SPECIFICATIONS

FOR

PROPOSED HOUSES FOR

BASELINE CONSTRUCTION

151 GREAT NORTH ROAD

WANGANUI

ARCITECTURAL DRAUGHTING CENTRE

54 HOLMWOOD ROAD

WANGANUI

1 -- PRELIMINARY & GENERAL

1.1 SCOPE OF WORK
This contract comprises the supply of all plant, materials, and labour necessary for the construction, completion and maintenance of the whole of the work according to the intent of the drawings and specification, including such items not specifically mentioned but which are necessary for a complete and workmanlike job. Upon completion the whole of the works shall be left watertight and to the satisfaction of the authorities. Give all notices, arrange and pay for all permits, and organise all inspections of the works by the local authority.

1.3.2 COMPLIANCE WITH STANDARDS
All building work shall comply with the NZBC 1990 and light timber frame structures as defined by NZS 3604:1999, clauses 1.1.1 and 1.1.2

1.4 BYLAWS & PERMITS
The whole of the works shall be carried out in accordance with, and shall conform to the regulations of the local authority.

1.5 DRAWINGS & SPECIFICATIONS
This specification is to be read in conjunction with the drawings and any detailed drawings, which may be issued.

1.6 PROTECTION OF WORK
All parts of the work liable to injury and all adjoining property, existing work, footpaths, trees, etc. are to be protected until completion of the contract. Where damage occurs this shall be made good at the contractor's expense.

1.7 TEMPORARY SERVICES

1.7.1 New works:
The contractor shall provide and maintain all temporary services, pay all fees in connection with these, and remove same on completion of the contract. This includes all necessary sheds, toilet facilities, power, water, scaffolding, and such like.

Provision of adequate all-weather access to the site is the responsibility of the owner.

1.8 INSURANCE
Prior to commencing construction of the contract, the contractor shall purchase the following insurance for the period of the contract (excluding maintenance).

(a) Worker's compensation insurance as stipulated by the act.
(b) Contractor's "all risk insurance" or "fire insurance" insuring against loss or damage by fire in the joint names of the contractor and the owner to the full insurable value of the contract.

1.9 SITE
The contract is based upon the site conforming with either:

(a) Levels and/or contours as shown on the drawings together with specific foundation details drawn or specified, or
(b) The site being level or having falls not greater than 600 mm in any direction across the building platform, and
(c) The site being well-drained and the sub-soil being of sufficient strength as to necessitate only the minimum foundation requirement of the local authority.

1.10 SETTING OUT
The contractor shall be responsible for the setting out of the works as required and for maintaining set out, level pegs and control pegs during the currency of the contract.
The owner is responsible for having site boundary pegs visible and correctly located.
In setting floor levels for concrete slab-on-ground floors the contractor shall make due allowance for the following:

(a) The depth of the local authority sewer lateral where such exists or is to be provided.
(b) The requirement that finished ground level is to fall not less than 1:25 from the building for more than 1 metre ALL round. No variations shall be considered unless the contractor prepares a separate price for such work.

3 -- EXCAVATION

3.1 PRELIMINARY
Comply with preliminary and general.
The whole of the works shall be carried out in accordance with the bylaws and regulations of the local authority. Co-operate with other trades.

3.2 SET OUT
Set out the whole of the excavations to the layout and overall dimensions as shown on the drawings.

3.3 CLEARING SITE
Clear off all vegetation over the area of the proposed building.

3.4 FOUNDATION EXCAVATIONS
Excavation is to be carried out as required. All footing excavations are to be level and shall be stepped as necessary to follow sloping ground in accordance with NZS 3604:1999 CL.6.11 . Footings shall in all cases be taken down to solid bearing and shall have the following minimum depths:

Firm rock	150 mm
Expansive clay	450 mm
Other materials	300 mm

Depths are to be measured from cleared ground level.

3.4.1 UNSTABLE GROUND
Where loose, soft or otherwise unstable ground is encountered the contractor shall either:
(a) Excavate as necessary to obtain solid bearing, where the unstable ground is of limited extent, or
(b) Engage a structural engineer, or other suitably qualified person, to carry out site tests and subsequent structural design of a suitable foundation.

3.4.2 EXCAVATIONS FOR CONCRETE FLOOR
Remove organic material over the whole of the building area. Excavate as necessary to achieve the granular and/or hard fill depths as required.

3.5 BACK FILLING
Back filling around foundations shall be inorganic material from excavation work rammed in place in layers not exceeding 150 mm depth.

3.6 INSPECTION
All excavations are to be inspected by the inspectors of local authority prior to the placing of any fill or concrete.

5 -- CONCRETE WORK:

5.1 PRELIMINARY
Note all clauses under preliminary and general.
Co-operate with other trades.

5.2 EXTENT OF WORK
Comprises the setting out, boxing and placing of concrete in the foundations, floor slabs, walls, beams and bands, and any other concrete work required.

5.3 MATERIALS

5.3.1 CONCRETE

Concrete strength at 28 days shall be:

a. 17.5 Mpa for concrete not exposed to the weather.
b. 20 Mpa for concrete exposed to the weather.

5.3.2 GRANULAR FILL

Granular fill shall be rounded gravel, crushed rock or scoria well-compacted in layers not exceeding 100 mm thick so that the total thickness of the granular fill is min. 100 mm, max. 300 mm.

5.3.4 VAPOUR BARRIER

Before casting internal slabs (except porch and terrace slabs) blind granular fill with minimum 25 mm of well-compacted sand and cover with continuous 0.25 mm black polythene underlay with joints lapped minimum 150 mm and sealed with pressure sensitive polythene tape. All penetrations shall be well sealed
to provide an unbroken vapour barrier.

5.4 REINFORCING

Reinforce foundation walls, footings and beams as required. All main reinforcing bars shall be deformed bars continuous around corners and through steps in footings and walls. Tie bars between main bars may be plain round bars.

5.5 FIXINGS FOR TIMBER

While concrete is still green, place all bolts for holding down wall plates, bearers, braces, etc. Bolts for holding down wall plates shall not be less than 10 mm dia. set 75 mm minimum into concrete and cranked for anchorage. They shall be set not more than 150 from the end of a plate or the corner of a sheet bracing element; not more than 300 mm each way from a corner and spaced at not more than 1400 mm centres generally.

5.6 FORMWORK

Formwork generally shall be of 12 mm minimum thickness plywood shutters or min. 25 mm non-staining boarding so constructed that it can be easily removed without damaging the concrete. It shall be constructed true to line and level and shall be effectively propped, tied and strutted to prevent deformation or movement under the load of the wet concrete. Form all openings in formwork for vents (see "solid plasterer"), conduits or ducts.

5.7 FLOORS

Lay floor slabs on a prepared granular fill base and vapour barrier as described above.
Screed floor slabs level or to falls required and finish to a fine, smooth, dense surface with steel float. Slabs shall be finished plane with a maximum tolerance of + or - 4 mm in the length of a 3 m straight edge.

2. BRICKLAYER:

2.1. PRELIMINARY

Read and note all clauses under preliminary and general where they apply to this trade. (These clauses shall also apply to veneer work of concrete block, split stone or similar materials.)

2.2. RELEVANT SPECIFICATIONS

All work shall be in accordance with the requirements of NZS 1900, chapter 6.2 and NZS 3604, appendix F.

2.3. MATERIALS

Bricks: Bricks for external veneers and foundation walls shall be of the colour and type selected and shall comply with NZS 366, "Clay Building Bricks", Grade A or B. All fairface brickwork shall be laid with the best face outward.

Cement: Cement shall be ordinary Portland Cement and at the time of use shall comply with NZS 3122, "Portland Cement".

Plasticisers: Plasticisers shall be used in accordance with the manufacturer's instructions and no other additives are to be used in conjunction with these materials. On no account will further additions be made at the time of re-tempering mortars.

Water: Water shall be drinking quality and shall, at the time of use, be free from acids, alkalis and organic impurities.

Sand for Mortars: Sand used shall be clean, sharp and shall comply with the relevant clauses of NZS 3103, "Specification for Sands for Mortars and Internal and External Plasters".

2.4. PREPARATION OF MORTAR

Mortar shall be prepared by mixing in an approved batch mixer. Measurements of materials shall be by volume in a suitably calibrated device. Mortar shall be mixed until a homogenous mass is obtained but for not less than 5 minutes. All mortar, whether on the boards or left in the mixer, shall be used within 90 minutes of mixing. Mortar not used in this time shall be discarded.

2.5. BRICKLAYING

Bricks shall be laid in stretcher bond, true to line, level and plumb, and in accordance with best trade practice. All work shall be laid from the lowest corner and no corner shall be raised more than 1 m above wall line. Corners shall be raked back. On no account shall too thing be permitted. All joints shall be completely filled with mortar and the bricks shall be shoved into place at least 10 mm and shall be disturbed as little as possible after initial positioning. Head joints shall be buttered on three edges. Deeply furrowed joints will not be permitted and mortar shall be spread on the bed joint not more than three bricks ahead when laying the next course. Joints shall, unless otherwise specified, be not more than 10 mm thick and shall be tooled for required finish as work proceeds. Where tapestry bricks are used, care shall be taken to use a tool slightly smaller than joint width to prevent pushing mortar into the brick striations.

2.5.1. BRICK VENEER

Construct brick veneer as required and in accordance with NZS 3604, appendix F. Mortar and workmanship shall be as previously specified.

Veneer ties and their anchorage shall be capable of resisting a lateral load in tension or compression of twice the weight of veneer which each tie supports without elongation or shortening of the assembly by more than 1.5 mm. Ties shall be non-corrodible metal or shall be galvanised with a zinc coating after forming. If of single leg round bar they shall be a minimum of 4.75 mm diameter; if of sheet metal they shall be of minimum thickness 1.5 mm and minimum width 25 mm. Sheet metal ties are preferred.

Approved ties shall be spaced at not more than 600 mm horizontally and not more than 350 mm vertically or 450 mm horizontally and 400 mm vertically (provided that the vertical spacing shall not exceed each fourth course) and shall be face fixed to the stud framing with only the nails passing through the building paper.

An air space (cavity) of minimum 40 mm, maximum 75 mm, shall be maintained between timber frame and exterior veneer. Combined ventilation/weep holes shall be provided by leaving raked perpends at maximum 800 mm centres along the bottom of the cavity. Provide top ventilation with either a full length x 5 mm gap between the top of the bricks and the soffit or by leaving raked perpends in the top course at same spacing as bottom ventilation/weep holes.

The cavity shall be maintained free of mortar droppings, protruding joints, pipes or electrical wires and suchlike obstructions.

Where shown build in brick-sized concrete vents as required.

All facing work shall be kept clean as work proceeds. On completion all brickwork shall be left in a clean state. Clean down with a weak acid solution to remove mortar stains.

2.5.2. SILLS

Sills shall be brick on edge, quarry tiles, or concrete slabs, brought to the underside of joinery sills. The junction between the brickwork and joinery sills shall be sealed with butyl sealing compound used in accordance with the manufacturer's instructions and over-pointed with cement mortar.

2.5.3. BUILDING PAPER

Cover the whole of the external face of the framing from the top place down with heavy weight, breather type building paper, lapped minimum 150 mm at joints and fastened to framing with large headed galvanised clouts (this work to be carried out by the carpenter). All damage to the building paper shall be made good before the brickwork proceeds.

6.5.4 VERMIN PROOFING

Build in 100 mm wide strips of approved galvanised wire mesh, secured to bottom of wall plates with 19 mm x 2 mm galvanised wire staples, carried across cavity and embedded minimum 25 mm into mortar joint below level of fixings to frame.

7 -- CARPENTER

7.1 PRELIMINARY
Comply with preliminary and general.

7.2 EXTENT OF WORK
Comprises the supply and fixing of all timberwork, lining, sheathing, fittings, finishings and hardware specified or otherwise required.
Cut away for, attend on and make good after all other trades.
Leave the structure weather-tight and all parts in proper working order.

7.3 MATERIALS
All materials shall be new unless otherwise specified and the best of their respective kinds. All timber shall be as specified and graded according to NZS 3631 and shall be straight and in as long lengths as procurable. All treated timbers shall comply with the appropriate specification of the Timber Preservation Council. Framing timbers to which linings are to be fixed shall be gauged to eliminate variations in sizing. Exposed exterior timbers shall be machine dressed and interior finishing timbers shall be dressed and sanded to a fine finish unless otherwise required.

7.4 PAINT PRIMING
All exposed exterior woodwork including laps, rebates, mitred joints, etc., where paint finished shall be primed, and where stain finished shall have one coat of stain prior to fixing.

7.6 DAMP PROOF COURSE
In all situations where a free-draining air space of 12 mm or more is not maintained between timber and concrete or masonry, provide a 3-ply bitumen-fabric DPC separator (unless the timber is treated to NZTPC specification H4 or better, or the concrete/masonry is in an internal situation and is fully protected by a vapour barrier).

7.7 BUILDING PAPER
Provide breather-type building paper complying with NZS 2295 and secure to the exterior face of stud framing or sheet bracing material. Run building paper horizontally with upper sheets lapping over lower not less than 75 mm. Adequately secure to plates, bearers and studs, extending from upper side of top plate to the underside of the bearers or wall plates supporting the ground floor joists. Replace or adequately repair immediately before fixing exterior sheathing if punctured or torn.

7.8 TIMBER TREATMENT
H1.1 Interior linings and trim.

H1.2 Wall framing.
H3.1 Weatherboards, fascia boards, exterior trim, cavity battens.
H3.2 Sub floor framing, decking, pergolas etc.
H5 Piles and poles.

7.11 WALL FRAMING

Frame up for walls and partitions as required. Studs shall be cut square at ends or true to angles of gable or sloped frames. All studs shall be continuous for their full unsupported length between floors, ceilings and similar planes of support.

Framing shall generally be out of MSG 8 grade H1.2 treated pinus radiata.

Top and bottom plates shall be sized to comply with tables 8.16 and 8.17 of NZS 3604:1999 and as required. Studs shall be of sizes and at the centres shown on the drawings and as required by tables 8.2; 8.3 and 8.4 of NZS 3604:1999. Provide not less than two rows of dwangs in the height of each wall to provide stiffness to framing and support for linings. Provide additional dwanging as shown on the drawings or where required for additional support and/or fixing.

7.12 LINTELS

Lintels shall be of sizes shown on the drawings and complying with table 8.8 – 8.13 of NZS 3604:1999. Lintels shall be fixed to trimmer studs and trimmers studs to floor joists at the bottom with 25 x 1 mm galv. straps or other similar fixings as required by NZS 3604:1999. Refer also to drawings and/or fig. 8.12, NZS 3604:1999.

All nailing of treated framing shall be as shown in the nailing schedule.

7.13 BRACING

All bracing to comply with NZS3604:1999, section 5.

All bracing elements shall be located strictly in the positions required.

7.14 POSTS AND BEAMS.

Where required erect timber posts and beams All concrete pads, anchorages, joints and fixings shall comply with the requirements expressed or implied by section 9 of NZS 3604:1999.

7.15 ROOF AND CEILING FRAMING.

TRUSSES

Unless otherwise approved by the local authority engineer roof trusses shall be constructed in a properly equipped factory using nail plates at all joints and shall be constructed to standard designs of the nail plate manufacturer or to designs prepared by a registered engineer. All trusses shall be certified by the fabricator as being constructed to the standards required by the designer and each truss shall be labelled

In a manner which will identify the truss with its original drawings and design data.

Where alterations to standard designs are required to fit the construction the design amendment is to be carried out by the original designer and the fee for this work is to be allowed for in the tender.

Trusses shall be carefully handled and stacked on site to prevent damage. Damaged trusses shall be removed from the site or repaired to the satisfaction of the designer or fabricator.

Trusses shall be fixed to top plates with 2 / 100 x 3.75 mm skew nails plus additional fixing to top plate or wall studs consisting of 4.9 mm dia. wire dogs; 4 mm dia. galv. wire ties wrapped over top chord and stapled to studs with min. 3 / 30 x 2.5 mm galv. staples; or by other connectors to comply with NZS 3604, cl. 10.2.5.

Connect jack trusses to common trusses with connectors and blocking as detailed by the truss designer.

Provide ceiling lining support by either.

(a) Nogging between truss bottom chords with 75 x 50 mm timber (on edge), or

(b) Ceiling battens as required and in accordance with table 29 of NZS 3604.

Rafters shall be of the sizes as shown on the plans.

All fixings to be in accordance with NZS 3604 : 1999.

7.16 PURLINS AND TILING BATTENS.
Securely fix purlins and/or tiling battens as required. Purlins shall be set out along the mid-length or the rafter at centres not greater than shown on the drawings. Adjacent to verges, ridges and such like the spacing is to be reduced to between 50% and 75% of the stated spacings. Fix purlins to rafters with nailing as required.
Tiling battens shall be of the sizes required and at centres to suit tiles. Tiling battens shall be supplied and fixed by the roofing sub-contractor. The main contractor shall provide temporary members required to hold roof framing in position until tiling battens are fixed.

7.18 DWANGS AND BATTENS.
Provide dwangs around the perimeter of all ceiling areas and between ceiling joists or truss bottom chords at 900 mm centres. Dwangs shall be 75 x 50 mm fixed on edge. Where battens for ceiling linings are required they shall be of the sizes and at the centres shown on the drawings or as required by table 13.1 of NZS 3604:1999.
Trim for ceiling access manhole where required. The access hole shall be not less than 500 x 600 mm and shall be trimmed with framing of the same size as the main ceiling members.

7.21 WARDROBES AND CUPBOARDS.
Frame up for wardrobes and other cupboards as required. Provide a shelf in each wardrobe 300 mm wide out of ex 25 mm timber, 20 mm particle board. Fix 20 mm. dia c.p. hanging rail below shelf 1525 mm from floor with c.p. brackets at each end. Rails over 1.5 m long shall have a support bracket at mid-span fixed to the shelf above. Fix additional selves as detailed or noted on the drawings.
Provide shelf and rail in coat cupboards as for wardrobes.
Linen cupboards shall have slatted shelves out of 50 x 25 mm timber fixed with 12 mm gaps between slats. Fix slats to 50 x 25 mm battens to form a pre-fabricated shelf unit. Shelves shall be loose-laid resting on battens fixed to side walls. Provide 5 tiers of shelves to each linen cupboard.

7.24 SOFFITS.
All soffit linings are to be full width of soffits between wall framing and fascia.
Where required line soffits with 4.5 mm Hardiflex. Lining shall fit close to wall framing and shall fit into a grooved fascia on outer edge unless otherwise detailed. Joints in sheets shall be set into extruded PVC mouldings. Fix with galvanised shear-point nails.

7.25 EXTERIOR FINISHING TIMBERS.
Supply and fix all exterior finishing timbers (e.g. fascias, barges, corner stops, scribers, etc.) required to complete the works. Scribers shall be out of 10 mm timber. All other finishings shall generally be out of 25 mm timber. Fascias to eaves shall be grooved to take soffit linings where required. Facings to windows and Exterior doors shall be out of 100 mm timber unless otherwise noted. Fascias and barges to roofs shall be out of suitable width timbers. All joints in exterior finishing timbers shall be neatly and accurately mitred and shall be primed before fixing.
All finishing timbers shall be either primed or given 1 coat of oil finish before fixing.

7.28 INTERIOR LININGS.
All interior linings shall be fixed strictly according to the manufacturer's recommendations. See schedule of linings for materials to be used. All lining material shall be carefully stacked and handled on site in accordance with any instructions issued by the manufacturer and, in any case, in such manner that no degrading of the material occurs prior to installation.

7.28.1 GIBRALTAR BOARD
Where required line walls with standard 10 mm gibraltar board.
Sheets may be fixed horizontally or vertically according to details provided by the manufacturer except that where the lining forms part of a wall bracing element or ceiling diaphragm nailing shall comply with the nailing schedule and each sheet shall be fixed on ALL EDGES.

7.28.4 PRE-FINISHED WALLBOARD (Formica wallboard, Seratone, etc)
Where required line walls and ceilings with pre-finished wallboard. Linings shall be fixed to framing with wallboard adhesive systems appropriate to the type of lining. All joints shall be set in extruded

PVC mouldings. Where linings are fixed in shower cubicles and such like the back edges of the sheets shall be primed for 150 mm from edges before fixing. Set the edge of sheets against caulk into extruded PVC bath-flash moulding bedded down onto the edge of the bath in white butyl mastic sealant and clean off excess sealant on completion.
(Note that WALL BRACING ELEMENTS ARE TO BE COMPLETED BEFORE FIXING PRE-FINISHED WALLBOARDS.)

7.29. INTERIOR FINISHING TIMBERS.
Provide and fix all skirtings, architraves, scotias, still boards and other mouldings and beadings required to complete the works.

7.32 SWITCHBOARD.
Trim for and fit proprietary switch board unit.

7.34 INSULATION.
Insulate all exterior walls with R.1.8 fibreglass batts fitted friction tight in wall cavities.
Line ceilings with R 2.4 fibreglass batts fitted tight between ceiling framing members.
Supply and install 50 mm polystyrene insulation sheets under the concrete floor slab.

7.35. HARDWARE.
The contractor shall allow in his tender the PC sum shown in the lump sums schedule for hardware.

7.38 GARAGE DOORS.
Supply and install garage door as required. The door shall be provided with lock, fittings and operating gear and shall be installed according to the manufacturer's instructions.

7.41 FLASHINGS.
Arrange for the plumber to provide machine folded flashings for exterior doors and windows. Provide flashings for heads and sills of windows and doors and for jambs (where no facings are specified). Flashings shall be neatly fitted. Provide malthoid (or similar) isolation strip where contact between dis-similar metals is likely to occur. In general flashings shall be 0.5 mm thick, of aluminium for use with aluminium joinery, and of galv. steel in other cases.

8 – JOINERY.

8.1 PRELIMINARY.
Comply with preliminary and general.
All dimensions of windows and joinery fittings shall be confirmed on site. The joiner shall provide a list of framing sizes for windows and other units required to ensure proper fitting when delivered to site.

8.2 DOORS AND FRAMES.
Doors shall be 1980 mm high by the widths required.

8.2.1 EXTERNAL DOORS.
Supply and fix external doors as required. Hinged doors shall be of sizes shown on the drawings. Generally external doors shall be solid core, exterior quality flush type. Frames shall be out of solid timber 50 mm thick, rebated and grooved for weathering. Sills shall be out of solid timber rebated and throated for weathering. Hang on 1.5 pr. of 90 mm butt hinges. Doors shall have clashing strips both sides.

2 INTERNAL DOORS.
Internal doors shall be 40 mm thick interior quality, hollowcore, flush type. Surfaces shall be suitable for the finish required. Paint quality doors may be plywood, hardboard or bisonboard faced. Swung doors shall have clashing strip on lock edge. Hang on 1.5 pr. BMA finish, 90 mm loose-pin butt hinges in rebated jambs ex 30 mm thick. Alternatively jambs may be ex 25 mm timber with planted stops.
Sliding doors shall be 40 mm thick, clashed on both edges and hung on approved sliding door gear. Jambs shall be ex 25 mm. Where built down pelmets are not required, sliding doors shall be fitted with boxed pelmets or otherwise finished to cover track gear.

Unless otherwise required jambs shall be suitable for paint finish and shall be grooved to receive linings.

8.2.3 ALUMINIUM DOORS.
Where required supply and fix anodised aluminium sliding or hinged doors complete with locks, rails, weather stripping and fittings. Frames and framing to doors shall be neatly and accurately cut and fitted with mechanical jointers at corners. Frames shall be fitted with ex 25 mm timber, or 18 mm water resistant sheet material, reveal linings and shall be installed in openings according to the manufacturer's installation instructions.

8.3 WINDOWS.
All windows shall be fabricated in properly equipped workshops by competent tradesmen fully qualified to fabricate and assemble the type of windows specified.

8.3.1 ALUMINIUM WINDOWS.
Supply from an approved manufacturer and install anodised aluminium windows as required. The manufacturer shall supply details of window sizes and installation requirements before work is commenced to enable openings to be made to suit. Standard sized windows shall be used unless non-standard sizes are specifically required. Sashes shall be swung as required with awning type hung on interlock stays, or top hung and side hung on stainless steel hinges. Sashes and frames shall be mitred at corners and securely fixed with mechanical jointers to hold the frames true and square. Joints shall be sealed with small-joint sealant. Sashes shall close against flexible neoprene weather stripping all round. Frames and sashes shall have slots to allow infiltrating water to pass to the outside and shall have condensation drains on the inside. Windows shall be supplied complete with glass and ready for installation. Where required double glazing shall be provided using Thermopane (or equal) glazing units. Each sash shall be fitted with a pair of wedge fasteners to each sash and, where required, security fittings. Unless otherwise required frames will be supplied complete with factory-fitted ex 25 mm timber, or 18 mm water resistant sheet material, reveal linings grooved to receive wall linings and shall be suitable for paint finish.

9 ---ROOF COVERINGS.

9.1 PRELIMINARY.
Comply with preliminary and general.
The whole of works shall be carried out in accordance with, and shall conform to, the bylaws and regulations of the local authority.

9.2 EXTEND OF WORK.
This trade consists of the supply and fixing by approved fixers, of roofing and accessories as required.

9.3 COLORSTEEL ROOFING.

9.3.1 MATERIALS.
The roofing shall be colortile and installed to manufacturers specifications.

9.3.2 PURLINS.
Fix 75 x 50 mm purlins over trusses at 900 mm centres approximately. Fixing of purlins shall comply with requirements of NZS 3604:1999.

9.3.3 UNDERLAY.
Fix heavy quality building paper over battens.

10. -- PLUMBER AND SHEET METAL WORKER

10.1 PRELIMINARY.
Refer to preliminary and general for clauses relevant to this section of the works.

10.2 SCOPE.

The plumber shall provide all materials, plant and labour necessary for the proper completion of the plumbing work in conformity with the NZ Building Code, G12 AS1.

10.3 MATERIALS AND WORKMANSHIP.
All materials and fittings used in this trade shall comply with the requirements of the relevant current NZ Standard Specification or, where no such specification exists, with the requirements of the relevant current British Standard. In any event, all materials and fittings shall comply with the requirements of the local authority and with current best trade practice.

10.4 FLASHINGS.
All notched roof flashings shall be supplied and fixed by the roofing trade. All other flashings at windows, doors, penetrations through roof, etc. shall be 0.6 mm gauge galvanised steel, machine folded to the required shapes with all joints, junctions, etc. mechanically weathered, and soldered or otherwise sealed to approval.

10.5 SPOUTING AND GUTTERING.
Supply and install metal spouting and guttering of the type and size shown and fix with clips to match the profile being used all erected according to the manufacturer's recommendations. All spouting and gutters shall be fixed to fall not less than 1:600 to outlets.

10.6 PIPING.
Piping for water supplies shall be drawn copper or polybutylene piping. Standard fittings and couplings for copper and polybutylene piping shall be used including couplings linking the two materials.

10.7 COLD WATER SUPPLY.
From the supply point lay 12 mm i.d to all cold taps, including external hose taps; to water closet; and where a low-pressure supply system is used, to shower and hot water cylinder.

10.8 HOT WATER SUPPLY.
Re-use the gas instant hot water unit, installed at the exterior of portacom.

11 -- DRAINLAYER

11.1 PRELIMINARY.
Read and note all clauses under preliminary and general of this specification where they apply to this trade.

11.2 EXTENT OF WORK.
Work in this section of the contract comprises all surface and foul water drainage to above ground level to connect to plumber's work. Include all pipes and special fittings, construction manholes, all gully traps, terminal and back vents, soil and waste pipes. The drainlayer shall confer with the plumber and shall arrange with the contractor before the foundations are laid to fix the exact location of all connections of wastes and drains.

11.3 STANDARD OF WORK.
The whole of this work shall be carried out by experienced tradesmen to the requirements the NZ Building Code, Sections G13 AS 1 & 2. Obtain all permits, give all notices, pay all fees, and arrange for all tests and inspections as required by the local authority.

11.6 DRAIN TRENCHES.
The excavation of trenches for drains shall be accurately formed with base clean and true to grades so that no unnecessary filling is required. Adequate width shall be allowed in accordance with the depth of the drain to enable laying and jointing to be properly carried out. Trenches shall be kept firm and dry and shall be opened up only in lengths that can be protected, utilised and refilled within a reasonable time. All drains shall have minimum of 450 mm cover or be protected to the satisfaction of the local authority inspector.

11.8 FALL IN DRAINS.

The whole of the soil and stormwater drains are to be laid to a regular and even gradient of not less than 1:60. Un-necessary changes of grade will not be accepted.

11.9 FITTINGS.
The plan shows the layout of the system. Additional fittings that are normally required such as inspections, bends, etc., which may be required but are not specifically shown, must be allowed for by the drainlayer to comply with normal practice under the regulations or special requirements of the local authority.

11.10 GULLY TRAPS.
Gully traps shall be an approved type and compatible with the drainage system used. No more than five waste pipes shall discharge into each gully trap.

11.11 SEWER AND STORMWATER CONNECTIONS.
Sewer and stormwater drains to be connected to connections at road front.

13 - ELECTRICIAN.

13.1 PRELIMINARY.
Read and note all clauses under preliminary and general of this specification where they apply to this trade.

13.2 FEES.
Pay all fees and charges and obtain necessary permits for this trade.

13.3 SCOPE OF WORK.
Carry out the whole of the electrical installations in accordance with the latest Electrical Wiring Regulations and local authority's bylaws/\. Provide all lighting and power points as shown on the drawings or as otherwise directed by the owner.

13.6 POWER BOARD SUPPLY.
Arrange with the power board and pay all fees for the connection of an underground or overhead supply to the residence. Arrange for any power poles required to carry overhead power lines.

13.8 METER BOX.
Provide and install meter box where directed. Arrange with carpenter for trimming for meter box, which shall be recessed into wall and shall have a weatherproof cover.

13.9 MAIN SWITCHBOARD.
Provide and install a recessed main switchboard complete with all fusses, circuit breakers, switches, bell transformer, and auxiliary equipment. Arrange with the carpenter to provide a cabinet for the switchboard.

15 - PAINTING.

15.1 PRELIMINARY.
Note all clauses under preliminary and general of this specification, which apply to this section of the work.

15.3 WORKMANSHIP.
All work shall be carried out in accordance with best current trade practice. Surfaces shall be clean properly prepared before coating and work shall be in accordance with Code of Practice NZS 2239 "Painting of Buildings". Rub previously painted surfaces lightly with fine glasspaper between coats and wipe over with a tack rag to remove dust. All coats shall be laid off when finishing to remove brush marks. DO NOT PAINT OVER UN-PUNCHED nails or other protruding fixings.

15.4 COLOUR SCHEMES.
The owner will select from standard colour charts, colours he will require and the contractor is to allow for picking out sashes, doors, porches or any other reasonable colour change required.

15.5 STOPPING.
After painting, all nail holes or joints are to be stopped with linseed oil or putty and cleaned off before undercoating. Varnished work is to be stopped with matching putty after the first coat of sealer. Stop all nail holes and gaps in finishing timbers.

15.6 EXTERIOR PAINTING.
Prime all exterior woodwork unless an oil finish is specified. After priming, all external woodwork and adjacent metalwork such as flashings, spouting and down-pipes, is to be given one good under-coat following by a finishing coat of high gloss paint (acrylic or enamel). Wipe down all metal work with solvent before priming. Priming coats shall be well brushed in and all faces shall be covered, end of laps and tops and sides of sashes, doors, and such like. Sashes and doors shall be painted with enamel paint, not acrylic. Hardiflex lining to eaves soffits shall be painted with 2 coats of PVA Latex paint. Fibre-cement sheets (e.g. Hardiflex) shall be painted with 2 coats of acrylic gloss paint or shall be finished with other treatment as required. Exterior concrete block sealer or masonry filler, well brushed into the surface, and applied strictly according to the manufacturer's specifications.

15.7 OIL FINISH.
Where required exterior woodwork shall be finished with 2 coats of clear or pigmented Resene weathering oil. The first coat should be applied before or straight after the timber is fixed in place. The second coat should be applied after 4 or 5 weeks.

15.8 INTERIOR PAINTING.
All interior finishes are to be as required. Wall linings and ceilings shall be given one coat of undercoat and finished with the two coats of approved flat or semi-gloss paint as required. Where full gloss is required in kitchen, laundry or bathroom, the finishing coat shall be full gloss enamel. Doors shall be painted on both faces and ALL edgings. Allow for painting kitchen cupboard and laundry cupboard doors, carcass and shelves, unless pre-finished surfaces are specified.

15.9 VARNISHING.
Where varnishing is required, such as to doors, architraves and skirtings, give one coat of approved sealer, followed by two coats of clear varnish lightly sanding between coats. Seal and varnish both faces and ALL edges of doors. Varnish shall be gloss, semi-gloss or flat polyurethane as required.