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SPECIFICATION

of work to be done and materials to be used in
carrying out the works shown on the accompanying
drawings and such explanatory details as may be
issued from time to time

Addition to Residence at
10 Anchorage Grove
Tauranga

for Mr. & Mrs. G. Rankin

Job number: 4162

Date: August 1999

Member of Architectural Designers New Zealand Inc.



1201

PRELIMINARIES AND GENERAL

1. THE PROJECT

1.1 DESCRIPTION

The scope of the works to be as described in this specification and as shown on the drawings.

1.2 PERSONNEL

Owner: The person defined as "owner" in the New Zealand Building Code.

Contractor: The person contracted by the owner to carry out the contract.

1.3 PARTIES ASSOCIATED WITH THE PROJECT

Owner: Mr. & Mrs. G. Rankin

Address: 10 Anchorage Grove, Tauranga.

Telephone: (07) 544 0799

Designer: Trevor Jones Design 2000 Ltd

Address: 291 Maungatapu Road, Tauranga.

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1.4 SITE

The site of the works, the site address and the legal description are shown on the drawings.

Confine access and work to the area of the site indicated.

2. DOCUMENTATION

2.2 SPECIFICATION SECTIONS

The designation and numbering of individual specification sections follows the CBI (Association for Co-ordinated Building Information in New Zealand) system for the co-ordination and classification of construction information. Sections are for reference and convenience only and do not constitute individual trade sections or work elements.

Read all sections together and read 1201 PRELIMINARIES AND GENERAL with all other sections.

2.3 INTERPRETATIONS

Required: Required by the documents, or by a statutory authority.

Proprietary: Identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.

Approval: Approval in writing.

Direction: Direction in writing.

Notified: Notified in writing

2.4 SUBSTITUTIONS

A substitution may be proposed where specified products are not available, or if substitute products are brought to the attention of and are considered by the owner to be equivalent or superior to those specified.

Any proposed substitution of specified products to be notified. Notification to include sufficient information to allow the owner to confirm that the substitution is equivalent or superior to that specified.

Any approval of substitutions to be in writing.

2.5 THE WORDS "PROVIDE" OR "FIX"

The words "provide" or "fix" if used separately mean provide and fix unless explicitly stated otherwise.

2.8 ABBREVIATIONS

The following abbreviations are used throughout the specification sections:

AS Australian Standard

AS/NZS Joint Australian/New Zealand Standard

BRANZ Building Research Association of New Zealand

BS British Standard

CSA Canadian Standards Association

HERA Heavy Engineering Research Association

NZBC New Zealand Building code

NZMP New Zealand Miscellaneous Publication

NZS New Zealand Standard

NZS/AS Joint New Zealand/Australian Standard

2.9 DEFINED WORDS

Words defined in the conditions of contract, New Zealand Standards, or other reference documents, to have the same interpretation and meaning when used in their lower case, title case or upper case form in the specification text.

- 2.10 **REFERENCED DOCUMENTS**
 Throughout this specification, reference is made to various New Zealand Building Code (NZBC) acceptable solutions and verification methods for criteria and/or methods used to establish compliance with the Building Act.
 Reference is also made to various Standards produced by Standards New Zealand (NZS, NZMP, AS/NZS, NZS/AS), Transit New Zealand specifications, overseas standards (AS, BS, CSA) and to listed Acts, Regulations and various industry codes of practice and practice guides. The latest edition (including amendments and provisional editions) at the date of this specification applies unless stated otherwise.
 It is the responsibility of the contractor to be familiar with the materials and expert in the techniques quoted in these publications.
 Documents cited both directly and within other cited publications are deemed to form part of this specification. However, this specification takes precedence in the event of it being at variance with the cited documents, with the resolution of any variance being confirmed by the owner in writing and then notified to the territorial authority for consent prior to any further work proceeding.
- 2.11 **DOCUMENTS REFERRED TO**
 Documents referred to in this section are:
 Building Act 1991
 Building Regulations 1992
 Health and Safety in Employment Act 1992
 Smoke Free Environments Act 1990
- 2.12 **BUILDING CONSENT COMPLIANCE**
 It is an offence under the Building Act 1991 to carry out any work not in accordance with the building consent. The resolution of matters concerning compliance to be referred to the owner for a direction. If required, the owner to refer the matter to the territorial authority for consent.
- 2.13 **BUILDING CONSENT**
 Obtain the original or copies of the building consent form and documents from the owner and keep on site. Liaise with the territorial authority for all notices to be given and all inspections required during construction to ensure compliance. Return the consent form and documents to the owner on completion.
- 2.20 **GUARANTEES**
 Provide executed guarantees in favour of the owner in respect of, but not limited to, materials, elements, service, application, installation and finishing called for in that specified section of work. The terms and conditions of the guarantee in no case negate the minimum remedies available under common law as if no guarantee had been offered.
 Failure to provide guarantees does not reduce liability under the terms of the guarantee called for in that specified section of the work.
- 2.21 **OVERALL WEATHERTIGHTNESS AND WATERTIGHTNESS**
 A guarantee is required from the contractor for a minimum period of 2 years, covering the weathertightness of the complete building envelope and the watertightness of all liquid supply and disposal systems and fittings. This general guarantee is in addition to any specific guarantees required.
- 2.22 **TRADE GUARANTEES AND WARRANTIES**
 Where specific trade guarantees/warranties are offered covering materials and/or execution of proprietary products or complete installations, provide copies of all such guarantees/warranties to the owner.
- 2.23 **FORM OF GUARANTEE**
 Conform with the form of guarantee included in this specification. Commence all guarantees from the date of practical completion. Maintain their effectiveness for the times stated.
- 2.28 **SERVICES PLANS**
 Prepare services plans setting out the actual positions as constructed of all sewer, stormwater, sanitary plumbing, piped and ducted services, electrical and mechanical services. Except where specified otherwise, as-built plans may be marked up on copies of relevant project drawings. Provide 1 set of services plans to the owner. Provide services plans required by the building consent to the territorial authority.
3. **ESTABLISHMENT**
- 3.1 **COMPLY**
 Comply with all statutory obligations and regulations of regulatory bodies controlling the execution of the works.
- 3.2 **APPROVALS**
 Attend on territorial authority officers, statutory and network utility inspectors, as necessary to obtain approvals (in addition to building consent approval) for and the satisfactory completion of, the works.

4. TEMPORARY WORKS AND SERVICES

4.3 PROTECT

Protect all parts of the work liable to damage, including all adjoining public or private property, existing buildings, existing roads, footpaths, fences, site services, trees, landscaping and all existing retained site features, until completion of the works. Take all precautions necessary to protect the works from damage by unauthorised entry or inclement weather. Brace and support all parts of the works against damage during construction.

Make good all damage to existing property and site features arising from construction activities or failure to protect.

5. PROJECT MANAGEMENT

5.7 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety in Employment Act 1992. Comply with all relevant New Zealand safety legislation.

Take all necessary steps to make the site and the contract works safe and to provide and maintain a safe working environment. Ensure that all those working on or visiting the site are aware of the rules governing site safety, are properly supervised and are not unnecessarily exposed to hazards. Maintain proper procedures for dealing with any emergencies that may arise. Immediately investigate accidents, identify their cause and maintain a register of accidents and serious harm. Provide copies of the register to the owner, together with copies of all reports supplied to a public authority.

6. CONSTRUCTION

6.1 QUALITY ASSURANCE

Carry out and record regular checks of material quality and accuracy, including:

- Concrete quality and finishes (refer to 3101 CONCRETE).
- All perimeter columns and frames for plumb.
- Levels of all floors relative to the site datum.
- Framing timber moisture content (refer to 3801 CARPENTRY).

Where any material, quality or dimension exceeds specified or required tolerances, obtain written confirmation from the owner and when building consent approval is affected, confirm remedial action with the territorial authority.

Provide all materials, equipment, plant, attendances, supervision, inspections and programming to ensure the required quality standards are met.

6.2 NUISANCE

Take all reasonable precautions to prevent damage and nuisance from water, fire, smoke, vehicles, dust, rubbish, noise and all other causes resulting from the contract works. Comply with the requirements of the territorial authority and all relevant Acts and Standards.

6.3 SET OUT

Establish a permanent site datum to confirm the proposed building ground floor level and its relationship to all other existing and new building levels.

While it remains the contractor's responsibility to set out the works accurately and correctly and to confirm any changes from the approved location with the territorial authority, obtain the owner's written confirmation that they have sighted the proposed building location, site datum and profiles, before commencing any further work.

6.4 EXECUTION

Conform to the requirements of this specification. All work to be level, plumb, and true to line and face. Employ only experienced workers familiar with the materials and techniques specified.

6.5 MATERIALS

Materials to be new unless stated otherwise, of the specified quality and complying with all cited documents.

Substitution of alternative materials, plant or equipment from those specified to be confirmed by the owner in writing. If required the owner to obtain approval from the territorial authority for the substitution.

6.8 CLEAR AWAY

Clear away all trade debris, unused materials and elements from the site and leave the building clean and ready for occupancy, with all services operating and mechanical parts in good working order. Remove all temporary markings, coverings and protective wrappings. Ensure that any maintenance requirements on temporary markings are conveyed to the owner.

6.9 CLEAN

Clean and wash down all external surfaces to remove dirt, debris and marking. Clean all interior surfaces including cabinetwork, joinery, sanitary and hardware items. Vacuum or polish all floor finishes. Clean and polish all glass, both sides.

2201

PREPARATION AND GROUNDWORK

1.

GENERAL

1.2

DOCUMENTS

Documents referred to in this section are:

NZS 3604 Light timber frame buildings not requiring specific design

Occupational Safety and Health Service (OSH) publication: Approved code of practice for safety in excavation and shafts for foundations

3.

EXECUTION

3.1

CARRY OUT

Carry out all excavation to the guidelines set by the Occupational Safety and Health Service (OSH) publication: "Approved code of practice for safety in excavation and shafts for foundations."

3.3

EXISTING WORK

Protect from damage existing buildings, structures, roads, paving and services nominated on the drawings as being retained, throughout the course of the work.

3.5

PREPARATION

Comply with NZS 3604 - clause 3.4, Site preparation. Remove all turf, vegetation, trees, topsoil, stumps and rubbish from the area to be built on.

3.6

UNDERGROUND ELEMENTS AND SERVICES

Break out and remove old foundations, slabs, drainage pipes, manholes, tanks, cables and redundant services. Report for instructions when any unexpected voids, made-up ground or services are encountered. Seal off the ends of drains or remove to territorial authority approval.

3.9

GENERAL EXCAVATION

Trim ground to required profiles, batters, falls and levels. Remove all loose material. Protect all cut faces from collapse. Keep all excavations free from water.

3.11

EXCAVATION FOR FOUNDATIONS

Foundation excavations to be taken to depths shown. Keep trenches plumb and straight, bottoms level and solid, stepped as detailed and clean and free of water.

3.12

INADEQUATE BEARING

If bearing is inadequate then excavate further and backfill with material as follows:

Below slabs on grade: Hardfill

Below footings: 10MPa concrete

If excavation exceeds the required depths, backfill and compact to the correct level with material as listed.

2.14

GENERAL BACKFILLING

Obtain written confirmation from the owner before using any excavated material. Compact approved backfilling in 150mm layers with the last 200mm in clean topsoil, lightly compacted and neatly finished off.

3.16

SURPLUS MATERIAL

Remove all surplus and excavated material from the site.

3101

CONCRETE

1.

GENERAL

1.2

DOCUMENTS

Documents referred to in this section are:

NZS 3108 Concrete production - ordinary grade

NZS 3109 Concrete construction

NZS 3114 Concrete surface finishes

NZS 3124 Concrete construction for minor works

NZS 3402 Steel bars for the reinforcement of concrete

NZS 3422 Welded fabric of drawn steel wire for concrete reinforcement

NZS 3604 Light timber frame buildings not requiring specific design

2.

PRODUCTS

2.1

REINFORCEMENT

Bars to NZS 3402. Welded reinforcing mesh to NZS 3422.

2.2

TYING WIRE

Mild drawn steel wire not less than 1.2mm diameter.

2.3

SPACERS AND CHAIRS

Precast concrete or purpose made moulded PVC to approval. Concrete spacer blocks to only be used where the concrete surface is not exposed in the finished work.

2.5

READY-MIX CONCRETE

Ordinary grade 17.5 MPa, maximum aggregate size 19mm to NZS 3104.

2.6

SITE MIXED CONCRETE

To NZS 3124. Ordinary grade 17.5 MPa minimum strength, using either separate batching of sand and coarse aggregate to NZS 3108, or builder's mix.

3. EXECUTION

3.1 HANDLE AND STORE

Handle and store all reinforcing steel and accessories without damage or contamination. Store on timber fillets on hard ground in a secure area clear of any building operation. Lay steel fabric flat. All reinforcement to be clean and kept clean so that at the time of placing concrete it is free of all loose mill scale, loose rust and any other contamination that may reduce bonding capacity.

3.3 REINFORCEMENT

All Grade 300 deformed other than ties, stirrups and spirals, unless shown otherwise on the drawings.

3.4 CUT AND BEND

Cut and bend bars using proper bending tools to avoid notching and to the requirements of NZS 3109. Do not rebend bars without written approval. Reject all bars with unspecified kinks or bends. Unless detailed otherwise bend main reinforcing bars, stirrups and ties to the former pin diameters as given in NZS 3109, table 3.1.

3.5 SECURE REINFORCEMENT

Secure reinforcement adequately with tying wire and place accurately, supported adequately and secured against displacement when concreting. Bend tying wire back well clear of the formwork. Spacing to be as dimensioned on the drawings but if not shown then the clear distance to be to the minimums laid down in NZS 3109, clause 3.6.

3.6 LAPPED SPLICES

Length of laps where not dimensioned on the drawings to be in accordance with NZS 3109, clause 3.7. Increase laps of plain round steel by 100%.

3.7 COVER

Minimum cover to all reinforcing bars, stirrups, ties and spirals, as shown on the drawings and to NZS 3109, clause 3.8. Fix chairs for top reinforcement in slabs at 1.0 metre centres or to ensure adequate support. Cover tolerances to NZS 3109, clause 3.9.

3.8 INSPECTION

Do not place concrete until all excavations, boxing and reinforcing have been inspected and passed by the territorial authority inspector.

3.20 REPAIRS

Make good surface defects immediately after forms are stripped. Make good hollows or bony areas with 1:2 mortar or plaster, finished to the same tolerances as the parent concrete. Fill any tie rod holes with 1:2 mortar.

3.21 CURING OF CONCRETE

Keep damp for not less than seven days. Ensure curing of slabs commences as soon as possible after final finishing, by the use of continuous water sprays, or ponding. Alternately, apply a curing membrane. Make sure any membrane used will not affect subsequent applied finishes.

3.24 REMOVE

Remove all unused materials and all concrete and reinforcing debris from the site.

3801 CARPENTRY

1. GENERAL

1.1 SCOPE

1.2 DOCUMENTS

Documents referred to in this section are:

AS 1748	Mechanically stress-graded timber
AS/NZS 1859	Reconstituted wood based panels
	1859.1 Particle board
AS/NZS 2269	Plywood - structural
NZS 2295	Building papers (breather type)
NZS 3602	Specifying timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3604	Light timber frame buildings not requiring specific design
NZS 3631	NZ national timber grading rules
NZMP 3640	Minimum requirements of the NZ Timber Preservation Council Inc.
NZS 4214	Methods of determining the total thermal resistance of parts of buildings
NZS 4218	Energy efficiency - Housing and small building envelope
NZS 4222	Materials for the thermal insulation of buildings
BRANZ Bulletin 302:	Preventing moisture problems in timber framed skillion roofs
BRANZ Bulletin 328:	Selection and use of fasteners
BRANZ Bulletin 343:	Moisture in timber
BRANZ Bulletin 357:	Thermal insulation of houses

- 2. PRODUCTS**
- 2.1 BUILDING PAPER**
Breather type to NZS 2295.
- 2.3 GLASS FIBRE INSULATION**
Interleaved glass fibre quilt in block form.
- 2.8 TIMBER FRAMING GENERALLY**
Species, grade and level of treatment as set out in NZS 3602. Grading to NZS 3631 and treated to NZMP 3640. Mechanical stress grading to be acceptable as an alternative to visual grading.
- 2.10 TIMBER FRAMING DRY, TREATED**
Species, grade and moisture content in service as set out in NZS 3602. Treated H1 to NZMP 3640, with an average moisture content at supply of 16% or less. Either mechanically stress graded to AS 1748, or visual grading to NZS 3631.
- 2.17 PARTICLE BOARD FLOORING**
Flooring grade high density resin bonded to AS/NZS 1859.1.
- 2.26 NAILS**
Steel, stainless steel and galvanised steel of pattern to suit the location and to BRANZ Bulletin 328 "Selection and use of fasteners."
- 2.27 BOLTS AND SCREWS**
Steel, stainless steel and galvanised steel of pattern to suit the location and to BRANZ Bulletin 328 "Selection and use of fasteners."
- 2.28 NAIL PLATES**
Stainless steel and/or galvanised steel toothed or nailed plates to the manufacturer's design for the particular locations as shown on the drawings.
- 2.29 CONNECTORS**
Galvanised steel connectors and structural brackets to the manufacturer's design for particular locations shown on drawings.
- 3. EXECUTION**
- 3.1 ATTENDANCE**
Provide and fix blocks, nogs, openings and other items as required by other trades.
- 3.2 MOISTURE CONTENT**
Maximum allowable equilibrium moisture content (EMC) in accordance with BRANZ Bulletin 343 for framing supporting interior linings:
- | | <u>EMC</u> |
|-------------------------|------------|
| 1. Framing at erection | 24% |
| 2. Framing at enclosure | 20% |
| 3. Framing at lining | 16% |
- 3.3 GENERALLY**
To NZS 3603 and 3604 except as varied in this specification. Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).
- 3.4 DIMENSIONS**
All timber sizes are nominal sizes.
- 3.5 SET OUT**
Set out framing in accordance with the requirements of NZS 3604 and as required to support sheet linings and claddings.
- 3.8 WALL FRAMING**
Frame to required loading and bracing complete with lintels, sills and nogs, all fabricated and fastened to NZS 3604, section 6.
- 3.9 ROOF FRAMING**
Frame to required loading and bracing complete with valley boards, ridge boards and purlins. Design and fit roof trusses complete with anchorage. All fabricated and fastened to NZS 3604, section 10.
- 3.14 INSTALLING INSULATION**
Lay aluminium foil insulating sheet and fit insulation, to NZS 4214, as detailed, to the manufacturer's recommendations, and to the recommendations of BRANZ Bulletin 357 "Thermal insulation of houses."
- 3.16 LAYING PARTICLE BOARD FLOORING**
Lay and fasten to the manufacturer's recommendations and NZS 3604, section 5.2. Punch nails, then sand with one coarse and one fine paper, hand sanding into corners.
- 3.23 LEAVE**
Leave all work to the standard required by all following trades.

4202.I INSULATING WALL CLADDING

1 GENERAL

1.1 SCOPE

This section deals with the supply and fixing of a textured insulated exterior wall cladding system to timber framing including surface coating.

1.2 REFER to DIVISION A, PRELIMINARIES, for items affecting this section.

NZ BUILDING CODE: Follow the Approved Documents with regard to the criteria and/or methods that must be used in this section to establish compliance with the Code.

E2/AS1 Exterior moisture

2.0 Walls

E3/AS1 Internal moisture

1.0 Prevention of fungal growth.

DOCUMENTS which relate to this section are:

NZS 2295 Building papers (breather type).

NZS 3103 Sands for mortars and internal and external plasters.

NZS 3121 Water and aggregate for concrete.

NZS 3122 Portland cement (ordinary, rapid-hardening and modified).

NZS 3604 Light timber frame buildings not requiring specific design.

NZS 4218P Minimal thermal insulation requirements for residential buildings.

BS 890 Building limes.

AS 1366 Pt 3 Rigid cellular polystyrene.

Documents listed above and cited in the following clauses are part of this specification and are the latest edition, including amendments at the time of tender. However this specification takes precedence when it is of a higher standard than the cited document.

1.3 APPLICATOR: Must be contractors licensed by the selected systems manufacturer to fix and apply the exterior wall cladding system.

1.4 GUARANTEE this work under normal conditions of use against failure of

- material for 10 years and

- workmanship for 3 years from date of practical completion

with a joint written warranty by both systems supplier and applicator.

Make out in Employer's name and supply to contractor at that date.

2 MATERIALS

2.1 SECTION WORK

2.2 CORNER BEADS: Angle and channel sections of unplasticised pvc.

3. FLEXIBLE SHEET

3.1 BUILDING PAPER: To NZS 2295. Breather type - minimum of 500 g/square metre. Lap joins 75 mm.

3.2 REINFORCING MESH: Alkali-resistant fibreglass woven mesh.

Brand Manufacturers Specification

4. RIGID SHEETS

4.1 INSULATING BOARD: Rigid cellular polystyrene made from fire-retardant virgin beads to AS 1366 Pt 3.

Thickness 40 mm

5. COATING WORK

5.1 PAINT: 100% acrylic latex house paint compatible with cement based plaster.

6. COMPONENTS

NAILS: Non-rusting in accordance with systems manufacturer fasteners guide.

6.1 FORMLESS WORK

6.2 ADHESIVE: Solvent-based synthetic rubber construction adhesive.

Brand to The Manufacturers Specifications

6.3 BONDING COMPOUND: Plaster mix containing glass fibres, portland cement, sand, lime and other admixtures.

Brand . to the manufacturers Specification

6.4 PLASTER: Factory-mixed plaster coating containing portland cement, sand, lime and other admixtures.

Brand to the Manufacturers Specification

6.5 PRIMER ADHESIVE: Factory-mixed 100% acrylic based wet product. Add 50% by volume, portland cement on site with just sufficient water to keep it workable. Do not retemper.

6.6 SEALANTS: Neutral cure silicone in accordance with systems manufacturer guide and set against backer rods where necessary.

7. WORKMANSHIP

7.1 GENERALLY

7.2 **STORAGE:** Deliver all materials in original unopened packaging with labels intact. Provide dry storage on site, stack carefully, protect from mechanical damage. Do not store insulating boards or pvc beads in direct sunlight.

7.3 **PROTECT** all existing work and approaches with boards, dust sheets and the like. All droppings onto finished work to be cleaned off immediately.

7.4 **DO NOT BEGIN** application until all required openings, and apertures have been cut pipes, fixtures, fixing pads and plugs have been fixed flashings and other preparation are complete.

7.5 **DETAILING** as shown by the systems manufacturer must be adhered to and carried out to a high standard of workmanship to ensure that water does not penetrate.

8. BACKGROUND PREPARATION

8.1 **FRAMING:** To standard required by system manufacturers directions. Plumb, level, in true alignment and to relevant building codes and regulations.

8.2 **CLEANING:** Remove all oils, growths, dirt and loose flaking paint to leave background to be covered dust free and clean.

8.3 **ACCEPTANCE OF BACKGROUNDS:** Commencement of work indicates acceptance by the applicator of preceding work as a satisfactory background.

9. INSTALLATION

9.1 **BUILDING PAPER:** Fix to framing with laps and fixing to manufacturer's instructions.

9.2 **INSULATING BOARD, NAILED:** Butt-joint, stagger joints, continuously support all edges and nail with heads flush, the polystyrene board to systems manufacturer details.

9.3 **EXPANSION JOINTS:** Incorporate in accordance with design information supplied by manufacturer. Joints to be horizontal or vertical to standard details and fully supported. Architect to agree to locations before work commences.

9.4 **CORNER BEADS:** Using adhesive, fit beads and channels to manufacturers instructions.

9.6 **CEMENT PLASTER FINISH:** Apply a base plaster coat 2 to 3mm thick and embed the reinforcing mesh in it while still plastic. Before the base coat dries apply a 1 mm minimum thick second coat of selected texture. All to manufacturer's recommended techniques.

Keep moist for 5 hours from time of initial set.

9.7 **PAINT FINISH:** As soon as the cement plaster finish is dry enough to accept it apply 3 coats of paint to manufacturer's instructions. Do not dilute first coat.

10. COMPLETION

10.1 **GENERALLY** At completion, clean down all work and all adjoining surfaces and floors. Take away from the site all material not used and all trade rubbish.

10.2 **FINAL INSPECTION** by the manufacturer or authorised applicator of the entire finished contract to take place 28 days after completion and any defects or subsequent damage made good to satisfaction of Architect.

4301 ROOFING

1. GENERAL

1. SCOPE

1.2 DOCUMENTS

Documents referred to in this section are:

NZBC	E2/AS1	External moisture
		1.O Roofs

NZS 2295	Building papers, (breather type)
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NZS 3604	Light timber frame buildings not requiring specific design
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NZMP 3640	Minimum requirements of the NZ Timber Preservation Council
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NZS 4217	Pressed metal tile roofs
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NZS 4222	Materials for the thermal insulation of buildings
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BRANZ Bulletin 284: Sealed joints in external claddings - 2. Sealants

New Zealand Metal Roofing and Cladding Manufacturers' Association Inc: Profiled metal roofing design and installation handbook

1.3 ROOFER QUALIFICATION

Carry out all roofing work using experienced, competent roofers familiar with the materials and techniques specified.

1.4 WIND AND EARTHQUAKE LOADINGS

Use fixings and methods capable of sustaining the loads appropriate to the area as set out in NZS 3604, table 2.3.

1.5 COORDINATE

Coordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof.

2. PRODUCTS

2.1 TILE BATTENS

Douglas fir, or No 1 framing radiata pine to NZS 3602. Size to NZS 3604, table 10.8. Treated to NZMP 3640, group A, hazard class H1.

2.2 BUILDING PAPER

Breather type kraft paper laminates to NZS 2295.

2.4 UNDERLAY SUPPORT

50mm hexagon mesh of 1mm diameter galvanised steel wire in 900mm (minimum) width sheets.

2.6 METAL ROOFING TILES

Pressed steel sheet galvanised to NZS 3403, aluminium-zinc coated to NZS/AS 1397.

Accessories, cappings, flashings, and fixings to match and to the manufacturer's recommendations.

3. EXECUTION

3.1 STACK ROOFING

Stack roofing and accessories on clean, level areas of the site and protect from damage and from weather until ready to fix in place.

3.2 SET OUT

Set out the planned layout before fixing commences, to ensure true lines and the correct relationship to module, grid and roof features.

3.3 LAY ROOF UNDERLAY

Lay and fix to NZBC acceptable solution E2/AS1, NZS 3604, section 11.2 and the manufacturer's recommendations.

3.4 LAY ROOFING, GENERALLY

Take care to avoid damaging pre-finished roofing both during and after fixing. Wear only soft-soled shoes on the finished surface.

3.7 FIX THE TILE BATTENS

Fix the tile battens to the roofing manufacturer's recommendations and with all joints fully supported and staggered.

3.8 CUT METAL TILES

Cut with recommended tools, fold ends and seal cut edges of tiles and accessories without damaging their integrity or finish, all to the manufacturer's recommendations.

3.9 LAP METAL TILES

Lap metal tiles and fix complete with all matching accessories, flashed to all roof features and penetrations; all to the manufacturer's recommendations and NZS 4217.

3.12 FIX COVERS AND FLASHINGS

To comply with NZBC acceptable solution E2/AS1, 1.0. Install and fixed as detailed and to the roofing manufacturer's details.

3.13 PENETRATIONS

Flash and overflash all penetrations through the roof.

3.14 USE OF SEALANTS

Selection and use of sealants to follow BRANZ Bulletin 284 "Sealed joints in external claddings - 2. Sealants."

3.15 LEAVE

Leave the work complete with all flashings, undercloaks, valleys, ridges and hips properly installed so the finished roof is completely weathertight.

3.16 CLEAR

Clear all trade rubbish and unused materials from the roof and surrounds regularly during the work and at completion. Sweep down the completed roof and flush out all spoutings, gutters and rainwater pipes, ensuring that metal filings, metal scraps and loose fixings are removed.

3.17 REPLACE

Replace damaged or marked elements. Remove unused materials from the site.

5101G GIB® PLASTERBOARD LINING

1. GENERAL

1.2 DOCUMENTS REFERRED TO

Documents referred to in this section are:

AS/NZS 2589 Gypsum linings in residential and light commercial construction - Application and finishing

Part 1: Gypsum plasterboard

NZS 3604 Light timber frame buildings not requiring specific design

ISO 6308 Gypsum plasterboard

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

However, this specification takes precedence in the event of it being at variance with the cited document.

- 1.4 **QUALIFICATIONS**
Carry out this work with competent workers experienced in Gib® drywall lining techniques. Submit evidence of experience on request.
- 1.5 **QUALITY CONTROL**
Inspect the finished surface of the installed plasterboard:
- before applying sealer and
- before applying finish coatings or decorative papers,
so that after assessment of the type and/or angle of illumination and its effect on the completed decorative treatment, group approval and acceptance of the surface can be given.
2. **PRODUCTS**
- 2.1 **NO SUBSTITUTIONS**
No substitutions to be made to any specified Gib® plasterboard sheets, or associated products, components or accessories.
- 2.2 **GIB® PLASTERBOARD**
Gypsum plaster core encased in a durable face and backing paper formed for standard use to ISO 6308, for water resistance use to ASTM C630-78.
- 2.6 **NAILS**
Gib® Nails (gold passivated).
Size: 30mm
- 2.7 **METAL ANGLE TRIMS**
Gib® galvanised steel slim angle trims.
- 2.11 **ADHESIVE**
Gib® Fix Wood Bond wallboard adhesive.
Gib® perforated paper jointing tape.
- 2.17 **SEALER**
Gib® Sealer, water based surface sealer.
3. **EXECUTION**
- 3.1 **HANDLING AND STORAGE**
Handle and store sheets and accessories in dry conditions stored indoors out of direct sunlight in neat flat stacks clear of the floor with no sagging and avoiding damage to ends, edges and surfaces. Reject all damaged material.
- 3.2 **CHECK SUBSTRATE**
Do not commence work until the substrate is plumb, level and to the standard required by the sheet manufacturer's requirements and the moisture levels are not to exceed 16% at the time of lining.
- 3.3 **PROTECT**
Protect all surfaces, cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage.
- 3.4 **LEVELS OF FINISH**
Provide the scheduled plasterboard surfaces to the levels of finish specified in the Interior Systems Association: "Levels of Gib Board® finish."
- 3.5 **LEVELS OF FINISH ACCEPTANCE**
Before commencing work, agree in writing upon the surface finish assessment procedure necessary to ensure that the levels of finish specified, along with the effect of the type and/or angle of illumination on them, are obtained and are acceptable.
- 3.7 **LINING WALLS AND CEILINGS GENERALLY**
Form in accordance with the Gib® Interior Solutions Site Guide (Feb 1998)
- 3.15 **STANDARD OF FINISH**
To be in accordance with the Gib® Interior Solutions Site Guide (Feb 1998) and AS/NZS 2589.1.
- 3.16 **REPLACE**
Replace all damaged boards or elements.
- 3.17 **CLEAN DOWN**
Clean down completed surfaces to remove all irregularities and finally sand down with fine paper to the sheet manufacturer's requirements, to leave completely smooth and clean to the standard required for all following trades.
- 3.18 **REMOVE**
Remove all debris, unused materials and elements from the site.

6701R RESENE PAINTING

1. GENERAL

1.2 DOCUMENTS

Documents referred to in this section are:

Health and Safety in Employment Act 1992

Resene Paints: One-Line Specifications and Product Data Manual

Resene Paints: Putting your safety first

1.4 PAINTER QUALIFICATION

All work to be carried out by persons competent in the trade and experienced with the **Resene Paints** coating systems and techniques specified.

1.5 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety in Employment Act 1992 and the **Resene Paints** booklet "Putting your safety first" and if elimination or isolation are not possible, then minimise the hazards in this work.

2. PRODUCTS

2.1 PAINT TYPES

All paint 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 One-Line Specifications and Product Data Manual.

2.2 GAP FILLERS

Use suitable gap fillers to match the surface being prepared. Any special primers required of the fillers must be satisfied. Refer to **Resene Paints** surface preparation sheets in the One-Line Specifications and Product Data Manual.

3. EXECUTION

3.1 INSPECT

Inspect all surfaces to be painted and report any that will not, after the preparation as laid down in the **Resene Paints** surface preparation sheets, allow work of the required standard.

3.2 PROTECT

Cover up all adjoining surfaces and areas liable to damage or over-painting.

3.3 REMOVE HARDWARE

Remove hardware and door/window furniture and replace on completion. Do not paint over permanently attached hinges, or any hardware items which cannot be removed.

3.4 PRIMING AND SEALING

Ensure that all priming and sealing work necessary before or during construction is carried out when required.

3.5 ENVIRONMENTAL CONDITIONS

Carry out work within acceptable temperature and humidity limits, with timber dry, all to the requirements of **Resene Paints**.

3.6 SELECTIONS

Confirm all selections, colours and finishes for both paint and wallpaper with the owner, before commencing work.

3.8 SHARP EDGES, CRACKS AND HOLES

Sharp edges, cracks and holes if present, to be removed and/or repaired as outlined in the preamble to the **Resene Paints** One-Line Specifications and Product Data Manual.

3.9 PREPARE ALL SURFACES

Prepare all surfaces to be coated to the requirements of the **Resene Paints** surface preparation sheets. Use suitable gap fillers to match the surface being prepared. Any special primers required of the fillers must be satisfied. Refer to **Resene Paints** surface preparation sheets.

3.10 APPLICATION

Apply paint by brush and/or roller to the requirements of **Resene Paints** to obtain a smooth, even coating of the specified thickness, uniform gloss and colour. Do not spray on site without express permission.

3.11 RESENE SPECIFICATIONS

Refer to the **Resene Paints** One-Line Specifications and Product Data Manual for surface preparation, coating sequence and application requirements as they apply to each system. Correct defective work immediately, with any recoating following the systems requirements.

3.12 SCUFF BETWEEN COATS

Between all coats remove any dust pick-up, protruding fibres and coarse particles.

3.13 FINISHED PAINT SURFACES

All finished paint surfaces to show uniformity of gloss and colour, to have the correct thickness for each coat, and freedom from painting defects such as tackiness and conspicuous brush marks. Finished work to be clean and free of any disfigurement.

3.16 CLEAN

Clean all adjoining surfaces, glass and fittings of any paint contamination.

- 3.17 REPLACE
Replace all hardware without damage to the hardware or the adjoining surfaces.

4. SCHEDULES

4.1 PAINT SYSTEMS, EXTERIOR

To the **Resene Paints** One-Line specifications as listed for the different substrates. Refer to the **Resene** manual for the first and second coats of each system to suit the particular substrate and condition.

<u>Substrate</u>	<u>Resene Number</u>	<u>System topcoat</u>	<u>Finish</u>
Cementitious	1e 1.2	Sonyx 101 D30	Semi-Gloss
Timbers	2e 1.1	Hi-Glo D31	Gloss

4.2 PAINT SYSTEMS, INTERIOR

To the **Resene Paints** One-Line specifications as listed for the different substrates. Refer to the **Resene** manual for the first and second coats of each system to suit the particular substrate and condition

<u>Substrate</u>	<u>Resene Number</u>	<u>System topcoat</u>	<u>Finish</u>
Timbers	2i 1.1	Enamacryl D309	Semi-Gloss
Paper faced plaster	15i 1.4	Zylone Sheen D302	Low Sheen

7401 RAINWATER PLUMBING

1. GENERAL

1.2 DOCUMENTS

Documents referred to in this section are:

NZS/AS 1397 Steel sheet and strip - hot-dipped, zinc-coated or aluminium/zinc-coated

BRANZ Bulletin 304: Flashing design.

BRANZ Bulletin 305: Domestic flashing installation.

2. PRODUCTS

2.2 DOWNPIPES

To match those existing.

Profiled Galvanised Steel

2.3 PROFILED GALVANISED SHEET STEEL

0.60mm sheet steel galvanised to NZS/AS 1397.

2.4 GALVANISED STEEL SPOUTING

To match existing profile.

3. EXECUTION

3.1 ELECTROLYTIC ACTION

Avoid electrolytic action by eliminating contact or continuity of water between dissimilar metals.

Check compatibility of all metals used for rainwater goods, against the materials used for roofing and flashings. Notify any incompatibility to the owner and obtain written approval for amendments to selections and then submit to the territorial authority for their approval.

3.2 LIAISON

Ensure liaison with all associated installations to ensure material selections are compatible and all required flashing work is completed.

Galvanised Steel

3.5 FIT GALVANISED STEEL SPOUTING

Screw fix brackets, set to falls to outlets, with spouting joints silicone sealed and pop-riveted to the spouting manufacturer's requirements.

General

3.15 FLASHINGS

Scribe fit, fold, lap, seam, or run solder as required by the metal, to flash all roof penetrations, roofing and exterior joinery to prevent weather penetration. Allow for 2 rows of rivets to all overlapping sheet joints. Install and fix flashings and flashing joints to the criteria stated in BRANZ Bulletins 304 "Flashing design" and 305 "Domestic flashing installation."

3.19 LEAVE

Leave all rainwater services in proper working order and all flashing work completed to keep the building weathertight.

3.20 CLEAN UP

Take away from the site all unused materials and elements.

7403

DRAINAGE

1.

GENERAL

1.2

DOCUMENTS

Documents referred to in this section are:

NZBC	B1/AS1	Structure - general 6.0 Drains
NZBC	E1/AS1	Surface water
NZS 3108		Concrete production, ordinary grade
NZS 3402		Steel bars for the reinforcement of concrete
AS/NZS 3500		National plumbing and drainage code
NZS 7643		Installation of Unplasticized PVC pipe systems
NZS 7649		Unplasticized PVC sewer and drain pipe and fittings
Plumbers, Gasfitters and Drainlayers Act 1976		

1.4

AS-BUILT DRAWINGS

Supply a 1:100 scale as-built plan of drains and fittings to the territorial authority and to the owner on completion.

1.5

QUALIFICATIONS

All work to be carried out by or under the direct supervision of a person registered under the Plumbers, Gasfitters and Drainlayers Act 1976.

2.

PRODUCTS

2.4

UPVC PIPES

UPVC pipes bends, junctions, fittings and joints to NZS 7649.

2.9

DRAINAGE AND FILLING MATERIALS

Granular:	Clean gravel or crushed stone or a blend of these. Particle size from minimum 7mm to maximum 20mm.
Selected:	Fine grain soil or granular material suitable for bedding; excluding topsoil.
Ordinary:	Top soil or other excavated materials.

3.

EXECUTION

3.1

EXCAVATE

Excavate for drains to a firm even base with correct gradients set in straight runs.

3.2

MANUFACTURER'S REQUIREMENTS

All installations to the pipe and fitting manufacturer's requirements.

3.3

GENERALLY

Carry out drainage work and tests to AS/NZS 3500 and NZS 7643, all as modified by NZBC acceptable solution B1/AS1, 6.0.

3.13

FIELD TEST

Field test drains for watertightness (UPVC to NZS 7643 section 11) to the satisfaction of the territorial authority inspector.

3.14

BACKFILL

Backfill drain lines in 150mm layers, well tamped but without disturbing the drains. Finish off with 150mm of topsoil, slightly mounded above the finished ground line.

7701

ELECTRICAL

1. GENERAL

1.2 DOCUMENTS

Documents referred to in this section are:

- NZS 3000 New Zealand wiring rules
- AS/NZS 3008 Electrical installations - Selection of cables
3008.1.2: Typical New Zealand installation conditions
- NZS 6401 PVC-insulated cables for electric power and lighting
- Electricity Regulations 1997
- New Zealand electrical codes of practice (ECP)

1.3 COMPLY

Comply with the Electricity Regulations 1997, NZS 3000, AS/NZS 3008.1.2 and the New Zealand electrical codes of practice for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection. Arrange for the required inspections of listed work. Pay all fees.

1.4 QUALIFICATIONS

All work to be carried out by or under the direct supervision of a holder of a practising certificate under the Electricity Regulations 1997.

1.5 CERTIFICATE OF COMPLIANCE

Supply a certificate of compliance to the owner, as required by the Electricity Regulations 1997, and in particular, clauses 16, 34 and 35. Allow the network utility operator to view before the meter installation, listed work inspection, polarity check and livening of supply.

1.6 YEAR 2000 COMPLIANCE

All hardware and software for the complete electrical installation to be "year 2000 compliant" as defined in, and in accordance with SAA/SNZ MP77.

2. PRODUCTS

2.2 CABLES

Tough plastic sheathed copper conductors to NZS 6401 and in accordance with AS/NZS 3008.1.2. Minimum sizes are indicated below. Increase these as necessary due to method of installation, cable length or load.

- Lighting circuits 1.5mm² on 16 amp MCB's
- Power circuits (domestic) 1.5mm² on 16amp MCB's
- Power circuits (domestic - insulated construction) 2.5mm² on 16amp MCB's

2.5 WALL BOXES

Standard size in plastic, with 2 or more gang size in metal, all screw fixed.

2.6 SWITCH UNITS

16 amp, 230 volt flush polycarbonate units. For number of switches per unit, dimmer units, neon (indicator or toggle) units, locator units and 2-way units refer to the electrical drawings.

2.8 SWITCHED SOCKET UNITS

10 amp, 230 volt flush polycarbonate 3 pin combined switch units.

2.12 LIGHT FITTINGS

Install fittings as supplied by the Owner.

3. EXECUTION

3.4 CABLING

Install with a maximum of 8 light outlet units or 4 switched socket units on any circuit. Separate circuits for all electric heating appliances. All cabling to be run concealed. No TPS cable to be laid directly in concrete and all holes in timber framing for the passage of cables to be at the centre line of the timber member.

3.5 SWITCH AND SOCKET UNITS

Fit all single and double switch units and socket units level and plumb where shown on the drawings. Install at the following heights (to the centre of the unit) unless shown otherwise on the electrical drawings.

- Switch Units : 1000mm
- Socket Units : 150mm above work benches
400mm elsewhere

Mount switches vertically and socket units horizontally. Label all switch units which control electrical equipment by engraving on the rocker switch.

3.6 LIGHT FITTINGS

Install selected light fittings in the locations and heights shown on the drawings and in accordance with the fitting manufacturer's requirements.

3.22 COMPLETION

Leave all work operating correctly, with all equipment clean and all light bulbs and tubes operational.