**PART 2**

**MATERIALS AND WORKMANSHIP**

**2.1 Generally**

All materials and workmanship are to be in accordance with the descriptions in the Specification and where a British Standard Specification or Code of Practice relating to such materials or workmanship is in existence this shall be held to apply.

Proprietary materials are to be used strictly in accordance with the manufacturer’s instructions.

**WORKS TO BE PRICED ON THE SITE.**

**2.2. Avoidance of Nuisance**

The whole of the Works including any pulling down is to be carried out in such a manner so as to cause as little dust, noise and inconvenience as possible to the adjoining owners or the public, and the contractor will be held responsible for any claims which may arise from the disregard of this clause. Debris and other materials arising from the demolition must not be thrown down but must be lowered in baskets, barrows, etc. and the debris must be kept well watered during the works to prevent nuisance from dust arising.

**2.3 Old Materials**

The whole of the old materials in pulling down, demolition’s, etc, are to become the property of the contractor (unless otherwise stated) who is to clear and cart away the same and also to cart away all rubbish arising there from. All tipping fees and costs are to be priced with the works.

No old materials should be re-used in the Works except with the permission of the contract supervisor, who will be at liberty to select any such materials, although they are due to be cleared away, for re-use in the Works.

**2.4 Safety and Protective Measures**

Before commencing the works every care must be taken to ensure that every part of the works is properly and sufficiently supported and the whole of the prices for pulling down, cutting openings and alterations to existing work, etc, shall include whether specifically mentioned or not, for providing all necessary temporary scaffolding and all requisite shoring, needling, strutting and other supports to walls, floors and roofs, etc, required, and all fans, weatherproof and dustproof screens and other protection necessary for the protection and safety of existing buildings, the public and the employers’ staff, from dust and falling debris during the pulling down. The contractor shall alter, adapt and maintain all such temporary works as may be necessary from time to time and finally clear away and make good all work disturbed. The contractor will be held solely responsible for the safety of the existing buildings and the sufficiency of all temporary works. Provide all necessary tarpaulins, screens and other means of covering up for protection of the new works and existing against inclement weather and make good all damage done.

**2.5 Opening Up of Existing Works**

If, in the process of opening up existing works, the contractor should form the opinion that to proceed with the work in accordance with the contract supervisor’s instruction would involve the risk of injury to persons or property he is to notify the contract supervisor in writing and suspend operations until he has the contract supervisor’s express instructions to proceed.

**2.6 Bonding, Pinning and Preparing**

The prices for making out, altering, adapting, etc. of the existing openings in walls, formation of new openings in walls, etc, are to include for properly bonding new work to existing, cutting and pinning against soffits and preparing cills for raising whether specifically described herein or not.

**EXCAVATION AND EARTHWORK**

**2.7 Excavations**

All excavations made in excess of the drawings and/or the contract supervisor’s instructions are to be filled with concrete (1:10) at the contractor’s expense, and no payment will be made for such additional excavation nor for the disposal of the material arising there from.

**2.8 Obstructions**

The rates for all excavations are to include for excavating in any material met with (including hardcore) except natural rock, concrete, brickwork, running silt or running sand. Should such obstructions be encountered, adequate notice must be given to the Surveyor to enable him to measure same.

**2.9 ‘Soft Spots’**

Any ‘soft spots’ exposed shall be excavated and backfilled as directed, and the contractor shall give adequate notice to the Surveyor so that he shall be able to measure the sizes of all such ‘soft spots’.

**2.10 Double Handling**

Prices for excavations, disposal, etc, shall include for all necessary temporary spoil heaps, double handling, etc.

**2.11 Pumping, Bailing, etc**

Any excavations are to be kept free from general water, slop or mud during the progress of the works by pumping, bailing or other means necessary including all necessary temporary sumps, drains, etc. The contractor should base his pricing of this item on the assumption that the normal water table is below the depth to which he will be required to excavate for the execution of these works.

**2.12 Backfilling, etc**

All earth filling and backfilling shall be compacted in layers not exceeding 150mm thick and watered where directed. All such filling shall be of reasonable uniform consistency without large lumps and each layer is to be spread over the whole width of the excavations before placing of the next layer.

**2.13 Planking and Strutting**

Any planking and strutting required is to be suitable and adequate for the purpose, the construction and design of which is to be the contractor’s responsibility

**2.14 Hardcore Beds, Filling, etc**

Hardcore filling shall be compacted in layers not exceeding 150mm thick, compaction continuing until all voids are filled and the surface is even and smooth. The Contractor shall note that the thickness of hardcore beds and filling described herein are deemed to be after compaction. No allowance has been or will be made for loss of material into the substratum due to compaction.

Blinding to hardcore is to be of ashes, sand or other fine material, approved by the contract supervisor.

**CONCRETE WORKS**

**2.15 Cement**

The cement shall be ‘Ordinary Portland Cement’ to comply with BS EN 197 and shall be obtained from an approved manufacturer.

**2.16 Aggregates**

Aggregates for concrete shall consist of sand, gravel, crushed or uncrushed natural stone in accordance with the appropriate provisions of BS EN 12620.

**2.17 Mixing of Concrete**

All materials for concrete are to be measured in gauging boxes and all gauging is to be done on wooden board platforms.

The mixing, unless otherwise approved, shall be carried out in an approved mechanical bath mixer and shall continue until there is a uniform distribution of materials.

Ready mixed concrete may only be used if it is obtained from a works that comply with the B.R.M.C.A. Plant Authorization scheme.

**2.18 Frost**

No concrete shall be mixed or deposited during frosty weather. When there is a likelihood of frost occurring after concrete has been newly deposited such concrete shall be properly covered and protected. Similar protection shall be given to concrete placed in hot weather.

**2.19 Reinforcement**

The steel bar reinforcement shall comply with BS4449. The steel fabric reinforcement shall comply with BS4483.

All steel shall be free from oil, dirt, loose rust or scale and shall be securely fixed or supported to avoid displacement.

**2.20 Formwork**

All formwork shall be sufficiently strong to withstand without undue deflection, the dead weight of concrete, men, barrows, etc, during the execution of the work. Forms or struts shall not be removed until the concrete is sufficiently strong to carry the requisite loads (dead or temporary), and the contractor will be held responsible for the safety of the works and for any damage done and will have to make good same at his own expense.

**BRICKWORK AND BLOCKWORK**

**2.21 Cement**

 The cement shall be as described in ‘Concrete Work’.

**2.22 Sand**

Sand is to be clean, sharp, coarse river or pit sand, free from loam, salt or other impurities and is to be washed and screened if required and is to comply in all aspects with BS EN 13139

**2.23 Lime**

 Lime for mortar shall be well-slaked semi-hydraulic lime and shall comply in all respects with BS EN 459

**2.24 Water**

Water shall be clean and free from any harmful impurities and shall comply with BS EN 1008

**2.25 Use of Mortars**

 All mortars are to be used within one hour of mixing.

**2.26 Bricks**

All bricks are to be the best of their respective kind, square, hard, sound, well burnt, even and uniform in shape and colour, free from cracks, scores and other defects.

**2.27 Blockwork**

Any blockwork shown is to be built in blocks as manufactured by Hanson Blocks/ Heidelberg Cement, Hanson House, 14 Castle Hill, Maidenhead, SL6 4JJ – or other as approved or specified by the contract supervisor.

Blocks are to be stored under waterproof conditions on raised floors if outside and not wetted before laying.

**2.28 Bonding**

Any brickwork is to be built all as shown on the drawings and as described in English bond unless otherwise described. Half-brick walls are to be in Stretcher bond unless otherwise described. Bricks are to rise four courses to 305mm and are to be laid frog upwards. Proper cross jointing is to be observed and every course well grouted and flushed up as the work proceeds, properly bonded and with perpends strictly kept. No portion is to rise more than 1.100 m above another at any one time without the permission of the contract supervisor and brickwork is to be racked back at changes of level.

**2.29** **Hollow Walls**

Cavities of hollow walls shall be kept clear of all mortar droppings and rubbish, leaving openings at the base, cleaning out the cavity on completion and subsequently building up the opening uniformly with the surrounding work and forming all necessary weep holes.

**2.30 Sample Panels**

The contractor is to allow for erecting sample panels of facing brickwork and pointing to the approval of the contract supervisor and demolishing and clearing away on completion.

**ROOFING**

**2.31 Lead**

 The lead is to comply with BS EN 12588.

**2.32 Mastic Asphalt Roofing**

The mastic asphalt roofing is to comply with BS6925 with natural rock aggregate.

**2.33 Built Up Felt Roofing**

 The built up felt roofing is to comply with BS EN 13707.

**CARPENTRY, JOINERY AND IRONMONGERY**

**2.34 Softwood**

Softwood generally is to be Douglas Fir, Western Hemlock, European Whitewood, Canadian Spruce or other approved and is to be free from open shakes, large, loose or dead knots or more than a small proportion of perfectly bright sap and to be thoroughly seasoned.

**2.35 Carcassing Timber**

Carcassing timber is to comply with BS4978 and to be kiln dried, with a moisture content not exceeding 20%.

**2.36 Joinery Timber**

 Joinery timber is to comply with BS1186

**2.37 Tanalised Softwood**

Timber described as ‘Tanalised’ is to be impregnated with ‘Tanalith E’ by the vacuum process dry salt retention of 4 kg/m3  by a firm on the approved list of agents and stockists issued by the manufacturers. The cross-cut ends of ‘Tanalised’ timber must be liberally swabbed with ‘Wolmanol’ solution obtainable from the same manufacturer.

**2.38 Plywood**

Plywood is to comply with BS EN 636. Internal quality is to be bonding Type INT and external quality is to be bonding Type WBP.

**2.39 Blockboard**

Blockboard is to comply with BS3444, internal quality is to be bonding Type INT and external quality is to be bonding Type BR.

**2.40 Chipboard**

 Chipboard is to comply with BS5669.

**2.41 Hardwood**

All hardwoods are to be the best of their respective kinds and to be equal to samples to be submitted to and approved by the Architect. Unless otherwise stated all hardwood is to be West African Sapele.

**2.42 Sundries**

Nails are to be mild steel wire nails in accordance with BS 1202. Those used externally are to be galvanised.

Screws are to be steel slotted countersunk headed wood screws in accordance with BS 1210.

**2.43 Pre-made Joinery Items**

All items such as doors, windows, gates, garage doors, etc, are to be from Magnet Ltd, Allington Way, Yarm Road Business Park, Darlington, DL1 4XT – unless otherwise agreed or specified.

All catalogue numbers in the specification and / or schedule refer to the latest catalogue.

**2.44 Workmanship**

All joinery shall be properly wrot and executed to details, all glued joints to be cross-tongued and the whole of the joiner’s work is to be cut out and framed together soon after the commencement of the work as possible, but not glued up until required.

All exposed joinery shall be wrot and finished with glass paper to receive paint unless otherwise described and all arisses to be eased.

All joinery that splits, flies or warps is to be removed and replaced at the contractor’s expense.

The contractor is to ensure that all joinery work is set plumb and true and is to case up and protect all joinery work from damage during subsequent operations and leave perfect on completion.

Prices for joinery described as ‘selected and kept clean for staining and/or polishing’ shall, where joinery is fixed with screws, include for countersinking the heads of screws and pelleting the grain.

**2.45 Sizes**

The sizes given in this Specification for Joiner’s Work are nominal sizes unless stated otherwise and are to hold the full sizes specified less only 3.2mm for each wrot face.

**2.46 Labours**

All prices for windows and doorframes are to include for any necessary fixing cramps, dowels, plugging and screwing. Also to include for any necessary cutting, pinning, mortises and making good.

The backs of all new door frames, windows, skirtings, etc, where in direct contact with structure are to be primed before fixing whether stated or not.

**PLUMBING INSTALLATION**

**2.47 Cast Iron Pipes and Fittings**

Cast iron pipes and fittings are to be in accordance with BS416 with socketed joints jointed with yarn and molten lead well caulked and are to be coated inside and out. Pipes and fittings are to be fixed with galvanised mild steel bolted holderbats and screwed to background with galvanised mushroom headed screws.

**2.48 PVC and uPVC Pipes and Fittings**

The PVC and uPVC pipes and fittings are to be obtained from Polypipe Terrain Ltd, Aylesford, Maidstone, Kent, ME20 7PJ and installed strictly in accordance with the manufacturer’s printed instructions.

**2.49 Copper Tubing and Fittings**

Copper tubing is to comply with BS EN 1057 and the fittings are to comply with BS EN 1254 .

**2.50 Regulations (Water)**

The installations are to be executed in accordance with the regulations of the Local Authority and of the Local Water Company and to the satisfaction of their inspectors and of the contract supervisor. The contractor is to give all notices and pay all fees, if any, for inspections, tests, etc.

**2.51 Fixings**

All pipework shall be soundly fixed to walls, floors, soffits, etc, and prices shall include for all necessary plugging or brickwork, concrete blockwork, etc, in preparation of fixing and for making good all finishings

**FLOOR, WALL AND CEILING FINISHINGS**

**2.52 Cement**

 The cement shall be as described in ‘Concrete Work’.

**2.53 Sand**

The sand shall be clean, sharp pit sand and free from clay, loam and other impurities and well washed and shall comply in all respects with the provisions of BS EN 13139.

**2.54 Carlite Pre-mixed Plaster and Thistle Plaster**

The Carlite pre-mixed plaster and Thistle plaster are manufactured by and shall be obtained from British Gypsum Ltd, and shall be used strictly in accordance with the manufacturer’s instructions.

**2.55 Plastering on Brickwork, etc**

Plastering on brickwork and blockwork, including adjacent flush concrete surfaces, shall be in two coat work, the undercoat to consist of Carlite Browning Plaster 11mm thick ruled to an even surface and lightly scratched to form a key; the finishing coat consisting of Carlite Finish Plaster 1.6mm thick.

**2.56 Gyproc Lath**

The Gyproc Lath is manufactured by British Gypsum Ltd, Head Office, East Leake, Loughborough, LE12 6HX, and shall be fixed strictly in accordance with their instructions with 38mm galvanised clout headed nails, including providing all necessary sawn softwood noggin pieces.

**2.57 Plaster on Gyproc Lath**

The single skimming coat on Gyproc Lath is to be as follows:

Thistle board finish plaster shall be worked into the joint recesses and shall be struck flush with the joints of the boards. Before the joint plaster has set apply a skimming coat of neat thistle board finish plaster to a total thickness of not less than 5mm thick.

**2.58 Granolithic**

The granolithic is to be composed of two parts of cement to five parts of granite chippings by volume graded from 6mm down with not more than 20% fine material passing a 76 x 76 sieve.

The finish surface is to be treated with ‘Lithurin’ hardener applied at the rate of 0.17 kg/m2 in three applications dissolved in water in the proportion of one part of ‘Lithurin’ to three parts of tepid water by weight.

**2.59 Dubbing Out**

Prices shall allow for all necessary extra labour and materials in dubbing out existing surfaces so that new work shall line up with the existing.

**2.60 Internal Ceramic Glazed Wall Tiles**

Tiles shall comply with BS EN ISO 10545 and fixed with a suitable approved adhesive.

**GLAZING – see part 4**

**~~2.61 Glass~~**

 ~~The glass is to be of British manufacture, free from all defects in accordance with BS952.~~

**~~2.62 Glazing~~**

~~All glazing rebates are to be primed before glazing.~~

~~All glass, as fitted, shall meet the necessary requirements of the current Building Regulations.~~

**PAINTING AND DECORATING**

**2.63 Source of Supply**

All paints, etc, are to be obtained from Crown Paints Ltd, Crown House, Hollins Road, Darwen, BB3 0BG or their approved suppliers unless otherwise stated and are to be used in accordance with the manufacturer’s instructions.

**2.64 Storage**

All materials shall be kept in a dry, clean store, protected from frost.

**2.65 Stripping of Existing Walls and Ceiling Coverings**

Unless otherwise described, where decorations are to be specified, the contractor is to allow in his rates and prices for the complete removal of all layers of paper, vinyl, hessian, anaglypta, etc, from walls and ceilings.

**2.66 Remedying Defects due to Defective Materials**

All unsatisfactory materials shall be immediately removed from the site and any work executed with such defective materials shall be made good by the contractor, at his own expense, to the satisfaction of the Contract Supervisor.

**2.67 Knotting**

Knotting shall comply with BS1336

**2.68 Stopping**

Stopping for:

a) Internal woodwork shall be putty, complying with BS544 and shall be tinted to match the colour of the undercoat or other approved filler

b) External woodwork shall be approved external quality filler

**2.69 Primers**

All primers are to be appropriate for the surface and for the subsequent coats.

**2.70 Fungicidal Emulsion Paint**

To be Dulux Trade Fungicidal Quick Drying Eggshell and applied in accordance with the manufacturer’s instructions.

**2.71 Woodwork**

Before fixing woodwork, all surfaces that will be visible after fixing shall be rubbed down and all knots and resinous areas shall have the resin removed and coated with one thin coat of knotting. After priming and fixing, all nail holes and other imperfections shall be stopped and the whole surface shall be rubbed down and all dust brushed off.

**2.72 Woodwork Previously Painted**

All blistered, poorly adhering or otherwise defective paint shall be burned off. After stripping, the woodwork shall be treated as for new woodwork.

Remaining areas, where in good condition, shall be washed down and whilst wet the surfaces shall be rubbed down with a suitable abrasive and then rinsed down. Minor areas of poorly adhering or defective paint shall be removed by careful scraping back to a firm edge and any bare woodwork treated as for new woodwork.

**2.73 Metalwork**

All metalwork is to be thoroughly cleaned and free from grease, rust and scale before priming.

**2.74 Metalwork Previously Painted**

All blistered, poorly adhering or otherwise defective paint shall be burned off. After stripping, the woodwork shall be treated as for new woodwork.

Remaining areas where in good condition shall be washed down and whilst wet the surfaces shall be rubbed down with a suitable abrasive and then rinsed down. Minor areas of poorly adhering or defective paint shall be removed by carefully scraping back to a firm edge and any bare woodwork treated as for new woodwork.

**2.75 Washing Down**

All surfaces described as such shall be washed down with soap and water, detergent solution or suitable solvent to remove dirt, grease, etc, and rinsed down with plenty of clean water. Woodwork, metalwork and glazing are to be leathered to remove all excess water whereas stone, brickwork and tiling allowed to dry naturally.

**2.76 Manufacturer’s Instructions**

All materials shall be used strictly in accordance with the instructions issued by the manufacturer concerned.

**2.77 Stirring of Materials**

The contents of all cans and containers of all materials must be properly and thoroughly stirred before and during use and shall be suitably strained as and when necessary.

All part used containers to have the lids firmly replaced. Paint that has formed a skin is to have the skin removed and shall then be strained before further use.

**2.78 Coatings to be Dry**

 All coatings shall be allowed to dry thoroughly before succeeding coats are applied.

**2.79 Rubbing Down**

All undercoats for oil paints shall be rubbed down to a smooth surface with abrasive paper and all dust removed before the succeeding coat is applied.

**2.80 Differing Colours of Undercoats**

Each succeeding coat of priming and undercoating paint shall be sufficiently different in colour as to be readily distinguishable.

**2.81 Painting in Unsuitable Conditions**

No coatings shall be applied to surfaces affected by wet, damp, foggy or frosty weather or other unsuitable conditions, or to any surface damp with moisture. If it is desired to proceed with painting when the temperature is below 4 degrees celsius, the permission of the contract supervisor must be obtained.

**2.82 Protection of Wet Surfaces**

Adequate care must be taken to protect surfaces while still wet, by the use of screens and ‘wet paint’ signs, where necessary.

**2.83 Cleanliness**

All brushes, tools and equipment shall be kept in a clean condition and surfaces shall be clean and free from dust during painting. Painting shall not be carried out in the vicinity of other operations that might cause dust.

The contractor shall provide a suitable moveable receptacle into which are to be placed all the liquids, slip washings, etc, which are on no account to be thrown down any of the gullies, manholes, sinks, lavatories, wc’s or any other sanitary fittings. All solid refuse or inflammable residues must be removed from site.

**2.84 Glazing Putties**

Cut out and renew any defective glazing putties and reinstate where missing.

**2.85 Removal of Ironmongery, etc**

All surface-fixed ironmongery, fittings, switch plates, etc, except hinges, shall be removed before painting and refixed on completion.

**2.86 Paper Hanging**

Prepare surfaces and hang wallpaper and vinyl as follows:

a) Do not commence until surfaces are dry and all other work is completed.

b) Fill and rub down the surfaces until perfectly flat smooth.

c) Do not commence hanging until the complete quantity of material is supplied with due allowance for waste. Check each roll to ensure the pattern, shade and other references are correct and identical.

d) If necessary, trim all wallpaper and vinyl to give straight edges.

e) Apply size or primer if necessary to control porosity and as recommended by the wallpaper/vinyl manufacturer.

f) Apply adhesive as specified by the manufacturer of the wallpaper or vinyl.

g) Where specified, cross-line with lining paper with butt ‘joints’ at right angles to the wallpaper or vinyl. Finish perfectly smooth.

h) Hang wallpaper and vinyl with pattern aligned and close butted edges. Finish perfectly smooth with imperceptible joins and without any adhesive marks or other imperfections. Neatly trim at all junctions with other finishings, etc.

i) Carefully roll and wrap and label all surplus wallpaper and vinyl and sizeable off cuts and hand to employer.

**EXTERNAL WORKS – to include grounds and gardens etc.**

**2.87 Generally**

The contractor is referred to the relevant preambles and to other sections that apply equally to this section.