coating system.

630 CORROSION PROTECTION OF DISSIMILAR MATERIALS

- Components/ substrates/ fasteners of dissimilar materials: Isolate using washers/ sleeves or other suitable means to separate materials to avoid corrosion and/ or staining.

640 INSTALLATION GENERALLY

- Fasteners and methods of fixing: To section Z20.
- Structural members: Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
- Temporary support: Do not use stairs, walkways or balustrades as temporary support or strutting for other work.
- Applied features (finishes, inserts, nosings and the like): Substrates to be even, dry, sound and free from contaminants. Make good substrate surfaces and prepare/ prime as applied feature manufacturer's recommendations before application.

COMPLETION

910 INSPECTION

- Timing: Two weeks after request by Contract Administrator.
- Period of notice (minimum): 5 working days.

Q

Paving/Planting/Fencing/Site furniture

Q10

Kerbs/ edgings/ channels/ paving accessories

Q10 Kerbs/ edgings/ channels/ paving accessories

To be read with Preliminaries/General conditions.

TYPES OF KERBS/EDGINGS/CHANNELS

110 PROPRIETARY PRECAST CONCRETE EDGINGS AND CHANNELS

- Standard: To BS EN 1340.
- Manufacturer: Contractor's choice.
 - Product reference: Submit proposals.
- Recycled content: Submit proposals.
- Designations: CD Channel, dished and EF Edging, flat top.
- Size (width x height x length): To match existing.
- Special shapes: None.
- Finish: As cast.
- Colour: Natural.
- Bedding: Cement mortar.
- Joints generally: Narrow mortar.
- Sealant movement joints: Not required.
- Accessories: None

180 DRAINAGE CHANNEL SYSTEMS WITH GRATINGS

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Size: Submit proposals.
- Type of fall: Submit proposals.
- Finish: Submit proposals.
- Colour: Submit proposals.
- Accessories: Casting in anchors.
- Bedding: Submit proposals.
- Joints generally: Submit proposals.
- Cover gratings: Galvanized steel, slotted.
 - Fixings: Hexagon head bolts with black moulded polypropylene protective cover caps.
 - Loading grade to BS EN 124: A15.
 - Finish/ Colour: Grey.

LAYING

510 LAYING KERBS, EDGINGS AND CHANNELS

- Cutting: Neat, accurate and without spalling. Form neat junctions.
 - Long units (450 mm and over) minimum length after cutting: 300 mm.
 - Short units minimum length after cutting: The lower of one third of their original length or 50 mm.
- Bedding of units: Positioned true to line and levelled along top and front faces, in a mortar bed on accurately cast foundations or on a race of fresh concrete.
- Securing of units: After bedding has set, secured with a continuous haunching of concrete or on a race of fresh concrete with backing concrete cast monolithically.

530 CONCRETE FOR FOUNDATIONS, RACES AND HAUNCHING

- Standard: To BS 8500-2.
- Designated mix: Not less than GEN0 or Standard mix ST1.
- Workability: Very low.

540 CEMENT MORTAR BEDDING

- General: To section Z21.
- Mix: (Portland cement:sand): 1:3.
 - Portland cement: Class CEM I 42.5 to BS EN 197-1.
 - Sand: to BS EN 12620, grade 0/4 or 0/2 (MP).
- Bed thickness: 12-40 mm.

570 CHANNELS

- Installation: To an even gradient, without ponding or backfall.
- Lowest points of channels: 6 mm above drainage outlets.

580 DRAINAGE CHANNEL SYSTEMS

- Installation: To an even gradient, without ponding or backfall. Commence laying from outlets.
- Silt and debris: Removed from entire system immediately before handover.
- Washing and detritus: Safely disposed without discharging into sewers or watercourses.

620 ACCURACY

- Deviations (maximum):
 - Level: ± 6 mm.
 - Horizontal and vertical alignment: 3 mm in 3 m.

625 REGULARITY OF PAVED SURFACES

- Maximum undulation of (non-tactile) paving surface: 3 mm.
 - Method of measurement: Under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface).
- Difference in level between adjacent units (maximum):
 - Joints flush with the surface: Twice the joint width (with 5 mm max difference in level).
 - Recessed, filled joints: 2 mm.
 - Recess depth (maximum): 5 mm.
 - Unfilled joints: 2 mm.
- Sudden irregularities: Not permitted.

630 NARROW MORTAR JOINTS

- Jointing: Ends of units buttered with bedding mortar as laying proceeds. Joints completely filled, tightly butted and surplus mortar removed immediately.
 - Joint width: 3 mm.

Q22

Asphalt roads/ pavings

Q22 Asphalt roads/ pavings

To be read with Preliminaries/ General conditions.

TYPES OF PAVING

- 150 LIGHT DUTY MASTIC ASPHALT PAVING TO FOOTWAYS
- System manufacturer: Submit proposals.
 - Standard: To match existing.
 - Subgrade improvement layer: Not required.
 - Preparatory work: Scrabble back affected surface to take 20mm top coat repair to falls and with keyed edges.
 - Granular sub-base: Submit proposals.
 - Base: Submit proposals.
 - Surface course: Submit proposals.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Surface finish: To match existing.
 - Edge restraints: To match existing.
 - Embedded features: To match existing.
 - Surface features: To match existing.
 - Other requirements: None.
- 180 SURFACE TREATMENT TO EXISTING PAVING TO FOOTWAYS
- Base: Existing asphalt concrete.
 - Preparation: Cut out depressions, fill to match existing surface and compact.
 - Surface to receive dressing: Clean and dry. All patching complete.
 - Binder: Bitumen emulsion.
 - Finish: Submit proposals.
 - Slip/ skid resistance: Submit proposals.
- 195 HARD LANDSCAPING MATERIALS SPECIFICATION
- Minimum BRE 'Green Guide to Specification Online' rating: Contractor's choice .

PREPARATORY WORK/ REQUIREMENTS

- 210 TIMBER EDGING TO FOOTWAY
- Softwood board:
 - Size: 38 x 150 mm.
 - Fixing: Galvanized nails into softwood pegs.
 - Softwood pegs:
 - Size: 50 x 50 x 450 mm long.
 - Fixing: Drive into ground.
 - Centres: 900 mm.
 - Preservative treatment: Submit proposals.
 - Type: Submit proposals.

LAYING

310 LAYING GENERALLY

- Preparation: Remove all loose material, rubbish and standing water.
- Adjacent work: Form neat junctions. Do not damage.
- Channels, kerbs, inspection covers etc: Keep clean.
- New paving:
 - Keep traffic free until it has cooled to prevailing atmospheric temperature.
 - Do not allow rollers to stand at any time.
 - Prevent damage.
 - Lines and levels: With regular falls to prevent ponding.
 - Overall texture: Smooth, even and free from dragging, tearing or segregation.
 - State on completion: Clean.

330 LEVELS

- Permissible deviation from the required levels, falls and cambers (maximum): In accordance with BS 594987, clause 5.2.

360 UNCOATED CHIPPINGS FOR SURFACE TREATMENT

- Chippings: Clean aggregate to BS EN 13043 and PD 6682-2, size 2.8/6.3, grading category Gc85/15.
 - Type/ Source: Submit proposals.
 - Colour: Submit proposals.
- Binder:
 - Cutback bitumen to BS EN 12591 or bitumen emulsion to BS 434-1.
 - Do not use cut-back bitumen at temperatures below 15°C.
 - Do not use modified binders without prior approval.
 - Application:
 - Binder application rate: In accordance with TRL Road Note 39. Adjust rate for modified binders in accordance with manufacturer's instructions.
 - Coverage: 100–105% shoulder to shoulder to BS 598-1.
 - Compaction: Roll. Do not crush chippings.
- Completion:
 - Before trafficking, remove excess chippings.
 - Carry out further removal of loose chippings disturbed by traffic as necessary.

COMPLETION

Q25

Slab/ brick/ sett/ cobble pavings

Q25 Slab/ brick/ sett/ cobble pavings

To be read with Preliminaries/ General conditions.

GENERAL**120 CONCRETE FLAG PAVING SYSTEM MISCELLANEOUS REPAIRS TO AFFECTED SURFACES**

- Subgrade improvement layer: Not required.
 - Compacted thickness: Not applicable.
- Granular sub-base: Submit proposals.
 - Compacted thickness: 150 mm.
- Base: Not required.
 - Thickness: Not required.
- Laying course: Sand.
 - Accessories: None.
- Paving units: Concrete flags to match existing.
- Jointing: To match existing.
 - Bond: To match existing.
- Accessories: Channels, as section Q10 and Kerbs, as section Q10.

PRODUCTS**315 CONCRETE FLAGS To match existing**

- Standard: To BS EN 1339.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Recycled content: Submit proposals.
- Colour: To match existing.
 - Finish: To match existing.
 - Nominal sizes: To match existing.
- Arrises: To match existing.
- Water absorption and freeze/ thaw resistance class: To match existing.
- Bending strength class: To match existing.
- Abrasion resistance class: To match existing.
- Slip/ Skid resistance: To match existing.
- Breaking load class: To match existing.

EXECUTION**610 MATERIAL SAMPLES**

- Samples representative of colour and appearance of designated materials: Submit before placing orders.
 - Designated materials: Concrete slab paving .

620 ADVERSE WEATHER

- General:
 - Temperature: Do not lay or joint paving if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.
 - Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.
- Paving with mortar joints and/ or bedding:
 - Protect from frost damage, rapid drying out and saturation until mortar has hardened.
- Paving laid and jointed in sand:
 - Stockpiled bedding sand: Protect from saturation.
 - Exposed areas of sand bedding and uncompacted areas of sand bedded paving: Protect from heavy rainfall.
 - Saturated sand bedding: Remove and replace, or allow to dry before proceeding.
 - Laying dry-sand jointed paving in damp conditions: Brush in as much jointing sand as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

625 LAYING PAVINGS - GENERAL

- Appearance: Smooth and even with regular joints and accurate to line, level and profile.
- Falls: To prevent ponding.
- Bedding of paving units: Firm so that rocking or subsidence does not occur or develop.
 - Bedding/ Laying course: Consistently and accurately graded, spread and compacted to produce uniform thickness and support for paving units.
- Slopes: Lay paving units upwards from the bottom of slopes.
- Paving units: Free of mortar and sand stains.
- Cutting: Cut units cleanly and accurately, without spalling, to give neat junctions with edgings and adjoining finishes.

630 LEVELS OF PAVING

- Permissible deviation from specified levels:
 - Generally: ± 6 mm.
- Height of finished paving above features:
 - At gullies: +6 to +10 mm.
 - At drainage channels and kerbs: +3 to +6 mm.

635 REGULARITY – TO BS 7533

- Maximum variation in gap under a 3 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface):
 - Precast concrete paving blocks and clay pavers for flexible pavements: Maximum variation in gap under a 3 m straight edge: 10 mm; difference in level between adjacent paving units (maximum): 2 mm.
 - Precast concrete flags or natural stone slabs: 3 mm; Difference in level between adjacent paving units (maximum): 2 mm.
- Sudden irregularities: Not permitted.

645 PROTECTION

- Cleanliness: Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
- Materials storage: Do not overload pavings with stacks of materials.
- Handling: Do not damage paving unit corners, arrises, or previously laid paving.
- Mortar bedded pavings: Keep free from traffic after laying:
 - Pedestrian traffic (minimum): 24 hours.
 - Vehicular traffic (minimum): 7 days.
- Access: Restrict access to paved areas to prevent damage from site traffic and plant.

650 CEMENTITIOUS BASES AND SUB-BASES

- General: Protect from moisture loss, if not covered by another pavement course within 2 hours of completion.

655 CONDITION OF SUB-BASES/ BASES BEFORE SPREADING LAYING COURSE

- Trenches and excavation of soft or loose spots in subgrade: Fill and thoroughly compact.
- Granular surfaces: Lay and compact so as to be sound, clean, smooth and close-textured enough to prevent migration of bedding/ laying course materials into the sub-base during compaction and use, free from movement under compaction plant and free from compaction ridges, cracks and loose material.
- Prepared existing and new bound bases (roadbases): Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.
- Sub-base/ Roadbase level tolerances: To BS 7533-7, Annex A.
- Levels and falls: Accurate and within the specified tolerances.
- Drainage outlets: Within 0-10 mm of the required finished level.
- Features in sand bedded paving (including mortar bedded restraints and drainage ironwork): Complete to required levels; adequately bed and haunch in mortar.
- Sub-bases containing cement/ hydraulic binder: Cure for minimum times specified in BS 7533-4.

COMPLETION**915 COMPLETION OF PAVING WITH DRY SAND OR FINE AGGREGATE FILLED JOINTS**

- Sand dressing: Not required.
- Final compaction of the surface course: In accordance with BS 7533-3.
- Vacuum cleaning machines: Not allowed.

Q28

Topsoil and soil ameliorants

Q28 Topsoil and soil ameliorants

To be read with Preliminaries/ General conditions.

SYSTEM OUTLINE

110 NATURALLY OCCURRING TOPSOIL SYSTEM FOR FLOWERING SHRUBS AND GRASSES AREAS

- Topsoil: Imported topsoil to BS 3882.
- Ameliorants: None.
- Accessories: None.

PRODUCTS

300 PREPARATION MATERIALS GENERALLY

- Purity: Free of pests and disease.
- Foreign matter: On visual inspection, free of fragments and roots of aggressive weeds, sticks, straw, subsoil, pieces of brick, concrete, glass, wire, large lumps of clay or vegetation, and the like.
- Contamination: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
 - Corrosive, explosive or flammable.
 - Hazardous to human or animal life.
 - Detrimental to healthy plant growth.
- Subsoil: In areas to receive topsoil or planting media, do not use subsoil contaminated with the above materials.
- Objectionable odour: None.
- Give notice: If any evidence or symptoms of soil contamination are discovered on the site or in topsoil or planting media to be imported.

315 IMPORTED TOPSOIL TO BS 3882

- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Standard: To BS 3882.
- Classification: Multipurpose.
 - Grade: Within the parameters of 'sandy loam' textural class.
- Source: Contractor's choice.
 - Product reference: Contractor's choice.

660 GRADING SUBSOIL

- General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
- Loosening:
 - Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
 - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
 - Rock and chalk subgrades: Lightly scarify to promote free drainage.
- Areas of thicker topsoil: Excavate locally.
- Avoid over compaction.

665 SUBSOIL SURFACE PREPARATION

- General: Excavate and/ or place fill to required profiles and levels, as section D20.
- Loosening:
 - Light and noncohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
 - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
 - Rock and chalk subgrades: Lightly scarify to promote free drainage.
- Stones: Immediately before spreading topsoil, remove stones larger than 50 mm.
- Remove from site: Arisings, contaminants and debris and builders rubble.

685 SURPLUS MATERIALS TO BE REMOVED

- Topsoil: Remove from site excess topsoil.
- Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

715 LOOSE TIPPING OF TOPSOIL

- General: Do not firm, consolidate or compact topsoil when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

720 FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT

- Above adjoining paving or kerbs: 20 mm.
- Below dpc of adjoining buildings: Not less than 150 mm.
- Shrub areas: Higher than adjoining grass areas by 50 mm.
- Within root spread of existing trees: Unchanged.
- Adjoining soil areas: Marry in.
- Thickness of turf or mulch: Included.

Q30

Seeding/ turfing

Q30 Seeding/ turfing

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/REQUIREMENTS**115 SEEDED AND TURFED AREAS**

- Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.
- Appearance: A closely knit, continuous ground cover of even density, height and colour.

120 CLIMATIC CONDITIONS

- General: Carry out the work while soil and weather conditions are suitable.

145 WATERING

- Quantity: Wet full depth of topsoil.
- Application: Even and without displacing seed, seedlings or soil.
- Frequency: As necessary to ensure the establishment and continued thriving of all seeding/turfing.

146 WATERING

- Quantity: Wet full depth of topsoil.
- Application: Even and without displacing seed, seedlings or soil.
- Frequency: When instructed.

150 WATER RESTRICTIONS

- Timing: If water supply is or is likely to be restricted by emergency legislation do not carry out seeding/turfing until instructed. If seeding/turfing has been carried out, obtain instructions on watering.

160 NOTICE

- Give notice before:
 - Setting out.
 - Applying herbicide.
 - Applying fertilizer.
 - Preparing seed bed.
 - Seeding or turfing.
 - Visiting site during maintenance period.
- Period of notice: 2 working days.

PREPARATION**212 SEED BED CLEANING BEFORE SOWING ALL GRASSED AREAS**

- Operations: As seed supplier's recommendations

280 FINAL CULTIVATION

- Timing: After grading and fertilizing.
- Seed bed: Reduce to fine, firm tilth with good crumb structure.
 - Depth: 25 mm.
 - Surface preparation: Rake to a true, even surface, friable and lightly firmed but not over compacted.
 - Remove surface stones/earth clods exceeding:
 - General areas: 10 mm .
 - Fine lawn areas: 10 mm.
- Adjacent levels: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.

SEEDING**310 GRASS SEED FOR ALL GRASSED AREAS**

- Mixture: 35% Chewings fescue, 35% Slender red fescue, 20% Smooth stalked meadow grass, 10% Brown top bent.
- Application rate: 20-35 g/m².

319 QUALITY OF SEED FOR ALL GRASSED AREAS

- Freshness: Produced for the current growing season.
- Certification: Blue label certified varieties.
 - Standard: EC purity and germination regulations.
 - Official Seed Testing Station certificate of germination, purity and composition: Submit when requested.
- Samples of mixtures: Submit when requested.

330 SOWING

- General: Establish good seed contact with the root zone.
- Method: Manually broadcast, raked and rolled.
 - Distribution: 2 equal sowings at right angles to each other.

335 GRASS SOWING SEASON

- Grass seed generally: April to October.

340 PRE-EMERGENT HERBICIDE FOR ALL GRASSED AREAS

- Standard: Pesticide Safety Directorate approved.
- Application rate: In accordance with manufacturer's written recommendation.
 - Timing: Immediately after sowing.

352 EDGES TO SEEDED AREAS ADJACENT TO PLANTING BEDS AND TREE PITS

- Timing: After seeded areas are well established.
- Edges: Clean straight lines or smooth curves.
 - Mulch and soil: Draw back to permit edging.
- Arisings: Remove.
- Completion: Respread soil and mulch.

TURFING**400 CULTIVATED TURF FOR ALL GRASSED AREAS**

- Supplier: Contractor's choice.
 - Product reference: Contractor's choice.
- Properties of soil used for turf production: Submit proposals.

420 DELIVERY AND STORAGE

- Timing: Lay turf with minimum possible delay after lifting. If delay occurs, lay turf out on topsoil and keep moist.
- Frosty weather or waterlogged ground: Do not lift turf.
- Delivery: Arrange to avoid need for excessive stacking.
- Stacking height (maximum): 1 m.
- Dried out or deteriorated turf: Do not use.

428 COMPOST DRESSING FOR TURF

- Type: Sanitized and stabilized compost.
- Supplier: Contractor's choice.
 - Product reference: Contractor's choice.
- Standard: To PAS 100.
- Horticultural parameters:
 - pH (1:5 water extract): 7.0-8.7.
 - Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
 - Moisture content (m/m of fresh weight): 35-55%.
 - Organic matter content (minimum): 25%.
 - Grading (air dried samples): 100% passing screen mesh aperture of 5 mm.
 - Carbon:Nitrogen ratio (maximum): 20:1.
- Texture: Friable.
- Objectionable odour: None.
- Composting Association certification: Not required.
- Declaration of analysis: Submit.
- Additional analyses: Not required.
- Samples: Not required.
- Application rate: 2 kg/m².
- Timing: Apply prior to cultivation.

429 DRESSING FOR TURF

- Type: Silica sand.
- Supplier: Contractor's choice.
 - Product reference: Contractor's choice.
- Declaration of analysis: Submit.
- Additional analyses: Not required.
- Samples: Not required.
- Application rate: 2 kg/m².
- Timing: Apply prior to cultivation.

430 TURFING GENERALLY

- Time of year: To be agreed .
- Timing of laying:
 - Spring and summer: within 18 hours of delivery.
 - Autumn and winter: within 24 hours of delivery.
- Weather conditions: Do not lay turf when persistent cold or drying winds are likely to occur or soil is frost bound, waterlogged or excessively dry.
- Working access: Planks laid on previously laid turf. Do not walk on prepared bed or newly laid turf.
- Jointing: Laid with broken joints, well butted up. Do not stretch turf.
- Edges: Whole turfs, trimmed to a true line.
- Adjusting levels: Remove high spots and fill hollows with fine soil.
- Consolidating: Lightly and evenly firm as laying proceeds to ensure full contact with substrate. Do not use rollers.
- Dressing, brushed well in to completely fill all joints: 35% Finely sifted topsoil, 35% Compost, 30% Sand .
- Watering: Thoroughly water completed turf immediately after laying. Check that water has penetrated to the soil below.

CUTTING MAINTENANCE

530 FIRST CUT OF GRASSED AREAS

- Timing: When grass is reasonably dry.
 - Height of initial growth: 40-75 mm.
- Preparation:
 - Debris and litter: Remove.
 - Stones and earth clods larger than 25 mm in any dimension: Remove
- Height of first cut: 25 mm.
- Mower type: Contractor's choice.
- Arisings: Remove from site.

610 FAILURES OF SEEDING/TURFING

- Duration: Carry out the following operations from completion of seeding/ turfing until the end of the rectification period.
- Defective materials or workmanship: Areas that have failed to thrive.
 - Exclusions: Theft or malicious damage.
- Method of making good: Recultivation and reseeded/ returfing.
- Timing of making good: The next suitable planting season.

620 MAINTAINING GENERAL GRASSED AREAS

- Duration: Carry out the following operations from completion of seeding/ turfing until the end of the rectification period.
- Maximum height of growth at any time: 25 mm.
- Preparation: Before each cut remove all litter and debris.
- Cutting: As and when necessary to a height of 15 mm.
 - Arisings: Remove.
- Bulb planting areas: Do not cut until bulb foliage has died down.
- Trimming: All edges.
 - Arisings: Remove.
- Weed control: Substantially free of broad leaved weeds.
 - Method: Application of a suitable selective herbicide.
- Stones brought to the surface: Remove regularly.
 - Size: Exceeding 25 mm in any dimension.
- Areas of settlement: Make good.
- Watering: When instructed.

- 680 MAINTENANCE FERTILIZER FOR ALL GRASSED AREAS EXCEPT WILDFLOWER MEADOWS
- Duration: Carry out the following operations from completion of seeding/ turfing until the end of the rectification period.
 - March application: 15:10:10 Spring turf fertilizer at 35 g/m².
 - September application: 5:10:10 Autumn turf fertilizer at 50 g/m².

Z

Building fabric reference specification

Z31
Powder coatings

Z31 Powder coatings

To be read with Preliminaries/ General conditions.

- 120 POWDER COATING MATERIALS
- Manufacturer: Obtain from one only of the following: N/A.
 - Selected manufacturer: Submit details before commencement of powder coating including:
 - Name and contact details.
 - Details of accreditation schemes.
 - Technical data of product including current Agrément certificates.
- 210 WORKING PROCEDURES
- Comply with the follow following standards.
 - Aluminium components: To BS 6496 or BS EN 12206-1.
 - Steel components: To BS EN 13438.
 - Safety standards: To British Coatings Federation 'Code of safe practice - Application of thermosetting powder coatings by electrostatic spraying'.
- 220 POWDER COATING APPLICATORS
- Applicator requirements:
 - Approved by powder coating manufacturer.
 - Currently certified to BS EN ISO 9001.
 - Comply with quality procedures, guarantee conditions, standards and tests required by powder coating manufacturer.
 - Applicator to use only one plant.
 - Selected applicator: Submit details before commencement of powder coating including:
 - Name and contact details.
 - Details of accreditation schemes.
- 225 GUARANTEES
- Powder coating manufacturer and applicator guarantees:
 - Submit sample copies before commencement of powder coating.
 - Submit signed project specific copies on completion of work.
- 310 PRETREATMENT OF ALUMINIUM COMPONENTS
- Condition of components to be pretreated:
 - Free from corrosion and damage.
 - All welding and jointing completed and finish off as specified.
 - Free from impurities including soil, grease, oil.
 - Suitable for and compatible with the pretreatment process.
 - Conversion coating requirements:
 - Chromate system: To BS 6496 or BS EN 12206-1.
 - Chromate-free system: To BS EN 12206-1. Submit details before using.
 - Rinsing requirements: Use demineralized water. Drain and dry.
- 320 PRETREATMENT OF STEEL COMPONENTS
- Condition of components to be pretreated:
 - Free from corrosion and damage.
 - All welding and jointing completed and finish off as specified.
 - Free from impurities including soil, grease, oil.
 - Suitable for and compatible with the pretreatment process.
 - Conversion coating requirements: To BS EN 13438.
 - Rinsing requirements: Use demineralized water. Drain and dry.

430 EXTENT OF POWDER COATINGS

- Application: To visible component surfaces, and concealed surfaces requiring protection. Coated surfaces will be deemed 'significant surfaces' for relevant BS 6496/ BS EN 13438 performance requirements.

435 APPLICATION OF POWDER COATINGS

- Surfaces to receive powder coatings: Free from dust or powder deposits.
- Powder colours: Obtain from one batch of one manufacturer.
- Commencement of powder coatings: To be continuous from pretreatment.
- Jig points: Not visible on coated components.
- Curing: Controlled to attain metal temperatures and hold periods recommended by powder coating manufacturer.
- Stripping and recoating of components: Only acceptable by prior agreement of powder coating manufacturer. Stripping, pretreatment and powder coating are to be in accordance with manufacturer's requirements.
- Overcoating of components: Not acceptable.

440 PERFORMANCE AND APPEARANCE OF POWDER COATINGS

- For aluminium components:
 - Standard: To BS 6496 or BS EN 12206-1.
- For steel components:
 - Standard: To BS EN 13438.
- Visual inspection after powder coating: Significant surface viewing distances to be as specified in the relevant Standard, unless specified otherwise.
- Colour and gloss levels: To conform with approved samples.

450 ALUMINIUM ALLOY FABRICATIONS

- Units may be assembled:
 - Before powder coating.
 - From components powder coated after cutting to size.
 - Where approved, from components powder coated before cutting to size.
- Exposure of uncoated background metal: Not acceptable.
- Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

460 STEEL FABRICATIONS

- Unit assembly: Wherever practical, before powder coating.
- Exposure of uncoated background metal: Not acceptable.
- Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

470 FIXINGS

- Exposed metal fixings: Powder coat together with components, or coat with matching repair paint system applied in accordance with the powder coating manufacturer's recommendations.

480 DAMAGED COMPONENTS - REPAIR/ REPLACEMENT

- Before delivery to site: Check all components for damage to powder coatings. Replace damaged components.
- Site damage: Submit proposals for repair or replacement.

510 PROTECTION

- Powder coated surfaces of components: Protect from damage during handling and installation, or by subsequent site operations.
- Protective coverings: Must be:
 - Resistant to weather conditions.
 - Partially removable to suit building in and access to fixing points.
- Protective tapes in contact with powder coatings: Must be:
 - Low tack, self adhesive and light in colour.
 - Applied and removed in accordance with tape and powder coating manufacturers' recommendations. Do not use solvents to remove residues as these are detrimental to the coating.
- Inspection of protection: Carry out monthly. Promptly repair any deterioration or deficiency.

535 DOCUMENTATION

- Submit the following information for each batch of powder coated components:
 - Supplier.
 - Trade name.
 - Colour.
 - Type of powder.
 - Method of application.
 - Batch and reference number.
 - Statutory requirements.
 - Test certificates.
 - Maintenance instructions.

540 COMPLETION

- Protection: Remove
- Cleaning and maintenance of powder coatings: Carry out in accordance with procedures detailed in powder coating manufacturer and applicator guarantees.