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SPECIFICATION:

NEW DWELLING FOR D PUGH & V VILLATA AT 9 MUSKET LANE RICCARTON CHRISTCHURCH

Project No. 1760

Issue: A - Building Consent - December 2019

SPECIFICATION

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1.0 PRELIMINARY AND GENERAL

1.1 SCOPE

This specification conforming with any attached Agreement and Conditions of Contract describes the work to be done and the materials to be used in the construction of the new dwelling and associated siteworks as shown on the attached drawings.

The Contractor is expected to be familiar with the site and the Local Building Bylaws and the BUILDING ACT as they apply to the contract. The whole of this PRELIMINARY AND GENERAL section shall be read in conjunction with and shall apply to each and every section of this Contract. It is the responsibility of each trade to make themselves familiar with any and all clauses which may affect their work.

1.2 BUILDING ACT 2004

The provisions of the Building Act 2004, all subsequent amendments and the Building Regulations 1992 are deemed to be part of this Contract.

1.3 RESTRICTED BUILDING WORK

This project is in a category of Restricted Building Work, which requires key parts of the building work to be only carried out by Licenced Building Practitioners.

The restricted building work for this project includes:

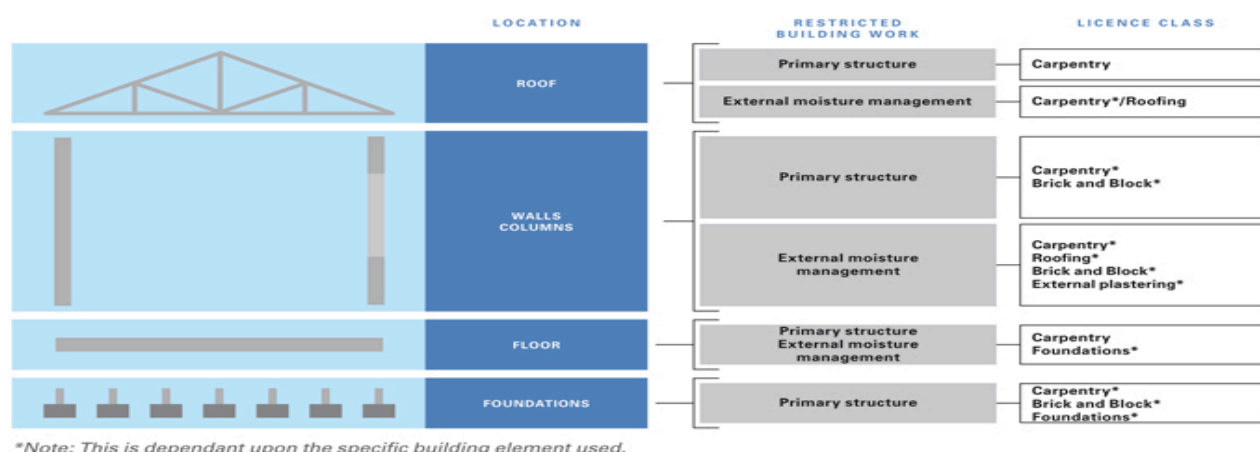
- Foundations
- Carpentry
- Bricklaying
- Roofing

Other trades such as Electrical and Plumbing have separate Licences and Registrations which are still applicable for this project.

It is essential that each Licenced Practitioner provides the Principal with a Record of Work form covering all aspects of the restricted work that they have performed.

It is the joint responsibility of both the Main Contractor and Principal to ensure that all RBW is carried out or fully supervised by an appropriately Licenced LBP.

Refer to the diagram below for further clarification of which Trades and Restricted Building Work is applicable to the various parts of the dwelling.



1.4 RESOURCE MANAGEMENT ACT

No Resource Consent application is required for this project. A PIM application was previously applied for in regards to the project and the non-compliance has been amended in these documents.

1.5 LIABILITY / DISCLAIMER

Gravity Architecture Limited ("The Company") has been employed to prepare documentation only for the work outlined in this Contract by Holloway Builders Limited. Every effort has been made in preparing the documentation to ensure that the Works if constructed in full accordance with the intent of the documents will comply with the current NZBC requirements and NZ Standards applicable at the time.

The Principal accepts by taking possession of the documents and lodging a Building Consent application that the documentation prepared by "The Company" is to their knowledge complete and is a fair representation of the expected Contract Works.

"The Company" including its Directors or Staff accepts no liability to the Contractor, Principal nor any subsequent Owners for the standard of workmanship or defects during the life of the building where "The Company" has not been intimately involved in overseeing the entire Construction.

Products and materials have been specified to meet the Durability requirements of the NZBC with some individual product warranties exceeding the requirements. "The Company" has no control over whether these materials or products are actually used on the Contract or whether these are substituted with alternative materials or systems.

The Contractor is entirely responsible for the standard of workmanship on the Contract. This is to include workmanship during the construction and the results of such workmanship during the life of the building, fair wear and tear excepted. Where a Building Contractor is not responsible for the entire Contract the Principal shall be deemed to be the Contractor and be fully liable to the same extent above.

It is the Contractors responsibility to Contract to Creditable Sub-contractors and Suppliers for critical parts of the Contract and to obtain the required Warranties and Guarantees covering the same work. It is seriously suggested that such details and negotiations are agreed in writing before any parties are contracted and the work commenced. Such Guarantees as a minimum should include for rectification of their particular part of the Contract and making good to areas of the Building Works affected by a failure or similar incident.

The Territorial Authority upon issue of a Building Consent and subsequently a Code Compliance Certificate for the Building Works outlined in the Contract must accept that the documentation provided herein was of the required standard and detail acceptable at the time and that they have carried out sufficient inspections so as to be satisfied that the Contract Works have been carried out to their satisfaction and within the intent of these documents.

"The Company" has included general clauses in this specification that are deemed to be part of "Best Trade Practice" and expected to be followed by reputable Building Contractors. The inclusion of clauses in this Specification does not guarantee that all or any of these have been followed by the Contractor or Principal in carrying out the Contract Works and accepts no liability should they not be followed.

"The Company" will amend documentation and provide further information to the Territorial Authority as requested during Building Consent processing and provide all parties with "For Construction" amended documentation upon issue of the Building Consent.

It is the responsibility of the Contractor or Principal to advise "The Company" of any parts of the documentation or building works requiring clarification in writing post consent during the construction period. Any discussions will be recorded by "The Company" on file and copies distributed to the Contractor and Principal. Variations or clarifications will be given in writing and signed by all parties should it be deemed necessary.

1.6 INTERPRETATION

Work or materials shown on the drawings or specified and not shown, must be supplied as though both shown and specified. Materials shown but not specified must be of the kinds commonly employed for the service they are intended to perform.

All figured dimensions shall be taken in preference to scale. The Contractor shall be held responsible for the setting out of the work and he shall make good at his own expense any errors that occur through his lack of checking or faulty workmanship.

1.7 INSURANCE

The Contractor shall effect and maintain current insurances as appropriate for the project. The policies shall be in the joint names of the Contractor and Principal for their respective rights and interests.

Proof of current policy must be provided when so requested by the Principal. Where, during the course of the construction, the Principal permits the use of the building by the Contractor for any reason whatsoever, not included in the Contract, that may in the opinion of the Principal, constitute an additional insurance risk, the additional risk must be insured, at no cost to the Principal, to the satisfaction of the Principal's insurers.

1.8 SUPPLY AND FIX

The words "supply" and "fix" shall be construed to mean "supply and fix" where mentioned separately, unless otherwise mentioned.

1.9 MATERIALS AND WORKMANSHIP

All materials shall be of the best of their respective kind. Any materials herein specified that are not procurable at the time they are required, thus tending to retard the progress of the Contract, may be substituted with other similar materials, providing that the substituted materials conform to the Local Bylaws and with permission of the Principal.

The Contractor is first to notify the Principal of any change proposed and at the completion of the contract will adjust any difference in cost. All work shall be carried out in accordance with the best trade practice, in strict conformity with the drawings and specification and to the satisfaction of the Principal.

All defective or damaged work shall be removed and made good at the Contractors expense and to the satisfaction of the Principal.

1.10 SAFETY

The Contractor shall comply with the requirements of the Health and Safety Employment Act and its amendments.

Prior to commencing work on site the Contractor is required to provide a written warranty worded as follows:

1.10.1

The Contractor warrants to the Principal that the Contractor shall take all practicable steps to ensure that no act or omission:

- a) causes a hazard, significant hazard, harm or serious harm to any employee of the Contractor or any person at the place of work or in the vicinity of the place of work; or
- b) is a breach of any duty or obligation of the Contractor under the Health and Safety in Employment Act 1992; or
- c) does or is likely to give rise to the issue of an improvement or prohibition notice, enforcement proceedings or a prosecution under the Health and Safety in Employment Act 1992 against the Principal, the Contractor or Subcontractor.

The words and phrases used in this clause shall have the same meaning as is ascribed to them in the Health and Safety in Employment Act 1992.

1.10.2

The Contractor undertakes that before a Subcontractor commences work the Contractor shall obtain similar warranties as those stated in 1.10.1 from the Subcontractor in relation to the subcontract works.

1.10.3

The Contractor shall indemnify and keep indemnified the Principal from all costs, damages, fines, penalties, loss and expense incurred or suffered by the Principal in respect of any breach of Resource Management Act and/or Health and Safety in Employment Act 1992, conviction or proceedings instigated against the Principal pursuant to the Resource Management Act and/or Health and Safety in Employment Act 1992 directly or indirectly related to a breach by the Contractor of any of the warranties set out in 1.10.1.

1.10.4

If the Contractor becomes aware that it is or may be in breach, or is likely to be in breach of any of the warranties in 1.10.1 or any Subcontractor is or may be in breach of or is likely to breach the matters set out in the agreement between the Contractor and Subcontractors pursuant to 1.10.2, then the Contractor shall immediately notify the Principal of such a breach or anticipated breach and, in relation to any breach or anticipated breach in connection with the Contract Works or subcontract works the Contractor shall follow the directions, if any, of the Principal's representative to avoid, remedy or mitigate such breach or anticipated breach.

1.10.5

The Contractor pursuant to the warranties set out in 1.10.1 shall have regard to the contents of the safety programme agreed between the Principal and the Contractor. A copy of the agreed safety programme shall be kept at the office of the Contractor.

1.11 PROTECTION OF PROPERTY

The Contractor shall protect adjoining properties during the Contract and shall make good all damage at his own expense and any damage done to footpaths, kerbs, drainage etc. to the satisfaction of the controlling authorities. Each trade shall take care to prevent damage or disfigurement of the work of other trades and will be responsible for the cost of restoring same.

1.12 STABILITY

The Contractor shall carefully brace and support all parts of his work from the elements as necessary during construction.

1.13 EXISTING SERVICES

Locate existing services early in the Contract to ensure their suitability for connecting the new services to including for the condition and level (height) of the particular services. Advise the Principal should any conflicts or discrepancies exist once service laterals etc are located.

1.14 CONSENTS, FEES AND DEVELOPMENT LEVY

The Principal is to pay for and uplift the building consent and pay for all development levies before work commences. The original is to be kept on site at all times during the Contract and handed back to the Principal in good condition at the completion of the Contract.

Once the project is complete the Main Contractor shall carry out all possible steps to assist the Principal to obtain a Code Compliance Certificate from the Local Authority.

1.15 SITE & ACCESS

The site of the works is 9 Musket Lane, Upper Riccarton, Christchurch.

1.16 SITE VISIT

Tenderers are to allow to make an inspection of the site and familiarise themselves with the extent of the works, access to the site, site conditions, position of services and any other item that may affect their tender. No subsequent claim will be entertained for any alleged lack of knowledge of the site conditions or the extent of the work.

1.17 STANDARD SPECIFICATIONS

All materials shall be the best of their respective kinds complying with the relevant New Zealand Standard (NZS) (or British Standards (BS) where appropriate NZS do not exist), or other Standards called for in the Specification. Reference to any Standard shall include any amendment thereto or any Standard in substitution therefore.

Wherever a Standard Specification is called for in the Specification, it shall be deemed that all other Standard Specifications called up in that Standard Specification shall be incorporated, and in the case of NZS. shall include any current amendments or superseding NZS declared or endorsed in terms of the Standards Act 1965.

Whether nominated or not, the relevant NZ Standard Specification is to be taken as the minimum acceptable standard for all aspects of this Contract, including all materials and workmanship.

Contractor, Sub-contractors and Foremen and supervisory staff to be fully familiar with these provisions.

1.18 HFC ENGINEERS LIMITED – SPECIFICATIONS

Refer also to the separate documentation from HFC Structural Engineers in relation to the Excavation, Concrete, Carpentry and Structural Steelwork trades of this project. Their specification notes or trade sections should take precedence over this Specification should there be a conflict.

1.19 SET OUT, DIMENSIONS AND LEVELS

The Contractor shall be responsible for setting out of the works in accordance with the Contract Documents. All dimensions and levels must be checked by the Contractor before work is commenced.

Refer also to the survey drawings in the Supporting Documents which take precedence over the Architectural Drawings should there be a conflict.

The Contractor shall arrange to visit the site to ascertain the exact position of the work upon the site. He shall accurately lay out his work and assume full responsibility for correctly doing so. All dimensions shall be checked by the Contractor and shall be taken or verified at the building and in case of alteration to the drawings being found necessary reported to the Principal or their representative who shall make the necessary modifications and adjustments.

The matter of extras and deductions, if any, caused thereby shall be agreed upon before proceeding with the work.

Figured dimensions shall be taken in preference to scaling.

The Contractor shall be responsible for the accurate setting out of the work and shall be responsible to rectify any error at his own expense.

The Contractor is entirely responsible for verifying all dimensions by checking against actual site measurements. In particular, this responsibility includes his Sub-Contractor's site measurement as as-built dimensions to enable them to fabricate accurately.

1.20 SUBCONTRACTS

The Contractor may subcontract portions of the work with the written consent of the Principal.

The subcontracting of any work shall not relieve the Contractor from any liability or obligation under the Contract.

1.21 ATTENDANCE

The Contractor and each Sub-contractor shall allow in their price for reasonable attendance upon other trades. It shall be each Sub-contractors responsibility to be informed of progress and to advise other trades of their requirements.

1.22 GENERAL DISCIPLINE, SITE RESTRICTIONS AND SECURITY

The Contractor shall be responsible for the initiation of the order and sequence of the work and its continuity in relation to the building, and to meet the objectives and milestones as detailed on the Contractors detailed Master Construction Programme.

The Sub-contractors and others employed in carrying out work on the building shall be required to conform to the general requirements and discipline of the job as imposed by the Contractor.

The Contractor shall comply with all Statutory and Local Authority requirements relating to noise levels on site. NZS 6803:1999 is to be used for measurement and assessment of noise while carrying out the Contract Works.

All compressors, percussion tools and any other noisy equipment shall be fitted with effective silencers to keep the noise levels to below the specified levels.

The Contractor shall ensure that no nuisance or disruption is caused by noise, water, smoke, heat or other cause.

The Christchurch City Council shall be the sole arbiter of whether a particular operation is excessively disruptive or noisy in any particular situation at any particular time. If the Contractor persists in creating noise which requires stopping, then the Contractor shall bear full liability for any potential fines imposed by the Council. The Christchurch City Council may reserve the right to limit the hours for delivering or removing items to the site should the need arise.

No radio receivers of any type (including transistorized radios) will be permitted to be operated on this site. Similarly smoking will not be permitted in any part of the site.

1.23 CONTRACTORS REPRESENTATIVE

The Contractor shall provide all necessary supervision during the contract. He shall have on the site at all working times a competent representative whose name shall be notified to the Principal in writing and who shall be authorised to receive on behalf of the Contractor any instructions from the Principal or his representative.

1.24 TESTS BY CONTRACTOR

Carry out the tests as specified in the various Trade Sections to the satisfaction of the Governing Authorities, give at least 72 hours notice before testing. Provide all necessary instruments and apparatus.

Arrange for tests and cooperate with all sub-contractors and provide for all assistance and attendance. Continue tests until required approvals are obtained.

1.25 STORAGE LOADS

The Contractor shall obtain the Structural Engineer's permission before storing heavy loads within or on the building. Loads from heavy equipment shall not be supported or applied in close proximity to the Works.

1.26 TEMPORARY SERVICES - WATER, POWER AND W.C

The Contractor shall provide a temporary power supply, a temporary water supply and temporary toilet facilities for the duration of the Contract and shall remove all such facilities at the completion of the Contract.

1.27 TELEPHONE & EMAIL

The Contractor shall be contactable during normal working hours by telephone and shall have email communication available for the duration of the Contract.

1.28 SHEDS AND STORAGE

The Contractor shall supply suitable sheds and facilities for his staff and storage of materials during the Contract and remove these facilities on completion of the Contract.

1.29 SCAFFOLDING AND CRANEAGE

Allow for all internal and external scaffolding, planks and craneage for free use of all subcontractors for the duration of the Contract to enable the efficient execution of the works; include to erect, maintain during the Contract, dismantle and remove from site on completion of the works.

1.30 PLANT AND EQUIPMENT

Allow for all plant, tools and equipment as required to complete the contract including all costs associated with installing, operating, maintaining and dismantling and removing from site.

1.31 HOARDINGS / SECURITY FENCING

Allow to erect security fencing to secure the site with lockable access gates. Security fences shall extend at least 2m in height from ground level on the sides accessible to the public. Construct in accordance with NZBC F5 Construction and Demolition Hazards, clause 1.1 Site fences and hoardings.

Allow to erect, maintain during construction and remove on completion of the works.

1.32 CLEAN UP DURING THE CONTRACT

Each subcontractor shall regularly remove all rubbish caused by his work as it accumulates and keep the site free from any of his rubbish. The Contractor shall have overall responsibility to keep the site clean and safe and all associated costs shall be his ultimate responsibility.

1.33 FINAL CLEAN UP

On completion of the Contract the Contractor shall employ a professional cleaning company to thoroughly clean the building and grounds ready for occupation.

1.34 GUARANTEE FORMS

The Contractor shall provide the Principal with written guarantee forms as listed and where required in the contract documents no later than when the final account is submitted.

1.35 PRACTICAL COMPLETION

Practical completion shall be deemed to be when the facilities are operational and all equipment and plant commissioned.

2.0 EXCAVATION & FILLING

2.1 PRELIMINARY

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections and in conjunction with the separate HFC Structural Engineers documents which takes precedence should any conflict occur with this Specification.

2.2 SETTING OUT

Set out the work as shown or implied on the drawings. Check accuracy in terms of position, levels and square.

2.3 SEDIMENT CONTROL

Before any excavation work is commenced, sediment control measures must be installed as per the local Regional Council requirements and guidelines all to the approval of the Local Authority Inspector.

2.4 SITE LEVELS

Refer to the levels shown on the drawings for existing and finished levels.

2.5 EXCAVATED TOPSOIL

Strip topsoil from the area of the new building for re-use in planted areas. Stockpile excavated topsoil on site where directed by the Principal.

2.6 EXCAVATED MATERIAL

Remove from site and dispose of all surplus material from excavations not required for backfilling, levelling and grading.

2.7 INSPECTION

Check the HFC documentation regarding any inspections that may be required at the time of Excavation and arrange accordingly before any further construction proceeds.

2.8 CO-OPERATE

Co-operate with all other trades in this contract.

3.0 CONCRETE AND REINFORCING

3.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this specification and the General and Special Conditions of Contract which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections and in conjunction with the separate HFC Structural Engineers Specification notes on their drawings which take precedence should any conflict occur.

3.2 EXTENT OF WORK

Work under this trade section comprises the setting out, boxing and placing of damp proofing membranes, concrete floor & foundation system, pile pads, reinforcing steel and any other concrete work shown on the drawings as required.

3.3 MATERIALS AND WORKMANSHIP

Adhere to requirements of NZS 3109:1997, NZS 3124:1987 except where specified otherwise herein or instructed otherwise by the Structural Engineer. Keep a copy of these standards on site and read relevant parts in conjunction with this Specification. All concrete shall be placed by skilled and experienced persons. The Contractor shall ensure that all concrete is supervised by a competent foreman and to the satisfaction of the Structural Engineer.

3.4 CONCRETE

Refer also to the separate HFC Structural Engineers Drawings and Specification for work under this section.

Repair all defects in the concrete immediately after stripping to the approval of the Structural Engineer.

3.5 REINFORCING STEEL

Refer to the separate HFC Structural Engineers Drawings and Specification for work under this section.

3.6 FORMWORK

Formwork if required shall conform to NZS 3109, Section 5. Design and construct formwork so that concrete can be placed and thoroughly compacted without loss of grout. Joints shall be tight and close fitting to prevent leakage. Avoid stepping and ridging at construction joints by securely tightening formwork against previously cast concrete.

Seal or otherwise treat formwork to ensure easy stripping.

3.7 CONCRETING

Before pouring commences, the Engineer shall be notified and given reasonable opportunity to inspect formwork and reinforcement.

Construction joints positioned to the approval of the Engineer shall be between properly positioned stops.

Stripping times shall comply with NZS 3109, Table 5, Clause 5.4 unless otherwise agreed with the Engineer.

Repair all defects in the concrete immediately after stripping to the approval of the Engineer.

3.8 CURE AND PROTECTION

Cure concrete according to NZS 3109, Clause 7.7. Cure slabs for seven days using water spray on hessian or an approved curing compound. Curing compound shall not be used on areas to be covered with butynol or glued flooring compounds.

Avoid casting slabs in hot weather, but where necessary commence water curing as soon as finishing work is completed. Keep slabs free of heavy construction loads for seven days and allow 28 days before applying heavy working loads. Protect fair-face concrete and slab surfaces to the satisfaction of the Engineer.

3.9 SURFACE FINISHES

All concrete work shall have formwork constructed and concrete placed and finished to achieve the specified surface finish. Surface finishes on building elements shall be to the standard and tolerances described in NZ 3114, and as specified as follows:

U.3. Ground Floor slabs

Carry out all necessary remedial work within 24 hours of removal of forms, with cement/sand mortar of the same proportions as the concrete. Defective areas shall not be repaired without the approval of the Engineer. Where the defective depth is more than half the specified cover, the concrete shall be cut out and replaced. Repair superficial defects with mortar 'bagged in' and finish off by rubbing with a carborundum stone.

3.10 FOUNDATIONS

Foundations, pile footings and reinforcement shall be to the sizes shown on the drawings. Construct the foundation beams as shown on the drawings and to any instructions issued by the Structural Engineer.

3.11 DAMP PROOF MEMBRANE

The damp proof membrane shall be 250 micron polythene and shall be laid in as wide a sheet as practicable. Lap joints 100mm and tape with 50mm pressure sensitive tape. Tape the membrane against foundations in accordance with the drawings.

3.12 FLOOR SLABS

Construct the concrete ground floor system in full accordance with the drawings and any instructions from the Structural Engineer. The placement of concrete to all floor slabs is to be carried out by specialised tradespersons experienced in this type of work.

Lay all reinforcing as shown on the drawings to achieve the required concrete cover to all steel. Box up edges and penetrations or openings as required to enable the floor slab to be poured to the required heights and levels shown on the drawings.

Slabs shall be vibrated and struck off to a level surface. Finish the slabs with a power float when the concrete has attained its initial set. Grind off any ridges or screed marks about 1 week after pouring. The finished surface shall be within a design level of + or - 5mm on a 3m straight edge laid anywhere on the floor.

Co-operate with the Electrician, Plumber and all other trades in the provision for all services and fixings.

Form all chases, holes, upstands, thickenings, recesses, nibs and shower base recesses as shown or implied by the architectural drawings or as required by other trades. Chases and holes shall be accurately positioned and formed at the time of casting the concrete.

Set concrete shall not be cut or hacked unless specific approval is obtained from the Structural Engineer.

Avoid casting slabs in hot weather, but where necessary commence water curing as soon as finishing work is completed according to NZS 3109, Clause 7.7. Where necessary during high temperatures cure slabs using water spray on hessian.

Keep slabs free of heavy construction loads for seven days and allow 28 days before applying heavy working loads.

Protect fair-face concrete and slab surfaces to the satisfaction of the Structural Engineer.

3.13 BUILDING IN AND CO-OPERATION

As the work proceeds, build in all necessary bolts and other fixings and where not supplied by other trades, supply these. The Contractor shall ascertain from all Sub-Contractors all particulars relating to their work with regard to order of execution and details of all such provisions of fixings, sleeves, chases, holes etc and of all necessary items to be built into concrete and shall ensure that all items are provided for and / or positioned.

3.14 COMPLETION

Leave all clean and tidy at finish and make good any defective work.

4.0 CARPENTER AND JOINER

4.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections and the separate HFC Structural Engineers Documentation and notes on their drawings which take precedence should a conflict occur.

Refer also to the separate Holloway Builders pricing specification for clarification on any items.

4.2 RESTRICTED BUILDING WORK

Carpentry work for this category of building is Restricted Building Work as defined in the Building Act and must be carried out by a Licenced Building Practitioner carrying an appropriate and current Licence.

Refer also to the P&G clauses of this Specification regarding this and the requirements of the LBP to supply the Principal with a Record of Work form covering all aspects of the restricted work that they have performed. Record of Work forms must be provided to cover all areas of the carpentry work whether the work is carried out by one or more persons under separate contracts for different parts of the work.

It is the joint responsibility of both the Main Contractor and Principal to ensure that all RBW is carried out or fully supervised by an appropriately licenced LBP.

4.3 EXTENT OF WORK

The work of this section shall include all labour, materials and equipment necessary to carry out the complete carpentry as shown, or as further required by this specification, together with any other items of work reasonably inferred as part of this section.

4.4 MATERIALS AND WORKMANSHIP

All materials used shall be the best of their respective class and type specified. Any materials which in the opinion of the Principal or Local Authority are not up to standard, shall be removed immediately from the site.

All work shall be carried out in a workman-like manner in accordance with best trade practice and as or where especially specified. Any work that is intended or implied but not specifically shown, mentioned or specified as necessary for the proper completion of the building shall be included.

All work shall comply with the relevant NZS requirements, particularly NZS 3604 and NZBC B2/AS1 & E2/AS1.

4.5 STANDARDS

The following standards and regulations apply to this contract except where specifically modified by this specification.

NZS 3601: 1973	Metric Dimensions of Timber
NZS 3602: 2003	Code of Practice for Specifying timber and Wood Based products for Use in Building
NZS 3603:1993	Timber Structures Standard
NZS 3604:2011	Code of Practice for Light Timber Frame Building not requiring Specific Design
NZS 3631:1988	New Zealand Timber Grading Rules

NZBC B2/AS1 April 2011	Durability
NZBC E2/AS1 August 2011	External Moisture

4.6 ATTENDANCE AND PROTECTION

Attend upon all other trades providing all blocking, fixings, trims and noggings as necessary for the full completion of their respective works and made good after all trades.

4.7 TIMBER

All timber used shall conform to NZS 3602:2003 requirements, Timbers shown are to be treated with an approved preservative process in plants licensed by the Timber Preservation Authority. Refer to the HFC Drawings also.

4.8 DAMP PROOFING

All timber to be protected from dampness with 3 - ply bituminous felt or other approved damp proofing material complying with NZBC E2/AS1 Table 23 when in contact with concrete or similar materials.

4.9 PRIMING

All exterior finishing timber (other than cedar), all timbers in contact with concrete and all external faces, rebates, etc, of all doors and frames, shall be primed before fixing unless otherwise specified in PAINTER.

4.10 FASTENING AND FABRICATION

The Contractor should especially note that all aspects of fastening and fabrication of timber framing members and wood-based products on this contract shall accord with the relevant clauses of NZS 3604:2011.

All fixings shall be compatible for the Exposure Zone C classification of the site.

Refer to the relevant manufacturers instructions for the proper fixing of sheet lining and cladding materials for walls and ceilings that are not wood-based e.g. Gibraltar board, fibrous plaster or wood cellulose sheeting, especially where such materials are used as diaphragms and for wall bracing.

In all other cases, select and use connectors according to manufacturers' literature conforming to NZS 3604:2011 requirements.

4.11 MOISTURE CONTROL

There should be no unsealed openings in the building wrap for service pipes or wiring etc.

There should be no discharge from extractors or vents etc. into any wall, roof or floor cavity.

Interior wall linings shall not be fixed until the moisture content of framing has been tested and approved by the Local Authority Inspector.

Cavity construction is to be used to all exterior timber framed walls as shown on the drawings.

4.12 GENERAL FRAMING

All timber wall framing is to be from 90 x 45mm studs at centres noted on the drawings or as required by NZS 3604:2011. Provide and fix dwangs at 900mm centres max to full height of each wall unless otherwise stated on drawings or required by the exterior linings.

Refer to the technical literature for any wall claddings and provide dwangs as required.

Lintels to openings and all construction is to fully comply with NZS 3604:2011 including all proprietary hold downs and straps.

4.13 POSTS, BEAMS, BRACKETS AND STRUCTURAL STEEL

See drawings for details and build in and support with suitable connectors for the situation all posts, beams, brackets or structural steel.

Refer to the separate STRUCTURAL STEELWORKER section of this specification also.

Any exposed brackets shall be hot dip galvanized or in accordance with NZS 3604:2011 and NZBC E2/AS1 or any subsequent amendments.

4.14 TIMBER FLOOR CONSTRUCTION

Supply and fix floor joists to timber floor areas where shown on the drawings in full accordance with the architectural and structural drawings.

Fix trimmers, beams and blocking all as detailed or implied by the drawings and as required by NZS3604.

Over joists lay 20mm Strandfloor flooring in full accordance with the manufacturers written instructions.

Flooring to be glued and screwed to all joists. Flooring to the bathrooms is to be H3 treated.

4.15 BUILDING WRAP

Supply and fix DriStud building wrap the “outside face of all walls in strict accordance with the manufacturer’s written instructions.

Dress DriStud Bozz flashing tape into all window and door opening, sheet joints and general openings all in full accordance with the manufacturers written instructions and literature included in the Supporting Documents.

4.16 BRACING

Provide all bracing as shown on the bracing schedule and drawings. Keep strictly to the type, lengths and locations shown.

Refer to the Structural Engineering section of Supporting Documents for further details.

4.17 SOFFIT LININGS

Supply and fix 4.5 mm Hardisoffit linings to the areas shown on the drawings including PVC jointers.

4.18 ROOF FRAMING

The roof is to be constructed as detailed on the drawings with rafters and proprietary trusses designed and manufactured by a specialist fabricator, all to detail, well fixed and well spiked to all plates. Provide fixings as shown on the drawings and this specification to the satisfaction of the Local Authority Inspector. Refer to the Supporting Documents for details of all trusses.

4.19 INSULATION

All timber sub-floor areas, ceiling areas and exterior walls where indicated on the drawings are to be insulated in accordance with NZS 4218:2004. Insulation materials are to be installed in accordance with the manufacturer’s recommendations as follows:

- R3.6 Pink Batts Classic to all ceiling areas indicated on the drawings;
- R2.6 Pink Batts to exterior timber framed walls where indicated on the drawings;

4.20 INTERIOR WALL LININGS

Fix 10mm Gibraltar Board to all timber framed walls to complete the works all in accordance with the manufacturers instructions and technical information attached in the Supporting Documents.

Fix 10mm Aqualine Gibraltar Board to wet room walls.

Refer to the Supporting Documents for technical information regarding Gib Board fixing and to specialist areas such as wet areas. Construct recesses etc into walls as directed by the Principal.

Check fixings where contributing to wall bracing and ensure that these are inspected before stopping is carried out over these.

All pipes and penetrations are to be neatly cut out or drilled with minimal clearances.

Flushboxes and switchboards etc are to be neatly and accurately cut out.

Stopping to all Gibraltar board and Villaboard areas is covered under the PLASTERER sub-trade.

4.21 INTERIOR CEILING LININGS

Fix 13mm Gibraltar Board to ceiling battens generally to all ceiling areas using "gib fix:" adhesive and Gypsum drywall 25mm x 6 gauge screws over Rondo or equal metal ceiling battens all in accordance with the written manufacturers' instructions.

Fix 13mm Aqualine Gibraltar Board to bathroom ceilings.

Stopping to all Gibraltar Board areas is covered under the PLASTERER sub-trade.

4.22 INTERNAL SKIRTING ETC

Supply and fix 60mm & 85mm x 12mm square pre-painted MDF skirtings where shown on the drawings or directed in the Holloway Builders Specification to fully complete the project.

4.23 INTERIOR JOINERY GENERALLY

Manufacture and install all interior joinery as shown on the drawings or specified in the Contract. The Joiner shall allow for the supply of hinges and drawer runners etc fixed in position and deliver to site.

Internal doors are to be pre-hung as per the separate Holloway Builders Specification. Generally doors are to be 810mm leaf width unless noted or agreed otherwise.

Manufacture and fix the internal stairs ex 25mm MDF with Radiata stringers in accordance with the drawings. Allow to measure on-site and fabricate accordingly.

Supply and install timber handrail with standoff brackets to fully comply with NZBC D1.

Supply and install all kitchen joinery to further details supplied later in the Contract.

The Carpenter shall take delivery of and install, fit, ease, and adjust all joinery on site and leave in good working order at Practical Completion.

4.24 WARDROBES AND CUPBOARDS

All wardrobes and cupboards are to be lined with Gibraltar Board and stopped as per the timber framed interior walls.

WARDROBES

Supply and fix shelving and hanging rails to further details supplied or agreed.

GENERAL CUPBOARDS

Supply and fix shelving to further details supplied or agreed.

LINEN CUPBOARDS

Supply and fix slatted shelving to further details supplied or agreed.

4.25 EXTERIOR JOINERY

Aluminium Joinery:

The fixing of all aluminium windows and doors forms part of this contract. Refer to the ALUMINIUM JOINERY section of this specification for further details.

Main Garage Door:

Supply and install Dominator Valero flat panel sectional garage door with automatic opener and remote controls. The installation is to be completed in accordance with the details on the drawings and the manufacturers written installation instructions.

Aluminium Joinery:

Supply and install Juralco Homestead Aluminium Full Height Face fixed and glazed balustrade system with gutter brackets where required to the first floor deck.

4.26 EXTERIOR LININGS / CLADDING

JAMES HARDIE TITAN BOARD

Supply and fix James Hardie Titan Board cladding to the exterior of the dwelling in full accordance with the manufacturers installation recommendations and details shown on the drawings over the proprietary cavity batten system.

Refer to the manufacturers approved written installation instructions and technical data included in the Supporting Documents.

Include for fixing cavity battens and all flashings and trim including aluminium flashings as detailed or implied to fully complete the works to the approval of the Principal.

JAMES HARDIE AXON PANEL

Supply and fix James Hardie Axon Panel cladding to the exterior of the dwelling in full accordance with the manufacturers installation recommendations and details shown on the drawings over the proprietary cavity batten system.

Refer to the manufacturers approved written installation instructions and technical data included in the Supporting Documents.

Include for fixing cavity battens and all flashings and trim including aluminium flashings as detailed or implied to fully complete the works to the approval of the Principal.

4.27 HARDWARE

Supply and all hardware specified in the Holloway Builders specification to fully complete the Contract. Hardware pre-fitted before the completion of other trades shall be protected or removed for the Painter.

4.28 COMPLETION

Leave all areas clean and tidy at the finish of the Contract and make good any defective work.

5.0 STRUCTURAL STEELWORK

5.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections and in conjunction with the separate HFC Structural Engineers drawings and documentation which takes precedence should any conflict occur.

5.2 SCOPE

This section of the contract covers the supply, fabrication, priming and erection of all the steelwork shown or indicated by the drawings. All structural steel shall be complete with cleats, bolts, holes etc. as detailed in the drawings or required by this Specification.

5.3 MATERIALS AND WORKMANSHIP

Adhere to the relevant requirements of NZS 3404:1997 and the General Specification for the Fabrication and Erection of Structural Steel published by HERA.

5.4 STEEL

Provide mild steel (300 MPa) of approved origin conforming to Standard Specifications as follows:-

Rolled Sections	BHP 300 plus
Plates	AS 3678 – 250

5.5 ELECTRODES

Provide good quality covered mild steel electrodes conforming to the requirements of BS 639 Electrodes Class A, and such that the tensile strength of the metal deposit is not less than 430 MPa.

5.6 WELDING

Welded connections shall be as shown on the drawings and carried out by qualified operators in accordance with NZS 1554.1:2004, NZS 1554.2:2003, NZS 1554.3:2002, NZS 1554.4:2004, NZS 1554.5:2004, NZS 1554.6:1994. Permission for butt welds shall be obtained in advance. Welds exposed in the finished building and in particular butt welds of stock lengths shall be neatly finished. Butt welds shall be ground smooth.

Thoroughly clean the faces to be welded and the surrounding area to a minimum of 12mm from the weld. Prepare fusion faces by shearing, chipping, machining, machine gas cutting, grinding or filing to approval.

Ensure that the parts to be welded are securely held in their relative positions during welding.

Arrange the sequence of welding to minimise distortion. Correct unavoidable distortion. The operation of the welding plant shall provide good clean metal uniformly deposited with an even contour indicating adequate fusion with the parent metal.

Seal all joints by welding. Remove slag after each welding run.

5.7 WELDING DEFECTS

Penetration, slag exclusion and weld form shall be to the standard required by NZS1554 Class B.

Defects disclosed by inspection or radiography shall be cut out and remade.

Where welding defects are disclosed, radiography of further welds may be ordered at the Contractor's expense.

5.8 BOLTS AND HOLES

Bolts, nuts and washers shall conform to the following requirements:-

Grade 4.6 screws, bolts AS 1111

Grade 4.6 nuts AS 1112

Grade 8.8 bolts, nuts & washers AS / NZS 1252:1996

Provide bolts of correct length so that the threaded portion does not extend within the parts bolted.

Use washers to prevent nuts binding on the bottom of threads.

Provide single coil lockwashers, self-locking nuts, or nuts and locknuts as approved for all bolts.

Holes for bolts shall be drilled or punched, and not gas cut.

Drill the holes required for all fixings of and to steelwork.

Supply holding down bolts and weld plates for building into concrete work and concrete masonry for fixing steel.

5.9 STEELWORK FINISHES

All steelwork shall be thoroughly cleaned down after fabrication to remove all oil, grease, dirt, rust and foreign matter.

Paint all steelwork (except that to be galvanised) with two coats of primer in the shop to a thickness of 0.1mm. After erection, all damaged areas shall be cleaned and painted with two coats of primer of the same thickness.

The primer shall be Ameron Rust Arrest Primer or approved alternative applied in accordance with their recommendations. Apply all primer by brush application.

All steelwork that is exposed is to be hot dip galvanized before erection.

5.10 ERECTION

Erection procedures shall be agreed in advance with the Main Contractor.

Provide adequate temporary bracing and anchorage to stabilize the structure until permanent bracing and associated elements of the structural system are completed.

Ensure that fabricated sections are not overstrained in handling.

Keep steelwork true to dimension, plumb and level. Carry out welding of erection connections when each section is true and square.

Complete final welding up before further loads are added to the structure.

6.0 ROOFING

6.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections.

6.2 EXTENT OF WORK

This section of the works covers the supply by the contractor or his subcontractor of all materials, tools, equipment, transportation, labour and supervision required to fix, complete and leave in weather tight conditions all roofing, underlay and associated flashings shown on the drawings.

6.3 RESTRICTED BUILDING WORK

Roofing work for this category of building is Restricted Building Work (RBW) as defined in the Building Act and must be carried out by a Licenced Building Practitioner (LBP) carrying an appropriate and current Licence.

Refer also to the P&G clauses of this Specification regarding this and the requirements of the LBP to supply the Principal with a Record of Work form covering all aspects of the restricted work that they have performed. Record of Work forms must be provided to cover all areas of the roofing work whether the work is carried out by one or more persons under separate contracts for different parts of the work.

6.4 MATERIALS AND WORKMANSHIP

The whole of the work shall be carried out by competent tradespeople and with materials specified and shown on the drawings which shall be of the best of their respected kinds and without defects. All work and materials shall comply with the manufacturers specification, the relevant New Zealand Standard and the New Zealand Building Code. See NZBC E2/AS1. All roof fixing shall be suitable for a Medium Wind Zone and Exposure Zone C.

Laying of roofing, cladding and related operations shall be executed only by experienced tradesmen, in accordance with the respective manufacturer's printed instructions. Licensed applicators shall be used for the work.

Prior to commencement of laying roofing and claddings, the sub-contractor shall inspect surfaces or supports which are to receive roofing. The sub-contractor shall notify the Contractor in writing of any serious defect or condition of surfaces or supports that will interfere with or prevent achievement of a first class standard of workmanship. The sub-contractor shall not proceed with any work until such defects or conditions have been corrected.

The commencement of work in an area shall imply that the sub-contractor has accepted the prepared surface or supports in that area.

Should any defects appear before completion of the work or before termination of the defects liability period, the defective areas shall be removed and replaced at the sub-contractor's expense to the satisfaction of the Contractor and Principal.

Care shall be taken to ensure that all fittings and adjoining surfaces etc. are kept free from all damage, splashings, etc. Any fitting or surface scratched or otherwise damaged by the subcontractor shall be replaced or repaired to original appearance and finish, at the sub-contractor's expense.

6.5 DRAWINGS AND SPECIFICATIONS

These should be read in conjunction with each other as they mutually explain the intent. Should any doubtful item exist, this should be clarified with the Principal at the time of tendering.

6.6 SUBCONTRACTORS CO-OPERATION

Co-operate with the Building Contractor and other Sub-Contractors in all phases of work. Give ample notice to enable the Contractor to arrange the necessary fixings etc.

6.7 SUBCONTRACTORS RESPONSIBILITY

The Sub-Contractor's attention is drawn to his responsibility to the Main Contractor. The subcontractor shall be responsible for the quality of the workmanship of his section of the work, for protecting against any damage from any cause and for all making good at his own expense.

The drawings and specifications are intended to show the general nature of the scope of the work and do not purport to show full and minute details.

6.8 ROOF FRAMING AND WALLS

Roof framing shall provide adequate support and fixings for cladding. No member shall be overloaded by landing heavy, localised, stacks of cladding on them prior to fixing, and temporary braces as might be necessary shall be provided in walls below to sustain such loading until roof cladding is complete and wall linings subsequently fixed.

6.9 PREPARATORY WORK

Provide all valleys and under flashings before roof cladding commences. Ensure all edges of roof cladding are adequately supported around projections such as pipes etc.

Lay stainless steel wire mesh over purlins ahead of the roof underlay installation.

6.10 ROOF UNDERLAY / MOISTURE CONTROL

Supply and fix Thermakraft 215 roof underlay where shown or required. Fixing for all underlay is to be in strict accordance with the manufacturer's written instructions.

Roof Underlays are to comply with NZBC E3/AS1.

6.11 METAL ROOFING

To areas indicated fix 0.4mm Colorsteel 5 Rib longrun roofing.

Fix 0.55mm Colorsteel Endura flashings, upstands and cappings to sizes shown to all edges of roofing as detailed on the drawings and to manufacturer's specifications and with adequate allowance for expansion.

Fixings are to be Class 3 or 4 self drilling construction screws complying with AS3566.

Stainless Steel screw fixings are not to be used.

The whole of the roof is to be fixed strictly in accordance with the manufacturer's specification for Exposure Zone C.

Include to provide all cappings and flashings shown on the drawings or indicated by the documents to fully waterproof the entire structure.

Provide all penetrations to the manufacturer's detail sheets.

Flashings are to be notched where appropriate to all steps, ridges, stop end, penetrations etc to the manufacturer details.

Lap flashings, lapping a minimum of 200mm over the roofing sheets; all to suit profile and turned down into roofing pans. Form expansion gaps in lengths as necessary and stop end and overflash, all in accordance with the manufacturer's recommendations.

Materials selected shall be set out and fixed by approved fixers and all shall be in accordance with the manufacturers' specification and in all cases with NZS Specification or others where appropriate.

Licensed applicators shall be used for the work.

See also NZBC E2 / AS1 Clause 1.0 Roofs.

Thoroughly clean off all swarf during construction, and do not allow swarf to adhere to surfaces.

6.12 MEMBRANE ROOFING

The work in this trade shall include the supply of all labour, materials, plant and equipment for the complete membrane roofing including all upstands as detailed.

The Roofing Contractor shall inspect the substrate which shall be finished as follows:

Plywood Sheet shall be fixed with stainless steel screws and be well countersunk.

All joints are flush and even uniform finish.

All indentations are filled with approved filling compound.

Include for all flashings, sumps, outlets and overflows shown on the drawings and required for a complete job.

Supply and install 1.0 mm Ardex Butynol membrane roofing to low pitched balcony area shown on the drawings.

All Butynol work shall be carried out in accordance with the manufacturer's approved installation instructions by approved fixers.

6.13 FASCIA / GUTTER

Supply and install 0.55mm minimum Colorsteel Endura Multiline fascia / guttering in approved colour to the areas shown on the drawings all in accordance with the manufacturer's approved installation instructions by approved fixers.

Provide outlets where shown in the spouting for downpipes.

6.14 DOWNPIPES

Supply and fix 80mm diameter 0.55mm Colorsteel Endura downpipes fitted with matching standard holderbat type brackets to positions shown on the drawings.

6.15 ROOF FRAMING AND WALLS

On completion of the work, carefully clean down thoroughly remove all rubbish including iron filings, nails, screws and other material from the roof surface and out of the gutters and leave in a first class condition.

6.16 GUARANTEES

The Roofing Contractor shall furnish to the main contractor who shall in turn provide to the Principal a full and effective written guarantee that the whole of the work contained in this Sub-contract will remain free from any defects to materials for a period of 15 (fifteen) years and workmanship for a period of 5 (five) years for the membrane roofing both effective from the date of "Practical Completion" as defined in the contract documents.

Such guarantees shall cover the full making good of any defects that may appear and the rectification of any damage consequent upon defective workmanship or materials of this subcontractor.

7.0 ALUMINIUM JOINERY

7.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections.

7.2 EXTENT OF WORK

The work covered in this section of the specification consists of the supply and delivery to site of all Fairview aluminium windows and doors where shown or required for the Contract complete with the supply and fitting of all necessary hardware, glazing and flashings.

7.3 STANDARDS

The drawings and specifications relating to the metal windows and glazing subcontract illustrate methods and details which are believed to comply with the requirements of the standards listed below.

The aluminium joinery for the Contract shall be from the Fairview Architectural Suite noted in the Holloway Builders Specification.

It shall be the responsibility of the metal window and glazing subcontractor to ensure that they fully comply with the requirements of the following standards:

NZS 4211:1985 Performance of Windows.

NZS 3504:1988 Specification for Aluminium Windows.

AAA (NZ) NZ Standard for powder coatings on architectural aluminium products.

7.4 PERFORMANCE REQUIREMENTS

All aluminium windows, supplied under this contract shall conform to the performance standards listed in NZS 4211:1985 and in particular meet the following performance requirements.

Frame members shall be of such sections as will comply with the deflection requirements of NZS 4211 for the winds loads specified therein plus a 10% margin.

Air leakage shall be Grade C (low resistance).

Compliance of windows to the above criteria shall be displayed on all windows delivered to the site by means of the AAA label affixed to the top right hand corner of the window frame.

Aluminium Joinery is to be suitable for a Medium Wind Zone and Exposure Zone C.

7.5 MATERIALS AND WORKMANSHIP

The aluminium window and door frames shall be manufactured by an approved Fairview fabricator and shall meet the requirements of NZS 3504 and NZS 4211.

The units shall be complete with glazing, hardware and all flashings, etc.

All aluminium joinery is to have a rating of Grade A in accordance with NZS 4211.

Submit samples on request of full sizes of sections of all profiles to be used and shop drawings of assemblies, fixings, hardware etc.

Provide evidence that the windows will comply with the requirements of NZS 4211.

The manufacturer is to confirm all opening dimensions on-site prior to commencing manufacture of related items.

7.6 POWDER COATING

All aluminium sections are to be powdercoated with a Polyester gloss colour to be selected by the Principal.

The powdercoating is to conform to AAMA2603 suitable for Exposure Zone C.

The coating shall be applied by a reputable applicator and have a minimum thickness of 60 – 70 microns.

7.7 REVEALS / JAMB LINERS

Fit 25 mm H3.2 treated Pinus Radiata grooved reveals to all windows and exterior doors where detailed.

Check wall framing and cladding thicknesses before ordering aluminium joinery units and provide reveals of a required depth as appropriate.

Reveals are to be pre-primed all round ready for a painted finish before fixing into position.

7.8 INSTALLATION

Install all aluminium windows and doors, plumb, straight, square and level in accordance with good trade practice and in compliance with NZS 3504. The fixing of all frames and sub-frames to the building opening structure shall be by the use of proprietary fixing sections and lugs, packed and adjusted to level plane using plastic or nylon packing shims.

Where possible direct fixing through the channel of the frame shall be avoided so as to avoid the likelihood of weather penetrating at the fixing and where such fixings are unavoidable they shall be fully and effectively but neatly sealed.

Fix “inseal” or equal flexible airseal around reveals against timber packers to comply with NZBC E2/AS1 requirements.

7.9 HARDWARE

All hardware shall be of the best quality.

Details of the type of hardware proposed are to be supplied at the time of Tendering.

Supply samples of the hardware to the Principal for approval before being incorporated into the work.

All hardware shall be supplied, fixed adjusted and left in perfect working order as part of this sub-contract.

7.10 GLAZING

Carry out the glazing as required ensuring the structural and weather-tight performance of the glazing in accordance with all parts of NZS 4223 and the NZBC.

Glass shall be supplied and cut to accurate size with edges clean and undamaged and shall be of the best quality of approved manufacture. Surfaces are not to be disfigured and shall be free of blemishes.

All glazing work shall be carried out by skilled tradesmen in accordance with best trade practice.

All glass shall generally be clear standard double glazed.

Safety glass is to be fitted as required by the Standards.

Obscure glass shall be fitted to bathrooms or separate WC rooms and shall be “Etchlite”.

7.11 SEALANTS AND GLAZING COMPOUNDS

Mastic for all mastic fillets and carcass of frame assemblies shall be butyl mastic or equal approved, liberally applied with a gun using a free-flow general purpose nozzle to produce fillets commensurate with the best trade practice and as shown on the future details supplied by the window manufacturer.

Glazing sealants for aluminium framed windows shall be BR606 Butyl mastic sealant as inside seal and Thermoplastic polymer glazing gaskets as primary external seal.

Special care shall be taken to ensure that all gaskets are sufficiently relaxed before and during installation to ensure a proper and adequate seal.

7.12 SIZES

All window frames shall be purpose made to fit exactly the individual openings. Any errors in sizes shall be the manufacturer's responsibility and shall be corrected at his expense.

7.13 PROTECTION AND CLEANING

Provide adequate protection for all aluminium joinery during the entire building process to ensure that in particular the aluminium coatings are not marked or the extrusions damaged by all other trades. Make good or replace any aluminium joinery that becomes damaged during the construction process to the satisfaction of the Principal.

Identify glazed openings with colourful flags or tape, suspended near but not in contact with the glass. Do not mark or coat the glass completely or partially with X's or other symbols, or attach any other material whatsoever. Wash, rinse and dry glass at completion.

Use soft, clean, grit free cloths, mild soap, detergent or a slightly acidic cleaning solution; follow immediately with a clean squeegee.

Remove any grease or glazing material stains with suitable commercial solvents and follow with normal wash and rinse. The window washing process shall include the washing of the window frames.

7.14 GUARANTEES

The aluminium window subcontractor shall furnish to the Main Contractor who shall in turn provide to the Principal a full and effective written guarantee that the whole of the new work contained in this subcontract will remain free from any defects in both materials and/or workmanship for a period of 2 (two) years effective from the date of 'Practical Completion' as defined in the contract documents.

Such guarantees shall cover the full making good of any defects that may appear and the rectification of any damage consequent upon defective workmanship or materials of this subcontractor.

8.0 BRICKLAYER

8.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this specification which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections.

8.2 EXTENT OF WORK

This section of the work involves the following areas:

- Brick veneer to the exterior walls of the dwelling;

8.3 RELEVANT SPECIFICATIONS

All work shall be in accordance with the requirements of NZS 3604:1999, NZS 4210:2001, NZBC E2/AS1 and NZBC B1.

8.4 MATERIALS

- | | |
|-------------------|--|
| Bricks: | <ul style="list-style-type: none"> - Bricks for the project are to be 70mm Midland Mora selected by the Principal later in the Contract. - All fair face brickwork shall be laid with their best face outwards. |
| Sand for Mortars: | <ul style="list-style-type: none"> - Sand used shall be Mercer No. 1 sand and / or shall comply with the relevant clauses of NZS 3103:1991 Specification for sands for mortars and plasters. |
| Cement: | <ul style="list-style-type: none"> - Shall be ordinary Portland Cement and at the time of use shall comply with NZS 3122:1995 Specification for Portland and blended cements. |
| Plasticisers: | <ul style="list-style-type: none"> - 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 retempering mortars. |
| Water: | <ul style="list-style-type: none"> - Shall be drinking quality. |

8.5 BUILDING WRAP

Refer to the CARPENTRY section of this specification. Building wrap shall be run horizontally and well secured to outside face of framing from bearer to top plate. Repair tears and holes before constructing veneer. See NZBC E2/AS1.

8.6 MORTAR

Mortar shall be prepared by mixing in an approved mixer. Measurement of materials shall be by volume using suitable containers. 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. Mortar not used in this time shall be discarded.

8.7 BRICK VENEER

Construct brick veneer in stretcher bond true to line, level and plumb.

Fix approved face fixed ties at 600mm horizontal & approx 345mm vertical spacing's (every fourth course) in accordance with NZS 4210 and with materials and workmanship to NZS 4210:2001 Masonry construction: Materials and workmanship.

Ties shall be standard heavy duty 85mm galvanised screw fixed brick ties. The tie must be positioned in the middle of the mortar course so mortar is above and below the tie and extend a minimum of half way into the mortar course. The end of the brick tie must have a minimum of 15mm cover. Allow for approximately 5 ties per square metre of wall or 110 per 1000 bricks.

A cavity of not less than 40mm and not more than 75mm shall be maintained between building wrap and veneer.

Weep holes shall be left in every third joint at foundation course for the discharge of water and a ventilation gap to be left at top, below soffit lining.

All work shall be laid from the lowest corner and no corner shall be raised more than 900mm above wall lines. Corners shall be racked back.

All joints to be completely filled with mortar and the bricks shall be disturbed as little as possible after initial positioning. Joints shall, unless otherwise specified, be not more than 10mm thick and shall be tooled as directed as work proceeds.

Keep pipes or electrical wire, junction boxes etc, out of the cavity, thoroughly clean down the face of work on completion and leave free of mortar stains and efflorescence.

8.8 COMPLETION

Leave all clean and tidy at finish and make good any defective work.

9.0 PLASTERER

9.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections.

9.2 EXTENT OF WORK

This section of the work involves the following areas:

- Gibraltar board stopping to interior walls and ceilings.
- Solid cement plaster to exposed foundations if required.

9.3 MATERIALS AND WORKMANSHIP

All work under this section shall comply with the relevant best trade practices for the work being carried out.

All wiring shall be pulled through linings by the Plasterer.

Areas that do not achieve the required surface finishes are to be referred to the Principal for further remedial instructions.

9.4 PREPARATION OF SURFACES

The Plasterer shall inspect all surfaces to be covered and shall report to the Principal any finishes or surfaces which will not give the required finish. Failure to examine and report will be construed as an acceptance that the preparatory work is satisfactory.

9.5 GIBRALTAR BOARD STOPPING

All Gibraltar board stopping and plastering is to be carried out to best trade practice using the latest methods. All joints are to be filled and taped before any plastering is to be applied.

Internal corners are to be finished neat and square using "Gib Goldline" tape. Where butt joints occur on framing, build up only a minimum thickness of jointing materials to keep the surface as even as possible.

Finishing is to be carried out to level 4.

9.6 PROTECTION

Protect all work from weather and dust and provide protection from other work against all plaster drops, stains and other defects.

9.7 COMPLETION AND CLEAN UP

At completion the Plastering Subcontractor shall remove all masking tape and protective surfaces, remove splatters off all adjoining surfaces and leave all surfaces clean.

10.0 PLUMBER

10.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections.

10.2 EXTENT OF WORK

This section of the contract in general consists of the complete plumbing work for the buildings as shown on the drawings and as specified herein.

The Plumber shall arrange all permits, connections and pay all testing fees.

Refer to the separate Holloway Builders Specification in the Supporting Documents file for details of the fixtures and fittings for the project.

10.3 WORKMANSHIP

All work shall conform to the requirements of BIA Approved Documents specifically B2, G12 AS1 & G13 AS1 and the Local Authority Inspector, Local Authority By-Laws and Good Trade Practice of sound repute by competent craftsmen using equipment, materials and processes that are best suited for the purpose and shall be of a high standard.

Inclusion of roof flashings, provision of roof drainage and other general flashing requirements in this section shall mean that all shall be of the quality expected of work customarily done by Plumbers.

No connections to sanitary fittings or Council Mains shall be made except by a Registered Plumber.

10.4 CO-OPERATE

Co-operate with all other trades in this contract.

10.5 FLASHINGS

Wherever possible use flashings that are readily available but purpose made by the roof cladding manufacturer to suit the roofing material and profile selected.

10.6 COLD WATER SUPPLY

Run main service pipes to the new dwelling not less than 450mm below finished ground level with entry through or under the wall foundations. Lay the service mains in a snake pattern in the trench to provide extra length if extension should occur in the future due to ground movement.

Where the pipes penetrate the foundation or floor slab, a duct/sleeve 125mm diameter greater than the pipe is to be installed to allow the pipe to move independently.

Provide 20mm main runs internally through the dwelling including to the hot water cylinder and hose taps in an approved polybutylene system with 12mm connections to all fittings. All branches are to be as short, straight and at as even gradient as possible with easybends used throughout (not elbow fittings).

Use only approved connections throughout. All pipes are to be adequately supported, well secured and where possible concealed.

10.7 HOT WATER SUPPLY

Supply and fit a 300 Litre Rheem mains pressure hot water cylinder complete with element, suitable valve pack and drained safe tray to the position shown on the drawings.

The cylinder is to be installed in accordance with NZBC G12 / AS1, in particular Figure 8 for pipework, Figure 14 for seismic restraint of cylinder and Figure 16b for tempering valve on hot water outlet & Figure 12b relief valve drains. Vent pipes to be 20mm min copper and connected to a gully trap.

The delivered hot water temperature at any sanitary fixture used for personal hygiene shall not exceed 55°C.

Equipotential bonding conductors shall be installed in accordance with NZBC G12/AS1 9.0 in particular Figure 19 for water supply and Figure 20 for metallic sanitary fittings.

The hot water cylinder heater control thermostat shall be set at a temperature of not less than 60 degrees Celcius to prevent the growth of Legionella bacteria.

For clarification, restrain cylinder with 3 No. 25 x 1mm galvanised steel straps tensioned when fixed in place. Straps are to be fixed to solid framing with 1 No. 8mm coach screws each with a 30 x 2mm thick washer.

Provide 20mm main runs internally through the dwelling including to the hot water cylinder and hose taps in Dux Secura polybutylene with 12mm connections to all fittings.

Use only approved connections throughout. All pipes are to be adequately supported, well secured and where possible concealed.

10.8 SANITARY FITTINGS ETC

Supply and install all sanitary fittings agreed with the Principal to the manufacturer's approved installation instructions.

Sanitary fittings shall comply with BIA Approved Documents G1/AS1 PERSONAL HYGIENE.

10.9 TAPS, FAUCETS AND VALVES

Supply and install any isolation valves normally required to isolate the water supply system. Provide an isolation valve on the incoming main in an easily accessible position.

Supply and install all tapware agreed with the Principal to the manufacturer's approved installation instructions.

Supply and fix 2 No. brass exterior hose taps where directed by the Principal at an appropriate height above the adjacent finished ground level.

10.10 WASTES AND VENTS

Provide and install all necessary traps, wastes pipes, soil stacks, back vents and terminal vents. Provide cleaning eyes to all waste pipes at junctions and all necessary overflow pipes to fully complete the works.

Refer to Figure 5.14 of the DBH Guidance Document regarding waste pipes passing through beams and ribs in the foundation and provide sleeves or wraps as indicated to all penetrations in an approved manner. This also applies for wall penetrations.

Thermal movement along waste pipes resulting from temperature changes shall be provided in accordance with AS/NZS 2032 for uPVC pipework.

All pipework shall be supported in accordance with NZBC G13/AS1 Table 7.

10.11 FIRE

Supply and install the Ravelli Natural 7 Fire where shown on the drawings in full accordance with the manufacturers technical installation literature included in the Supporting Documents. Install a suitably sized flue and flash through roof in accordance with best trade practice. Provide support for flue in accordance with the manufacturers documentation.

10.12 COMPLETION

Leave all clean and tidy at finish and make good any defective work.

10.13 GUARANTEE

The Plumber Contractor shall furnish to the main contractor who shall in turn provide to the Principal a full and effective written guarantee that the exposed pipework will remain free from any defects in both materials and / or workmanship for a period of 5 (five) years and that the concealed plumbing will remain free from any defects in both material and workmanship for a period of 15 (Fifteen) years effective from the date of "Practical Completion" as defined in the contract documents.

Such guarantees shall cover the fully making good of any defects that may appear and the rectification of any damage consequent upon defective workmanship or materials of this subcontractor.

11.0 ELECTRICAL

11.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections.

11.2 EXTENT OF WORK

This subcontract comprises the complete Electrical installation as described in this Specification and shown on the accompanying drawings and includes the supply of all materials and equipment as detailed and all other material necessary to complete the work even if not specifically mentioned herein.

Refer also to the separate Holloway Builders Specification for details of all fixtures and fittings for the project.

11.3 MATERIALS AND WORKMANSHIP

All materials used under this Contract shall be of approved British or New Zealand Standard Specification. Allow for all materials necessary to complete the contract whether specified or not. All work shall be carried out by a Registered Electrician in accordance with regulations and best trade practice and in a manner which will cause minimum inconvenience to other workmen and the work as a whole.

Do all cutting away, drilling etc. and with timber cut the minimum only away for the entry of cables. The substitution of alternative brands of electrical equipment from that stated in this trade section is only permitted with the written approval of the Principal.

11.4 DRAWINGS AND SPECIFICATIONS

These should be read in conjunction with each other as they mutually explain the intent. Should any doubtful item exist, this should be clarified with the Principal at the time of tendering.

11.5 CO-OPERATION

Co-operate with the Main Contractor and other Sub-contractors in all phases of work. Give ample notice to enable the Contractor to arrange the necessary void, chase data etc.

11.6 RESPONSIBILITY

The Electricians attention is drawn to his responsibility to the Main Contractor. The Electrician shall be responsible for the quality of the workmanship of his section of the work, for protecting against any damage from any cause and for making good at his own expense.

The drawings and specifications are intended to show the general nature of the scope of the work and do not purport to show full and minute details.

11.7 INSURANCES

The Electrician shall provide for all statutory insurances and shall make provision in his tender for insurances as set out in the building contract documents as applicable and appropriate to his work.

11.8 REGULATIONS

Carry out the electrical work in strict accordance with NZBC G9 ELECTRICITY and AS/NZS 3000:2018 (Australia / New Zealand Wiring Rules).

11.9 PERMITS AND FEES

The Electrician is to allow to pay any inspection fees and charges and obtain all necessary permits for this trade.

11.10 SLEEVES, DUCTS ETC

It is the Electricians responsibility to give adequate notice to the Main Contractor of any holes, sleeves, ducts etc which may be required by the Electrician. Allow to co-operate fully with other trades in positioning these items as the building work proceeds.

11.11 CIRCUITS IN CONCRETE

All sub-circuits to outlets in concrete work shall be enclosed in PVC conduit and conduit fittings. Take all precautions to ensure that all points or access are maintained free from concrete and mortar, and that all outlets in concrete work are maintained accurately in position during pouring of concrete. Where flush outlets are used, ensure a clean unbroken finish is achieved where exposed beyond the cover plates. Under no circumstances are cables to be laid direct into concrete.

11.12 UNDERGROUND

The Electrical Contractor is to arrange for the laying of an underground service mains cable complete with earthing continuity cable from the street supply to the meter board location on the dwelling where shown on the drawings.

The electrical supply authority is to connect the mains cable to both temporary building supply and the permanent meter box when installed. (It is the Electrician's responsibility to liaise with the Local Supply Authority and in particular to ensure the temporary supply is installed when required.)

Allow for the immediate loadings indicated by this Specification including heating, appliances, fittings, lighting and standard domestic devices plus 20 percent spare capacity over that immediately required.

11.13 MAIN SWITCH/METER BOARDS

Install a PDL or equal flush mounted switch/meter board with double hinged doors where shown on the drawings suitable for the capacity required and future expansion.

The switchboard shall contain termination points for the incoming main from the supply and distribution circuits.

The design and circuit provisions to all boards is the Electricians responsibility to supply space, circuits and controls to suit, neutral and earth bars to accommodate all circuits specified plus 10% spare ways, interconnecting wiring and circuit legend chart.

11.14 SUBCIRCUITS

The exact positioning of all sub-circuit cables and outlets shall be approved by the Principal on-site before being permanently fixed in the building work. The Electrician is to allow spending time on site with the Principal to discuss the installation in detail and confirm final outlet positions.

All sub-circuit cables shall include earth continuity conductors and all cables shall have stranded copper conductors and be insulated for the required duty.

All sub-circuit wiring is to be concealed within the wall linings and ceiling structure of the building, unless specified otherwise. Sub-circuit wiring should be run in the roof or floor space where possible not horizontally inside walls.

11.15 WATER HEATING

Allow for any work associated with the Hot Water installation as required.

11.16 CABLE FIXING ABOVE CEILINGS AND IN ROOF SPACES

In all cases the cable fixing must comply with the 1993 Wiring Regulations.

11.17 CIRCUIT TERMINATIONS

All wall switches and socket outlets shall be provided with NZ Standard pattern flush boxes securely fixed in timber framed walls where shown on the drawings.

11.18 SWITCHED SOCKET OUTLETS

Provide plates in a PDL Iconic series to positions shown on the Electrical Plan. Mount sockets either vertically or horizontally as shown generally 500 off the floor except for plugs above bench tops etc which shall be as shown on the drawings and advised by the Principal.

All outlets shall be in White.

The exact position of all power points shall be determined on site by the Principal before being fixed.

11.19 LIGHT SWITCHING

Mount outlets at positions shown on the drawings 1.0m above floor level. The exact position of all outlets shall be determined on site by the Principal. Provide plates of matching PDL type and fit off to all positions.

11.20 SUPPLY OF LIGHT FITTINGS

Supply and install all lighting as shown on the electrical drawings and selected by the Principal all in accordance with the manufacturers approved installation instructions.

Lighting levels at floor level shall be no less than 20 lux.

11.21 ELECTRICAL APPLIANCES AND FITTINGS

Supply and install all fixed appliances such as Oven, Hob, Heated towel rails etc. as agreed with the Principal with either permanent connections or suitably rated socket type outlets where possible to enable easy removal. Check loadings to all appliances before pre-wiring to these outlets.

11.22 EXTRACT FANS

Supply and install approved extract fans to bathrooms (above shower) in accordance with the manufacturers instructions to positions shown on the drawings ducted to the exterior of the dwelling.

11.23 FLEXIBLE CONNECTIONS

Shall be an approved type and suitable for the proposed duty. The connection shall be minimal length to avoid objects catching on them. Flexible connections to all fittings shall be with white circular flex.

11.24 TELEPHONES

Arrange for an underground telecommunications cable to be installed to the dwelling from the telecommunications network wiring in the street to a Demarcation Point agreed with the Principal.

From the Demarcation point run Cat 6 cabling to all telephone socket outlet positions shown on the drawings. Terminate all cables with RJ45 sockets in matching PDL series plates to match socket outlets etc throughout the dwelling.

The Principal is to make arrangements for the supply of telephones and connection to the network and all fees for the same.

11.25 TELEVISION

Supply, erect and connect complete approved television aerial suitable to this location for digital (freeview) TV including local stations. Run leads to PDL outlets to match where advised by the Principal. Locate aerial on the building where directed by the Principal.

Make provision in each system with wiring looped in the roof space for the future installation of a satellite dish by Others.

11.26 HEATING

Supply and install 2 hi-wall heatpump units where noted on the drawings and in accordance with the Holloway Builders Specification. Locate outdoor units in an agreed location all in accordance with standard trade practice and the manufacturers approved installation instructions.

11.27 SMOKE ALARMS

Supply and install smoke alarms where indicated on the electrical drawings and in accordance with NZS 4514.

Smoke alarms shall be manufactured to at least one of: AS 3786, ISO 12239 or BS EN 14604.

Smoke alarms shall be either hardwired or battery powered and provide a hush facility capable of silencing the alarm for a minimum duration of 60 seconds and incorporate a test facility button.

11.28 COMPLETION AND COMMISSIONING

On completion of this installation test all outlets for polarity, carry out an insulation test, earth loop impedance test and balance out the phases at the main switchboard. Arrange for the Inspection staff to test the entire installation and rectify defects as required.

All items of electrical equipment pertaining to this installation are to be left clean and immaculate.

11.29 AS BUILT DRAWINGS

Provide to the Principal, 2 sets of as-built drawings and specifications complete with manufacturers and suppliers details and specifications and showing location of all buried cables and main routes within the building.

11.30 GUARANTEES

The Electrical contractor shall furnish to the main contractor who shall in turn provide to the Principal a full and effective written guarantee that the whole of the work contained in this subcontract will remain free from any defects in both materials and / or workmanship for a period of 1 (one) year effective from the date of "Practical Completion" as defined in the contract documents. Such guarantees shall cover the full making good of any defects that may appear and the rectification of any damage consequent upon defective workmanship or materials of this subcontractor.

12.0 PAINTER

12.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections including the Holloway Builders specification.

12.2 EXTENT OF WORK

This work comprises of the exterior and interior painting and staining of the building as detailed on the drawings or scheduled below.

12.3 GENERAL

This specification has been written in good faith with information available at the time. It is assumed that the applicator has the necessary experience and equipment to fulfil the requirements of this specification. If any substrate differs or is missing from this specification, please advise the writer.

The specification refers to Resene Paints but other manufacturers products are acceptable provided they are of equal or better quality and warranty.

12.4 DOCUMENTS

12.4.1 DOCUMENTS REFERRED TO

Documents listed below and cited in the clauses that follow are part of this specification.

The OSH documents and Health and Safety Employment Act 1992 take precedence in the event of them being at variance with the cited document.

Documents referred to in this section are:

- Resene One-Line Specifications and Product Data Manual
- Resene - Putting Your Safety First
- Health and Safety at Work Act 2015
- Occupational Health and Safety Service (OSH) publication: Guidelines to the provision of facilities and general safety in the construction industry.
- New Zealand Master Painters Association (Inc): Specification manual and hazard handbook
- New Zealand Master Painters Association (Inc): Painters hazard handbook

12.4.2 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

- The Resene One-Line Specifications and Product Data Manual.

Copies of the above Resene literature are available by phoning 0800 RESENE (0800 737 363) or visiting www.resene.co.nz

12.5 REQUIREMENTS IN COMPLETION OF DEFINED WORKS

12.5.1 CONTROL SAMPLES

Prepare samples of the prepared and finished work if required by the Principal.

Obtain written approval from the Principal's representative before proceeding.

Use the Resene Architectural Sample Box as a basis of standard where appropriate.

Control samples may, after written approval, be used for comparative testing of dry film thicknesses of the complete coating systems.

12.5.2 QUALIFICATION

Painters to be experienced competent workers, familiar with the materials and the techniques specified and with the Resene Paints coating systems.

12.5.3 HEALTH AND SAFETY

Comply with the requirements of the Health and Safety in Employment Act 1992 and the Occupational Safety and Health Service (OSH) publication "Guidelines for the provision of facilities and general safety in the construction industry." If the elimination or isolation of potential hazards is not possible, then minimise hazards in this work on site by using the proper equipment and techniques as required by the Painters Hazard handbook and Resene Putting Your Safety First handbook. The Contractor must supply protective clothing and equipment, inform the Principal's representative as well as the employees and others on site of the hazards and put in place procedures for dealing with emergencies.

Refer to the Occupational Safety and Health Service (OSH) publication "Guidelines for the management of lead-based paint" for the required procedures and precautions when:

- Treating/removing lead-based paint;
- Burning off lead-based paint;
- Sanding off lead-based paint;

Using solvent based paint removers on lead-based paint.

12.5.4 MATERIAL SAFETY DATA SHEETS

Ensure all applicators have read the material safety data sheet for each product prior to use and comply with the required safety procedures. Material safety data sheets for all products can be obtained from Resene Paints (ring 0800 RESENE, or access from www.resene.co.nz). Keep all sheets on site.

12.6 PERFORMANCE

12.6.1 RESENE PAINTS INSPECTION

Permit representatives of Resene Paints to inspect the work in progress and to take samples of their products from site if requested.

12.6.2 INSPECTION OF THE WORK

Inspection of the whole of the work at each of the stages may be made by the Principal. If inspection is required, agree on a programme that will facilitate such inspection, including notification when each part and stage of the work is ready for inspection prior to the work commencing.

12.7 MATERIALS

12.7.1 MATERIALS GENERALLY

All coatings to be Resene Paints products (which are guaranteed for consistency and performance under ISO 9002 and NZ PASS) prepared, mixed and applied as directed in the Resene Paints One-Line Specifications and Product Data Manual.

Paint containers not in use are to have their lids or closures firmly affixed to prevent evaporation and contamination from foreign bodies.

12.7.2 COLOURS

Allow at the tender stage for colours made from a white base. Colours that vary from this when instructed by the Principal shall be treated as a variation to the contract as laid out in the Preliminary and General section of this Specification.

Large wall areas that require more than one container of paint per coat should have enough paint boxed together to complete the final coat. This will not apply if a single factory batch of paint, rather than a shop tinted paint, is applied.

A schedule of colours will be supplied by the Principal prior to the commencement of the painting work. No final coat colours to be applied until approved by the Principal.

12.7.3 PAINT SYSTEMS

Apply the listed Resene Paints systems for the accompanying substrates as per the coatings' schedule.

12.7.4 THINNERS/ADDITIVES

Use only if and when expressly directed by Resene Paints for their particular product in a particular application.

12.8 CONDITIONS

12.8.1 EXECUTION

To conform with the required trade practice, which shall be deemed to include those methods, practices and techniques contained in the New Zealand Master Painters Association (Inc): Specification manual and the Occupational Safety and Health (OSH) publication: "Guidelines for the provision of facilities and general safety in the construction industry."

12.8.2 TREATED SURFACES

Where surfaces have been treated with curing agents, preservatives, fire retardants, or similar, check with the treatment manufacturer that the coating materials are compatible with the treatment and do not inhibit its performance. If they are not compatible, obtain instructions from the treatment manufacturer before proceeding.

12.8.3 ANCILLARY SURFACES

The descriptions of areas to be coated given in schedules and elsewhere are of necessity simplified. Coat all ancillary exposed surfaces to match similar or adjacent materials or areas, except where a fair-faced natural finish is required or items are completely prefinished. In cases of doubt obtain written instructions from the Principal's representative before proceeding.

The Contractor must complete any work obviously necessary for the proper and entire completion of the contract even if not specifically covered by this specification without extra cost to the principal.

12.8.4 HARDWARE

Do not paint hinges or hardware that cannot be removed. Before commencing work carefully remove all hardware, fixtures and fittings, set aside where they cannot be damaged or misplaced and replace on completion.

12.8.5 PROTECTION

Supply, lay and fix all dropsheets, coverings and masking necessary to protect non-specified surfaces, adjoining, fixtures, fittings and spaces from paint drops, spots, spray and damage.

12.9 APPLICATION – PREPARATORY WORK

12.9.1 SURFACE PREPARATION

Refer to the Resene Paints One-Line Specifications and Product Data Manual for surface preparation sheets listed in the materials systems schedule clauses. Carry out all the preparatory work required by them for each of the substrates.

Use Resene Broadwall Surface Prep. as a surfacer to achieve a Level 5 finish on interior wallboards if and where specified. (Not required for this Contract).

The painter shall inspect all surfaces to be covered and shall report to the Principal any finishes or surfaces which will not give the required finish. Failure to examine and report will be construed as an acceptance that the preparatory work is satisfactory.

Refer to the Fire Safety Summary where appropriate for Spread Of Flame Index (SFI) and Smoke Development Index (SDI) surface finish properties. All surfaces finishes shall comply with the Fire Safety Summary.

12.9.2 LEAD-BASED PAINT, ASBESTOS

If present, handle lead-based paint and asbestos as required by the New Zealand Master Painters Association (Inc): Painters hazard handbook, the Resene Putting Your Safety First booklet and the Occupational Safety and Health (OSH) publication: Guidelines for the management of lead-based paint.

For further information read "Report of the Asbestos Advisory Committee to the Minister of Labour - April 1999" or contact Resene Paints Limited. Removal and/or disposal of asbestos containing materials may require special permission and a license. Contact your local Council office to determine your obligations under their bylaws.

12.9.3 SHARP EDGES

Sand sharp edges on timber to a rounded profile to ensure adequate paint cover. Apply a stripe coat of each specified coating on steelwork sharp edges and welds, in addition to the specified coat, to achieve the correct film build and maximise the potential of the paint system. Sand, grind or file sharp edges on other substrates to a rounded profile where practicable.

12.9.4 REMEDIAL WORK

If any substrate or surface cannot be brought up to a standard that will allow painting or clear finishing of the required standard then do not proceed until remedial work is carried out.

12.9.5 GAP FILLING

Thoroughly clean and prepare cracks, holes, indented and damaged surfaces for filling. A special primer is needed with many substrates, while on others the filler can interfere with the coating.

Check carefully and only use fillers in strict accordance with the manufacturer's directions.

Elastomeric sealants that can tolerate 30% movement should only be used where gaps exist between different substrates or for expansion joints.

Do not use elastomeric sealants for general hole filling.

Do not paint over elastomeric sealants because they are liable to bleed plasticiser and are much more flexible than the paint. Fillers such as Resene Jointflex or Resene Epox-O-Bond Epoxy Filler are recommended on exterior concrete and interior concrete in wet areas.

12.9.6 SEALANTS

Where sealants are required, check with the sealant manufacturer regarding correct priming and that overcoating materials are compatible with the sealant and do not inhibit its performance. If they are not compatible, obtain instructions from the sealant manufacturer before proceeding.

12.9.7 OFF SITE WORK

Carry out all this work, where possible under cover, in a suitable environment with suitable lighting. Store all items, both before and after coating, in a clean, dry area protected from the weather and mechanical damage properly stacked and spaced to allow air circulation and to prevent sticking.

12.9.8 PRIMING TIMBER JOINERY

Ensure L.O.S.P. treated joinery has dried sufficiently to lose all solvent odour. Pre-treat bare timber with Resene TimberLock (Data Sheet D48) to improve the durability of subsequent coats.

Allow Resene TimberLock to dry for 24 hours then wipe off any still tacky material with a Turps wet rag. Liberally coat end grain, allow to soak in and then recoat.

After Resene TimberLock has dried, prime with Resene Wood Primer or Resene Quick Dry Acrylic Primer Undercoat.

12.9.9 CONCEALED JOINERY SURFACES

Where off-site coatings are specified they must be applied to all surfaces especially including those concealed when incorporated into the building.

12.9.10 CONCEALED METAL SURFACES

Apply primer to all surfaces that are to be concealed when incorporated into the building.

12.9.11 EXTERNAL DOORS

Prime or seal and paint all edges before hanging.

12.9.12 BEAD GLAZING

Joinery to be stained, varnished or painted to have the first two coats, or the primer and one undercoat, applied to rebates and beads before glazing. This is especially important with clears. Resene TimberLock is strongly recommended, particularly if there is a risk of water ponding.

12.9.13 PUTTY FRONTING

According to the putty manufacturer's instructions allow putty to harden, then prime with Resene Wood Primer (Data Sheet D40) or Resene Quick Dry Acrylic Primer Undercoat (Data Sheet D45). Fully protect the putty by completing the Resene coating system as soon as it is sufficiently firm.

12.10 APPLICATION – GENERALLY

12.10.1 PAINTING GENERALLY

Comply with the Resene Paints One-Line Specifications and Product Data Sheets, product labels and the additional requirements of this work section.

All paints must be brought onto the job by the Contractor in their original sealed containers and be made available for inspection prior to application. Any materials supplied by the Contractor that differ from the material specified in this contract must be immediately removed from the job by the Contractor upon the Contractor being requested to do so.

No painting shall begin on any area until the approval of the Principal's representative is given.

Priming coat shall be brushed into the surface to be painted to completely cover the whole surface and NOT flowed on. All exterior woodwork and metal work specified to be painted shall be primed on all faces before fixed in position. Priming shall not be exposed for more than four weeks before receiving the next coat. Signs of deterioration shall be reprimed at no expense to the Employer.

Priming for all metalwork before being fixed in position is specified under STRUCTURAL STEELWORK. Priming for woodwork and hardboard before being fixed in position is specified under CARPENTRY AND JOINER. Priming of roofing laps, roof flashings and plumbing flashings are specified under the respective trades.

12.10.2 MIXING

All paints to be thoroughly mixed.

Incorporate any settled pigment and ensure the paint is homogenous.

12.10.3 ENVIRONMENT

Defer painting of exterior surfaces until weather conditions are favourable - warm dry days without frost or heavy dews are preferred. Avoid painting in direct sunlight any surfaces that absorb heat excessively.

Do not apply paint if the surface is less than 5°C above dew point, the relative humidity exceeds 85% (unless special precautions are taken to ensure that the surface is at least 5°C above the temperature of the surrounding air), there is moisture or ice visible on the substrate or if any of these conditions are likely to occur before the paint has dried.

As far as possible, apply paint in the temperature range 15°C to 25°C. If temperatures fall outside the range of 10°C and 35°C do not paint unless paints with the necessary temperature tolerances have been specified.

The Principal's representative may order painting to cease if, despite all conditions being met, there is a likelihood of frost or dew. The Contractor may propose protective measures against frost and these measures will be subject to the approval of the Principal's representative.

12.10.4 SEQUENCE OF OPERATIONS

Painting work to generally follow the following sequence:

- Complete all surface preparation before commencing painting;
- Apply primers, sealers, stains, undercoats, paints and clear coatings in the sequences laid down by Resene Paints;
- Allow the full drying time between coats laid down by Resene Paints;

- Do not expose primers, undercoats and intermediate coats beyond a few days before applying the next coat. Refer to appropriate data sheets for recommended recoat times;
- Finish broad areas before painting trim;
- Ensure batch numbers of tins are matched for whole areas;

Internally, paint ceilings before walls and walls before joinery, trim and other items.

12.10.5 APPLICATION

Select brush, roller, pad or spray and apply coatings to the recommendations of Resene Paints to obtain a coating of the specified thickness, uniform gloss, surface finish and colour. Refer to the appropriate product data sheet and can label for appropriate application methods.

12.10.6 LIGHTLY SAND

Lightly sand all primers, sealers, undercoats and all intermediate coats to remove dust pick-up, protruding fibres and coarse particles. Complete by removing dust immediately before applying the next coat.

12.10.7 DEFECTIVE WORK

Immediately correct at own cost any defective work and recoat as required, following precisely the Resene Paints system being applied.

12.10.8 LOSS OR DAMAGE

The Contractor shall be responsible for any loss or damage that may be caused to the property of the Principal in the carrying out of this contract. The Contractor shall make good such loss or damage at the Contractor's own expense, to the satisfaction of the Principal or their representative.

12.10.9 EACH COAT

Each coat of paint and the completed paint system to have the following qualities and properties:

- Uniform finish, colour, texture, sheen and hiding power and the proper number of coats applied;
- No blemishes such as runs, sags, crinkling, fat edges, entrained paint skins, hairs, dust, bare or starved patches, cracks, brush marks, ladder marks and blistering;
- Proper covering of corners, crannies, thin edges, cracks, end grains and other difficult places of application.

12.11 COMPLETION

12.11.1 CLEAN

Clean all adjoining surfaces, glass and fittings of any paint contamination. Clean adjoining glass to a shining finish.

12.11.2 LEAVE

Leave the whole of this work uniform in gloss and colour, of correct thickness, free from all painting defects, clean and unmarked and to the standard required for all following trades.

12.11.3 REMOVE

Remove all dropsheets, coverings and masking to leave surrounding surfaces and areas clean, tidy and undamaged. Remove all debris, unused materials and elements from the site.

12.11.4 REPLACE

Replace all hardware without damage to it or the adjoining surface and leave hardware properly fitted and in working order.

12.12 SCHEDULE OF WORK & FINISHES

INTERIOR WORK

SUBSTRATE	SURFACE PREP	COAT	RESENE ONE-LINE SPEC		
Walls & ceilings to Bathrooms	D84	1	15i 2.2L4	Smooth surf sealer	D47a
		2		Lusta-Glo	D33
		3		Lusta-Glo	D33
Ceilings to all other areas	D84	1		Broadwall	D403
		2		Ceiling Paint	D305
		3		Ceiling Paint	D305
Walls to all other areas	D84	1	15i 1.4SC	Broadwall	D403
		2		Zylone Sheen	D302
		3		Zylone Sheen	D302
Doors, door jambs, window reveals & trim etc	D82	1	3i 2.2NRS	Quick Dry	D45
		2		Lusta-Glo	D33
		3		Lusta-Glo	D33

EXTERIOR WORK

SUBSTRATE	SURFACE PREP	COAT	RESENE ONE-LINE SPEC		
Soffits	D82	1	1e 1.2	Sonyx 101	D30
		2		Sonyx 101	D30
Titan Board / Axon Panel	D82	1	1e 1.2	Sonyx 101	D30
		2		Sonyx 101	D30
		3		Multishield +	D54a

12.13 GUARANTEE

The Painting Contractor shall furnish to the Main Contractor who shall in turn provide to the Principal a full and effective written guarantee of 5 (five) years for workmanship. Such guarantees shall cover the fully making good of any defects that may appear and the rectification of any damage consequent upon defective workmanship or materials of this Sub-contractor.

12.14 COMPLETION AND CLEAN UP

At completion the Painting Contractor shall remove all masking tape and protective surfaces, remove paint splashes of all adjoining surfaces in particular door hardware and leave all surfaces clean.

13.0 DRAINLAYER

13.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections and in conjunction with the HFC Structural Engineers documents which takes precedence should any conflict occur with this Specification.

13.2 EXTENT OF WORK

Work in this section of the contract comprises all surface and foul water drainage up to above ground level to connect to Plumber's work.

Include all pipes and specials, fittings, construction of sumps, all gully traps and connections for terminal 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 position for all connections of wastes and drains.

13.3 STANDARD OF WORK

Refer to the Revised Guidance on Repairing and Rebuilding Houses Affected by the Canterbury Earthquake Sequence – November 2011 edition.

The whole of this work shall be carried out by experienced tradesmen to the satisfaction of the Principal and the Local Council's Drainage Inspector.

All work shall conform to G13/AS2 Sanitary Plumbing and Drainage, E1/AS1 Stormwater Drainage and the Local Authority Specification, the Drainage Contractor shall allow accordingly should conflict exist.

Obtain all permits, service all notices and pay all fees required and arrange for all tests.

13.4 MATERIALS

All materials shall be the best of their respective kinds. All materials shall be the best of their respective kinds. Generally drains shall be 100mm nominal diameter first class uPVC sewer and stormwater grade as appropriate.

13.5 DRAIN TRENCHES

The excavation of trenches for drains shall be accurately made with base clean and true to grade so that no unnecessary filling is required. Adequate width shall be allowed in accordance with depth of 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 backfilled within a reasonable time.

13.6 FITTINGS

The plan shows the layout of the system. Additional fittings that are normally required such as manholes, inspection points and inspection bends etc. that 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 Local Authority.

Each and every junction or change of direction is to have removable cover plates for inspection.

13.7 LAYING OF DRAINS

All drains are to be bedded and backfilled in accordance with NZBC G13/AS2 Figure 7 and Figure 8.

The pipes are to be laid in straight lines and to a regular and even grade with socket against fall in all cases.

Where applicable, pipes should be laid outside of any compacted hardfill raft.

Provide flexible connections outside of the foundation line where waste pipes are connected to the drains to allow for future movement and settlement.

Where possible, greater falls than the minimum standards should be used for the project to make provision for future settlement of the Units so that correct falls are always maintained.

13.8 GULLY TRAPS

Where shown on the drawings supply PVC Gully Traps.

Refer to Figure 5.15 of the DBH Guideline and encapsulate Gully Trap in concrete which is tied to the foundations with hooped reinforcing bars.

Build up around Gully with 5:1 concrete surround, 100mm above finished ground levels. Fit a grating or perforated plate above the waste discharging into it.

13.9 SEWER DRAINS

Allow to lay the sewer drains as shown on the drawings and connect to the existing sewer drainage lateral provided to the site where shown on the drawings.

13.10 STORMWATER DRAINS

Allow to lay the stormwater drains as shown on the drawings and connect to the existing stormwater drainage lateral provided to the site where shown on the drawings.

Install a bubble-up chamber if required in order to achieve the required fall to the final outlet position.

Liaise with the SITEWORKS Contractor regarding any surface water sumps and strip drains etc. that may be required for site landscaping and make provision for their connection to the stormwater drainage system to fully complete the works.

13.11 COMPLETION

Properly backfill all trenches, consolidate as filling proceeds and leave area in a tidy state.

14.0 TILING

14.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections.

14.2 EXTENT OF WORK

Work under this trade section is to be carried out by a sub-contractor nominated and employed directly by the Principal and includes interior floor, wall tiling & splashbacks to areas shown on the drawings, including waterproofing compounds, finishing beads and threshold bars to tile edges, grouting, silicone sealing and any other work normally required to fully complete the tiling work.

14.3 MATERIALS AND WORKMANSHIP

All tiling work shall be carried out by tradespeople in strict accordance with best trade practice or the manufacturers specification. All materials shall be of the best of their kind. All work and materials shall comply with the relevant standard specification and the Building Act 2004.

Handle tiles with care to avoid chipping, soiling and damage. Store on hard level standings in non-traffic, non-work areas that are enclosed, clean and dry.

Ensure that all services and accessories are located to suit tile layout, that they are in place and the substrate to receive the tiles is satisfactory and will allow first-class tiling. Advise the main contractor if any of the substrate is not up to standard. By starting work on any area the tiler shall have accepted that the substrate is up to standard in that area.

Discuss the proposed tile layout and any visual considerations with the Principal prior to starting work.

Tile areas subject to wetting shall be approved non-slip tiles.

Include to provide mortar screeds to obtain the required falls and slopes to tiling work as shown or inferred by the drawings and specifications.

Fix aluminium angle bars at edges against carpeted areas or other floor coverings to best trade practice and to fully complete the works.

14.4 TILE SUPPLY

All tiles for the project are to be supplied by the Principal.

14.5 WATERPROOFING

Waterproofing for the project shall be carried out in accordance with the Warmup Wetroom System as noted on the drawings and technical literature included in the Supporting Documents.

14.6 COMPLETION

On completion allow to thoroughly clean all tiles to leave tiles in a clean new condition and remove all rubbish from site.

15.0 GLAZING

15.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections including the Holloway Builders Specification which takes precedence should there be a conflict.

15.2 EXTENT OF WORK

Work under this trade section comprises the following:

- Toughened glass shower doors, screens and hardware all showers;
- Glass splashbacks as directed;
- Mirrors as directed to Ensuite and Bathroom.

15.3 MATERIALS AND WORKMANSHIP

Carry out the glazing as specified below all in accordance with the NZ Standards and Building Act. Glass shall be supplied and cut to accurate size with edges clean and undamaged and shall be of the best quality glass of approved manufacture. Surfaces not to be disfigured and also shall be free of blemishes. All glazing work shall be carried out by skilled tradesmen in accordance with Best Trade Practice.

15.4 SHOWER SCREENS

Supply and fix 12mm toughened float glass shower doors and screens complete with all hardware and fixings.

15.5 MIRRORS

Supply and fix 5mm float glass mirrors as directed by the Principal.

15.6 COMPLETION

On completion allow to thoroughly clean all mirrors to leave in a clean new condition and remove all rubbish from site.

16.0 FLOOR COVERINGS

16.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General section of this Specification and the General and Special Conditions of Contract which, are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections.

16.2 EXTENT OF WORK

Work under this trade section includes soft floor coverings to areas shown on the drawings and as per the Holloway Builders specification.

Refer to the floor plans generally for the schedule of flooring materials to the dwelling.

For Tiling refer to the separate TILING trade section of this specification.

16.3 MATERIALS AND WORKMANSHIP

All materials specified and shown on the drawings shall be the best of their respected kinds and without defects. All work shall be carried out by competent tradespeople to a first class standard. All flooring is to be laid in accordance with manufacturers instructions.

Provide a 1 year guarantee for materials and workmanship.

16.4 CARPET

Supply and lay selected carpet to floor areas shown on the drawings or separately agreed by the Principal.

All carpet is to be laid on commercial grade extra heavy duty underlay and smoothedge with appropriate naplock bars at junctions of carpet and vinyl.

16.5 LAMINATE FLOORING

Supply and lay selected laminate flooring as shown on the drawings or separately agreed by the Principal.

All floors that are to have laminate laid over them are to be thoroughly filled and ground to provide a smooth finish before any laminate is laid. Any areas that show a lack of preparation after the laminate has been laid may be required to be lifted and made good at the Sub-contractors expense.

16.6 RESPONSIBILITY

It shall be the responsibility of the Floor Coverings Sub-contractor to ensure that all surfaces are in a suitable condition to enable proper finish to be obtained. Any areas considered unsatisfactory shall be reported to the Main Contractor for remedial work prior to the commencement of the laying of floor coverings.

16.7 PROTECTION

Care shall be taken to protect adjacent surfaces from damage or adhesives.

16.8 COMPLETION

On completion thoroughly clean and polish all floor coverings and leave in first class condition.

17.0 SITEWORKS

17.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections.

17.2 EXTENT OF WORK

Refer to the site plan drawings and Holloway Builders Specification for all siteworks details.

18.0 LANDSCAPING

18.1 PRELIMINARY AND GENERAL

Refer to the Preliminary and General clauses of this Specification and the General and Special Conditions of Contract, which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections.

18.2 SCOPE

Refer to the Holloway Builders specification for all Landscaping details.