



Section

TECHNICAL SPECIFICATIONS

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EXCAVATION AND FILLING

1.01 GENERAL

The building area and its immediate surrounding shall be cleared as shown on drawing supplied. The area of the building works shall then be stripped of topsoil to a depth of 12"/300mm. No soil taken from within 12"/300mm of original ground level shall be used as return fill.

Excavation for floor slabs and foundations shall be to the depth as on the Drawings or as necessary to give a firm base to the satisfaction of the consultant.

1.02 TREES AND HEDGES

No trees, shrubs or hedges shall be destroyed, damaged or removed other than those within the limit of the excavation and these will be as specifically indicated on the contract Drawings. Trees which are to remain are to be protected by the contractor. The roots of all trees, shrubs or hedges destroyed shall be dug out and void, if so directed by the Consultant, filled in with the hardcore, as specified in Clause 1.06.

1.03 ROCK EXCAVATION

Limited rock excavation is expected in this Contract.

1.04 PLANKING AND STRUTTING

The sides of all excavation should be properly planked and strutted if the Contractor considers it necessary. The Contractor shall be responsible for upholding the face of the excavations. Any excavations which may fall in are to be dug out and made good by the Contractor at his own expense.

1.05 PUMPING AND BAILING

Keep the excavations free from water, slop and mud whether due to rains, spring or flood water by pumping, bailing, temporary drains, or by any other approved means necessary.

1.06 HARDCORE

The hardcore is to be approved clean laterite or other approved hard materials to pass 75mm ring. It shall be laid in 150mm layers under all ground floor slabs, paved areas or wherever indicated on Drawings, well rammed and consolidated. The top layer shall be blinded with a layer of fine stone; sand or other approved fine materials to receive concrete.

PART 11 - CONCRETEWORK

2.01 CEMENT

All cement used in the works shall be from an approved source and shall conform to BS 12 for Portland cement.

The cement shall be delivered to the site in properly sealed bags, and shall be stored in a properly weatherproof shed having a raised floor. Each consignment shall be kept separate and clearly marked with its date of arrival. Every facility shall be given to the Consultants for testing each consignment. The cement shall be used in the same order as its arrival on site, and no cement shall be used in the works that have been affected by moisture or age. Any damaged or affected cement is to be removed from the works immediately. No admixtures shall be made to any cement or formwork unless specified.

2.02 AGGREGATE FOR CONCRETE

The Aggregate used in all grades of concrete shall be hard, naturally occurring sand, gravel or stone, and shall conform in all respects to standard accepted by the Ministry of Works, and Maintenance.

Fine aggregate shall be river or pit sand thoroughly washed with clean water until all salts, clay or other impurities are removed and complying with BS 882.

The aggregate shall be from an approved source and shall be clean and free from adherent coatings, organic materials, sulphates likely to affect the quality of the concrete.

2.03 STEEL REINFORCEMENT

All reinforcement shall be placed strictly in accordance with the drawings. Reinforcement shall consist of round steel rods free from pitting, loose rust, mill scale, paint oil or grease and shall conform to BS 4449 and 4461.

The steel fabric reinforcement shall conform to BS 4483. It shall be laid properly, lapped and tied.

The reinforcement shall be securely fixed at crossing points with binding wire to form a rigid cage and cement mortar spacer locks shall be provided to keep the steel in its correct position.

2.04 WATER

Water shall be clean and free from oil, acid, alkali, earth, vegetable or any other solids in suspension or other soluble substances.

The amount of water used shall be the minimum necessary for practical workability and shall be adjusted as specified to suit the water content of the aggregates. In no circumstance is water to be added to the mix after it has left the mixer or mixing pad.

2.05 CONCRETE QUALITIES

Concrete used in the works shall be to the following qualities.

Quality Nominal	Max size of coarse Aggregate	Max water cement ratio by weight	Min Crushing strength of works test cube (MN/M ²)	
1:2:4	20mm	0.70	7 days 14	26 days 21
1:3:6	25mm	1.00	8	11.5

Mix 1:2:4 is used for all reinforced concrete, except if otherwise stated on drawings.

2.06 MEASUREMENT OF INGREDIENTS

For measurement by weight, due allowance shall be made for weight of water carried by the aggregate, the actual amount of water added to the mixer being reduced accordingly.

For measurement by volume, gauge boxes of sizes corresponding with the proper quantities of sand and aggregate shall be used for gauging the materials and in such a way that the correct proportion of the ingredients can be easily verified. Gauge boxes for the various qualities of concrete are to be proportioned in such a manner as to avoid dividing the content of bags of cement.

The cement shall be measured in whole bags of 1 Cwt. or 50 kilos and shall in no circumstances be measured by volume.

2.07 MIXING

The dry materials shall be mixed for at least three turns in a mechanical batch mixer of an approved design, after which the required amount of water shall be added gradually while the mixer is in motion and the concrete mixed for at least two minutes until it is of a uniform colour and consistency. When work stops, including stoppages for meals, the mixer and all handling plant is to be washed out with clean water. Concrete shall be placed within 15 minutes of mixing and on no account shall it be remixed by the addition of water in order to make it easier to place for any other purpose. The approval of the Project Supervisor must be obtained before any hand mixing is commenced. Not more than half cubic yard shall be mixed at a time, and the hand mixing shall be carried out on a properly constructed platform of concrete. The materials shall be turned over and thoroughly mixed three times in a dry state, the

correct amount of water should then be added and the materials turned over three times in a wet state, until a uniform colour and consistency is achieved.

2.08 PRECAUTIONS IN INCLEMENT WEATHER

During windy weather, proper precautions shall be taken to prevent the cement from been blown away during proportioning and mixing.

During wet weather, adequate precautions shall be taken to protect the cement and to ensure proper mixing. No concreting shall be carried out during periods of heavy rain.

2.09 NOTICE OF CONCRETING

Before concreting any major sections of work such as foundation, retaining walls lintels etc., the Contractor shall give adequate notice to the Project Supervisor and obtain his approval. If due notice is not given, the Contractor may be required to remove any defective concrete, make good at his own expense.

2.10 FORMWORK

Formwork is not considered necessary for foundations etc. below ground level. Formwork in beams and columns are to be of wrought materials. It shall be fixed in perfect alignment and securely braced so as to be able to withstand the vibrating of the concrete. All joints shall be close enough to prevent leakage of liquid from the concrete.

All formwork shall be approved by the Project Supervisor before concrete is placed.

Formwork shall be struck as follow:

Sides of beams (unloaded) 3 days; beams or lintel soffits 15 days.

2.11 PLACING, STRIKING FORMS AND CURING

Concrete is to be worked well up against the formwork faces to ensure that it is free from honey combing. The method of carrying out this work is to be the entire satisfaction of the Project Supervisor.

Care must be taken not to disturb the concrete by direct or indirect loading, striking of forms or otherwise until it has hardened sufficiently. No formwork containing, or struts supporting concrete shall be struck until the period of curing has expired.

Concrete shall be thoroughly compacted during the placing and carefully worked round the reinforcement, around built-in-elements such as bolts etc., and into corners of the

Formwork

Mechanical vibrators shall be used for compacting reinforced concrete unless agreed otherwise by the Project Supervisor prior to the operation. Where vibrator are used, approved reduced cement; water ratios shall be adopted.

It shall be Contractor's responsibility to ensure that no damage, distortion, overloading or undue deflection is caused to the structure by the striking of formwork.

2.12 CONCRETE FOUNDATIONS

Concrete foundations shall be to the widths and thicknesses shown on the Drawings and shall be deep enough to give adequate bearing but not less than the depth shown on the Drawings.

2.13 LINTELS ETC.

Lintels shall be concrete of quality as indicated on drawings. The reinforcement shall be as indicated on the drawing, and Bills of Quantities.

2.14 TESTING OF CONCRETE

The consistency of the concrete shall be determined by means of the standard slump test in accordance with BS 1881, and in the presence of the Project Supervisor

The cubes shall each be 6" (150mm) cubes and the methods of sampling, compacting and curing are to be as directed. Tests will be carried out at the Contractor's expense including all costs and charges in connection with the preparation of test cubes, transport and attendance, etc.

A record shall be kept on the site of the time and date of placing the concrete in each portion of the work, and all tests made.

The record of tests made should identify them with the part of the work from which the samples were taken. Copies of such records shall be given to the Project Supervisor from time to time during the progress of the work.

2.15 CONSTRUCTION JOINTS

All construction joints in concrete work shall be against forms and made in approved positions, rebated if required by the Project Supervisor.

Immediately before placing new concrete against an existing face, the face shall be roughened, cleaned, well wetted and brushed over with a thick coat of neat cement slurry.

PART 111 – BLOCKWORK

3.01 BLOCKS

Sand/cement blocks shall be composed of a mortar of 1 part cement and 6 parts sand.

The cement shall be in accordance with Clause 2.01 and the sand Clause 2.02 and the water Clause 2.04 of this specification.

The blocks shall be produced in an approved machine and their crushing strength shall be not less than 500 Ibs. Per square inch of net cross sectional area at 21 days after casting, or 400 Ibs. Per square inch at 5 days after casting. All blocks shall be true to shape and shall left with shape and clean edges.

3.02 BLOCKWORK CONSTRUCTION

Blockwork shall be built in accordance with the Drawings, figured dimensions may, with the Consultants approval, be adjusted to obviate cutting blocks to ensure correct bonding.

Hollow blockwork below slab level must be filled solid with concrete quality 1:4:8.

Blocks shall be thoroughly soaked immediately before being used, and unfinished work shall be wetted immediately before the recommencement of each day's work.

Walls shall be constructed in stretcher bond unless otherwise directed by the Project Manager. All blockwork shall be constructed in a uniform manner and true to line and level at all perpend, quions etc. All blockwork shall be kept watered on faces, top and ends for at least three days following execution. Joints shall not exceed 13mm thick. No one portion of blockwork shall be raised more than 900mm above another at one time. The Contractor shall properly execute all rough cutting, bonding wedging and pinning up of soffits, plumbing angles, building or cutting and pinning in ends of lintels, sills, joints, etc.

3.03 MORTAR

The materials for mortar shall be as previously specified.

All joints shall be completely filled with mortar comprising 1 part cement to 6 parts sand by volume. No mortar which has started to set shall be used or knocked up for re-use. Where blockwork walls are to be rendered, the joints are to be rendered and to be left raked out for a depth 13mm.

PART IV – ROOFING

4.01 ROOFING

Corrugated iron roof sheeting shall be 28 gauge of sinusoidal profile with 10/3" corrugations 8'0" (2440mm) long and to comply with the relevant B.S, laid and fixed with galvanised spring head roofing nails 2 1/2" long x 10g felt washers in accordance with manufactures printed instructions and or the drawings and instructions.

Aluminum sheets where abutting walls and up stands, to be welted (single or double welt) to a flashing or apron aluminum strip. The flashing or apron strips shall be folded and tucked into blockwork joints to a minimum dept of 1" secured by folded aluminum sheet wedges and pointed. All vertical joints in aprons and flashings shall be welted.

4.02 PROTECTION

The Contractor is to case up, cover and adequately protect all roofing work from abrasion, impact, the action of acid, alkalis, oils or solvents, and is to leave the roof in a sound and clean condition.

Walking on the sheet will not be permitted. Ladders or crawl board shall be used.

PART V – WOODWORK& IRONMONGERY

5.01 WOODWORK & IRONMONGERY

All timber for carpenter and joiner's works shall be approved timber properly seasoned, straight cut, free from sap, twists, large loose or dead knots etc. and shall conform to BS 1186 part1. Sawn timber shall hold the full scantlings specified after being sawn. Wrot timber shall be finished even, clean and smooth. An allowance of 1.5 mm will be made for each wrot face off the size specified unless otherwise stated.

5.02 WORKMANSHIP

All workmanship shall be of the best quality. Carpentry and joinery shall be executed in a workmanlike manner and not fully detailed on the drawings, to details prepared by the contractor but with the approval of the Project Supervisor, and shall conform to BS 1186 Part 11.

All joinery shall be framed up and stacked in a dry place but it is not to be glued, wedged up or delivered to site until required in the building. Any joinery which warps or develops shakes or other defect shall be replaced by new before being wedged up.

Frames shall be properly joined at corners and morticed , tenured and wedged in the best manner.

The contractor shall provide all nails, brads, screws, glass paper and tools etc. for the proper execution of the works. The heads of all nails, brads, etc shall be punched below the surface.

The contractor shall properly execute all fitted ends, mitres, housings, returned ends, junctions of circular with straight etc. as may be necessary. All skirtings, architraves and other joinery shall be accurately scribed to any irregular surface to which they abut.

Hardwood fixing plugs 100 x 75mm minimum size or approved metal holdfasts shall be built into the joints of blockwork or cast into concrete for fixing door frames or other joinery at the rate of one every 800 mm of height. Minimum of 3 fasteners for each side of each door frame.

The term plugging includes the provision of hardboard plugs of adequate dimension, built or cut and pinned or cast into the wall surface and planted on.

Unless otherwise described on the drawings, all joinery is to be fixed by screwing.

5.03 PRESERVATIVE TREATMENT

All timber and joinery work not be painted shall treated with two coats of coloured wood preservative, or other approved preservative before erection. This includes hidden as well as exposed roof construction.

5.04 PROTECT JOINERY

All fixed joinery which, in the opinion of the Project Supervisor, is liable to become bruised or damaged in any way, shall be completely cased and protected by the contractor until the completion of the works.

5.05 CLEARING UP

The contractor is to clear out and destroy or remove all cut ends, shavings and other woodwaste from all parts of the building and the site generally, as the work progresses and at the conclusion of the work.

5.06 DOOR AND WINDOW FRAMES

Frames shall be made to the sizes and details shown on the drawings. Frames shall be properly fixed with iron cramps or fixing slips as detailed above under workmanship.

5.07 PLYWOOD

The plywood to cupboards, etc. shall be as grade A W.B.P faced with close grained timber free from furry patches.

5.08 CARCASSING (WALL PLATES, ROOF FRAMING ETC)

Wall plates shall be fixed with ½" (12mm) diameter mild steel rod bolts firmly grouted into the blockwork beam at (2000mm) centres. All joints shall be halved. See details drawings.

All edges, rafters, hips purlins and other structural woodwork shall be formed from the longest lengths of timber obtainable.

Where joints are unavoidable they shall be properly scarfed and wedged, the length of the joint being twice the depth of the member and shall be secured with 12mm diameter mild steel bolt and knots.

5.09 DEFECTIVE WORK

Where defects occur to members generally, including framed and stored joinery, the work shall be taken down and repaired or renewed including any necessary making good and redecoration at the contractors' expense and to the satisfaction of the Project Supervisor.

5.10 GENERAL

Ironmongery shall be supplied from an approved supplier. The ironmongery shall be fixed with matching undamaged screws.

All joinery shall be properly morticed or worked as necessary for fixing the ironmongery.

5.11 SAMPLES

The contractor shall, if requested, submit samples of all ironmongery for approval before fixing.

5.12 PROTECTION

All ironmongery shall be protected until completion of the works. Any damaged ironmongery shall be repaired or renewed at the contractor's expense and to the satisfaction of the Project Supervisor.

5.13 COMPLETION

On completion all locks shall be fitted with two keys. The Keys shall be properly labelled, paired together and handed to the Project Supervisor.

All ironmongery is to be oiled and adjusted and left in perfect working order.

PART VI- STEELWORK

6.1 MATERIALS

6.01 STEEL

The steel generally shall comply with BS 4360 weldable structural Steels.

Rolled mild steel section shall comply with BS 4848 Part 4: Equal and unequal angles.

Hollow sections shall comply with BS 4848 part 2: hollow sections.

Galvanized plain sheets shall comply with BS 2989

6.02 SUNDRIES

Black bolts; screw and knots shall comply with BS 4190.

Close tolerance precision bolts knots, screw and plain washers shall comply with BS 3692.

Black taper washer shall comply with BS 3410.

High strength friction grip bolts shall comply with BS 4395.

Electrodes shall be grade a best heavy coated quality and comply with BS 5639.

6.03 WORKMANSHIP

6.04 FABRICATION

Work off-site shall conform with the appropriate clauses of BS 499: The use of structural steel in building.

All surfaces in contact and all surfaces inaccessible after assembly shall be treated according to these specifications before assembly.

6.05 WELDING

Welding procedure shall comply with BS 1856, BS 938 and BS 2642 as appropriate.

The equipment to be used shall be of a type which produces proper current so that the welder can produce satisfactory welds.

Welding in shop or on site shall be carried out by experienced and well qualified welders.

Surface preparation and assembly shall be carried out strictly in accordance with BS 1856, BS 449 and BS 2642 as appropriate.

6.05 WORK ON SITE

All handling of works during transport and on the site shall be planned and carried out by the contractor to proceed in a manner designed to protect the painted surfaces from damage.

All members stored on site shall be laid out on timber sleepers, kept clean from construction dirt. Marking on individual members shall be visible when members have been stacked together.

The position of all points of support for structural steel work shall be set so that the distances between any two points joined by a shop fabricated component of structural steel are within $\frac{1}{8}$ " of the required dimension. Individual fabricated members shall conform to a degree of accuracy compatible with the tolerances laid down by this clause.

The position of any column or support wall shall be set out with a tolerance of 1" in 100ft., but no point shall be more than 1" away from the position shown on the drawings.

The contractor shall erect temporary bracing as necessary to maintain all structural steelwork in the correct position until the structure is complete.

6.06 SITE CONNECTIONS

The site bolting of permanent connections shall conform with clause 62 and BS 499. Washer shall be provided under all knots and all bolts shall show after tightening at least two clear threads beyond the knot. During the tightening operation the bolt head shall be prevented from rotating.

Welding on site will not be permitted without the Project Manager's written approval.

6.08 PROTECTION AGAINST CORROSION

All mill scale and rust is to be removed by hand in accordance with clause 505f CP 2008: 1966. Two coats red lead primer are to be applied to structural steelwork before delivery to site. Any damaged plain surfaces must be made good on site prior to application of a succeeding coat of paint.

Any surfaces which will be inaccessible after erection are to be painted before erection.

PART VII – FINISHING

7.01 MATERIALS

The water, cement and sand shall be as previously specified.

7.02 SAMPLE PANELS

A sample panel of any finishing shall be prepared and approved if directed. The finishing shall not vary in colour or quality from the approved samples.

7.03 HARDBOARD CEILINGS

Hardboard to ceilings shall be as specified and fixed as shown on the drawings to the satisfaction of the Project Manager.

7.04 TILING

Lay Terrazzo floor tiles in accordance with Manufacturer's instruction and finish true and plumb.

PART VIII – PAINTING

8.01 MATERIALS

All materials shall comply with the appropriate British Standard and BS Code of Practice CP 231 and shall be of best quality and approved manufacture. All materials for multi-colour works shall be obtained from the same manufacturer.

Colours of paints shall be as directed by the Project Supervisor and the Contractor shall provide if required and at his own expense, small panels of paintwork showing the respective tints selected for the work.

8.02 PRIMING

Woodwork and steelwork that requires priming shall be coated with an approved priming paint complying with BS 2521 or 2533.

Blockwork and concrete surfaces internally that require painting shall be given one coat of approved primer and this shall be applied strictly in accordance with the manufacturer's instructions.

8.03 EMULSION PAINT

Emulsion paints are to be of the polyvinyl acetate type and are to be applied in two coats (after priming) internally to blockwork and necessary concrete.

8.04 CEMENT PAINT

Cement paint is to be snowcap or other approved type and shall be applied strictly in accordance with the manufacturer's instructions.

8.05 COLOURED TIMBER PRESERVATIVE

Is to be brown "Creosote" or other approved colors to be selected by the Project Supervisor

PART IX – DRAINAGE

9.01 GENERAL

Regulations

The contractor shall comply in all respect with the regulations and bye-laws of the local authorities.

Other Services

Special care must be taken by the contractor during the excavation to avoid damage to any drain, cable or other services which may be encountered.

Should any services be encountered, the contractor is to ensure that they are not in use before grubbing them up. Any live services encountered are to be adequately protected and approval of the Project Supervisor is to be obtained for method adopted by the contractor.

9.02 MATERIALS

Cement, Sand, Aggregate, Water and Sand Crete block

Cement, sand, aggregate, water, concrete and sand Crete block shall be as previously specified.

9.03 INSTALLATION

Excavation

Excavation for drains shall be in straight lines to stated depth and gradients and of sufficient width to allow proper drainage. Provide all necessary earthwork required, they shall be filled and adequately consolidated to the correct level with selected fine material. The excavation shall be kept free from surface or percolating water by pumping or otherwise. Compact and clean bottoms of excavations
Prices for excavations shall include for grading ground under beds, back fillings, removing surplus excavated materials and providing any necessary earthwork support.

For the purpose of calculating the “extra over” quantities of excavations, the width of each has been assumed to be 12” (30-mm) wider than the internal width of the trench and prices shall, be deemed to allow for any other width, which may actually be excavated.

Storm Water

Surface water channels shall be 4”thick precast sandcrete blockwork rendered internally, laid on plain concrete base as shown on the drawings.
Blockwork and concrete shall be as previously specified.

Laying

Drains shall be laid in straight lines in accordance with the drawings and to sloping gradients.

PART X – PLUMBING INSTALLATION

10.01 MATERIALS AND WORKMANSHIP

The pipes have been measured net as fixed, and rates shall include for all short lengths, cutting waste and extra joints.

The rates for fixing UPVC pipework shall include for clips or brackets centres not exceeding those recommended by the manufacturer.

10.02 PVC PIPES AND FITTINGS

All PVC pipes and fittings for drainage, sanitary and cold water installation shall be heavy grade as manufactured by KEY TERRAIN LTD, LARKFIELD. NAIDSTONE, ENGLAND or other equal and approved. The installations are to be carried out strictly in accordance with the manufacturer’s instructions and recommendations.

All equipment and ancillaries shall be of an approved type and comply with the relevant BS and shall be fixed strictly in accordance with the manufacturer’s instructions.

Water storage tanks shall be galvanized steel and shall comply with BS 471, grade A and completed with ball valve, overflow and outlet connections and drain cock and cover. On completion of the installation and immediately prior to testing, the whole of the installation shall be thoroughly flushed through to remove all dirty water, debris, etc.

All pipework is to be subject to hydraulic test for water pressure in the presence of the Project Supervisor. Such tests are to be applied by test pump and are to comprise a test pressure of 161 lb per square inch carried for thirty minutes.

Leaks or other defects are to be replaced at the contractor's own expense and the same test repeated until the whole of the pipework is proved to be completely free from defects to the satisfaction of the Project Supervisor.

The contractor shall include for marking positions of all holes, mortices, chases, etc., in the structure for the installation in this section. Holes through concrete work or block work may be formed during construction and the contractor shall include for all necessary setting out.

10.03 OTHER REQUIREMENTS

Covers of sewer inspection chambers or electrical manholes should flush with finished grade level, and the handles should not pose any hazard.

All plumbing pipes should not be visible. Either buried underground or in walls. Fixtures such as stop-corks, valves should be visible and accessible for control and maintenance.

PART XI – ELECTRICAL INSTALLATION

11.01 SCOPE

The work shall include the supply of all materials unless otherwise stated, labor, tools and equipment necessary to install, test and commission all the services described in these Bills or shown on the contract Drawings.

11.02 Standard of Works

The work and all materials and workmanship shall comply with the following:-

1. The Supply Authority (National Power Authority, NPA) Regulations.
2. The current appropriate British Standards and the British Standard Code of Practice for Electrical Installation.

11.03 Supply

The electricity supply to the site will be provided by the Supply Authority where applicable and will be of a suitable voltage.

11.04 Testing by Supply Authority

The contractor shall serve all notices, on the Supply Authority for testing, pay all fees in connection therewith, and should any additional charges be made for re-testing, they shall be paid by the contractor.

Where conduits cross expansion joints, the contractor shall install expansion couplers at the position of the expansion joints and at right angles to it.

11.09 CABLES

All cables shall be color coded in accordance with the Supply Authority Regulations. The exact type cable shall be as specified on the drawings. The cable types between equipment and/or buildings shall be as specified. No jointing of cables will be permitted.

11.10 SOCKET OUT LETS

Unless otherwise specified all general socket outlets shall be rates 13 Amp and be of the three rectangular pin types BS 1363. 1967

11.11 LIGHT FITTINGS

Lamp and fittings shall be provided and installed as per drawings, specifications, notes, etc Lamp bulbs, tubes, etc shall be installed in lighting fittings immediately prior to practical completion and shall not be used as means of temporary lighting. The lamps can only be used for testing of the lighting installation and during handover inspection.

11.12 LIGHTNING PROTECTION

The Contractor shall provide a complete lightning protection system. The whole shall be in accordance with British Standard codes No. CP 326

The position of the whole of the installation shall be agreed with the consultant before work commences.

11.13 HEIGHTS OF OUTLETS

The Contractor's attention is hereby drawn to the fact that all heights of lighting fixtures etc., above finished floor level must be consistent. Care should be taken in respect of distance of switches from door architraves

Unless otherwise specified on the drawings, all units shall be mounted at the following heights from finished floors level taken to the centre of the unit:

-	Lighting switches	-	1400mm
-	Socket outlets-generally	-	300mm
-	Fuse spur boxes	-	1400mm
-	Telephone outlets	-	300mm
-	Motors Central Units	-	1400mm
-	Individual items of switchgear	-	1400mm

Generally, switchboards and distribution boards shall be installed so that any item to which easy access is required such as a fuse, circuit breaker, instrument etc., is not more than 2150mm above finished floor level.

11.14 OTHER REQUIREMENTS

Utility power service shall be three phase, 380 volt, 4-wire and earth. The service- drop cable shall be rated for 0.6/1.0 KV, 4 core x10sq mm with armour, direct burial, suitable for wet and dry conditions, with sufficient mechanical strength. This cable shall be connected to the existing utility pole and the power-change over switch in the electrical closet.

The generator cable shall be of the same size as the utilities. This cable shall be laid from the generator distribution switchgear (to be indicated by Project Supervisor), up to the power change-over switch in the electrical closet. The load-feeder cable from the change-over switch in the electrical closet, energizes a 12-circuit. Three-phase, 4-wiredistribution panel with mains disconnect switch and fused miniature circuit breakers. Distribution panel shall be metal clad with hinged doors and door-gaskets to prevent entry of moisture, etc.

PART XII – FLOOR, WALL AND CEILING FINISHINGS

The cement shall be as described in the “concrete work”.

The sand shall be sea or pit sand as before described.

Rendering shall be in accordance with the recommendations of BS 5492.

The in-situ floor furnishings shall be in accordance with the recommendations of BS OP 204.

Walls shall be thoroughly brushed down and well wetted before rendering.

The in-situ materials shall be mixed on a clean wooden platform or in mechanical mixers. No mix shall be tempered once it has commenced to set and no batch shall be mixed with another batch.

Notwithstanding the minimum thickness stated the rendering must be worked to the grounds fixed (generally ½” thick) and rates shall include for all necessary dubbing out to give a straight, true and plum surface trowelled perfectly hard and smooth.

Where dubbing out is necessary, it is essential that this dubbing out should consist of a succession of thin coats and each coat must be allowed to dry out thoroughly before the application of the following coats.

Cement and sand beds and backings

The cement and sand shall be mixed in the proportions specified. Immediately before laying, the surface shall be brushed over with a grout of one part of cement to one part of fine sand by volume.

The paving shall be placed, leveled with float and thoroughly compacted with a screeding board. Surfaces shall be furnished as described appropriate for the finishing materials to be laid or fixed.

Beds shall be kept damp for at least seven days after laying to allow for proper curing.

12.0 TILING

Glazed ceramic wall tiles shall be fixed to rendered surfaces with an approved adhesive in accordance with Manufacturer's instruction and finish true and plumb.

Lay ceramic floor tiles in accordance with Manufacturer's instruction and finish true and plumb.

PART XII1 – GLAZING

The glazing shall be in accordance with the recommendation of CP 152.

The whole of the glass shall be of approved manufacturer of the best quality of its respective kind and shall be picked clear off all specks, bubbles, smoke waves, air holes and other defects and shall comply with BS 952.

The putty for glazing to metal frames to be approved manufacture.

All glass shall be delivered to the site in cut sizes.

All rebates shall be painted two coats of paint before glazing and the rates shall include for this.

The rates for glazing shall include for bedding in putty, back puttying, front puttying and cleaning off.

Clean all glass inside and outside on completion to the satisfaction of the S. O. replace with new all cracked, scratched, damaged or defective glass.

14.0 PARKING LOTS AND PAVED AREAS

Base

The base of parking lots shall consist of selected laterite bed, laid to a compacted thickness of 3" (75mm) blinding with fine materials and rolled if required with a light roller, weighing not more than 5 cwt.

Precast Concrete Paving Slabs

Precast Concrete Paving Slabs be in accordance with BS 368 and shall be laid on a bed of sand as specified and bedded in cement mortar (1:6). Paving slabs shall be 2" thick. All joints shall be grouted with a semi-dry mix of sand and cement brushed in. Paving shall be cleaned off on completion.

Pay No Bribe