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

Proposed Dwelling - 880279

Project Specification

2 Onyx Street, Hikuwai , Wanaka, New Zealand
Project Ref: 25007

Printed: 21 May 2025

masterspec

Specification built using Masterspec software
Project ID: 327396 - 402146

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1210 PROJECT.

1 GENERAL

1.1 PROJECT

Street address:	2 Onyx Street, Hikuwai Wanaka
Legal description:	LOT 89 DP 587915
Site area:	514 m2
Project type:	New building
Intended use:	Single residential building
Intended life:	Indefinite but not less than 50 years

1.2 PROJECT DESCRIPTION

New single storey 3 bedroom dwelling with Vertical Cedar wall cladding, and trapazoidal Coloursteel cladding to the roof and walls. SED foundations, trusses by truss manufacturer. Services to be connected include foul water, stormwater, water supply, power, phone and gas

1.3 LBP REQUIREMENT

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

Carpentry
Foundations 1: Concrete foundation walls and concrete slab-on-ground
Roofing 2: Profiled metal roof and/or wall cladding

1.4 OWNER

Name:	M Ch'Ng & R Chan

1.5 AGENT

Name:	GJ Gardner Wanaka
Mailing address:	33 Reece Crescent, Wānaka
Telephone:	03 443 2196
Email:	wanaka.enquiries@gjgardner.co.nz

1.6 ARCHITECTURAL TECHNICIAN

Name:	Prime Designs
Mailing address:	3 Jupiter Grove, Trentham, Upper Hutt 5018
Telephone:	04 528 8405
Email:	admin@primedesigns.co.nz

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1212 COMPLIANCE

1 GENERAL

1.1 SITE DATA

C Soil type:	C (to NZS 3604, 3.2 **Soil types**)
Exposure zone:	Zone B (to NZS 3604, 4.2 **Exposure zones** or E2/AS1 Zone E severe marine)
Wind zone:	High (to NZS 3604, table 5.4 **Determination of Wind Zone**)
Earthquake zone:	Zone 3 (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:	2 KPa (to NZS 3604, table 1.2 Imposed floor live load reference values)
Overall height:	5 metres (in accordance with NZS 3604, Fig 1.2 Buildings covered by this Standard)
Risk assessment:	5 Total Risk Score (to NZBC E2/AS1, 3.1 Establishing the risk)

1.3 PRODUCER STATEMENTS

Provide Producer Statements for the following

- Truss design
- Wet area interior waterproofing
- Aluminium, PVC-U or JMF timber joinery
- Glazing
- Fireplace

Provide Producer Statements in the required form. Where no form is specified provide in the industry/trade standard form. Provide all Producer Statements before the Building Consent Authority carries out the final inspection.

1.4 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.

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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

3 STRUCTURE

<< 3110 CONCRETE WORK >>

3.1 DAMP-PROOF MEMBRANE - UNDER SLAB

Type/thickness:	Thermakraft Thermathene Black/250µm

3.2 INSULATION - UNDER SLAB

Type/thickness:	MAXSlab 300/90mm mm

3.3 CONCRETE REINFORCEMENT

Type:	Refer to Engineers documentation

3.4 CONCRETE

Location:	Refer to Architectural Plans
Strength:	Refer to Engineers documentation
Surface finish:	Float Finish

<< 3800 TIMBER FRAMING >>

3.5 EXTERIOR WALL TIMBER FRAMING

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

3.6 ROOF TIMBER FRAMING

Type/treatment:	Radiata pine, Grade SG8, Treated H1.2

3.7 ROOF TRUSSES

Type/treatment:	Radiata pine, Grade SG8, Treated H1.2
Truss supplier:	Carters

3.8 INTERIOR WALL TIMBER FRAMING

Type/treatment:	Radiata pine, Grade SG8, Treated H1.2

3.9 EXTERIOR EXPOSED TIMBER

Cladding & trim:	Radiata pine, Dressing, Treated H3.1
Structure:	Radiata pine, Grade SG8, Treated H3.2 CCA (preservative code 01 or 02)
Deck framing & joists:	Radiata pine, Grade SG8, Treated H3.2 CCA (preservative code 01 or 02)

4 ENCLOSURE

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

There is no work section specification relating to the following selections

4.1 DAMP-PROOF COURSE

Brand/Type:	Thermakraft/Supercoarse 500

4.2 WALL UNDERLAY/ROOF UNDERLAY

Masons / UNI PLUS

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Wall Underlay
Brand/Type:
Roof Underlay Drispace / RU24
Brand/Type:

4.3 WINDOW FLASHING TAPE

Brand/Type: Thermakraft / Aluband

<< 4220 WALL CLADDING >>

4.4 CLADDING TYPE 1

Brand/Type: Hermpac / HP55 Vertical Shiplap Weatherboards
Finish: Owner to select

4.5 CLADDING TYPE 2

Brand/Type: Metalcraft / T-Rib
Finish: Owner to select

<< 4310 ROOFING >>

4.6 ROOFING

Brand/Type: Metalcraft/T-Rib
Flashings: Aluminium/ 0.55mm BMT
Colour: Owner to select

<< 4520 ALUMINIUM WINDOWS AND DOORS >>

4.7 ALUMINIUM WINDOWS AND DOORS

Brand/Type: Owner to select
Finish/colour: Owner to select
Flashings: Thermakraft / Aluband
Hardware: Owner to select

<< 4555 GARAGE DOORS >>

There is no work section specification relating to the following selections

4.8 GARAGE DOOR

Brand/Type: Owner to select
Face panel: Owner to select
Finish: Owner to select

<< 4610 GLAZING >>

4.9 GLAZING - ORDINARY

Location: Refer to Architectural Drawings
Type: Owner to select

4.10 GLAZING - SAFETY

Location: Refer to Architectural Drawings
Type: Owner to select

4.11 GLAZING - INSULATING GLASS UNITS

Location: Refer to Architectural Drawings
Type: Owner to select

<< 4710 THERMAL INSULATION >>

4.12 WALL INSULATION 1

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

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4.13 WALL INSULATION 2

Brand/Type:	Pink Batts / Ultra Wall
R value/Thickness:	R 2.8 / 90mm

4.14 CEILING/ROOF INSULATION 1

Brand/Type:	Pink Batts / Ceiling
R value/Thickness:	R 5 / 220mm

<< 4820 FLASHINGS >>

There is no work section specification relating to the following selections

4.15 FLASHINGS - GENERALLY

Type:	Colorsteel Endura / 0.55mm BMT

4.16 FLASHINGS - CONCEALED

Type:	uPVC

5 INTERIOR

<< 5110 INTERIOR LININGS AND TRIM >>

5.1 WALL LININGS

Location:	Refer to Architectural drawings
Brand/Type/thickness:	GIB / Std / 10mm
Finish:	Level 4

5.2 CEILING LININGS

Location:	Refer to Architectural drawings
Brand/Type/thickness:	GIB / Std / 10mm
Finish:	Level 4

<< 5230 INTERIOR DOORS & FRAMES >>

5.3 INTERIOR DOORS

Location:	Refer to Architectural drawings
Leaf type/finish:	Owner to Select
Frame type/finish	Owner to Select
Hardware:	Owner to Select

6 FINISH

<< 6200 TILING >>

6.1 TILES

Location:	Refer to Architectural drawings
Grout/colour:	Owner to select

6.2 WET AREA WATERPROOFING

Location:	Refer to Architectural drawings
Brand/type:	Ardex / WPM001

<< 6300 FLOOR COVERING >>

6.3 TIMBER LAMINATE FLOORING

Location:	Refer to Architectural drawings
Brand/Type:	Quick-Step / Creo / 13mm

6.4 CARPET

Location:	Refer to Architectural drawings
Brand/Type:	Owner to select

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Underlay:	Owner to select
Trim:	Owner to select

<< 6700 PAINTING >>

6.5 INTERIOR PAINTING

Walls	Owner to select
Ceiling:	Owner to select
Doors	Owner to select
Cabinetry:	Owner to select
Trim:	Owner to select

7 SERVICES

<< 7150 SANITARYWARE, TAPWARE & ACCESSORIES >>

7.1 SANITARYWARE

Location:	Item/brand/reference:
Refer to Architectural drawings	Owner to select

<< 7210 GAS SYSTEM >>

7.2 GAS

Gas bottle type:	Twin LPG

7.3 GAS APPLIANCES

Brand/type/reference:	Owner to select

<< 7410 RAINWATER SPOUTING SYSTEM >>

7.4 SPOUTING

Brand/type/size:	Refer to Architectural drawings/Continuous Metal

7.5 DOWNPIPES

Brand/type/size:	Refer to Architectural drawings/Continuous Metal

<< 7700 ELECTRICAL >>

7.6 LIGHT FITTINGS

Brand/type/reference:	Owner to select

7.7 SMOKE ALARMS

Brand/type/reference:	Owner to select

7.8 EXTRACT SYSTEMS

Kitchen extract:	Owner to select
Bathroom extract:	Owner to select
Toilet extract:	Owner to select
Laundry extract:	Owner to select

8 EXTERNAL

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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

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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
- Block layer
- Bricklayer
- External plasterer
- External window manufacturer
- Waterproof membrane applicator

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

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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 PROGRAMME

Provide a programme for the contract works, including the work of separate contractors being carried out concurrently with this contract. Form of programme: A dated bar chart, identifying the contract work's critical path and all key dates for the provision of labour, materials and elements. Supply a copy of the programme, and any updates to the owner.

1.29 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.

1.30 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.

1.31 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.

1.32 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.

1.33 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.

1.34 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.

1.35 MATERIALS AND PRODUCTS

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

1.36 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.

1.37 COMPLETE ALL SERVICES

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

1.38 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.

1.39 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.

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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

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 G1/AS1	Personal hygiene
NZBC G10/AS1	Piped services - Gas
NZBC G11/AS1	Gas as an energy source
NZBC G12/AS1	Water supplies
NZBC G12/AS3	Water supplies
NZBC G13/AS1	Foul water - Sanitary plumbing
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 2492	Cross-linked polyethylene (PE-X) pipes for pressure applications
AS/NZS 2537.1	Mechanical jointing fittings for use with crosslinked polyethylene (PE-X) for pressure applications -Plastics piping systems for hot and cold water installations – Crosslinked polyethylene (PE-X) - General
AS/NZS 2537.2	Mechanical jointing fittings for use with crosslinked polyethylene (PE-X) for pressure applications - Plastics piping systems for hot and cold water installations – Crosslinked polyethylene (PE-X) –Fittings
AS/NZS 2537.3	

	Mechanical jointing fittings for use with crosslinked polyethylene (PE-X) for pressure applications - Plastics piping systems for hot and cold water installations – Crosslinked polyethylene (PE-X) -Fitness for purpose of the system
AS/NZS 2537.4	Mechanical jointing fittings for use with crosslinked polyethylene (PE-X) for pressure applications - Plastics piping systems for hot and cold water installations – Crosslinked polyethylene (PE-X) -Guidance for the assessment of conformity
AS/NZS 2589	Gypsum linings - Application and finishing
AS/NZS 2642.1	Polybutylene pipe systems - Polybutylene (PB) pipe extrusion compounds
AS/NZS 2642.2	Polybutylene pipe systems - Polybutylene pipe for hot and cold water applications
AS/NZS 2642.3	Polybutylene pipe systems - Mechanical jointing fittings for use with polybutylene (PB) pipes 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	Plumbing and drainage - Sanitary plumbing and drainage
AS/NZS 3500.3	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
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
NZS 4514	Interconnected smoke alarms for houses
AS/NZS 4666	Insulating glass units
AS/NZS 4671	Steel for the reinforcement of concrete
AS/NZS 4858	Wet area membranes
AS/NZS 5601.1	Gas installations - general installations
NZS 6803	Acoustics - Construction noise

1.5 OVERSEAS STANDARDS

AS 1432	Copper tubes for plumbing, gasfitting and drainage applications
AS 2345	Dezincification resistance of copper alloys
AS 3688	Water supply and gas systems - Metallic fittings and end connectors
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: Membrane roofing
Bulletin 519 - Fasteners selection
Bulletin 601 - Sealed for Cladding Joints

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 Code of Practice for Below-Grade Tanking Membranes
- WMAI Code of Practice for Interior Wet Area Membranes
- WMAI Code of Practice for Reinforced Modified Bitumen Membrane (RMBM) 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.

2200 GROUNDWORKS & PREPARATION

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 SITE SAFETY

Provide proper support for excavations. Cover holes and fence off open trenches and banks.

2 PRODUCTS

2.1 FILLING MATERIALS

Volcanic tuff:	Scoriaceous tuff of variable grading excluding silt or clay material, capable of being placed and compacted as specified.
Rock fill:	Hard material comprising rock, broken stone, hard brick, concrete, run of pit scoria, or other comparable inert material capable of being placed and compacted as specified.
Sand fill:	Clean sand of such grading in particle size as to allow for mechanical compaction to 90% maximum density.
Hardcore:	Scoria or crushed rock to GAP (General All Passing) 40 grading.
Granular base:	Screened crushed gravel or scoria graded in size from 20mm to 7mm, clean. When tested with a standard sieve of 4.75 opening no material is to pass.
Dressing course:	Scoria to GAP 20 grading, or "dirty footpath scoria", or equivalent "all in" graded crushed metal aggregate.
Free-draining aggregate:	Scoria or crushed gravel graded 50 to 14 clean.

3 EXECUTION

3.1 EXCAVATION GUIDELINES

Carry out excavation to the guidelines set in WorkSafe, Good Practice Guidelines - Excavation Safety.

3.2 PROTECT EXISTING

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

3.3 SURFACE PREPARATION

To NZS 3604, 3.5 **Site preparation**, remove all turf, vegetation, trees, topsoil, stumps and rubbish from the area being built on.

3.4 UNDERGROUND ELEMENTS AND SERVICES

Break out and remove underground elements and redundant services. Report for instructions when unexpected voids, made-up ground or services are encountered. Seal off the ends of drains or remove to NUO approval.

3.5 GENERAL EXCAVATION

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

3.6 EXCAVATION FOR FOUNDATIONS

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

3.7 INADEQUATE BEARING

If localised bearing is not to NZS 3604, 3.1.2 **Foundations** and 3.1.3 **Determination of good ground**, then excavate further and backfill with material as follows:

- Below slabs on grade: Hardfill compacted in 150mm layers

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- Below footings: 10 MPa concrete

If excavation exceeds the required depths, backfill and compact to the correct level with material as listed.
Confirm any changes with the territorial authority.
For inadequate bearing or over excavation, in service trenches, use hardfill compacted in 150mm layers.

3.8 GRANULAR BASE FOR SLABS

To NZS 3604, 7.5.3 **Granular base**. Consolidate with a vibrating roller. Blind the surface with coarse sand or sand/cement and roll ready to receive a damp-proof membrane.

3.9 GENERAL BACKFILLING

Compact backfilling in 150mm layers, with the last 200mm in clean topsoil, lightly compacted and neatly finished off.

3110 CONCRETE WORK

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. Structural and foundation work to be carried out by or supervised by the appropriate LBP.

2 PRODUCTS

2.1 REINFORCEMENT

Bars to AS/NZS 4671, grade 300E deformed, other than for ties, stirrups and spirals, unless shown otherwise on the drawings. Welded reinforcing mesh to AS/NZS 4671 Class E. Mild drawn steel tying wire not less than 1.2mm diameter.

2.2 SPACERS AND CHAIRS

Precast concrete or purpose made moulded PVC. Use concrete spacer blocks only where the concrete surface is not exposed in the finished work.

2.3 CONCRETE

Strength as selected. Ready-mix normal concrete, maximum aggregate size 19mm to NZS 3104. Site mixed prescribed mix concrete, using either separate batching of sand and coarse aggregate, or builder's mix, to NZS 3104.

3 EXECUTION

3.1 HANDLE AND STORE REINFORCING

Handle and store reinforcing steel and accessories without damage or contamination. Ensure reinforcement is clean and remains clean and free of contamination that may reduce bonding capacity.

3.2 FALSEWORK AND FORMWORK

Use falsework and formwork of sufficient strength to retain and support the wet concrete to the required profiles and tolerances. Select formwork finish to produce the specified finished quality.

3.3 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. Bend main reinforcing bars, stirrups and ties to the former pin diameters as given in NZS 3109, figure 3.1, **Standard bend, hook and stirrup**.

3.4 SECURE REINFORCEMENT

Secure reinforcement adequately with tying wire and place, support and secure against displacement when concreting. Bend tying wire back well clear of the formwork. Spacing as dimensioned, or if not shown, to the clear distance minimums laid down in NZS 3109, 3.3.**Hooks and bends**.

3.5 LAPPED SPLICES

Set length of laps, where not dimensioned on the drawings, in accordance with NZS 3109: 3.7, **Splices in reinforcement**. Plain bars lapped splices must be hooked.

3.6 REINFORCEMENT COVER TO NZS 3604

Minimum cover to all reinforcing bars, stirrups, ties and spirals, as shown on drawings. Where cover is not shown on drawings provide minimum cover to NZS 3604 requirements.

3.7 EQUIPOTENTIAL BONDING REINFORCING

If it is an electrical requirement, ensure that reinforcing is equipotential bonded (or at least conductor cable attached) before the concrete is poured.

3.8 CONCRETE PLACEMENT

To comply with NZS 3109.

3.9 SURFACE FINISHES

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To comply with NZS 3114, section 105 **Specification of finishes**, or as denoted on the drawings. Formwork linings and surface finishes as nominated for both fair face and concealed or exposed surfaces. Surface tolerances to comply with NZS 3114, section 104 **Surface tolerances** and 105.3.2.

3.10 CASTING IN

Build in grounds, bolts and fixings for wall plates and bracing elements, holding down bolts, pipes, sleeves and fixings as required. Form pockets, chases and flashing grooves as required. No grounds exceeding 100mm in length. Minimum cover on conduits 40mm. Do not encase aluminium items in concrete. Do not paint steel embedded items more than 25mm into the concrete encasement. Cut back form ties to specified cover and fill the cavities with mortar. Wrap all pipes embedded in concrete with tape to break the bond and to allow for expansion.

3.11 SURFACE REPAIRS

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

3.12 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. Ensure any membrane used will not affect subsequent applied finishes.

3.13 STRIKE FORMWORK

Strike formwork without damaging or overloading structure.

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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 toNZS 3602, table 4 **Allowable moisture content** ….. Structural Grade (SG) toNZS 3604, NZS 3622 with properties to NZS 3603.

2.2 TIMBER TRUSSES

To FTMA Code of Practice. Moisture content 16% at supply.

2.3 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 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**.

3.5 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.

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4220 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.

2 PRODUCTS

2.1 TIMBER WEATHERBOARD

As selected, or radiata pine to NZS 3631 for grading and to NZS 3602, table 2 **Requirements for wood-based building components…,** for selection and treatment.

2.2 FIBRE CEMENT SHEET CLADDING

Cellulose cement autoclaved sheets.

2.3 FIBRE CEMENT SOFFIT LINING

Cellulose cement autoclaved sheets.

2.4 ACCESSORIES

Wall underlay:	Breather type, waterproof.
Rigid Air Barriers:	Proprietary rigid sheet pre-cladding systems.
Jointers:	To suit cladding type and thickness.
Nails, screws, fastenings:	Metal, size and pattern, to cladding manufacturer's requirements and complying with the relevant aspects of NZS 3604, section 4: **Durability** and E2/AS1.

3 EXECUTION

3.1 MOISTURE CONTENT

Maximum allowable moisture content to NZS 3602, table 4 **Allowable moisture content….**

3.2 EXECUTION GENERALLY

To NZBC E2/AS1 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).

3.3 INSTALL WALL UNDERLAY

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

3.4 CAVITY BATTENS OR JAMB BATTENS

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

3.5 PRIME OR SEAL TIMBER WEATHERBOARDS

Prime (for opaque finish) or seal (for clear finish) front and back faces, edges and end grain (minimum 2 coats) before fixing weatherboards and exterior trim.

3.6 INSTALL TIMBER WEATHERBOARDS

Install level, true to line and face, to NZBC E2/AS1, 9.4 **Timber weatherboards**.

3.7 INSTALL FIBRE CEMENT SHEET CLADDING

Install level, true to line and face, to the manufacturer's requirements, as detailed and NZBC E2/AS1, 9.7 **Fibre cement sheet**.

3.8 INSTALL FIBRE CEMENT SOFFITS

Cut sheets dry and scribe fit to fully support all edges and joints. Nail and drill for and insert fasteners to the sheet manufacturer's requirements. Fit complete with jointers and capping moulds. Refer to the cladding manufacturer's literature for fixing details and fixings durability requirements to NZS 3604, section 4 **Durability**.

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3.9 INSTALL EXTERIOR TIMBER FINISHINGS

Install timber fascias, barge boards, facings, beads, trim and enclosures level, true to line and face, with all end grain sealed and joints mitred.

3.10 INSTALL FLASHINGS

Install flashings, covers and soakers as detailed on the drawings and to NZBC E2/AS1, 4.0 **Flashings**.

3.11 USE OF SEALANTS

Selection and use of sealants to follow BRANZ BU 601: Sealants for cladding joints.

3.12 COMPLETE

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

4221HV HERMPAC VERTICAL WEATHERBOARD CLADDING SYSTEM

1 GENERAL

This section relates to the supply and fixing of **Hermpac** Vertical cladding:

- Vertical Shiplap weatherboards

1.1 RELATED WORK

Refer to painting sections for finishes to weatherboard cladding.

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

FSC®	Forest Stewardship Council®
PEFC	Programme for the Endorsement of Forest Certification

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 3617	Profiles of weatherboards, fascia boards and flooring

JAS-ANZ CodeMark Certification CMNZ30036 - Hermpac VertiLine Vertical Shiplap Weatherboard Cavity System

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Hermpac Construction Drawings

Hermpac VertiLine Vertical Shiplap Weatherboard Cavity System installation Specifications
Hermpac Vertical Shiplap Weatherboard Direct Fix System Installation Specifications
Hermpac Product Technical Statement (PTS) – VertiLine Vertical Shiplap Weatherboard Cavity System (July 2023)
Hermpac Product Installation Checklist – VertiLine Vertical Shiplap Weatherboard Cavity System (Jan 2023 V2)

Hermpac Board and Batten Weatherboard Cavity System Installation Specifications
Hermpac Board and Batten Weatherboard Direct Fix System Installation Specifications
Hermpac Product Technical Statement (PTS) – Board and Batten Weatherboard Cavity System (July 2023)
Hermpac Product Installation Checklist – Board and Batten Weatherboard Cavity System (Jan 2023 V2)

Hermpac Standard and Custom profiles
Hermpac Profile Portfolio
Hermpac Grade descriptions
Hermpac Nail/Screw fixings
Hermpac Legal and / or Sustainable Certification
Machinecoat - Flood Coat Inundation versus Spray Application
Maintenance of selected Wood Oil/Oil Based Stain Finishes
Hermpac WRC Information Sheet – cuts and characteristics
Hermpac WR & Yellow Cedar cuts and characteristics

BRANZ Appraisal 650 - Hermpac VertiLine Vertical Shiplap Weatherboard Cavity System

Manufacturer/supplier contact details:

Company:	**Hermpac Ltd**
Contacts:	Kyle Deans - 021 771 857, kyle.deans@hermpac.co.nz
	Carmen Hansen - 027 809 4588, carmen@hermpac.co.nz

Web:	www.hermpac.co.nz
Email:	technical@hermpac.co.nz
Telephone:	09 421 9840 Auckland
	04 586 9674 Wellington
	03 341 2163 Christchurch

Warranties

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years For installation of Hermpac vertical weatherboard cladding systems

- Provide this warranty on the installer/applicator standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT).
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

Compliance information

1.7 CODEMARK CERTIFICATE

Hermpac vertical weatherboard cladding systems meet the requirements of the NZBC when used within the Conditions and Limitations of their Certificate CMNZ30036.

1.8 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

- Producer Statement - Construction from the applicator / installer
- Other information required by the BCA in the Building Consent Approval documents.

Performance

1.9 FIXINGS, WIND

Design and use the fixings appropriate for the wind zone (R) and topographical classification (T) of this site and building height; as required by NZS 3604.

1.10 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed cladding system, including all penetrations. To NZBC B2 Durability and NZBC E2/AS1 External moisture.

2 PRODUCTS

2.1 DURALARCH

Hermpac DuraLarch™ (Larix Sibirica), FSC certified timber supplied from sustainably managed Northern European forest sources.

2.2 VERTICAL SHIPLAP

Weatherboards to Hermpac profiles, Lap and Rebate details to BRANZ BU 411 and general design to the NZS 3617, species and grading to NZS 3602, table 2, reference 2A.1, Requirements for wood-based building components to achieve a 15-year durability performance. Weatherboards in lengths relevant to profile selection and application, with all unsound and open split knots excluded by cross cut removal prior to fixing into position.
Acceptable Solution is limited to the following types of weatherboards and their derivatives:

- Vertical Standard Shiplap and Hermpac Custom Profiles

A selection of the above profiles are also available in Western Red Cedar and Yellow Cedar finger-joint (CedarOne Evolve and CedarLine Evolve). CedarOne Evolve is quarter-sawn cut Cedar. CedarLine Evolve is primarily flat-sawn cut Cedar. Evolve profiles are available across most standard and custom profiles. The timber is machined with a “combed” finish to the front face and the boards are finished with an oil or stain as per Hermpac literature.

Regular paint finish finger-joint (CedarOne Mantle and CedarLine Mantle) is also available in Western Red Cedar and Yellow Cedar. Profiles are machined with a “dressed” finish to the front face and the exposed corners are machined to paint quality - PQ (ie. rounded edges for paint adherence). Boards are supplied pre-primed and undercoated, sanded and/or de-nibbed/buffed between coats.

A selection of the above profiles are also available in AshinDura™. Profiles are machined with a “dressed” finish to the front face and the exposed corners are machined to paint quality – PQ (ie. rounded edges for paint adherence). Boards are supplied pre-primed and undercoated, sanded and/or de-nibbed/buffed between coats.

2.3 COVER BOARDS, SMART CORNERS, MOULDINGS AND SCRIBERS

To Hermpac profiles as detailed, with species and grading to NZS 3602, but with all unsound and open split knots excluded by cross cut removal prior to fixing into position. To NZS 3602, table 2, reference 2A.3, Requirements for wood-based building components to achieve a 15-year durability performance.

2.4 FASCIA BOARDS

To Hermpac profiles, with species and grading to NZS 3602, but with all unsound and open split knots excluded by cross cut removal prior to fixing into position. To NZS 3602, table 2, reference 2A.3, Requirements for wood-based building components to achieve a 15-year durability performance.

2.5 WALL UNDERLAYS

For flexible wall underlays, rigid wall underlays and rigid air barriers, refer to the appropriate separate section(s).

2.6 VERTIBAT PINE EXTERIOR CAVITY WALL BATTENS - NON STRUCTURALLY FIXED

Vertibat Radiata Pine, H3.1 and H3.2 treated castellated and double bevelled cavity battens, available in a range of sizes. Refer to SELECTIONS.

2.7 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

Aluminium, PVC or stainless steel cavity closure strip, punched with 3mm-5mm holes or slots to provide a minimum ventilation opening area of 1000mm² per lineal metre of wall. Length and width to suit cavity. To NZBC E2/AS1: clause 9.1.8.3 and figure 66.

Components

2.8 NAILS, STAINLESS STEEL

Hermpac Crown, Rose or Flat Head, Annular Grooved Grade 316 Stainless Steel fixings to NZBC E2/AS1 Table 24. Refer to Hermpac Construction Drawings for fixing details and to SELECTIONS for fixing sizes.

2.9 SCREWS, STAINLESS STEEL

Hermpac Starcap Grade 316 Stainless Steel fixings to NZBC E2/AS1 Table 21. Refer to Hermpac Construction Drawings for fixing details and to SELECTIONS for fixing sizes and colours.

2.10 JOLT HEAD NAILS, STAINLESS STEEL

Hermpac Jolt Head, Annular Grooved Grade 316 Stainless Steel fixings to NZBC E2/AS1 Table 24. Refer to Hermpac Construction Drawings for fixing details and to SELECTIONS for fixing sizes.

2.11 FLASHINGS GENERALLY

To NZBC E2/AS1, 4.0 **Flashings**. Material, grade and colour as detailed and scheduled and to NZBC E2/AS1; Table 21: Compatibility of materials in contact and table 22: Compatibility of materials subject to run-off. Ensure that materials used for flashings are compatible with the window frame materials and fixings and cladding materials and fixings.

2.12 SEALANT

Polyurethane or silane terminated polymers (PU-hybrid technology) construction sealant.

Finishes

2.13
FACTORY PRE-FINISHING - MACHINECOAT (NZ) - PENETRATING WOOD OIL / OIL BASED STAIN

Flood Coat Inundation: Factory application of selected oil-based stain finishes by flood inundation and enhanced penetration of timber surface by roller pressure and fibre saturation.
Refer to: www.hermpac.co.nz/our-products/coatings

Wood X Oil:	Penetrating wood oil - exclusive Machinecoat (NZ) factory formulation, standard and custom colour range.
Wood X Stain:	Penetrating stain - exclusive Machinecoat (NZ) factory formulation, standard and custom colour range.
Resene:	Machinecoat (NZ) Waterborne Woodsman oil stain - exclusive pigment and fungicide enriched factory formulation.

Site applications to manufacturers specifications. All Hermpac weatherboards and mouldings must be coated all six sides prior to installation.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.

3.2 ROUTINE MATTERS

Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.
Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.

3.3 PRE-INSTALLATION REQUIREMENTS - TIMBER FRAMING

Check work previously carried out and confirm it is of the required standard for this part of the work. Before fixing commences ensure that the substrate conforms to NZS 3604, section 2, table 2.1, Timber framing tolerances, and the requirements of NZS 3604, section 6, Foundation and subfloor framing, and NZBC E2/AS1, 9.4 Timber weatherboards, governing support for timber board cladding and Hermpac Installation Specifications.

Application - generally

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 APPLICATION GENERALLY

Application in accordance with Hermpac Installation Specifications.

Application - preparation

3.6 SITE STAINING - WOOD OIL/OIL STAIN FINISH

If not pre-finished before delivery, prepare and coat all faces and edges with one coat of premium wood oil or oil stain to coating manufacturers specifications immediately on opening block stack. Once coated, open stack each board to dry (or penetrate) with back facing downwards ensuring faces remain well finished, untouched and unblemished during drying. Once the coating is dry (Resene Woodsman) or penetrated (Wood-X wood oil), stack the boards face to face and back to back in subsequent layers, so as not to damage the face and finish. Keep dry and undamaged.

Apply a second coat to the boards once they have been installed if using Wood-X or a second and third additional coat if using Resene Waterborne Woodsman. Coating timeframes for oils/stains will vary. Check timeframe requirements for the second or third coats with the coating manufacturer.

Application - vertical cladding over cavity battens

3.7 VERTIBAT PINE DRAINED CAVITY / NON STRUCTURALLY FIXED

Install 20mm minimum thickness drained cavity. Fit Vertibat cavity battens horizontally over wall underlay to wall framing, centred over nogs at 400mm - 480mm vertical centres with top edge sloping away from wall underlay and nail tack in place.

3.8 CAVITY CLOSER / VERMIN PROOFING

Refer to Hermpac Cavity System Installation Specification. Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc). Use cavity spacers where fixing is required between cavity battens.

3.9 PENETRATIONS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:

- wall underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- claddings neatly finished off to all sides of openings
- installation of flashings (those required to be installed prior to installation of penetrating elements).

Hermpac Construction Drawings call for a compressible bond breaker, closed cell PVC foam seal to NZBC E2/AS1 9.1.10.7.

3.10 SET-OUT

Use a string line, laser or mechanical device to set out all fixing that will be visible in the finished work. Align accurately in straight lines. Refer to relevant Hermpac Installation Specification and Construction Drawings to establish correct angle of fixing and consistent, accurate placement relative to visible edge of board. For vertical shiplap boards, where possible the exposed lap should face away from the prevailing wind.

Application - fixing

3.11 FIXING - OIL / STAIN FINISH

Install level, true to line and face, to NZBC E2/AS1: 9.4 Timber weatherboards. Double coat all cut ends before fixing. Provide one face fixing per weatherboard at each Vertibat cavity batten over nogging or structurally fixed cavity batten location. Pilot drill all fixings slightly smaller than gauge of fixing to ensure a snug fit and to minimise risk of moisture entry. Finish the heads of Hermpac Crown, Rose and Flat head nails, or Hermpac Starcap screws, flush onto and not into the board surface. Do not over drive the nail/screw head and crush the timber surface beneath and surrounding the nail/screw.

3.12 FIXING/FINISH - WIND ZONE

Hermpac Western Red Cedar, Yellow Cedar, DuraLarch™ or AshinDura™ weatherboards fixed witl Stainless Steel or Silicon Bronze Hermpac Crown, Rose and Flat Head nails or Hermpac Starcap screws and Kanda weatherboards fixed with Hermpac Starcap screws are limited to use in NZS 3604 Wind Zones up to and including Extra High when dwangs or structurally fixed Vertibat cavity battens are at maximum 480mm centres.

Hermpac Western Red Cedar weatherboards fixed with stainless steel jolt head nails are limited to use in NZS 3604 Wind Zones up to and including Medium when dwangs or structurally fixed Vertibat cavity battens are at maximum 480mm centres, and NZS 3604 Wind Zones up to and including Very High when dwangs or structurally fixed Vertibat cavity battens are at maximum 400mm centres.

Hermpac Yellow Cedar, DuraLarch™ and AshinDura™ weatherboards fixed with jolt head nails are limited to use in NZS 3604 Wind Zones up to and including Extra High when dwangs or structurally fixed Vertibat cavity battens are at maximum 480mm centres.

Refer to Hermpac Construction Drawings for fixing details and to SELECTIONS for fixing sizes.

3.13 FIXING VERTICAL SHIPLAP WEATHERBOARDS

Install level, true to line and face, to NZBC E2/AS1: 9.4 **Timber weatherboards**. Single face fix weatherboards to every fixing point, clear of the adjacent lapped board. Fixing to be driven in with a slightly upward slope. Line fixings horizontally across the boards. Pilot drill all fixings slightly smaller than gauge of fixing to ensure a snug fit and to minimise risk of moisture entry. Refer to Hermpac Construction Drawings for accurate weatherboard fixing information.

Using a Hermpac specialty clinch nail, prior to the next row of Vertical Shiplap boards being fixed alongside (nogs or dwangs at maximum 480mm centres) and at a position hard up against but not into the hidden lap board edge at every fixing point, restrain the hidden lap tongue by driving the clinch nail into the cavity batten so that the clinch head settles flush into the weatherboard's surface. The clinch nail head must not sit proud of the timber surface nor prevent the correct separation of each adjacent row of boards. Do not pin laps or weatherboard faces.

Refer to Hermpac Construction Drawings and Installation Specification for suitable face fixings (options include Hermpac Silicon Bronze nails or Grade 316 Stainless Steel nails or Starcap screws. Kanda weatherboards must be fixed with Hermpac Starcap screws), correct placement of fixings, size, length and minimum penetration requirements, and for external and internal corner construction and fixing details.

3.14 INSTALL FLASHINGS

Install flashings, covers and soakers as detailed on the drawings and to NZBC E2/AS1.

3.15 SEALANT

Coated weatherboards laid over Mill Finish Grade 316 Stainless Steel:

Sika: Wipe weatherboard surfaces with a clean rag. Using an abrasive pad, rub down Stainless Steel in a single pass before cleaning with Sika Aktivator-205. Coat both weatherboards and Stainless Steel with Sika Primer 3N and apply a continuous 5mm bead of Sikaflex-11FC or Sikaflex 123 MS Bond.

Soudal: Wipe weatherboard surfaces with a clean rag before wiping Stainless Steel only with Gorilla 696 Surface Activator, being careful not to coat any powder coated surfaces. Apply a minimum 5mm thick continuous bead of Gorilla MS Sealant.

3.16 COMPLETE

Ensure the work is complete with all flashings, finishings and trim properly installed so the cladding system is completely weathertight.

Completion & Commisioning

3.17 COMPLETION MATTERS

Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements.

4 SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise. Contact technical@hermpac.co.nz for assistance or more information.

4.1 HERMPAC - VERTICAL SHIPLAP

Location:	East Walls (Gable end) and North Dining wall
Species:	DuraLarch™
Grade:	HERMPAC Premium Clears No.1 (PC1)
Profile Number/Series:	HP52
Profile type:	Vertical Shiplap
Cover dimensions:	155mm
Thickness:	18.5mm
Cavity Fixing system:	20mm
Surface finish:	Band Sawn Face (BSF)
Moisture content:	≤18 % at fixing

4.2 HERMPAC CORNER MOULDS, COVER BOARDS, BOXED CORNERS & SCRIBERS

Species:	DuraLarch™
Grade:	HERMPAC Premium Clears No.1 (PC1)
External Corner Mould:	HP300
Internal Corner Mould:	HP41
Cover boards:	HP 201 and HP 202
Scriber:	HP11 - HP18
Surface finish:	Band Sawn Face (BSF)
Moisture content:	≤18% at fixing

4.3 WEATHERBOARD FASTENINGS - STAINLESS STEEL NAILS

Nails:	Flat Head
Type:	Grade 316 stainless steel

4.4 WEATHERBOARD FASTENINGS - SCREWS

Screws:	Hermpac Starcap
Type:	Grade 316 stainless steel

4.5 WEATHERBOARD FASTENINGS - STAINLESS STEEL JOLT HEAD NAILS

Nails:	Jolt Head
Type:	Grade 316 stainless steel

4.6 VERTIBAT CAVITY BATTENS - NON STRUCTURALLY FIXED

Product:	Vertibat V1
Timber species:	Radiata Pine
Treatment:	H3.1 - LOSP
Size:	20mm deep x 45mm wide x 2700mm long
Fixings:	40mm x 2.5mm flat head hot-dipped galvanized nails

4.7 HERMPAC CAVITY CLOSER/VERMIN-PROOFING

Brand/type:	Sigma cavity closure
Material:	Aluminium

4.8 HERMPAC INTERNAL AND EXTERNAL CORNER BACK FLASHINGS

Material:	Aluminium
Length:	2.4
Type:	Unhemmed

4.9 SEALANT

Primer:	SikaPrimer 3N
Sealant:	Sikaflex 11FC

4.10 FACTORY FINISH - WOOD OIL / OIL STAIN - FLOOD COAT INUNDATION

Brand:	Machinecoat (NZ) Ltd
Product:	Wood-X penetrating wood oil
Coating process:	Machinecoat (NZ) Ltd. Flood Coat Inundation
Colour:	Wood-X Damper
Factory coats:	One
On site coats:	One, or as per coating manufacturers specification

4.11 SITE FINISH - PENETRATING WOOD OIL / OIL STAIN

Brand:	Wood-X penetrating wood oil
Colour:	Owner to select
On site manual coats:	Refer Manufacturers specifications

4231HA JAMES HARDIE AXON™ PANEL CLADDING

1 GENERAL

This section relates to the supply and fixing of James Hardie Axon™ Panel cladding.

1.1 RELATED WORK

Refer to painting section/s for the protective coating required to meet the NZBC durability requirements.

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:
LRV: Light Reflectance Value
CLD: Ceramic Low Density

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC C/AS1-AS2	Protection from fire
NZBC E2/AS1	External Moisture
AS/NZS 1170.2:2011	Structural design actions - Wind actions
AS/NZS 2908.2	Cellulose-cement products-Flat sheet
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
AS/NZS 3837	Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter
NFPA 285:2019	Standard fire test method for evaluation of fire propagation characteristics of exterior wall assemblies containing combustible components

CodeMark Certificate CMNZ30165 - Axon™ Panel Cladding by James Hardie

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

James Hardie® documents relating to this part of the work:
Axon™ Panel Timber Cavity Batten Technical Specification March 2024
BRANZ Appraisal 1211 [2022] - Axon™ Panel Cladding

Manufacturer/supplier contact details

Company:	James Hardie New Zealand Limited
Web:	www.jameshardie.co.nz
Email:	info@jameshardie.co.nz
Telephone:	Ask James Hardie™ on 0800 808 868.

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years:	For James Hardie Axon™ Panels (refer to James Hardie product warranty)
15 year:	For accessories supplied by James Hardie (refer to James Hardie product warranty)
From:	Date of purchase

- Provide this warranty on the manufacturer's standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified system, or associated components and products.

1.7 SAFE WORKING

To James Hardie requirements for safe working practices with James Hardie products, particularly with regards to cutting and drilling.

1.8 INFORMATION FOR OPERATION AND MAINTENANCE

Provide relevant James Hardie maintenance requirements at completion of the work.

Performance - Wind

1.9 PERFORMANCE - WIND

James Hardie Axon™ Panel is suitable for use in all wind zones up to design wind pressure of 3.2kPa ULS and building height 25m maximum.

Performance - Fire

1.10 EXTERNAL FIRE SPREAD - CLADDING EXEMPT FROM TESTING

To NZBC C/AS1, 5.3 External cladding systems or NZBC C/AS2, 5.8 External Cladding Systems**,** where external walls are located at a distance greater than or equal to 1.0m from a relevant boundary and a building height less than 10m.

2 PRODUCTS

Materials

2.1 WALL UNDERLAY

Refer to section 4161 UNDERLAYS, FOIL AND DPC.

2.2 EXTERIOR CAVITY WALL BATTENS

Radiata pine battens, minimum 45mm wide and 70mm wide x 18mm thick, H3.1 treated, height to match timber framing studs. To NZS 3602, Table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.

2.3 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

Perforated uPVC, with upstands.

2.4 AXON™ PANEL

James Hardie Axon™ Panel, face primed shiplap jointed panels, 9.0mm and 8.5mm thick, manufactured from cellulose fibre reinforced cement to AS/NZS 2908.2. Refer to SELECTIONS.

Components

2.5 FASTENER TYPE

Fasteners to minimum durability requirements of the NZBC. Refer to NZS 3604, section 4, **Durability**, for requirements for fixing's material to be used in relation to the exposure conditions.

Refer to NZBC E2/AS1, Table 20, **Material selection** for fixing material, and NZBC E2/AS1, Table 21, **Compatibility of materials in contact**, for selection of suitable fixing materials and their compatibility with other materials.

Zone	Fixings Material
Zone D, Zone E / Microclimates (incl. Geothermal)	Grade 316 Stainless
Zone B, Zone C	Hot-dipped galvanized
Bracing - All zones	Grade 316 Stainless

Check against SED (specific engineering design) requirements for microclimate conditions.

Refer to SELECTIONS.

2.6 NAIL - AXON™ PANEL FIXING TO TIMBER CAVITY BATTEN

Over flexible wall underlay: 65mm x 2.8mm Hardie™Flex nails

Refer to SELECTIONS.

Accessories

2.7 FLASHING TAPES - TIMBER CAVITY BATTEN

Inseal® 3259 black compressible medium density closed cell foam tape, 1.5mm thick x 48mm wide for vertical joints, and 1.5mm thick x 80mm wide for internal corners.

2.8 ALUMINIUM ACCESSORIES

Extruded aluminium etch primed. External box corners and horizontal 'h' flashing suitable for dark paints.

2.9 SEALANT

Flexible sealant. Refer to the sealant manufacturer's technical literature to confirm suitability for the application.

3 EXECUTION

Conditions

3.1 STORAGE

Take delivery of products dry and undamaged on pallets, and keep on pallet. Protect edges and corners from damage and covered to keep dry until fixed.

3.2 HANDLING

Avoid distortion and contact with potentially damaging shiplap edges and surfaces. Do not drag panels across each other, or across other materials. Protect edges, corner and surface finish from damage.

3.3 SUBSTRATE

Do not commence work until the substrate is of the standard required for the specified finish; plumb, level and in true alignment. Moisture content of timber framing must not exceed the requirements specified by NZS 3602 to minimise shrinkage and movement after panels are fixed.

Confirm that 70mm minimum framing for vertical joints for timber cavity construction has been correctly installed.

3.4 SEAL EDGES

Seal site cut sheet edges prior to installation. Seal panel edges around window and door openings, meter boxes and at other penetrations.

Application - generally

3.5 FIX WALL UNDERLAY

Refer to 4161 UNDERLAYS, FOIL AND DPC.

3.6 TIMBER CAVITY BATTENS

Install 18mm minimum thick cavity battens to NZBC E2/AS1: 9.0 Wall claddings, where required. Fix vertical cavity battens to wall framing studs. The battens are fixed by the cladding fixings which will penetrate the wall framing studs over the wall underlay. Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc).
Do not use continuous horizontal cavity battens at nogs or at bottom plate. Use cavity spacers where fixing is required between cavity battens.

3.7 PENETRATIONS AND FLASHINGS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:

- Wall underlay appropriately incorporated with penetration and junction flashings.
- Materials lapped in a way that water tracks down to the exterior face of the wall underlay.
- Wall underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- Required holes in cladding accurately formed and cut to James Hardie requirements, ensure (if required) services penetration grommets/sleeves/seals/tapes are in place prior to cladding installation.
- Claddings neatly finished off to all sides of openings
- Installation of flashings (those required to be installed prior to installation of penetrating elements).

Install Axon™ Panel cladding

3.8 PANEL LAYOUT

All panel edges must be supported by the framing. Fix Axon™ Panels vertically.

3.9 FASTENER - SIZE AND LAYOUT

Fix Axon™ Panels to framing using the fixings specified in James Hardie® Axon™ Panel technica specifications and in accordance with the following requirements:

- Nails must have a minimum clearance of 18mm from sheet edges and a minimum of 75mm vertically and 150mm horizontally from sheet corners.
- Nails must finish flush with sheet surface.

3.10 FIXING - TIMBER CAVITY CONSTRUCTION, FLEXIBLE UNDERLAY

Fix with 65mm x 2.8mm Hardie™ Flex nails when fixed over a flexible underlay. Fix sheet at 200mm centres at all studs.

3.11 GUN NAILING

Axon™ Panels can be fixed using nail guns. The gun nails used must have a full round head to provide the required holding power. The length and gauge of nails must at a minimum be as specified in the James Hardie Axon™ Panel technical specifications.

3.12 VERTICAL JOINT

Joint Axon™ Panels in accordance with James Hardie Axon™ Panel technical specifications

3.13 HORIZONTAL JOINT

Provide a horizontal joint at floor joist levels to accommodate the movement resulting from timber joist shrinkage and settlement. Install a 'z' flashing where drainage is required at floor level.
For Axon™ Panels use a Hardie™ 9mm Panel aluminium 'h' mould complete with 'h' mould jointer external corner jointer or a Hardie™ 9mm aluminium angled 't' mould complete with angled 't' mould jointer, external corner jointer or a purpose made 'z' flashing to form a horizontal joint.

3.14 INTERNAL CORNER JOINT - TIMBER CAVITY BATTENS

Seal site cut Axon™ Panel edges. Position and fix Axon™ Panels and Hardie™ 9mm aluminiu internal corner mould to internal corner over cavity battens, fixing in accordance with James Hardie Axon™ Panel Technical Specification details.

3.15 EXTERNAL CORNER JOINT - TIMBER CAVITY BATTENS

Seal site cut Axon™ Panel edges. Fix Hardie™ 9mm Aluminium External Box corner or Hardie™ Alumnium Invert External Corner through cavity battens into framing. Position and fix Axon™ Panels through cavity battens into framing, fixing in accordance with James Hardie Axon™ Panel Technical Specification details.

3.16 EXTERNAL CORNER JOINT WITH H MOULD

Fit Hardie™ 9mm Panel aluminium horizontal 'h' mould over lower Axon™ Panel and lap the upstand under upper Axon™ Panel. Leave 15mm gap maximum between upper and lower Axon™ Panels at the solid timber floor joist levels.

Fit Hardie™ 9mm Panel aluminium external box corner under the aluminium 'h' mould with flanges removed locally. Mitre the 'h' mould over box corner flashing to cover it. Install "h" mould external corner jointer over. The upper box corner flashings are to be finished flush with the bottom edge of upper Axon™ Panel.

An aluminium corner flashing is required over the Hardie™ 9mm Panel aluminium horizontal flashing where the box corner is terminated under the 'h' mould. Hardie™ 9mm Panel aluminium external box corner flanges to be removed locally over the aluminium 'h' mould and corner underflashing to be lapped under the upper box corner flashing. Lap wall underlay over aluminium 'h' mould or seal to flashing with a flashing tape. Refer to Axon™ Panel technical specifications.

3.17 FIX AXENT™ TRIM

Fix Hardie™ Axent™ Trim to internal corners, external corners, vertical joints and intermediate vertical locations in accordance with James Hardie Axon™ Panel Technical Specification details.

3.18 FINISHING

Refer to painting section/s for protective coating system.

Completion

3.19 REPLACE

Replace all damaged or marked elements.

3.20 LEAVE

Leave work to the standard required for following procedures.

3.21 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

For further details on selections go to www.jameshardie.co.nz.
Substitutions are not permitted to the following, unless stated otherwise.

4.1 TIMBER CAVITY BATTENS

Timber species:	Radiata pine
Treatment:	H3.1
Size:	45mm wide x 18mm thick minimum, height to match framing studs
Batten spacing:	400mm crs (where framing at 400mm crs).
Fastener type:	40mm x 2.8mm Hardie™ Flex nails
Fastener finish:	Hot-dipped galvanized
Fixing centres:	800mm

4.2 JAMES HARDIE AXON™ PANELS - SHEET CLADDING PANELS

Brand/type:	James Hardie Axon Panel 400mm Grooved
Thickness:	9mm
Fastener type:	65mm x 2.8mm Hardie™Flex nail over wall underlay
Fastener finish:	Hot-dipped galvanized
External corner type:	Hardie™ Alumnium Invert External Corner

Finishing

4.3 PAINTING

Refer to painting section/s for details.

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 FIBRE CEMENT SOFFIT LINING

Cellulose cement autoclaved sheets.

2.3 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.

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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 INSTALL FIBRE CEMENT SOFFITS

Cut sheets dry and scribe fit to fully support all edges and joints. Nail and drill for and insert fasteners to the sheet manufacturer's requirements. Fit complete with jointers and capping moulds. Refer to the cladding manufacturer's literature for fixing details and fixings durability requirements to NZS 3604, section 4 **Durability**.

3.12 PENETRATIONS

Flash penetrations, and fit proprietary boots to pipework penetrations to suit cladding, to NZBC E2/AS1.

3.13 COMPLETE

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

4241 PROFILED METAL CLADDING

1 GENERAL

This section relates to the supply and fixing of proprietary overlap rigid sheet profiled metal wall cladding complete with accessories.

1.1 RELATED WORK

Refer to 4161 UNDERLAYS, FOIL AND DPC for underlays, foils and DPC.

1.2 ABBREVIATIONS

The following abbreviations are used throughout this part of the specification:

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC C/AS1-C/AS2	Protection from fire
NZBC C/VM2	Protection from fire
NZBC E2/AS1	External moisture
AS/NZS 1170.2:2011	Structural design actions - Wind actions
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 3566	Self-drilling screws for the building and construction industries
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:

Manufacturer/supplier contact details

Company:	Metalcraft
Web:	www.metalcraftgroup.co.nz

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this work under normal environmental and use conditions against materials failure.

15 years:	For failure of coating adhesion
15 years:	For weatherproofing by material penetration
Form:	Cladding manufacturers standard form

Requirements

1.6 WARRANTY - INSTALLER/APPLICATOR

Warrant this work under normal environmental and use conditions against weatherproofing failure.

5 years:	From the date of completion of the roof
Form:	Metal wall cladding installer's standard form

Include a copy of the cladding manufacturers' maintenance requirements with the warranty. Refer to the general section 1237 WARRANTIES - INSTALLER/APPLICATOR for additional requirements.

1.7 QUALIFICATIONS

Carry out the cladding work with experienced, competent installers familiar with the products being used and preferably with appropriate qualifications such as the National Certificate in Metal Roofing and Cladding. And for Restricted Building Work shall also be, a LBP or supervised by a LBP.

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Performance

1.8 PERFORMANCE

Install cladding materials and associated flashings and accessories to form a weathertight and durable system for the completed cladding system, including all penetrations through the walls and junctions with roofs and parapets.

1.9 SPREAD OF FIRE

To NZBC C/AS1, 5.3 External cladding systems, NZBC C/AS2, 5.8 External cladding systems or NZBC C/VM2.

Performance - Wind (design by contractor)

1.10 DESIGN PARAMETERS - NON SPECIFIC DESIGN

Design the installation to the wind zone parameters of NZS 3604, table 5.4.
Refer to general section 1220 PROJECT for details.

2 PRODUCTS

Materials

2.1 EXTERIOR CAVITY WALL BATTENS

Radiata pine battens, minimum 20mm thickness, width and height to match timber framing studs. To NZS 3602, table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.

2.2 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

Perforated uPVC or aluminium trays with upstands. Upstand one side 10mm and the other 75mm. Length and width to suit cavity.

2.3 PRE-FINISHED ALUMINIUM/ZINC ALLOY COATED STEEL

Formability G550 steel sheet coated to AS 1397.
Coating class: AZ 150

2.4 FASTENERS GENERALLY

Minimum Class 4 and durability not less than the roofing material being fixed. Screw fasteners to be head stamped identifying the manufacturer and class.

2.5 FIXING CLIPS

Galvanized steel (powder coated for aluminium) to suit the material and profile of the rigid sheet and location as required by the cladding manufacturer. Fix to steel with 16mm x 10 gauge galvanized wafer head self-drilling screws and to timber with 50mm long x 4.5mm galvanized spiral rolled flat head nails.

2.6 FIXING SCREWS

To AS 3566. To comply with AS 3566. Screws appropriate to the cladding material and the supporting structure, as required by the cladding manufacturer and with a durability no less than the material fixed. Screws into timber to penetrate by minimum 30mm.

2.7 RIVETS

Sealed aluminium, minimum diameter 4mm for use with zinc coated, zinc/aluminium coated or aluminium cladding.

Components

2.8 FLASHINGS GENERALLY

Material, grade and colour as detailed and scheduled. Ensure that materials used for flashings are compatible with the window frame materials and fixings and cladding materials and fixings.

2.9 FLASHINGS

To NZBC E2/AS1, 4.0 **Flashings**. Formable grade 0.55mm BMT for galvanized, aluminium/zinc-coated and pre-painted steel, and 0.9mm for aluminium (or 0.7mm for small aluminium flashings) to the same standards as the profiled sheets, notched where across profile or provided with a soft edge.

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2.10 WALL AND PARAPET FLASHINGS

To NZBC E2/AS1, 4.0 **Flashings**. Supplied by the cladding manufacturer to match or to suit the cladding.

Accessories

2.11 SEALANT

Neutral curing MS silicone or MS polymer sealant as required by the cladding manufacturerand used as directed.

2.12 CLOSURE STRIPS

Non-bituminous compressible, profiled foam strips to fit the sheet profile.

2.13 LAP SEALING TAPE

Closed cell self adhesive nitrile tape.

3 EXECUTION

Conditions

3.1 INSPECTION

Inspect the wall framing and supporting structure to ensure that it is complete and fully braced ready for cladding.

3.2 FRAMING TIMBER MOISTURE

When continuous metal cladding etc. Runs along a long continuous timber member and is directly fixed to it, the timbers equilibrium moisture content (EMC) to be 18% or less. For flashings in this situation (sometimes called transverse flashings) the framing EMC to be maximum 16%, and preferably as low as 12%. Transverse flashings can be temporarily tacked in place and final fixing done when moisture content is acceptable.

3.3 STORAGE

Take delivery of and accept packs of cladding undamaged on delivery. Reject all damaged material. Store on a level firm base with packs well ventilated and completely protected from weather and damage. Do not allow moisture to build up between sheets. If sheet packs become wet, fillet or cross stack to allow air movement between sheets.

3.4 HANDLING

Avoid distortion and contact with damaging substances, including cement. Do not drag sheets across each other and other materials. Protect edges and surface finishes from damage.

3.5 SEPARATION

Isolate dissimilar materials in close proximity as necessary by painting the surfaces or fitting separator strips of compatible materials. Place isolators between metals and treated timber and cement based materials. Do not use unpainted lead sheet or copper in contact with or allow water run-off onto galvanized and aluminium/zinc-coated metals.

Application

3.6 SET-OUT

Set cladding to vertical plumb lines and maintain verticality. Set all exposed fixings with horizontal string lines. Carefully set out sheets with side laps away from the main line of sight, and with the widths of end sheets the same. Check during fixing to eliminate creep or spread and to keep fastenings in line.

3.7 AVOID END LAPS

End laps are not permitted, except where specifically detailed.

3.8 MOVEMENT JOINTS

Fixing and jointing to conform with the cladding manufacturer's requirements for thermal movement. Over timber framing, transverse flashings (those running along continuous framing members) to have expansion joints at maximum 12m centres.

3.9 FIXING GENERALLY

Install and fix in accordance with the NZMRM CoP, and to the cladding manufacturer's required fixing patterns and details for each area of the building cladding. Use only screws as required by the cladding manufacturer. Paint colour matched fixings and accessories before installation.

3.10 INSTALL DRAINED CAVITY

20mm nominal thickness drained cavity to NZBC E2/AS1: 9.0 Wall claddings, where required. Fix vertical cavity battens to wall framing studs and provide a separation strip of metal cladding underlay over batten. The battens are fixed by the cladding fixings which will penetrate the wall framing studs over the wall underlay. Install cavity closer/vermin-proofing at base of wall, open horizontal (or raking) junctions and over openings (windows, meters etc).

3.11 PENETRATIONS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:

- wall/cladding underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- claddings neatly finished off to all sides of openings
- installation of flashings (those required to be installed prior to installation of penetrating elements).

3.12 MARKING AND CUTTING

Cut only by shearing tools. Do not use black lead pencils for marking aluminium/zinc coated products.

3.13 FIX SHEETS

Fix sheets in place using the fastening system required by the manufacturer of the specified profiled metal cladding, making due allowance for dynamic local wind pressures on the building and thermal movement in the sheet.

3.14 INSTALL FLASHINGS

Flash to penetrations, cap corners and edges, using sealant and rivets to detail, to the cladding manufacturer's requirements and to NZBC E2/AS1.

3.15 COMPLETE

Ensure the work is complete with all flashings, finishing and trim properly installed so the cladding system is completely weathertight.

3.16 SEPARATION

Separate metal sheeting from CCA treated timber with wall underlay or other suitable isolation material.

Completion

3.17 REPLACE

Replace all damaged or marked elements.

3.18 LEAVE

Leave this work complete with all necessary flashings and capping all properly installed as the work proceeds so the finished cladding is completely weathertight.

3.19 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 TIMBER CAVITY BATTENS

Timber species:	Radiata pine
Timber grade:	Merchantable
Treatment:	H3.1

4.2 PRE-FINISHED ALUMINIUM/ZINC ALLOY COATED STEEL - PROFILED METAL CLADDING

Brand:	Metalcraft
Profile:	5 RIB

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BMT:	0.55mm
Colour:	Ebony Black (LRV 5%)

4.3 NAILS, SCREWS AND FASTENINGS

Fixing/fastening:	Pre-finished Wafter-Tek screw w/ Neoprene washer
Centres:	1.8m Max

4.4 FLASHINGS

Material/thickness:	0.55mm
Finish:	Alum/Zinc coated steel

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

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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.

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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 FLOAT GLASS

Clear ordinary annealed glass for general window glazing. Thickness as required by NZS 4223.1.

2.4 TOUGHENED GLASS

To NZS 4223.3.
Heat soaked toughened glass to NZS 4223.1, Appendix E required for critical areas (balustrades etc) to reduce inclusion failure.

2.5 INSULATED GLASS UNITS

As selected and to AS/NZS 4666. and NZS 4223.2

2.6 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 GLASS INSTALLATION

Use in doors, sidelight panels, low level windows, bathrooms and all other locations to comply with NZS 4223.3.

3.4 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).

3.5 CLEAN

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

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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.

2.2 THERMAL INSULATING BLANKET

Roll form insulation blanket manufactured from fibreglass or polyester.

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 FIT THERMAL INSULATING BLANKET

Install in ceiling/roof cavity and mid-floor cavity were specified Slightly oversize length for friction fit and tear by hand across pad and fill cavity. Tear to smaller pieces for smaller spaces and around penetrations. Leave no gaps between, and maintain full thickness of the insulating segments over the whole of the installation. Do not cover vents.

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5110 INTERIOR LININGS & TRIM

1 GENERAL

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

1.1 FRAMING MOISTURE CONTENT

Maximum allowable moisture content to NZS 3602, table 4 **Allowable moisture content…**

1.2 PROTECT

Protect joinery, fittings and finishes already in place from water staining or damage from lining installation. Ensure building is weatherproof before lining work commences.

2 PRODUCTS

2.1 PLASTERBOARD

Gypsum plaster core encased in a durable face and backing paper formed for standard use, bracing use, fire rated use and water resistance use.

2.2 PLASTERBOARD ACCESSORIES

External angles:	Slim type 0.5mm galvanized steel.
Casing bead:	Slim type 0.5mm galvanized steel or PVC.
Cornice:	Plasterboard scotia type.
Nails:	Galvanized clouts 40mm x 2.5mm.
Screws:	40mm x 6 gauge zinc electro-plated bugle head gypsum drywall screws
Jointing compound & paper tape:	To the board manufacturer's requirements.
Adhesive:	Multi-purpose water based wallboard adhesive.

2.3 NAILS

Zinc-plated steel, stainless steel and galvanized steel of pattern to suit location and to BRANZ BU 519: **Fasteners selection**.

2.4 INTERIOR FINISHING TRIM

Timber selection to NZS 3602, table 3 **Requirements for wood-based building components….** Profile as selected or to match existing. Jointer profiles to suit location.

3 EXECUTION

3.1 SUBSTRATE

To NZS 3604, section 8 **Walls**, section 10 **Roof framing**, section 12 **Interior linings**, section 13 **Ceilings**, and the standard required by the lining manufacturer's requirements. Ensure moisture content of timber framing is at or below specified levels.

3.2 CONFIRM LEVELS OF PLASTERBOARD FINISH

Before commencing work, confirm the surface finish assessment procedures necessary to ensure the specified levels of finish will be obtained. Provide levels of finish as laid down in AS/NZS 2589.

3.3 LINE PLASTERBOARD CEILINGS AND WALLS

Line walls and ceilings with plasterboard sheets, fastened to the plasterboard manufacturer's requirements.

3.4 SPECIAL PLASTERBOARD LININGS

Line wet area walls with water resistant plasterboard sheets using adhesive and nail fixing to studs at centres to suit the surface finish. Form bracing panels using high density plasterboard sheets fixed with clout-washers and clouts and to conform to NZS 3604, 5.4 **Wall bracing design**, and 13.5 **Structural ceiling diaphragms**. Form sound rated panels following the sheet manufacturer's specifications and details for the required sound rating. Form fire rated panels following the sheet manufacturer's specifications and details for the required fire rating.

3.5 FIX PLASTERBOARD EXTERNAL ANGLES

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Fix full length to external corners, with clouts at 100mm each side staggered.

3.6 PLASTERBOARD JOINTING AND STOPPING

Fill joint recess with bedding compound, centre the paper tape, apply second coat of bedding compound followed by a coat of finishing compound. Allow to dry and lightly sand off. Fill nail holes and flush up external angles with two successive coats of bedding compound followed by a coat of finishing compound. Allow to dry and lightly sand off. All to the plasterboard manufacturer's requirements.

3.7 LEVELS OF FINISH

Provide levels of finish to standards laid down by AS/NZS 2589 as follows:

Level 4:	For thin coating finishes (paint) and surfaces receiving light texture or wall covering finishes
Level 5:	Where specifically detailed for surfaces receiving thin coating finishes (paint).

3.8 INSTALL TRIM

Scribe and fit reveal linings to exterior timber joinery, architraves to interior joinery, skirtings to walls and timber beads to wall/ceiling junctions, and other trim as detailed.

5230 INTERIOR DOORS & FRAMES

1 GENERAL

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

1.1 QUALIFICATIONS

Trades people qualified or experienced in 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, and stairs).

2 PRODUCTS

2.1 DOORS GENERALLY

As selected.

2.2 INTERIOR CAVITY SLIDERS

Hollow core door within a proprietary cavity slider frame, with brand-matched sliding door gear.

2.3 INTERNAL JOINERY FRAMES

Fabricate as detailed.

2.4 DOOR HINGES

Type:	loose-pin zinc-plated steel
Size:	89mm
Material:	zinc-plated steel
Number:	3 hinges per door

2.5 INTERIOR SLIDING-FOLDING DOOR GEAR

Bi-fold pattern to suit size and weight of doors and as detailed.

2.6 DOOR HARDWARE

As selected.

2.7 NAILS

Zinc-plated steel, stainless steel and galvanized steel of pattern to suit location and to BRANZ BU 519: **Fasteners selection**.

3 EXECUTION

3.1 PROTECT

Protect joinery, fittings and finishes already in place from water staining or damage from lining installation. Ensure building is weatherproof before lining work commences.

3.2 FIT INTERNAL JOINERY FRAMES

Wedge and rigidly fix in place without distortion, plumb, and true to line and face.

3.3 INTERNAL CAVITY SLIDERS

Install in accordance with the door manufacturer's requirements.

3.4 FIT HARDWARE

Fit hardware selected and provided, all in accordance with the hardware manufacturer's requirements.

3.5 CHECK

Check and adjust operation of doors sets, hardware and furniture.

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6200 TILING

1 GENERAL

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

1.1 QUALIFICATIONS

Use tilers experienced with the materials and techniques specified.

1.2 SLIP RESISTANCE

Accessible routes slip resistance to NZBC D1/AS1, 2.1 Slip resistance.

2 PRODUCTS

2.1 ADHESIVES COMPATIBILITY

On proprietary substrates or waterproof membranes use only adhesives with documented compatibility approval from the respective manufacturers.

2.2 ACCESSORIES

Waterproofing membranes:	As selected.
Cement-based screed:	Mix of 3:1 Portland cement, wash-mix sand, gauged with liquid polymer additive to the tile manufacturer's requirements.
Tile adhesive:	To the tile manufacturer's requirements.
Grout:	Cement based, compressible and to suit the particular location and use.
Control joint sealant:	To BRANZ Good practice guide: Tiling, section 5.0.

3 EXECUTION

3.1 HANDLING AND STORAGE

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. Reject all damaged tiles.

3.2 SUBSTRATE

Ensure all services and accessories are in place, located to suit the tile layout, with the substrate required for tiling work.

3.3 TEMPERATURE

Do not carry out tiling where the ambient temperature is below 5°C, or onto a substrate with a temperature higher than 40°C.

3.4 LAYOUT

Obtain confirmation of the proposed layout of tiles, expansion joints and other visual considerations.

3.5 EXECUTION GENERALLY

Prepare surfaces and carry out the tiling work in accordance with BRANZ Good practice guide: Tiling.

3.6 SURFACE PREPARATION

To BRANZ Good practice guide: Tiling, section 4.0.

3.7 LAY PROPRIETARY SCREED

Apply a proprietary cement slurry bond coat over the whole of the floor. Mix and place a 40mm thick mortar bed over the bond coat and firmly tamp, screed and compact to the required level. In waterproofed areas where the cement screed has been laid over the waterproofing membrane, prepare the screed surface by applying a further waterproof coating before laying tiles.

3.8 APPLY LIQUID WATERPROOFING MEMBRANE

Apply the selected liquid waterproof membrane system to the membrane manufacturer's requirements. Flood test shower cubicle floors.

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3.9 TILE FIXING, CONCRETE, CEMENT-BASED ADHESIVE

Apply and float thin (thick) bed cement-based adhesive to a minimum 3mm (6mm) bed thickness to the tile manufacturer's requirements. Rib surface with a notched trowel, press the tile and beat it into place with 3mm joints, and to obtain required coverage of adhesive on the back of each tile.

3.10 TILE FIXING, RIGID SHEET

Prime the surface after the curing of any waterproof membrane. Spread adhesive to a uniform minimum thickness of 3mm and rib it with a notched trowel to the tile manufacturer's requirements. Press the tile and beat it into place to obtain the required coverage by adhesive on the back of each tile.

3.11 GROUTING

Remove spacers. Prepare joints, mix and apply proprietary grout and finish off the grout uniform in colour, smooth and without voids, pinholes or low spots.

3.12 MOVEMENT CONTROL JOINTS

Minimum width of 6mm, carried through tile and bedding. Where substantial movement is anticipated, carry through the rigid sheet to the structure. Ensure joints are clean, formed, filled, and the sealant inserted to the sealant manufacturer's requirements.

3.13 CLEAN

Upon completion of setting and grouting, thoroughly sponge and wash the tiles to leave clean and free of blemish. Finally polish tiles with a clean, dry cloth.

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6700 PAINTING

1 GENERAL

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

1.1 QUALIFICATIONS

Carry out work using competent and experienced painters.

1.2 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety at Work Act 2015 and if elimination or isolation is not possible, then minimise the hazards in this work. Refer to WorkSafe publication, Repainting lead based paints, for the required procedures and precautions when treating or removing lead based paint, burning or sanding off paint, or using solvent based paint removers.

1.3 SELECTIONS

Confirm all selections, colours and finishes with the owner.

2 PRODUCTS

2.1 PAINT

As selected and to the paint manufacturer's standards for exterior and/or interior primers, undercoats, sealers, stains, clear coatings, solvent-borne and water-borne paints.

2.2 GAP FILLERS

Linseed oil, putty, plastic wood, wood filler or plastic filler, to suit and to match the surface being prepared.

3 EXECUTION

3.1 INSPECT SURFACES

Inspect surfaces being painted and report to the owner any that will not, after the preparatory work laid down by the paint manufacturer, allow work of the required standard. Confirm that all areas have adequate lighting and are sufficiently free of other construction activities to enable painting work to proceed.

3.2 PROTECT

Cover up 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 priming and sealing work needed 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 the paint manufacturer.

3.6 SHARP EDGES, CRACKS AND HOLES

Repair as required by the paint manufacturer.

3.7 PREPARE SURFACES

Prepare surfaces as required by the paint manufacturer. Make good all damage and defects.

3.8 PAINT APPLICATION

Apply paint by brush and/or roller to suit the location of the coating and to the paint manufacturer's requirements. Do not spray on site without express permission.

3.9 MANUFACTURER'S MANUALS

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Refer to the paint manufacturers' manuals and follow their preparation, sequence and application requirements applying to each system. Ensure all paint coats in any system are supplied by the same manufacturer.

3.10 SCUFF BETWEEN COATS

Scuff between all coats to remove any dust pick-up, protruding fibres and coarse particles.

3.11 FINISHED PAINT SURFACES

Finished paint surfaces to show uniformity of gloss and colour, with the correct thickness for each coat, and freedom from painting defects. Ensure finished work is clean and free of any disfigurement.

3.12 CLEAN

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

3.13 REFIT HARDWARE

Refit hardware without damage to the hardware or the adjoining surfaces.

7120 WATER SYSTEM

1 GENERAL

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

1.1 QUALIFICATIONS

Carry out work by or under the direct supervision of a certifying person under the Plumbers, Gasfitters and Drainlayers Act 2006.

2 PRODUCTS

2.1 POLYBUTYLENE WATER PIPE

To NZBC G12/AS1, 2 Materials. Polybutylene tubing complete with fittings and accessories brand-matched to AS/NZS 2642.1, AS/NZS 2642.2 and AS/NZS 2642.3

2.2 INSULATION FOR HOT WATER PIPES

Preformed closed cell foam.

2.3 DE-ZINCIFICATION RESISTANT WATER SUPPLY SYSTEM COMPONENTS

All copper alloy components to comply with G12/AS1 clause 2.2.3 and AS 2345.

2.4 WATER METER

Meter, gate valve and back flow prevention to the requirements of the network utility operator. Minimum 25mm OD Polyethylene cold water main. Allow to excavate, install and back fill for the water main.

2.5 VALVES AND FITTINGS

All valves and fittings required for the system, to NZBC G12/AS1.

2.6 WATER HEATERS

Generally to NZBC G12/AS1, 6.0 Hot Water Supply Systems as applicable. Refer to 1213 SELECTIONS/drawings for specific water heater.

3 EXECUTION

3.1 EXECUTION GENERALLY

Carry out work and tests as applicable to NZBC G12/AS1.

3.2 INSTALL POLYBUTYLENE/ CROSS LINKED POLYETHYLENE WATER SUPPLY

Type as selected. Size the piping layout to eliminate loss of pressure at any point by simultaneous draw-off. Run pipes complete with all fittings, support and fixing, and jointed to the pipe manufacturer's specifications, all to NZBC G12/AS1, 5.0 **Water supply**. Conceal pipework and pressure test before wall linings are fixed.

3.3 OUTLET LOCATIONS

Ensure wall outlets for exposed pipes are level and centred on the fixture to ensure the neat installation of exposed pipework.

3.4 BACKFLOW PREVENTION

Fit back flow prevention devices to all outlets where it is possible for water or contaminants to backflow in to the potable water supply system.

3.5 INSTALL HOT WATER PIPE INSULATION

Insulate hot water pipes in accordance with the insulation manufacturer's instructions. Cut insulation sections tight between timber framing and tight between the webs of steel studs. Where hair felt is used, wrap around pipes in two layers in opposite directions and secure with galvanized steel wire ties.

3.6 INSTALL WATER HEATER

Install where shown complete with all the necessary fittings to the water heater manufacturer's requirements and NZBC G12/AS1, 6.11 **Water heater installation**. Gas water heaters also to NZBC G11/AS1 and AS/NZS 5601.1.

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3.7 PENETRATIONS

Provide and fit collars and escutcheon plates to match pipework at penetrations through constructions.

3.8 COMPLETION

Pressure test to ensure no leakage and leave in proper working order. Clean tapware and fittings.

7150 SANITARYWARE, TAPWARE & ACCESSORIES

1 GENERAL

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

1.1 QUALIFICATIONS

Carry out work by or under the direct supervision of a certifying person under the Plumbers, Gasfitters and Drainlayers Act 2006.

2 PRODUCTS

2.1 SANITARY FIXTURES, TAPWARE, APPLIANCES AND ACCESSORIES

Refer to 1213 SELECTIONS and drawings for product selections.

3 EXECUTION

3.1 EXECUTION GENERALLY

Carry out installation work and tests to G1/AS1, E3/AS2, G12/AS1 or AS/NZS 3500.1 and AS/NZS 3500.4 as modified by NZBC G12/AS3 and NZBC G13/AS1 or AS/NZS 3500.2 as modified by NZBC G13/AS3, as applicable and to the fixture manufacturers requirements.

3.2 INSTALL SANITARYWARE

Fit and install sanitaryware and associated screens, elements and hardware, plumb, true to line and rigid, to the fixture manufacturer's requirements. Supply standard chrome plated brass wastes and plastic plugs on chrome plated chains with all basins, tubs and baths. Seal between all sanitary fixtures and floors, wall linings, fixtures and the tops they are in, the tops of wall linings to NZBC E3/AS1, 3.2.

3.3 INSTALL TAPWARE

Install tapware in accordance with the tap manufacturer's requirements. Flush out on completion. Check that washers or ceramic discs are operating correctly.

3.4 INSTALL SHOWER CUBICLE

Install to NZBC G1/AS1, NZBC E3/AS1 and in accordance with shower manufacturer's details and requirements. Ensure that screens and doors fit closely and accurately. Test for water egress around sides and base. Seal shower wall lining penetrations (shower head, shower hose, mixer, taps etc) to NZBC E3/AS1, Fig 6.

3.5 TEST

Test soil and waste disposal systems to ensure no leakage exists and leave in working order.

3.6 ENSURE

Ensure all sanitary plumbing fittings and pipework are complete and operational.

3.7 EQUIPOTENTIAL BONDING METALLIC FIXTURES

Before enclosing, ensure equipotential bonding is provided to metallic water pipes and metallic sanitary fixtures using an earth bonding conductor to requirements of NZBC G12/AS1, 9.0 Equipotential Bonding and/or AS/NZS 3000, 5.6 Equipotential Bonding.

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7410 RAINWATER SPOUTING SYSTEM

1 GENERAL

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

1.1 LIAISON

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

1.2 ELECTROLYTIC ACTION

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

2 PRODUCTS

2.1 PVC-U SPOUTING

Profile, jointing, brackets and fittings brand matched and complete to the spouting manufacturer's specifications.

2.2 RAINWATER HEADS, DROPPERS, OVERFLOWS

Fabricate and install as detailed.

3 EXECUTION

3.1 INSTALL PVC-U SPOUTING AND DOWNPIPES

Fit and screw fix brackets, set to falls to outlets. Ensure solvent welded or rubber ring jointed spouting sections are complete with all fittings to the spouting manufacturer's requirements. Screw fix stand-off brackets, set pipes plumb and clear of the wall, solvent welded. Discharge into stormwater bends.

3.2 ENSURE

Ensure rainwater services are operational, flashings complete and the building weathertight.

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7700 ELECTRICAL

1 GENERAL

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

1.1 COMPLY

Comply with the Electricity (Safety) Regulations 2010, AS/NZS 3000 for listed and prescribed work and with the NUO's requirements. Apply for the service connection. Arrange for the required inspections of listed work. Pay all fees.

1.2 QUALIFICATIONS

Carry out work by or under the direct supervision of an electrical licensed supervisor under the Electricity (Safety) Regulations 2010.

1.3 ELECTRICAL CERTIFICATE OF COMPLIANCE

Provide, prior to connection, a Certificate of Compliance (CoC) as required by the Electricity (Safety) Regulations 2010, to the owner and if required to the NUO. Allow the NUO to view before the meter installation, listed work inspection, polarity check and livening of supply.

1.4 ELECTRICAL SAFETY CERTIFICATE

Provide an Electrical Safety Certificate (ESC), as required by the Electricity (Safety) Regulations 2010, to the owner and when required the BCA. To be provided at completion of the work, prior to Practical Completion.

1.5 SAFETY OF INSTALLATION

When required by the Electrical (Safety) Regulations 2010, before installation work commences, provide a Certified Design to Electrical (Safety) Regulations 2010, regulations 58. This will may not be required for domestic installations or Low Risk Work.

2 PRODUCTS

2.1 METER BOARD / DISTRIBUTION BOARD / SUB BOARD

Proprietary manufactured meter board complete with flashing kit. Proprietary manufactured distribution board, zinc plated powder coated, or heavy duty plastic, fire resistant enclosed construction, complete with neutral and earth busbars, MCB's, RCD's and main switch. All protective devices: 6kA MCB's of the appropriate rating. Fit to board manufacturer's requirements where detailed. Recess into wall and ensure fire containment properties of the enclosure is maintained.

2.2 MAIN SUPPLY

Excavate, lay underground mains to NUO requirements, install cable marker, back fill. Public roads and footpaths to be made good to the controlling authority requirements.

2.3 CABLES

Tough plastic sheathed copper conductors. Minimum sizes are indicated below. Increase these as necessary due to method of installation, cable length or load.

Lighting circuits: 1.5mm2 on 10 amp MCBs for domestic construction
Power circuits: 2.5mm2 on 16 amp MCBs for domestic construction

2.4 ELECTRICAL ACCESSORIES

As selected and to the following details:

Switch units	Minimum 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.
Switched socket units:	10 amp, 230 volt flush polycarbonate 3 pin combined switch units.
Stove/range socket outlet and switch:	32 amp, 230 volt flush polycarbonate 3 pin combined switch unit, with remote isolating switch.

3 EXECUTION

3.1 CABLING

Install with a maximum of 10 light outlet units or 6 switched socket units on any circuit. Separate circuits for all electric heating appliances. All cabling run concealed. No TPS cable laid directly in concrete. Locate holes in timber framing for the passage of cables at the centre line of the timber member. Provide main earth and equipotential bonding to AS/NZS 3000, section 5, including (if in project) for at risk; structural steel, light steel framing, concrete reinforcing (if bath, shower, swimming/spa pool involved), conductive pipes (& connected metalwork like SS sinks), conductive elements within 1.25m of swimming/spa pool edge.

3.2 INSTALL SWITCH AND SOCKET UNITS

Fit 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 drawings or to match existing.

Switch Units:	1000mm above floor
Socket Units:	400mm above floor
	150mm above work benches

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

3.3 INSTALL LIGHT FITTINGS

Install selected light fittings in the locations and heights shown on the drawings and in accordance with the fitting manufacturer's requirements. Recessed fittings to AS/NZS 3000, and NZS 4246, types IC-F, IC, CA-80, CA-90, IC-4, or CA-135 only (no clearance to insulation required for these types).

3.4 INSTALL DOMESTIC SMOKE ALARMS

Install Type 1 domestic smoke alarm system to NZS 4541 and to manufacturer's requirements, fitted neatly and without damage to the surrounding finish.

3.5 INSTALL EXTRACT SYSTEMS

Install extract fans, rangehoods, ducts and grilles to NZBC G4/AS1 and manufacturer's requirements.
Household extracts for cooktops, showers and baths to have a minimum flow rate (in fans and ducts) to NZBC G4/AS1 of:

- 25 L/s for showers and baths
- 50 L/s for cooktops

3.6 ELECTRIC POWERED FITTINGS AND EQUIPMENT

Install and wire selected fittings and equipment to the Electricity (Safety) Regulations 2010 and the individual fittings and equipment manufacturer's requirements. Refer to the drawings for required layouts and locations for equipment.

3.7 COMPLETION

Leave all fittings, lamps and tubes operational, with equipment and diffusers clean.