215794

Canham Consulting Ltd

Acle Parish Council

Refurbishment of The Chocolate Box, The Street, Acle

Works Specification

19-07-2021

Undertake refurbishment of whole building, including re-roofing; strengthening existing timbers; full rewiring of electrics to both floors; installation of air source heating system; full decorations internal and external; window replacement.

Contents

C20
Demolition

Clauses

Remove existing partitions

1. Location: To first floor office no. 2 indicated on 215794-CCL-XX-XX-DR-B-1000 P01.
2. Works: Allow to remove existing stud partition wall complete and cart from site.

Expose existing downstand beams

1. Location: To ground floor retail spaces, indicated on 215794-CCL-XX-XX-DR-B-1000 P01.
2. Works: Allow to remove all boxing to downstand beams within ground floor retail units, to enable inspection and confirmation of adequate fire protection to structure. All arisings to be carted from site.
3.

Remove existing floor coverings

1. Location: To whole of existing newsagent and animal feed shop, including office and store area and to whole of first floor accommodation.
2. Works: Allow to remove all existing floor coverings and cart from site.

Remove existing electrical services

1. Location: To the whole of the existing newsagents and animal feed shop and to the whole of the first floor.
2. Works: To the whole of the existing newsagents and animal feed shop and to the whole of the first floor, allow to remove all services, including surface mounted cabling, sockets, junction boxes, light fittings et all, back to consumer units located on the front external wall to ground floor and to the right-hand side external wall on the first floor.
3. All arisings to be carted from site on removal.

Remove existing fixtures and fittings - ground floor retail unit

1. Location: To the newsagents and animal feed shop.
2. Works: Carefully take down and provide to the Employer, all existing shelving and racking. Remove and cart from site existing cashier desk, shelving, base units and kitchen units within the cashier desk, store and utility areas. To existing water feeds allow to cap and leave ready to receive new units.
3. All arisings to be carted from site on removal.

Remove existing fixtures and fittings - first floor offices

1. Location: To the first floor offices and associated staff room, WC and kitchen identified on 215794-CCL-XX-XX-DR-B-1000 P01.
2. Works: Remove and cart from site existing kitchen units, worktops and shelving and to the WC, allow to strip out existing WC and wash hand basin. Existing wastes are to be temporarily bunged and supplies are to be capped to receive new sanitaryware.
3. All arisings to be carted from site on removal.

Remove existing aerial

1. Location: To the existing chimney stack.

2. Works: Remove and cart from site existing aerial attached to chimney stack. Allow to remove associated cabling both externally and internally, including all aerial boxes.
3. All arisings to be carted from site.

Remove external doors

1. Location: To the utility room to the rear of the ground floor retail unit.
2. Works: Allow to remove existing door and frame and cart from site.
3. All arising to be carted from site.

Remove internal doors

1. Location: To the
2.
3.

25 Location of services

1. Services affected by the Works: Locate and mark positions.

35 Live foul and surface water drains

1. General: Protect drains and fittings still in use. Keep free of debris and ensure normal flow during deconstruction/ demolition work.
2. Damage: Make good damage arising from deconstruction/ demolition work. Leave clean and in working order at completion of deconstruction/ 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/ 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: Appropriately skilled and experienced for the type of work. Holding, or in training to obtain, relevant CITB Certificates of Competence.
3. Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of deconstruction/ demolition to be used.

55 Site hazards

1. Dust: Reduce by periodically spraying with an appropriate wetting agent, or contain.
2. Site operatives and general public: Protect from vibration, dangerous fumes and dust arising during the course of the Works.

76 Asbestos-containing materials – unknown occurances

1. Discovery: Give notice immediately of suspected asbestos-containing materials when discovered during deconstruction/ 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/ demolition.

2. Removal: Submit details of proposed methods for filling, removal, etc.

90 Contractor's property

1. Components and materials arising from the deconstruction/ demolition work: Property of the Contractor except where otherwise provided.
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: Description: Existing display furniture/shelving to both the newsagents and the pet food..
2. Protection: Maintain until these items are removed by the Employer or reused in the Works, or until the end of the Contract.

95 Recycled materials

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

Ω End of Section

C41
Repairing/ renovating/ conserving masonry

Generally/ preparation

110 Scope of work

1. Schedule: Isolated repointing repairs to chimney stack above roof level and to masonry around rear external door frame.
2. Records of masonry to be repaired: Before starting work, use measurements and photographs as appropriate to record bonding patterns, joint widths, special features, etc.
3. Identification of masonry units to be removed, replaced or repaired: Mark clearly, but not indelibly, on face of masonry units or parts of units to be cut out and replaced. Transcribe markings to drawings/ photographs.

125 Removal of fittings/ fixtures

1. Items unsuitable or not required for reuse: Existing TV aerial affixed to chimney stack.
   1.1. Disposal: Cart from site.
2. Masonry fabric and surfaces: Do not damage during removal of fittings/ fixtures.

130 Removal of plant growths from masonry

1. Plants, root systems and associated soil/ debris: Carefully remove from joints, voids and facework, in particular ivy to rear elevation and extending through joint between external door frame and masonry,.
2. Removal of roots: Where growths cannot be removed completely without disturbing masonry seek instructions.
3. Unwanted plants close to masonry: Where removal of root system is not possible or desirable, cut through stem as close to the ground as possible. Remove bark from stump and apply herbicide paste. Leave stump to wither.

Workmanship generally

150 Power tools

1. Usage for removal of mortar: Not permitted

155 Putlog scaffolding

1. Usage: Permitted

160 Protection of masonry units and masonry

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

165 Structural stability

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

170 Disturbance to retained masonry

1. Retained masonry in the vicinity of repair works: Disturb as little as possible.
2. Existing retained masonry: Do not cut or adjust to accommodate new or reused units.

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

180 Workmanship

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

185 Adverse weather

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

Material/ production/ accessories

260 Bricks

1. Standard: To BS EN 771-1.
2. Manufacturer: Contractor's choice
   2.1. Product reference: Submit proposals
3. Size: To match existing.

Dismantling/ rebuilding - Not Used

Replacements and insertions - Not Used

Tooling/ dressing stone in situ - Not Used

Mortar repairs

510 Preparation for mortar repairs

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

520 Mortar repairs

1. Description: To chimney stack and masonry around rear external door frame.

2. Finishing coat: To match existing.
   2.1. Standard: Not applicable
   2.2. Mix: 1:7-8 masonry cement:sand
   2.3. Finished thickness: To match existing
   2.4. Finish: To match existing

540 Applying mortar

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

550 Scraped finish to mortar repairs

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

Crack repairs/ ties/ reinforcement - Not Used

Grouting rubble filled cores - Not Used

Pointing/ repointing - Not Used

Ω End of Section

C51
Repairing/ renovating/ conserving timber

General

110 Inspection

1. Purpose: To confirm nature and extent of repair/ renovation work shown on drawings and described in survey reports and schedules of work.
2. Parties involved: Contract administrator, Contractor's representative, Structural engineer
3. Timing: At least 5 days before starting each section of work
4. Instructions issued during inspection: Confirm in writing, with drawings and schedules as required, before commencing work

130 Opening up Ground floor steelwork; first floor construction; roof construction

1. Purpose: To reveal previously concealed areas of structure or fabric not recorded during initial surveys.
2. Extent: Within the existing ground floor retail unit, to expose the existing supporting steelwork; to the first floor office accommodation for inspection of existing floor joists; within the roof space, on removal of tiles, to enable inspection of original roof timbers.
3. Timing: Give notice before starting opening up.
   3.1. Period of notice: At least two working days
4. Retained building structure/ fabric: Do not damage or destabilize.

150 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).

Structural repairs/ alterations

230 Member strengthening – external reinforcement

1. Reinforcement: Timber
   1.1. Size: As per structural engineer's recommendations on inspection.
2. Fixing to existing timber: Single row of 10mm x 90mm long coach screws at 400mm centres

Products

320 Structural softwood (strength class not specified)

1. Description: FOR STRUCTURAL USE GENERALLY
2. Species: Contractors choice
3. Grading standard: To the appropriate BS EN 14081-1 compliant standard.
   3.1. Grade: GS to BS 4978
4. Treatment
   4.1. Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8

4.1.1. Design service life: 20 years

4.2. Fire retardant treatment: None required

5. Moisture content (maximum) at time of installation: 12%

470 Nails

1. Description: For general use
2. Standard: As section Z20.
3. Type: Square twisted
4. Material: Steel.
   4.1. Strength (minimum): Yield strength 375 N/mm²

480 Screws

1. Description: For general use
2. Standard: As section Z20.
3. Material: Stainless steel
4. Tensile strength (minimum): Not applicable

Execution

600 Workmanship

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

610 Temporary supports/ propping

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

620 Protection of timber and wood components before and during installation

1. Storage: Keep dry, under cover, clear of the ground and with good ventilation. Support sections/ components on regularly spaced, level bearers on a dry, firm base.
2. Handling: Do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.

630 Material samples

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

650 Dimensions generally

1. Site dimensions: Take as necessary before starting fabrication.
   1.1. Discrepancies with drawings: Report without delay and obtain instructions before proceeding.

660 Cross section dimensions of structural softwood and hardwood

1. Dimensions: Dimensions in this specification and shown on drawings are target sizes as defined in BS EN 336.
2. Tolerances: The tolerance indicators (T1) and (T2) specify the maximum permitted deviations from target sizes as stated in BS EN 336, clause 4.3:
   2.1. Tolerance class 1 (T1) for sawn surfaces.

2.2. Tolerance class 2 (T2) for further processed surfaces.

665 Cross section dimensions of non-structural softwood

1. Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
2. Maximum permitted deviations from finished sizes: As stated in BS EN 1313-1, clause 6 for sawn sections.

670 Cross section dimensions of non-structural hardwood

1. Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
2. Maximum permitted deviations from finished sizes: As stated in BS EN 1313-2:
   2.1. Clause 6 for sawn sections.
   2.2. Clause NA.3 for further processed sections.

680 Warping of timber

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

690 Processing treated timber

1. Cutting and machining: Carry out as much 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 with two flood coats of a solution recommended by main treatment solution manufacturer.

Completion - Not Used

Ω End of Section

C52
Fungus/ beetle eradication

Clauses

5 Survey and report

1. Survey generally
   1.1. Purpose: To ascertain nature and extent of fungal/ beetle attack. To ascertain sources and extent of any dampness.
   1.2. Timing: Before starting eradication work carry out survey and submit survey report.
2. Survey report content
   2.1. Description of method of investigation.
   2.2. Factors affecting execution of the work: Identify problematic site conditions and restrictions including the presence of bats, barn owls, other protected species or breeding birds.
   2.3. Proposals for eradication treatments and procedures, including measures to halt damp penetration and promote drying out.
   2.4. Measurements of wood moisture content, with identification of instances above 20%.
   2.5. Associated work: Nature and extent of repair/ replacement work required to load bearing constructions and to the building fabric in general.
   2.6. Other information: Any considered relevant.

12 Associated work

1. Work shown to be necessary by survey: Carry out as part of main contract works

15 Drying out of building fabric

1. Drying conditions: Establish as soon as possible.
2. Drying methods: Submit proposals

26 Fungal attack

1. Dry rot
   1.1. Fruiting bodies: Spray with fungicide. Remove carefully and clean affected surfaces.
   1.2. Infected materials to be removed: Remove carefully without disturbance or damage to adjacent building fabric; dispose of safely.
2. Wet rot
   2.1. Decayed timber to be removed: Cut out until sound timber is reached.
3. Infected/ decayed material to be retained: Obtain instructions.

30 Beetle infestation

1. Infected timber: Cut, scrape and trim back to sound timber. Remove debris immediately and dispose of safely.

37 Timber preservatives/ Masonry fungicides generally

1. Products: Registered by the Health and Safety Executive (HSE) and listed on the HSE website under non-agricultural pesticides.
2. Application: In accordance with statutory conditions of approval given on product labels and manufacturer's recommendations.

42 Timber preservative treatment

1. Description: GENERALLY
2. Preservative type: Agrément certified retreatment system
3. Tint: Not required
4. Treatment method: To suit type, scale and location of fungal/ beetle attack and as manufacturer's recommendations.

70 Guarantee

1. Type: Insured protection. Administered by an independent insurance protection company.
   1.1. Guarantee period from completion of installation (minimum): 20 years
2. Documentation: Provide certificates/ guarantees at completion of treatment.

Ω End of Section

G20
Carpentry/ timber framing/ first fixing

Clauses

2 Timber procurement

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

10 Ungraded softwood

1. Description: FOR FRAMING TO FASCIAS
2. Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.
3. Surface finish: Regularized
4. Treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C5, Service life: 40 years

30 Selection and use of timber

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

32 Notches, holes and joints in timber

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

35 Processing treated timber

1. Cutting and machining: Carry out as much as possible before treatment.
2. Extensively processed timber: Retreat timber sawn lengthways, thicknessed, planed, ploughed, etc.
3. Surfaces exposed by minor cutting/ drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

40 Moisture content

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

50 Additional supports

1. Provision: Position and fix additional studs, noggings and/ or battens to support edges of sheet materials, and wall/ floor/ ceiling mounted appliances, fixtures, etc. shown on drawings.
2. Material properties: Timber to be of adequate size and have the same treatment as adjacent timber supports.

55 Joists generally

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

60 Joists on hangers

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

65 Joist hangers

1. Description: GENERAL USE
2. Manufacturer: Contractor's choice
    2.1. Product reference: Submit proposals
3. Material/ finish: Galvanized low carbon steel sheet
4. Size: To suit joist, design load and crushing strength of supporting construction.

70 Trimming openings

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

95 Strutting to floor joists

1. Type: One of the following:
    1.1. Herringbone strutting: At least 38 x 38 mm softwood.
    1.2. Solid strutting: At least 38 mm thick softwood and at least three quarters of joist depth.
2. Fixing: Between joists as follows:
    2.1. Joist spans of 2.5 to 4.5 m: One row at centre span.
    2.2. Joist spans over 4.5 m: Two rows equally spaced.
    2.3. Not projecting beyond top and bottom edges of joists.
3. Outer joists: Blocked solidly to perimeter walls.

99 Fascias/ barges/ soffits

1. Description: - PVC-U
2. Manufacturer: Contractor's choice
    2.1. Product reference: Submit proposals
3. Material: Cellular PVC-U core with impact modified PVC-U skin and containing no lead or cadmium
4. Finish: Smooth satin
5. Colour: White
6. Nominal depth: To match existing

7. Edge profile: Square
8. Accessories/ Other requirements: Stop end caps
9. Fixings: In accordance with the manufacturers instructions.

Ω End of Section

H60
Plain roof tiling

Clauses

3 Roof tiling

1. Description: TO THE ORIGINAL ROOF IDENTIFIED ON THE TENDER DRAWINGS
2. Substrate: Rafters assumed to be at 450 mm centres - existing roof structure to be inspected by structural engineer
3. Underlay: Vapour permeable underlay to BS EN 13859, Class W1
   3.1. Head-lap (minimum): 100 mm.
4. Battens
   4.1. Size: 38 x 25 mm
   4.2. Fixing: 65 x 3.35 mm galvanized annular ring shank nails
5. Tiles: Reuse existing tiles retained on removal - contractor to sort tiles so that best quality tiles are laid to front elevation and any replacement tiles are used on the rear roof.
   5.1. Manufacturer: Contractor's choice
      5.1.1. Product reference: Submit proposals
   5.2. Colour: To match existing
   5.3. Size: To match existing
   5.4. Head-lap (minimum): 65 mm.
   5.5. Fixing
      5.5.1. Fixing of local areas: Two nails per tile in every course
      5.5.2. Fixing of general areas: Two nails per tile in every course

20 Remove existing tiling

1. General: Carefully remove tiles, battens, underlay, etc. with minimum disturbance of adjacent retained tiling.
2. Undamaged tiles: Set aside for reuse.

30 Battens/ Counterbattens

1. Timber: Sawn softwood.
   1.1. Standard: In accordance with BS 5534, Annex D.
   1.2. Moisture content at time of fixing and covering (maximum): 22%.
2. Preservative treatment: As section Z12 Wood Protection Association Commodity Specification C8.
   2.1. Type: Contractor's choice - submit proposals

32 Batten fixing

1. Batten length (minimum): Sufficient to span over three supports.
2. Joints in length: Butt centrally on supports. Joints must not occur more than once in any group of four battens on one support.
3. Additional battens: Provide where unsupported laps in underlay occur between battens.

35 Tile fixing

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

2. Exposed fittings and accessories: To match tile colour and finish.
3. Setting out: To true lines and regular appearance. Lay tiles to a half lap bond with joints slightly open. Align tails.
4. Cut tiles: Cut only where necessary, to give straight, clean edges.
5. Ends of courses: Use tile and a half tiles to maintain bond and to ensure that cut tiles are as large as possible.
6. Top and bottom courses: Use eaves/ tops tiles to maintain gauge.
7. Perimeter tiles: Twice nail end tile in every course. Twice nail or clip two courses of tiles at eaves and top edges.
8. Fixings: Nails/ clips as recommended by tile manufacturer.

37 Local and general fixing areas

1. Definitions
    1.1. Local areas: Bands of tiling around all edges or obstructions of each plane of the roof. Calculate extent of each band in accordance with BS 5534, section 5.
    1.2. General areas: Remaining areas of roof tiling.

40 Mortar bedding/ pointing

1. Mortar: As section Z21.
    1.1. Mix: In accordance with BS 5534,1:3 cement:sand, with plasticizing admixtures permitted.
2. Weather: Do not use in wet or frosty conditions or when imminent.
3. Appearance: Finish neatly and remove residue.

52 Bedded verges with bedded undercloak

1. Underlay: Carry 50 mm onto outer leaf of gable wall and bed on mortar.
2. Undercloak: Matching plain tiles, sloping towards verge and projecting 38-50 mm beyond face of wall.
    2.1. Bedding: On mortar identical to that used in gable walling.
3. Tiling battens: Carry onto undercloak and finish 100 mm from verge edge.
4. Verge tiles: Bed flush with undercloak on 75 mm wide bed of mortar.

70 Side abutments

1. Underlay: Turn up not less than 100 mm at abutments.
2. Abutment tiles: Cut as necessary. Fix close to abutments.
3. Soakers: Interleave and turn down over head of abutment tiles.

71 Top edge abutments

1. Underlay: Turn up not less than 100 mm at abutments.
2. Top course tiles: Fix close to abutments.

77 Mortar bedded and mechanically fixed ridges

1. Underlay: Lay courses over ridge. Overlap (minimum) 100 mm.
2. Ridge tiles
    2.1. Salvaged ridge tiles: Ridge tiles retained following removal to be reinstated
    2.2. Bedding: On mortar, continuous to edges and solid to joints.
    2.3. Fixing: Secure all ridge tiles to ridge boards or ridge tile fixing battens with self-sealing non-ferrous fixings.

2.4. Gable end ridge tiles: Fill ends with mortar and slips of tiles finished flush.

Ω End of Section

J30
Liquid applied damp proofing

Clauses

10 Cold applied damp proofing

1. Description: TO GROUND FLOOR RETAIL UNIT FLOORS, INCLUDING UTILITY AREA
2. Substrate: Assumed to be insitu concrete slab
3. Primer: As coating manufacturer's recommendations
4. Coating: Epoxy resin
   - 4.1. Manufacturer: Contractor's choice
     - 4.1.1. Product reference: Submit proposals
   - 4.2. Application: As coating manufacturer's recommendations
5. Blinding: As coating manufacturer's recommendations

50 Workmanship

1. Substrates generally: Smooth, even textured, clean, dry and frost free.
2. Curing period for concrete substrates (minimum): 7 days.
3. Moisture content and stability of substrate: Must not impair integrity of finished tanking/ damp proofing.
4. Preliminary work: Complete.
5. Adjacent surfaces exposed to view in finished work: Protect.
6. Primer application: Uniform, continuous coverage.
7. Coatings
   - 7.1. Apply in dry atmospheric conditions when substrate is dry.
   - 7.2. Uniform, continuous coverage. Do not allow to pool in hollows.
   - 7.3. Firmly adhered to substrate and free from imperfections.
   - 7.4. Prevent damage to finished coating.
8. Penetrations: Impervious.
9. Final covering: Apply as soon as possible after coating has hardened.

Ω End of Section

K10
Gypsum board dry linings/ partitions/ ceilings

Clauses

15 Lining on timber EXTERNAL WALLS

1. Description: BATTENS TO WALLS
2. Substrate: Studs at 400 mm centres
3. Linings: 12.5 mm plasterboard over 15mm plywood
   3.1. Recycled content: Submit proposals
4. Fixing: Screws at 300 mm centres
5. Finishing: Seamless jointing and skim coat plaster
   5.1. Primer/ Sealer: As recommended by board manufacturer for improved moisture resistance and for a paint finish.
   5.2. Accessories:

65 Dry lining generally

1. General: Use fixing, jointing, sealing and finishing materials, components and installation methods recommended by board manufacturer.
2. Standard
   2.1. Gypsum plasterboard to BS EN 520.
   2.2. Gypsum fibre board to BS EN 15283-2.
   2.3. Evidence of compliance: All sheets to be CE marked. Submit Declaration of Performance (DoP).
3. Cutting gypsum boards: Neatly and accurately without damaging core or tearing paper facing. Minimize cut edges.
4. Two layer boarding: Stagger joints between layers.
5. 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 services.

1.3. Board edges and lining perimeters.

75 New wet laid bases

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

85 mineral wool insulation

1. Fitting insulation: Closely butted joints and no gaps. Prevent slumping.
2. Electrical cables overlaid by insulation: Size accordingly.

87 Sealing gaps and air paths

1. Sealing: Apply sealant to perimeter abutments and around openings as a continuous bead with no gaps.
   1.1. Gaps between floor and underside of gypsum board: After sealing, fill with joint compound.

90 Seamless jointing

1. Filling and taping: Fill joints, gaps and internal angles with jointing compound and cover with continuous lengths of tape, fully bedded.
2. Finishing: Feather out jointing compound to give a flush, smooth, seamless surface.
3. Nail/ screw depressions and minor indents: Fill to give a flush surface.

Ω End of Section

K40
Demountable suspended ceilings

Clauses

10 Suspended ceilings

1. Description: TO GROUND FLOOR RETAIL UNIT AND SALES DESK
2. Standard: To BS EN 13964.
3. Evidence of compliance: All ceilings kits to be CE marked. Submit Declaration of Performance (DoP).
4. Structural soffits: Existing timber joists at 400 mm nominal centres
5. Suspension system: Install all hangers, fixings, primary supports, main runners, cross members, perimeter trims, splines, noggings, clips bracing, bridging etc. necessary to complete the installation.
   5.1. Type: Exposed T grid with rigid hangers
   5.2. Perimeter trims: To match main grid
6. Ceiling materials: Fissured mineral wool tiles with rebated edge. Colour: Ethereal blue
   6.1. Sizes: 600 x 600 mm
   6.2. Recycled content: Submit proposals

40 Workmanship generally

1. Fixing: Secure. In accordance with manufacturers' recommendations and BS 8290-3. Provide additional bracing and stiffening to give a stable ceiling system.
2. Setting out: Accurate. Provide level soffits free from undulations and lipping.
3. Lines and joints: Straight and parallel to walls, unless specified otherwise.
4. Edge infill units size (minimum): Half standard width or length.
5. Corner infill units size (minimum): Half standard width and length.
6. Grid: Position to suit infill unit sizes. Allow for permitted deviations from nominal sizes of infill units.

50 Wire hangers

1. General: Straighten before use.
2. Installation: Install vertical without bends or kinks. Do not allow hangers to press against fittings.
3. Fixing: Tie securely at top and bottom with tight bends to loops to prevent vertical movement.

Ω End of Section

L10
Windows/ rooflights/ screens/ louvres

Clauses

5 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:
   2.1. Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
   2.2. Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.

50 Roof windows TO REAR OF EXISTING OFFICES ROOF

1. Manufacturer: VELUX Company Ltd
   1.1. Web: www.velux.co.uk
   1.2. Email: sales@velux.co.uk
2. Product Reference: GGL manually operated, centre-pivot roof window
3. Product performance:
   3.1. Whole window U-value: 0.86 W/m²K - 1.3 W/m²K depending on product option
4. Frame:
   4.1. Finish as delivered:
      4.1.1. Internal frame and sash: Lacquered Pine White painted
      4.1.2. External cladding: Grey aluminium; colour reference NCS S-7500-N
5. Glazing or infill:
   5.1. Composition: Argon filled cavity, Krypton filled cavity depending on product option
6. Hardware: Flashings are available in materials and finishes to match roof window cladding
7. Type: Manual operation via a control bar along the top of the sash. The sash can be parked in any position up to the horizontal, however the sash can also be fully rotated to allow for ease of cleaning of the outer pane
8. Accessories: Security lock
9. Window:
   9.1. Window code: GGL CK02
10. Glazing: 68
11. Blinds, Awning and Shutter:
    11.1. Type: Venetian blind – Code PAL
    11.2. Colour: White
    11.3. Operation: Manual – Codes ZCT 200 and ZOZ 085
12. Energy efficiency installation collars: Manufacturer to advise
13. Flashing: Manufacturer to advise

75 Sealant joints

1. Sealant
   1.1. Manufacturer: Contractor's choice
      1.1.1. Product reference: Contractor's choice
   1.2. Colour: White
   1.3. Application: As section Z22 to prepared joints. Finish triangular fillets to a flat or slightly convex profile.

80 Ironmongery

1. Fixing: In accordance with any third party certification conditions applicable. Assemble and fix carefully and accurately using fasteners with matching finish supplied by ironmongery manufacturer. Do not damage ironmongery and adjacent surfaces.
2. Checking/ adjusting/ lubricating: Carry out at completion and ensure correct functioning.

Ω End of Section

M10
Cement based levelling/ wearing screeds

Clauses

19 Proprietary screeds to BS EN 13813

1. Description: TO GROUND FLOOR RETAIL ACCOMMODATION, INCLUDING UTILITIES
2. Substrate: In situ concrete slab
3. Screed manufacturer: Contractor's choice
   3.1. Product reference: Submit proposals
4. Screed construction: Partially bonded, as clause 35
5. Performance to BS EN 13813
   5.1. Compressive strength: C16
   5.2. Wear resistance: Not required
6. Thickness
   6.1. Nominal: Manufacturer's standard
   6.2. Maximum: Manufacturer's standard
   6.3. Minimum: Manufacturer's standard
7. Finish: Smooth floated finish, as clause 70
   7.1. To receive: Vinyl floor covering

35 Partially bonded construction

1. Substrate surface: Brushed finish with no surface laitance.
   1.1. Texture of surface: Suitable to accept screed and achieve a bond over complete area.
2. Bonding coat:

45 Aggregates and cements

1. Sand: To BS EN 13139.
   1.1. Grading limits: In accordance with BS 8204-1, Table B.1.
2. Coarse aggregates
   2.1. Standard: To BS EN 12620.
3. Cement
   3.1. Cement types: In accordance with BS 8204-1, clause 5.1.3.

47 Admixtures

1. Standards; In accordance with BS 8204-1, Table 1.
2. Calcium chloride: Do not use in admixtures.

50 Mixing

1. Water content: Minimum necessary to achieve full compaction.
2. Mixing: Mix materials thoroughly to uniform consistency in a suitable forced action mechanical mixer.

52 Compaction

1. General: Compact thoroughly over entire area.

2. Screeds over 50 mm thick: Lay in two layers of equal thickness. Roughen surface of compacted lower layer then immediately lay upper layer.

55 Joints in levelling screeds

1. Laying screeds: Lay continuously using 'wet screeds' between strips or bays. Minimize defined joints.

70 Smooth floated finish

1. Finish: Even texture with no ridges or steps.

75 Trowelled finish to levelling screeds

1. Floating: To an even texture with no ridges or steps.
2. Trowelling: To a uniform smooth surface, free from trowel marks and other blemishes, and suitable to receive specified flooring material.

80 Trowelled finish to wearing screeds

1. Floating: To an even texture with no ridges or steps.
2. Trowelling: Successively trowel at intervals, applying sufficient pressure to close surface and give a uniform, smooth finish free from trowel marks and other blemishes.

90 Curing

1. Curing period (minimum): As soon as screed has set sufficiently, closely cover with polyethylene sheeting for period recommended by screed manufacturer.
2. Drying after curing: Allow screeds to dry gradually.

Ω End of Section

M20
Plastered/ rendered/ roughcast coatings

Clauses

15 Cement:lime:sand roughcast (harling)

1. Description: External render
2. Substrate: Existing brickwork
   2.1. Preparation: Remove the existing render back to original brickwork, clean down surface and prepare to receive new render coat.
3. Mortar: Contractor's choice
4. Sand: To BS EN 13139.
   4.1. Grading: 0/2 or 0/4 (CP or MP); category 2 fines.
5. Lime: Nonhydraulic to BS EN 459-1, type CL 90S.
6. Undercoats
   6.1. Mix (cement:lime:sand): 1:2:8-9
   6.2. Thickness (excluding dubbing out and keys): First coat 8-12 mm and second coat 6-10 mm
7. Final coat
   7.1. Coarse aggregate: To BS EN 12620.
      7.1.1. Type: Rounded gravel
      7.1.2. Single size: 4/10 mm (10 mm)
   7.2. Mix (cement:lime:sand:coarse aggregate): 8-11 mm, prior to scraping
8. Finish: Roughcast to an even thickness and texture.

50 Gypsum plaster skim coat on plasterboard

1. Plasterboard manufacturer: Contractor's choice
   1.1. Product reference: Submit proposals
2. Plaster: Board finish plaster to BS EN 13279-1, class B.
   2.1. Manufacturer: Contractor's choice
      2.1.1. Product reference: Submit proposals
   2.2. Thickness: 2-5 mm
   2.3. Finish: Smooth.

65 Mixing

1. Render mortars (site-made)
   1.1. Batching: By volume using gauge boxes or buckets.
   1.2. Mix proportions: Based on damp sand. Adjust for dry sand.
2. Mixes: Of uniform consistence and free from lumps.

67 Cold weather

1. Internal work: Take precautions to prevent damage to internal coatings when air temperature is below 3°C.
2. External work: Avoid when air temperature is at or below 5°C and falling or below 3°C and rising.

71 Suitability of substrates

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

80 Plasterboard backings

1. Additional framing supports
   1.1. Fixtures, fittings and service outlets: Accurately position to suit fasteners.
   1.2. Board edges and perimeters: To suit type and performance of board.
2. Joints
   2.1. Joint widths (maximum): 3 mm.
   2.2. End joints: Stagger between rows.
   2.3. Two layer boarding: Stagger joints between layers.
3. Joint reinforcement tape: Apply to joints and angles except where coincident with metal beads.

82 Beads/ stops

1. Location: External angles and stop ends.
2. Materials
   2.1. Internal plaster/ render: Plastics/ PVC
3. Fixing: Secure and true to line and level.
   3.1. Beads/ stops to external render: Fix mechanically.

87 Application of coatings

1. General: Apply coatings firmly and achieve good adhesion.
2. Appearance of finished surfaces: Even and consistent. Free from rippling, hollows, ridges, cracks and crazing.
   2.1. Accuracy: Finish to a true plane with walls and reveals plumb and square.
3. Drying out: Prevent excessively rapid or localized drying out.
4. Keying undercoats: Cross scratch (plaster coatings) and comb (render coatings). Do not penetrate undercoat.

Ω End of Section

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

Clauses

10 Resilient floor tiling

1. Description:
2. Base:
   2.1. Preparation:
3. Fabricated underlay:
4. Tiles
   4.1. Standard: To BS EN 14041.
      4.1.1. Evidence of compliance: Submit.
   4.2. Reaction to fire classification to BS EB 13501-1:
   4.3. Material:
   4.4. Manufacturer:
      4.4.1. Product reference:
   4.5. Recycled content:
   4.6. Size:
   4.7. Thickness:
   4.8. Colour/ pattern:
5. Adhesive (and primer if recommended by manufacturer):

15 Carpet tiling - Contractor to allow £45/sqm for carpet tiles and provide supply and installation cost.

1. Description: To first floor office accommodation
2. Base: Existing timber boarding.
3. Fabricated underlay: Plywood as clause 55
4. Carpet tiles to BS EN 14041 and BS EN 1307
   4.1. Evidence of compliance: Submit.
   4.2. Type: Flat needled
   4.3. Manufacturer: Contractor's choice - Submit proposal
   4.4. Recycled content: None permitted
   4.5. Size: 500 x 500 mm
   4.6. Colour/ pattern: TBA
5. Method of laying: Spot bond every tile with adhesive recommended by tile manufacturer

20 Sheeting - Vinyl Sheet Flooring

1. Description: To ground floor retail units (all areas) and kitchen and toilet of first floor offices
2. Base: Trowelled screed to retail units. New plywood base as clause 55.
3. Flooring roll
   3.1. Standard: To BS EN 14041.
      3.1.1. Evidence of compliance: Submit.
   3.2. Manufacturer: Contractor's choice - submit proposals
   3.3. Colour/ pattern: TBA

4. Adhesive (and primer if recommended by manufacturer): As per manufacturers recommendations
5. Seam welding: Hot welding with complimentary coloured rod

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 1.
3. Appearance: To BS EN 635, class I.
4. Finish: Sanded
5. Thickness: 6
6. Substrate: Existing floorboards securely fixed and level with no gross irregularities or protruding fasteners.
7. Laying sheets
   7.1. Cross joints: Staggered with none coincident with joints in base.
      7.1.1. Joint width: 0.5-1 mm.
8. Fasteners: 25 mm annular ring shanked or twisted shank nails or divergent staples.
   8.1. 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.
   8.2. 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.

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

Clauses

10 Emulsion paint

1. Description: To all internal walls of ground floor retail unit, including stores and utility area; To all internal walls of first floor offices, including kitchen and WC.
2. Manufacturer: As per Clause 10A
3. Surfaces:
   3.1. Preparation: Ensure surfaces are clean and dry
4. Initial coats: As recommended by manufacturer
5. Undercoats: As recommended by manufacturer
6. Finishing coats: Matt vinyl
   6.1. Number of coats: 2

10 Emulsion paint Type A

1. Manufacturer: Dulux Trade, brand of AkzoNobel
   1.1. Contact details
      1.1.1. Address: AkzoNobel Decorative Paints
      Wexham Road
      Slough
      Berkshire
      SL2 5DS
      1.1.2. Telephone: +44 (0)333 222 7070
      1.1.3. Web: www.duluxtradepaintexpert.co.uk
      1.1.4. Email: project.support@akzonobel.com
   1.2. Product reference: Dulux Trade Diamond Matt Light and Space.
2. Composition: Acrylic copolymer.
3. Sheen: Matt.
4. Colour: TBA
5. System code: D191 - New plaster, render etc.
6. Form: Liquid.
7. Capacity: 5 L.

12 Gloss paint

1. Description: TO INTERNAL EXPOSED SOFTWOOD
2. Manufacturer: As Clause 12A
3. Surfaces: Uncoated
   3.1. Preparation: Ensure surfaces are clean and dry
4. Initial coats: As recommended by manufacturer
5. Undercoats: As recommended by manufacturer
6. Finishing coats: Full gloss
   6.1. Number of coats: 2

12 Gloss paint Type A

1. Manufacturer: Dulux Trade, brand of AkzoNobel
   1.1. Contact details
      1.1.1. Address: AkzoNobel Decorative Paints
      Wexham Road
      Slough
      Berkshire
      SL2 5DS
      1.1.2. Telephone: +44 (0)333 222 7070
      1.1.3. Web: www.duluxtradepaintexpert.co.uk
      1.1.4. Email: project.support@akzonobel.com
   1.2. Product reference: Dulux Trade Quick Dry Gloss
2. Composition: Alkyd.
3. Sheen: High gloss.
4. Colour: TBA
5. System code: D7513 – General (internal).
6. Form: Liquid.

18 Special coating

1. Description: To new external render
2. Manufacturer: As Clause 18A
3. Surfaces: New render surfaces
   3.1. Preparation: Ensure surfaces are clean and dry
4. Initial coats: As per manufacturers specification
5. Undercoats: As recommended by manufacturer
6. Finishing coats:
   6.1. Number of coats: 2

18 Special coating To New External Render

1. Manufacturer: Dulux Trade, brand of AkzoNobel
   1.1. Contact details
      1.1.1. Address: AkzoNobel Decorative Paints
      Wexham Road
      Slough
      Berkshire
      SL2 5DS
      1.1.2. Telephone: +44 (0)333 222 7070
      1.1.3. Web: www.duluxtradepaintexpert.co.uk
      1.1.4. Email: project.support@akzonobel.com
   1.2. Product reference: Dulux Trade Weathershield Smooth Masonry Paint
2. Texture: Smooth.
3. Colour:
4. Additives: Fungicide.
5. Execution: Applying coating.
6. System code:
7. Capacity:

8. Form: Liquid.

20 Coating materials

1. Manufacturers: Obtain materials from any of the following:
2. Selected manufacturers: Submit name before commencement of coating work.

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 assessment and method statement for 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.
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. Doors, opening windows and other moving parts
    11.1. Ease, if necessary, before coating.
    11.2. Prime resulting bare areas.

32 Previously coated surfaces generally

1. Preparation: In accordance with BS 6150, clause 11.5.
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: Apply additional preparatory coats.
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. 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.

41 Masonry and rendering preparation

1. Loose and flaking material: Remove.

43 Plaster preparation

1. Nibs, trowel marks and plaster splashes: Scrape off.
2. Overtrowelled ‘polished’ areas: Provide suitable key.

50 External pointing to existing frames

1. Defective sealant pointing: Remove.
2. Joint depth: Approximately half joint width; adjust with backing strip if necessary.
3. Sealant
    3.1. Manufacturer: Contractor's choice, Submit proposals
        3.1.1. Product reference: Contractor's choice, Submit proposals
    3.2. 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 standard: In accordance with BS 6150, clause 9.
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. Priming coats: Apply as soon as possible on same day as preparation is completed.
6. Finish
    6.1. Even, smooth and of uniform colour.
    6.2. Free from brush marks, sags, runs and other defects.
    6.3. Cut in neatly.
7. Doors, opening windows and other moving parts: Ease before coating and between coats.

Ω End of Section

N10
General fixtures/ furnishings/ equipment

Clauses

10 Purpose-made

1. Description:
2. Manufacturer:
3. Timber:
4. Wood-based boards:
5. Metal:
6. Finishes:
7. Adhesive:
8. Fixings
   8.1. Fasteners:
9. Joinery workmanship: As section Z10.
10. Metalwork workmanship: As section Z11.
11. Other requirements:

Ω End of Section

P10
Sundry insulation/ proofing work

Clauses

5 Eaves roof ventilators for existing roofs

1. Manufacturer: Contractor's choice, Submit proposals
   1.1. Product reference: Contractor's choice, Submit proposals
2. Eaves free air space (minimum): As recommended in BRE Report 262.

10 Loft insulation

1. Manufacturer: Contractor's choice, Submit proposals
   1.1. Product reference: Submit proposals
2. Material: Glass wool to BS EN 13162
3. Recycled content: None permitted
4. Depth/ Thickness: 200mm
5. Installation: To manufacturer's instructions

Ω End of Section

P20
Unframed isolated trims/ skirtings/ sundry items

Clauses

10 Softwood

1. Description: SKIRTINGS GENERALLY
2. Quality of wood and fixing: To BS 1186-3.
   2.1. Species: Contractor's choice
3. Moisture content at time of fixing: 9 -13%
4. Preservative treatment: Not required
5. Profile: Pencil rounded edges
   5.1. Finished size: 19 x 120 mm
6. Finish as delivered: Prepared and primed, as section M60
7. Fixing: Nailed at 300mm centres

35 Medium-density fibreboard

1. Description: WINDOW SILL BOARDS
2. Manufacturer: Contractor's choice, Submit proposals
   2.1. Product reference: Submit proposals
3. Standard: To BS EN 622-5.
   3.1. Type: MDF
   3.2. Formaldehyde class: To BS EN 622-1, Class E1.
4. Thickness: 15 mm
5. Edges: Chamfered
6. Finish: Prepared and primed as M60
7. Support/ Fixing: Fix to softwood grounds with lost head nails at 600 mm centres

80 Installation generally

1. Joinery workmanship: As section Z10.
2. Metal workmanship: As section Z11.
3. Methods of fixing and fasteners: As section Z20.
4. Straight runs: To be in one piece, or in long lengths with as few joints as possible.
5. Running joints: Location and method of forming to be agreed where not detailed.
6. Joints at angles:
7. Position and level: To be agreed where not detailed.

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

S90
Hot and cold water supply systems - domestic

General - Not Used

System performance

210 Design

1. Description: Allow for design of mains cold water supply to ground floor retail units utility room and to first floor office accommodation, serving kitchen and WC.
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.

230 Instantaneous hot water supply

1. Type: Electric point of use hot water heaters to retail unit utility room and to single heater to first floor offices serving kitchen and WC.
2. Water supply: Mains

250 Pipeline sizes

1. Sizing: Calculate sizes to meet simultaneous demand for the building in accordance with BS 8558 or BS EN 806-3. Submit proposals.

Products

360 Instantaneous water heaters, electric

1. Description: Electric point of use hot water heaters to retail unit utility room and to single heater to first floor offices serving kitchen and WC.
2. Standard: To BS EN 60335-2-35, BEAB-approved.
3. Manufacturer: Contractor's choice, Submit proposals
4. Type: Multipoint to first floor offices - mains supply Single-point to ground floor - mains supply
5. Rating: Submit proposals
6. Flow rate: To suit draw-off requirements
7. Casing finish: White vitreous enamel
8. Controls: Submit proposals
9. Accessories: Submit proposals

510 Copper pipelines for general use

1. Standard: To BS EN 1057, Kitemark-certified.
2. Temper: Half-hard R250.
3. Wall thickness (nominal): To BS EN 1057.
4. Jointing generally: Integral lead free solder ring capillary fittings to BS EN 1254-1, Kitemark-certified.
5. Connections to appliances and equipment: Select from:
    5.1. Compression fittings: To BS EN 1254-2, Kitemark-certified.
    5.2. Fittings with threaded ends: To BS EN 1254-4.

6. Supports: Plastics spacers, single screw fixing

560 Warning/ overflow pipes to cisterns

1. Material: PVC-U
2. Jointing: Solvent-welded
3. Minimum OD: Greater than inlet pipe OD and at least 22 mm.

570 Insulation to pipelines

1. Material: Preformed flexible closed cell
2. Function: Protection from freezing
3. 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.

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.

Execution

710 Stripping out

1. Extent of stripping out: Allow to strip out complete existing hot and cold water installation to ground floor retail unit and first floor office accommodation.

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.

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.

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.

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.

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.
   1.1. Notice (minimum): Three days.
2. Preparation: Secure and clean pipework and equipment. Fit cistern and tank covers.
3. 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.
4. 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:
   4.1. 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.
   4.2. 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.
   4.3. 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 - domestic

General - Not Used

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
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
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

225 Design of small-scale wind generating system

1. Design and detailing: Complete for the small-scale wind generating system.
2. Standards: To BS EN 61400-2, BS EN 50549-1 and in accordance with ENA EREC G98/1-4.
3. Output: Determine a suitable rating for the installation.
4. Proposals: Submit drawings showing equipment positions, cable routes, technical information and calculations.
5. Evidence of agreement with electricity distributor: Submit.
6. General: Manage and liaise with the electricity distributor.

240 Design of general lighting system

1. Purpose: Illuminating the property - internal and external lighting
2. Design and detailing: Complete for the general lighting system.
3. Standard: To SLL 'Code for lighting'.
4. Maintenance: Submit proposals for the maintenance/ relamping regime.

250 Design of emergency lighting system

1. Purpose: Safe means of escape from both ground floor retail and first floor office accommodation.
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: X - self-contained
5. Method of testing: Submit design and cost proposals

265 Design and lighting calculations

1. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.
2. Lighting calculations
   2.1. Type: Computer generated point calculations.
3. Submit the following
   3.1. Luminaire layout drawings.
   3.2. Luminaire photometric data including flux fraction ratios and polar intensity curves.
   3.3. Lamp technical information.
   3.4. Maintenance factor calculations, including proposals for luminaire maintenance and lamp replacement.
   3.5. Reflectance values used for all wall, ceiling and floor surfaces.
   3.6. Isolux contour plots for all relevant working planes, horizontal and vertical.
   3.7. Schedule of design and calculated maintained average illuminance values.
   3.8. Schedule of design and calculated uniformity values.

270 Control of external luminaires

1. Individual control: Movement detectors and Time switches

275 Small power system design

1. Purpose: To cater for demands in ground floor retail unit and first floor office accommodation.
2. Small power outlets: Provide to serve the building and its equipment.
3. 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: Throughout whole of building.
2. Manufacturer: Contractor's choice
   2.1. Product reference: Submit proposals
3. Standard: To BS EN 61537.
4. Material: Contractor's choice - submit proposals
5. Resistance against flame propagation: Submit proposals
6. Resistance against corrosion: Submit proposals
7. Mechanical properties
   7.1. Cable tray free base area: Submit proposals
   7.2. Resistance to impact: Submit proposals
8. Width: Submit proposals - to suit proposed installations.
9. Accessories and fittings: Factory-made of the same material type, pattern, finish and thickness as cable tray.

342 Rigid conduit and fittings

1. Description: Throughout ground floor retail and first floor office accommodation.
2. Manufacturer: Contractor's choice - submit proposals
3. Standards: To BS EN 61386-1 and BS EN 61386-21.
4. Resistance to bending: Rigid.
5. Electrical characteristics: Submit proposals
6. Resistance to external influences
   6.1. Protection against ingress of solid objects (minimum): To BS EN 60529, IP3X.
   6.2. Protection against ingress of water (minimum): To BS EN 60529, IPX0.
7. Tensile strength: Submit proposals
8. Resistance to flame propagation: Submit proposals
9. Accessories and fittings: Factory-made by the conduit manufacturer of the same material type and finish as the conduit.

350 Cable trunking and cable ducting for wall and ceiling mounting

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Standards: To BS EN 50085-1 and BS EN 50085-2-1.
4. Installation position:
5. Type:
6. Resistance to compression:
7. Resistance to impact:
8. Temperature properties
   8.1. Storage and transport temperature (minimum):
   8.2. Installation temperature (minimum):
   8.3. Application temperature (maximum):
9. Resistance to flame propagation:
10. Electrical continuity properties:
11. Electrical insulating properties:
12. Protection by enclosure
    12.1. Protection against ingress of solid objects (minimum): To BS EN 60529, IP4X.
    12.2. Protection against ingress of water (minimum): To BS EN 60529, IPX1.
    12.3. Protection against access to hazardous parts (minimum): To BS EN 60529, IPXX-D.
13. Means of opening access covers:
14. Sizes:
15. Compartments:
16. Accessories and fittings: Factory-made by the cable trunking or ducting manufacturer and of the same material type and finish as the cable trunking or ducting.
    16.1. Types:

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:
5. Connections to boxes, trunking, equipment and accessories: Screwed couplings, adaptors, connectors and glands: Attach, rubber bushes at open ends.

6. Mounting and support:
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:
6. Connections to boxes, trunking, equipment and accessories: Use threaded adaptors.
7. Mounting and support:

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: Submit proposals.
   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:

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 resisting 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.

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: To whole of property
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: Surface
6. Mounting heights (finished floor level to underside of equipment/ accessory): To be agreed once designs finalised

7. Accessory face plates: Free from any traces of plaster, grout and paint or similar.

725 Final connections

1. Size: Determine.
2. Cable: Heat resisting 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 and warning plates.

740 Installing emergency luminaires

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

745 Installing external luminaires

1. Locations: Submit proposals.
2. Seals: Check for particle ingress and clean.

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, include 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: Engrave, indicating their purpose.
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 and electrically connected: 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:

840 Testing and commissioning of photovoltaic systems

1. Standards: To BS EN 62446-1, BS EN 50549-1 and in accordance with ENA EREC G98/1-4.
2. Microgeneration Certification Scheme: Submit certificate.
3. Documentation: To BS EN 62446, Annex A and Annex C.

850 Testing and commissioning of small-scale wind generating systems

1. Standards: To BS EN 61400-2 and BS EN 50549-1 and in accordance with EREC G98/1-4.
2. Microgeneration Certification Scheme: Submit certificate.

860 Inspection and testing of emergency lighting systems

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

870 Inspection and testing of external lighting systems

1. Switching: Check correct operation of photoelectric control units, time switches and other switching devices over at least one switching cycle.
2. Orientation: Adjust luminaires to achieve optimal performance.

880 Documentation

1. Timing: Submit at practical completion.
2. Contents
   2.1. Full technical description of each system installed.
   2.2. Manufacturers' operating and maintenance instructions for fittings and apparatus including relamping instructions for luminaire types. Identify hazardous lamps that require specialist disposal.
   2.3. 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.
   2.4. Manufacturers' guarantees and warranties.
   2.5. As-installed drawings showing circuits and their ratings and locations of fittings and apparatus.
   2.6. List of normal consumable items.

Ω End of Section

Z20
Fixings and adhesives

Clauses

10 Fixings and fasteners 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 or sleeves to avoid bimetallic corrosion.
3. General usage: To recommendations of fastener manufacturers and/ or manufacturers of components, products or materials fixed and fixed to.
4. Fixings: To be in straight lines, at regular centres.

25 Fastener durability

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.

30 Fixings through finishes

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

35 Packings

1. Materials: Noncompressible, corrosion proof.
2. Area of packings: Sufficient to transfer loads.

40 Cramp fixings

1. Fasteners: Fix cramps to frames with screws of same material as cramps.
2. Fixings in masonry work: Fully bed in mortar.

50 Pelleted countersunk screw fixings

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

55 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.

60 Applying adhesives

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

Ω End of Section

Z21
Mortars

Clauses

10 Mortar mixes

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

20 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 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.

25 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.

30 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.

40 Cements for mortars

1. Cement: To BS EN 197-1 and CE marked.
   1.1. Types: Portland cement, CEM I.
2. Portland limestone cement, CEM II/A-LL.
3. Portland slag cement, CEM II/B-S.
4. Portland fly ash cement, CEM II/B-V.
   4.1. Strength class: 32.5, 42.5 or 52.5.
5. White cement: To BS EN 197-1 and CE marked.
   5.1. Type: Portland cement, CEM I.
   5.2. Strength class: 52.5.
6. Sulfate resisting Portland cement
   6.1. Types: To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked.
7. To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
   7.1. Strength class: 32.5, 42.5 or 52.5.
8. Masonry cement: To BS EN 413-1 and CE marked.
   8.1. Class: MC 12.5.

50 Admixtures for site made mortars

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

60 Making mortars generally

1. Batching: By volume. Use clean and accurate gauge boxes or buckets.
2. Mix proportions: Based on dry sand. Allow for bulking of damp sand.
3. Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
   3.1. Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.
4. Contamination: Prevent intermixing with other materials.

70 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.

Ω End of Section

Z22
Sealants

Clauses - Not Used

Execution

61 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.

62 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.

63 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

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