Clague LLP

Whitstable Community Museum and Gallery

30838A_Works section

Tender

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12-09-2023

Refurbishment and addition of Accessible W.C.

Contents

C20
Demolition

To be read with preliminaries/ general conditions.

5 Desk study/ survey

1. Scope: Before starting deconstruction/ demolition work, examine available information, and carry out a survey of: The area of the works. The structure or structures to be deconstructed/ demolished.
2. Report and method statements: Submit, describing:
   - 2.1. Form, condition and details of the structure or structures, the site and the surrounding area.
     - 2.1.1. Extent: Refer to architects demolitions drawings for extent
   - 2.2. Type, location and condition of features of historical, archaeological, geological or ecological importance.
   - 2.3. Type, location and condition of adjoining or surrounding premises that might be adversely affected by removal of the structure or structures or by noise, vibration and dust generated during deconstruction or demolition.
   - 2.4. Identity and location of services above and below ground, including those required for the contractor's use, and arrangements for their disconnection and removal.
   - 2.5. Form and location of flammable, toxic or hazardous materials, including lead-based paint, and proposed methods for their removal and disposal.
   - 2.6. Form and location of materials identified for reuse or recycling, and proposed methods for removal and temporary storage.
   - 2.7. Proposed programme of work, including sequence and methods of deconstruction or demolition.
   - 2.8. Details of specific pre-weakening required.
   - 2.9. Arrangements for protection of personnel and the general public, including exclusion of unauthorized persons.
   - 2.10. Arrangements for control of site transport and traffic.
   - 2.11. Special requirements: Details of services supplied by the statutory authority, Disposal methods for gypsum-based products, Results of tests to determine the precise nature of hazardous materials, Site waste management plan development and proposals' Structural calculations in support of method statements
3. Format of report: Digital format (PDF)

10 Extent of deconstruction/ demolition

1. General: Subject to retention requirements specified elsewhere, deconstruct/ demolish structures down to Refer to architects demolitions drawings.

13 Groundworks

1. Old foundations, slabs and the like: Break out in locations and to the extents stated.
2. Contaminated material: Remove and dispose of contaminated material to appropriate site
3. Removal of deleterious material: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil
4. Ancillary items: Backfill basements and voids to level of surrounding site

20 Features to be retained

1. General: Keep in place and protect the following: Boundary walls, Gates and gate pillars, Railings, refer to architect's demolitions drawings, protect all existing construction adjacent to where the works are being undertaken.

25 Location and marking of services

1. Services affected by deconstruction/ demolition work: Locate and mark positions
2. Mains services marking: Arrange with the appropriate authorities for services to be located and marked
   2.1. Marking standard: In accordance with Street Works UK publication 'Guidance on the Positioning and Colour Coding of Underground Utilities' Apparatus'.

30 Services disconnection arranged by contractor

1. Arrange with the appropriate authorities and responsible private organizations for disconnection of services, and removal of fittings and equipment owned by those authorities prior to starting deconstruction or demolition

35 Live foul and surface water drains

1. Drains and associated manholes, inspection chambers, gullies, vent pipes and fittings: Protect and maintain normal flow during deconstruction or demolition, Make good any damage arising from deconstruction or demolition work, Leave clean and in working order at completion of deconstruction or demolition work

45 Services to be retained

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

50 Workmanship

1. Standard: Demolish structures in accordance with BS 6187.
2. Operatives
   2.1. Appropriately skilled and experienced for the type of work.
   2.2. Holding, or in training to obtain, relevant Construction Skills certification of competence.
3. Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of deconstruction and demolition to be used.

55 Site hazards

1. Precautions: Prevent fire or explosion caused by gas and vapour from tanks, pipes, etc.
2. Dust: Minimize airborne dust by periodically spraying deconstruction and demolition works with an appropriate wetting agent. Keep public roadways and footpaths clear of mud and debris
   2.1. Lead dust: Submit method statement for control, containment and clean-up regimes.
3. Site operatives and general public: Protect from health hazards associated with vibration, dangerous fumes and dust arising during the course of the works.

60 Adjoining property

1. Temporary support and protection: Provide. Maintain and alter, as necessary, as work proceeds. Do not leave unnecessary or unstable projections.
2. Defects: Report immediately on discovery.

3. Damage: Minimize disturbance. Repair promptly to ensure safety, stability, weather protection and security.
4. Support to foundations: Do not disturb.

65 Structures to be retained

1. Extent: Refer to architect's drawings
2. Parts which are to be kept in place: Protect. Give notice and notify service authority or owner of damage arising from the execution of the works.
3. Interface between retained structures and deconstruction or demolition: Cut away and strip out with care to minimize the amount of making good needed

70 Partly demolished structures

1. General: Leave in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse. Make secure outside working hours.
2. Temporary works: Prevent overloading due to debris.
3. Access: Prevent access by unauthorized persons.

71 Dangerous openings

1. General: Provide guarding at all times, including outside of working hours. Illuminate during hours of darkness.
2. Access: Prevent access by unauthorized persons.

76 Asbestos-containing materials – unknown occurrences

1. Discovery: Give notice immediately of suspected asbestos-containing materials when discovered during deconstruction and demolition work. Avoid disturbing such materials.
2. Removal: Submit statutory risk assessments and details of proposed methods for safe removal.

78 Unforeseen hazards

1. Discovery: Give notice immediately when hazards, such as unrecorded voids, tanks, chemicals, are discovered during deconstruction or demolition.
2. Removal: Submit details of proposed methods for filling, removal, etc.

85 Site condition at completion

1. Debris: Clear away and leave the site in a clean, tidy and secure condition.

86 Site surface at completion

1. Topography: As drawings

90 Contractor's property

1. Components and materials arising from the deconstruction and demolition work: Property of the contractor, except for designated items which remain the property of the employer
2. Action: Remove from site as work proceeds where not to be reused or recycled for site use

91 Employer's property

1. Components and materials to remain the property of the employer: All items to be agreed with client prior to commencement of works
2. Protection: Maintain until these items are removed by the employer or reused in the works, or until the end of the contract, Maintain until delivered to a required place of storage
3. Specific limitations: To be agreed with client

95 Recycled materials

1. Materials arising from deconstruction and demolition work: Can be recycled or reused elsewhere in the project, subject to compliance with the appropriate specification and in accordance with any site waste management plan.
2. Evidence of compliance: Submit full details and supporting documentation.
   2.1. Verification: Allow adequate time in programme for verification of compliance.

Ω End of Section

C90
Alterations - repair, refurbish, refit

General

110 Descriptions

1. Location of alterations: Refer to architect's drawings
2. Details of alterations: Refer to architect's drawings and specification

120 Employer's property

1. Components and materials arising from alterations that are to remain the property of the employer: To be agreed with client prior to commencement of works
   1.1. Protection: Maintain until items listed above are removed by the employer or reused in the works, or until the end of the contract.
2. Special requirements: None

130 Recycled materials

1. 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.
2. Evidence of compliance: Submit full details and supporting documentation.
   2.1. Verification: Allow adequate time in programme for verification of compliance.

140 Removal

1. Scope of removal: Refer to architect's drawings and specification
2. Special requirements: None

150 Refixing

1. Scope of refixing: Refer to architect's drawings and specification
2. Special requirements: None

Ω End of Section

F10
Brick/ block walling

Clauses

10 Reclaimed brick facing brickwork

1. Description: To infill the existing accessible door opening
2. Reclaimed bricks: To match existing
    2.1. Condition: Sound, free from mortar and deleterious matter.
    2.2. Supplier/ source: Contractor to propose
    2.3. Format: To match existing
3. Mortar: As section Z21.
    3.1. Standard: To BS EN 998-2
    3.2. Mix: NHL 3.5 Natural lime mortar by Lime Green Products or equal approved
4. Bond: To match existing
5. Joints: To match existing, to be approved by sample

36 Concrete common blockwork

1. Description: To infill the existing accessible door opening
2. Blocks: To BS EN 771-3.
    2.1. Manufacturer: Tarmac
    2.2. Product reference: Hemelite Standard
    2.3. Configuration: Group 1
    2.4. Compressive strength: 7.3 N/mm²
    2.5. Category: I
    2.6. Freeze/ thaw resistance: Not to be left exposed
    2.7. Thermal properties: Thermal conductivity:0.51 W/mK
    2.8. Recycled content: Submit proposals
    2.9. Work sizes (length x width x height): 440 x 100 x 215 mm
        2.9.1. Tolerance category: D1
    2.10. Special shapes: None
    2.11. Additional requirements: None
3. Mortar: As section Z21.
    3.1. Standard: To BS EN 998-2
    3.2. Mix: NHL 3.5 Natural lime mortar by Lime Green Products or equal approved
4. Bond: To match existing

51 Basic workmanship

1. Bond where not specified: Half lap stretcher.
2. Mortar joints: Fill all vertical joints. Lay bricks, solid and cellular blocks on a full bed.
3. AAC block thin mortar adhesive and gypsum block adhesive joints: Fill vertical joints. Lay blocks on a full bed.
4. Clay block joints
    4.1. Thin layer mortar: Lay blocks on a full bed.
    4.2. Interlocking perpends: Butted.

5. Quoins and advance work: Rack back.
6. Locations for equal levelling of cavity wall leaves
   6.1. Every course containing vertical twist type ties or other rigid ties.
   6.2. Every third tie course for double triangle/ butterfly ties.
   6.3. Courses in which lintels are to be bedded.
7. Lift height (maximum) for walling using cement gauged or hydraulic lime mortar: 1.2 m above any other part of work at any time.
8. Daily lift height (maximum) for walling using cement gauged or hydraulic lime mortar: 1.5 m for any one leaf.
9. Lift height (maximum) for walling using thin layer mortar: 1.3 m above any other part of work at any time.

55 Facework

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

60 Alterations/ Extensions

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

66 Fire stopping

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

90 Cracked bricks in existing facework

1. Replacement: Prior to repointing adjacent cracked joints, cut out and replace with matching sound bricks to approval.
2. Jointing mortar: As section Z21.
   2.1. Standard: To BS EN 998-2
   2.2. Mix: 1:2 ??? NHL 3.5 hydraulic lime:sharp well graded sand

91 Cracked joints in existing facework which is not to be repointed

1. Crack width determining need for joint remedial work: 2.0 mm

2. Preparation: Cut out joints to form a rectangular recess of 15-20 mm depth. Clean and dampen joints sufficiently to control suction.
3. Joint profile: To match existing.
4. Repointing mortar: As section Z21.
   4.1. Standard: To BS EN 998-2
   4.2. Mix: 1:2 ??? NHL 3.5 hydraulic lime:sharp well graded sand

95 Repointing

1. Preparation: Cut out joints to form a rectangular recess of 15-20 mm depth. Clean and dampen joints sufficiently to control suction.
2. Joint profile: To match existing
3. Mortar: As section Z21.
   3.1. Standard: To BS EN 998-2
   3.2. Mix: 1:2 ??? NHL 3.5 hydraulic lime:sharp well graded sand

Ω End of Section

F30
Accessories/ sundry items for brick/ block/ stone walling

To be read with preliminaries/ general conditions.

5 Cavities

1. Concrete fill to base of cavity:
2. Concrete generally: To BS EN 206 and BS 8500-2.
3. Concrete type: Standardized prescribed ST2
   3.1. Workability: High.
4. Extent: Maintain 75 mm between top of fill and external ground level and a minimum of 225 mm between top of fill and ground level dpc.
5. Placement: Compact to eliminate voids.
6. Cleanliness: Keep cavity faces, ties and dpcs free from mortar and debris.

6 Cleanliness

1. Cavity base and faces, ties, insulation and exposed dpcs: Free from mortar and debris.

8 Perpend joint plastics weep holes Type A

1. Manufacturer: Easy-Trim Roofing and Construction Products Ltd
   1.1. Contact details
      1.1.1. Address: Unit 12b Metcalf Drive
      Altham Industrial Estate
      Altham
      Accrington
      Lancashire
      BB5 5JW
      1.1.2. Telephone: 01282 930680
      1.1.3. Web: www.easy-trim.co.uk
      1.1.4. Email: sales@easy-trim.co.uk
   1.2. Product reference: Peep Vents (ETEV/PEEP/BLAK)
2. Colour: Clear.

10 Mineral fibre slab insulation Type A

1. Manufacturer: ROCKWOOL Ltd
   1.1. Contact details
      1.1.1. Address: ROCKWOOL Ltd
      14th Floor, Chiswick Tower
      389 Chiswick High Road
      London
      W4 4AJ
      1.1.2. Telephone: +44 (0)1656 862621
      1.1.3. Web: https://www.rockwool.com/uk/
      1.1.4. Email: info@rockwool.com
   1.2. Product reference: ROCKWOOL® Full Fill Cavity Batts (50 mm)
2. General requirements: Insulation products generally.
3. Standard: To BS EN 13162; BS 6676-1; ISO 14001.
4. Thermal conductivity (maximum): 0.037 W/m·K.

5. Thickness (minimum): 60mm
6. Edges: Square.
7. Fire performance: To BS EN 13501-1, Euroclass A1.
8. U-value: 0.00 W/m²K.

15 Airbricks Type A

1. Manufacturer: Timloc Building Products
   1.1. Contact details
      1.1.1. Address: Timloc House
      Unit 2 Ozone Park
      Howden
      East Yorkshire
      United Kingdom
      DN14 7SD
      1.1.2. Telephone: +44 (0)1405 765567
      1.1.3. Web: www.timloc.co.uk
      1.1.4. Email: sales@timloc.co.uk
   1.2. Product reference: 1201 Telescopic Underfloor Vent
2. Standard: Meets all relevant British Standards.
3. Work sizes: 375/ 525 x 220 mm.
4. Material
   4.1. Colour: Black.
5. Accessories: As required to complete the installation

24 Cavity wall ties Type A

1. Manufacturer: Leviat
   1.1. Contact details
      1.1.1. Address: President Way
      President Park,
      Sheffield
      South Yorkshire
      S4 7UR
      1.1.2. Telephone: +44 (0) 114 275 5224
      1.1.3. Web: www.leviat.com
      1.1.4. Email: info.uk@leviat.com
   1.2. Product reference: Ancon ST1 Wall Tie - 2D Detail
2. Material: Austenitic stainless steel.
3. Length: To suit cavity size and in accordance with manufacturer's recommendations

28 Fixing ties in masonry cavity walls

1. Embedment in mortar beds (minimum): 50 mm.
2. Placement: Sloping slightly downwards towards outer leaf without bending. Drip centred in the cavity and pointing downwards.
3. Spacing: Staggered in alternate courses.
4. Horizontal centres: 900 mm
5. Vertical centres: 450 mm
6. Provision of additional ties: Within 225 mm of reveals of unbonded openings and at the vertical reveals of unsupported masonry …….

7. Spacing: At not more than 300 mm centres vertically

39 Wall starters and connectors Type A

1. Manufacturer: Leviat
   1.1. Contact details
      1.1.1. Address: President Way
      President Park,
      Sheffield
      South Yorkshire
      S4 7UR
      1.1.2. Telephone: +44 (0) 114 275 5224
      1.1.3. Web: www.leviat.com
      1.1.4. Email: info.uk@leviat.com
   1.2. Product reference: Ancon Universal Wall Starter System
2. Universal Wall Starter: Stainless steel grade 1.4401.
3. QuickStart Wall Starter: Stainless steel.

44 Bitumen polymer damp-proof courses and cavity trays Type A

1. Manufacturer: Visqueen
   1.1. Contact details
      1.1.1. Address: Visqueen
      Heanor Gate Industrial Estate
      Derbyshire
      Heanor
      Derbyshire
      United Kingdom
      DE75 7RG
      1.1.2. Telephone: +44 (0) 333 202 6800
      1.1.3. Web: www.visqueen.com
      1.1.4. Email: enquiries@visqueen.com
   1.2. Product reference: Visqueen Zedex High Bond DPC
2. Standard: CE Mark EN 13969:2004.
3. Mass (minimum): 3.8 kg/m².
4. Thickness (minimum): 3 mm.
5. Form: Single wound format.
6. Watertightness: 60 kPa.
7. Width: 450 mm.
8. Joint strength: 350 N.
9. Elongation: 185%.
10. Reaction to fire: F class.
11. Application temperature: In accordance with manufacturer's recommendations

46 Polypropylene (PP) damp-proof courses and cavity trays Type A

1. Manufacturer: Visqueen
   1.1. Contact details
      1.1.1. Address: Visqueen
      Heanor Gate Industrial Estate
      Derbyshire

Heanor
Derbyshire
United Kingdom
DE75 7RG

1.1.2. Telephone: +44 (0) 333 202 6800

1.1.3. Web: www.visqueen.com

1.1.4. Email: enquiries@visqueen.com

1.2. Product reference: Visqueen Zedex Non-Combustible DPC

2. Material: Polymeric.
3. Standard: CE Mark EN 14909:2012.
4. Third party certification: Fire standard A2 - s1, d0 by Warrington Fire.
5. Colour: Red / Grey.
6. Application temperature: In accordance with manufacturer's recommendations
7. Width: 300—900 mm.
8. Length: 20 000 mm.
9. Thickness: 600 microns.
10. Reaction to fire: Class A2-s1,d0.
11. Mass: 680 gsm.
12. TensileStrength: 30 MPa.
13. Tensile strength CD: 30 MPa.
14. Tensile elongation property: 5%.
15. Joint strength: 80 N.

56 Preformed cavity trays Type A

1. Manufacturer: Visqueen

1.1. Contact details

1.1.1. Address: Visqueen
Heanor Gate Industrial Estate
Derbyshire
Heanor
Derbyshire
United Kingdom
DE75 7RG

1.1.2. Telephone: +44 (0) 333 202 6800

1.1.3. Web: www.visqueen.com

1.1.4. Email: enquiries@visqueen.com

2. Third party certification: British Board of Agrément (BBA) certified / BDA certified.
3. Height: To suit particular condition
4. Length (effective): To suit particular condition
5. Types: Zedex Units.
6. Water tightness (to EN 1928): At 2kPa, Pass.
7. Low temperature resistance: To EN 495-5, -40°C.
8. Flexibility at low temperature: To EN 1109, -15°C.
9. Tear resistance (to BS EN 12310-1): 250 N.
10. Water vapour transmission: 372 MNs/g.
11. Reaction to fire: F class.
12. Application temperature: in accordance with manufacturer's recommendations

13. Product reference: Visqueen Preformed Units

62 Site-formed dpc/ cavity tray junctions/ stop ends

1. Three dimensional changes in shape: Form to provide a free draining and watertight installation.
2. Alternative use of preformed cloaks/ stop ends: Submit proposals.

66 Installation of horizontal dpcs

1. Placement: In continuous lengths on full even bed of fresh mortar, with 100 mm laps at joints and full laps at angles.
2. Width: At least full width of masonry leaf. Edges of dpc not covered with mortar or projecting into cavity.
3. Overlying construction: Immediately cover with full even bed of mortar to receive next masonry course.
4. Overall finished joint thickness: As close to normal as practicable.
5. Ground level dpcs joint with damp-proof membrane: Continuous and effectively sealed.
6. Low level dpcs in external walls: Install not less than 150 mm above adjoining finished ground level.
7. Sill dpcs form and placement: In one piece and turned up at the back when the sill is in contact with inner leaf.
8. Dpcs crossing cavity: Provide support to prevent sagging.

68 Sealing of dpcs

1. Description: GENERALLY
2. Overlaps and junctions: Seal with Adhesive recommended by dpc manufacturer.

72 Installation of gas-resistant dpcs/ cavity trays

1. Joint treatment: Use continuous length wherever possible, otherwise lap at least 150 mm and seal to form gas and watertight installation.
2. Joint with damp-proof membrane: Overlap dpc/ cavity tray not less than 150 mm.

74 Installation of vertical dpcs

1. Form: In one piece wherever possible.
    1.1. Joints: Upper part overlapping lower not less than 100 mm.
2. Dpcs to jambs of openings: Fully lap behind cavity tray/ lintel at head and over horizontal dpc at sill. Project not less than 25 mm into cavity and maintain full contact with frames.
3. Fixing of jamb dpcs to back of built-in timber frames: Secure using galvanized clout nails or staples.

75 Installation of site-formed cavity trays

1. Requirements to prevent downward ingress of water
    1.1. Profiles: To match those shown on drawings. Firmly secured.
    1.2. Joint treatment: Use continuous length wherever possible, otherwise lap at least 100 mm and seal to produce a free draining and watertight installation.
    1.3. Horizontal cavity trays: Support using cavity closer.
    1.4. Sloping cavity trays: Prevent sagging.
    1.5. Cleanliness: Free from debris and mortar droppings.

79 Head of non-loadbearing walls

1. Restraints: 50 x 50 mm continuous softwood battens fixed at 600 mm centres with 14 gauge screws
   1.1. Fixing: Secure to soffit.
2. Joint filler: NA
   2.1. Placement: Full, no gaps.

Ω End of Section

J42
Single-layer polymeric sheet roof coverings

To be read with preliminaries/ general conditions.

10 Warm deck roof covering

1. Description: New roof to Kitchen
2. Substrate: Plywood deck
   2.1. Preparation: Remove existing waterproof covering, new plywood substrate to be prepared in accordance with Bauder recommendations
3. Roof covering system
   3.1. Manufacturer: Bauder Ltd
      3.1.1. Product reference: Bauder THERMOFOL PVC single Ply System
4. Air and vapour control layer: BauderTEC KSD FBS
5. Insulation: Bauder PIR FA Flatboard
6. Waterproof membrane: Bauder THERMOFOL U 15 V FR
7. Attachment: Adhesive
8. Upper protection layer (loose-laid): Not required
9. Surface protection: Not required
10. Accessories: Refer to architects drawings
11. Additional Information: Bauder system final design and installation by Bauder approved installer. Please contact Bauder for list of approved installers.

15 Roofing generally

1. Surfaces to be covered: Secure, clean, dry, smooth, free from frost, contaminants, voids and protrusions.
2. Preliminary work: Complete, including:
   2.1. Grading to correct falls.
   2.2. Formation of upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
   2.3. Fixing of battens, fillets and anchoring plugs/ strips.
3. Moisture content and stability of substrate: Must not impair integrity of roof.
4. Adverse weather: Do not lay membrane at temperatures below 5°C in high winds, wet or damp conditions, unless effective temporary cover is provided over working area.
5. Unfinished areas of roof: Keep dry and protect edges of laid membrane from wind action.
6. Completed coverings: Firmly attached, fully sealed, smooth, weatherproof and free-draining.

27 Thermal insulation

1. Manufacturer: Bauder Ltd
   1.1. Product reference: Bauder PIR FA flatboard
2. Standard: Expanded polystyrene to BS EN 13163
   2.1. Reaction to fire: Manufacturer's standard
   2.2. Thermal conductivity (minimum): 0.022W/mK
   2.3. Thickness: 140mm
   2.4. Compressive strength (minimum): 120kPa
   2.5. Other characteristics: None
3. Edges: Manufacturer standard

28 Waterproof membrane

1. Manufacturer: Bauder Ltd
   1.1. Product reference: Bauder THERMOFOL U 15 V FR
2. Type: Single Ply membrane
3. Width: Manufacturer's standard
4. Thickness: 3.5mm
5. Colour: Anthracite
6. Guarantee: 25 years

35 Laying air and vapour control layer

1. Laying: Fully bonded, flat and smooth
2. Side and head laps: In strict accordance with manufacturer's recommendations
3. Upstands, kerbs and other penetrations: Enclose edges of insulation. Fully seal at abutment by bonding or taping.

40 Laying warm deck roof insulation

1. Setting out
   1.1. Long edges: Fully supported and running at right angles to Direction of span.
   1.2. End edges: Adequately supported.
   1.3. Joints: Butted together.
   1.4. End joints: Staggered.
2. Attachment: In Accordance with manufacturer's recommendations
3. Mechanical fixing: Not required
4. Completion: Boards must be in good condition, well-fitting and secure.

50 Adhesive bonding of waterproof membrane

1. Setting out: In strict accordance with Manufacturer's requirements
2. Attachment: Fully adhered on a continuous even coating of adhesive
   2.1. Do not wrinkle or stretch.
3. Surface condition at completion: Fully sealed, smooth, weatherproof and free-draining.

55 Jointing of waterproof membrane

1. Side and end joints
   1.1. Laps (minimum): In Strict accordance with Manufacturer's recommendations
   1.2. Preparation: In Strict accordance with Manufacturer's recommendations
   1.3. Sealing: In Strict accordance with Manufacturer's recommendations
2. Seam sealant: In Strict accordance with Manufacturer's recommendations
3. Condition at completion: Fully sealed, smooth, weatherproof and free-draining.

60 Perimeter details

1. General: Secure membrane at roof edge conditions, changes of plane, curb flashings, upstands to roof lights, etc. with mechanical fasteners.
2. Upstands, edge trims, drips, kerbs, etc: In Strict accordance with Manufacturer's recommendations
3. Reinforcing strip: In Strict accordance with Manufacturer's recommendations
4. Roof membrane: Terminate and secure in accordance with manufacturer's/ supplier's recommendations.

Ω End of Section

K10
Gypsum board dry linings/ partitions/ ceilings

To be read with preliminaries/ general conditions.

15 Lining on timber

1. Description: Internal Stud partitions
2. Substrate: Studs at 450 mm centres
3. Metal resilient (acoustic) bars: Not required
4. Fire performance
    4.1. Reaction to fire: To BS EN 13501-1, Class B-s3, d2 or better
    4.2. Fire resistance of complete lining assembly: To BS EN 13501-2, REI 30 or better
5. Linings: Two layers 12.5 mm plasterboard or refer to the architects drawings. In we areas Moisture resistant plasterboard required
    5.1. Fixing: Screws at 300 mm centres
6. Finishing: Skim coat plaster
    6.1. Primer/ Sealer: As recommended by board manufacturer for vapour control
7. Accessories: Metal beads/ stops recommended by board manufacturer
8. Other requirements: Fire-stopping around service penetrations as section P12

25 Ceiling lining on timber

1. Description: To internal ceilings and soffits
2. Substrate: Joists at 450 mm centres in the kitchen area, Rafters at 450 mm centres in the Forrester's Hall
3. Metal resilient (acoustic) bars: Not required
4. Fire performance
    4.1. Reaction to fire: To BS EN 13501-1, Class B-s3, d2 or better
    4.2. Fire resistance of complete ceiling assembly: To BS EN 13501-2, REI 30 or better
5. Linings: Two layers 12.5 mm plasterboard. Use moisture resistant plasterboard in Kitchen and W.C.
    5.1. Fixing: Screws at 230 mm centres
6. Finishing: Skim coat plaster
    6.1. Primer/ Sealer: As recommended by board manufacturer for vapour control
7. Accessories: Metal beads/ stops recommended by the board manufacturer
8. Other requirements: Fire-stopping around services as section P12

Installation

60 Ceilings

1. Sequence: Fix boards to ceilings before installing dry lined walls and partitions.
2. Orientation of boards: Fix with bound edges at right angles to supports and with ends staggered in adjacent rows.
3. Two layer boarding: Stagger joints between layers.

65 Dry lining generally

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

2. Standard:
3. Gypsum plasterboard to BS EN 520.
4. Gypsum fibre board to BS EN 15283-2.
5. Evidence of compliance: Submit Declaration of Performance (DoP).
6. Cutting gypsum boards: Neatly and accurately without damaging core or tearing paper facing.
7. Cut edges: Minimize and position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners.
8. Two layer boarding: Stagger joints between layers.
9. Finishing: Neatly to give flush, smooth, flat surfaces free from bowing and abrupt changes of level.

67 Skim coat plaster finish

1. Plaster type: As recommended by board manufacturer
   1.1. Thickness: 2-3 mm.
2. Joints: Fill and tape except where coincident with metal beads.
3. Finish: Tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks.

69 Installing beads/ stops

1. Cutting: Neatly using mitres at return angles.
2. Fixing: Securely using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate.
3. Finishing: After joint compounds/ plasters have been applied, remove surplus material while still wet from surfaces of beads exposed to view.

70 Additional supports

1. Framing: Accurately position and securely fix to give full support to:
   1.1. Partition heads running parallel with, but offset from main structural supports.
   1.2. Fixtures, fittings and service outlets. Mark framing positions clearly and accurately on linings.
   1.3. Board edges and lining perimeters, as recommended by board manufacturer to suit type and performance of lining.

75 New wet laid bases

1. Dpcs: Install under full width of partitions/ freestanding wall linings.
   1.1. Material: Bituminous sheet or plastics.

85 mineral wool insulation

1. Fitting insulation: Closely butted joints and no gaps. Use fasteners to prevent slumping or displacement.
2. Services
   2.1. Electrical cables overlaid by insulation: Size accordingly.
   2.2. Ceilings: Cut insulation around electrical fittings, etc.

87 Sealing gaps and air paths

1. Sealing: Apply sealant to perimeter abutments and around openings as a continuous bead with no gaps.
2. Application: To clean, dry and dust free surfaces as a continuous bead with no gaps.
   2.1. Gaps greater than 6mm between floor and underside of gypsum board: After sealing, fill with joint compound.

88 Fire-stopping at perimeters of dry lining systems

1. Material: Tightly packed mineral wool or intumescent mastic/ sealant.
2. Application: To perimeter abutments to provide a complete barrier to smoke and flame.

90 Seamless jointing

1. Cut edges of boards: Lightly sand to remove paper burrs.
2. Filling and taping: Fill joints, gaps and internal angles with jointing compound and cover with continuous lengths of tape, fully bedded.
3. Protection of edges/ corners: Reinforce external angles, stop ends, etc. with specified edge/ angle bead.
4. Finishing: Feather out jointing compound to give a flush, smooth, seamless surface.
5. Nail/ screw depressions and minor indents: Fill with jointing compound to give a flush surface.
6. Minor imperfections: Remove by light sanding.

91 Vertical joints

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

92 Horizontal joints

1. Surfaces exposed to view: Horizontal joints not permitted. Seek instructions where height of partition/ lining exceeds maximum available length of board.
2. Two layer boarding: Stagger joints between layers by at least 600 mm.
3. Edges of boards: Support using additional framing.
    3.1. Two layer boarding: Support edges of outer layer.

94 Fixing gypsum board to timber

1. Fixing to timber: Securely at the following centres (maximum):
    1.1. Nails: 150 mm.
    1.2. Screws to partitions/ wall linings: 300 mm. Reduce to 200 mm at external angles.
    1.3. Screws to ceilings: 230 mm.
2. Position of nails/ screws from edges of boards (minimum)
    2.1. Bound edges: 10 mm.
    2.2. Cut/ unbound edges: 13 mm.
3. Position of nails/ screws from edges of timber supports (minimum): 6 mm.

Finishing

97 Level of dry lining across joints

1. Sudden irregularities: Not permitted.
2. Joint deviations: Measure from faces of adjacent boards using methods and straightedges (450 mm long with feet/ pads) to BS 8212, clause 3.3.5.
    2.1. Tapered edge joints
        2.1.1. Permissible deviation (maximum) across joints when measured with feet resting on boards: 3 mm.
    2.2. External angles
        2.2.1. Permissible deviation (maximum) for both faces: 4 mm.

2.3. Internal angles

2.3.1. Permissible deviation (maximum) for both faces: 5 mm.

98 Repairs to existing gypsum board

1. Performance of repairs must match original specified performances.
2. Filling small areas with broken cores: Cut away paper facing, remove loose core material and fill with jointing compound.
   2.1. Finish: Flush, smooth surface suitable for redecoration.
3. Large patch repairs: Cut out damaged area and form neat hole with rectangular sides. Replace with matching gypsum board.
   3.1. Fixing: Use methods to suit type of dry lining, ensuring full support to all edges of existing and new gypsum board.
   3.2. Finishing: Fill joints, tape and apply jointing compound to give a flush, smooth surface suitable for redecoration.

Ω End of Section

L20
Doors/ shutters/ hatches

To be read with preliminaries/ general conditions.

10 Timber procurement

1. Timber (including timber for wood-based products): Obtained from well-managed forests and/ or plantations in accordance with:
   1.1. The laws governing forest management in the producer country or countries.
   1.2. International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
2. Documentation: Provide either in accordance with chain of custody certification scheme requirements:
   2.1. Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied; or
   2.2. Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.
3. Chain of custody certification scheme: Forest Stewardship Council (FSC), Grown in Britain (GiB) or Programme for the Endorsement of Forest Certification (PEFC)
   3.1. Other evidence: None

55 Doorsets

1. Description: Double glazed PPC aluminium framed door
2. Manufacturer: Reynaers Aluminium
   2.1. Product reference: Masterline 10
3. Finish as delivered: Polyester powder-coated
4. Glazing/ Infill details: Clear double glazing
   4.1. Manifestation: As required to comply with Building Regulations part M
   4.2. Beading: Internal
5. Ironmongery: Refer to drawings for details of locking requirements. allow for Stainless steel ironmongery
6. Perimeter seals: Manufacturer's standard
7. Thermal performance (U-value maximum): 1.6W/m2K
8. Fire performance
   8.1. Reaction to fire: To BS EN 13501-1, Class B or better
9. Other requirements:

   Glazing to achieve a U-value of 1.6 W/m2K and to consist of 6/18/8.8 toughened/ sound laminated glass. Inner pane to be laminated glass.
10. Fixing: Manufacturer to confirm
    10.1. Spacing of fixings (frames not predrilled): Maximum 150 mm from ends of each jamb and at 600 mm maximum centres.

55 steel doorsets Type A

1. Description: Steel security and fire escape door D.04
2. Manufacturer: HAG Ltd. - The Door Specialists
   2.1. Contact details

2.1.1. Address: 1 Oak Lane
Fishponds
Bristol
United Kingdom
BS5 7UY

2.1.2. Telephone: 0800 072 3444

2.1.3. Web: https://www.hag.co.uk/

2.1.4. Email: info@hag.co.uk

2.2. Product reference: Insurance certified high security Steel Door range

3. Finish as delivered: Polyester powder-coated
4. Ironmongery: To be agreed
5. Perimeter seals: Manufacturer's standard
6. Thermal performance (U-value maximum): 1.6 W/m2K
7. Fire performance
   7.1. Fire resistance: Manufacturer's standard
   7.2. Smoke leakage: Manufacturer's standard
   7.3. Reaction to fire: To BS EN 13501-1, Class B or better
8. Other requirements: Door to meet security requirements LPS1175 issue 7 SR4. Door to have 5 lever mortice deadlock with appropriate metal box striking plate. Allow for an electromagnetic lock that is linked to the fire alarm. the lock is to release if the fire alarm system is activated.
9. Fixing: As required by manufacturer to meet security requirements.
   9.1. Spacing of fixings (frames not predrilled): Maximum 150 mm from ends of each jamb and at 600 mm maximum centres.

65 Sliding pocket doors

1. Description: Automated sliding pocket door to Accessible W.C. door D.02
2. Manufacturer: Portman (https://portman-pocketdoors.co.uk/kit/power-operated)
   2.1. Product reference: Power operated pocket door system
3. Arrangement: Single leaf
4. Door leaf: Portman flush door with primed finish
   4.1. Finish as delivered: Primed finish
   4.2. Glazing/ Infill details: Not applicable
   4.3. Glass manifestation: Not applicable
5. Operation: Power operated to be opened by DDA compliant push button
6. Ironmongery: To be agreed
7. Other requirements: Jamb kit

70 Fire and smoke resistance

1. Requirement: Specified performance to be the minimum period attained when tested for integrity in accordance with BS 476-22, BS EN 1634-1 or BS EN 1634-3.
2. Components and assemblies will be marked to the relevant product standard and/ or third party certification rating.

75 Fire-resisting/ smoke control doors/ doorsets

1. Gaps between frames and supporting construction: Filled as necessary in accordance with door/ doorset manufacturer's instructions.

80 Sealant joints

1. Sealant
   1.1. Manufacturer: Submit proposals
      1.1.1. Product reference: Submit proposals
   1.2. Colour: To be agreed
   1.3. Application: As section Z22 to prepared joints. Triangular fillets finished to a flat or slightly convex profile.

85 Fixing ironmongery generally

1. Fasteners: Supplied by ironmongery manufacturer.
   1.1. Finish/ Corrosion resistance: To match ironmongery.
2. Holes for components: No larger than required for satisfactory fit/ operation.
3. Adjacent surfaces: Undamaged.
4. Moving parts: Adjusted, lubricated and functioning correctly at completion.

Ω End of Section

M50
Rubber/ plastics/ cork/ lino/ carpet tiling/ sheeting

To be read with preliminaries/ general conditions.

20 Particle-based enhanced wet area polyvinyl chloride (PVC) sheets Type A

1. Description: to Kitchen and disabled W.C.
2. Base: Existing concrete floor
   - 2.1. Preparation: Remove existing sheeting
3. Fabricated underlay: Plywood as clause 55
4. Flooring roll
   - 4.1. Manufacturer: Altro
     - 4.1.1. Contact details
       - 4.1.1.1. Address: Works Road
         Letchworth Garden City
         Hertfordshire
         SG6 1NW
       - 4.1.1.2. Telephone: +44 (0)1462 480480
       - 4.1.1.3. Web: www.altro.com/uk
       - 4.1.1.4. Email: enquiries@altro.com
     - 4.1.2. Product reference: Altro Aquarius™
   - 4.2. Use class: To BS EN ISO 10874, Class 34/ 43.
   - 4.3. Slip potential
     - 4.3.1. Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum): PTV ≥50.
   - 4.4. Width: 2000 mm.
   - 4.5. Thickness: 2.0 mm.
   - 4.6. Colour and pattern: Puffin - AQI2005.
   - 4.7. Execution: Altro safety flooring should be laid in accordance with the Code of Practice BS 8203:2017. The material should be stored for approximately 24 hours at room temperature, if not below 14°C. When laying, the area should be at a steady temperature of between 14°C and 27°C for at least 48 hours prior to, during and for at least 24 hours after completion.
   - 4.8. Acoustical Performance: 5 dB.
   - 4.9. Fire classification: Bfl-s1.

40 Laying coverings on new wet laid bases

1. Base drying aids: Not used for at least four days prior to moisture content test.
2. Base moisture content test: Carry out in accordance with BS 5325, Annexe A or BS 8203, Annexe A.
3. Commencement of laying coverings: Not until all readings show 75% relative humidity or less.

45 Existing floor covering removed

1. Substrate: Clear of covering and as much adhesive as possible. Skim with smoothing compound to give smooth, even surface.

55 Plywood underlay

1. Standard: To BS EN 13986.

2. Bonding quality: To BS EN 314-2, class 3.
3. Appearance: To BS EN 635, class III.
4. Finish: Sanded
5. Thickness: 6
6. Sheet size: 2400 mm
7. Substrate: Existing floorboards securely fixed and level with no gross irregularities or protruding fasteners.
8. Laying sheets
   8.1. Cross joints: Staggered with none coincident with joints in base.
      8.1.1. Joint width: 0.5-1 mm.
9. Fasteners: 25 mm annular ring shanked or twisted shank nails or divergent staples.
   9.1. Location: Commencing at centre of one side of each sheet, at 150 mm grid centres over area and 100 mm centres along perimeter, set in 12 mm from edge.
   9.2. Placement: Driven with heads set flush with surface and not projecting through underside of base. Not deformed.

60 Setting out tiles

1. Method: Set out from centre of area/ room so that wherever possible:
   1.1. Tiles along opposite edges are of equal size.
   1.2. Edge tiles are more than 50% of full tile width.

65 Laying coverings

1. Base/ substrate condition: Rigid, dry, smooth, free from grease, dirt and other contaminants.
2. Use a primer where recommended by adhesive manufacturer. Allow to dry thoroughly.
3. Adhesive: As specified, as recommended by covering manufacturer or, as approved.
4. Conditioning of materials prior to laying: As recommended by manufacturer.
5. Environment: Before, during and after laying, provide adequate ventilation and maintain temperature and humidity approximately at levels which will prevail after building is occupied.
6. Finished coverings: Accurately fitted, tightly jointed, securely bonded, smooth and free from air bubbles, rippling, adhesive marks, stains, trowel ridges and high spots.

70 Floor cover strips Type A

1. Manufacturer: CAT (Carpet Accessory Trims) Limited
   1.1. Contact details
      1.1.1. Address: Unit 24A,B,C
      Park Avenue Estate
      Sundon Park
      Luton
      Bedfordshire
      LU3 3BP
      1.1.2. Telephone: +44 (0)1582 561500
      1.1.3. Web: www.thecatweb.com
      1.1.4. Email: sales@cat-accs.com
   1.2. Product reference: Floor Cover Strips (BC38 SF)
2. Configuration: One part.
3. Dimensions: 38 x 2.5 mm.
4. Profile: To suit the particular condition. refer to floor finishes drawing

5. Material: Brass.
6. Finish: Antique bronze.
7. Colour: As Finish.
8. Gauge: 2.5 mm.
9. Length: to suit opening size
10. Pre-drilled holes: Contractor to confirm

80 Skirtings

1. Types: ZF MDF skirtings
2. Manufacturer: Contractor's choice
   2.1. Product reference: Contractor's choice
3. Fixing: Securely bond with mitred corners.
   3.1. Corners: Mitre joints.

85 Waste

1. Spare covering material: Retain suitable material for patching. On completion submit pieces for selection. Hand over selected pieces to Employer.

Ω End of Section

M60
Painting/ clear finishing

To be read with preliminaries/ general conditions.

10 Emulsion paint

1. Description: Interior paint to walls and ceilings in dry areas
2. Manufacturer: Dulux Trade
   2.1. Product reference: Diamond Matt
3. Surfaces: Plaster ceilings and walls
   3.1. Preparation: Ensure surfaces are clean and dry
4. Initial coats: As recommended by manufacturer
   4.1. Number of coats: 1
5. Undercoats: As recommended by manufacturer
   5.1. Number of coats: 2
6. Finishing coats: Matt vinyl
   6.1. Number of coats: 1

14 Eggshell/ satin paint

1. Description: To internal timber trims
2. Manufacturer: Dulux Trade
   2.1. Product reference: Diamond Satinwood
3. Surfaces: Internal timber trims
   3.1. Preparation: Ensure surfaces are clean and dry, Degrease and provide key, Remove all loose and defective coatings
4. Initial coats: As recommended by manufacturer
   4.1. Number of coats: 1
5. Undercoats: As recommended by manufacturer
   5.1. Number of coats: 2
6. Finishing coats
   6.1. Number of coats: 1

16 Decorative wood stain/ varnish/ preservative

1. Description: To floor of the Forrester's hall
2. Manufacturer: Osmo
   2.1. Product reference: Polyx-Oil High solids (Clear finish to be agreed with client)
3. Surfaces: Internal timber floorboards
   3.1. Preparation: Clean old microporous stains thoroughly. Old paints and lacquers must be completely removed. As a general rule, wear a dust mask during sanding works. Fill small cracks, larger joints or holes in wood (with Osmo Wood Filler).Sand wood surfaces carefully. Begin with coarse sandpaper – final sanding work for flooring P120-150, for furniture P180-240. Before oiling the surface, remove sanding dust with a broom or vacuum.The finished surface is influenced by several factors, including the condition of the wood. Therefore, a trial application is always required, especially for unfamiliar surfaces
4. Initial coats: In accordance with manufacturer's recommendations
   4.1. Number of coats: With Osmo Flat Brush, Floor Brush, Oil Finish Applicator Fleece (Hand Pad Holder) or Osmo Microfibre Roller, apply thinly along the wood grain and spread well.

Allow to dry for approx. 8-10 hours under good ventilation.After drying, quickly apply a second coat also thinly. After 2-3 weeks, the surface is fully cured. When renovating or recoating an already oiled surface, one coat applied to the clean and dry surface is usually sufficient.

22 Handling and storage

1. Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.
2. Materials from more than one batch: Store separately. Allocate to distinct parts or areas of the work.

25 Surfaces not to be coated

1. Radiator valves and stop valves.

28 Protection

1. 'Wet paint' signs and barriers: Provide where necessary to protect other operatives and general public, and to prevent damage to freshly applied coatings.

30 Preparation generally

1. Standard: In accordance with BS 6150.
2. Refer to any pre-existing CDM Health and Safety File and CDM Construction Phase Plan where applicable.
3. Risk assessments and method statements for suspected hazardous materials: Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
4. Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
5. Substrates: Sufficiently dry in depth to suit coating.
6. Efflorescence salts, dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
7. Surface irregularities: Provide smooth finish.
8. Organic growths and infected coatings
    8.1. Remove with assistance of biocidal solution.
    8.2. Apply residual effect biocidal solution to inhibit regrowth.
9. Joints, cracks, holes and other depressions: Fill with stoppers/ fillers. Provide smooth finish.
10. Dust, particles and residues from preparation: Remove and dispose of safely.
11. Water-based stoppers and fillers
    11.1. Apply before priming unless recommended otherwise by manufacturer.
    11.2. If applied after priming: Patch prime.
12. Doors, opening windows and other moving parts
    12.1. Ease, if necessary, before coating.
    12.2. Prime resulting bare areas.

32 Previously coated surfaces generally

1. Preparation: In accordance with BS 6150.
2. Contaminated or hazardous surfaces: Give notice of:
    2.1. Coatings suspected of containing lead.
    2.2. Substrates suspected of containing asbestos or other hazardous materials.

2.3. Significant rot, corrosion or other degradation of substrates.

3. Risk assessment and method statement for hazardous materials: Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
4. Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.
5. Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.
6. Alkali affected coatings: Completely remove.
7. Retained coatings
   7.1. Thoroughly clean.
   7.2. Gloss-coated surfaces: Provide key.
8. Partly removed coatings
   8.1. Apply additional preparatory coats.
   8.2. Junctions: Provide flush surface.
9. Completely stripped surfaces: Prepare as for uncoated surfaces.

35 Fixtures and fittings

1. Risk assessment and method statement for hazardous materials: Prepare for operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
2. Removal: Before commencing work: Ironmongery, cover plates, grilles, wall clocks, and other surface mounted fixtures.
3. Replacement: Refurbish as necessary, refit when coating is dry.

36 Ironmongery

1. Removal: Before commencing work remove ironmongery from surfaces to be coated.
2. Hinges: Remove
3. Replacement: Refurbish as necessary; refit when coating is dry.

37 Wood preparation

1. General: Provide smooth, even finish with lightly rounded arrises.
2. Degraded or weathered surface wood: Take back surface to provide suitable substrate.
3. Degraded substrate wood: Repair with sound material of same species.
4. Heads of fasteners: Countersink sufficient to hold stoppers/ fillers.
5. Resinous areas and knots: Apply two coats of knotting.
6. Defective primer: Take back to bare wood and reprime.

39 Steel preparation

1. Areas of defective primer, corrosion and loose scale: Take back to bare metal. Reprime as soon as possible.
2. Defective paintwork: Remove to leave a firm edge and clean bright metal.
3. Sound paintwork: Provide key for subsequent coats.
4. Corrosion and loose scale: Take back to bare metal.
5. Residual rust: Treat with a proprietary removal solution.
6. Bare metal: Apply primer as soon as possible.
7. Remaining areas: Degrease.

43 Plaster preparation

1. Nibs, trowel marks and plaster splashes: Scrape off.

2. Overtrowelled 'polished' areas: Provide suitable key.
3. Depressions around fixings: Fill with stopper/ filler.

52 Sealing of internal movement joints

1. General: To junctions of walls and ceilings with architraves, skirtings and other trims.
2. Sealant: Water-borne acrylic.
    2.1. Manufacturer: Submit proposals
        2.1.1. Product reference: Submit proposals
    2.2. Preparation and application: As section Z22.

55 Existing gutters

1. Dirt and debris: Remove from inside of gutters.
2. Defective joints: Clean and seal with suitable jointing material.
3. Suspected hazardous materials: submit method statement.

61 Coating generally

1. Application: In accordance with BS 6150,
2. Conditions: Maintain suitable temperature, humidity and air quality.
3. Surfaces: Clean and dry at time of application.
4. Thinning and intermixing: Not permitted unless recommended by manufacturer.
5. Overpainting: Do not paint over intumescent strips or silicone mastics.
6. Priming coats: Apply as soon as possible on same day as preparation is completed.
7. Finish
    7.1. Even, smooth and of uniform colour.
    7.2. Free from brush marks, sags, runs and other defects.
    7.3. Cut in neatly.
8. Doors, opening windows and other moving parts: Ease before coating and between coats.

68 Staining wood

1. Primer: Apply, if recommended by stain manufacturer.
2. Application: Apply in flowing coats and brush out excess stain to produce uniform appearance.

70 External doors

1. Bottom edges: Prime and coat before hanging.

75 Bead glazing to coated wood

1. Before glazing: Apply first two coats to rebates and beads.

80 Linseed oil putty glazing

1. Setting: Allow putty to set for seven days.
2. Sealing
    2.1. Within a further 14 days, seal with a solvent-borne primer.
    2.2. Fully protect putty with coating system as soon as it is sufficiently hard.
    2.3. Extend finishing coats on to glass up to sight line.

Ω End of Section

N11
Domestic kitchen fittings, furnishings and equipment

To be read with preliminaries/ general conditions

10 Fitted base units and wall units

1. Description: To staff kitchen
2. Standard: To BS EN 14749.
3. Manufacturer: Howdens (or equal approved)
   - 3.1. Product reference: Greenwich Gloss
4. Structural performance: To BS 6222-2, test level G.
5. Dimensions: To BS EN 1116.
6. Surface finishes: To BS 6222-3.
7. Doors and drawer fronts
   - 7.1. Material: Manufacturer's standard
   - 7.2. Finish and colour: White
   - 7.3. Edges: Manufacturer's standard
   - 7.4. Other requirements: As required to complete the installation
8. Side panels, plinths and shelves
   - 8.1. Material: Manufacturer's standard
   - 8.2. Finish and colour: Manufacturer's standard
   - 8.3. Edges: Manufacturer's standard
9. Accessories: As required to complete the installation

20 Worktops

1. Description: To Kitchen
2. Standard: To BS 6222-3
3. Manufacturer: Howdens
   - 3.1. Product reference: 3m x 40mm square edge oak solid worktop
4. Material: solid wood - Oak
5. Dimensions: Refer to drawings
6. Exposed edges: Solid wood
7. Support: Manufacturer's standard
8. Other requirements: NA

30 Sinks, taps, traps and wastes

1. Description: to kitchen
2. Sinks
   - 2.1. Standard: To BS EN 13310
   - 2.2. Manufacturer: Howdens
     - 2.2.1. Product reference: Drayton single bowl reversible inset stainless steel kitchen sink
   - 2.3. Configuration: single bowl with drainer
   - 2.4. Overall size: Manufacturer's standard
   - 2.5. Material: Stainless steel
     - 2.5.1. Colour and finish: Brushed steel

3. Tap/ chainstay/ overflow holes: One tap hole, centre
4. Taps: Mixer
    4.1. Manufacturer: Howdens
        4.1.1. Product reference: Arno Polished Chrome swivel mixer tap
    4.2. Operation: Manufacturer's standard
    4.3. Material: Chromed steel
5. Wastes: Pop up
    5.1. Standard: To BS EN 274-1, -2 and -3
    5.2. Manufacturer: Submit proposals
        5.2.1. Product reference: Submit proposals
    5.3. Size: To fit sink
    5.4. Material: Chromed steel
    5.5. Tail: Slotted
6. Traps: Tubular, P type
    6.1. Standard: To BS EN 274-1, -2 and -3
    6.2. Manufacturer: Submit proposals
        6.2.1. Product reference: Submit proposals
    6.3. Size: To fit waste
    6.4. Depth of seal (minimum): 75 mm
7. Accessories: None

50 Sealant

1. Standard: To BS EN ISO 11600, Class F20 HM
2. Type: One-part silicone
    2.1. Manufacturer: Submit proposals
        2.1.1. Product reference: Submit proposal
3. Colour: To be agreed

Execution

60 Moisture content of wood and wood-based boards

1. Control and monitoring
    1.1. Method statement: Submit.

65 Installation generally

1. Fixings and adhesives: As section Z20.
2. Services: As sections S90 and V90

70 Installing units and worktops

1. General: Well fitting, stable and secure.

75 Installing appliances

1. Connections: Provide to electric, gas, and hot and cold water services.

80 Installing sinks, taps and wastes

1. Water supply: According to BS EN 806-2 and -4.

2. Taps
    2.1. Fixing: Secure, watertight seal with the appliance.
    2.2. Positioning: Hot tap to left of cold tap as viewed by the user of the appliance.
3. Wastes
    3.1. Bedding: Waterproof jointing compound.
    3.2. Fixing: With resilient washer between appliance and backnut.

85 Sealant bedding and pointing

1. Application: As section Z22.
2. Bedding: Sink to top of worktop
3. Pointing: Between units and splash backs, Between units and floor

90 Installing trims and mouldings

1. Lengths: Un-jointed between angles or ends of runs.
2. Angle joints: Mitred.

Ω End of Section

N13
Sanitary appliances and fittings

To be read with preliminaries/ general conditions.

12 Accessible WC equipment packages Type A

1. Manufacturer: Armitage Shanks
   1.1. Contact details
      1.1.1. Address: Armitage
      Old Road
      Rugeley
      Staffordshire
      WS15 4BT
      1.1.2. Telephone: +44 (0)870 122 8822
      1.1.3. Web: www.idealspec.co.uk
      1.1.4. Email: info@thebluebook.co.uk
   1.2. Product reference: Contour 21 - Doc M Ambulant Care Close Coupled Pack
2. Standards: In accordance with Approved Document M.
3. Form: Complete ambulant WC Doc M package and fittings.
4. Arrangement: Close-coupled pack.
5. Transfer handing: refer to drawings
6. Material and colour
   6.1. WC pans: Vitreous china to BS EN 997, white.
   6.2. WC cisterns: Vitreous china to BS EN 997, white.
   6.3. WC seats: Plastics, no cover.
   6.4. Washbasins
      6.4.1. Material: Vitreous china to BS EN 14688, white.
   6.5. Handrails: Stainless steel.
7. Water supply fittings: Flushing lever.
8. Integral accessories: Clothes hooks.

68 Sealant for pointing

1. Standard: To BS EN ISO 11600
   1.1. Class: F20 HM
2. Type: Silicone
   2.1. Manufacturer: Submit proposals
      2.1.1. Product reference: Submit proposals
3. Colour: To be agreed

70 Installation generally

1. Standards: In accordance with BS 6465-1, -2 and -3.
2. Assembly and fixing: Fix appliances securely to structure, without taking support from pipelines, level and plumb and so that surfaces designed to fall drain as intended.
3. Fasteners: Non-ferrous or stainless steel.
4. Jointing and bedding compounds: Recommended by manufacturers of appliances, accessories and pipes, to form watertight joints between appliances and backgrounds (except cisterns) and between appliances and discharge pipes.

5. Supply and discharge pipework: Fix before appliances.
6. Timing: Tiled backgrounds, other than splashbacks, complete before fixing appliances. Do not overstress tiles when fixing appliances.
7. On completion: Components and accessories working correctly with no leaks.
8. Labels and stickers: Remove.

71 Removing sanitary appliances and fittings

1. Extent: Complete installation
    1.1. Sanitary appliances: As architects demolitions drawings
        1.1.1. Quantity: As architects demolitions drawings
        1.1.2. Disposal: Remove from site for recycling
    1.2. Water supply fittings: As architects demolitions drawings
        1.2.1. Quantity: As architects demolitions drawings
        1.2.2. Disposal: Remove from site for recycling
    1.3. Accessories: As architects demolitions drawings
        1.3.1. Quantity: As architects demolitions drawings
        1.3.2. Disposal: Remove from site for recycling

73 Installing sanitary appliances and fittings

1. Extent
    1.1. Sanitary appliances: As architects demolitions drawings
    1.2. Water supply fittings: As architects demolitions drawings
    1.3. Accessories: As architects demolitions drawings

75 Installing cisterns

1. Cistern operating components: Obtain from cistern manufacturer.
2. Inlet and flushing valves: Match to pressure of water supply.
3. Internal overflows: Into pan, to give visible warning of discharge.
4. External overflows: Fix pipes to falls, and locate to give visible warning of discharge. Agree position.

76 Installing taps

1. Fixing: Secure against twisting.
2. Seal with appliance: Watertight.
3. Positioning: Hot tap to left of cold tap as viewed by user of appliance.

77 Installing wastes and overflows

1. Bedding: Waterproof jointing compound.
2. Fixing: With resilient washer between appliance and backnut.

81 Sealant bedding and pointing

1. Bedding: between W.C. and floor
2. Pointing: Joints between appliances and walls, Joints between appliances and splashbacks, Joints between appliances and floors

Ω End of Section

P10
Sundry insulation/ proofing work

To be read with preliminaries/ general conditions.

10 Mineral wool slab insulation at ceiling level in existing roof void to Peter Cushing Gallery

1. Manufacturer: ROCKWOOL Ltd
   1.1. Contact details
      1.1.1. Address: ROCKWOOL Ltd
      14th Floor, Chiswick Tower
      389 Chiswick High Road
      London
      W4 4AJ
      1.1.2. Telephone: +44 (0)1656 862621
      1.1.3. Web: https://www.rockwool.com/uk/
      1.1.4. Email: info@rockwool.com
   1.2. Product reference: ROCKWOOL® FLEXI®
2. General requirements: Insulation products generally.
3. Standard: To BS EN 13162.
4. Thickness: To achieve U-value to meet building regulations thermal requirements
5. Thermal conductivity (maximum): 0.035–0.038 W/mK.
6. Fire performance: To BS EN 13501-1, Euroclass A1 non-combustible.
7. Width: Contractor to propose
8. Acoustical Performance: Achieves Part E.
9. Water vapour resistance: Negligible.
10. Length: 1200 mm.

15 Insulation fitted between rafters

1. Manufacturer: Kingspan
   1.1. Product reference: K107
2. Material: Rigid polyurethane foam to BS EN 13165
   2.1. Facing: Manufacturer's standard
   2.2. Recycled content: Not applicable
   2.3. Thickness: Refer to architects drawings
3. Installation requirements
   3.1. General: Insulation to be friction fitted between rafters with no gaps.
   3.2. Joints: Butted, no gaps.
   3.3. Fasteners: Used where necessary to retain insulation and/or prevent slumping.
   3.4. Vapour control facing (if specified): Fit insulation with facing on warm side. Staple overlap (if provided) to underside of rafters; tape joints between adjacent overlaps using vapour impermeable adhesive tape.
   3.5. Air space above insulation: Unobstructed
   3.6. Eaves ventilation: Unobstructed

50 Mineral wool slab insulation between existing floor joists in Forrester's Hall

1. Manufacturer: ROCKWOOL Ltd
   1.1. Contact details
      1.1.1. Address: ROCKWOOL Ltd
      14th Floor, Chiswick Tower
      389 Chiswick High Road
      London
      W4 4AJ
      1.1.2. Telephone: +44 (0)1656 862621
      1.1.3. Web: https://www.rockwool.com/uk/
      1.1.4. Email: info@rockwool.com
   1.2. Product reference: ROCKWOOL® FLEXI®
2. General requirements: Insulation products generally.
3. Standard: To BS EN 13162.
4. Thickness: 110 mm.
5. Thermal conductivity (maximum): 0.035–0.038 W/mK.
6. Fire performance: To BS EN 13501-1, Euroclass A1 non-combustible.
7. Width: To suit existing floor joists
8. Acoustical Performance: Achieves Part E.
9. Water vapour resistance: Negligible.
10. Length: 1200 mm.

65 Breather membrane to existing roofs

1. Manufacturer: TLX insulation
   1.1. Product reference: TLX batsafe breather membrane
2. Standard: BS EN 13859-1
   2.1. Characteristics: Reaction to fire: To BS EN 13501-1, Class B-s3, d0 or better
3. Installation requirements
   3.1. Setting out: Joints minimized. Membrane to form a continuous barrier to prevent water, snow and wind blown dust reaching the substrate.
   3.2. Method of fixing: In accordance with manufacturer's recommendations
   3.3. Joints: Lapped 100 mm minimum horizontally and 150 mm minimum vertically
   3.4. Openings: Membrane fixed to reveals.
   3.5. Bottom edges: Membrane lapped over flashings, sills, etc. to allow free drainage to the exterior.
   3.6. Penetrations: Sealed.

Ω End of Section

P31
Holes, chases, covers and supports for services

Clauses

10 Holes, recesses and chases in masonry

1. Locations: To maintain integrity of strength, stability and sound resistance of construction.
2. Sizes: Minimum needed to accommodate services.
   2.1. Holes (maximum): 300 mm².
3. Walls of hollow or cellular blocks: Do not chase.
4. Walls of other materials
   4.1. Vertical chases: No deeper than one third of single leaf thickness, excluding finishes.
   4.2. Horizontal or raking chases: No longer than 1 m. No deeper than one sixth of the single leaf thickness, excluding finishes.
5. Chases and recesses: Do not set back to back. Offset by a clear distance at least equal to the wall thickness.
6. Cutting: Do not cut until mortar is fully set. Cut carefully and neatly. Avoid spalling, cracking and other damage to surrounding structure.

20 Notches and holes in structural timber

1. General: Avoid if possible.
2. Sizes: Minimum needed to accommodate services.
3. Position: Do not locate near knots or other defects.
4. Notches and holes in same joist: Minimum 100 mm apart horizontally.
5. Notches in joists
   5.1. Position: Locate at top. Form by sawing down to a drilled hole.
   5.2. Depth (maximum): 0.15 x joist depth.
   5.3. Distance from supports: Between 0.1 and 0.2 x span.
6. Holes in joists
   6.1. Position: Locate on neutral axis.
   6.2. Diameter (maximum): 0.25 x joist depth.
   6.3. Centres (minimum): 3 x diameter of largest hole.
   6.4. Distance from supports: Between 0.25 and 0.4 of span.
7. Notches in roof rafters, struts and truss members: Not permitted.
8. Holes in struts and columns: Locate on neutral axis.
   8.1. Diameter (maximum): 0.25 x minimum width of member.
   8.2. Centres (minimum): 3 x diameter of largest hole.
   8.3. Distance from ends: Between 0.25 and 0.4 of span.

30 Pipe sleeves

1. Material: Match pipeline.
2. Sleeves: Extend through full thickness of wall or floor. Position accurately.
   2.1. Clearance around service (maximum): 20 mm or diameter of service, whichever is the lesser.
   2.2. Installation: Bed solid.

Ω End of Section

R10
Rainwater drainage systems

To be read with preliminaries/ general conditions.

16 PVC-U gutters

1. Standard: To the relevant parts of BS EN 607 and BS EN 1462, Kitemark certified.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals
3. Recycled content: Submit proposals
4. Profile: Half round
5. Nominal size: 100 mm
6. Colour: Black
7. Brackets: Galvanized steel top rafter type
   7.1. Fixings: Stainless steel screws
      7.1.1. Size: 40 x 5 mm
8. Accessories: Stop ends, Leaf guards
9. Fixing: PVC-U clips at 600 mm centres
10. Jointing: Submit proposals

35 PVC-U pipework

1. Standard: To BS EN 12200-1, Kitemark certified
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals
3. Recycled content: Submit proposals
4. Section: Round
5. Nominal sizes: DN 110
6. Colour: Black
7. Brackets: PVC-U clips, black
   7.1. Fixings: Stainless steel screws
      7.1.1. Size: 40 x 5 mm
8. Fixing: PVC-U clips at 1200 mm centres
9. Jointing: Submit proposals

50 Installation generally

1. Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
2. Discharge of rainwater: Complete, and without leakage or noise nuisance.
3. Components: Obtain from same manufacturer for each type of pipework and guttering.
4. Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
5. Fixings and fasteners: As section Z20.
6. Protection
   6.1. Fit purpose made temporary caps to prevent ingress of debris.
   6.2. Fit access covers, cleaning eyes and blanking plates as the work proceeds.

60 Gutters laid to fall

1. Setting out: To true line and even gradient to prevent ponding or backfall. Position high points of gutters as close as practical to the roof and low points not more than 50 mm below the roof.
2. Joints: Watertight.
3. Roofing underlay: Dressed into gutter.

65 Gutters laid level

1. Setting out: Level and as close as practical to roof.
2. Joints: Watertight.
3. Roofing underlay: Dressed into gutter.

70 Pipework

1. Fixing: Securely, plumb and/ or true to line with additional supports as necessary to support pipe collars, particularly at changes in direction.
2. Cut ends of pipes and gutters: Clean and square with burrs and swarf removed.

80 Internal pipework test –England,Wales,IrelandandNorthern Ireland

1. Preparation: Temporarily seal open ends of pipework with plugs.
2. Test apparatus: Connect a 'U' tube water gauge and air pump to pipework via a plug.
3. Testing: Pump air into pipework until gauge registers 38 mm.
4. Required performance
   4.1. Allow a period for temperature stabilization, after which the pressure of 38 mm is to be maintained without loss for not less than 3 minutes.

92 Gutter test

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

Ω End of Section

R11
Above ground foul drainage systems

To be read with preliminaries/ general conditions.

11 Plastics branch pipework

1. Description: For Wastes
2. Materials and standards: MUPVC or PVC-C to BS EN 1566-1, Kitemark certified
3. Manufacturer: Submit proposals
   3.1. Product reference: Submit proposals
4. Nominal sizes: Refer to drawings
5. Colour: Black
6. Jointing: Contractor's choice
7. Fixing: Plastics brackets at 500 mm centres
8. Accessories: Access fittings

21 PVC-U soil/ vent pipework and wc branches

1. Description: - FOR EXTERNAL DISCHARGE STACKS
2. Standard
   2.1. To BS EN 1329-1, Kitemark certified; or
   2.2. To BS 4514, Kitemark certified.
3. Manufacturer: Contractor's choice
   3.1. Product reference: Submit proposals
4. Nominal sizes: refer to drawings
5. Colour: Black
6. Jointing: Contractor's choice
7. Fixing: Plastics brackets at 1800 mm centres
8. Accessories: Access fittings

50 Installation generally

1. Standards: To BS EN 12056-5.
2. Components: From same manufacturer for each type of pipework.
3. Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
4. Plastics and galvanized steel pipes: Do not bend.
5. Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
6. Concealed or inaccessible surfaces: Decorate before starting work specified in this section.
7. Protection
   7.1. Purpose made temporary caps: Fit to prevent ingress of debris.
   7.2. Access covers, cleaning eyes and blanking plates: Fit as the work proceeds.
8. Drainage from appliances: Quick, quiet and complete, without blockage, crossflow, backfall, leakage, odours, noise nuisance or risk to health.
9. Access: Provide access fittings in convenient locations to permit cleaning and testing of pipework.

60 Fixing pipework

1. Pipework: Fix securely plumb and/ or true to line. Fix discharge stack pipes at or just below socket collar or coupling.
2. Branches and low gradient sections: Fix with uniform and adequate falls to drain efficiently.
3. Externally socketed pipes and fittings: Fix with sockets facing upstream.
4. Additional supports: Provide as necessary at junctions and changes in direction.
5. Vertical pipes: Provide a load bearing support not less than every storey level. Tighten fixings as work proceeds so that every storey is self-supporting.
6. Wall and floor penetrations: Isolate pipework from structure, e.g. with pipe sleeves.
   6.1. Masking plates: Fix at penetrations if visible in the finished work.
7. Expansion joint sockets: Fix rigidly to the building.
8. Fixings: Allow the pipe to slide.
9. Cut ends of pipes: Clean and square with burrs and swarf removed.

65 Electrical continuity

1. Joints in metal pipes with flexible couplings: Make with clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.

66 Identification of internal foul drainage pipework

1. Markings: To BS 1710.
   1.1. Type: Black, with arrows to indicate direction of flow
   1.2. Wording: White lettering 'FOUL DRAINAGE' on a black background
2. Type: Integral lettering on pipe wall, self-adhesive bands or identification clips.
3. Locations: At 500 mm centres, junctions and both sides of slabs, valves, appliances, bulkheads and wall penetrations.

70 Pipework airtightness test

1. Preparation
   1.1. Open ends of pipework: Temporarily seal using plugs.
   1.2. Test apparatus: Connect a 'U' tube water gauge and air pump to pipework via a plug or through trap of an appliance.
2. Testing: Pump air into pipework until gauge registers 38 mm.
3. Required performance: Pressure of 38 mm is to be maintained without loss for at least three minutes.

72 Pre-handover checks

1. Temporary caps: Remove.
2. Permanent blanking caps, access covers, rodding eyes, floor gratings and the like: Secure complete with fixings.

74 Submittals

1. Manufacturer's instructions for grease traps: Handover at completion.

Ω End of Section

R12
Below ground drainage systems

To be read with preliminaries/ general conditions.

3 Existing drains

1. Setting out: Before starting work, check invert levels and positions of existing drains, sewers, inspection chambers and manholes against drawings. Report discrepancies.
2. Protection: Protect existing drains to be retained and maintain normal operation if in use.

4 Concrete

1. Description: Generally
2. Standard: To BS 8500-2
3. Concrete: Designated, GEN1, as section E10

11 Pipes, bends and junctions – Clay – Flexible joints

1. Description: surface and foul water drainage
2. Material and standard: Vitrified clay to BS EN 295-1, Kitemark-certified.
3. Manufacturer: Submit proposals
   3.1. Product reference: Submit proposals
4. Sizes: DN 100
5. Crushing strength (minimum): FN 40
6. Jointing type: Spigot and socket joints with sealing ring

14 Pipes, bends and junctions – PVC-U – solid wall

1. Description: surface and foul water drainage
2. Standard: To BS EN 1401-1, with flexible joints.
3. Class: SN4
4. Manufacturer: Submit proposals
   4.1. Product reference: Submit proposals
5. Recycled content: Submit proposals
6. Sizes: DN 110
7. Application area code: UD.

17 Lower part of trench – general

1. Trench up to 300 mm above crown of pipe: Vertical sides, width as small as practicable.
   1.1. Width (minimum): External diameter of pipe plus 300 mm.

18 Type of subsoil

1. General: Where type of subsoil at level of crown of pipe differs from that stated for the type of bedding, surround or support, give notice.

19 Formation for beddings

1. Timing: Excavate to formation immediately before laying beddings or pipes.
2. Mud, rock projections, boulders and hard spots: Remove. Replace with consolidated bedding material.

3. Local soft spots: Harden by tamping in bedding material.
4. Inspection of excavated formations: Give notice.

21 Laying pipelines

1. Laying pipes: To true line and regular gradient on even bed for full length of barrel with sockets (if any) facing up the gradient.
2. Ingress of debris: Seal exposed ends during construction.
3. Timing: Minimize time between laying and testing.

22 Jointing pipelines

1. Connections: Durable, effective and free from leakage.
2. Junctions, including to differing pipework systems: With adaptors intended for the purpose.
3. Cut ends of pipes: Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.
4. Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.
5. Allowance for movement: Provide and maintain appropriate clearance at ends of spigots as fixing and jointing proceeds.
6. Jointing material: Do not allow to project into bore of pipes and fittings.

25 Class F bedding

1. Description: to new foul pipework
2. Type of subsoil: Contractor to confirm. assumed Clay, sandy clay - firm
3. Granular material: Submit proposals
   3.1. Sizes: To Water Industry Specification WIS 4-08-02 (as amended by WIS 4-08-02A, 2008).
4. Bedding
   4.1. Material: Granular, compacted over full width of trench.
   4.2. Thickness (minimum): 50 mm for sleeve jointed pipes, 100 mm for socket jointed pipes. Where trench bottom is uneven, increase thickness by 100 mm.
5. Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
6. Initial testing before backfilling: Required
7. Backfilling
   7.1. Material: Protective cushion of selected fill.
   7.2. Depth: 150 mm (250 mm for adoptable sewers) above crown of pipe.
   7.3. Compaction: By hand in 100 mm layers.

41 Concrete surround for pipe runs near foundations

1. Class Z surround: Provide in locations where bottom of trench is lower than bottom of foundation and as follows (horizontal clear distance between nearest edges of foundations and pipe trenches):
   1.1. Trenches less than 1 m from foundations: Top of concrete surround not lower than bottom of foundation.
   1.2. Trenches more than 1 m from foundations: Top of concrete surround not lower than D mm below bottom of foundation, where D mm is horizontal distance of trench from foundation, less 150 mm.

44 Bends at base of soil stacks

1. Type: Nominal 90° rest bends
2. Radius to centreline of the pipe (minimum): 200 mm

3. Height of invert of horizontal drain at base of stack below centreline of lowest branch pipe (minimum): 750 mm
4. Bedding: Do not impair flexibility of pipe couplings.
    4.1. Material: Concrete.

47 Direct connection of ground floor wcs to drains

1. Drop from crown of WC trap to invert of drain (maximum): 1.3 m
2. Horizontal distance from the drop to a ventilated drain (maximum): 6 m.

54 Access points – plastics

1. Description: to new foul connection to existing drain
2. Standard: To BS 4660 and Kitemark-certified, to BS EN 13589-1, or Agrément-certified.
3. Manufacturer: Submit proposals
4. Nominal diameter: 450mm
5. Bases
    5.1. Product reference: Submit proposals
6. Raising pieces
    6.1. Product reference: Submit proposals
    6.2. Heights: To suit installation
7. Access covers and frames
    7.1. Product reference: Submit proposals
    7.2. Loading grades to BS EN 124: A15

65 Manholes and inspection chambers – plastics

1. Description: Where new foul drain connects to existing system
2. Standard: To BS EN 13598-2
3. Manufacturer: Submit proposals
    3.1. Product reference: Submit proposals
4. Material: Submit proposals
5. Shape: Circular
6. Size: 450 x 450
7. Moulded base
    7.1. Channels and connections: to suit the installation
    7.2. Benching: Contractor to propose
8. Formwork for concrete surround: Not required
9. Steps: Required in chambers over 900 mm deep
10. Vortex flow control unit: Not required

69 Laying conventional channels, branches and benching

1. Main channel: Bed solid in 1:3 cement:sand mortar.
    1.1. Branches: Connect to main channel at or slightly above invert level, but not higher than half channel level, so that discharge flows smoothly in direction of main flow.
    1.2. Branches greater than nominal size 150 mm: Connect the branch soffit level with the main drain soffit.
    1.3. Connecting angles more than 45° to direction of flow: Use three-quarter section channel bends.

2. Benching
    2.1. Material: concrete.
    2.2. Profile: Rise vertically from top of main channel to a level not lower than soffit of outlet pipe, then sloping upwards at 10% to walls.
    2.3. Topping
        2.3.1. Material: 1:3 Cement:sand mortar
    2.4. Application: Before benching concrete has set, and with dense smooth uniform finish.

71 Laying preformed plastics channels, branches and benching

1. Main channel: Bed solid in 1:3 cement:sand mortar.
    1.1. Branches: Connect to main channel at or slightly above invert level, but not higher than half channel level, so that discharge flows smoothly in direction of main flow.
    1.2. Connecting angles more than 45° to direction of flow: Use three-quarter section channel bends.
2. Bedding: 1:3 cement:sand mortar. Use clips or ensure adequate mechanical key.
3. Benching
    3.1. Material: Concrete.
    3.2. Profile: Rise vertically from top of main channel to a level not lower than soffit of outlet pipe, then slope upwards at 10% to walls.
    3.3. Topping
        3.3.1. Material: 1:3 Cement:sand mortar
    3.4. Application: Before benching concrete has set, and with dense smooth uniform finish.

84 Testing and inspection

1. Dates for testing and inspection: Give notice.
    1.1. Period of notice: 2 weeks

85 Initial testing of pipelines

1. Before testing
    1.1. Cement mortar jointing: Leave 24 h.
    1.2. Solvent welded pipelines: Leave 1 h.
2. Method: Block open ends of pipelines to be tested and pressurise. Air test short lengths to BS EN 1610.

88 Final testing of private gravity drains and sewers up to dn 300

1. Before testing
    1.1. Cement mortar jointing: Leave 24 h.
    1.2. Solvent welded pipelines: Leave 1 h.
2. Standard: To Building Regulations.
3. Method: Air and water

89 Water testing of manholes and inspection chambers

1. Timing: Before backfilling.
2. Standard
    2.1. Exfiltration: To BS EN 1610.
    2.2. Method: Testing with water (method W).
    2.3. Infiltration: No identifiable flow of water penetrating the chamber.

91 Backfilling to pipelines

1. Backfilling above top of surround or protective cushion: Material excavated from trench, compacted in layers 300 mm (maximum) thick.
2. Heavy compactors: Do not use before there is 600 mm (total) of material over pipes.

94 Backfilling under roads and pavings

1. Backfilling from top of surround or protective cushion up to formation level: Granular sub-base material, laid and compacted in 150 mm layers.

97 Removal of debris and cleaning

1. Preparation: Lift covers to manholes, inspection chambers and access points. Remove mortar droppings, debris and loose wrappings.
   1.1. Timing: Before cleaning, final testing, CCTV inspection if specified, and immediately before handover.
2. Cleaning: Thoroughly flush pipelines with water to remove silt and check for blockages. Rod pipelines between access points if there is any indication that they may be obstructed.
3. Washings and detritus: Do not discharge into sewers or watercourses.
4. Covers: Securely replace after cleaning and testing.

Ω End of Section

S90
Hot and cold water supply systems

General - Not Used

System performance

210 Design

1. Description: Adjustments to existing system
2. Design: Complete the design of the hot and cold water supply system.
3. Standard: To BS EN 806-2, BS 8558 and in accordance with HSE publication ‘The control of legionella bacteria in water systems. Approved code of practice and guidance’.
4. Proposals: Submit drawings (showing equipment positions and pipeline routes), technical information, calculations and manufacturers' literature.

Products

310 Dezincification

1. Fittings, pipelines, equipment located below ground or in concealed or inaccessible locations: Resistant to dezincification, e.g. gunmetal.

500 Copper pipelines, chromium-plated

1. Description: Generally
2. Standard: To BS EN 1057, Kitemark-certified.
   2.1. Finish: To BS EN ISO 1456, service condition 2.
3. Temper: Half-hard R250.
4. Wall thicknesses (nominal): To BS EN 1057.
5. Jointing: Type A compression fittings to BS EN 1254-2.
   5.1. Finish: Chromium plate to BS EN ISO 1456, service condition 3.
6. Connections to appliances and equipment: Select from:
   6.1. Compression fittings: To BS EN 1254-2, Kitemark-certified.
   6.2. Fittings with threaded ends: To BS EN 1254-4.
7. Supports:

510 Copper pipelines for general use

1. Standard: To BS EN 1057, Kitemark-certified.
2. Temper: Half-hard R250.
3. Finish: Submit proposals
   3.1. Colour: Submit proposals
4. Wall thickness (nominal): To BS EN 1057.
5. Jointing generally: Integral lead free solder ring capillary fittings to BS EN 1254-1, Kitemark-certified.
6. Connections to appliances and equipment: Select from:
   6.1. Compression fittings: To BS EN 1254-2, Kitemark-certified.
   6.2. Fittings with threaded ends: To BS EN 1254-4.
7. Supports: Compatible with pipe material

540 Thermoplastics pipelines

1. Description: Generally
2. Standard: Submit proposals
3. Jointing: Submit proposals
4. Supports: Submit proposals

560 Warning/ overflow pipes to cisterns

1. Material: Submit proposals
2. Jointing: Submit proposals
3. Minimum OD: Greater than inlet pipe OD and at least 22 mm.

565 Trace heating tape for pipelines

1. Description: Generally
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals
3. Application: Submit proposals
4. Pipe material: Submit proposals
5. Tape: Submit proposals
6. Electrical voltage: Submit proposals
7. Accessories: Submit proposals

570 Insulation to pipelines

1. Material: Contractor's choice
2. Function: Condensation control, Heat loss control, Protection from freezing
3. Thermal conductivity: 0.035 W/m·K
4. Emissivity: Low
5. Thickness (minimum): To BS 5422, Tables 19 and 20 and in accordance with ‘TIMSA guidance for achieving compliance with Part L of the Building Regulations’, Table 6.1.1.
6. Fire performance (minimum): Class B-s3,d2 to BS EN 13501-1

580 Masking plates

1. Locations: Submit proposals
2. Type: Submit proposals
3. Material: Submit proposals
4. Finish: Submit proposals
5. Fixing: Submit proposals

590 Pipeducts

1. Description: Generally
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals
3. Types: Submit proposals
4. Size: Submit proposals
5. Pipeduct sealant: A non-hardening, non-cracking, water-resistant compound.

620 Valves generally

1. Types: Approved for the purpose by local water supply undertaker and of appropriate pressure and/ or temperature ratings.
2. Control of valves: Fit with handwheels for isolation and lockshields for isolation and regulation of circuits or equipment.

625 Ball valves

1. Description: Generally
2. Standard: WRAS-approved.
3. Material: Copper alloy
4. Operation: Lever

630 Double-check valve assemblies

1. Description: Generally
2. Standard: Copper alloy check valves to BS EN 13959 with test cock to BS 2879 between.

640 Draining taps

1. Description: Generally
2. Standard: Copper alloy to BS 2879, type 1, hose connection pattern, Kitemark-certified.

650 Flow-reducing/ servicing valves

1. Description: Generally
2. Manufacturer: Submit proposals
    2.1. Product reference: Submit proposals
3. Type: Screw-operated ball type.
4. Material: Submit proposals
5. Finish: Submit proposals

660 Gate valves

1. Description: Generally
2. Standard: To BS 5154, Series B, Kitemark-certified or BS EN 12288.

670 Stop valves and draw-off taps, above ground

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals

675 Stop valves, underground

1. Standard: DZR copper alloy CZ 132 to BS 5433.

680 Thermostatic mixing valves

1. Description: Generally
2. Manufacturer: Submit proposals
    2.1. Product reference: Submit proposals

690 Flush control devices

1. Description: To W.C.

2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals
3. Type: Submit proposals
4. Operation: Submit proposals

Execution

710 Stripping out

1. Extent of stripping out: Refer to architects drawings

715 Installation generally

1. Installation: To BS EN 806-4.
2. Performance: Free from leaks and the audible effects of expansion, vibration and water hammer.
3. Fixing of equipment, components and accessories: Fix securely, parallel or perpendicular to the structure of the building.
4. Preparation: Immediately before installing tanks and cisterns on a floor or platform, clear the surface completely of debris and projections.
5. Corrosion resistance: In locations where moisture is present or may occur, provide corrosion-resistant fittings/ fixings and avoid contact between dissimilar metals by use of suitable washers, gaskets, etc.

720 Installing cisterns

1. Outlet positions: Connect lowest outlets at least 30 mm above bottom of cistern.
2. Access: Fix cistern with a minimum clear space of 350 mm above, or 225 mm if the cistern does not exceed 450 mm in any dimension.

725 Installing warning/ overflow pipes to cisterns

1. Difference (minimum) between normal water level and overflow level
   1.1. Cold water storage cisterns: The greater of 32 mm or the bore of warning pipe.
   1.2. Feed and expansion cisterns: Sufficient to allow 20% increase in the volume of water in the tank, plus 25 mm.
2. Vertical distance (minimum) of water supply inlet above overflow level: Bore of warning pipe.
3. Fall (minimum): 1 in 10.
4. Installation: Support to prevent sagging. Terminate pipes separately in prominent positions with turned down ends. Turn down within the cistern. Terminate 50 mm below normal water level.
5. Insulation: Insulate within the building where the pipe is in an uninsulated space and subject to freezing.

727 Installing vent pipes over cisterns

1. Route: Install with no restrictions or valves and rising continuously from system connection to discharge over cistern.
2. Internal diameter (minimum): 20 mm.

790 Pipelines installation

1. Appearance: Install pipes straight, and parallel or perpendicular to walls, floors, ceilings, and other building elements.
2. Pipelines finish: Smooth, consistent bore, clean, free from defects, e.g. external scratching, toolmarks, distortion, wrinkling, and cracks.
3. Concealment: Generally conceal pipelines within floor, ceiling and/ or roof voids.

4. Access: Locate runs to facilitate installation of equipment, accessories and insulation and allow access for maintenance.
5. Arrangement of hot and cold pipelines: Run hot pipelines above cold where routed together horizontally. Do not run cold water pipelines near to heating pipelines or through heated spaces.
6. Electrical equipment: Install pipelines clear of electrical equipment. Do not run pipelines through electrical enclosures or above switch gear distribution boards or the like.
7. Insulation allowance: Provide space around pipelines to fit insulation without compression.

800 Pipelines fixing

1. Fixing: Secure and neat.
2. Joints, bends and offsets: Minimize.
3. Pipeline support: Prevent strain, e.g. from the operation of taps or valves.
4. Drains and vents: Fix pipelines to falls. Fit draining taps at low points and vents at high points.
5. Thermal expansion and contraction: Allow for thermal movement of pipelines. Isolate from structure. Prevent noise or abrasion of pipelines caused by movement. Sleeve pipelines passing through walls, floors or other building elements.
6. Dirt, insects or rodents: Prevent ingress.

810 Supports for copper and stainless steel pipelines

1. Spacing: Fix securely and true to line at the following maximum centres:
    1.1. 15 and 22 mm pipe OD: 1200 mm horizontal, 1800 mm vertical.
    1.2. 28 and 35 mm pipe OD: 1800 mm horizontal, 2400 mm vertical.
    1.3. 42 and 54 mm pipe OD: 2400 mm horizontal, 3000 mm vertical.
2. Additional supports: Locate within 150 mm of connections, junctions and changes of direction.

815 Supports for exposed thermoplastics pipelines

1. Spacing: Fix securely and true to line at the following maximum centres:
    1.1. Up to 16 mm pipe OD: 300 mm horizontal, 500 mm vertical.
    1.2. 17-25 mm pipe OD: 500 mm horizontal, 800 mm vertical.
    1.3. 26-32 mm pipe OD: 800 mm horizontal, 1000 mm vertical.
2. Additional supports: Locate within 150 mm of connections, junctions and changes of direction.

820 Bends in thermoplastics pipelines

1. Bends: Do not use 90° elbow fittings instead of 90° bends.
2. Large radius bends: Support at maximum centres.
3. 90° bends: Fix pipe clips either side of bend.
4. Small radius bends: Fully support 90° bends with cold form bend fixtures.

830 Pipeline spacing

1. Clearance (minimum) to face of wall-fixed pipes or pipe insulation
    1.1. From floor: 150 mm.
    1.2. From ceiling: 50 mm.
    1.3. From wall: 15 mm.
    1.4. Between pipes: 25 mm.
    1.5. From electrical conduit, cables, etc.: 150 mm.

840 Joints in copper and stainless steel pipelines

1. Preparation: Cut pipes square. Remove burrs.
2. Joints: Neat, clean and fully sealed. Install pipe ends into joint fittings to full depth.
3. Bends: Do not use formed bends on exposed pipework, except for small offsets. Form changes of direction with radius fittings.
4. Adaptors for connecting dissimilar materials: Purpose designed.
5. Substrate and plastics pipes and fittings: Do not damage, e.g. by heat when forming soldered joints.
6. Flux residue: Clean off.

841 Capillary joints in plastics-coated pipelines

1. Plastics coating: Do not damage, e.g. by direct or indirect heat. Wrap completed joint (when cool) with PVC tape of matching colour, half lapped.

845 Joints in thermoplastics pipelines

1. Standard: Fusion jointing in accordance with WIS 4-32-08.
2. Fittings and accessories for joints: Purpose designed.
3. Preparation: Cut pipes square. Remove burrs.
4. Joints: Neat, clean and fully sealed. Install pipe ends into joint fittings to full depth.
5. Compression fittings: Do not overtighten.

850 Pipelines entering buildings

1. Depth: Lay pipes at least 750 mm and no more than 1350 mm below finished ground level.
2. Pipelines rising into building within 750 mm of the external face of the external wall or passing through a ventilated void below floor level: Insulate from finished floor level to 600 mm beyond external face of building.
3. Ends of pipeducts: Seal both ends to a depth of at least 150 mm.

855 External supply pipelines

1. Requirement: Insulate pipelines exposed to air less than 750 mm below finished ground level or more than 1350 mm below finished ground level.

860 Installation of insulation to pipelines

1. Standard: In accordance with BS 5970.
2. Cold water pipelines: Insulate in unheated spaces. Insulate potable cold water pipelines.
3. Hot water pipelines: Insulate, except for short lengths in prominent positions next to appliances.
4. Appearance: Fix securely and neatly. Make continuous over fittings and at supports. Leave no gaps. Locate split on ‘blind’ side of pipeline.
5. Timing: Fit insulation after testing.

865 Installing insulation to cisterns

1. Standard: In accordance with BS 5970.
2. General: Fix securely to sides and top of cisterns. Leave no gaps.
3. Access cover: Allow removal of cover with minimum disturbance to insulation.
4. Underside of cistern: Insulate where exposed in unheated spaces.

870 Installing valves

1. Isolation and regulation valves: Provide on equipment and subcircuits.
2. Access: Locate where valves can be readily operated and maintained and next to equipment which is to be isolated.
3. Connection to pipework: Fit with joints to suit the pipe material.

Completion

910 Flushing and filling

1. Standard: To BS EN 806-4.

920 System disinfection

1. Disinfection: To BS EN 806-4.

930 Testing

1. Standard: To BS EN 806-4.
2. Notice (minimum): Three days.
3. Preparation: Secure and clean pipework and equipment. Fit cistern and tank covers.
4. Leak testing: Start boiler and run the system until all parts are at normal operating temperatures and then allow them to cool down to cold condition for a period of three hours.
5. Pressure testing: At both hot and cold conditions joints, fittings and components must be free from leaks and signs of physical distress when tested for at least one hour as follows:
    5.1. Systems fed directly from the mains, and systems downstream of a booster pump: Apply a test pressure equal to 1.5 times the maximum pressure to which the installation or relevant part is designed to be subjected in operation.
    5.2. Systems fed from storage: Apply a test pressure equal to the pressure produced when the storage cistern is filled to its normal maximum operating level.
    5.3. Inaccessible or buried pipelines: Carry out hydraulic pressure test to twice the working pressure.

940 Commissioning

1. Standard: To BS EN 806-4.
2. Equipment: Check and adjust operation of equipment, controls and safety devices.
3. Outlets: Check operation of outlets for satisfactory rate of flow and temperature.

950 Testing service pipelines

1. Test method: Disconnect from the mains, fill with potable water, exclude air, and apply at least twice the working pressure for one hour.
2. Test criterion: No leakage.

960 Documentation

1. Manufacturers' operating and maintenance instructions: Submit for equipment and controls.
2. System operating and maintenance instructions: Submit for the system as a whole giving optimum settings for controls.
3. Record drawings: Submit drawings showing the location of circuits and operating controls.

970 Operating tools

1. Tools: Supply tools for operation, maintenance and cleaning purposes.

2. Valve keys: Supply keys for valves and vents.

980 Labels

1. Valve labels: Provide labels on isolating and regulating valves on primary circuits, stating their function.

Ω End of Section

V90
Electrical systems

General

115 Low-voltage electrical installation

1. Connection to low-voltage supply: Submit design and cost proposals
2. Switchgear: Submit design and cost proposals
3. Cable types
    3.1. Distribution circuit cabling: Submit design and cost proposals
4. Final circuit cabling: Submit design and cost proposals
5. Containment: Cable basket, Cable tray, Rigid conduit and fittings, Cable trunking and cable ducting for wall and ceiling mounting, Cable trunking and cable ducting for floor mounting, Submit design and cost proposals
6. Containment accessories: Submit design and cost proposals
7. Small power electrical accessories: Submit design and cost proposals
8. Fixed electrical equipment: Refer to architects drawings
9. Lighting accessories: Submit design and cost proposals
10. Luminaires: Refer to lighting and electrical drawings for design intent
11. Automated lighting controls: Refer to lighting and electrical drawings for design intent

System performance

210 Design of low-voltage electrical installation generally

1. Design and detailing: Complete for the electrical installation.
2. Standards: In accordance with BS 7671 and the requirements of the electricity distributor.
3. Distribution circuits
    3.1. Spare capacity: Submit design and cost proposals
    3.2. Conductor sizes (minimum): Submit design and cost proposals
4. Spare capacity of distribution equipment: Submit design and cost proposals
5. Protective devices: Coordinate the selection and adjustment of protective device settings to achieve discrimination throughout the fault level range. Grade so that a fault on any outgoing branch circuit is cleared by the switching device installed in the faulted branch circuit without affecting the other outgoing branch circuits
6. Final circuits
    6.1. Spare capacity: Submit design and cost proposals
    6.2. Conductor sizes (minimum): Submit design and cost proposals
7. Selection of cables, conduit, trunking and ducting: Submit sizes where not stated
8. Equipment: Provide electrical supplies to equipment requiring power
9. Proposals: Submit design and cost proposals

240 Design of general lighting system

1. Purpose: Provide lighting for the museum to display their exhibits.
2. Design and detailing: Complete for the general lighting system.
3. Standard: In accordance with CIBSE/ SLL Code for lighting
4. Room: Refer to architects drawings

4.1. Maintained average illuminance: Submit proposals
4.2. Glare index: Submit proposals
4.3. Controls: to work with existing controls

5. Maintenance: Submit proposals for the maintenance/ relamping regime

250 Design of emergency lighting system

1. Purpose: Suitable for escape from building
2. Design and detailing: Complete for the emergency lighting system.
3. Standards
   3.1. Emergency escape lighting: In accordance with BS 5266-1.
   3.2. Escape route, open area, high risk task area and standby lighting: To BS EN 1838 and BS EN 50172.
4. System classification: Submit design and cost proposals
5. Method of testing: Submit design and cost proposals

275 Small power system design

1. Purpose: Refer to lighting and electrical drawings
2. Small power outlets: Provide to serve the building and its equipment
3. Room Refer to architects drawings.
   3.1. Outlets: Refer to architects drawings
4. Fixed equipment: Provide supplies

280 Earthing and bonding design

1. Design: Complete the design of the earthing and bonding systems.
2. Earthing, main protective bonding, supplementary bonding and protective conductors: In accordance with BS 7671 and BS 7430
3. Requirements: Submit proposals

Products

330 Cable trays

1. Description: Generally
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals
3. Standard: To BS EN 61537.
4. Material: Submit proposals
5. Resistance against flame propagation: Submit proposals
6. Electrical properties
   6.1. Continuity characteristics: Submit proposals
   6.2. Conductivity characteristics: Submit proposals
7. Resistance against corrosion: Submit proposals
8. Temperature properties for transport, storage, installation and application
   8.1. Minimum: Submit proposals
   8.2. Maximum: Submit proposals
9. Mechanical properties
   9.1. Cable tray free base area: Submit proposals

9.2. Resistance to impact: Submit proposals

10. Width: Submit proposals
11. Features
    11.1. Flange type: Submit proposals
    11.2. Segregation: Submit proposals
    11.3. Protective covers: Submit proposals
12. Accessories and fittings: Factory-made of the same material type, pattern, finish and thickness as cable tray

335 Cable baskets

1. Description: Generally
2. Manufacturer: Submit proposals
    2.1. Product reference: Submit proposals
3. Standard: To BS EN 61537.
4. Material: Submit proposals
5. Resistance against corrosion: Submit proposals
6. Width: Submit proposals
7. Side height: Submit proposals
8. Features
    8.1. Segregation: Submit proposals
    8.2. Protective covers: Submit proposals
9. Accessories and fittings: Factory-made of the same material type, finish and thickness as cable basket

336 Above-ground warning markers

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Material: Submit proposals
3. Height: Submit proposals
4. Width: Submit proposals
5. Depth: Submit proposals
6. Legend: Submit proposals

337 Cable guards

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Material: Submit proposals
3. Finish: Submit proposals
4. Diameter: Submit proposals
5. Colour: Submit proposals
6. Accessories: Submit proposals

342 Rigid conduit and fittings

1. Description: Generally
2. Manufacturer: Submit proposals
    2.1. Product reference: Submit proposals

3. Standards: To BS EN 61386-1 and BS EN IEC 61386-21.
4. Mechanical properties
    4.1. Resistance to compression: Submit proposals
    4.2. Resistance to impact: Submit proposals
5. Transport, installation and application
    5.1. Lower temperature range (minimum): Submit proposals
    5.2. Upper temperature range (maximum): Submit proposals
6. Resistance to bending: Rigid.
7. Electrical characteristics: Submit proposals
8. Resistance to external influences
    8.1. Protection against ingress of solid objects (minimum): To BS EN 60529, IP3X
    8.2. Protection against ingress of water (minimum): To BS EN 60529, IPX0
9. Resistance against corrosion: Submit proposals
10. Tensile strength: Submit proposals
11. Resistance to flame propagation: Submit proposals
12. Suspended load capacity: Submit proposals
13. Hologen content: Halogen-free
14. Colour: To be agreed
15. Sizes: Submit proposals
16. Accessories and fittings: Factory-made by the conduit manufacturer of the same material type and finish as the conduit

411 Fire-resistant screened low-smoke halogen-free (LSHF) cables

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standard: To BS 7629-1.
3. Third-party certification: Submit proposals Loss Prevention Certification Board (LPCB)-certified
4. Size: Submit proposals
5. Insulation: Submit proposals
6. Fire resistance category: Submit proposals
7. Screen: Submit proposals

412 Light-duty mineral-insulated cables

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standard: To BS EN 60702-1.
3. Third-party certification: Loss Prevention Certification Board (LPCB)-certified
4. Size: Submit proposals
5. Metallic sheath: Submit proposals
6. Outer covering
    6.1. Material: Submit proposals
    6.2. Colour: Submit proposals

414 Polyvinyl chloride (PVC)-insulated and sheathed cables

1. Manufacturer: Submit proposals

1.1. Product reference: Submit proposals
2. Standard: To BS 6004.
3. Third-party certification: Submit proposals
4. Cable type: Submit proposals
5. Size: Submit proposals
6. Sheath colour: Grey.
7. Reaction to fire class
   7.1. Fire behaviour: Submit proposals
   7.2. Additional classification for smoke production: Submit proposals
   7.3. Additional classification for flaming droplets and or particles: Submit proposals
   7.4. Additional classification for acidity: Submit proposals

415 Cross-linked polyolefin-insulated low-smoke halogen-free (LSHF) non-sheathed single-core cables

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals
2. Standard: To BS EN 50525-1 and BS EN 50525-3-41.
3. Third-party certification: Submit proposals
4. Cable type: Submit proposals
5. Size: Submit proposals
6. Reaction to fire class
   6.1. Fire behaviour: Submit proposals
   6.2. Additional classification for smoke production: Submit proposals
   6.3. Additional classification for flaming droplets and or particles: Submit proposals
   6.4. Additional classification for acidity: Submit proposals

416 Polyvinyl chloride (PVC)-insulated non-sheathed single-core cables

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals
2. Standard: To BS EN 50525-1 and BS EN 50525-2-31.
3. Third-party certification: Submit proposals
4. Cable type: Submit proposals
5. Size: Submit proposals
6. Reaction to fire class
   6.1. Fire behaviour: Submit proposals
   6.2. Additional classification for smoke production: Submit proposals
   6.3. Additional classification for flaming droplets and or particles: Submit proposals
   6.4. Additional classification for acidity: Submit proposals

417 Thermosetting-insulated thermoplastic-sheathed low-smoke halogen-free (LSHF) cables

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals
2. Standard: To BS 7211.
3. Third-party certification: Submit proposals

4. Cable type: Submit proposals
5. Size: Submit proposals
6. Reaction to fire class
    6.1. Fire behaviour: Submit proposals
    6.2. Additional classification for smoke production: Submit proposals
    6.3. Additional classification for flaming droplets and or particles: Submit proposals
    6.4. Additional classification for acidity: Submit proposals

418 Thermosetting-insulated polyvinyl chloride (PVC)-sheathed armoured cables

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standard: To BS 5467.
3. Third-party certification: Submit proposals
4. Size: Submit proposals
5. Insulation: Submit proposals
6. Sheath colour: Black
7. Reaction to fire class
    7.1. Fire behaviour: Submit proposals
    7.2. Additional classification for smoke production: Submit proposals
    7.3. Additional classification for flaming droplets and or particles: Submit proposals
    7.4. Additional classification for acidity: Submit proposals

419 Thermosetting-insulated thermoplastic-sheathed low-smoke halogen-free (LSHF) armoured cables

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standard: To BS 6724.
3. Third-party certification: Submit proposals
4. Size: Submit proposals
5. Insulation: Submit proposals
6. Sheath colour: Black
7. Reaction to fire class
    7.1. Fire behaviour: Submit proposals
    7.2. Additional classification for smoke production: Submit proposals
    7.3. Additional classification for flaming droplets and or particles: Submit proposals
    7.4. Additional classification for acidity: Submit proposals

420 Protective conductors

1. Type: Cable conductors with yellow/ green sheath

430 Electrical accessories

1. Description: Refer to architects drawings
2. Manufacturer: Submit proposals
    2.1. Product reference: Submit proposals

3. Standards
    3.1. Generally: To BS 5733.
    3.2. Switches: To BS EN 60669-1.
4. Finish: Submit proposals
5. Mounting: Submit proposals

432 Ceiling power switches

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standards: To BS EN 60669-1 and BS EN 60669-2-4.
3. Current rating: Submit proposals
4. Poles: Double-pole
5. Indicator lamp: Submit proposals
6. Flag indicator: Mechanical on/ off indication
7. Mounting: Submit proposals
8. Ingress protection (minimum): Submit proposals
9. Cable termination: Submit proposals
10. Material: Submit proposals
11. Colour: Submit proposals

433 Double-pole switches

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standards: To BS EN 60669-1 and BS EN 60669-2-4.
3. Current rating: Submit proposals
4. Indicator lamp: Submit proposals
5. Mounting: Submit proposals
6. Ingress protection (minimum): Submit proposals
7. Cable termination: Submit proposals
8. Plate
    8.1. Material: Submit proposals
    8.2. Finish: Submit proposals
    8.3. Insert colour: Submit proposals

435 Fused connection units

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standard: To BS 1363-4.
3. Control
    3.1. Type: Submit proposals
    3.2. Indicator lamp: Submit proposals
4. Mounting: Submit proposals
5. Flex outlet: Submit proposals
6. Ingress protection (minimum): Submit proposals
7. Cable termination: Submit proposals

8. Fuse carrier access: Submit proposals
9. Plate
    9.1. Material: Submit proposals
    9.2. Finish: Submit proposals
    9.3. Insert colour: Submit proposals

440 Standard socket outlets

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standard: To BS EN 1363-2.
3. Arrangement: Submit proposals
4. Control
    4.1. Type: Submit proposals
    4.2. Switch position: Submit proposals
    4.3. Indicator lamp: Submit proposals
    4.4. Interlock: Submit proposals
5. Mounting: Submit proposals
6. Features: Submit proposals
7. Ingress protection (minimum): Submit proposals
8. Cable termination: Submit proposals
9. Plate
    9.1. Material: Submit proposals
    9.2. Finish: Submit proposals
    9.3. Insert colour: Submit proposals

441 Standard socket outlet residual current devices (SRCDs)

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standards: To BS 1363-2 and BS 7288.
3. Voltage rating: 230 V a.c. 50 Hz
4. Current rating: Submit proposals
5. Rated residual operating current: Submit proposals
6. Poles: Submit proposals
7. Arrangement: Submit proposals
8. Control
    8.1. Type: Submit proposals
    8.2. Switch position: Submit proposals
    8.3. Indicator lamp: Submit proposals
    8.4. Interlock: Submit proposals
    8.5. Response to line voltage failure: Submit proposals
9. Operating characteristic: Submit proposals
10. Mounting: Submit proposals
11. Ingress protection (minimum): Submit proposals
12. Cable termination: Submit proposals
13. Plate

13.1. Material: Submit proposals
13.2. Finish: Submit proposals
13.3. Insert colour: Submit proposals

455 Lighting switches

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals
2. Standard: To BS EN 60669-1.
3. Current rating: Submit proposals
4. Actuating method: Submit proposals
5. Poles: Submit proposals
6. Arrangement: Submit proposals
7. Mounting: Submit proposals
8. Ingress protection (minimum): Submit proposals
9. Cable termination: Submit proposals
10. Plate
    10.1. Material: Submit proposals
    10.2. Finish: Submit proposals
    10.3. Insert colour: Submit proposals

456 Dimmer switches and controls

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals
2. Standards: To BS EN 60669-1 and BS EN 60669-2-1.
3. Rated load: Submit proposals
4. Arrangement: Submit proposals
5. Actuating method: Submit proposals
6. Control function: Submit proposals
7. Suitable for the following loads: Submit proposals
8. Mounting: Submit proposals Submit proposals
9. Ingress protection (minimum): Submit proposals
10. Cable termination: Submit proposals
11. Plate
    11.1. Material: Submit proposals
    11.2. Finish: Submit proposals
    11.3. Insert colour: Submit proposals

510 General purpose luminaires

1. Description: Refer to architects drawings
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals
3. Standards: To BS EN IEC 60598-1 and BS EN 60598-2-2
4. Third-party certification: Submit proposals
5. Luminaire description: Refer to architects drawings
6. Photometric performance: To BS EN 13032-1.

7. Mounting: Submit proposals
8. Ingress protection (minimum): Submit proposals
9. Impact protection (minimum): Submit proposals
10. Lamp: Submit proposals
    10.1. Wattage: Submit proposals

511 Lamps generally

1. Manufacturer: Submit proposals
    1.1. Lamps of the same type and rating: Same manufacturer.
2. Standards
    2.1. Compact fluorescent lamps: To BS EN 60901 and BS EN 61199.
    2.2. High-pressure mercury lamps: To BS EN 60188 and BS EN 62035.
    2.3. High-pressure sodium lamps: To BS EN 62035.
    2.4. Light-emitting diodes (LEDs): To BS EN IEC 62031.
    2.5. Metal halide lamps: To BS EN 62035.
    2.6. Tubular fluorescent lamps
        2.6.1. Single-capped lamps: To BS EN 60901 and BS EN 61199.
        2.6.2. Double-capped lamps: To BS EN 60081 and BS EN 61195.
    2.7. Tungsten halogen lamps: To BS EN 60432-2 and BS EN 60357.

515 Luminaire supporting couplers

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standards: Submit proposals
3. Current rating: 6 A
4. Material: Plastics
5. Colour: White
6. Mounting: Submit proposals

520 Safety isolating transformers

1. Description: Generally
2. Manufacturer: Submit proposals
    2.1. Product reference: Submit proposals
3. Safety isolating transformer: To BS EN IEC 61558-1 and BS EN 61558-2-6.
    3.1. Type: Submit proposals
    3.2. Rating: Submit proposals
    3.3. Voltage tappings: Submit proposals
4. Enclosure
    4.1. Material and finish: Submit proposals
    4.2. Ingress protection (minimum): Submit proposals

530 Self-contained emergency luminaires

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standards: To BS EN IEC 60598-1 and BS EN 60598-2-22.

3. Third-party certification: ICEL product endorsement scheme
4. Luminaire type: Submit proposals
5. Lamp: Submit proposals
    5.1. Wattage: Submit proposals
6. Type: X.
7. Mode of operation: Submit proposals
8. Facilities: Submit proposals
9. Duration of emergency mode: Submit proposals
10. Indicators
    10.1. Charging: Submit proposals
    10.2. Fault: Submit proposals
11. Test in progress: Submit proposals
    11.1. Position within luminaire: Readily visible. Fix to luminaire body
12. Batteries: Submit proposals
13. Material: Submit proposals
14. Colour: Submit proposals
    14.1. Labelling: Indelibly mark with year of manufacture and installation.
15. Legend: Submit proposals

550 Centrally supplied emergency luminaires

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standards: To BS EN IEC 60598-1 and BS EN 60598-2-22.
3. Third-party certification: Submit proposals
4. Luminaire type: Submit proposals
5. Lamp: Submit proposals
    5.1. Wattage: Submit proposals
6. Type: Z.
7. Mode of operation: Submit proposals
8. Facilities: Contractor's choice Submit proposals
9. Material: Submit proposals
10. Colour: Submit proposals
11. Legend: Submit proposals

580 Earthing and bonding equipment

1. Earth electrodes: In accordance with BS 7430.
2. Electrode type: Submit proposals
3. Earth clamps: To BS 951.

594 Photoelectric control units

1. Manufacturer: Submit proposals
    1.1. Product reference: Submit proposals
2. Standard: To BS 5972.
3. Features: Submit proposals
4. Mounting: Submit proposals

596 Occupancy detectors

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals
2. Standards: To BS EN 60669-1 and BS EN 60669-2-1
3. Sensor type: Submit proposals
4. Features: Submit proposals
5. Mounting: Submit proposals

Execution

610 Electrical installation generally

1. Standard: In accordance with BS 7671.

615 Installing connection to incoming supply

1. Main switchboard/ distribution board: Connect to main incoming metering equipment.
2. Nature of connection: Liaise with the DNO to ensure the correct size, quantity and type of cable is provided for connection to their equipment.

630 Installing switchgear

1. Orientation: Accurate and square to vertical and horizontal axis. Align adjacent items of switchgear on the same horizontal axis
2. Clearance in front of switchgear (minimum): 1 m
3. Labelling: Permanently label each way, identifying circuit function, rating and cable size
4. Padlock identification: Stamp padlock describing its function

645 Installing cable tray

1. Support: Submit proposals
2. Access: Provide space encompassing cable trays to permit access for installing and maintaining cables
3. Supports and fasteners: Avoid contact between dissimilar metals. Use corrosion-resistant components in locations where moisture may occur.
4. Cutting: Along an unperforated line. Minimize. Make good edges. Treat surface as the tray
5. Earth protection: Ensure that, where utilized, tray jointing pieces are properly fixed and provide satisfactory continuity between the separate sections of containment.

650 Installing cable basket

1. Support: Submit proposals
2. Access: Provide space encompassing cable basket to permit access for installing and maintaining cables
3. Supports and fasteners: Avoid contact between dissimilar metals. Use corrosion-resistant components in locations where moisture may occur.
4. Earth protection: Ensure that, where utilized, basket jointing pieces are properly fixed and provide satisfactory continuity between the separate sections of containment.

655 Installing steel conduit and fittings

1. Fixing: Fix securely. Fix boxes independently of conduit
2. Conduit drainage: Provide drainage outlets at lowest points

3. Location: Position vertically and horizontally in line with equipment served, and parallel with building lines. Locate where accessible.
4. Jointing
    4.1. Number of joints: Minimize.
    4.2. Lengths of conduit: Maximize.
    4.3. Cut ends: Remove burrs, and plug during construction works.
    4.4. Movement joints in structure: Manufactured expansion coupling.
    4.5. Threaded steel conduits: Tightly screw to ensure electrical continuity, with no thread showing.
    4.6. Conduit connections to boxes and items of equipment, other than those with threaded entries: Earthing coupling/ male brass bush and protective conductor
    4.7. Changes of direction: Submit proposals
5. Connections to boxes, trunking, equipment and accessories: Screwed couplings, adaptors, connectors and glands: Attach rubber bushes at open ends.
6. Mounting and support: Submit proposals
7. Earth protection: Ensure that satisfactory continuity is maintained between the separate sections of conduit, equipment and accessories

660 Installing PVC conduit and fittings

1. Fixing
    1.1. Spacing of conduit saddles (maximum): 0.9 m on horizontal, 1.25 m on vertical. Reduce spacing in areas of high ambient temperature in accordance with manufacturer's instructions
    1.2. Fix boxes independently of conduit.
    1.3. At fittings and changes of direction: Fit conduit saddles 150 mm either side
    1.4. Thermal expansion: Allow for expansion couplings in accordance with manufacturer's recommendations.
2. Conduit drainage: Provide drainage outlets at lowest points
3. Location: Position vertically and horizontally in line with equipment served, and parallel with building lines. Locate where accessible.
4. Jointing
    4.1. Number of joints: Minimize.
    4.2. Lengths of conduit: Maximize.
    4.3. Cut ends: Remove burrs.
    4.4. Movement joints in structure: Manufactured expansion coupling.
    4.5. Adhesive: Use water-resistant solvent cement to form watertight joints. Use water-resistant lubricant sealant at expansion couplers
5. Changes of direction: Submit proposals
6. Connections to boxes, trunking, equipment and accessories: Use threaded adaptors.
7. Mounting and support: Submit proposals

670 Installing trunking/ ducting systems

1. Positioning: Accurate with respect to equipment served, and parallel with other services and where relevant, floor level and other building lines.
2. Access: Provide space encompassing cable trunking to permit access for installing and maintaining cables.
3. Jointing
    3.1. Number of joints: Minimize.

3.2. Lengths of trunking/ ducting: Maximize.

3.3. Steel systems: Mechanical couplings. Do not weld. Fit a copper link at each joint to ensure that satisfactory electrical continuity is maintained between the separate sections of trunking, equipment and accessories.

4. Movement: Fix securely. Restrain floor-mounted systems during screeding.
5. Junctions and changes of direction: Proprietary jointing units.
6. Cable entries: Fit grommets, bushes or liners
7. Internal fire barriers: Provide to maintain integrity of fire compartment.
8. Protection: Fit temporary blanking plates. Prevent ingress of screed and other extraneous materials
9. Service outlet units: Fit when cables are installed

680 Cable routes

1. Cables generally: Conceal wherever possible

1.1. Concealed cable runs to wall switches and outlets: Align vertically or horizontally with the accessory.

2. Exposed cable runs: Not allowed

2.1. Orientation: Straight, vertical and/ or horizontal and parallel to walls.

3. Distance from other services running parallel: 150 mm minimum

3.1. Heating pipes: Position cables below

685 Installing cables

1. General: Install cables neatly and securely. Protect against accidental damage, adverse environmental conditions, mechanical stress and deleterious substances.
2. Timing: Do not start internal cabling until building enclosure provides permanently dry conditions
3. Jointing: At equipment and terminal fittings only.
4. Cables passing through walls: Sleeve with conduit bushed at both ends
5. Cables surrounded or covered by thermal insulation: Derate accordingly
6. Cable guards: Fit where cables are vulnerable to mechanical damage

690 Installing cables in plaster

1. Protection: Cover with galvanized steel cable capping nailed to substrate

695 Installing cables in vertical trunking/ ducts

1. Support: Pin racks or cleats at each floor level or at 5 m vertical centres, whichever is less
2. Heat barrier centres (maximum): 5 m
3. Heat barriers: Required except where fire-resistant barriers are not provided

700 Installing cables in accessible roof spaces

1. Cables running across ceiling joists: Fix to timber battens which are secured to joists

705 Installing armoured cable

1. Temperature: Do not start installation if cable or ambient temperature is below 0°C, or has been below 0°C during the previous 24 hours.
2. Joints and terminations: Use qualified cable jointers, using jointing materials, components and installation techniques recommended by the cable manufacturer and the jointing accessory manufacturer
3. Earthing: Bond armour to equipment and main earthing system

4. Connections to apparatus: Moisture-proof, sealed glands and shrouds

710 Installing PVC-sheathed cable

1. Temperature: Do not install cables if ambient temperature is below 5°C.

715 Installing MICC cable

1. Bending: Do not corrugate sheath.
2. Sealing cable ends: Fit terminations as soon after cable installation as practicable. Temporarily seal open cable ends to prevent the ingress of moisture where terminations are not fitted immediately.
3. Testing: Test each length immediately after fixing. Repeat test 24-48 hours later
4. Terminations: To BS EN 60702-2.
5. Connection to equipment and boxes: Fit shrouded glands

720 Installing electrical accessories and equipment

1. Location: Refer to drawings
2. Arrangement: Coordinate with other wall- or ceiling-mounted equipment.
3. Positioning: Accurately and square to vertical and horizontal axes.
4. Alignment: Align adjacent accessories on the same vertical or horizontal axis.
5. Mounting: Submit proposals
6. Mounting heights (finished floor level to underside of equipment/ accessory): To be agreed with client
7. Accessory face plates: Free from any traces of plaster, grout and paint or similar.

725 Final connections

1. Size: Determine
2. Cable: Heat-resistant white flex
3. Length: Allow for equipment removal and maintenance

730 Installing multigang switches

1. General: Connect switches so that there is a logical relationship with luminaire positions. Fit blanks to unused switch spaces
2. Segregation: Internally segregate each phase with phase barriers with warning plates

735 Installing luminaires

1. Location: Submit proposals
2. Orientation: Submit proposals
3. Supports: Adequate for weight of luminaire.

740 Installing emergency luminaires

1. Permanent electrical supplies: Derive from adjacent local lighting circuit
2. Charge indicator: Position in a conspicuous location

746 Installing luminaire controlgear

1. Location: Remote within a separate enclosure
2. Labelling of controlgear enclosures: Describe controlgear purpose

760 Equipment labelling

1. Electrical equipment: Install labels indicating purpose.
2. Voltage warning notices
   2.1. Location: Apply to equipment in a position where it can be seen prior to gaining access to live parts when the voltage within exceeds 230 V.
   2.2. Format: To BS EN ISO 7010, functional reference number, W012, includes warnings of the voltage present.
3. Distribution boards: Card circuit chart within a reusable clear plastic cover. Fit to the inside of each unit. Include typed information identifying the outgoing circuit references, their device rating, cable type, size, circuit location and details. Label each outgoing way corresponding to the circuit chart
4. Sub-main cables: Label at both ends with circuit reference using proprietary cable marker sleeves

765 Engraving

1. Metal and plastic accessories: Label at both ends with circuit reference using proprietary cable marker sleeves
2. Emergency lighting test key switches: Describe their function
3. Multigang light switches: Describe the luminaire arrangement

Completion

810 Final fix

1. Accessory faceplates, luminaires and other equipment: Fit after completion of building painting

820 Cleaning

1. Electrical equipment: Clean immediately before handover
2. Equipment not supplied but installed under the electrical works: Clean immediately before handover

830 Inspection and testing generally

1. Standard: In accordance with BS 7671.
2. Notice before commencing tests (minimum): 24 hours
3. Labels and signs: Fix securely before system is tested
4. Certificates: Submit
   4.1. Number of copies: Submit proposals

860 Inspection and testing of emergency lighting systems

1. Standard: In accordance with BS 5266-1.
2. Certificate of testing: Submit
   2.1. Standard: Submit proposals
   2.2. Number of copies: Submit proposals
3. System log book: To BS 5266-1.

880 Documentation

1. Timing: Submit at practical completion
2. Contents: As-installed drawings showing circuits and their ratings and locations of fittings and apparatus Full technical description of each system installed. List of normal consumable items, Manufacturers' guarantees and warranties Manufacturers' operating and maintenance instructions for fittings and apparatus including relamping instructions for luminaire types. Identify hazardous

lamps that require specialist disposal Recommended frequency of testing and inspection, both for electrical safety and for matters such as the corrosion and security of lighting columns and luminaire fixings

890 Maintenance

1. Servicing and maintenance: Undertake
   1.1. Duration: Until 12 months after practical completion

Ω End of Section

Z10
Purpose-made joinery

To be read with preliminaries/ general conditions.

110 Fabrication

1. Standard: To BS 1186-2.
2. Sections: Accurate in profile and length, and free from twist and bowing. Formed out of solid unless shown otherwise.
   2.1. Machined surfaces: Smooth and free from tearing, wooliness, chip bruising and other machining defects.
3. Joints: Tight and close fitting.
4. Assembled components: Rigid. Free from distortion.
5. Screws: Provide pilot holes.
   5.1. Screws of 8 gauge (4 mm diameter) or more and screws into hardwood: Provide clearance holes.
   5.2. Countersink screws: Heads sunk at least 2 mm below surfaces visible in completed work.
   5.3. Adhesives: Compatible with wood preservatives applied and end uses of timber.

120 Cross section dimensions of timber

1. General: Dimensions on drawings are finished sizes.
2. Maximum permitted deviations from finished sizes
   2.1. Softwood sections: To BS EN 1313-1:-
      2.1.1. Clause 6 for sawn sections.
   2.2. Hardwood sections: To BS EN 1313-2:-
      2.2.1. Clause 6 for sawn sections.
      2.2.2. Clause NA.3 for further processed sections.

130 Preservative treated wood

1. Cutting and machining: Completed as far as possible before treatment.
2. Extensively processed timber: Retreat timber sawn lengthways, thicknessed, planed, ploughed, etc.
3. Surfaces exposed by minor cutting and/ or drilling: Treat as recommended by main treatment solution manufacturer.

140 Moisture content

1. Wood and wood-based products: Maintained within range specified for the component during manufacture and storage.

250 Finishing

1. Surfaces: Smooth, even and suitable to receive finishes.
   1.1. Arrises: Eased unless shown otherwise on drawings.
2. End grain in external components: Sealed with primer or sealer as section M60 and allowed to dry before assembly.

Ω End of Section

Z11
Purpose-made metalwork

Products

310 Materials generally

1. Grades of metals, section dimensions and properties: To appropriate British Standards. When not specified, select grades and sections appropriate for the purpose.
2. Prefinished metal: May be used if methods of fabrication do not damage or alter appearance of finish, and finish is adequately protected.
3. Fasteners: To appropriate British Standards and, unless specified otherwise, of same metal as component being fastened, with matching coating or finish.

Fabrication

515 Fabrication generally

1. Contact between dissimilar metals in components: Avoid.
2. Finished components: Rigid and free from distortion, cracks, burrs and sharp arrises.
    2.1. Moving parts: Free moving without binding.
3. Corner junctions of identical sections: Mitre.

520 Cold formed work

1. Profiles: Accurate, with straight arrises.

Finishing

745 Preparation for application of coatings

1. General: Complete fabrication, and drill fixing holes before applying coatings.
2. Paint, grease, flux, rust, burrs and sharp arrises: Remove.

780 Galvanizing

1. Standard: To BS EN ISO 1461.
2. Preparation
    2.1. Vent and drain holes: Provide in accordance with BS EN 14713-1 and -2. Seal after sections have been drained and cooled.
    2.2. Components subjected to cold working stresses: Heat treat to relieve stresses before galvanizing.
    2.3. Welding slag: Remove.
    2.4. Component cleaning: To BS EN ISO 8501-3.
    2.5. Grade: St 2½

Ω End of Section

Z12
Preservative/ flame-retardant treatment

To be read with preliminaries/ general conditions.

110 Treatment application

1. Timing: After cutting and machining timber, and before assembling components.
2. Processor: WPA Benchmark-accredited for the specified treated components.

120 Commodity specifications

1. Standard: In accordance with the Wood Protection Association (WPA) publication 'Code of practice: Industrial Wood Preservation'.

130 Preservative treatment solution strengths/ treatment cycles

1. General: Select to achieve specified service life and to suit treatability of specified wood species.

140 Copper-organic preservative treatment

1. Solution
    1.1. Manufacturer: Submit proposals
        1.1.1. Product reference: Submit proposals
    1.2. Colour: Contractor's choice
    1.3. Application: High-pressure impregnation.
2. Moisture content of wood
    2.1. At time of treatment: Not more than 28%.
    2.2. After treatment: Timber to be surface dry before using.

150 Water-based organic preservative treatment

1. Solution
    1.1. Manufacturer: Submit proposals
        1.1.1. Product reference: Submit proposals
    1.2. Application: High-pressure impregnation.
2. Moisture content of wood
    2.1. At time of treatment: Not more than 28%.
    2.2. After treatment: Timber to be surface dry before use.

160 Organic solvent preservative treatment

1. Solution
    1.1. Manufacturer: Submit proposals
        1.1.1. Product reference: Submit proposals
    1.2. Application: Double vacuum and low-pressure impregnation, or immersion.
2. Moisture content of wood
    2.1. At time of treatment: As specified for the timber/ component at time of fixing.
    2.2. After treatment: Timber to be surface dry before use.

165 Water-based microemulsion preservative treatment

1. Solution

1.1. Manufacturer: Submit proposals
1.1.1. Product reference: Submit proposals
1.2. Application: Double vacuum and low-pressure impregnation.
2. Moisture content of wood
2.1. At time of treatment: As specified for the timber/ component at time of fixing.
2.2. After treatment: Timber to be surface dry before use.

167 Boron compound preservative treatment

1. Solution
1.1. Manufacturer: Submit proposals
1.1.1. Product reference: Submit proposals
1.2. Application: High-pressure impregnation.
2. Moisture content of wood
2.1. At time of treatment: Not more than 28%.
2.2. After treatment: Timber to be surface dry before using.

610 Making good to preservative treatment on site

1. Preservative solution: Compatible with off-site treatment.
2. Application: In accordance with preservative manufacturer's recommendations.

620 Making good to flame-retardant treatment on site

1. Flame-retardant: Compatible with off-site treatment.
2. Application: In accordance with flame-retardant manufacturer's recommendations.

Ω End of Section

Z20
Fixings and adhesives

Products

310 Fasteners generally

1. Materials: To have:
   1.1. Bimetallic corrosion resistance appropriate to items being fixed.
   1.2. Atmospheric corrosion resistance appropriate to fixing location.
2. Appearance: Submit samples on request.

320 Packings

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

340 Masonry fixings

1. Light duty: Plugs and screws.
2. Heavy duty: Expansion anchors or chemical anchors.

350 Plugs

1. Type: Proprietary types to suit substrate, loads to be supported and conditions expected in use.

390 Adhesives generally

1. Standards
   1.1. Hot-setting phenolic and aminoplastic: To BS 1203.
   1.2. Thermosetting wood adhesives: To BS EN 12765.
   1.3. Thermoplastic adhesives: To BS EN 204.

410 Powder actuated fixing systems

1. Types of fastener, accessories and consumables: As recommended by tool manufacturer.

Execution

610 Fixing generally

1. Integrity of supported components: Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.
2. Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers/ sleeves to avoid bimetallic corrosion.
3. Appearance: Fixings to be in straight lines at regular centres.

620 Fixing through finishes

1. Penetration of fasteners and plugs into substrate: To achieve a secure fixing.

630 Fixing packings

1. Function: To take up tolerances and prevent distortion of materials and components.
2. Limits: Do not use packings beyond thicknesses recommended by fixings and fasteners manufacturer.

3. Locations: Not within zones to be filled with sealant.

640 Fixing cramps

1. Cramp positions: Maximum 150 mm from each end of frame sections and at 600 mm maximum centres.
2. Fasteners: Fix cramps to frames with screws of same material as cramps.
3. Fixings in masonry work: Fully bed in mortar.

670 Pelleted countersunk screw fixing

1. Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
2. Pellets: Cut from matching timber, match grain and glue in to full depth of hole.
3. Finished level of pellets: Flush with surface.

680 Plugged countersunk screw fixing

1. Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
2. Plugs: Glue in to full depth of hole.
3. Finished level of plugs: Projecting above surface.

690 Using powder actuated fixing systems

1. Powder actuated fixing tools: To BS 4078-2 and Kitemark certified.
2. Operatives: Trained and certified as competent by tool manufacturer.

700 Applying adhesives

1. Surfaces: Clean. Adjust regularity and texture to suit bonding and gap filling characteristics of adhesive.
    1.1. Support and clamping during setting: Provide as necessary. Do not mark surfaces of or distort components being fixed.
2. Finished adhesive joints: Fully bonded. Free of surplus adhesive.

Ω End of Section

Z21
Mortars

Cement gauged mortars

110 Cement gauged mortar mixes

1. Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

120 Sand for site made cement gauged masonry mortars

1. Standard: To BS EN 13139.
2. Grading: 0/2 (FP or MP).
    2.1. Fines content where the proportion of sand in a mortar mix is specified as a range (e.g. 1:1: 5-6):
        2.1.1. Lower proportion of sand: Use category 3 fines.
        2.1.2. Higher proportion of sand: Use category 2 fines.
3. Sand for facework mortar: Maintain consistent colour and texture. Obtain from one source.

131 Ready-Mixed lime:sand for cement gauged masonry mortars

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

135 Site made lime:sand for cement gauged masonry mortars

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

Lime:sand mortars

310 Lime:sand mortar mixes

1. Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

320 Sand for lime:sand masonry mortars

1. Type: Sharp, well graded.
    1.1. Quality, sampling and testing: To BS EN 13139.
    1.2. Grading/ Source: As specified elsewhere in relevant mortar mix items.

330 Ready prepared lime putty

1. Type: Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.
    1.1. Maturation: In pits/ containers that allow excess water to drain away.
    1.2. Density of matured lime putty: 1.3-1.4 kg/litre.

2. Maturation period before use (minimum): Seek instructions

360 Making lime:sand mortars generally

1. Batching: By volume. Use clean and accurate gauge boxes or buckets.
2. Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
3. Contamination: Prevent intermixing with other materials, including cement.

370 Site prepared nonhydraulic lime:sand mortars

1. Mixing: Mix materials thoroughly by compressing, beating and chopping. Do not add water.
   1.1. Equipment: Roller pan mixer or submit proposals.
2. Maturation period before use (maximum): Seek instructions

380 Ready to use nonhydraulic lime:sand mortars

1. Manufacturer: Conserv
   1.1. Product reference: NHL 3.5
2. Materials: Select from:
   2.1. Lime putty slaked directly from quicklime to BS EN 459-1 and mixed thoroughly with sand.
   2.2. Quicklime to BS EN 459-1 slaked directly with sand.
3. Maturation period before use (maximum): Seek instructions

390 Knocking up nonhydraulic lime:sand mortars

1. Knocking up before and during use: Achieve and maintain a workable consistency by compressing, beating and chopping. Do not add water.
   1.1. Equipment: Roller pan mixer or submit proposals.

400 Making hydraulic lime:sand mortars

1. Mixing hydrated hydraulic lime:sand: Follow the lime manufacturer's recommendations for each stage of the mix.
   1.1. Water quantity: Only sufficient to produce a workable mix.
2. Working time: Within limits recommended by the hydraulic lime manufacturer.

Ω End of Section

Z22
Sealants

Products - Not Used

Execution

610 Suitability of joints

1. Presealing checks
   1.1. Joint dimensions: Within limits specified for the sealant.
   1.2. Substrate quality: Surfaces regular, undamaged and stable.
2. Joints not fit to receive sealant: Submit proposals for rectification

620 Preparing joints

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

630 Applying sealants

1. Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice or snow.
2. Environmental conditions: Do not dry or raise temperature of joints by heating.
3. Sealant application: Fill joints completely and neatly, ensuring firm adhesion to substrates.
4. Sealant profiles
   4.1. Butt and lap joints: Slightly concave.
   4.2. Fillet joints: Flat or slightly convex.
5. Protection: Protect finished joints from contamination or damage until sealant has cured.

Ω End of Section

Specification created using NBS Chorus