

SPECIFICATION

of work to be done and materials to be used in carrying out the works shown on the accompanying drawings

Prefab Residential Building

Project Specification

., ., ., New Zealand

Project Ref: 24-04

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1210 PROJECT.**1 GENERAL****1.1 PROJECT**

Project type:	New building
Intended use:	Single residential building
Intended life:	Indefinite but not less than 50 years

1.2 PROJECT DESCRIPTION

Prefab Residential Dwellings - options 1 & 2

1.3 LBP REQUIREMENT

Any site license LBP's shall have a minimum:
Site license in area of practice 1

Carpentry

Foundations 2: Concrete or timber pile foundations

Roofing 2: Profiled metal roof and/or wall cladding

1212 COMPLIANCE

1 GENERAL

1.1 SITE DATA

Soil type:	D (to NZS 3604 , 3.2 Soil types)
Exposure zone:	Designed for Zone C (to NZS 3604 , 4.2 Exposure zones or E2/AS1 Zone E severe marine)
Wind zone:	Designed for High (to NZS 3604 , table 5.4 Determination of Wind Zone)
Earthquake zone:	Designed for Zone 2 (to NZS 3604 , figure 5.4 Earthquake zones)

1.2 BUILDING DATA

Building classification:	2 Importance Level (to NZS 3604 , table 1.1 Classification of buildings)
Floor live load:	1.5 KPa (to NZS 3604 , table 1.2 Imposed floor live load reference values)
Overall height:	4 metres (in accordance with NZS 3604 , Fig 1.2 Buildings covered by this Standard)
Risk assessment:	Total Risk Score - varies (to NZBC E2/AS1 , 3.1 Establishing the risk)

1.3 RECORDS OF WORK

Provide Records of Work for Restricted Building Work:

- Carpentry
- Roofing
- Foundations

Refer to the Building Consent for specific requirements. Provide Records of Work in the required form. Provide all Records of Work before the Building Consent Authority carries out the final inspection.

1213 SELECTIONS

1 GENERAL

The following selections are to be read in conjunction with the related work sections, where they are available, and the general sections.

2 SITE

<< 2310 PILE FOUNDATIONS >>

2.1 PILE FOUNDATIONS

Type/treatment: Radiata pine, SG6, H5 CCA (preservative code 01 or 02)
Size: 200 SED

3 STRUCTURE

<< 3800 TIMBER FRAMING >>

3.1 SUB FLOOR TIMBER FRAMING

Type/treatment: Bearers 2/240x45 - 450 Radiata pine, Grade SG8, Treated H1.2
(minimum 150mm above ground)

3.2 FLOOR TIMBER FRAMING

Type/treatment: Joists 140x45 - 450 Radiata pine, Grade SG8, Treated H1.2
(minimum 150mm above ground)
Cantilevered deck joists: Radiata pine, Grade SG8, Treated H3.2

3.3 EXTERIOR WALL TIMBER FRAMING

Type/treatment: 140x45 - 600 Radiata pine, Grade SG8, Treated H1.2
Cavity battens: Radiata pine, Treated H3.1 (non-structural)

3.4 ROOF TIMBER FRAMING

Type/treatment: 240 x 45 Structural Purlins @ 480crs Radiata pine, Grade SG8,
Treated H1.2

3.5 INTERIOR WALL TIMBER FRAMING

Type/treatment: 90 x 45 - 600 Radiata pine, Grade SG8, Treated H1.2

3.6 ENGINEERED TIMBER

Location: Living Room Lintel
Type/treatment: Radiata pine, Grade SG8, Treated H1.2

4 ENCLOSURE

<< 4160 DAMP-PROOFING, UNDERLAYS AND RIGID AIR BARRIERS >>

There is no work section specification relating to the following selections

4.1 WALL UNDERLAY/ROOF UNDERLAY

Brand/Type: Thermakraft Watergate

4.2 RIGID AIR BARRIER

Brand/Type: Selected 7mm plywood, CD grade minimum, H3 CCA treatment
Fixing: Adhesive and screw fixed with stainless steel screws

4.3 WINDOW FLASHING TAPE

Brand/Type: Selected

<< 4240 METAL WALL CLADDING >>

4.4 METAL CLADDING

Brand/Type/thickness: Selected / Trapezoidal / 0.4 mm
 Finish/colour: Selected
 Profile direction: vertical

<< 4310 ROOFING >>**4.5 ROOFING**

Brand/Type: Selected / Trapezoidal / 0.4 mm
 Flashings: as required
 Colour: Selected

<< 4337 TIMBER & PLYWOOD, DECKING & ROOFING >>**4.6 ROOFING SUBSTRATE**

Type/grade: Selected plywood, CD grade minimum, H3 CCA treatment
 Thickness: 12mm
 Fixing: Adhesive and screw fixed with stainless steel screws

<< 4520 ALUMINIUM WINDOWS AND DOORS >>**4.7 ALUMINIUM WINDOWS AND DOORS**

Brand/Type: Selected
 Finish/colour: Selected

<< 4610 GLAZING >>**4.8 GLAZING - INSULATING GLASS UNITS**

Location: All
 Type: Selected

<< 4710 THERMAL INSULATION >>**4.9 UNDERFLOOR INSULATION**

Brand/Type: Expol
 R value/Thickness: R 2.5 / 100mm

4.10 WALL INSULATION

Brand/Type: Pink Batts
 R value/Thickness: R 3.6 / 140mm

4.11 CEILING/ROOF INSULATION

Brand/Type: Terralana Skillion double layer to achieve R6.5 construction value
 R value/Thickness: R 6.4 / 240mm & R 0.9 / 35mm

5 INTERIOR**<< 5230 INTERIOR DOORS & FRAMES >>****5.1 INTERIOR DOORS**

Location: All
 Leaf type/finish: Hollow core paint quality

<< 5410 FLOORS >>**5.2 FLOOR**

Location: All
 Brand/Type/thickness: Selected / CD / 19mm
 Fixing method: Adhesive and screw fixed with stainless steel screws

6 FINISH**<< 6300 FLOOR COVERING >>**

6.1 RESILIENT FLOORING (VINYL, LINOLEUM OR RUBBER)

Location: Bathrooms and Kitchen splash zone

Brand/Type: selected

7 SERVICES**<< 7120 WATER SYSTEM >>**

7.1 WATER SYSTEM

Pipework concealed: All

Water heater type: LPG Califont

Water heater selected

brand/model:

<< 7210 GAS SYSTEM >>

7.2 GAS

Gas bottle type: Twin LPG

7.3 GAS APPLIANCES

Brand/type/reference: Hob

Brand/type/reference: Water Heater

<< 7410 RAINWATER SPOUTING SYSTEM >>

7.4 SPOUTING

Brand/type/size: Selected

7.5 DOWNPIPES

Brand/type/size: Selected

<< 7550 HEATING >>

There is no work section specification relating to the following selections

7.6 FIREPLACE

Brand/type/reference: suitable wood fire for airshed

7.7 SPACE HEATING

Brand/type/reference: Highwall heatpump to living space

<< 7700 ELECTRICAL >>

7.8 SMOKE ALARMS

Brand/type/reference: interconnected battery operated to all habitable spaces

7.9 EXTRACT SYSTEMS

Kitchen extract: rangehood

Bathroom extract: 20 litre/second

8 EXTERNAL

8.1 NO EXTERNAL RELATED SELECTIONS

There are no external related selections for this project.

1220 GENERAL REQUIREMENTS

1 GENERAL

1.1 THE WORKS

The works are as described in this specification and 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 THE SITE

The site of the works, the site address and the legal description are listed under the sections 1210 PROJECT. Confine access and work to the area of site indicated on the drawings.

1.4 SPECIFICATION SECTIONS

Sections are for reference and convenience only and do not constitute individual trade sections or work elements. Read all sections together and read this section with all other sections.

1.5 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.

1.6 ABBREVIATIONS

The following abbreviations are commonly used throughout the specification:

AS	Australian Standard
AS/NZS	Joint Australian/New Zealand Standard
BCA	Building Consent Authority
BRANZ	Building Research Association of New Zealand
LBP	Licensed Building Practitioner
NZBC	New Zealand Building Code
NZS	New Zealand Standard
NZS/AS	Joint New Zealand/Australian Standard
NUO	Network Utility Operator
OSH	Occupational Safety and Health
RBW	Restricted Building Work
TA	Territorial Authority

1.7 INCONSISTENCIES

If there are any inconsistencies, errors or omissions in or between documents, the contractor must seek direction in resolving it. Figured dimensions take precedence over scaled dimensions; drawings to a larger scale take precedence over drawings to a smaller scale and drawings take precedence over specification.

1.8 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 as equivalent or superior to those specified. Except where a specified product is not available, the owner is not bound to accept any substitutions.

Notify proposed substitution of specified products. Include sufficient information to allow the owner to confirm that the substitution is equivalent or superior to that specified. Advise the owner whether an amendment will or may be required to the Building Consent and the expected costs of such amendment.

1.9 THE WORDS "PROVIDE" OR "FIX"

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

1.10 MANUFACTURERS AND SUPPLIERS

Manufacturers and suppliers requirements, instructions, specifications or details are those issued by them for their particular material, product or component and are the latest edition.

1.11 REFERENCED DOCUMENTS

Reference is made to various New Zealand Building Code (NZBC) acceptable solutions (AS) and verification methods (VM) for criteria and/or methods used to establish compliance with the [Building Act 2004](#). Reference is also made to various Standards produced by Standards New Zealand (NZS, AS/NZS) 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. Documents cited both directly and within other cited publications are part of this specification.

1.12 PRECEDENCE OF REFERENCED DOCUMENTS

This specification takes precedence in the event of it being at variance with and requiring a higher standard than, the cited documents. Resolution of any variance must be confirmed in writing and where Building Consent is affected, the change notified to the BCA for advice as to whether an amendment is required to the Building Consent Authority.

1.13 BUILDING CONSENT COMPLIANCE

It is an offence under the [Building Act 2004](#) to carry out any work not in accordance with the Building Consent. Refer the resolution of matters concerning compliance to the owner for a direction. Where Building Consent is affected refer any change to the BCA for advice as to whether an amendment is required to the Building Consent.

1.14 STATUTORY OBLIGATIONS

Comply with all statutory obligations and regulations of regulatory bodies controlling execution of the works.

1.15 BUILDING CONSENT

Obtain the original or copies of the Building Consent form and documents from the owner and keep on site. Liaise with the BCA and/or the building certifier for all required notices and all inspections required during construction to ensure compliance. Return the consent form and documents to the owner on completion.

1.16 INSPECTIONS

Do not proceed with work noted on the Building Consent for inspection until it has been inspected and passed by the BCA inspector.

1.17 KEY PERSONNEL

Provide names and contact detail of LBP's/ key personnel. Prior to Restricted Building Work being carried out, provide names, registrations numbers (where appropriate) and contact detail of LBP's that are required for RBW by the Building Consent Authority as part of the Building Consent.

Include the following as applicable:

- Person with the appropriate site license
- Carpenter
- Registered drainlayer
- Registered plumber
- Registered gasfitter
- Registered electrician
- Roofer
- External window manufacturer

1.18 PRODUCER STATEMENTS AND LBP DOCUMENTATION

When Records of Work or producer statements verifying construction are required, for the application for the Code Compliance Certificate, provide copies to both the BCA and the owner. Provide LBP documents and producer statements in the form required by the BCA.

1.19 CERTIFICATE OF COMPLIANCE

Provide Certificates of Compliance for electrical and gas work carried out.

1.20 CODE COMPLIANCE CERTIFICATE

Provide documentation that the Owner requires in order to obtain a Code Compliance Certificate for the consented work.

1.21 TRADE GUARANTEES AND WARRANTIES

Where specific trade guarantees/warranties are offered covering materials and/or execution of proprietary products or complete installations, or are required as a condition of Building Consent, provide guarantees/warranties to the owner.

1.22 SITE ACCOMMODATION

Provide, erect and maintain scaffolding, sheds, toilets, water, power and hoardings. Allow for cartage, craneage, plant hire and storage. Arrange for temporary works and services necessary for the completion of the works.

1.23 HEALTH AND SAFETY

Make the works safe and provide and maintain a safe working environment, to the requirements of the [Health and Safety at Work Act 2015](#). 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 and risks.

1.24 PROTECT THE WORKS

Protect parts of the work liable to damage 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.

1.25 STORAGE AND PROTECTION

Provide temporary storage areas and protective covers and screens. Fillet stack and protect all framing and structural members from moisture and contamination. Completely protect finishing materials from the weather and damage and store in accordance with the manufacturer's requirements. Protect fabricated elements from the weather and damage, and store in accordance with suppliers requirements.

1.26 ANTIQUITIES AND ITEMS OF VALUE AND INTEREST

Report immediately the finding of any fossils, antiquities, pre-1900 items, or objects of value. Ensure they remain undisturbed until approval is given for their removal.

1.27 MEANS OF COMMUNICATION

All directions and approvals in writing.

1.28 WORKING HOURS

Work on site is restricted to between 0800 to 1800, Monday to Friday, excluding statutory holidays. Work outside these hours may be permitted, with prior approval in writing by the owner.

1.29 RESTRICTIONS

Do not:

- smoke on site
- light rubbish fires on the site
- bring dogs on to or near the site
- bring radios/audio players on to the site.

1.30 QUALITY ASSURANCE

Carry out and record regular checks of material quality and accuracy. Provide all necessary materials, equipment, plant, attendances, supervision, inspections and programming to ensure required standards are met.

1.31 DAMAGE AND NUISANCE

Prevent damage and nuisance from water, fire, smoke, vehicles, dust, rubbish, noise and other causes resulting from the contract works. Comply with the requirements of the TA and relevant Acts and Standards.

1.32 SET-OUT AND DATUM

Set out the works to conform with the drawings. Establish a permanent site datum to confirm the existing ground floor level and its relationship to other existing and new building levels.

1.33 EXECUTION OF THE WORK

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

1.34 MATERIALS AND PRODUCTS

Use only new materials and products, unless stated otherwise, of the specified quality and complying with cited documents.

1.35 COMPATIBILITY

Ensure all parts of a construction or finish are compatible and their individual use approved by the manufacturers and suppliers of other parts of the system. Source all parts of a system from a single manufacturer or supplier.

1.36 COMPLETE ALL SERVICES

Ensure completed building services are operational, with temporary labelling removed, required labelling fixed and service instructions provided.

1.37 CLEAR AWAY

Regularly clear away trade debris, unused materials and elements from the site. On completion of the work leave the building clean and ready for occupancy, with all services operating and mechanical parts in good working order. Remove temporary markings, coverings and protective wrappings.

1.38 CLEAN

Clean and wash down external surfaces to remove dirt, debris and marking. Clean interior surfaces including floors, glass, cabinetwork, joinery, sanitary and hardware items.

1233 DOCUMENTS REFERENCED

1 GENERAL

Documents listed below are, when referred to in the text, part of this specification. However, this specification takes precedence in the event of it being at variance with and requiring a higher standard than any cited document.

The latest edition of the cited document (including amendments and provisional editions) at the date of this specification applies unless stated otherwise.

1.1 ACTS AND REGULATIONS

[Building Act 2004](#)

[Gas \(Safety and Measurement\) Regulations 2010](#)

[Health and Safety at Work Act 2015](#)

[Health and Safety at Work \(Asbestos\) Regulations 2016](#)

[Electricity \(Safety\) Regulations 2010](#) (Reprint as at 21 January 2019).

[Plumbers, Gasfitters and Drainlayers Act 2006](#)

1.2 NEW ZEALAND BUILDING CODE VERIFICATION METHODS

[NZBC E2/VM1](#) External moisture

[NZBC G12/VM1](#) Water supplies

1.3 NEW ZEALAND BUILDING CODE ACCEPTABLE SOLUTIONS

[NZBC B1/AS1](#) Structure - general

[NZBC B2/AS1](#) Durability

[NZBC C/AS2](#) Protection from fire

[NZBC D1/AS1](#) Access routes

[NZBC E1/AS1](#) Surface water

[NZBC E2/AS1](#) External moisture

[NZBC E2/AS3](#) External moisture

[NZBC E3/AS1](#) Internal moisture

[NZBC F2/AS1](#) Hazardous building materials

[NZBC F4/AS1](#) Safety from falling

[NZBC F7/AS1](#) Domestic smoke alarms

[NZBC G1/AS1](#) Personal hygiene

[NZBC G10/AS1](#) Piped services - Gas

[NZBC G11/AS1](#) Gas as an energy source

[NZBC G12/AS1](#) Water supplies

[NZBC G13/AS2](#) Foul water - Drainage

[NZBC G13/AS3](#) Foul water - sanitary plumbing and drainage

[NZBC H1/A1](#) Energy efficiency

[NZBC H1/AS2](#) Energy efficiency

1.4 NEW ZEALAND STANDARDS

[AS/NZS 1604.1](#) Preservative-treated wood-based products - Part 1: Products and treatment

[NZS/AS 1884](#) Floor coverings - Resilient sheet and tiles - Installation practices

[AS/NZS 2269.0](#) Plywood - Structural - Specifications

[AS/NZS 2455.1](#) Textile floor coverings - Installation practice - General

[AS/NZS 2455.2](#) Textile floor coverings - installation practice - Carpet tiles

[AS/NZS 2589](#) Gypsum linings - Application and finishing

[AS/NZS 2642.2](#) Polybutylene pipe systems - Polybutylene pipe for hot and cold water applications

[AS/NZS 2699.1](#) Built-in components for masonry construction Wall ties

[AS/NZS 3000](#) Electrical installations (known as the Australian/NZ Wiring Rules)

[NZS 3101.1](#) Concrete structures standard

[NZS 3103](#) Sands for mortars and plasters

[NZS 3104](#) Specification for concrete production

[NZS 3109](#) Concrete construction

[NZS 3114](#) Concrete surface finishes

[AS/NZS 3500.2: 2018](#) Plumbing and drainage - Sanitary plumbing and drainage

AS/NZS 3500.3: 2018	Plumbing and drainage - Stormwater drainage
NZS 3501	Specification for copper tubes for water, gas and sanitation
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3604	Timber-framed buildings
NZS 3622	Verification of timber properties
NZS 3631	New Zealand national timber grading rules
AS/NZS 4130	Polyethylene (PE) pipes for pressure applications
NZS 4210	Masonry construction materials and workmanship
NZS 4211	Specification for the performance of windows
NZS 4223.1	Glazing in buildings - Glass selection and glazing
NZS 4223.2	Glazing in buildings - Insulating glass units
NZS 4223.3	Glazing in buildings - Human impact safety requirements
NZS 4223.4	Glazing in buildings - Wind, dead, snow and live actions
NZS 4229	Concrete masonry buildings not requiring specific engineering design
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings
NZS 4251.1	Solid plastering - Cement plasters for walls, ceilings and soffits
AS/NZS 4666	Insulating glass units
AS/NZS 4671	Steel reinforcing materials
AS/NZS 4858	Wet area membranes
AS/NZS 5601.1	Gas installations - general installations
NZS 6803	Acoustics - Construction noise

1.5 OVERSEAS STANDARDS

EN 513	Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors. Determination of the resistance to artificial weathering
EN 12608	Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors. Classification, requirements and test methods

1.6 BUILDING RESEARCH ASSOCIATION OF NEW ZEALAND (BRANZ)

[Weathertight Solutions Vol. 2: Stucco](#)
[Good practice guide: Tiling](#)
[Good practice guide: Membrane roofing](#)
[Bulletin 441 - Sealed joints in external claddings - 2. Sealants](#)
[Bulletin 519 - Fasteners selection](#)

1.7 OTHER DOCUMENTS

[Concrete NZ](#)

- [CCANZ CP 01](#): Code of practice for weathertight concrete and concrete masonry construction

[WorkSafe New Zealand \(OSH\)](#)

- [Good Practice Guidelines - Excavation Safety](#)
- [Repainting lead based paints](#)
- [Management and Removal of Asbestos \(Approved CoP\)](#)

[Waterproofing Membrane Association Inc.](#)

- [WMAI CoPTM](#): Code of practice for torch-on membrane systems for roofs and decks

[New Zealand Demolition and Asbestos Association \(NZDAA\)](#)

- [Best Practice Guideline for Demolition in New Zealand.](#)

[New Zealand Metal Roofing Manufacturers Inc](#)

- [NZMRM COP](#): NZ Metal roof and wall cladding: Code of practice

[Window & Glass Association NZ \(WGANZ\)](#)

- [PQAS](#): Powder Coating Quality Assurance System
- [Window Installation Guide](#): Guide to Window Installation as described in E2/AS1.

3800 TIMBER FRAMING

1 GENERAL

Refer to 1213 SELECTIONS/drawings for specific product, material, accessories and finish selections.

Use experienced competent carpenter familiar with the materials and techniques specified. Work to be carried out by or supervised by the appropriate LBP.

2 PRODUCTS

2.1 TIMBER FRAMING GENERALLY

Species, grade and level of treatment to [NZBC B2/AS1](#), [NZS 3602](#), tables 1 to 3 **Requirements for wood-based building components** ..., and moisture content to [NZS 3602](#), table 4 **Allowable moisture content** Structural Grade (SG) to [NZS 3604](#), [NZS 3622](#) with properties to [NZS 3603](#).

2.2 ACCESSORIES

Damp-proof course:	High impact embossed polyethylene
Stud straps	Polypropylene tape run horizontal at 300mm centres over flexible wall underlay, for drained cavities with stud spacings greater than 450mm.
Nails, bolts and screws:	Steel, stainless steel, galvanized steel of pattern to suit the location and to BRANZ BU 519: Fasteners selection. To NZS 3604 , 4 Durability and NZBC E2/AS1 .
Nail plates connectors:	Stainless steel and/or galvanized steel toothed or nailed plates to the plate manufacturer's design for the particular locations as shown on the drawings and to NZS 3604 , 4 Durability . Galvanized steel and stainless steel connectors and brackets to the connector manufacturer's design for locations shown on drawings and to NZS 3604 , 4 Durability and NZBC E2/AS1
Corrosion risk	For exterior timber, timber in damp areas and timber subject to occasional wetting, use only stainless steel (or equivalent) fixings and connectors, when the timber is treated with; Copper Azole (CuAz, Preservative code 58), Alkaline Copper Quaternary (ACQ, Preservative code 90), Micronise Copper Azole (code 88) or Micronised Copper Quaternary (code 89). For interior timber, treated with copper-based timber preservatives (H3.2 or higher), use a minimum of hot-dipped galvanized steel fixings and fasteners.

3 EXECUTION

3.1 ATTENDANCE

Provide and fix blocks, nogs, openings and other items as required by others.

3.2 MOISTURE CONTENT

Maximum allowable moisture content to [NZS 3602](#), table 4 **Allowable moisture content...**, for framing supporting interior linings:

Framing at erection	24%
Framing at enclosure	20%
Framing at lining	16%

3.3 EXECUTION GENERALLY

To [NZS 3604](#) except as varied in this specification. 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). When necessary provide framing to suit any required cladding/lining control joints. Set out framing in accordance with the requirements of [NZS 3604](#) and as required to support sheet linings and claddings.

3.4 INSTALL SUB-FLOOR FRAMING

Frame up off foundation walls and piles, all fabricated, fastened and braced to [NZS 3604](#), 6 **Foundation and subfloor framing.**

3.5 INSTALL FLOOR, WALL AND ROOF FRAMING

Floors and bottom plates framed and fastened to [NZS 3604](#), 7 **Floors.** Frame walls to required loading and bracing complete with lintels, sills and nogs, all fabricated and fastened to [NZS 3604](#), 8 **Walls.** Frame roof to required loading and bracing complete with valley boards, ridge boards and purlins to [NZS 3604](#), 10 **Roof framing.** Design and fit roof trusses complete with anchorage. All fabricated and fastened to [NZS 3604](#), 9 **Posts,** and [NZS 3604](#), 10 **Roof framing.**

3.6 BATTENS

For drained cavity construction nominal 20mm H3.1 cavity battens (non-structural) to [NZBC E2/AS1](#), 9.1.8.4 **Cavity battens.** For direct fix cladding window and door openings nominal 20mm H3.1 jamb battens to [NZBC E2/AS1](#), Fig. 72A.

4240 METAL WALL CLADDING

1 GENERAL

Refer to 1213 SELECTIONS/drawings for specific product, material, accessories and finish selections.

1.1 QUALIFICATIONS

Carry out work using persons competent and experienced in the trade..

1.2 WIND LOADINGS

Use fixings and methods capable of sustaining the loads appropriate to the area as set out in [NZS 3604](#), 5 **Bracing design**, and confirmed under 1212 COMPLIANCE.

2 PRODUCTS

2.1 PROFILED METAL SHEET CLADDING

Profile, metal and finish as selected. Accessories, cappings, flashings and fixings to match and to the metal cladding manufacturer's requirements. . Refer to 1213 SELECTIONS for type.

2.2 ACCESSORIES

Wall underlay:	Breather type, waterproof.Roofing type underlay for direct fix profiled metal.
Rigid Air Barriers:	Proprietary rigid sheet pre-cladding systems.
Nails, screws, fastenings:	Metal, size and pattern, to metal cladding manufacturer's requirements and complying with the relevant aspects of NZS 3604 , section 4 Durability and NZBC E2/AS1 .
Fixing clips:	When required by cladding manufacturer.
Flashings:	As required
Base closer:	Cavity closer or closure flashing to suit application to NZBC E2/AS1
Foam seals:	Non-bituminous compressible, profiled foam strips, to NZBC E2/AS1 , and foam tape where required

3 EXECUTION

3.1 STORAGE

Stack metal cladding and accessories on clean, level areas of the site. Cover 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 wall features.

3.3 MOISTURE CONTENT

Maximum allowable moisture content to [NZS 3602](#), table 4 **Allowable moisture content....**

3.4 SEPARATION

Separate metal sheeting from treated timber (except LOSP treated) with wall underlay or other suitable isolation material. Use strips of underlay over cavity battens when necessary. Bitumen based underlay must not be in contact with LOSP treated timber.

3.5 INSTALL WALL UNDERLAY/RIGID AIR BARRIER

Fix to the manufacturer's requirements. Refer to 1213 SELECTIONS for type

3.6 CAVITY BATTENS OR JAMB BATTENS

As specified in the section 3800 TIMBER FRAMING, to suit the selected wall cladding and construction type.

3.7 TAKE CARE

Take care to avoid damaging pre-finished cladding both during and after fixing. Mark only with chalk or spirit-based pen. Remove metal filings daily.

3.8 INSTALL PROFILED METAL SHEET CLADDING

Use cutting tools recommended by the cladding manufacturer. Fold ends and seal cut edges to the cladding manufacturer's requirements. Fix complete with matching accessories, foam seals, flashed to cladding features and penetrations; all in accordance with [NZMRM CoP](#) and [NZBC E2/AS1: 9.6 Profiled metal Wall cladding](#). Refer to 1213 SELECTIONS for direction to run profile.

3.9 FIXINGS AND SEALANTS

Refer to the cladding manufacturer's literature for fixing details and to [NZS 3604](#) for fixings durability requirements. Select and use sealants only as recommended by the cladding manufacturer.

3.10 INSTALL FLASHINGS

Flash to penetrations, cap corners and edges, using sealant and fixings/rivets to detail, to the cladding manufacturer's requirements and to [NZBC E2/AS1](#).

3.11 PENETRATIONS

Flash penetrations, and fit proprietary boots to pipework penetrations to suit cladding, to [NZBC E2/AS1](#).

3.12 COMPLETE

Complete all flashings, finishings and trim so the cladding system is completely weathertight.

4310 ROOFING

1 GENERAL

Refer to 1213 SELECTIONS/drawings for specific product, material, accessories and finish selections.

1.1 QUALIFICATIONS

Use experienced competent roofers familiar with the materials and techniques specified. Work to be carried out by or supervised by the appropriate LBP.

1.2 WIND AND EARTHQUAKE LOADINGS

Use fixings and methods capable of sustaining the loads appropriate to the area as set out in [NZS 3604](#), section 5 **Bracing design**, and confirmed under 1212 COMPLIANCE.

2 PRODUCTS

2.1 PROFILED METAL

Profile, metal and finish as selected. Accessories, cappings, flashings and fixings to match and to the roofing manufacturer's requirements.

2.2 ACCESSORIES

Roof underlays:	As selected.
Nails, screws, fastenings:	Metal, size and pattern, to roofing manufacturer's requirements and complying with the relevant aspects of NZS 3604 , section 4 Durability and NZBC E2/AS1 .
Flashings:	As required.

3 EXECUTION

3.1 STORAGE

Stack roofing and accessories on clean, level areas of the site. Cover 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. Overlaps to face away from prevailing wind direction.

3.3 LAY ROOF UNDERLAY

Lay and fix to [NZBC E2/AS1](#), 8.1.5 **Roof Underlays**.

3.4 TAKE CARE

Take care to avoid damaging pre-finished roofing both during and after fixing. Mark only with chalk or spirit-based pen. Wear only soft-soled shoes on the finished surface. Remove metal filings daily.

3.5 INSTALL PROFILED METAL

Use cutting tools recommended by the roofing manufacturer. Fold ends and seal cut edges to the roofing manufacturer's requirements. Fix complete with matching accessories, flashed to roof features and penetrations; all in accordance with [NZMRM CoP](#) and [NZBC E2/AS1](#): 8.4 **Profiled metal roof cladding**.

3.6 FIXINGS AND SEALANTS

Refer to the roofing manufacturer's literature for fixing details and to [NZS 3604](#) for fixings durability requirements. Select and use sealants only as recommended by the roofing manufacturer.

3.7 INSTALL COVERS AND FLASHINGS

Provide apron, verge and ridge flashings. Install and fix as detailed and to the roofing manufacturer's details and to comply with [NZBC E2/AS1](#), 4.0 **Flashings**, [NZBC E2/AS1](#): 5.0 **Roof/wall junctions**, and [NZBC E2/AS1](#): 6.0 **Parapets**.

3.8 PENETRATIONS

Flash and overflash penetrations through the roof. Fit proprietary boots to pipework penetrations.

3.9 COMPLETE

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

3.10 CLEAR

Clear trade debris and unused materials from the roof and surrounds regularly during the work and at completion. Sweep down the completed roof and flush out spoutings, gutters and rainwater pipes.

4520 ALUMINIUM WINDOWS & DOORS

1 GENERAL

Refer to 1213 SELECTIONS/drawings for specific product, material, accessories and finish selections.

1.1 QUALIFICATIONS

Fabricators/Installers to be experienced, competent trades people familiar with the materials and techniques specified.

1.2 CERTIFICATION

Provide documentation that the windows and doors comply with [NZS 4211](#) and safety glass complies with [NZS 4223.3](#).

1.3 WIND LOADINGS

Refer to section 1212 COMPLIANCE for wind zone.

2 PRODUCTS

2.1 WINDOW AND DOOR REVEALS

As selected, manufactured to comply with [NZS 4211](#). Timber jamb liners to [NZS 3602](#).

2.2 FLASHINGS

To [NZBC E2/AS1](#), 9.1.10 **Windows and Doors** and as required.

2.3 POWDER COATING FINISH

To Window & Glass Association NZ: Powder Coating Quality Assurance System. All finished surfaces to show uniformity of gloss and colour (to match sample) free of all coating defects.

2.4 SEALANT, GLAZING TAPE AND GASKETS

To the window manufacturer's requirements.

2.5 FIXINGS

Ensure fixings and bracketing are compatible with aluminium. Do not use electroplated zinc fasteners or brass fastenings.

3 EXECUTION

3.1 OPENING PREPARATION

Confirm framing openings (including jamb battens for direct fix cladding) on site for dimension, plumb and straightness prior to fabrication or ordering of aluminium joinery. Prepare and trim to Window & Glass Association NZ: Guide to Window Installation requirements. For openings over 600mm wide on cavity construction provide sill support bars.

3.2 EXECUTION GENERALLY

To [NZBC E2/VM1](#) and [NZBC E2/AS1](#). Install to the Window & Glass Association NZ: Guide to Window Installation requirements.

3.3 HANDLING

Avoid distortion of elements during transit, handling and storage. Prevent pre-finished surfaces from rubbing together. Prevent contact with mud, plaster and cement. Do not deliver to site any elements which cannot be immediately unloaded into suitable conditions of storage.

3.4 CORROSION PROTECTION

Seal or suitably coat cut ends and holes drilled in aluminium before the frames are installed. Before fixing, apply bituminous coatings, slips or underlays between dissimilar metals in contact, or aluminium in contact with concrete.

3.5 FIX FRAMES

Fix frames rigidly in place without distortion, to the window manufacturer's requirements and to [NZBC E2/AS1](#), 9.1.10.8, **Attachments for windows and doors**, plumb, true to line and face, weathertight and with all openings operating freely.

3.6 DRAINAGE

Anti-condensation channels to sills. All sills to sashes and fixed lights to incorporate positive drainage to the exterior.

3.7 GLAZING INSTALLATION

All glass held in aluminium beads and black PVC gaskets.

3.8 SAFETY GLASS INSTALLATION

Use in doors, sidelight panels, low level windows and all other locations to comply with [NZS 4223.3](#).

3.9 INSTALL FLASHINGS

Install flashings to heads, jambs and sills of frames as supplied and required by the window manufacturer and as detailed on the drawings. Finish on head flashings to match window finish.

3.10 SEAL FRAMES ON SITE

Seal frames to each other and to adjoining structure and finishes, all as required by the window manufacturer and to make the installation weathertight. Provide a continuous internal air seal between reveals and framing, using sealant over a backing rod.

3.11 SAFETY

Indicate the presence of transparent glasses for the remainder of the contract period, with whiting, tape or signs compatible with the glass type. Indicators other than whiting must not be applied to the glass surface. Permanent manifestations, if required, to [NZS 4223.3](#), 2.2 Manifestation (making glass visible).

3.12 CLEAN GLASS AND FRAMES

Clean off or remove glass indicators at completion of the building. Clean glass inside and out to a shining finish. Clean down both sides of window and door frames using the methods required by the window and door manufacturer.

4610 GLAZING

1 GENERAL

Refer to 1213 SELECTIONS/drawings for specific product, material, accessories and finish selections.

1.1 QUALIFICATIONS

Glaziers to be experienced, competent trades people familiar with the materials and techniques specified.

1.2 CERTIFICATION

If not supplied with windows, provide documentation that the safety glass complies with [NZS 4223.3](#).

2 PRODUCTS

2.1 GLAZING TAPE

Pressure sensitive, self-adhesive vinyl foam tapes, selected to suit the glazing detail.

2.2 GLASS THICKNESS

As selected and to [NZS 4223.1](#), [NZS 4223.3](#), [NZS 4223.4](#).

2.3 INSULATED GLASS UNITS

As selected and to [AS/NZS 4666](#). and [NZS 4223.2](#)

2.4 SETTING BLOCKS

Neoprene, 80-90 Shore A hardness, set at quarter points or to detail, at the base of glass panes.

3 EXECUTION

3.1 EXECUTION GENERALLY

To [NZS 4223.1](#), and for human impact safety glazing to [NZS 4223.3](#). Insulating glass units to [AS/NZS 4666](#) and [NZS 4223.2](#).

3.2 INSTALL GLASS TO ALUMINIUM FRAMES

Install glass to [NZS4223.1](#).

- Bead glaze to Section 4 Glazing.
- Channel glaze to Section 4 Glazing, and Section 5 for Framed, Unframed, Partly Framed Glass Assemblies.

3.3 SAFETY

Indicate the presence of transparent glasses, with whiting, tape or signs compatible with the glass type. Do not apply indicators other than whiting to the glass surface. Permanent manifestations if required, to comply with [NZS 4223.3](#), 2.2 Manifestation (making glass visible).

3.4 CLEAN

Clean off or remove indicators at completion of the building. Clean glass inside and out to a shining finish.

4710 THERMAL INSULATION

1 GENERAL

Refer to 1213 SELECTIONS/drawings for specific product, material, accessories and finish selections.

1.1 QUALIFICATIONS

Installers to be experienced, competent trades people familiar with the materials and techniques specified.

2 PRODUCTS

2.1 THERMAL INSULATING PADS

Rectangular insulating pads manufactured from fibreglass, polyester, wool or similar.

3 EXECUTION

Conditions

3.1 INSTALL INSULATION - GENERAL

Lay, install, fit and fix insulation without gaps, tucks, folds and over compaction to [NZBC H1/AS1](#) or [AS2](#) and insulation manufacturer's requirements. For all housing and buildings up to 300m install in accordance to [NZS 4246](#) sections 5 Walls, 6 Ceilings & Roofs, 7 Underfloor - Suspended Framed Floors and 10 Concrete Slab-on-Ground Insulation, for residential light timber or steel framed buildings.

3.2 FIT THERMAL INSULATING PADS

Friction fit insulating pads in place to completely fill the whole of the cavities. Carefully scribe cut insulating pads slightly oversize to maintain friction fit to each other, to smaller spaces and around penetrations. Leave no gaps between, and maintain full thickness of the insulating pads over the whole of the installation. Do not cover vents.

3.3 RECESSED LIGHT FITTINGS - RESIDENTIAL

Residential recessed light fittings to [AS/NZS 3000](#), 4.5.2.3.5;

- Existing fittings or retrofit situations, fittings maybe unmarked
- New fittings can only be labelled - CA 80, CA 90, CA 135, IC, IC-F & IC-4.

Refer to clause INSULATION CLEARANCES GENERALLY for clearances.

5410 FLOORS

1 GENERAL

Refer to 1213 SELECTIONS/drawings for specific product, material, accessories and finish selections.

1.1 QUALIFICATIONS

Workers / Installers to be experienced, competent trades people familiar with the materials and techniques specified.

2 PRODUCTS

2.1 PLYWOOD FLOORING

Structural plywood for bracing and floors, F11, CD grade, sanded face, H3.2 CCA.

2.2 SCREW FIXING PARTICLEBOARD OR PLYWOOD

Sure-fast type countersunk 50mm x 10 gauge screws, with one-component polyurethane based construction adhesive or elastomeric construction adhesive. Increase screw lengths for flooring over 21mm thick.

3 EXECUTION

3.1 LAY PLYWOOD FLOORING

Fix to the plywood manufacturer's requirements and to [NZS 3604](#), 7.2.3 **Wood-based sheet flooring**. Punch nails, fill holes, then sand , hand sanding into corners.