TRADE PREAMBLES AND GENERAL SPECIFICATIONS

INTRODUCTION:

THE DOCUMENT

The contents of this document are intended to cover workmanship and materials encountered in the projects.

By its very nature, this document is a "Model" document and one that is designed to act as a basis upon which to build. It is therefore anticipated that in its use, it will be supplemented by a Supplementary Preambles document included in the text of the bills of quantities that, *inter alia*, will include the following: -

- Other supplementary clauses of a general nature,

- Additional clauses pertaining to specific materials incorporated in a project and not covered by the Model Preambles.

THE BASIC PHILOSOPHY

Wherever possible, reference has been made throughout the preambles to SAZ Specifications and Codes of Practice to describe materials and methods respectively. It is therefore incumbent on the users of these preambles to acquire or have ready access to the relevant Specifications and Codes. Where such Specifications or Codes do not exist, suitable alternative preambles have been compiled.

These preambles have been designed to assist in abbreviating descriptions in text of the bills of quantities and practitioners are encouraged to make use of this facility e.g. in describing a storm water catch pit it would read:

"Brick storm water catch pit size internally 600 x 400 x 1200 mm deep to invert fitted, with and including a 450 x 300 mm x 59 kg cast iron grating and frame."

Wherever alternatives exist in respect of materials or workmanship, specific choices have been made in these preambles.

ADDITIONAL NOTES AND TIPS IN THE USE OF THESE MODEL PREAMBLES

In any event, the Building Contract/Agreement makes it quite clear that the Contractor shall comply with all acts of Parliament and all regulations and by-laws of local or other authorities having jurisdiction regarding the execution of the works.

CONCRETE, FORMWORK AND REINFORCEMENT

The Project Specifications embodied in these preambles was compiled for use on projects where Structural Engineers have not been appointed. Supplementary Preambles by Engineers will be incorporated with The Bills of Quantities.

ROOF COVERINGS

The roof coverings included in these Model Preambles are limited in their content and it therefore follows that any roofing materials not included in these Preambles will need to have its full preamble included in the Supplementary Preambles.

MODEL PREAMBLES FOR TRADES

INTRODUCTION

These Preambles for Trades have been compiled on the assumption that the following documents are applicable to the Contract:

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GENERAL

ABBREVIATIONS

For the purpose of these Preambles for Trades the following abbreviations shall apply:

AASHTO - American Association of State Highway and Transportation Officials.

BS - British Standard

SAZ - Standards Association of Zimbabwe.

APPLICATION OF CLAUSES

These Preambles for Trades shall be read in conjunction with and shall apply to all items in the bills of quantities.

Where descriptions or supplementary preambles in the bills of quantities differ from clauses contained in these Preambles for Trades, the descriptions or supplementary preambles in the bills of quantities shall take precedence.

MATERIALS AND WORKMANSHIP

Materials and workmanship shall be the best of their respective kinds. Only new and undamaged materials shall be used in the Works. Materials to be permanently installed into the works shall not be used for any temporary purposes on site work shall be to the approval of the architect and shall be executed in accordance with the relevant manufacturer's written recommendations and instructions.

PROPRIETARY PRODUCTS

For the purpose of submission of tenders, rates for items described in the bills of quantities by trade names, catalogue references, etc. shall be for the particular type and manufacture specified.

Once the Contract has been signed the approval of the Architect shall be obtained prior to any substitution and where products or materials, etc other than those specified are used, adjustments in the rates will be made, if deemed necessary.

ASSEMBLING

Descriptions of manufactured items shall be deemed to include assembling complete and handing over in proper working order.

REFERENCES

The references given in brackets at the end of certain descriptions refer to the relevant references on the drawings or schedules.

TESTS

Should the Contractor be instructed by the Architect to carry out test on materials or workmanship to ascertain compliance with the specification, the Contractor will only be entitled to payment for those tests which meet the specified requirements.

WATER

Water shall be clean and free from injurious amounts of acids, alkalis, organic matter and other substances and shall be suitable for its intended use.

ALTERATIONS

DESCRIPTIONS AND PREAMBLES

References shall be made to other trades and preambles for preambles and all descriptions of items not fully described in this trade which shall apply equally to the work in this trade, unless otherwise described.

GENERAL

In taking down and removing existing work the utmost care shall be observed to prevent any structural or other damage to remaining portions of the building, and the Contractor shall provide all shoring, needling, strutting etc to ensure the stability of all structures during alteration work.

Special care shall be exercised during the progress of the work to ensure that any electrical installations, water supply pipes, telephone and other services which may be encountered are not interfered with and notice shall be given to the Architect if any disconnection or alterations become necessary.

The Contractor shall take all precautions necessary to prevent any nuisance from dust whilst carrying out the work.

MATERIALS FROM THE ALTERATIONS, CREDIT, E.T.C

Materials recovered from the alteration (except where described as to be re-used or handed over to the Employer) will become the property of the Contractor, who may allow credit in respect thereof where provided for in the bills of quantities. Such materials shall not be re-used in new work without written permission from the Architect.

Materials described as “removed” shall be removed from the site immediately.

Materials described as “handed over to the Employer” shall be carefully dismantled where necessary, cleaned, neatly stored under cover and protected from damage until required for re-use. Any damage caused to such materials during removal, storage or re-fixing shall be made good at the Contractor’s expense.

DISPOSAL OF DEBRIS, ETC.

The Contractor shall be responsible for the removal from the site of all materials, debris and rubbish resulting from the alterations.

MAKING GOOD DAMAGED WORK

The Contractor shall make good in all trades to existing work where damaged or disturbed through the alterations with all necessary new materials to match the existing.

FORMING NEW OPENINGS OR ALTERING OPENINGS IN EXISTING WALLS

Descriptions of forming new openings or altering openings in existing walls shall be deemed to include breaking out for and forming new brick, in -situ concrete or prestressed concrete lintels including all reinforcement, formwork, turning pieces, etc, building up jambs or portions of openings as described with brickwork or block-work properly toothed and bonded to existing, building cavities of hollow walls solid where necessary and making good finishes all round on both sides and into reveals as described.

BUILDING UP OPENINGS

Descriptions of building up existing openings where given in number shall be deemed to include preparing existing surfaces all round, brickwork or block-work properly toothed and bonded to existing, wedging up and making good finishes on both sides as described.

DEMOLITIONS

NATURE AND EXTENT

Descriptions of demolitions give a rough guide only as to the scope of the work. Tenderers are therefore advised to visit the site before submitting a tender and to acquaint themselves with the nature and extent of the work to be done and the value of recoverable materials which are not to be re-used or handed over to the Employer.
Unless otherwise stated loose furniture, kitchen and other equipment, apparatus, machinery, etc. shall remain the property of the Employer and the removal thereof does not fall within the scope of this Contract.

The Contractor shall completely demolish the buildings, etc. in a careful, skillful, practical and safe manner down to 150 mm below ground level.

Descriptions of demolitions shall be deemed to include breaking up and removing:

- all floors and surface beds:
- all external screen walls, steps, ramps, aprons, surface water channels, rainwater sumps, gulleys, etc. attached to the building to be demolished;
- all services, manholes, etc., in ground to a point not less than 1m behind the perimeter of the building, including plugging off ends of all remaining pipes, drains, etc., filling in holes where necessary and ramming and levelling to ground level.

Where only a portion of a building is to be demolished, it shall be done without damage to the remaining portion of the building. Any such damage shall be made good by the Contractor at his own expense.

NOTICES, E.T.C

The Contractor shall, before commencing work, obtain all necessary authorisations for carrying out the work by whatever means including the use of pneumatic equipment or blasting, give all necessary notices and pay all charges and fees in connection therewith. He shall also comply with all regulations pertaining to rodent extermination and he shall obtain the requisite Rodent Extermination Clearance Certificate and pay all necessary fees. All receipts and certificates shall be left in the safe-keeping of the Architect. Descriptions of demolitions shall be deemed to include all the above mentioned charges and fees.

The Contractor shall give ample notice to the Architect and Local Authorities regarding any disconnections necessary prior to the removal or interruption of electrical or telephone cables, water and sanitary services, etc.

LOSS

After the handing over of the site to the Contractor, the full risk of any loss or damage to buildings to be demolished shall be the responsibility of the Contractor and he shall take such precautions as he deem necessary against such loss or damage.

MATERIALS FROM THE DEMOLITIONS, CREDIT, E.T.C

Materials recovered from the demolitions will become the property of the Contractor, who may allow credit in respect thereof where provided for in the bills of quantities. Such materials shall not be reused in any new work without written permission form the Architect.

DISPOSAL OF DEBRIS, E.T.C

The Contractor shall be responsible for the removal from the site of all materials, rubble, debris and rubbish resulting from the demolitions

EARTHWORKS

NATURE OF GROUND

The Contractor must satisfy himself by his own personal examination of the nature of the materials to be excavated. No claim for extras arising from his having failed to do this will be entertained.

"Rock" shall mean solid granite, chertz, quartzite or rock of similar hardness necessitating, in the Architect's opinion, the use of drilling, blasting, heating wedging and splitting or the use of pneumatic compressor tools in loosening or removing same.

"**Hard pickable**" shall mean hard shale, hard laterite, hard decomposed granite of similar material which, in the opinion of the Architect is of such hardness that it is extremely difficult to excavate with a pick and shovel, but not sufficiently hard as to fall within the definition of rock.

"**Pickable material**" shall mean all types of ground met with in excavating and shall include made up ground, clay, loam, schist, gravel and any isolated boulders not exceeding 0.03 m3 encountered.

Should the Contractor deem that the excavations are of such hardness as to warrant payment on the basis of hard pickable material, rock, concrete or brickwork he is to notify the Architect and the Quantity Surveyor, in writing, while such excavations are in progress whereupon the Quantity Surveyor in consultation with the Architect will inspect the excavations. The decision of the Architect and the Quantity Surveyor as to the nature of the excavations being carried out will be final and binding. If written notices not given the excavation will be valued as pickable material.

BLASTING

No blasting will be allowed without the written permission to the Architect.

Should blasting be necessary, the Contractor shall take every precaution to protect the Works and persons, animals and property in the vicinity of the Works. The Contractor will be held responsible for any injury or damage caused by any blasting operations and shall make good such damage at his own expense.

PUMPING

The Contractor must keep the works entirely clear of mud, surface and sub-soil water by baling, pumping, etc. Stop off or pipe away all springs that may be opened up.

PLANKING AND STRUTTING

Planking and strutting is to be provided where deemed necessary by the Contractor. Should any ground fall in owing to omission or insufficiency of planking and strutting, it must be cleared away, refilled and rammed as directed at the Contractor's own expense.

EXCAVATION

EXCAVATIONS GENERALLY

Excavations have been measured net and no extra quantity will be allowed if excavations are executed too wide irrespective of the class of materials encountered, or FOR INCREASE in bulk or planking and strutting.

All excavations shall be executed to the depths shown or as may be directed to ensure a solid bottom. Should the Contractor excavate below the levels shown or required to obtain a solid bottom he shall fill up the excavations to the correct level with Concrete (Grade 10) at his own expense.
The Contractor shall give notice to the Architect when the excavations are ready to receive the foundations and concrete shall not be laid until the excavations have been inspected and approved.

No works shall commence, or be continued, in excavations which have been flooded until permission has been obtained from the Architect.

WORKING SPACE

Working space for formwork to sides of all concrete, except Columns has been measured only where the concrete face is less than 300 mm from the face of the measured excavation.

Working space for applied finishes commencing not less than 0.3 metres and finishing not more than one metre below starting level of excavation has been measured only where the finish is less than 500 mm from the face of the measured excavation and for more than 1 metre below starting level excavation, 1 metre from face.

The allowance for working space is not subject to adjustment if more or less space is actually required and shall be a constant width from starting level to the final excavated level at which the formwork or external finish terminates.

NOTICE TO QUANTITY SURVEYOR

The Contractor is to give notice to the Quantity Surveyor, in writing when the excavations are completed to the approved level and before any concreting is done in order that all provisional work may be measured and adjusted as necessary. The final depth of all foundations, bases, etc., is to be decided on site.

FILLING

Filling under floors, backfilling to excavations, e.t.c to be an approved non-expansive material obtained from the excavations or carted onto the site and to be inert and free from all clay, vegetable or other deleterious matter. Filling is to be sifted if necessary.

All consolidated filling is to be well watered, consolidated and rammed by means of a mechanical ramming machine in layers of not more than 150 mm thick. Where required the compaction is to be to the density stated.

Garden soil filling shall be selected and sifted top soil, spread, leveled and lightly consolidated.

Note: All filling has been measured NETT and no extra quantity will be allowed for consolidation and compaction.

SURPLUS MATERIAL

Surplus material from the excavations which is not to be used is to be carted off the site and will become the property of the Contractor.

GRAVEL

Gravel to be nominal 40 mm maximum size graded to comply with B. S. 2006/1962 Table 4 and to be compacted to the density stated.

HARDCORE

Hard-core to be stone, brick or other hard dry material broken to pass a 50 mm ring and be retained on a 20 mm ring and well consolidated as described for filling.

COMPACTION TESTS

Only tests ordered by the Architect will be for the Client's account, however, the costs of any subsequent tests due to failure of the tests previously ordered shall be to the Contractor's account.

TERMITE TREATMENT

Where the application of termite treatment is required the following materials and quantities are to be used:-

Termicide "A" soil insecticide mixed with water at the rate of one liter of insecticide to ninety five liters of water and this solution to be applied at a rate of 5 liters per square metre of the surface treated. The treatment should to be executed by an approved firm of specialists with a written ten year guarantee.

CONCRETE, FORMWORK AND REINFORCEMENT

MATERIALS

1. Aggregates

a) Shall conform SAZ A 34
b) shall be heaped separately on hard, self draining surfaces
c) nominal size of coarse aggregate shall be 20 mm

2. Water is to be from an approved source and fee from acids and alkalis and shall be fit to drink

3. Reinforcement shall conform to the following standards:-

BS4449, BS4461, BS4482, BS4483, SABS CKS 158

4. Cement shall:-

a) conform to SAZ 46
b) be either normal Portland or p.c. 15
c) be used within 6 weeks of manufacture
d) be stored in a manner to exclude any moisture
e) be stored in a manner to ensure use of the earliest consignment.
f) be obtained from only one source
g) be of same type for complete contract

5. Additives shall not be used

DESIGN MIXES

Not less than 2 weeks before the start of concrete work, the Contractor shall submit to the Architect for his approval a statement of proposed mix proportions for the various grades required in the project. (Note: the grade is the characteristic strength of the cube strength below which not more than 5% of the results may be expected to fail when tested at 28 days) (For grades required see Bill of Quantities and drawings).

The statement shall include proportions of cement fine and coarse aggregate, and water, the maximum and minimum slump and the target strength for each grade.

A certificate by a recognised laboratory, that the proposed mix will meet the requirements must accompany the statement.

The proportions stated may not later be altered without the written approval of the Architects.

Cost of mix designs to be borne by the contractor

WORKMANSHIP

Workmanship shall comply with SAZ 170 Part 1.

FORMWORK

Formwork shall be sufficient to leave the concrete finishes specified on drawings and to be within the tolerances specified in the following table and to provide an acceptable surface for applied finishes, where required.

Line and level	1 mm per metre no exceeding 5 mm
Pockets, sleeves etc.	+5 mm
Bases	+50 mm

Where specified as wrot, the surface shall be of form board or wrot smooth timber of not less than 200 mm widths, to impart a smooth finish free of projections, voids, etc., and prices are to include for any necessary rubbing down. The type of ties to be used shall be such that the required finishes is achieved and does not become marred by subsequent corrosion. Ties are to be set out to a definite pattern to Architect's approval. Rubbing down is allowed only after the Architect's approval of the surface to be treated.

REINFORCEMENT

Shall not be heated or tested without the Architects Permission.

Shall be free from any material likely to impair bond or initiate corrosion.

Shall be bent and fixed according to the bending schedules.

Shall be tied with soft iron wire.

Shall be supported to maintain the following minimum cover during concreting.

a) the greater of the diameter of the bar or 40 mm for external unplastered face.

b) the greater of the diameter of the bar or 20 mm for external plastered face.

c) the greater of the diameter of the bar or 15 mm for internal face.

Shall be inspected by the Architect.

CONSTRUCTION JOINTS

Shall be avoided if possible, but if inevitable shall be pre-planned in consultation with the Architect and temporary stop ends be inserted. Before placing of concrete against a construction joint, the formed face shall be hacked down to expose the coarse aggregate, kept continuously wet for half an hour, then near vertical faces coated with cement/water slurry or horizontal faces covered with 15 mm layer of cement sand grout. Concrete should then be placed immediately.

CAMBER

To formwork as noted on drawing shall not be at the expense of the overall depth of the concrete.

WEATHER

Concrete shall not be placed if temperatures above 30 degrees Celsius or below 0 degrees Celsius are expected.

DURING CONCRETING

BATCHING SHALL:

a) be by mass in accurately calibrated scales or by volume in soundly constructed gauge boxes, making due allowance for bulking of the fine aggregate.

b) be in proportion to whole sacks of cement.

MIXING SHALL:

a) be in a machine in good condition, large enough to carry the whole mix, controlled by competent experienced operator

b) be for sufficient time to ensure complete inter-mixing of ingredients.

PLACING SHALL:

a) be under the control of a competent, experienced overseer.

b) be in a manner to prevent separation of the ingredients.

c) water shall not be added to the mix after discharge from the mixer.

d) be a continuous process until the pour is complete.

COMPACTION:

a) shall be by Immersion (poker) vibrator in the hands of experienced operators.

b) concrete shall not be moved by vibrator.

c) shall be sufficient to remove all air pockets and honeycombing and to ensure complete dense concrete cover to all reinforcement.

TESTING:

a) Shall be at the Architect's discretion by a nominated Testing Laboratory which will sample, make and crush the cubes.

AFTER CONCRETING

CURING:

a) shall commence early on the morning following the placing of the concrete.

b) shall be effected by keeping the concrete in a permanently wet state by ponding or other agreed method.

c) membranes shall not be used.

d) shall continue for a minimum of seven (7) days or such longer times as may be required by the Architect.

STRIPPING OF FORMWORK:

a) to soffits shall not be struck until seven (7) days after placing of concrete (but see below for props).

b) to vertical faces shall not be struck until three (3) days after placing concrete.

c) props to soffits shall not be struck until fourteen (14) days after placing concrete.

d) Shall not be stripped without the Architect's approval who has the power to vary the above times.

PATCHING

a) to defective work shall not be undertaken before the item has been shown to the Architect.

b) Is a sign of poor workmanship. The Architect shall have the right to reject the complete element if an unreasonable amount of patching has to be done.

RECORDS

Are to be kept by the Contractor, showing date and time of each concrete pour, the weather conditions, the temperature, the numbers of the cubes which represent the concrete, the slump and any other items which the contractor and/or the Architect consider relevant. These records are to be made available for the Architect's inspection when required.

PRECAST CONCRETE

MOULDS

Before each casting moulds shall be coated with a suitable preparation which will prevent the blocks adhering to the moulds and which will not in any way discolor the surface of the blocks or impair their strength. Where blocks are described as "finished from the mould" or as "precast terrazzo", moulds or relevant portions thereof shall be made to a high degree of accuracy and shall be of such material and nature as to leave even and smooth surfaces.

FINISHES TO BLOCKS

Where described as "finished smooth from the mould" such surfaces shall have a layer of fine stuff composed of one part cement and four parts clean fine sand by volume packed against the faces of the mould before placing the concrete backing. The concrete backing shall be deposited into the moulds in a wet state (not dry pressed) whilst the facing is still wet.

Where described as "precast terrazzo" such surfaces shall have facing to blocks not less than 12 mm thick as described for the finishing coat for terrazzo. The facing shall be poured into the moulds in a wet state (not dry pressed) and thoroughly worked up against finished faces to ensure that it finishes smooth from the mould.

Projections shall be rubbed off and faces shall be of even colour and free from blemishes, cracks and other imperfections. Salient angles shall be arris rounded.

SIZES

Sizes of blocks given are approximate. The Contractor shall be responsible for ascertaining the exact sizes of all blocks.

CASTING, ETC

No blocks shall be built in within 21 days of casting. Blocks shall be kept wet for at least 10 days after being cast by frequently sprinkling with clean water, during which time they shall be screened from the sun and protected from dust and inclement weather.

REINFORCEMENT

Unspecified reinforcement required for manufacturing, handling and erection purposes and for reinforcing projecting and other unwieldy portions of blocks shall be provided by the Contractor at his discretion.

BEDDING, JOINTING AND POINTING

Blocks shall be bedded and jointed solidly in cement/c 1:4 mortar as described and shall be pointed with slightly keyed joints.

Blocks finished with "precast terrazzo" shall have joints raked out and pointed with slightly keyed joints in tinted waterproofed mortar composed of one part cement and three parts sand to match terrazzo facing.

PAVING SLABS

Precast concrete paving slabs shall comply with SAZ.S 104: 1974

DESCRIPTIONS

Descriptions of precast concrete shall be deemed to include reinforcement required for manufacturing, handling and erection purposes, steel rod or wire loop hooks and /or mortices for Lewis bolts required for handling and transporting, any necessary temporary propping and strutting and bedding, jointing and pointing.

BRICKWORK

CEMENT

Cement is to be normal Portland cement as previously described. Blast furnace cement or proprietary mortar cement may be used with prior consent and in strict accordance with the manufacturer's printed instructions.

SAND

Sand is to be clean pit or other approved sand, washed where necessary and screened through a 2, 5 mm mesh or as directed and shall conform to SAZ A34.

LIME

Lime to be best quality hydrated building lime of approved manufacture and shall conform to SAZ A15 and is to be run at least four weeks before required for use.

WATER

Water is to be from an approved source and free from acids and alkalis and shall be fit to drink.

CEMENT MORTAR

Generally to be composed of six parts of sand to one part of cement. For foundations, facings and sundry grouting and pointing, etc., the mix is to be strengthened to four parts of sand to one part of cement. No cement mortar which has taken its initial set will be allowed to be used.

MIXING MORTARS

The mortar is to be hand mixed on a non-absorbent close jointed platform with kern. Gauge boxes are to be used for measuring all materials which are to be strike measured and not tamped down. The ingredients are to be mixed dry until thoroughly incorporated and then clean water is to be added through a rose. The mortar is to be mixed in small quantities and used within one hour of mixing. Machine mixing as described for concrete may be used. Mortar boards and mixing platforms are to be cleaned off daily and any mortar left over must be thrown away Mortar plasticizers may only be used with the approval of the Architect.

COMMON BRICKS

Unless otherwise described bricks shall be good, hard, sound, well burnt clay common bricks, uniform in size and shape from an approved kiln equal to samples submitted for approval and shall conform to SAZ 211. Maximum absorption shall not exceed 15%. All soft or inferior bricks shall be rejected. Bricks for foundations shall be selected extra hard burnt bricks.

FACE BRICKS

Face bricks are to be best quality selected bricks as later described similar to samples to be submitted for approval and standard. Face brickwork is to be protected from injury with plastic or other water proof sheeting and salient angles to be cased up to prevent damage. Rates for face brickwork shall include for pointing as described, protecting from injury and cleaning all exposed surfaces with a weak solution of spirits of salts and water on completion and for building a sample panel of not less than 50 bricks for approval and demolishing same on completion. Distribute facing bricks of varying colors evenly throughout the work so that no patches appear. Mix different deliveries which vary in colour to avoid horizontal stripes.

QUARRY TILES

Quarry tiles are to be approved pressed kiln burnt clay quarry tiles of colour as later specified, free from all defects and perfectly true and even, bedded, jointed and pointed in cement mortar (1:4); cased up to prevent injury and cleaned down as specified for face brickwork. Sample to be submitted for approval.

BRICKWORK

Half brick or similar walls to be built in stretcher bond, unless otherwise stated, all remaining brickwork where practicable to be built in colonial bond. (Five courses of stretchers to one course of headers)

No false headers or other broken bricks are to be used except where required for bond. All bricks to be soaked in water before laying. Each course of bricks to be well wetted before bedding the next.

Bricks are to be laid on a solid bed of mortar, all joints flushed up and each course grouted in solid through the whole width. Angles and perpends are to be plumb and courses level. No mortar joint is to exceed 12,5 mm thickness. All brick walls shall be built to the gauge of four courses equals 345 mm (subject to confirmation on site after delivery of the bricks and necessary adjustment to suit the structural sizes). No part of the work shall exceed any other by more than fourteen courses in height. Brickwork for plastering to have joints raked.

Cavities of hollow walls are to be kept free from mortar droppings or other matter by movable battens or other means and temporary openings must be left at plinth level through which any droppings, etc., can be removed and the openings made good on completion.

Execute all cuttings, plumb angles, form reveals, cut and fit brickwork between columns, beams, slabs and staircases, etc.

TIES

Where brickwork, etc., is described with wire ties, these are to be 3.25 mm thick galvanized crimped wire BUTTERFLY ties built into brickwork and /or cast into concrete at the rate of FOUR ties per square metre unless otherwise described and when used in cavity walls in no case are they to fall inwards towards the inner skin.

DAMP PROOF COURSES

Damp proof courses are to be formed of one layer of three-ply bituminous sheeting which shall conform to SAZ A25, laid on a level bed of cement mortar toweled smooth and lapped not less than 150 mm except at junctions and corners where the lap shall equal the full thickness of the wall and protect from damage

BRICK REINFORCEMENT

Brick metal fabric reinforcement is to be "Steel force" or other approved double row of 3,5 mm diameter high tensile wire with 2,8 mm diameter cross wires welded on at 303 mm centres and is to be bedded solidly into horizontal mortar joints of brick walls, lapped full width and wired together at angles and passings.

BUILDING IN, ETC.

Pressed steel door frames are to be set up accurately in position and lugs built into brickwork in cement mortar and the brickwork is to be built into backs of frames and run in and packed around and pointing both sides with cement mortar. Rates are to include for any temporary bracing required in order to prevent distortion of frames, easing hinges and cleaning down on completion.

Steel windows are to be set up accurately in position and lugs are to be cut and pinned to brickwork or plugged and screwed to concrete on all four sides and run in both sides of frame, including completely filling the channel formed by the flanges, in cement mortar and pointing. Rates are to include for easing hinges, locks, catches and stays and cleaning down on completion.

Pressed steel window surrounds are to be built in as described for steel door frames.

Pressed steel window cills are to be bolted to the bottom flange of the window, bedded solid and pointed in cement mortar.

Timber frames are to have galvanised hoop iron cramps with one end turned up and screwed to back of frame and the other end built into joints of brickwork and turned up. The frame to be bedded solid and pointed both sides in cement mortar.

REINFORCED BRICK LINTOLS IN CEMENT MORTAR

Reinforced brick lintels are to be built in cement mortar (1:4) with bricks specially selected for soundness and hardness, special care being exercised to grout all joints solid.

Lintels in cavity walls are to have the bottom two courses built solid. Single lintels are to have a bearing of 345 mm at ends and continuous lintels a bearing of 345 mm at extreme ends.

Brick lintels must be reinforced with straight continuous mild steel rods of the number and size specified or with metal fabric reinforcement, as specified. The rods or fabric reinforcement must extend the full length of the lintel and must be evenly spaced across its thickness from the first horizontal joint above the soffit.

Lintels in cavity walls must have all rods or the fabric reinforcement placed below the solid sections of the wall except only those rods specifically scheduled to occur below the cavity over.

CENTRES AND TURNING PIECES

Centres and turning pieces to soffits of arches and lintels shall be left in position for not less than 14 days. Descriptions shall be deemed to include use, waste, propping, stripping etc,.

FIRE WALLS

Brick walls described as fire walls to be built full height to close off to underside of slab soffits including around coffers where necessary.

ISOLATION JOINTS CONCRETE FLOORS

Polythene sheets to be used to form movement joints where brickwork built onto surface bed or suspended floors.

REMOVAL OF RUBBLE FROM THE SITE AND SITE HOUSEKEEPING

Builder’s rubble shall be regularly removed from the site and may not be stored for later removal. The contractor is to tidy and clean the site at the end of each week’s work.

WATERPROOFING

MATERIALS

Damp-proofing and waterproofing materials shall comply with the following specifications and requirements:-

MATERIALS	SAZ SPECIFICATIONS
Damp- proofing materials **Part 1:** Bituminous damp-proofing materials **Part 2**: Sandwich membranes in floors **Part 3**: Polyethylene sheet for damp-proofing in all Walls and floors.	SAZS 276: 1993
Mastic asphalt for roofing	SAZS 308: 1990
Mastic asphalt for flooring	SAZS 309: 1990
Mastic asphalt for tanking	SAZS 310: 1990
Code of practice for application of mastic asphalt for roofing	SAZS 311: 1990
Code of practice for application of mastic asphalt tanking	SAZS 313: 1990
Code of practice for application of mastic asphalt flooring	SAZS 329: 1990

Asphalt Work

MASTIC ASPHALT

Mastic asphalt used for roofing shall conform to SAZ A1 and all blocks delivered on site shall be appropriately marked.

MIXING AND LAYING

The mastic is to be mixed at a temperature not exceeding 230 degrees Celsius and is to be laid on and including an underlay of black sheathing felt, or other approved membrane of a type recommended by the manufacturer, in two layers giving a total thickness of 20 mm for ordinary horizontal work. Skirtings are not to be less than 150 mm high with double angle fillet at junction with horizontal.

Mastic asphalt used for tanking shall conform to SAZ A3 and is to be laid in three layers with a total thickness of 30 mm.

SPECIALIST

The work must be carried out by an approved specialist firm with experienced tradesmen and under a written unconditional guarantee for a period of 10 years from the end of the Defect and Liability Period.

APPROVAL OF SURFACES

The specialist firm will be responsible for approving the screed (or other surfaces to receive his work and the fact that his material is laid will be taken as evidence of his approval of the surfaces and of his acceptance of responsibility for any faults that may appear in his work.

ROOF COVERING, ETC

MATERIALS

Materials shall comply with the following specifications and requirements:-

MATERIALS	SPECIFICATION
Clay roofing tiles	SABS 632
Concrete roofing tiles - SAZS 187: 1984	SABS 542
Softwood brandering and battens	SABS 653
Fibre-Cement sheets: profiled and flat	SABS 685
Aluminium roofing sheets	SABS 903
Glass reinforced polyester laminated sheets	SABS 1150
Fasteners for sheet roof and wall coverings	SABS 1273
Materials for thermal insulation of buildings	SABS 1381
Sheet zinc	BS 849
Sheet lead	BS 1178
Sheet aluminium	BS 1470
Sheet copper	BS 2870
Bitumen Roofing fells	SAZS 321: 1982

LAYING AND FIXING OF CONCRETE ROOFING TILES

Concrete roofing tiles shall be laid and fixed in accordance with SABS 062.

GALVANIZED STEEL PROFILED SHEETS, ETC.

Galvanized steel profiles sheets, ridge and hip coverings, etc. shall be coated with a minimum of either 275 g or 600 g of zinc per m2 as specified and shall be free of white rust.

CORRUGATED GALVANIZED STEEL ROOFING

Corrugated galvanized steel roofing sheets shall be fixed to purlins through every alternate corrugation at ends and through every fourth corrugation to intermediate purlins.

The corrugated roofing sheets shall be secured to wood purlins with approved galvanized iron roofing screws of appropriate length and to steel purlins with 8 mm galvanized iron hook bolts of appropriate length. Each fixing screw or bolt shall be fitted with one conical lead washer and one bituminous felt washer or with approved patent washer.

Ridge and hip coverings shall be rolled steel sheet coated on both sides with Class c zinc coating complying with SABS 934. Sheets shall be free from white rust.

GALVANIZED SHEET IRON

Galvanized sheet iron shall be rolled steel sheet coated on both sides with class C coating complying with SABS 934. Sheets shall be free from white rust.

NAILING AND SCREWING

Where nailing and screwing is required, galvanized iron nails and screws shall be used for galvanized sheet iron and sheet zinc, copper or copper alloy nails and screws for sheet copper and sheet lead and aluminium alloy or stainless steel nails and screws for sheet aluminium.

LAPS

Sheet metal flashings shall have 100 mm laps and linings to valleys, secret gutters, and e.t.c 225 mm laps

DESCRIPTIONS

Descriptions of profiled sheet roofing and rolled edges, ridge and hip coverings, flashing pieces, etc, of metal, fibre-cement, plastic, etc, shall be deemed to include fixing accessories.

Descriptions of sheet metal work shall be deemed to include laps, seams, welts, clips, tacks, soldered dots, riverting, soldering, brazing, burning, and nailing.

CARPENTRY JOINERY & IRONMONGERY

TIMBER

To be best quality procurable, free from sap, white wood, shakes large, loose or dead knots, wane edges and other defects. Timbers to be sawn to hold the full specified sizes and die square.

Timber and timber products to be guaranteed free from borer and beetle infestation of any kind, any defects traceable to such infestation shall be rectified by the Contractor at his own expense, including any timber adjacent to the affected parts. This guarantee shall be valid for a period of three years from the date of handing over the Works.

Timber to be well seasoned and kiln dried to moisture content not less than 10% or more than 12%.

SOFTWOOD

Softwood for carpentry to be selected straight grained timber graded in accordance with SAZ 03.

HARDWOOD

Hardwood to be best quality selected wrot straight grained kiln dried of the type specified. Submit sample 600 x 150 x 38 mm for approval.

BLOCKBOARD

All block board to be commercial quality faced both sides with core of kiln dried strips (not exceeding 12 mm thick) of selected softwood jointed and glued together under pressure and planed flat and true for 1,5 mm cross veneers glued on both sides with water proof glue. Veneers to be suitable for painting, unless otherwise described.

HARDBOARD

Hardboard to comply with B.S. 1142.

PLYWOOD PANELS AND FACE VENEERS

Plywood panels and face veneers are to be best quality and of approved manufacture with written guarantee. Faces veneers to be 1.5 mm thick before sanding and are to be specially selected for grain and colour and the figure carefully matched for pattern. Patterns and colors are to be selected and approved.

PLASTIC SHEETING

Plastic sheeting shall be "Perstorp" or equal approved, cigarette proof quality, and shall be fixed or laminated in accordance with the manufacturer's instructions with approved adhesive and shall have edges finely chamfered at all external angles.

FRAMED DOORS

To conform to SAZ 184 of approved manufacture and constructed of well seasoned timber of the type specified. Unless otherwise described, stiles, top rails and braces to be not less than 114 mm wide, lock rails not less than 152 mm wide and bottom rails to be not less than 228 mm wide. Stiles and top rails to be grooved and chamfered for and filled in flush on one side with 22 mm narrow tongued, grooved and V-jointed boarding twice screwed at intersections with rails and braces.

FLUSH DOORS

To conform to SAZ 184 of approved manufacture and constructed with well seasoned framing covered on both sides with plywood cross banding and veneers selected for evenness of grain and suitable for painting, unless otherwise described, and with vertical edges concealed by solid hardwood edges. Rails to be drilled for ventilation.

The top and bottom edges of doors must be primed with an approved wood primer before the door is hung.

SKIRTINGS

All skirtings are to be ploughed at back to prevent warping. Skirtings or cornices, rails etc shall be in single lengths wherever practicable and shall have splayed heading joints where necessary.

STRUCTURAL TIMBER

Timber for non-structural framing, battens and brandering to be merchantable grade and shall conform to SAZ 06.

Structural timber to merchantable grade marked "M" and shall conform to SAZ 03.

Glued laminated timber shall conform to SAZ 169 and shall bear the mark of the Standards Association.

All timber for carpentry work to be in as long lengths as possible and all laps and joints to be placed over points of support. All wrot timber to be finished clean, smooth and free from tool marks.

PLATE NAILED TIMBER ROOF TRUSSES

Plate nailed timber roof trusses shall be of approved design and manufacture and constructed with softwood structural timber by an approved truss Fabricator.

Each roof truss shall have all its members accurately cut and close butted together and rigidly fixed by approved patented galvanized metal spiked connectors, precision pressed on both sides of each intersection by an approved method, all in accordance with the manufacturer's instructions.

The design, manufacture and transportation of the roof trusses, bracing, etc, shall be under the control of a registered Structural Engineer.

The design shall include for all live loads, wind loads and for dead loads imposed by roof covering purlins, ceilings, etc..

Fully detailed shop drawings of all trusses, etc, indicating sizes, bracing, loading, etc, are to be submitted to the Architect for approval prior to fabrication.

Unless specific erection instructions are given, erection shall be carried out in accordance with the procedures and recommendations of the manual "The Erection and Bracing of Timber Roof Trusses" published by the Institute for Timber Construction and the Council for Scientific and Industrial Research or as detailed by the designer. Descriptions of roof trusses and bracing shall be deemed to include design and preparation of shop drawings.

TONGUED AND GROOVED BOARDING

Tongued and grooved boards for floors, paneling, etc. shall be in long varying lengths with joints tightly cramped up and secret nailed. Flooring boarding shall be flush jointed with staggered heading joints and machine sanded after fixing.

WORKMANSHIP

All joinery except that described as "stock" is to be purpose made.

All work to be put in hand immediately upon signing the Contract, fitted together, but not wedged up and glued, stacked in a dry place and framed up and glued just before fixing in position in the building.

All joinery to be constructed in accordance with approved best standard practice, all tenoned joints to be pinned, all joinery over 76 mm to be double tenoned, all moulds to be mitred at external angles and scribed at internal angles. All mouldings will be solid except where shown to the contrary.

No screws are to be hammered. All works wherever possible to be secret fixed.

All exposed woodwork to be wrot and finished clean, smooth and free from tool marks. All exposed angles to be arris rounded (up to 3 mm radius). All work for oiling or polishing to be finished smooth without application of sandpaper.

JOINERY

Countertops etc. shall be constructed of wide boards with glued butt joints. Boards shall be in single lengths but where this is not possible the heading joints shall be staggered. Tops shall be secured with metal or hardwood buttons.

All horns of door frames shall be checked and splayed back where frames are fixed projecting or flush with surface and built in.

All joinery shall be manufactured under similar climatic conditions to those prevailing in the locality of the Works.

SCREWING

All screws for hardwood are to be best quality brass screws unless otherwise stated.

SIZES

Thicknesses of doors, block board, e.t.c, are actual dimensions of the finished work after dressing, etc. All other sizes specified are nominal dimensions before dressing or shaping operations, 2,5 mm will be allowed off nominal sizes for each wrot face.

TONGUED AND GROOVED BOARDING

Tongued and grooved boarding for ceilings shall be in long varying lengths, V-jointed one side and with joints tightly cramped up and secret nailed.

CEILINGS, ETC.

Brandering:

Brandering for ceilings and eaves soffit coverings shall be symmetrically arranged with necessary smaller panels. Main branders shall be at right angles to roof timbers, with cross branders cut in between and branders shall be fixed with galvanized wire nails driven in on skew alternately in opposite directions.

Ceiling boards;
Ceiling boards shall be in long lengths symmetrically arranged with necessary smaller panels, closely butted and secured at 150 mm centres to brandering with galvanized or cadmium-plated clout-headed nails.

EXPOSED TEE-SYSTEM SUSPENDED CEILINGS

All work shall be carried out by an approved firm of specialists.

The ceiling panels shall be as described in the items and the panels shall be suitably stiffened at back to prevent bowing or sagging.

The exposed surfaces of all ceiling panels and supporting members shall be uniform in colour and free from surface blemishes.

The suspension grid system shall be an approved patent suspension system comprising 38 mm galvanized steel main and cross tee bearers spaced in both directions at centres to suit sizes of ceiling panels used, with the cross bearers fitted between and notched to form flush fit with main bearers.

The exposed flange of the tees shall be 25 mm wide, covered with a rolled aluminium cap painted a low sheen satin white. Cornices, etc., shall be as described in the items and shall be finished to match the exposed tees.

The main tee bearers shall have holes for cross tees at 300 mm centres and holes for hangers at 50 mm centres. In addition, main and cross tee bearers shall be holed as necessary for and provided with timber wedges or steel clips to prevent ceiling panels from lifting.

The web of the exposed cross tee bearers shall extend to form a positive interlock with the main tee bearers and the lower flange shall be cut back to provide a joint free appearance.

All hangers shall be galvanized and shall be at centres to meet the requirements of the specification with one end fixed to the suspension grid main bearers and the other end fitted with suitable galvanized fixing cleat securely fixed to the structure. Fixing points shall be agreed to by the Architect before any power shot fixings are made. Hangers shall not be suspended from air conditioning ducts.

Component parts and fixings shall be non-corrosive and able to withstand atmospheric pollution. Surfaces of aluminium which are in contact with other materials when fixed, particularly metals, shall be suitably insulated to prevent electrolytic corrosion.

Descriptions of ceilings shall be deemed to include hangers, suspension grid system and ceiling panels, for constructing the ceiling in a manner suitable for carrying air conditioning diffusers and light fittings in the positions required for setting out the ceilings to layouts approved by the Architect, for all non-standard size panels and for modifications to standard suspension systems as necessary to work around any air conditioning ducts or pipes or light fittings.

FLUSH PLASTERED SUSPENDED CEILINGS

All work shall be carried out by an approved firm of specialists.

Gypsum plasterboard panels of the specified thickness generally in 1 200 mm widths and in long lengths shall be fixed grey side down with self -tapping screws to the suspension system with the joints between boards loosely butt jointed and covered with 65 mm wide strips of mesh scrim fixed along both edges.

The plasterboard panels shall be finished with gypsum skim plaster toweled to a smooth polished surface to the thickness, etc. recommended by the manufacturer.

The suspension system shall be an approved patent concealed suspension system consisting of galvanized mild steel bearers at 300 mm centres in one direction and at 1 200 mm centres in the other direction suspended on approved non-rusting metal hangers spaced generally at known centres or to suit layout of air conditioning ducts and other services, etc. above ceiling with one end bolted to the bearer and the other end fitted with a galvanized fixing cleat securely fixed to the structure as required

Fixing points shall be agreed to by the Architect before any power shot fixings are made. Hangers shall not be suspended from air conditioning ducting.

Descriptions of ceilings shall be deemed to include hangers, suspension system, ceiling panels and plaster finish, also for constructing the ceilings in a manner suitable for carrying air conditioning diffusers and light fittings in the positions required, for setting out the ceilings to layouts approved by the Architect and for modifications to standard suspension systems as necessary to work around any air conditioning ducts or pipes or light fittings.

DEFECTS

All joinery which shrinks, warps, or otherwise becomes defective, or any joints which open or give, etc., within the maintenance period shall be replaced or refitted as directed at the Contractor's expense.

PRICES

Timbers described as "sawn" are to include all workmanship and labor in preparing and connecting together by lapping, notching, splay or birds mouth cutting, halving, scarfing and for all nails and spikes. All nails are to be of the best quality and of gauge, length and strength suitable for the work. They will be long enough to enter the second timber at least one half their entire length before punching. Skew nailing will only be permitted in the framing. All timbers described as "framed" are to include for all workmanship and labor in connecting by mortice and tenon or dowelling and for all nails and spikes.

Timbers, unless otherwise stated, shall include for fixing with nails of the appropriate size and type.

The prices for all joinery fittings are to include for framing and fitting together, transporting to the site and fixing in position.

Hardwood described as "wrot" shall include for lightly sinking the heads of all nails, stopping and finishing the surface to receive decoration.

Where described as "screwed" it shall also include for countersinking the heads and pelleting, unless otherwise stated. Where described as "plugged" it shall include for fixing to concrete, brickwork or similar material with suitable plugs.

Protect all joinery before, during and after fixing from damage and leave in good condition.

IRONMONGERY

To be selected and to be fixed with screws of corresponding metal and colour. The prices are to include for collecting, storing, oiling and easing all locks, fastenings, etc., on completion.

Articles described as brass shall be solid brass and not brass finish.

Stamp all locks with consecutive numbers and the keys with numbers corresponding to the locks they control. Each lock to be supplied with two keys. No key is to pass another lock, unless otherwise specified.

Locks described as “en suite” shall be in sets as described, each set controlled by its own master key.

The prices for fixing to wood are to include for fixing to hardwood lippings and face veneers of flush doors.

The Contractor shall, at any early stage, arrange for approval of all ironmongery to be fitted to steel door frames, etc., so that provision may be made by the manufacturers' for the correct fitting of lock striking-plates, hinges, bolts, keeps, cleat hooks, etc.

All ironmongery is to be removed for decoration, cleaned down and refitted.

All joinery shall be in single lengths except where this is impracticable, in which case splayed heading joints, neatly executed are to be used.

All mouldings are to be neatly mitred at external angles and neatly scribed and fitted at internal angles.

All items of ironmongery described as chromium plated shall, unless otherwise described, be chromium plated on brass.

KITCHEN CUPBOARDS

Kitchen cupboards of steel, composite board and timber shall comply with SABS 1385. Steel cupboards shall be finished with baked enamel. Tops of floor cupboards shall have laminated plastic coverings.

Sinks and drainers shall be satin finished stainless steel and shall comply with SABS 242. Bowls shall have integral slot overflows and outlets of bowls shall be provided with 40 mm chromium plated brass waste fitting with a screwed outlet complete with rubber plug attached to the sink with a chromium plated chain.

Descriptions of cupboard, etc, shall be deemed to include ironmongery and fixing in position with necessary screws and fibre, plastic or metal plugs.

Where cupboards are described as a “series”, tops shall be continuous and cupboards shall be bolted or screwed together, including bolts, screws, holes, etc.

STRUCTURAL STEELWORK

SPECIFICATIONS

All structural steel works shall comply with SABS 1200 H or 1200 HA as applicable.

Wherever the term "Engineer" appears, in SABS 1200 H or 1200 HA or in the following Project Specification this shall be deemed to mean the Architect's representative responsible for this section of the Works.

PROJECT SPECIFICATION INCORPORATING AMPLIFICATIONS, ADDITIONS AND AMENDMENTS TO SABS 1200 H AND 120O HA

The following amplifications, additions and amendments to SABS 1200 H and 1200 HA shall apply and clause numbers refer to either the existing clauses in these SABS Specifications or to new clauses which are related to clauses in these SABS Specifications.

SABS 1200 H

Grades of steel

The grade of mild shall be Grade 300 W complying with SABS 1431.

Contractor provides shop details

The Contractor shall be responsible for the preparation of all shop details drawings.

Engineer provides shop details

This clause shall not apply.

Protective treatment

Structural steelwork shall be cleaned and prepared by wire brushing in accordance with SABS 064 and all surfaces shall be treated with one of red lead based primer complying with SABS 312 Type II Grade 1 to a minimum dry film thickness of 0 micrometers before leaving the workshop. Upon delivery to the site and again after erection all bared surfaces shall be made good with similar primer.

Measurement and payment

This clause shall not apply.

SABS 1200 HA

Protective treatment

Structural steelworks shall be cleaned and prepared by wire brushing in accordance with SABS 064 and all surfaces shall be treated with one coat of red lead based primer complying with SABS312 Type II Grade 1 to a minimum dry film thickness of 30 micrometers before leaving the workshop. Upon delivery to the site and again after erection all bared surfaces shall be made good with similar primer.

Repairs to paint and site painting.

This clause shall not apply.

Measurement and payment

This clause shall not apply.

DESCRIPTIONS

Descriptions of structural steelwork shall be deemed to include preparation of shop detail drawings, fabrication, protective treatment and erection, including all welding, holes, black bolts, nuts, washers, rivers, packings, etc.

METALWORK

STEEL

Steel shall be mild steel of approved commercial quality. Steelwork shall be cleaned and prepared by wire brushing in accordance with SABS 064 and given one coat of primer complying with SABS 909 before leaving the workshop.

Galvanizing of steel

Steelwork described as "galvanized" shall be galvanized in accordance with SABS 763 by means of the hot dip process after fabrication. Where welding on site is avoidable, such welded joints shall be cleaned down and cold galvanized to approval.

STAINLESS STEEL

Stainless steel shall be AISI Type 304 stainless steel and shall be buffed to an even satin finish. Stainless steel screws shall be used for fixing stainless steel.

ALUMINIUM

Aluminium extrusions shall be of 6063 - T6 alloy and temper. Aluminium sheet and strips shall be of 1200-H4 alloy and temper. Aluminium bars and sections shall comply with the relevant clauses of BS 1476, extruded tube and hollow sections with the relevant clauses of BS 1474 and sheet and strips with the relevant clauses of BS 1470

Joints in all aluminium members shall be formed in an approved manner so that the joints are practically invisible. Screw heads, pins, rivets, etc. shall be concealed as far as possible. 300 Series stainless steel screws and bolts shall be used for jointing and fixing aluminium work.

The surfaces of all aluminium which are in contact with other materials when fixed shall be suitably insulated with a non-absorbent insulating material to prevent corrosion. All aluminium work shall be suitably protected against damage, deterioration or discolouration caused by mortar droppings, paint, etc. by taping with removable tape, covering with temporary casings or by covering with motor oil all to approval..

Descriptions of aluminium work shall be deemed to include insulation and protection as described.

Anodizing of aluminium

Aluminium described as "anodized" shall be treated in accordance with
SABS 999 with Grade 25 coating thickness for exterior use or Grade 15 for interior use as specified, to the required finish. All alloys to be anodized shall be suited to anodizing.

BOLTS AND NUTS

Bolts and nuts, other than fitted bolts and nuts for friction grip points, shall comply with the requirements of SABS 135, 136 or 1143 as applicable. Nuts shall be of at least the strength grade appropriate to the grade of bolt or other threaded element with which they are used.

SCREWING OF METALWORK TO STEEL, WOOD, CONCRETE, ETC

Where metalwork is described as "screwed" to steel, wood, etc, or "plugged" to brickwork, concrete, etc. descriptions shall be deemed to include fixing at not exceeding 500 mm centres , with necessary holes, countersinking, threading, screws, set screws, self-tapping screws and fibre, plastic or metal plugs.

BOLTING OF METALWORK

Where metal work is described as "bolted" to steel, wood, brickwork, concrete, etc. the bolts are given elsewhere.

WELDING OF METALWORK

Welding shall conform to BS 693, BS 938, BS 1775, BS 2630, and BS 2937 and shall include for cleaning and having the welds ground off smooth and even without blemishes and for welding on steel. All welded joints shall be continuous. If described as primed, rates are to include for thoroughly cleaning fee from rust, scale etc, and primed with one coat of approved metal priming suitable for enamel paint.

CHROMIUM PLATING OF METALWORK

Metalwork described as "chromium plated" shall be plated in accordance with SABS 728 after fabrication.

DESCRIPTION OF METALWORK

Description of metalwork shall b deemed to include cutting to lengths and filing sharp edges smooth. Descriptions of tubular and pipe work shall be deemed to include running joints.

Rails, etc. described as "continuous" shall be in long lengths and descriptions shall be deemed to include welded running joints.

Screwed work shall have full threads.

PRESSED STEEL DOORS, FRAMES, ETC.

Door Frames

Door frames shall comply with SABS 1129. Frames shall project not less than 20 mm into floor finish. Except where described as galvanized, frames shall be treated with one coat of primer complying with SABS 909 before leaving the factory. Frames are to jambs and heads of openings. Frames for single doors shall be provided with one pair 100 mm steel butt hinges and an adjustable striking plate for a mortice lock and frames for double doors shall be provided with two pairs 100 mm steel butt hinges. Butt hinges shall be steel butts with loose pins, welded to frames. Where necessary mortar caps shall be welded to frames and back plates shall be welded behind tapping for screws.

Cupboard door frames

Cupboard door frames shall be as described in O. 10.1 but with thresholds of unequal channel section, one pair 100 mm steel butt hinges to hanging stiles, one pair 75 mm steel butt hinges to hanging stiles above transoms, necessary striking plates for mortice locks and keeps for barrel bolts.

Combination doors and frames

Combination doors and frames shall be manufactured of 1.6 mm thick steel plate. Frames shall be as described in O.10.1. Doors shall be of standard design and required profile, with a 44 mm wide edge all round, vertical reinforcing ribs pressed in and with two reinforcing rails welded on. The door shall be provided with a two lever mortice lock with lock box welded to inside. Doors shall be welded to steel butts.

Transformer room doors and frames

Transformer room doors and frame shall be manufactured of 1.6 mm thick steel plate. Frames shall be as described in O.10.1. Doors shall be of standard design with a 44 mm wide edge all round, vertical reinforcing ribs pressed in and with three reinforcing rails welded on. Single doors shall be fitted with a padlock cleat and one pair 100 mm brass pintle hinges and double doors shall be fitted with a padlock cleat, two 150 mm bolts and two pairs 100 mm brass pintle hinges. Each leaf shall be fitted with a louvered ventilation panel of standard design backed with 6 mm mesh galvanized wire vermin proof screen.

Sizes

The frame widths given refer to unfinished wall thicknesses.

Glazing beads

Where specified, glazing beads shall be 12 x 12 mm standard metal glazing beads mitred at angles and countersunk screwed on at not exceeding 300 mm centres with self-tapping screws.

Except where described as galvanized, windows, doors, burglar bars, etc, shall be treated with one coat of primer complying with SABS 909 before leaving the factory .

STEEL WINDOWS, DOORS, ETC.

Windows, doors, e.t.c

Windows, doors, etc. shall comply with SABS 727 and fittings shall be chromium plated. Where necessary all side hung sashes shall be fitted with cleaning hinges.

Fixed lights and openings sashes shall be in single squares. Windows etc. of single unit construction shall have weather bars at transoms above opening sashes.

Composite windows not single piece construction shall be coupled with standard coupling mullions and transoms that correspond with the window section used.

Kicking plates and panels shall be 1.6 mm metal plated fixed with standard metal glazing beads mitred at angles and countersunk screwed on at not exceeding 300 mm centres with self-tapping screws.
Except where described as galvanized, windows, doors, burglar bars, etc. shall be treated with one coat of primer complying with SABS 909 before leaving the factory.

Burglar bars and fly screens

Where windows are described as fitted with burglar bars or fly screens, these shall be standard type fitted over opening sashes.

ADJUSTABLE LOUVRE UNITS

Adjustable louver units shall be suitable for hand or long arm operation.

Descriptions of louver units shall be deemed to include glass louvers as described with polished edges and for installation, including holes, screws, rivets, preparation of openings, etc.

ALUMINIUM WINDOWS AND DOORS

The foregoing preambles" O.3 - ALUMINIUM" shall apply to aluminium windows, doors, etc., in all respects in so far as they are applicable. Aluminium windows and doors shall be manufactured from extruded aluminium members of 6063 -T6, 6261 -T6, 6082 - T6 alloy and temper.

Ancillary members such as sills, flashings, infill panels and the like formed from flat sheet material shall be of an appropriate alloy selected from 1200, 3004 or 5251 complying with BS 1470 of a temper suitable for the method of forming and a composition suitable for anodizing or painting as required.

Windows, doors etc. shall be manufactured by an approved firm of Specialists and shall be of best quality material and workmanship and of approved design. Windows, door, etc., shall meet with the minimum recommended performance requirements as set out by the Association of Architectural Aluminium Manufacturers of South Africa (AAAMSA) in the latest edition of the Selection Guide.

All opening sashes shall fit perfectly on all faces and be so hung as to open and close freely without binding at any point.

The fittings for all opening sashes shall be substantial and, unless otherwise described, shall be of high quality aluminum alloy finished to match the windows, doors, etc. on which they occur. Samples of all fittings shall be supplied to the Architect for approval.

Top, side and bottom hung opening sashes shall be hung on a pair of aluminum hinges with 300 Series stainless steel pins, nylon bushes and stainless steel washers. Side hung sashes shall have fasteners and sliding stays, top hung sashes shall have peg stays and bottom hung sashes shall have spring catches and concealed arms.

Projected out sashes shall have aluminum fasteners and concealed arms of a non-corrosive material compatible with aluminum.

The frames which are to be built into openings in brickwork shall be fitted with the manufacturer's standard type fixing lugs, not less than 19 x 3 x 150 mm long, screwed to frame and placed one near each corner and intermediately not more than 450 mm apart to sides, top and bottom and where fixed to concrete reveals, wood sub-frames or to -formed openings in brickwork shall have countersunk holes for screws, one near each corner and intermediately not more than 450 mm apart to sides, top and bottom.

Glazing beads

Where so described, openings and sashes of windows and doors shall be fitted with approved channel section aluminum glazing beads sufficient in size and profile to suit the method of glazing employed, finished to match the windows, doors, etc. and neatly mitered. Screws where necessary shall be of aluminium or 300 Series stainless steel and have pan or raised heads finished to match the beads.

Finishes

Windows, doors etc. described as "anodized" shall be treated accordance with SABS 999 with Grade 25 coating thickness. Windows, doors etc. described as "factory painted" shall have an electrostatically applied oven baked polyester paint coating not less than 25 micrometers thick.

Descriptions

Descriptions of aluminum windows, doors etc. shall be deemed to include glass as described, fixing in position, sealing and for protection against damage, deterioration or discolouration by taping with removable tape of covering with temporary casings or motor oil and for removing same on completion.

STRONGROOM AND RECORD ROOM DOORS

Strong room and record room doors shall not be built in as work proceeds, but shall be fixed later in the openings provided. The Contractor shall ensure that the lock or other important parts of the door are not tampered with. Should any such tampering occur, the Contractor will be held responsible and at the Architect's discretion shall provide a new door or lock and keys at his own expense. The keys shall not be delivered together with the doors to the building site. The Contractor shall arrange for the manufacturer to send the keys direct to the Architect per registered post. If these instructions are not complied with, a new lock and keys shall be provided by the Contractor at his own expense.

STEEL ROLLER SHUTTERS

Roller shutters shall be of approved manufacture comprising curtain, vertical channel guides and top mechanisms the curtain shall be constructed of 1 mm thick machine-roller galvanized interlocking slats with mild steel end locks spots welded to alternate strips. The bottom shall be provided with a galvanized rail reverted on and vertical edge shall slide in galvanized channel guide formed of steel not less than 2,5 mm thick bolted to sides of openings.

The mechanism shall be covered in a galvanized sheet iron box. The un-galvanised sections shall be treated with one coat of primer complying with SABS 909 before leaving the factory.

Descriptions shall be deemed to include installation.

IRONMONGERY

The preambles in IRONMONGERY shall also apply to ironmongery included with items of metalwork.

PLASTERING AND PAVING

CEMENT

Cement is to be normal Portland cement as previously described.

LIME

Lime is to be best quality Plasterers lime and shall conform to SAZ S A15: 1963 and is to be run at least four weeks before required for use.

SAND

Sand is to be washed as directed and shall conform to B.S. 1198 and B.S. 1199.

MIXING

As previously described for mortars.

PREPARATORY WORK

Surfaces shall be clean and free of oil and thoroughly wetted directly before any plastering or other in situ finishes are commenced. Concrete surfaces shall be slashed with a mixture one part cement and one part course sand or otherwise treated to form a proper key. Preparatory coats shall be thoroughly scored and roughened to form a proper key.

FINISH

All final coats of paving and plastering shall be executed in one operation without any blemishes. No touching up of finished work will be permitted.

CEMENT PLASTER

Cement plaster for external use to be composed of one part of cement to four parts of sand and for internal use to be one part of cement to six parts of sand.

PROPRIETARY

Proprietary plaster to be used in strict accordance with the manufacturer's printed instructions and steel toweled to a hard true and glasslike surface unless otherwise described.

WATERPROOFING

Where work is specified as waterproofed, an approved proprietary additive is to be used in strict accordance with the manufacturer's printed instructions.

COMPO PLASTER

Lime composition plaster to be composed of three parts of sand to one part of lime with 10% by volume of cement added immediately before use.

GYPSUM SKIM PLASTER

Gypsum skim plaster shall be pure gypsum plaster finished with a steel trowel.

TWO COAT PLASTER WITH GYPSUM FINISH

Two coat plaster with gypsum finish shall comprise an undercoat composed of one part cement and five parts sand finished with a wooden float and a finishing coat of gypsum skim plaster.

ROUGH -CAST PLASTER

Rough -cast plaster shall be applied in two coats. The undercoat shall be composed of one part cement and five parts sand finished with a wooden float. The finishing coat shall be composed of one part cement and three part stone aggregate that will pass through a 4 mm mesh sieve. The finishing coat shall be flicked on with a machine before the undercoat has set to obtain an even texture.

FINE ROUGH-CAST PLASTER

Fine rough-cast plaster shall be as for rough-cast plaster but the finishing coat shall be composed of one part cement and three parts coarse sand.

SCREEDS

To be of the mix specified, rates are to include for thoroughly cleaning off all dust and dirt and a neat cement grout to be applied immediately prior to laying.

LOW MASS SCREEDS

Low mass screeds of approved manufacture of suitable density and laid in strict accordance with the manufacturer's printed instructions and finished on top in one operation to receive the specified finish.

GRANOLITHIC

Screed up to within 9,5 mm of the finished surface with a dry mix of three parts of sharp sand to one part of cement, finish with granolithic composed of two and a half parts of granite chips graded up to particles which will pass a 6 mm mesh and may be retained on a 3 mm mesh and one part cement by volume.

Where granolithic is specified as tinted, "Cementone" of selected colors is to be mixed dry in the proportions of one part of colouring agent to six parts of cement. No dusting on will be permitted.

Pavings are to be divided into squares as specified with a V-float and margins formed at junction with walls. Finished surfaces must be scrubbed and washed until all discolouration is removed and polished if specified. The concrete sub-floors to be thoroughly cleaned of all dust and dirt and a neat cement grout applied immediately prior to laying.

Skirtings are to be minimum 19 mm thick, run direct on to walls with coved internal angle at floor and rounded at top to break joint with plaster or splayed at top in faced walls and V-jointed at bottom to line with margin of floors. Skirtings are to be set 6 mm forward of wall plaster above.

MOULDINGS, ETC.

Mouldings, cornices, etc., shall be run clear and accurately to full size details. Where required, brick or concrete cores have been measured separately to receive the plaster finish.

DEFECTIVE PLASTER

Plaster that is scratched or crazes, blows, blisters, or flakes off the wall prior to the expiry of the retention period, must be completely removed at the Contractor's expense and be replaced with new plaster before decoration, otherwise re-decorate and replace all damaged woodwork and finishings at the Contractor's expense. Take out and refix any loose, damaged or discoloured wall tiles.

Unsightly patching will not be allowed and if necessary and the Architect so desires, the whole of the work where the defect occurs must be stripped and replastered.

SHEET METALWORK PLUMBING AND DRAINLAYING

REGULATIONS

All plumbing and drainage work shall be executed strictly in accordance with the Local Authority's By-Laws and Regulations.

LICENSED PLUMBERS AND DRAINLAYERS

Only licensed plumbers and drainlayers shall be employed to carry out any plumbing and drainage works.

SHEET IRON

All sheet iron to be of approved brand, galvanized and of the thickness specified and shall conform to BS 2989. Galvanized iron nails shall be used for galvanized sheet iron where required.

FLASHINGS ETC.

Flashings etc., shall be properly lapped at angles and passings. Dress flashing 38 mm into grooves and 6 mm up at back and wedge with rolled wedges. No screws or nails are to penetrate gutters or flashings. Provision to be made for expansion and contraction under changes of temperature.

EAVES GUTTERS AND RAINWATER PIPES IN SHEET IRON

Eaves gutters and rainwater pipes shall be formed to sizes and shapes specified. The rainwater pipes shall have close welted and soldered seams, and the joints between lengths are to be riveted and soldered. All joints in the straight length and at angles, stop ends, etc., are to be riveted and soldered. Sizes of gutters are to be effective sizes.

The eaves gutters shall be fixed to falls to outlets on 6 x 25 mm mild steel gutter brackets bent to suit the profile of gutter and twice holed for and screwed to woodwork or bolted to steel at not exceeding 1.00 metre centres. Alternatively, approved fascia brackets may be used.

Rainwater pipes shall be fixed to walls with 4 x 38 mm mild steel straps in two sections, bent around pipe with the ends bent to form flanges 25 mm long holed for and bolted together with and including two 19 x 6 mm gutter bolts with locknuts and one section of the strap riveted to and including 4 mm thick mild steel anchor 33 mm wide and 230 mm girth with end split and fanged for and built in or cut and pinned to brickwork or concrete in cement mortar at not exceeding 1,50 metre centres.

ASBESTOS CEMENT RAINWATER GOODS

Asbestos cement rainwater goods shall be of approved manufacture, and shall include for jointing with special mastic as supplied by the Manufacturer and fixed including brackets strictly in accordance with their instructions.

CONCRETE PIPES

Concrete pipes and fittings shall conform to SAZ A17 and SAZ A29.

STONEWARE PIPES

Stoneware pipes and fittings to comply with SAZ 16 to be first quality, tested, spigot and socketed piping, jointed with gaskin and neat cement finished externally with a smooth fillet all round.

The joints to be wiped smooth internally by passing a badger of 6 mm less than the diameter of the pipe completely through the whole length of the drain.

ASBESTOS CEMENT PIPES

Asbestos cement pipes and fittings shall conform to SAZ 113; SAZ 141 and SAZ 195 and are to be laid in strict accordance with the manufacturer's printed instructions.

PLASTIC PIPES

Plastic pipes and fittings shall conform to SAZ K21; SAZ 156; SAZ 177; SAZ 219; SAZ 220 and SABS 533 and fixed including brackets in strict accordance with the manufacturer's printed instructions.

CAST IRON PIPES

Cast iron pipes and fittings shall conform to BS 416. Heavy duty cast iron pipes and fittings shall conform to BS 1130, all pipes and fittings are to be coated with an approved preservative. Pipes are to be jointed with gaskin and caulked with molten lead.

STEEL PIPES

Steel pipes and fittings shall conform to SAZ 102 and BS 143 and be galvanized. Pipes are to be jointed with hemp and red lead. Medium quality pipes are to be used, unless otherwise specified. Fix to roof timbers with stout galvanized clips and to walls with galvanized hinged holder bats with brass pins at not exceeding 1 metre centres, built into walls with cement mortar. Sling pipes to soffits on 6 x 32 mm mild steel strip fixed around pipes with 6 mm galvanized bolt with ends split and fanged and cut and pinned to concrete soffit.

COPPER PIPES AND FITTINGS

Copper pipes shall conform to BS 659; BS 1306 and BS 1386, shall be solid drawn seamless, supplied in straight random lengths, round, clean, smooth, free from internal and external grooving, other defects and deleterious film.

All copper pipes carrying hot water are to be supported so as to allow free movement for expansion and contraction, particularly at the end of long runs where a change of direction takes place. Fix tubing to walls with brass hinged holder bats with pins at not exceeding 1 metre centres built into wall with cement mortar. Fix to soffits as described for steel pipes.

Fittings and couplings, etc., for use with copper pipes shall be of the manipulative compression joint type, or other approved type. All fittings, etc., are to be made from suitable corrosion-resistant copper alloy, sound and clean, without flaws or laminations and full bore throughout. All fittings and their component parts shall be capable of withstanding an internal hydraulic pressure of 2,20 MPa without showing signs of leakage or other defects.

SIZES OF PIPES

The sizes of pipes, traps, etc., are the nominal bore except for PVC which shall be the external diameter.

TRAPS

Traps shall be brass, copper, polythene or cast iron as specified. Generally traps to shower trays, baths, lavatory basins, drinking water fountains and domestic sinks shall be tubular copper to BS 1184 of the same size as the waste outlet of the fitment, and shall have tails to suit the waste pipe to which they connect.

STAINLESS STEEL

Stainless steel to be the austenitic type and shall comply with B.S.970 EN58 series and unless otherwise described, to 0,9 mm thick in 18/8 quantity and shall be entirely non-magnetic.

BRASSWARE

Brassware is to be of the best quality and equal to samples approved.

All stop valves, bib taps, hose union bib taps and pillar taps shall comply with BS 1010 or SABS 226 and shall have washer plates so secured as to lift with the spindle.

Cold water taps shall in every case be fixed at the right hand side of sanitary fittings.

All ball valves shall comply with BS 1212 and shall be of the sizes and for the pressure indicated or specified. The loose orifice seats shall be of nylon for sizes 15 and 20 mm and bronze for sizes 25, 40 and 50 mm. Ball valves shall be supplied and fixed complete with copper floats to BS 1968 or with plastic floats not less robust and having a lifting effect not less than a BS 1968 copper float for the same duty.

FIRE EQUIPMENT

Portable fire extinguishers are to comply with SAZ A31. All fire equipment to be of a type and manufacture approved by the Fire Officers Committee and the Local Authority concerned.

EXCAVATIONS, ETC.

Excavate bottom of drain trenches to an even fall and lay 75 mm cement concrete (Grade 10-20 mm stone) bed under pipe and support each length of drain pipe with stoolings of cement concrete (Grade 10-20 mm stone) behind each collar and haunch up half way around external diameter of the pipe.

HARD PICKABLE MATERIAL AND ROCK

Extra over trench excavation for pipes for excavation in hard pickable material or rock has been measured as follows: trench not exceeding 1 metre deep average width 500 mm and trench in excess of 1 metre deep average width 800 mm. Subsequent re-measurement will be based on these widths and the Contractor must allow in his rates for any increased width he may require.

GENERALLY

No holes are to be cut through reinforced concrete work unless approved. Where possible sleeves are to be cast into concrete. Where drain pipes pass through wall, etc., they must be arched over to prevent any loads being transmitted from the structure.

TESTING AND CLEANING

All sheet metalwork shall be carefully and efficiently inspected and tested on completion and left perfectly watertight.

All defective work shall be taken out and replaced with new work at the Contractor's expense.

At completion of plumbing and drainage installations, clean down and flush pipes, traps, etc., wash sanitary fittings and test the whole to the satisfaction of the Local Authorities and Architect including making good and re-testing until found perfect. The Contractor must provide all necessary equipment to carry out any tests required.

GLAZING

GLASS

All glass is to be of approved manufacture, free from bubbles, waviness, scratches or other imperfections and is to be well bedded, puttied and back puttied and secured with glazing pins or clips in steel sashes or with sprigs in wood sashes.

All glass shall be carefully cut to the required sizes so that all panes of figured or textured glass are uniform in appearance with the pattern parallel to the edges and wired glass shall be so cut that the wires are parallel to the edges.

PUTTY

Putty for glazing to steel sashes is to be of approved proprietary brand specially made for use with steel sashes and shall conform to SAZ A24. Best quality linseed oil putty shall conform to SAZ A24 to be used for wood sashes tinted as necessary when used for glazing to hardwood. Rebates are to be thoroughly back puttied before glazing and all putty is to be carefully trimmed and cleaned off so that back putty finishes level with the top of sections internally, external putty covers sight lines exactly and finished straight and true. Rough surfaces to putty will not be allowed and any defective putty will be cut out and replaced at the Contractor's expense.

Back putty shall not exceed 3 mm thick. Soft or oily putty shall not be painted and if the putty does not form a surface crust it shall be replaced.

Butyl putty shall be used where glass is to be fixed in aluminium sashes with glazing beads.

Non-setting compounds shall be used where laminated glass is fixed in sashes with glazing beads.

Rebates of wood sashes are to be given one coat of priming immediately before glazing.

LOUVRES

Glass louvers are to have ground ends and polished edges and are to be fitted both ends to metal clips unless otherwise described.

MIRRORS

Glass mirrors shall comply with SAZ S181: 1992 and are to be of the thickness specified, of selected quality glass, silvered on back, with protective sealing coat and arrised edges, unless otherwise described.

GENERALLY

Allow for removing and replacing all cracked, broken or defective glass and leave thoroughly clean and perfect at completion.

DESCRIPTIONS

Descriptions of glass shall be deemed to include all putty, sprigs, pegs or chips and removal and re-fixing of glazing beads where applicable.

PAINTING

COLOURS

Different compartments may be painted different colors and different walls in any one compartment may be painted different colors. Doors and door frames will be different colors.

MATERIALS FOR DECORATION

All paints, primers, varnishes, emulsions, stopping, etc., to be of approved manufacture.

The Contractor is to use proprietary "ready mixed" paints obtained from an approved Supplier.

Where a coat of proprietary paint is applied, the manufacturer's priming and previous coats suitable for the particular type are to be used.

All materials must be brought on to the site in unopened tins, and no dilution or adulteration will be permitted, unless approved by the Architect.

LIMEWASH

To be composed of 45,4 kg of fresh unslaked lime, 6,35 kg of salt, 4,54 kg of tallow or boiled linseed oil, all thoroughly mixed while boiling and applied hot.

COLOURWASH

To be limewash as previously described and tinted to an approved shade with approved colouring pigment.

EMULSION PAINT

Emulsion paint shall be PVA (Polyvinyl Acetate) alkali-resisting formulated with high washability and capable of resisting 8 000 scrub test. The first coat to be specially formulated base coat for direct application to the specified surface.

KNOTTING

Knotting shall conform to BS 1336.

OIL STAINS

Oil stains shall conform to BS 1215.

FILLERS

High grade cellulose fillers to be used internally and pre-mixed filler to be used externally.

VARNISHES

Varnishes shall be one pack polyurethane type.

LINSEED OIL

Linseed oil is to be refined, pale in colour, perfectly transparent, free from smell and not less than twelve months old.

HIGH GLOSS PAINTS

Primers for application to bare metal to be red oxide primer for iron and steel. For galvanised metal to be an approved zinc chromate or galvanised iron primer. For application on wood and plaster etc., to be an approved alkali primer.

Finish Enamels to be Synthetic Enamel high opacity paint with high coverage and high gloss finish unless otherwise described.

WORKMANSHIP

All surfaces are to be free of moisture, dust, grease and dirt and rubbed down smooth according to approved practice.

All plaster to be free of efflorescence and treated with one coat of petrifying liquid, approved sealer or alkali primer if required and allowed to dry completely before any paint finish is applied. Before any paint is applied, holes cracks and irregularities in plaster and other surfaces shall be filled with a suitable filler and finished smooth. Unfinished concrete surfaces shall have all projections rubbed off and shall be thoroughly cleaned with a spirits-of-salts solution (1 part concentrated spirits-of-salts to 4 parts water). Hardwall plaster to be glass papered before decorating.

Rectifying defects to decorated surfaces due to dampness, efflorescence, chemical reaction, etc., will be to the Contractor's account, as these surfaces must be checked and the appropriate precautions taken before applying the decoration.

Metalwork must be scraped free of rust, primed as described and finished as later specified.

Galvanised sheet iron, pipes, etc., are to be cleaned down to remove manufacturer's ammoniated dichromate protective covering, primed as described and finished as later specified.

Coated pipes are to be cleaned down, stopped and primed with one coat of aluminium primer and finished as later specified.

All knots in woodwork to be treated to prevent bleeding. Large or loose knots to be cut out and replaced with sound wood, or cut back and filled. Small knots to be treated with two thin coats of knotting free from resin and consisting entirely of a solution of Shellac in methylated spirits. Woodwork to be glass papered to a smooth surface with all sharp arrises removed, all cracks, crevices, holes, etc., to be scraped out, primed as described and stopped with hard stopping, faced up and rubbed down to an even surface and finished as later specified.

All metal and woodwork to have the specified number of coats in addition to the priming coats.

Every coat of paint must be a good covering coat and must dry hard and be well rubbed down to a smooth surface before the next coat is applied, otherwise the Contractor will be required to apply extra coats at his own expense.

Each coat of paint to be of a distinctive colour; sample colors are to be prepared for the final coat which is to be to an approved colour scheme and must not be applied without the permission of the Architect. After undercoats are on, the Painter shall check all work and grain fill as necessary with filler as described.

PROTECTION AND CLEANING

The Contractor shall provide necessary tarpaulins, covers, etc. for the protection of the works. Before the paintwork is commenced all floors shall be swept and walls dusted and no further sweeping or dusting shall be allowed before all painted surfaces are perfectly dry.

PAPERHANGING

Preparatory Work:

Plaster surfaces to be papered shall be dry, thoroughly cleaned down, filled with a suitable filler as necessary to obtain a smooth surface and painted thereafter with a single coat of emulsion paint for interior work.

Wood surfaces to be prepared shall be knotted, stopped and sanded.

Paperhanging

Wallpaper shall be hung in vertical long lengths. Vertical joints shall be close fitted and plump and the paper shall be tightly fitted to skirtings, ceilings, door frames, windows etc. Horizontal joints will not be allowed.

Descriptions

Descriptions of paper hanging shall be deemed to include preparatory work, size and adhesives, as well as lining papers where required.

NOTE; (a) ALL PAINTS SPECIFIED ARE TO BE OBTAINED FROM AN APPROVED MANUFACTURER AND USED IN STRICT ACCORDANCE WITH THEIR INSTRUCTIONS. THEIR REPRESENTATIVE WILL CHECK THE PAINTS BEING USED AND THE METHOD OF APPLICATION AND WILL ADVISE ACCORDINGLY.

(b) THE PRICES MUST ALLOW FOR THE REMOVAL AND REFITTING OF ALL BEADS, FITTINGS, FASTENINGS, IRONMONGERY, ETC., REMOVED FOR DECORATION PURPOSES TO BE CARRIED OUT BY SKILLED TRADESMEN OF THE APPROPRIATE TRADE.

SPECIALIST SERVICES

NO DISCOUNT ALLOWED FOR

All Provisional and P. C. Sums stated are NETT delivered to site, unless otherwise described. The Contractor must add for profit, if required, to the item following each sum.

ATTENDANCE, ETC.

The Contractor must allow attendance upon all Nominated Sub-Contractors.

"Attendance" unless otherwise described, shall mean :

1) taking delivery at site, checking, unloading, storing as necessary in Contractor's sheds,

2) hoisting,

3) the provision of all facilities to and attendance on the particular supplier and fixer

4) giving all reasonable assistance,

5) The provision of water, power, etc.

6) and provision of necessary builders' scaffolding or building plant, including erecting scaffolding, adjusting as required, maintaining and moving for the execution of the work,

7) making good in all trades after completion of the work,

8) protecting from injury and

9) the availability of toilets, etc.

In the case of Nominated Suppliers "taking delivery", unless otherwise described, shall mean taking delivery at site, checking, unloading and storing as necessary in Contractor's sheds until required for fixing.

ADJUSTMENT OF PROFIT AND ATTENDANCE

The "Profit" allowed in the Contractor's original Bills of Quantities will be deemed to have been worked as a percentage profit mark-up on the Provisional or PC Sums and will be adjusted to align with the final cost of the item, excluding allowances for increased costs.

Attendance will not be adjusted unless the scope of the work varies or the Contractor states it as a percentage in which case it will be adjusted to align with the final cost of the item, excluding allowances for increased costs.

CONTRACTOR TENDERING

If the Contractor is permitted to tender (and if his tender is accepted) for any work covered by a Provisional Sum in the Bills of Quantities, such Provisional Sum in the original Bills of Quantities will be omitted. Any additional Preliminaries and General allowances and conditions required by the Contractor shall be included in his tender for the work covered by such Provisional Sum, and no additional allowances, etc., will be allowed. Any allowance for "Profit" and "Attendance" in the original Bills of Quantities will be adjusted as above.