1 riley Street

Project Specification

1 Riley Street, Lake Hāwea, New Zealand
Project Ref:
Date: 21 September 2026

PROJECT SPECIFICATION Works, materials and workmanship for construction in accordance with the accompanying drawings.

TABLE OF CONTENTS

1220	PROJECT	3
1233	REFERENCED DOCUMENTS	5
1234	DOCUMENTATION	6
2210	PREPARATION & GROUNDWORK	11
3101	CONCRETE WORK - BASIC	14
3820	CARPENTRY	20
4230	WALL CLADDING	26
4241	PROFILED METAL CLADDING	31
4271	NATURAL STONE VENEER CLADDING	36
4511	EXTERIOR TIMBER WINDOWS & DOORS	43
4610	GLAZING RESIDENTIAL	51
4710	INSULATION	55
5113G	GIB® PLASTERBOARD LININGS	58
7126RH	RINNAI HOT WATER SYSTEMS	63
7430	DRAINAGE	67
7701	ELECTRICAL BASIC	73

1220 PROJECT

1 GENERAL

This general section describes the project including:

- A description of the work
- Design construction safety
- Principal's Health & Safety matters
- Site description, features and restrictions
- Design parameters for design by contractor
- Archaeological discovery

1.1 READ ALL SECTIONS TOGETHER

Read all general sections together with all other sections.

1.2 DESCRIPTION OF THE WORK

~

1.3 RESTRICTED BUILDING WORK

This project includes Restricted Building Work.

Design Construction Safety

1.4 DESIGN CONSTRUCTION SAFETY

The project designers are unaware of unusual or atypical features, which a reasonably experienced contractor may not be aware of, that may present a hazard or risk during a typical construction process. The Contractor is still required to undertake its own assessment, to determine if they consider there are any further safety matters and provide for these in carrying out the construction of the work.

Principal's Health & Safety Matters

1.5 PRINCIPAL'S KNOWN SITE HAZARDS

Site hazards known to the principal are:

~

1.6 PRINCIPAL'S SITE HEALTH AND SAFETY PLAN

Obtain a copy of the principal's site health and safety plan.

Site

1.7 SITE

The site consists of: ~

As shown on drawing: ~

1.8 LEGAL DESCRIPTION

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

1.9 SITE FEATURES

~

Site environment - Durability

1.10 EXPOSURE ZONE

The exposure zone is to NZS 3604, Section 4 Durability, 4.2 Exposure zones and NZBC E2/AS1.

The site zone is: ~

Site environment - Wind

1.11 WIND DESIGN PARAMETERS - NON SPECIFIC DESIGN

The design wind pressures are to NZS 3604, Table 5.4 Determination of wind zone, up to and including Extra High Wind Zone.

Building wind zone ~ (refer to NZS 3604, table 5.4)

Site environment - Seismic

1.12 EARTHQUAKE ZONE - NON SPECIFIC DESIGN

The zone is to NZS 3604, Section 5 Bracing design, 5.3 Earthquake bracing demand.

The earthquake zone ~
is:

Archaeological discovery

1.13 REPORT FINDING ANY ANTIQUITIES AND ITEMS OF VALUE

Report the finding of any fossils, antiquities and other items of value, to the Contract Administrator. All to remain undisturbed until approval is given for removal.

Pre-1900, items or evidence of human activity on the site, come under the Heritage New Zealand Pouhere Taonga Act 2014. If such items or evidence is discovered work must stop immediately and the Contract Administrator must be notified immediately. The site may be classified as an Archaeological Site under the Act, and the Contract Administrator or Owner must contact the Heritage New Zealand for authority to proceed.

Post-1900 items remain the property of the owner, pre-1900 items may remain the property of the owner or the Crown subject to what is found.
Known archaeological information relating to this site includes the following: -
~

© CIL Masterspec Sep 2026

1233 REFERENCED DOCUMENTS

1 GENERAL

1.1 REFERENCED DOCUMENTS

Throughout this specification, reference is made to various New Zealand Building Code Compliance Documents (NZBC __), acceptable solutions (__ AS_) and verification methods (__ VM_) for criteria and/or methods used to establish compliance with the New Zealand Building Code.

Reference is also made to various standards produced by Standards New Zealand (NZS, AS/NZS, NZS/AS), overseas standards and to listed Acts, Regulations and various industry codes of practice and practice guides. The latest edition (including amendments and provisional editions) at the date of this specification applies unless stated otherwise.

It is the responsibility of the contractor to be familiar with the materials and expert in the techniques quoted in these publications.

Documents cited both directly and within other cited publications are deemed to form part of this specification. However, this specification takes precedence in the event of it being at variance with the cited documents.

1.2 DOCUMENTS

Documents referred to in the GENERAL sections are:

NZBC F5/AS1	Construction and demolition hazards
AS/NZS 1170.2:2011	Structural design actions - Wind actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 3012	Electrical installations - Construction and demolition sites
NZS 3109	Concrete construction
NZS 3114	Specification for concrete surface finishes
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 4210	Masonry construction: Materials and workmanship
NZS 4781	Code of Practice for Safety in Welding and Cutting
AS/NZS 5131	Structural steelwork - Fabrication and erection
NZS 6803	Acoustics - Construction Noise

Building Act 2004
Building Regulations 1992
Health and Safety at Work Act 2015
Health and Safety at Work (General Risk and Workplace Management) Regulations 2016
Health and Safety at Work (Hazardous Substances) Regulations 2017
Health and Safety in Employment Regulations 1995
New Zealand Building Code
Heritage New Zealand Pouhere Taonga Act 2014
Resource Management Act 1991
Smoke-free Environments Act 1990

WorkSafe	Guidelines for the provision of facilities and general safety in the construction industry
WorkSafe	Good Practice Guidelines - Excavation Safety
WorkSafe	Scaffolding in New Zealand - Good Practice Guidelines
WorkSafe	Managing Work Site Traffic - Good Practice Guidelines

1234 DOCUMENTATION

1 GENERAL

This general section relates to documentation required by the Territorial Authority / Building Consent Authority for compliance with the New Zealand Building Code. It also includes documentation relating to:

- Substitutions
- Manufacturers' documents
- Branded work sections
- Care of construction documents
- Confidentiality of documents
- Receipt of construction documents

Building Consent Authority documentation

1.1 BUILDING CONSENT

Obtain the original building consent forms and documents from the owner and keep them on site, preserve the condition of consent forms and documents. Liaise with the building consent authority for all notices to be given and all inspections required during construction to ensure compliance. Return the consent form and documents to the owner on completion.

1.2 BUILDING CONSENT COMPLIANCE

It is an offence under the Building Act 2004

- to carry out any work not in accordance with the building consent.
- to carry out Restricted Building Work by anyone other than a Licensed Building Practitioner licensed for that type of work.

The resolution of matters concerning building code compliance to be referred to the contract administrator for a direction and then if required to the BCA for consent.

Where any alteration is requested by the territorial authority or any other authority, do not undertake such alteration until the matter has been referred to the contract administrator for direction.

1.3 PROJECT PERSONNEL

Provide names and contact details of the contractor's key personnel and tradespersons who are involved with the project. Review the list once a month and reissue it if changes have been made.

Licensed Building Practitioner documentation

1.4 LICENSED BUILDING PRACTITIONERS

Provide LBP details. Provide names, LBP numbers, areas of practice and contact information. Provide this information to the BCA before commencing work on the Restricted Building Work in the form required by the BCA. Advise the BCA of any change to an LBP previously advised.

Include the following as applicable

- Site LBP
- Carpenter
- Foundations 1 Concrete foundation walls and concrete slab-on-ground constructor
- Foundations 2 Concrete or timber pile foundations constructor
- Bricklaying and block laying 1 Brick / masonry veneer
- Bricklaying and block laying 2 Structural masonry - Bricklayer / Blocklayer
- Roofing 1 Concrete / clay tile roofer
- Roofing 2 Profiled metal roofer and/or wall cladding installer
- Roofing 3 Metal tile roofer
- Roofing 4 Membrane roofer
- Roofing 5 Torch on membrane roofer
- Roofing 6 Liquid membrane roofer
- Roofing 7 Shingle / slate roofer
- External plastering 1 Solid plasterer
- External plastering 2 Proprietary Plaster Cladding Systems (PPCS) plasterer

© CIL Masterspec Sep 2026

Also provide names and contact details of the following

- Registered drainlayer
- Registered plumber
- Registered gasfitter
- Registered electrician

1.5 RECORD OF WORK

Where Restricted Building Work is carried out by a LBP, on completion provide a Record of Work. Provide copies to both the BCA and the Contract Administrator.

Compliance information

1.6 DOCUMENTATION REQUIRED FOR CODE COMPLIANCE

Information may be required either as a condition of the contract documents or as a condition of the building consent. It may include the following:

- Applicators approval certificate from the manufacturer / supplier
- Manufacturer's / supplier's warranty
- Installer / applicator's warranty
- Producer Statement (PS1) - Design
- Producer Statement (PS3) - Construction from the applicator / installer
- Producer Statement (PS4) - Construction review from an acceptable suitably qualified person

Refer to the general sections for the requirements for compliance information to be provided by the contractor.

Refer to the building consent for the requirements for compliance information to be provided by the contractor.

Obtain required documents from the relevant parties for delivery to the contract administrator after the final inspection has been carried out by the BCA.

1.7 PRODUCER STATEMENTS

When producer statements verifying construction are required, provide copies to both the Building Consent Authority and the Contract Administrator. Provide producer statements in the form required by the BCA.

Residential building contract

1.8 CHECKLIST

If requested provide evidence of the prescribed checklist given to the residential client.

1.9 DISCLOSURE STATEMENT

If requested provide evidence of the disclosure statement given to the residential client.

1.10 BUILDING CONTRACT

If requested provide evidence of the written building contract that the residential customer has signed.

1.11 DOCUMENTATION REQUIRED ON COMPLETION

As soon as practicable after completion of the building work, provide in writing the following information and documentation to the client and the relevant territorial authority.

Information and documentation relating to:

- The identity of the building contractor and the subcontractors who carried out the work.
- Maintenance requirements for any products incorporated in the building.

If applicable also provide any guarantee or insurance obtained by the building contractor in relation to the building work.

© CIL Masterspec Sep 2026

Substitutions

1.12 ACCEPTABLE PRODUCT/MATERIAL SUPPLIERS

Where a product or material supplier is named in SELECTIONS, the product/material must be provided by the named supplier. Where more than one named supplier, any one of the named suppliers will be acceptable.

1.13 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified products and systems listed in a section unless specified otherwise. If a product is not available then immediately contact the contract administrator for direction.

1.14 PROPOSED SUBSTITUTIONS

Substitution of products or systems contained within branded work sections is not allowed. The contractor may propose substitutions to products within non branded work sections, when the contractor has determined that the proposed substitution is an alternative to the specified product. The Contract administrator is not bound to accept any substitutions. Submit a draft proposal detailing the substitution to the contract administrator before proceeding with full notification.

1.15 NOTIFICATION OF SUBSTITUTIONS

Notify the contract administrator of proposed substitution of specified products. Notification to include but not be limited to:

- Product identification
- Manufacturer's name, address, telephone number, website and email address
- Detailed comparison between the properties and characteristics of the specified product and the proposed substitution
- Statement of NZBC compliance including durability
- Details of manufacturer warranties

Plus an assessment of:

- Any changes required to the programme including any extension of time required
- Any consequential effects of the proposed substitution
- Any effect the substitution may have on Health & Safety requirements
- Allowance for time and cost for re-design and documentation (if applicable)
- Allowance for time and cost for obtaining an amendment to the Building Consent (if applicable)
- Any change in cost associated with the proposed substitution

and if requested:

- All current manufacturer's literature on the product
- Accreditations and appraisals available
- Reference standards
- Product limitations
- Samples
- List of existing installations in the vicinity of the project

1.16 ACCEPTANCE OF SUBSTITUTIONS

Acceptance of any proposed substitutions will be given in writing by the contract administrator.

Amendments to issued Building Consent

1.17 CONTRACTOR AMENDMENTS TO BUILDING CONSENT

Where the contractor has sought acceptance of a substitution or a variation which is for the contractor's own convenience and the substitution or variation requires an amendment to the Building Consent, the contractor must apply for and obtain the required amendment.

The contractor must:

- Obtain approval for substitutions from the contract administrator.
- Prepare and provide to the BCA all documentation required for the amendment.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans.

© CIL Masterspec Sep 2026

1.18 PRINCIPAL AMENDMENTS TO BUILDING CONSENT

Where the principal is proposing a substitution or a variation which requires an amendment to the Building Consent, the contractor must provide to the principal information that the contractor has that is required for the amendment.

The principal will:

- Prepare and provide to the BCA all documentation required for the amendment.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans.

Manufacturer's documents

1.19 MANUFACTURER'S AND SUPPLIER'S INSTALLATION REQUIREMENTS

Manufacturer's and supplier's requirements, instructions, specifications or details mean those issued by them for their particular product, material or component and are the latest edition.

1.20 CONTRACTOR TO OBTAIN CURRENT DOCUMENTATION

Where manufacturer’s installation, application and execution requirements are referred to in this specification, the Contractor must ensure they are fully aware of this documentation. Whenever necessary obtain and keep on site the relevant latest version of such documentation and make it available to workers carrying out that part of the work.

1.21 DOCUMENTATION PROVIDED FOR BUILDING CONSENT

Documentation including manufacturer’s installation instructions, specification data sheets, producer statements, BRANZ and similar appraisals may be included in the issued Building Consent. These documents have been provided only to demonstrate compliance with the NZBC.

Branded work sections

1.22 BRANDED PRODUCTS / SYSTEMS

Where branded products and systems are specified, all products and components of the system must be as per the specification.

1.23 CROSS REFERENCED WORK SECTIONS

If any related work is cross referenced to a generic work section, but only the equivalent branded section is included in the specification, use that branded section. Confirm with the contract administrator if there is any doubt.

Care of construction documents

1.24 CONSTRUCTION ISSUE

Take receipt of the plans, specifications and other documents issued “for construction”. Keep at least one copy on site available for use by all on site workers. Keep a record of copies provided to others including subcontractors. Protect the documents as appropriate. Obtain replacement copies for documents that have become damaged.

1.25 REVISIONS TO CONSTRUCTION ISSUE

Where revised plans and other documents are issued ensure that superseded documents are deleted from the working sets. Ensure that subcontractors are provided with amended documents. Delete superseded documents by either:

- removing them from the working copy of the construction issue; or
- marking them as superseded

1.26 RETURN DOCUMENTS ISSUED FOR CONSTRUCTION

On completion of the contract works:

- Keep such copies of the plans, specification and other documents as reasonably required for contractor’s record purposes.
- Retrieve all other copies no longer required by parties.
- Agree method of disposal of such documents with the Contract Administrator.

The Contract Administrator will advise whether such documents shall be:

- delivered to the Contract Administrator/Owner; or

© CIL Masterspec Sep 2026

- disposed of by normal waste disposal methods; or
- disposed of by secure document disposal methods.

Confidentiality of documents

1.27 CONFIDENTIALITY OF DOCUMENTS

Documents shall not be given or copied to others who do not require them for carrying out services required for the construction of the works. Documents are only to be used for the contract. Maintain confidentiality of documents.

2 SELECTIONS

Receipt of construction documents

2.1 INITIAL ISSUE & REVISIONS - HARD COPIES

Initial issue: ~
Revisions: ~

2.2 DOCUMENT RECEIPT - HARD COPIES

Hard copies of plans, specifications and other documents issued for construction shall be ~

2.3 DOCUMENT RECEIPT - ELECTRONIC DOCUMENTS

Electronic documents issued for construction shall be ~

© CIL Masterspec Sep 2026

2210 PREPARATION & GROUNDWORK

1 GENERAL

This section relates to the clearance, excavation and backfilling of the site area in preparation for:

- footings and floor slabs
- backfilling behind basement retaining walls

Documents

1.1 DOCUMENTS

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

NZS 3604	Timber-framed buildings
WorkSafe	Good Practice Guidelines - Excavation Safety

1.2 MANUFACTURER/SUPPLIER DOCUMENTS

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

Manufacturer/supplier contact details;

Company:	~
Web:	~
Email:	~
Telephone:	~

1.3 SITE SAFETY

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

1.4 ARCHAEOLOGICAL DISCOVERY

If fossils, antiquities and other items of value are found refer to the general section 1220 PROJECT for actions to be taken with archaeological discovery.

2 PRODUCTS

2.1 EXCAVATED CLEAN FILL

Clean, free of contamination, mineral soil from other formations in the excavation which may be selected and approved as suitable for filling by having grading and moisture content properties that will allow recompaction to 95% of maximum density.

2.2 VOLCANIC TUFF FILL

Scoriaceous tuff of variable grading excluding excessive silt or clay material, capable of being placed and compacted as specified.

2.3 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.

2.4 SAND FILL

Clean sand of such grading in particle size to achieve mechanical compaction to 90% maximum density.

2.5 HARD FILL

Scoria or crushed rock to GAP (General All Passing) 40 grading.

2.6 GRANULAR FILL

Approved 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.

2.7 DRESSING COURSE

Scoria to GAP 20 grading, or "dirty footpath scoria", or equivalent "all in" graded crushed metal aggregate.

2.8 FREE-DRAINING AGGREGATE

Scoria or crushed gravel graded 50 to 14 clean.

3 EXECUTION

3.1 WASHOUT BAY FOR TRUCK

Provide a designated area for trucks to be washed down to avoid mud and dirt being carried off site.

3.2 EXCAVATION GENERALLY

Carry out excavation, using plant suitable for the purpose, to the guidelines set by the WorkSafe, Good Practice Guidelines - Excavation Safety.

3.3 BURNING OF MATERIALS

Burning of materials is not permitted on site.

3.4 PROTECT EXISTING WORK

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

3.5 EROSION CONTROL

Ensure measures are in place to contain silt dislodged as a result of water infiltration and to prevent it being carried off site with stormwater.

3.6 SURFACE PREPARATION

Comply with NZS 3604, section 3.5, **Site preparation**. Remove all turf, vegetation, trees, topsoil, stumps, uncontrolled fill and rubbish from the area to be built on.

3.7 STOCKPILE TOPSOIL

Stockpile excavated topsoil on site where directed. Keep separate from other excavated materials. Spread and level where directed before completion of the works.

3.8 GENERAL EXCAVATION

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

© CIL Masterspec Sep 2026

3.9 ROCK EXCAVATION

If rock is found at any level above the underside of the structural foundations, or above required base levels for site service trenches, immediately notify the owner. Obtain written instructions from the owner on the proposed approach to rock excavation, or consequent alterations to subgrade construction. Confirm any changes with the territorial authority.

3.10 FOUNDATION EXCAVATION

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

3.11 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
- 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 of service trenches, use hardfill compacted in 150mm layers.

3.12 STANDARD OF COMPACTION

Place fill in layers of not more than 150mm and compact to achieve 95% of maximum dry density. For granular fill material, the fill shall be compacted to 80% of saturated dry density.

3.13 GRANULAR BASE FOR SLABS

To conform to NZS 3604, section 7.5.3, **Granular base**. Consolidate with a vibrating roller. Blind the surface with 20mm of coarse sand or sand/cement and roll ready to receive a damp-proof membrane.

3.14 GENERAL BACKFILLING

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

3.15 SURPLUS MATERIAL

Remove surplus and excavated material from the site.

© CIL Masterspec Sep 2026

3101 CONCRETE WORK - BASIC

1 GENERAL

This section relates to formwork, reinforcement, concrete mixes and the placing of concrete.

1.1 RELATED WORK

Refer to ~ for ~

1.2 ABBREVIATIONS AND DEFINITIONS

The following definitions apply specifically to this section:

ACRS	Australian Certification Authority for Reinforcing Steels - An independent certification scheme for reinforcing steel and structural steel, by product and manufacturer/processor. Certifies compliance with Australia/New Zealand Standards.

ACRS web site - www.steelcertification.com

Documents

1.3 DOCUMENTS

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

NZBC B1/AS1	Structural provisions for buildings
NZBC E2/AS3	External moisture provisions for concrete and concrete masonry buildings
AS 1366.3	Rigid cellular plastics for thermal insulation - Rigid cellular polystyrene - Moulded (RC/PS - M)
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
NZS 3101.1	Concrete structures standard
NZS 3104	Specification for concrete production
NZS 3109	Concrete construction
NZS 3114	Specification for concrete surface finishes
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
AS/NZS 4671	Steel reinforcing materials
AS/NZS 4858	Wet area membranes
CCANZ CP 01	Code of practice for weathertight concrete and concrete masonry construction

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

~

Manufacturer/supplier contact details

Company:	~
Web:	~
Email:	~
Telephone:	~

Requirements

1.5 QUALIFICATIONS

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

© CIL Masterspec Sep 2026

1.6 STEEL REINFORCING COMPLIANCE

Steel reinforcing materials for concrete to AS/NZS 4671. Steel to be manufactured in New Zealand, or by an overseas manufacturer holding a current valid (or equivalent) NZ S Mark or ACRS certificate for that type of steel. Confirm compliance and provide evidence if requested.

© CIL Masterspec Sep 2026

2 PRODUCTS

2.1 NORMAL CONCRETE

Normal concrete 17.5 to 50 MPa grade, (refer to SELECTIONS), maximum aggregate size 19mm ready-mixed to NZS 3104. Provide delivery dockets listing mix and despatch details.

2.2 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 Class E to AS/NZS 4671, and 500E mesh to AS/NZS 4671.

2.3 TYING WIRE

Mild drawn steel wire not less than 1.2mm diameter.

2.4 SPACERS AND CHAIRS

Precast concrete or purpose made moulded PVC to approval. Where concrete spacer blocks are used in exposed concrete work use blocks matching surrounding concrete.

2.5 DAMP-PROOF MEMBRANE

0.25mm minimum polyethylene to NZS 3604, 7.5.4, Damp-proof membrane.

2.6 CELLULAR POLYSTYRENE INSULATION

Proprietary expanded polystyrene (EPS) foam board to AS 1366.3.

© CIL Masterspec Sep 2026

3 EXECUTION

3.1 HANDLE AND STORE

Handle and store reinforcing steel and accessories without damage or contamination. Store on timber fillets on hard ground in a secure area clear of any building operation. Lay steel fabric flat.

Ensure reinforcement is clean and remains clean so that at the time of placing concrete it is free of all loose mill scale, loose rust and any other contamination that may reduce bonding capacity.

3.2 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. Ensure timber or plywood used for formwork is non-staining to the set concrete.

Securely fix and brace formwork sufficiently to support loads and with joints and linings tight enough to prevent water loss. Do not use tie wires or rods unless approved in writing by the Contract Administrator. Unless detailed otherwise, provide a 19mm chamfer or fillet strip at all interior and exterior angles of beam and column forms. Mitre at intersections.

Water blast to clean formwork. Keep formwork wet before concrete is placed.

Unless detailed otherwise, set up soffit boxing for beams and slabs to provide a camber when forms are stripped, of 3mm rise for every 3 metres of total clear span.

3.3 INSTALL DAMP-PROOF MEMBRANE

Apply polythene membrane to prepared basecourse with 150mm laps between sheets. Tape seal laps and penetrations with 50mm wide pressure sensitive plastic tape. Refer to drawings for perimeter details.

3.4 INSTALL CELLULAR POLYSTYRENE INSULATION

Install EPS insulation system to manufacturer's requirements.

3.5 CUT AND BEND REINFORCEMENT

Cut and bend bars using proper bending tools to avoid notching and to the requirements of NZS 3109: 3.3 Hooks and bends. Minimum radii of reinforcement bends to NZS 3109, table 3.1, Minimum radii of reinforcement bends. Do not rebend bars. Where rebending is approved, use a purpose built tool, proper preparation and preheating.

3.6 ADJUSTMENTS

Use a purpose built tool for on site bending and to deal with minor adjustments to steel reinforcement.

3.7 TOLERANCES, BENDING

To NZS 3109, 3.9, Tolerances for reinforcement.

3.8 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 in NZS 3109, 3.6, Spacing of reinforcement.

3.9 LAPPED SPLICES

Length of laps where not dimensioned on the drawings in accordance with the SELECTIONS. Provide laps only where indicated on the drawings. Tie all lapping bars to each other. Plain bars lapped splices must be hooked.
Wire mesh laps to NZS 3101.1, lap one mesh square plus 50mm minimum (do not count bar extension beyond the outermost wire).

3.10 REINFORCEMENT COVER TO NZS 3101.1

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 3101.1, table 3.6, **Minimum required cover for a specified intended life of 50 years**. Sub-soil cover to NZS 3101.1, to suit soil and groundwater conditions. Fix chairs for top reinforcement in slabs at 1.0 metre centres or to ensure adequate support. Cover tolerances to NZS 3109, 3.9, Tolerances for reinforcement.

© CIL Masterspec Sep 2026

3.11 EQUIPOTENTIAL BONDING REINFORCING

Co-ordinate with electrician to provide for equipotential bonding of reinforcing as required by AS/NZS 3000, 5.6 Equipotential Bonding, before concrete placement.

3.12 CASTING IN

Build in all grounds, bolts and fixings for wall plates and bracing elements, holding down bolts, pipes, sleeves and fixings as required by all trades and as shown on the drawings, prior to pouring the concrete.

Do not use grounds exceeding 100mm in length. Location and form of conduits to be approved in writing by the Contract Administrator. Minimum cover 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.

Form all pockets, chases and flashing grooves as required by all trades and as shown on the drawings.

Wrap all pipes embedded in concrete with tape to break the bond and to accommodate expansion. Do not embed pipes for conveying liquids exceeding a temperature of 50°C in concrete.

3.13 CONSTRUCTION JOINTS

Locate and construct as shown on the drawings or in accordance with NZS 3109, 5.6, Type B.

3.14 PRE-PLACEMENT INSPECTION

Do not place concrete until all excavations, boxing and reinforcing have been inspected and passed by the Building Consent Authority.

3.15 SURFACE FINISHES

To NZS 3114, 105, Specification of finishes, as scheduled or as denoted on the drawings.

3.16 CONCRETE SURFACE TOLERANCES

To NZS 3114, 104, Surface tolerances and NZS 3114, 105, Specification of finishes, with the suggested tolerances becoming the required tolerances.

3.17 PUMPING CONCRETE

Set up and supervise pump operation, placing and compaction of the mix to NZS 3109, 7.4, Handling and placing and NZS 3109, 7.6, Compaction Advise the ready-mix supplier of the type of pump and the slump required, in addition to the concrete grade, strength and quantity.

3.18 COMPACTION

Use power operated vibrators on foundations, vertical constructions and beams.

3.19 SAW CUTS TO NZS 3604 OR NZS 4229

Cut slabs where indicated on the drawings as required to control shrinkage cracking. Form by saw cutting the slab (blade width approximately 5 mm) to a quarter of the depth of the slab after it has hardened (saw cutting shall take place no later than 24 hours after initial set for average ambient temperatures above 20 ºC, and 48 hours for average ambient temperatures below 20ºC).

3.20 SAW CUTS

Cut slabs where indicated on the drawings and as required to control shrinkage cracking. Carry out cutting as soon as possible, without causing tear-out of aggregate and before shrinkage cracking has occurred, generally within 24 hours of pouring.

3.21 SPACING OF SAW CUTS

Spacing of sawcuts

Floor situation	Maximum spacing of sawcuts both ways
Industrial floor	5m
Architectural, exposed floor, thin finishes, rigid finishes	4m
Carpet on underlay flooring	6m

3.22 SURFACE DEFECTS

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

3.23 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.

3.24 STRIKE FORMWORK

Strike formwork without damaging or overloading structure. Do not remove formwork before the following minimum periods:

12 hours:	Sides of beams, walls and columns
4 days:	Slabs in beam and slab construction (leave props under slab spans over 2 metres)
10 days:	Props from under slab spans over 2 metres
18 days:	Beams, soffits and slab spans over 5 metres

3.25 CLEAN OUT

Clean out saw cuts. Fill with cement grout where the floor will be covered with carpet or vinyl.

3.26 REMOVE

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

4 SELECTIONS

4.1 DAMP-PROOF MEMBRANE

Brand/type: ~

4.2 CELLULAR POLYSTYRENE INSULATION

Brand:	~
Grade:	S grade
Thickness:	~mm

4.3 REINFORCEMENT LAPS

Where reinforcement laps are not shown on the drawings, lap as follows:

Bar diameter	Grade 300E deformed
10mm	400mm
12mm	500mm
16mm	650mm

4.4 NORMAL CONCRETE

Normal concrete:

17.5 MPa: for ~

4.5 SURFACE FINISHES FLOOR SLABS

Surface finish class to NZS 3114: table 2, Classes of floor, exterior pavement and invert finishes.

Finish class	Location
U3	~

4.6 SURFACE FINISHES PAVEMENTS AND DRIVEWAYS

Surface finish class to NZS 3114: table 2, Classes of floor, exterior pavement and invert finishes.

Finish class	Location
U2 wood float finish	~

© CIL Masterspec Sep 2026

3820 CARPENTRY

1 GENERAL

This section relates to the supply and erection of timber framing, as a framed structure, or as partitioning. It includes prefabricated timber and engineered wood.

1.1 RELATED WORK

Refer to ~ for ~.

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

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

1.3 DOCUMENTS

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

NZBC B2/AS1	Durability provisions for building elements
NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
AS/NZS 1328.1	Glued laminated structural timber - Performance requirements and minimum production requirements
AS/NZS 1604.1	Preservative-treated wood-based products - Part 1: Products and treatment
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 3640	Chemical preservation of round and sawn timber
AS/NZS 4357.0	Structural laminated veneer lumber - Specification
FTMA CoP	Frame and Truss Manufacturers Association Code of Practice

***A copy of** NZS 3604 **Timber-framed buildings, must be held on site.**

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

~

Manufacturer/supplier contact details

Company:	~
Web:	~
Email:	~
Telephone:	~

1.5 QUALIFICATIONS

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

1.6 DIMENSIONS

All timber sizes except for battens are actual minimum dried sizes.

2 PRODUCTS

2.1 TIMBER FRAMING, TREATED

Species, grade and in service moisture content to NZS 3602, NZBC B2/AS1 and treatment to NZS 3640, NZBC B2/AS1. Structural grade (SG) to NZS 3604, NZS 3622 with properties to NZS 3603.

2.2 ENGINEERED WOOD

LVL members to AS/NZS 4357.0, to required sizes and lengths and the manufacturer design properties.

Treatment to NZS 3640 and AS/NZS 1604.1.

2.3 WALL DWANGS, NOGS AND BLOCKING

If dwangs, nogs or blocking is required for exterior insulated walls, ensure they are not full depth of framing. Install flush with face of wall required, leaving a minimum 20mm or 45mm preferable gap to the other face to NZS 3604, 8.8. Dwangs and nogs if required to be at 1350mm centres maximum to NZS 3604, 8.8.

2.4 EXTERIOR CAVITY WALL BATTENS - TIMBER - NON-STRUCTURAL

H3.1 or H3.2 Radiata pine battens, minimum 20mm thickness, width and height to match timber framing studs. Temporary fix battens before being fixed into the framing with the cladding fixings. To NZS 3602, table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.

2.5 EXTERIOR CAVITY WALL BATTENS - PROPRIETARY - NON-STRUCTURAL

Extruded polypropylene battens, size approximately 45mm wide x 18mm thickness. Temporary fix battens before being fixed into the framing with the cladding fixings. To the scope limitations of NZBC E2/AS1, and NZS 3604 Building Wind Zones up to, and including "Extra High".

Components

2.6 NAILS

Type to NZS 3604, section 4, **Durability**, and of the size and number for each particular types of joint as laid down in the nailing schedules of NZS 3604, sections 6-10.

2.7 SCREWS

Wood screws to the requirements of NZS 3604, 2.4 Fastenings and Fabrication, and section 4, **Durability**, and of the type, number and form required for each screw application to NZS 3604, sections 6 - 10.

2.8 BOLTS AND COACH SCREWS

Bolts and coach screws complete with washers, to the requirements of NZS 3604, clause 2.4.5 Bolts and Coach Screws, and section 4, **Durability**, and of the type, number and form required for each particular junction to NZS 3604, sections 6 - 10.

2.9 NAIL PLATES

Comply with the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6 - 10. Plates to the plate manufacturer's design for the particular locations as shown on the drawings.

2.10 CONNECTORS

Comply with the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10. Connectors and structural brackets to the connector manufacturer's design for particular locations shown on drawings.

2.11 CORROSION RISKS

For interior timber, treated with copper-based timber preservatives (H3.2 or higher), use a minimum of hot-dipped galvanized steel fixings and fasteners.

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).

© CIL Masterspec Sep 2026

2.12 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3 EXECUTION

3.1 EXECUTION GENERALLY

To NZS 3604 except as varied in this specification. Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

3.2 SEPARATION

Separate all timber framing timbers from concrete, masonry and brick by: -

- a full length bituminous damp-proof membrane overlapping timber by at least 6mm; or
- a 12mm minimum free draining air space

3.3 ATTENDANCE

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

3.4 MOISTURE CONTENT

Maximum allowable equilibrium moisture content (EMC) for non air-conditioned or centrally heated buildings for framing to which linings are attached.

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

3.5 SET-OUT

Set out framing in accordance with the requirements of NZS 3604 and as required to support sheet linings and claddings. When necessary provide framing to suit any required cladding/lining control joints and sheet joints.

3.6 FRAMING WALLS

Frame to required loading and bracing complete with lintels, sills and nogs, all fabricated and fastened to NZS 3604, section 8, **Walls**.

3.7 FRAMING ROOFS

Frame to required loading and bracing complete with valley boards, ridge boards and purlins. Design and fit roof trusses complete with anchorage. All fabricated and fastened to NZS 3604, section 9, **Posts** and 10, **Roof framing**.

3.8 FRAMING CEILINGS

Frame to required loading and bracing complete with runners and battens set out to support ceiling lining. All fabricated and fastened to NZS 3604, section 13, **Ceilings**. Trim for openings in ceilings and hatches to NZS 3604 section 13.3, **Openings in ceilings**. Provide blocking for water tanks located in the ceiling space to NZS 3604, section 13.4, **Water tanks in roof space**.

3.9 INSTALLING WALL UNDERLAYS

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.10 FIT CAVITY BATTENS

Fit and fix 20mm cavity battens over wall underlay or rigid air barrier, fully nail to timber studs to the requirements of the manufacturer or to NZS 3604. Fit and fix related flashings. Make allowance for cladding control joints where required. Fit and fix cavity closers to base of walls, open horizontal (or raking) junctions and over openings (windows, meters etc.).

3.11 DPC TO LOSP TREATED TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section.

3.12 DPC TO TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section.

© CIL Masterspec Sep 2026

4 SELECTIONS

4.1 EXTERIOR WALL FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Exterior walls:	Radiata pine	SG8	H1.2
Parapets:	Radiata pine	SG8	H1.2
Enclosed decks and balconies:	Radiata pine	SG8	H1.2
Cantilevered joists enclosed decks and balconies:	Radiata pine	SG8	H3.2
Nogs	Radiata pine	SG8	H1.2
Wall battens (not cavity):	Radiata pine	Merch	H1.2
Jamb battens:	Radiata Pine	Merch	H3.1

4.2 CAVITY BATTENS

Cavity battens	Species	Grade	Treatment
Timber - Non Structural:	Radiata pine	Merchantable	H3.1
Proprietary - non structural:	Manufacturer ~	Type ~	Reference ~
Cavity closer:	Manufacturer ~	Type ~	Reference ~

4.3 ROOF FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Rafters:	Radiata pine	SG8	H1.2
Trusses:	Radiata pine	SG8	H1.2
Purlins:	Radiata pine	SG8	H1.2
Ceiling joists and battens:	Radiata pine	SG8	H1.2
Valley boards:	Radiata pine	Merchantable	H1.2
Sarking:	Radiata pine	Merchantable	H1.2
Skillion roof framing:	Radiata pine	SG8	H1.2
Enclosed flat roof framing:	Radiata pine	SG8	H1.2

4.4 INTERIOR FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Non structural walls:	Radiata pine	SG8	H1.2
Structural and braced walls:	Radiata pine	SG8	H1.2

4.5 SPECIAL FRAMING ELEMENTS

Member	Species	Grade	Treatment
~			

4.6 LAMINATED VENEER LUMBER (LVL)

Member	Brand/type	Treatment
~	~	~

4.7 NAILS

Location	Type	Material	Finish
~			

4.8 SCREWS

Location	Type	Material	Finish
~			

4.9 BOLTS AND COACH SCREWS

Location	Type	Material	Finish
~			

© CIL Masterspec Sep 2026

4.10 NAIL PLATES

Location	Type	Material	Finish
~			

4.11 CONNECTORS

Location	Type	Material	Finish
~			

© CIL Masterspec Sep 2026

4230 WALL CLADDING

1 GENERAL

This section relates to the supply and installation of exterior cladding, including:

- associated flashings
- timber fascias
- timber barges
- timber trims
- timber beads
- timber facings

1.1 RELATED WORK

~

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 B2/AS1	Durability provisions for building elements
NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
AS/NZS 1491	Finger jointed structural timber
AS/NZS 2269.0	Plywood - Structural - Specification
AS/NZS 2908.2	Cellulose-cement products - Flat sheets
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
NZS 3631	New Zealand timber grading rules
BRANZ BU 601	Sealants for cladding joints

1.4 MANUFACTURER'S DOCUMENTS

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

~

Copies of the above literature are available from ~

Web:	~
Email:	~
Telephone:	~
Facsimile:	~

Performance

1.5 PERFORMANCE

Accept responsibility for the weathertight performance of the completed cladding system, including all penetrations.

2 PRODUCTS

2.1 WALL UNDERLAYS

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

2.2 EXTERIOR CAVITY WALL BATTENS

Radiata pine battens, minimum 20mm thickness, width and height to match timber framing studs. Treatment to NZBC B2/AS1 and 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, aluminium or stainless steel trays with upstands. Upstand one side 10mm and the other 75mm. Length and width to suit cavity.

2.4 TIMBER WEATHERBOARD

Dressing grade to NZS 3631, to NZS 3617 for profile and treated to NZS 3602, table 2, reference 2.A1, Requirements for wood-based building components to achieve a 15-year durability performance.

2.5 FIBRE-CEMENT SOFFIT LINING

Cellulose cement autoclaved sheets to AS/NZS 2908.2.

2.6 TIMBER FASCIAS AND BARGE BOARDS

Dressing grade to NZS 3631 and treated to NZS 3602, table 2, reference 2A.3, Requirements for wood-based building components to achieve a 15-year durability performance. Finger jointed timber to AS/NZS 1491.

2.7 PVC JOINTERS

To suit sheet thickness.

2.8 NAILS, SCREWS AND FASTENINGS

Metal, size and pattern, to cladding manufacturer's requirements and complying with the relevant aspects of NZS 3604, section 4, Durability.

2.9 FLASHINGS

To NZBC E2/AS1, 4.0 Flashings. 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.

© CIL Masterspec Sep 2026

3 EXECUTION

3.1 MOISTURE CONTENT

Maximum allowable moisture content to NZS 3602 for:
Equilibrium moisture content (EMC)

- Framing: 20% at closing in
- Weatherboards: 14% at time of fixing
- Exterior joinery and trim: 14%

3.2 EXECUTION METHODS AND PRACTICES

To NZS 3604 except as varied in this specification. Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

3.3 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/rigid air barrier to openings finished and dressed off with flashing tape 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).

3.4 INSTALL DRAINED CAVITY

20mm Minimum thickness drained cavity 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. Install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc). Do not use horizontal cavity battens. Use cavity spacers where fixing is required between cavity battens.

3.5 PRIME OR SEAL TIMBER WEATHERBOARDS AND TRIM

Prime or seal all front and back faces, edges and end grain before fixing weatherboards and exterior trim, to the finish and quality specified in painting sections.

3.6 FIXINGS TO TIMBER CLADDINGS

~

3.7 INSTALL TIMBER WEATHERBOARDS

Install level, true to line and face, to NZBC E2/AS1, 9.4 Timber weatherboards. Refer to NZS 3604 for fixings durability requirements for specific provisions.

3.8 INSTALL FIBRE CEMENT SOFFITS WITH JOINTERS AND CAPPING MOULDS

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 NZS 3604 for fixings durability requirements for specific provisions.

3.9 INSTALL FLUSH JOINTED FIBRE CEMENT SOFFIT SHEETS

Cut sheets dry, and scribe fit to fully support all edges and joints. Fit expansion joints to limit finished areas to 9 metre x 6 metres maximum, confirm with the sheet manufacturer's requirements. Flush joints with bedding compound reinforcing tape and finishing compound to flush width of 150mm. Refer to the sheet manufacturer's requirements and details.

3.10 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.

3.11 INSTALL FLASHINGS

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

3.12 USE OF SEALANTS

Selection and use of sealants to follow BRANZ BU 601.

© CIL Masterspec Sep 2026

3.13 COMPLETE

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

3.14 REPLACE

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

4 SELECTIONS

4.1 CAVITY BATTENS

Timber species: ~
Timber grade: ~
Treatment: H3.1 (non-structural)

4.2 CAVITY CLOSER/VERMIN-PROOFING

Brand/type: ~
Material: ~

4.3 TIMBER WEATHERBOARD

Location: ~
Size/profile: ~
Species and grade: ~
Treatment ~
Priming ~

4.4 FIBRE-CEMENT SOFFIT LINING

Brand/type: ~
Thickness: ~mm
Finish: ~

4.5 TIMBER FASCIAS AND BARGE BOARDS

Species and grade: ~
Treatment: ~
Width: ~mm
Priming: ~

4.6 EXTERIOR FINISHING TIMBER

Species and grade: ~
Treatment: ~
Location: ~
Priming: ~

4.7 PVC JOINTERS

Brand: ~
Profile/type: ~
Colour: ~

4.8 NAILS, SCREWS AND FASTENINGS

Cladding	Fixing/fastening (metal/finish)	Fixing/fastening (type, gauge and length)	Centres (general and edge)
~			

4.9 FLASHINGS

Location	Material/ thickness	Base metal thickness	Finish
~			

© CIL Masterspec Sep 2026

4.10 COVERS AND TRIMS

Location	Material/ thickness	Base metal thickness	Finish
~			

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	Protection from fire for buildings with sleeping (residential) and outbuildings (risk group SH)
NZBC C/AS2	Protection from fire for buildings other than risk group SH
NZBC C/VM2	Framework for fire safety design
NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
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:	~
Web:	~
Email:	~
Telephone:	~

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.

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, 5.5 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 HOT-DIPPED ALUMINIUM/ZINC/MAGNESIUM COATED STEEL

Formability steel sheet, G550 for roll forming or G300 for flashings, coated to AS 1397.

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.

© CIL Masterspec Sep 2026

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.

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.

© CIL Masterspec Sep 2026

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 CAVITY CLOSER

Brand/type:	~
Material:	~

4.3 PRE-FINISHED HOT-DIPPED ALUMINIUM/ZINC/MAGNESIUM COATED STEEL

Brand:	~
Profile:	~
BMT:	~mm
Coating:	~
Colour:	~

4.4 SPECIAL FORMING

~

4.5 CLOSURE STRIPS

Brand:	~

4.6 NAILS, SCREWS AND FASTENINGS

Sheathing material:	~
Fixing/fastening:	~
Centres:	~

4.7 FLASHINGS

Location:	~
Material/thickness:	~
Finish:	~

4.8 COVERS AND TRIMS

Location:	~
Material/thickness:	~

© CIL Masterspec Sep 2026

4271 NATURAL STONE VENEER CLADDING

1 GENERAL

This section relates to the installation of natural stone as a mechanically anchored masonry veneer cladding.

1.1 RELATED WORK

Refer to ~ for ~

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:

kPa	Kilopascal
MPa	Megapascal

The following definitions apply specifically to this section:

Masonry	To NZS 4210, any construction in units of stone laid to a bond in, and joined together with, mortar
Pointing	To NZS 4210, finishing of previously raked joints of masonry with mortar
Veneer	To NZS 4210, a single skin of non-loadbearing masonry which is attached to and laterally supported by a structural element
Wall tie	To NZS 4210, a tie, together with its fixings or anchorages, used to transfer face loads from a veneer to a structural wall, or between skins of a cavity wall, while being capable of accommodating differential inplane horizontal and vertical deflections between the attached elements

Documents

1.3 DOCUMENTS

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

AS/NZS 2699.1	Built-in components for masonry construction - Wall ties
AS/NZS 2699.3	Built-in components for masonry construction - Lintels and shelf angles (durability requirements)
NZS 3404.1-2	Steel structures standard
NZS 4210	Masonry construction - Materials and workmanship
AS/NZS 4456	Masonry units, segmental pavers and flags - Methods of test
AS/NZS 4600	Cold-formed steel structures

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

Manufacturer/supplier contact details

Company:	~
Web:	~
Email:	~
Telephone:	~

1.5 SPECIFIC DESIGN DOCUMENTS

Specific design documents relating to this part of the work:

Documents:	~
Note:	Refer to ~

© CIL Masterspec Sep 2026

Warranties

1.6 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

~ years For ~

- Provide this warranty on the manufacturer/supplier 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.

1.7 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

~ years For ~

- 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

1.8 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.9 ACCEPTABLE PRODUCT/MATERIAL SUPPLIERS

Where a product or material supplier is named in SELECTIONS, the product/material must be provided by the named supplier. Where more than one named supplier, any one of the named suppliers will be acceptable.

1.10 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.11 SAMPLES

Refer to the general section 1270 CONSTRUCTION for details of how samples will be reviewed and how instructions to proceed will be given. Provide the following samples for review:

	Sample A	Sample B	Sample C
Sample description:	~	~	~
Sample type:	~	~	~
Number:	~	~	~
Location:	~	~	~
Supporting documentation:	~	~	~
Reviewer:	Contract administrator~	Contract administrator~	Contract administrator~
Time for review:	10 working days ~	10 working days ~	10 working days ~
Review criteria:	~	~	~

1.12 TEST MASONRY

Test masonry in accordance with NZS 4210 for the following and at frequencies required by the engineer. Keep test records and make available to the contract administrator on request.

- 28 day compressive strength of mortar
- 7 day masonry-to-mortar bond strength

1.13 KEEP RECORDS

Keep the following records and make available to the contract administrator on request:

© CIL Masterspec Sep 2026

- Proportions of mortar used, including admixtures
- Supplier of mortar sand

1.14 INFORMATION FOR INSTALLATION

Contractor to obtain manufacturer / supplier instructions and requirements for the installation of the natural stone product. Keep and maintain on site the relevant latest version of such documents and make available to workers carrying out that part of the work.

1.15 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of the following general operation and maintenance information as electronic PDF format documents:
~

Provide this information prior to practical completion.

Compliance information

1.16 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.

Quality control and assurance

1.17 INSPECTIONS

~ ~

2 PRODUCTS

Materials - cavity

2.1 CAVITY BATTENS

Refer to SELECTIONS.

2.2 BACKING BOARD

Moisture resistant rigid backing board material and associated components such as board fixings, joint sealant and joint tape. Refer to SELECTIONS.

Materials - veneer

2.3 NATURAL STONE

Quarried stone worked to size, shape and face finish to form veneer cladding and decorative stone work, such as string courses, quoins, sill and cap stones. Salt attack resistance tested to AS/NZS 4456 to comply with NZS 4210. Refer to SELECTIONS.

2.4 MORTAR

To NZS 4210, bedding and jointing mortar composed of Portland cement, sand, admixture or hydrated lime and clean, fresh water free from excess alkali, salt, silt and organic materials. Mortar for pointing and for use with sill and cap stones to include waterproofing agents. Coloured mortar to be coloured by use of mineral oxide pigments or coloured cement. Refer to SELECTIONS.

2.5 WALL TIES

Wall ties and associated fixings of the specified type. Durability classification, marking and structural performance to AS/NZS 2699.1. Refer to SELECTIONS.

2.6 STEEL LINTELS

Steel lintel durability classification and marking to AS/NZS 2699.3, structural performance to NZS 3404.1-2 or AS/NZS 4600. Refer to SELECTIONS.

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 STORAGE & HANDLING OF AGGREGATES

Store and handle aggregates to prevent segregation and contamination by foreign materials and intermixing of aggregate sizes.

3.3 STORAGE & HANDLING OF CEMENT & MORTAR

Store and handle cement and mortar to protect it against deterioration and contamination. Store accessible for inspection.

3.4 STORAGE & HANDLING OF NATURAL STONE

Store natural stone to protect from weather so that stone is in an air-dry state at installation. In hot dry weather dampen stone as per the manufacturer / supplier instructions. Check stone is of required thickness, size, shape and finish, and without defects. Carry out such additional work to bring stone to the required condition.

3.5 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.

3.6 PRE-INSTALLATION REQUIREMENTS

Check work previously carried out and confirm it is of the required standard for this part of the work, including (but not limited to):

- Vertical and horizontal alignment of the concrete base
- Installation of damp proofing material to walls and concrete base
- Installation of flashings required to be installed prior to veneer cladding installation (i.e. joinery flashings)
- Installation of windows and doors

Installation/application - generally

3.7 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements. Tolerances to NZS 4210, Maximum tolerances.

3.8 COLD & HOT WEATHER CONSTRUCTION

In air temperatures below 5°C and above 25°C or in drying winds, install natural stone veneer cladding to the precaution requirements of NZS 4210 for cold and hot weather construction.

3.9 BLENDING OF NATURAL STONE

Blend natural stone to achieve a consistent colour and size spread throughout the work.

3.10 CLEANING OUT

To NZS 4210, Cleaning Out. Clean out drained cavities and remove mortar from ties, mortar protruding into cells and cavities at joints, mortar droppings and other loose material.

3.11 FACE WORK

Keep natural stone face work clean during erection and until completion of the contract works. Remove occurring stains as per the natural stone manufacturer / supplier instructions and requirements for cleaning.

3.12 PROTECTION OF UNFINISHED WORK

Protect freshly laid stone work and the top course of uncompleted walls during interruption through rain and at completion of each day's work.

3.13 PROTECTION OF CAVITY

Install temporary protection where required to protect the cavity from wet mortar entering. Only remove when mortar has cured.

Installation - cavity

3.14 INSTALLATION CAVITY BATTENS

Install cavity battens vertically, true to line and face, at required spacing. Rigidly fix in place.

3.15 INSTALLATION BACKING BOARDS

Install backing boards to cavity battens, and where specified seal and tape joints, to the manufacturer's requirements and instructions.

Installation - veneer

3.16 PREPARATION MORTAR

Mix materials for mortar to composition and proportion required by, and to the instructions of, the manufacturer and NZS 4210. Measure materials in calibrated devices, thoroughly mix to an even consistency in a mechanical batch mixer or with a hand-mixer for quantities of mortar not exceeding 0.03m³.

3.17 LAYING OF VENEER STONES

Ensure stone is clean, sound and free of defects. Start at corners / wall ends and work horizontally towards the centre, lay stone to the required bond, true to line, plumb and level in 10mm thick (±3 mm tolerance) soft plastic mortar bed, up to 20mm thickness is acceptable for bottom course where required to accommodate variations in the foundation. Lay stone from sedimentary geological formation with its natural bed horizontal. Tool mortar joints to the specified type.

3.18 INSTALLATION WALL TIES

Install wall ties as the work proceeds to the specified embedment, spacing and fixing and to the instructions of the manufacturer. Install at a 5° downward angle away from the exterior wall and contained within the veneer's mortar bed over its full contact length. When fixing through membranes pre-fill fixing holes with silicone sealant.

3.19 INSTALLATION STEEL LINTELS

Install steel lintels above openings to NZS 4210, Openings and in accordance with construction drawings and specific design documents.

3.20 INSTALLATION WEEP HOLES

Install 75mm high x maximum 10mm wide weep holes at maximum 800mm centres to mortar joints at the bottom of the natural stone veneer cladding and at any other location shown on construction drawings and stated in the specific design documentation. Where 75mm height cannot be achieved reduce weep hole spacing to provide at least 1000mm² opening area per lineal meter.

3.21 INSTALLATION VENTILATION

Provide ventilation to the top of the veneer to the requirements of NZS 4210 and in accordance with construction drawings and specific design documents.

Completion & Commissioning

3.22 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.

Materials - cavity

4.1 CAVITY BATTENS

Location:	~
Supplier:	~
Brand:	~
Type:	~
Material:	~
Size:	~
Fixings:	~

4.2 BACKING BOARD

Location:	~
Supplier:	~
Brand:	~
Type:	~
Size:	~
Fixing:	~
Joint sealant:	~
Joint tape:	~

Materials - veneer

4.3 NATURAL STONE

Location:	~
Supplier:	~
Type:	~
Thickness:	~
Size:	~
Face finish:	~
Compressive strength:	~MPa minimum unconfined compressive strength

4.4 MORTAR

Location:	~
Supplier:	~
Brand:	~
Type:	~
Classification:	~
Colour:	~
Compressive strength:	~MPa minimum 28 day compressive strength
Bond strength:	~kPa minimum 7 day masonry-to-mortar bond strength
Joint type:	~

4.5 WALL TIES

Location:	~
Supplier:	~
Brand:	~
Type:	~
Classification:	~
Material:	~
Spacing:	~
Embedment:	~
Fixings:	~

© CIL Masterspec Sep 2026

4.6 STEEL LINTEL

Location: ~
Supplier: ~
Type: ~
Size: ~

© CIL Masterspec Sep 2026

4511 EXTERIOR TIMBER WINDOWS & DOORS

1 GENERAL

This section relates to the supply and installation of:

- exterior timber windows
- exterior door frames and doors
- generally unglazed

1.1 RELATED WORK

Refer to glazing sections for glazing

Refer to painting sections for finishes

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 provisions for timber-framed buildings up to 10 m in height
NZBC F4/AS1	Safety from falling
NZBC H1/AS1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/AS2	Energy efficiency for buildings greater than 300m²
NZBC H1/VM1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/VM2	Energy efficiency for buildings greater than 300m²
AS/NZS 1170.2:2011	Structural design actions - Wind actions
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 4211	Specification for performance of windows
NZS 4223.3	Glazing in buildings - Human impact safety requirements
BS EN 673	Glass in building - Determination of thermal transmittance (U-value) - Calculation method
ISO 10077-1	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - General
ISO 10077-2	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Numerical method for frames

1.4 MANUFACTURER'S DOCUMENTS

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

~

Copies of the above literature are available from ~

Web:	~
Email:	~
Telephone:	~

1.5 ABBREVIATIONS AND TERMS

SLS	Serviceability limit state
ULS	Ultimate limit state

Warranties

1.6 WARRANTY

Provide warranty for:

5 years for materials
Warrantor: ~

Provide the warranty in the standard form in the general section 1237WA WARRANTY AGREEMENT.

Refer to the general section 1237 WARRANTIES for additional requirements.

Performance

1.7 PERFORMANCE - STRUCTURAL/WEATHER-TIGHTNESS

The structural and weather-tight performance of the completed window installation, the glazing and infill panels is the responsibility of the window manufacturer.

1.8 THERMAL PERFORMANCE - WINDOWS & GLAZED DOORS, HOUSING ONLY

Thermal performance of windows & doors to NZBC H1/AS1. The construction R-Value of windows & doors determined by Appendix D, Table D1.1.1 Construction R-values (R window) of selected generic windows and doors. Refer to SELECTIONS for construction R-values.

1.9 THERMAL PERFORMANCE - WINDOWS & DOORS

Thermal performance of windows & doors to NZBC H1/AS1 or NZBC H1/AS2 & NZBC H1/VM1 or NZBC H1/VM2. The construction R-value of windows & doors determined in accordance with NZBC H1/VM1 or NZBC H1/VM2, Appendix D, D1 Vertical windows and doors:

- Thermal transmittance of window & doors in accordance with ISO 10077-1.
- Thermal transmittance of framing in accordance with ISO 10077-2.
- Thermal transmittance of glazing using BS EN 673.

Refer to SELECTIONS for construction R-values.

Performance to NZS 4211

1.10 CERTIFICATION

Provide evidence of a certificate by a laboratory accredited by International Accreditation of New Zealand that the windows and doors offered comply with the requirements of NZS 4211.

1.11 PERFORMANCE - WINDOWS AND DOORS

To NZS 4211,including:

- deflection, opening sashes, air infiltration, water penetration, ultimate strength, torsional strength of sashes, marking.

Refer to SELECTIONS.

Performance - Wind (design by contractor)

1.12 WIND - NON SPECIFIC DESIGN

Design the installation to the wind zone parameters of NZS 3604, table 5.4.

Refer to SELECTIONS for wind zone.

2 PRODUCTS

Materials - general

2.1 EXTERIOR TIMBER

Solid timber to NZS 3602 to profiles detailed. Moisture content 16% ex factory.

2.2 SASHES

Solid/finger jointed timber to profiles detailed and complete with weather-seals and weather hoods as necessary.

2.3 EXTERIOR FACINGS AND SCRIBERS
Treated H3.1 unless durable heart wood, to profiles detailed/scheduled.

2.4 GLASS
Refer to glazing sections for glass type and thickness. To NZS 4223.3.

2.5 PANELS
Refer to SELECTIONS for type.

2.6 INTERIOR TIMBER
To NZS 3602. Moisture content 10-14%.

2.7 STANDARD DOORS
Frames to profile as detailed and dimensioned.

Materials - doorsets

2.8 STANDARD DOORSETS, SIDE HUNG DOOR
Frames to profile as detailed and dimensioned.

2.9 STANDARD DOORSETS, SLIDING
Frames to profile as detailed and dimensioned.

Components

2.10 FLASHINGS GENERALLY
Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

2.11 WINDOW AND DOOR FURNITURE
Refer to 5521 HARDWARE for type.

2.12 METAL FASTENINGS
Galvanized steel or non-corrodible metal.

2.13 SCREWS
Stainless steel or non-corrodible metal. Length sufficient to penetrate into the background support up to the shank. Screws for fixing hinges, hardware or furniture to match the item being attached.

2.14 NAILS
Length sufficient to penetrate into the background support at least half the nail length, except if into radiata pine then three-fifths their length.

2.15 SASH STAYS
Aluminium, nylon-bearing friction stays - 2 per sash. Size and gauge to suit sash size and weight.

2.16 SAFETY STAYS
Stainless steel non releasable restrictors to limit window opening to NZBC F4/AS1, Section 2.0, **Opening windows**.

2.17 HINGES
Size and gauge to carry door size and weight. Refer to SELECTIONS for type, size and material.

Finish

2.18 PRIMER
Alkyd wood primer coating system.

3 EXECUTION

Conditions

3.1 GENERALLY

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, and stairs).

3.2 DO NOT DELIVER

Do not deliver any elements which cannot be unloaded immediately into suitable storage conditions.

3.3 HANDLE

Handle, unload and store elements without distortion and avoiding pre-finished surfaces rubbing together, and contact with mud, moisture and other damaging materials.

3.4 PROTECT

Protect all elements against damage to arrises and glazing beads. Store frames and doors flat and away from moisture or direct sunlight.

3.5 FABRICATE DOORSETS

Fabricate doorsets in the factory with doors hung, provision for furniture made, finishes applied and fully operable.

3.6 FABRICATE DOORS

Fabricate doors in the factory, with provision for door furniture.

3.7 CHECK ALL OPENINGS

Check all openings on site for size and standard of execution before installing window or door frames.

3.8 CONFIRM PREPARATION OF EXTERIOR WALL OPENINGS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames. Do not proceed with the window and door installation until required preparatory work has been completed.

Required preparatory work includes the following:

- wall underlay/building wrap to openings finished and dressed off ready for the installation of window and door frames to NZBC E2/AS1, 9.1.4 Wall underlays to wall openings.
- claddings neatly finished off to all sides of openings
- installation of flashings (those which are required to be installed prior to frames).

Assembly

3.9 FABRICATION GENERALLY

Manufacture and fabricate frames, doors and sashes as detailed. Install hinges, stays and running gear as scheduled.

3.10 FABRICATION SASHES

Solid/finger-jointed timber to profiles detailed, complete with weather seals and weather hoods as necessary and as detailed.

3.11 HINGES

Fit hinges to doors to support the door size and weight

3 hinges	Doors up to 2.2 metres
4 hinges	Doors 2.2 - 2.6 metres
5 hinges	Doors 2.6 - 5.0 metres

Fit minimum 2 hinges per window sash

3.12 FACTORY FINISHING

Before delivery to site:

© CIL Masterspec Sep 2026

- Prime assemblies scheduled for paint finish with an alkyd wood primer.
- Prime rebates and concealed faces of beads of assemblies scheduled for clear finish with an alkyd wood primer.
- Brace square and provide protection to assemblies during delivery to site. Where factory glazed, indicate the presence of transparent glasses with whiting, tape or signs compatible with the glass type.

3.13 ON SITE FINISHING

Before installation:

- Prime assemblies scheduled for paint finish not already primed with an alkyd wood primer.
- Prime all rebates and concealed faces of beads of assemblies scheduled for clear finish with an alkyd wood primer.
- Re-prime/seal any subsequently cut edge.
- Refer to painting section/s for finishing.

Installation - frames

3.14 FIXING FRAMES

Fit flashings to frame and framing as required. Fix and assemble frames rigidly in place, plumb, level and true to line and face without distortion and with all opening sashes fully and easily operating. Fit facings, scribers, draught-stopping and sealants.

3.15 DISTORTION

Do not distort frames when wedging or other packing, or when tightening fixings. If necessary adjust packing and fixings to eliminate binding. Do not cut, plane or sand frames to remedy distortion.

3.16 FIXINGS

Fix frames so that nail heads are covered by applied stops and beads. Punch all nail heads below timber surfaces which will be visible in completed work. Ensure that at least one frame fixing is adjacent to each hanging point.

3.17 EXTERNAL DOOR AND WINDOW FRAMES AND SASHES

Fabricate as detailed. Jamb, head and sill liners as detailed. Wedge and rigidly fix in place without distortion, plumb, and true to line and face, complete with full length sill tray, jamb and cap flashings and with all doors and sashes operating freely. Fit hardware.

3.18 INSTALL FLASHINGS

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

Place all flashings so that the head flashing weathers the jamb flashings, which in turn weathers over the upstand of the sill flashing. Ensure that sill flashings drain to the outside air.

Except where window/door frames are recessed, ensure that head flashings over-sail jamb facings by 15mm at each end. Refer to 4821 FLASHINGS section for supply and installation.

3.19 COMPLETE AIR SEAL

To NZBC E2/AS1, 9.1.5 Air seals. Form an air-tight seal by means of proprietary expanding foam, compressible foam strips, or sealants used with backing rods. Ensure that in combination with the internal linings a complete air seal is created.

3.20 FIX HARDWARE

Fix all sash hardware and furniture as scheduled.

3.21 SAFETY STAYS

Factory fit safety stays to all windows scheduled for safety stays and to all windows where safety stays are required to comply with NZBC F4/AS1 4.0, Opening windows.

Installation - doorsets

3.22 PROPRIETARY ELEMENTS

Fix in accordance with the door manufacturer's requirements.

3.23 INSTALLATION GENERALLY

Frames finished to match the width of lined walls. Wedge frames into opening and nail through into the studs. Locate all wedges and fixing at hinge positions and opposite, with one fixing in the vicinity of the lock. Fixings concealed behind planted stops.

Hang doors on hinges, sliding or bi-fold gear as specified and to operate freely. Fit all hardware and door furniture.

Installation - standard doorsets

3.24 TIMBER STUD WALLS - TIMBER FRAMES

Wedge into opening and nail through into the studs. All wedges and fixing to be at hinge positions and opposite, with one fixing in the vicinity of the lock.

3.25 REMOVE DOORS

Remove doors from the frames if necessary to protect them, or for re-finishing, store safely and near completion refit them, all without any damage.

3.26 INSTALL PANELS

Prime rebates and beads; install sealant backing strips or silicone. Install dry beading to outside of panels as selected. Do not mitre corners of beads.

3.27 MANIFESTATIONS

To NZS 4223.3, 2.2 Manifestation (making glass visible).

3.28 INSTALL FURNITURE

Install latches, locks and door furniture as scheduled.

3.29 CHECK

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

Completion

3.30 ROUTINE CLEANING

Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

3.31 DEFECTIVE OR DAMAGED WORK

Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Adjust operation of equipment and moving parts not working correctly. Leave work to the standard required for following procedures.

3.32 PROTECTION

Provide the following temporary protection of the finished work:

~

4 SELECTIONS

Performance - thermal

4.1 THERMAL PERFORMANCE - VERTICAL WINDOWS & DOORS

Window /Door Number:	Construction R-value:
~	~
~	~

Performance - Wind (design by contractor)

4.2 WIND - NON SPECIFIC DESIGN

Building wind zone: ~ (refer to NZS 3604, table 5.4)

Performance - air infiltration

4.3 AIR INFILTRATION

For NZS 4211, table 3 **Air infiltration**.

Non-air conditioned zones: ~
Air conditioned zones: ~

Joinery frames

4.4 EXTERIOR TIMBER FRAME

Location:	~
Timber species:	~
Grade:	~
Treatment:	~
Finish:	~

4.5 EXTERIOR TIMBER SASH

Location:	~
Timber species:	~
Grade:	~
Treatment:	~
Finish:	~

4.6 STANDARD DOOR

Manufacturer:	~
Door type:	~
Door leaf dimensions:	~mm x ~mm
Edge clashing:	~
Door finish:	~
Hinge type and finish:	~

4.7 STANDARD DOORSETS, SIDE HUNG DOOR

Door type:	~
Door leaf dimensions:	~mm x ~mm
Door finish:	~
Frame material and finish:	~
Hinge type and finish:	~
Wall type and thickness:	~

4.8 STANDARD DOORSETS, SLIDING

Door type:	~
Door leaf dimensions:	~mm x ~mm
Door finish:	~
Frame material and finish:	~
Door gear type and finish:	~
Wall type and thickness:	~

4.9 HINGES, DOORS

Type:	~
Size:	100mm
Pin:	Fixed pin
Material:	Stainless steel

4.10 HINGES, WINDOWS

Type:	~
Pin:	Fixed pin
Material:	Stainless steel

© CIL Masterspec Sep 2026

4.11 FLASHINGS

Material/type:	~
Pattern:	Formed to suit details provided

4.12 WINDOW SCHEDULE

Window number:	~
Location:	~
Furniture:	~
No. off:	~

4.13 DOOR AND HARDWARE SCHEDULE

Door number:	~
Location:	~
Type:	~
Size:	~
Furniture:	~
No. off:	~

4.14 PANEL SCHEDULE

Location:	~
Type:	~
Thickness:	~mm
Colour/finish:	~

© CIL Masterspec Sep 2026

4610 GLAZING RESIDENTIAL

1 GENERAL

This section relates to the supply and fixing of glass products for external and internal joinery in residential type buildings and includes:

- windows and doors
- frameless shower and bath screens
- splashbacks, wall linings
- balustrade systems, pool fences
- mirrors and mirror frames

1.1 RELATED WORK

Refer to ~ for ~

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:

PVB	Polyvinyl Butyral
CIP	Cast in place

Documents

1.3 DOCUMENTS

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

NZBC B2/AS1	Durability provisions for building elements
NZBC F4/AS1	Safety from falling
NZBC F9/AS1	Means of restricting access to residential pools
NZBC H1/AS1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/AS2	Energy efficiency for buildings greater than 300m²
NZBC H1/VM1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/VM2	Energy efficiency for buildings greater than 300m²
AS/NZS 1170.2: 2011	Structural design actions - Wind actions
NZS 3604	Timber-framed buildings
NZS 4211	Specification for performance of windows
NZS 4223.1	Glazing in buildings - Glass selection and glazing
NZS 4223.Supp1	Glazing in buildings - Supplement 1 to NZS 4223.1:2008 and NZS 4223.4:2008
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 action
AS/NZS 2208	Safety glazing materials in buildings
AS/NZS 4666	Insulating glass units
BRANZ BU 636	Protecting Glass From Damage

1.4 MANUFACTURER'S DOCUMENTS

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

~

Copies of the above literature are available at

Company:	~
Web:	~
Email:	~
Telephone:	~

© CIL Masterspec Sep 2026

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Warrant glass under normal environmental and use conditions against failure of materials.

10 years:	for insulating glass units
10 years:	for laminated glass
10 years:	for toughened glass

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

Performance

1.6 THERMAL PERFORMANCE - EXTERNAL GLAZING

Provide external glazing to comply with H1 Energy efficiency requirements of NZBC H1/AS1 or H1/AS2 and NZBC H1/VM1 or H1/VM2.

Refer to RELATED WORK sections for Construction R-values for complete windows / glazed doors / curtain walls and/or skylights including glazing.

2 PRODUCTS

Materials

2.1 CLEAR FLOAT GLASS

Clear ordinary annealed transparent float glass for general window glazing. Thickness to NZS 4223.1 and NZS 4223. Supp 1.

2.2 INSULATING GLASS UNITS (IGU'S)

To AS/NZS 4666, NZS 4223.2 and the IGU Manufacturers Association (IGUMA) requirements.

Marking to NZS 4223.2 as modified by NZBC B2/AS1, 3.4.3 Insulating glass units.
Refer to SELECTIONS for specified surfaces of the IGU.
Surface numbering order for glass panes in an IGU are #1, #2, #3, and #4 as follows:
- Surface #1 - outer face of exterior pane
- Surface #2 - cavity face of the exterior pane
- Surface #3 - cavity face of the interior pane
- Surface #4 - outer face of the interior pane

Components, aluminium and uPVC glazing

2.3 GLAZING TAPE AND GASKETS

Single/double sided pressure sensitive self-adhesive low/medium/high density foam tapes/butyl tapes selected to suit the glazing detail to window manufacturers' requirements.

2.4 SETTING BLOCKS

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

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To NZS 4223.1, NZS 4223.3, NZS 4223.4. All external glazing to be wind and watertight on completion.

3.2 DELIVERY

Keep glass dry and clean during delivery and bring on to site when ready to glaze directly into place. Comply also with the storage requirements set out in BRANZ BU 636.

© CIL Masterspec Sep 2026

3.3 GLASS CONDITION

All glass to have undamaged edges and surfaces.

3.4 GLASS THICKNESS

If not specifically stated in the glazing schedule determine the minimum thickness of glass for each sheet as required by NZS 4223.1, NZS 4223.3, NZS 4223.4 and NZS 4223. Supp 1. For windows tested to NZS 4211, ensure glass meets the requirements of the window testing.

Determine the final glass thickness based on whether wind loading or human impact considerations govern.

3.5 REBATE DIMENSIONS

Provide rebates for glazing to the widths and depths necessary for each situation including minimum glass edge cover to NZS 4223.1, Section 4 Glazing.

3.6 JOINTING, PUTTY AND SEALING MATERIAL COMPATIBILITY

Ensure jointing, putty and sealing materials are compatible with glass substrates. Confirm compatibility with laminated glass, IGUs and coatings.

Conditions - human impact safety requirements

3.7 SAFETY GLAZING, GENERAL REQUIREMENTS

Glazing of doors, side panels, low level and window seat glazing, bathrooms, stairwell landings and similar locations, to NZS 4223.3 for thickness and maximum areas of safety glass.

3.8 SAFETY GLAZING MATERIAL

Use only safety glazing materials defined in NZS 4223.3, that also comply with the relevant requirements of AS/NZS 2208. Ensure material is permanently marked and if cut by the distributor or installer mark each piece to NZS 4223.3, 2.8 Identification.

3.9 CONTAINMENT

Edge cover to comply with NZS 4223.1, Section 4 Glazing, table 5. Otherwise to NZS 4223.3, 2.3 Edge cover.

Assembly

3.10 WORKING OF GLASS

All working of glass as required in NZS 4223.1.

3.11 EDGE WORK AND BEVELLING

Edgework other than a clean cut. Refer to SELECTIONS/drawings for type.

3.12 SURFACE TREATMENT

Refer to SELECTIONS/drawings for finish.

3.13 SURFACE CUTTING

Refer to SELECTIONS/drawings for finish.

3.14 INSTALL SAFETY GLASS

To NZS 4223.3.

Application aluminium

3.15 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.

Finishing

3.16 SAFETY

Indicate the presence of transparent glass for the remainder of the construction period, with whiting, tape or signs compatible with the glass type.

© CIL Masterspec Sep 2026

Completion

3.17 TRADE CLEAN
Clean off or remove safety indicators at completion of the building.

3.18 REPLACE
Replace damaged, cracked or marked glass.

3.19 LEAVE
Leave work to the standard required by following procedures.

3.20 REMOVE
Remove debris, unused materials and elements from the site.

4 SELECTIONS

Performance - wind

4.1 WIND ZONE - NON-SPECIFIC DESIGN
Building wind zone: ~ (as determined from NZS 3604, NZS 4223.4)

Glass by type

4.2 CLEAR FLOAT GLASS

Location:	~
Brand/type:	~
Thickness:	~

4.3 INSULATING GLASS UNITS (IGU'S)

Location:	~
Brand/type:	~
Outer glass type:	~
Coated surface:	~
Outer glass:	~ mm
Spacer width:	~ mm
Space gas:	air
Inner glass type:	~
Coated surface:	~
Inner glass:	~ mm

© CIL Masterspec Sep 2026

4710 INSULATION

1 GENERAL

This section relates to materials installed, laid, hung or fitted as thermal and/or acoustic insulation.

1.1 RELATED WORK

Refer to 3101 CONCRETE WORK - BASIC for insulation under concrete slabs.

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

1.2 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.3 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:

BIB	Building Insulation Blanket
EPS	Expanded polystyrene sheets

Documents

1.4 DOCUMENTS

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

NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
NZBC H1/AS1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/AS2	Energy efficiency for buildings greater than 300m²
NZBC H1/VM1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/VM2	Energy efficiency for buildings greater than 300m²
AS/NZS 3000	Electrical installations
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
AS/NZS 4859.1	Thermal insulation materials for buildings - General criteria and technical provisions

Health and Safety at Work Act 2015

1.5 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents related to this section are:

~

Manufacturer/supplier contact details

Company:	~
Web:	~
Email:	~
Telephone:	~

Warranties

1.6 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

~ years	For ~

- Provide this warranty on the manufacturer/supplier 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

1.7 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

2 PRODUCTS

Materials

2.1 GLASS FIBRE THERMAL INSULATING PADS

Glass fibres bonded with a thermosetting resin to form a rectangular insulating pad.

Components

2.2 NAILS

Galvanized steel clouts, 25mm gauge.

2.3 STAPLES

Stainless steel gauge and length to suit application and to manufacturer's requirements.

2.4 WIRE NETTING

Refer to 4161 UNDERLAYS, FOIL AND DPC for wire netting used to support the insulation.

2.5 PLASTIC STRAPPING TAPES

Proprietary plastic strapping tape, stapled over framing to retain insulation in unlined wall, ceiling and underfloor locations.

For drained cavities where stud spaces are greater than 450mm and only flexible underlay is used, strapping required to NZBC E2/AS1, paragraph 9.1.1.5**.**

2.6 ADHESIVE TAPE

Adhesive tapes to compliment the underlay. Pressure sensitive aluminium foil tapes for joining foil insulation and vapour barriers.

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 HAZARD & RISK MANAGEMENT

To Health and Safety at Work Act 2015 and take all safety precautions necessary to reduce potential hazards and risks.

3.4 INSPECTION

Before starting installation of blankets and pads, check that the location and framing are free from moisture, that the cavities are not interconnected and that mesh, wall underlay and vapour barriers are in place.

Application - general

3.5 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 300m², 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. Allow insulation to re-loft/relax prior to installation. Do not cover vents. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

3.6 INSULATION CLEARANCES

Provide insulation clearances to NZS 4246 and for recessed luminaires AS/NZS 3000, 4.5.3.2. Where allowed by these standards provide insulation clearances to product manufacturer's stated clearances. Secure insulation in place so clearances are maintained and use guards/barriers , if required, where insulation is not secured.

3.7 LAY WIRE NETTING - OVER PURLINS

Lay at right angles across the purlins with enough slack to allow insulation to retain its nominal thickness between. Tie edges of netting together with galvanized wire clips.

3.8 LAY WIRE NETTING - UNDER JOISTS / PURLINS

Lay at right angles across the rafters/roof joists (under purlins). Pull tight and fix.

3.9 LAY PLASTIC STRAPPING TAPE

Lay at right angles across the framing at a minimum of 300mm centres, staple tape to each framing member with stainless steel staples.

3.10 FIT GLASS FIBRE 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 and cut around metal flues to the safety requirements of the fireplace manufacturer.

Completion

3.11 COMPLETION MATTERS

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

3.12 CHECK WALL WRAPS AND ROOF UNDERLAYS

Ensure these are dry, clean, undamaged and free of debris before being covered.

4 SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

4.1 GLASS FIBRE INSULATION

Location:	~
Brand:	~
R Value:	R~
Thickness:	~mm

© CIL Masterspec Sep 2026

5113G GIB® PLASTERBOARD LININGS

1 GENERAL

This section relates to the supply, fixing and jointing of GIB® plasterboard linings and accessories to timber and steel framed walls and ceilings to form:

- standard systems
- superior finish quality systems
- bracing systems
- fire rated garage boundary wall systems
- wet area systems
- GIBFix® Framing systems
- curved plasterboard systems.

1.1 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:

AWCINZ	Association of Wall and Ceiling Industries New Zealand

Documents

1.2 DOCUMENTS

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

NZBC C/AS2	Protection from fire for buildings other than risk group SH
NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 3604	Timber-framed buildings
ISO 5660.1	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method)
ISO 5660.2	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 2: Smoke production rate (dynamic measurement)
BRANZ Technical Paper P21	BRANZ Technical Paper P21: A wall bracing test and evaluation procedure (2010)

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents which refer to work in this section:

GIB® Site Guide (April 2024)
GIB® Noise Control Systems (September 2017)
GIB® Fire Rated Systems (September 2024)
GIB® Wet Area Systems (February 2021)
GIB® Curveline Specification and Installation Manual for Curved Walls and Ceilings
GIB Toughline® Aqua (July 2018)
GIB Ezybrace® Systems (August 2016)
GIB Ezybrace® Bracing Design Software
GIB Ezybrace® Bracing Supplement Document (December 2016)
GIB Ezybrace® for Light Steel Frame Systems (March 2017)
GIBFix® Framing System (August 2016)
GIB Rondo® Metal Batten System (September 2024)
GIB-Cove®
GIB RocTape®
GIB® Goldline™ Platinum Tape-on Trims
GIB® UltraFlex high impact corner mould
GIB® Tough Systems (November 2014)
BRANZ Appraisal 289 (2024) GIB® Fire Rated Systems

© CIL Masterspec Sep 2026

BRANZ Appraisal 394 (2025) GIB® Noise Control Systems
BRANZ Appraisal 427 (2021) GIB® Wet Area Systems
BRANZ Appraisal 928 (2021) GIB EzyBrace® Systems

Manufacturer/supplier contact details
Company: Winstone Wallboards
Web: www.gib.co.nz
Telephone: 0800 100 442

Requirements

1.4 NO SUBSTITUTIONS

Substitutions are not permitted to any specified GIB® systems, GIB® system components, GIB® plasterboard, associated GIB® products or GIB® accessories.

1.5 QUALIFICATIONS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.6 INSPECTIONS AND ACCEPTANCE

Allow for inspection of the finished plasterboard surface:

- before applying sealer and
- before applying finish coatings or decorative papers,

so that after assessment of the type and/or angle of illumination and its effect on the completed decorative treatment, group approval and acceptance of the surface can be given.

Compliance

1.7 COMPLIANCE - BRANZ APPRAISAL 427

GIB® Wet Area Systems has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 427.

1.8 COMPLIANCE - BRANZ APPRAISAL 928

GIB EzyBrace® Systems has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 928.

Performance

1.9 BRACING REQUIREMENTS

Braced wall systems to NZS 3604 when tested to BRANZ Technical Paper P21, using:

- GIB Ezybrace® Systems and/or GIB Ezybrace® Bracing Design Software
- GIB Ezybrace® Bracing Supplement Document
- GIB Ezybrace® for Steel Frame Housing (NASH) Software (to NASH Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria)

Refer to drawings for location and type.

2 PRODUCTS

Materials

2.1 GIB® PLASTERBOARD

Gypsum plaster core encased in a face and backing paper formed for standard and water resistance use to AS/NZS 2588. Refer to SELECTIONS for location, type, thickness and finish.

GIB® Standard plasterboard
GIB Wideline® plasterboard
GIB Ultraline® high quality surface plasterboard
GIB Fyreline® fire resistant plasterboard
GIB Braceline® & GIB® Noiseline® dual purpose wall bracing & noise control plasterboard
GIB Aqualine® wet area plasterboard
GIB Toughline®
GIB Toughline® Aqua
GIB Curveline® plasterboard for forming tight curves.

Components

2.2 SCREWS

GIB® Grabber® drywall type screws as follows:

Grabber® type	Used for fixing:
High Thread	GIB Ezybrace® or Standard systems to timber
Self Tapping	Standard systems to light gauge steel or timber
Dual Thread Screws	GIBFix®, GIB Ezybrace®, or Standard systems, to light gauge steel or timber
Wafer Head Needle Tip	Light gauge metal to timber not directly under plasterboard
Pancake Head Drill Tip	Light gauge metal to light gauge metal directly under plasterboard

Refer to GIB® requirements for appropriate details.

2.3 TAPE ON TRIMS AND EDGES

GIB® Goldline™ tape-on trims

GIB® UltraFlex® high impact corner mould
GIB® Levelline® Tape on Trim

2.4 METAL ANGLE TRIMS

GIB® galvanized steel slim angle trims.

2.5 CONTROL JOINTS

GIB® Rondo® P35 control joints.

GIB® Goldline™ tape-on trims
GIB® plastic W-profile control joints.

Accessories

2.6 ADHESIVE

Timber frame and/or steel frame:

GIBFix® One ultra low VOC water based wallboard adhesive
GIBFix® All-Bond solvent based wallboard adhesive

2.7 JOINTING COMPOUND

Bedding compound:	GIB Tradeset®, GIB Lite Blue®, GIB MaxSet®, GIB ProMix® All Purpose, GIB Plus 4®
Finishing compound:	GIB ProMix® All Purpose, GIB® Trade Finish®, GIB® Trade Finish® Lite, GIB ProMix® Lite, GIB® U-Mix, GIB Plus 4®, GIB Trade Finish® Multi
Cove:	GIB-Cove® Bond

2.8 JOINTING TAPE

GIB® jointing tape.

2.9 GAP FILLER

GIB® Gap Filler ultra low VOC multi-purpose acrylic flexible filler

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 LEVELS OF PLASTERBOARD FINISH

Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in AS/NZS 2589.

3.4 PRE-INSTALLATION REQUIREMENTS - TIMBER FRAMING

Check work previously carried out and confirm it is of the required standard for this part of the work.

Framing substrates shall be in accordance to AS/NZS 2589, GIB® Site Guide and GIB X-Block® Radiation Shielding Systems literature.

Check timber framing moisture content is in accordance with requirements of AS/NZS 2589. Refer to NZBC E2/AS1 and GIB® Site Guide.

Timber framing:	18% maximum for fixing plasterboard to timber (8-12% recommended for fixing plasterboard to timber framing if air conditioning and/or central heating are to be installed)

If GIB EzyBrace® systems are used in conjunction with GIBFix® Framing System, ensure that the positioning of the GIB HandiBrac® panel hold-down brackets are to the manufacturers recommended placements for the GIBFix® Framing System.

3.5 CONFIRM LEVELS OF PLASTERBOARD FINISH ACCEPTANCE

Before commencing work, agree in writing upon the surface finish assessment procedure towards ensuring that the quality of finish expectations are reasonable and are subsequently obtained and acceptable.

Do not apply decorative treatment until it is agreed in writing by the contractor, subcontractors and decorator that the specified plasterboard Level of Finish has been achieved.

"Levels of plasterboard finish" is a tool for specifying the required quality of finish when installing and flush stopping GIB® plasterboard **prior** to the application of a range of decorative finishes under various lighting conditions. Refer to **AS/NZS** 2589.

3.6 PROTECTION

Protect surfaces; cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage. Refer to GIB® Site Guide.

Application

3.7 LINING WALLS AND CEILINGS GENERALLY

Form to GIB® Site Guide. Ensure bulk insulation thickness shall not exceed that of the wall framing.

3.8 BOARD ORIENTATION

Minimise joints by careful sheet layout using the largest sheet sizes possible, and generally fixing horizontally. Where part sheets are required for various stud heights they should be positioned so the cut sheet is as low as possible to keep joints below eye level.

3.9 FORM WET AREA SYSTEMS

Form to GIB Aqualine® Wet Area Systems requirements.

3.10 FORM BRACING SYSTEMS

Form bracing systems to:

- GIB Ezybrace® Systems.

3.11 FORM CONTROL JOINTS

Form control joints to GIB® Site Guide requirements.

© CIL Masterspec Sep 2026

3.12 INSTALL TAPE-ON TRIMS

Install to GIB® Goldline™ Tape-on trims literature and/or GIB® Ultraflex high impact corner mould literature.

Finishing

3.13 FINISHING GENERALLY

To GIB® Site Guide and AS/NZS 2589.

Completion & Commissioning

3.14 COMPLETION MATTERS

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

4 SELECTIONS

Plasterboard

4.1 GIB® STANDARD SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
~	GIB® Standard plasterboard	10mm	~
~	GIB® Standard plasterboard	13mm	~
~	GIB Ultraline® plasterboard	10mm	~
~	GIB Ultraline® plasterboard	13mm	~

4.2 GIB® WATER RESISTANT SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
~	GIB Aqualine® plasterboard	10mm	
~	GIB Aqualine® plasterboard	13mm	
~	GIB Toughline® Aqua	13mm	

4.3 GIB® STANDARD SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
~	GIB® Standard plasterboard	13mm	~
~	GIB Ultraline® plasterboard	13mm	~

4.4 GIB® WATER RESISTANT SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
~	GIB Aqualine® plasterboard	13mm	~
~	GIB Toughline® Aqua	13mm	~

4.5 GIB® BRACING SYSTEMS

Refer to:

- GIB Ezybrace® Systems

For bracing element location refer to drawn documentation.

Accessories

4.6 GIB® TAPE ON EDGE OR CORNER TRIMS

Brand/type: ~

4.7 GIB® EDGE PROFILES

Brand/type: ~

7126RH RINNAI HOT WATER SYSTEMS

1 GENERAL

This section relates to the supply and installation of Rinnai New Zealand Limited hot water systems. It includes:

- Rinnai continuous flow gas water heating units
- Rinnai continuous flow electric water heaters
- Rinnai storage and electric water heaters
- Rinnai supplied storage and electric water heaters
- Rinnai hot water heat pumps.

1.1 RELATED WORK

Refer to the hot and cold water system section for pipe systems

Refer to 7211 GAS SYSTEM UTILITY NETWORK for piped gas supply
Refer to 7212 GAS SYSTEM LPG CYLINDERS for cylinder gas supply
Refer to 7554RS RINNAI SPACE HEATING SYSTEMS for space heating

Documents

1.2 DOCUMENTS

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

NZBC G11/AS1	Gas as an energy source
NZBC G12/AS1	Water supplies
NZBC G12/AS3	Water supplies
AS/NZS 1596	Storage and handling of LP Gas
AS/NZS 3500.1	Plumbing and drainage - Water services
AS/NZS 3500.4	Plumbing and drainage - Heated water services
AS/NZS 5125.1	Heat pump water heaters - performance assessment - part 1: air source heat pump water heaters
AS/NZS 5149	Refrigerating systems and heat pumps - safety and environmental requirements - part 1: definitions, classification and selection criteria
AS/NZS 60335.1	Household and similar electrical appliances - Safety - Part 1: General requirements
NZS 4305	Energy efficiency - domestic type hot water systems
NZS 4602	Low pressure copper thermal storage electric water heaters
NZS 4607	Installation of thermal storage electric water heaters: valve vented systems
AS/NZS 5601.1	Gas installations Part 1: General installations

Electricity (Safety) Regulations 2010 (Reprint as at 21 January 2019).
Gas (Safety and Measurement) Regulations 2010
Plumbers, Gasfitters and Drainlayers Act 2006

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Rinnai Operation and Installation Guides

Manufacturer/supplier contact details

Company:	Rinnai New Zealand Limited
Web:	www.rinnai.co.nz
Email:	info@rinnai.co.nz
Telephone:	0800 RINNAI (0800 746 624)

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

~ years: For ~

The manufacturer/supplier warranty period will depend on the type, model, parts, labour and application of the selected product. Refer to Rinnai New Zealand Limited for confirmation of appropriate warranty details.

- Provide this warranty on the Rinnai New Zealand Limited standard form.
- Commence the warranty from the date of installation.

Refer to the general section 1237 WARRANTIES for additional requirements.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer warranty:

~ years: For ~

The installer warranty period will depend on the type, model, parts, labour and application of the selected product. Refer to Rinnai New Zealand Limited for confirmation of appropriate warranty details.

- Provide this warranty on the installer standard form.
- Commence the warranty from the date of installation.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Rinnai products, or associated products, components or accessories.

1.7 COMPLY

Comply with the Gas (Safety and Measurement) Regulations 2010, Electricity (Safety) Regulations 2010 and the network utility operator's requirements. Give notices for inspections and carry out tests as required.

1.8 QUALIFICATIONS

Gasfitters to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a Certifying Gasfitter under the Plumbers, Gasfitters and Drainlayers Act 2006.

1.9 INFORMATION FOR OPERATION AND MAINTENANCE

Supply maintenance information to requirements set out in the 1239 OPERATION & MAINTENANCE section.

1.10 HOT WATER TEMPERATURES

To NZBC G12/AS1,6.14

Storage water heaters to store water at not less than 60ºC.

Hot water piping system, with temperature controls where necessary (tempering valve etc), to provide water at the outlet at the following temperatures:

For personal hygiene fixtures (showers, baths, wash hand basins etc.) temperatures to be close to but not to exceed:

- 45ºC - for early child hood centres, schools, elderly facilities, hospitals, psychiatric or disabled institutions.
- 50ºC - for personal hygiene fixtures in all other buildings.

© CIL Masterspec Sep 2026

For non-personal hygiene fixtures (kitchen sinks and equipment, laundry tubs, cleaners' sinks, industrial fixtures etc) temperatures are:

- Unrestricted - direct from water heater, approx. 60°C, must be less than 65°C (for kitchen sinks and equipment, laundry tubs, cleaners sinks etc.) - in all buildings.
- Unrestricted - direct from water heater not tempered (for industrial fixtures and specific items etc.) - in all buildings.

This clause excludes boiling units.

1.11 QUALITY CONTROL SYSTEM - LEAD FREE

If requested, by the contract administrator or consenting authority, provide test reports from IANZ or equivalent accredited testing facility confirming products that contain copper alloy and are used in contact with potable water for human consumption are lead free.

Performance

1.12 FINAL INSPECTION AND TEST

Submit the work for inspection and test and prove to the satisfaction of the network utility operator that the installation complies with all Acts and Regulations and has been tested for leakage and proved to be sound.

Testing should be at the time of completion. Confirm this timing before carrying out any tests. Test and demonstrate the system according to manufacturer's specification.

2 PRODUCTS

Materials - hot water electric heating units

2.1 ELECTRIC HOT WATER STORAGE CYLINDER, MAINS PRESSURE

Rinnai vitreous enamel mains pressure hot water cylinder constructed from enamel inner and galvanized steel outer casing, complete with fittings, to NZS 4305. Refer to SELECTIONS for element sizes, configurations and thermostat options.

3 EXECUTION

Installation - general

3.1 HANDLE AND STORE

Handle and store units, cylinders, pipes, fittings and accessories to avoid damage. Store on site, under cover on a clean level area, stacked to eliminate movement and away from work in progress. Store according to manufacturer's instructions.

3.2 CONCEAL

Conceal pipework within the fabric of the building unless detailed otherwise. Satin finish chrome plate exposed work, complete with matching ferrule at the surface penetration.

3.3 CORROSION

Separate all metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips.

3.4 THERMAL MOVEMENT

Accommodate movement in pipes resulting from temperature change by the layout of the pipe runs, by expansion joints and by sleeving through penetrations.

3.5 PIPE SIZE

Plumber to check and confirm adequate pipe size, incoming mains and meter on site as a part of the installation. Pipe sizing calculation to NZBC G12/AS1, table 4 Tempering valve and nominal pipe diameters or AS/NZS 3500.1 and AS/NZS 3500.4 as modified by NZBC G12/AS3.

© CIL Masterspec Sep 2026

Installation - general, hot water cylinders

3.6 HOT WATER CYLINDER INSTALLATION - GENERALLY

Install hot water cylinders complete to the manufacturer's requirements and to NZBC G12/AS1, 6.11, Water heater installation or AS/NZS 3500.4 as modified by NZBC G12/AS3 or to NZS 4607 for Valve-vented systems.

3.7 SEISMIC RESTRAINTS - NON-GAS WATER HEATING APPLIANCES

Non-gas (electric, wet-back, solar etc.) water heating appliances to be restrained to manufacturer's requirements and NZBC G12/AS1, 6.11, Water Heater Installation or AS/NZS 3500.4, 5.5.4 Seismic restraints.

3.8 INSTALL STORAGE HOT WATER CYLINDER OVERFLOW TRAY

Install drained overflow tray to storage hot water cylinder to NZBC G12/AS1.

3.9 INSTALL TEMPERING VALVE

Install one metre minimum from outlet of hot water cylinder and to manufacturer's instructions.

Installation - hot water electric heating units

3.10 INSTALL ELECTRIC HOT WATER CYLINDER, MAINS PRESSURE

Install where shown complete with all the necessary fittings to Rinnai requirements and in accordance with NZBC G12/AS1: 6.11. Valve-vented systems to NZS 4607.

Completion

3.11 REPLACE

Replace damaged or marked elements.

3.12 LEAVE

Leave work to the standard required by following procedures.

3.13 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

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

Electric hot water units

4.1 RINNAI ELECTRIC HOT WATER ENAMEL CYLINDER, MAINS PRESSURE, INDOOR OR OUTDOOR

Location:	~
Cylinder type:	Indoor / Outdoor
Construction:	Enamel inner, corrosion resistant outer casing with polyurethane foam insulation
Brand:	Rinnai
Capacity/element /model:	~
Thermostat range:	60° - 75°C

© CIL Masterspec Sep 2026

7430 DRAINAGE

1 GENERAL

This section relates to the supply and laying of gravity foul water (sewage), stormwater and groundwater drainage.

1.1 DOCUMENTS

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

NZBC B1/AS1	Structural provisions for buildings
NZBC E1/AS1	Surface water
NZBC E1/AS2	Surface water
NZBC E1/VM1	Surface water
NZBC G1/AS1	Personal hygiene
NZBC G13/AS1	Foul water - sanitary plumbing
NZBC G13/AS2	Foul water - drainage
NZBC G13/AS3	Foul water - sanitary plumbing and drainage
AS/NZS 1254	PVC-U pipes and fittings for Stormwater and Surface Water applications
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent applications
AS/NZS 2032	Installation of PVC pipe systems
AS/NZS 2033	Installation of polyethylene pipe systems
AS 2439.1	Perforated Plastics Drainage and Effluent Pipes and Fittings - Perforated drainage pipe and associated fittings
AS/NZS 2566.1	Buried Flexible Pipelines - Structural Design
AS/NZS 2566.2	Buried Flexible Pipelines - Installation
AS/NZS 3500.3	Plumbing and drainage - Stormwater drainage
NZS 3104	Specification for concrete production
NZS 3111	Method of test for water and aggregate for concrete
AS/NZS 3500.2	Plumbing and drainage - sanitary plumbing and drainage
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
NZS 4402 (set)	Method of testing soils for civil engineering purposes
AS/NZS 4671	Steel reinforcing materials
AS/NZS 5065	Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications
NZCMM	NZ Concrete Masonry Manual section 6.1 Masonry Retaining Walls
NZTA F2	Specification for pipe subsoil drain construction

Plumbers, Gasfitters and Drainlayers Act 2006

1.2 MANUFACTURER'S DOCUMENTS

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

~

Copies of the above literature are available from ~

Web:	~
Email:	~
Telephone:	~
Facsimile:	~

1.3 AS BUILT DOCUMENTS

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

© CIL Masterspec Sep 2026

1.4 QUALIFICATIONS

Drainlayers to be experienced, competent and familiar with the materials and techniques specified. Carry out all work under the direct supervision of a certifying drainlayer under the Plumbers, Gasfitters and Drainlayers Act 2006.

2 PRODUCTS

2.1 CONCRETE

17.5 MPa prescribed mix to NZS 3104.

2.2 REINFORCEMENT

Plain round and/or deformed steel bars, Grade 300 to AS/NZS 4671.

Components

2.3 PVC-U PIPES

PVC-U pipes bends, junctions, fittings and joints to AS/NZS 1254 and AS/NZS 1260.

Underground PVC-U pipe to be classified as follows:

Classification:	Use:
SN4 - SN6	Domestic & light load areas
SN8 - SN10	Commercial & Industrial medium load areas
SN16	Public roads & high load areas

2.4 PERFORATED PIPE - SUBSOIL DRAINAGE

Perforated corrugated coil high density polyethylene subsoil drainage pipe to AS 2439.1 with polypropylene filter sock over, for groundwater drainage.

2.5 GULLY TRAPS - AS/NZS 3500.2

Gully traps complete with grating to AS/NZS 3500.2, 4.6 Gullies, as modified by NZBC G13/AS3.

2.6 INSPECTION COVERS

Cast iron frame with screw-down cover.

Foul water

2.7 TRENCH BACKFILLING MATERIAL, FOUL WATER - AS/NZS 3500.2

Bedding and backfilling material to AS/NZS 3500.2, 5.4, Bedding of drains, and for concrete, if required, AS/NZS 3500.2, 5.3 Concrete Support.

Subsoil

2.8 DRAINAGE MATERIAL - SUBSOIL DRAINAGE

Free draining crushed stone, 7 mm to 20 mm in size.

Concrete masonry retaining walls

2.9 DRAINAGE MATERIAL - SIMPLE STANDALONE CONCRETE MASONRY RETAINING WALLS

Free draining imported hardfill to the NZTA F2 specification.

Filter material comprised of clean, durable stone having a crushing resistance of not less than 100 kN when tested in accordance with NZS 3111, or a mixture of such material with clean hard sand. The filter material when tested in accordance with NZS 4402, shall comply with the following gradings:

TEST SIEVE APERTURE	PERCENTAGE PASSING
26.5mm	100
13.2mm	85-100
9.5mm	80-95
4.75mm	65-85
2.36mm	50-70
1.18mm	35-55

© CIL Masterspec Sep 2026

600µm	18-40
300µm	3-25
150µm	8 maximum
75µm	0

Accessories

2.10 FILTER FABRIC

Polymeric fabric formed from a plastic yarn or a long chain synthetic polymer composed of at least 85% by weight of propylene, ethylene, amide, ester or vinylidene chloride. Fibres to be rot proof, chemically stable and have low water absorbency. The filter network, (woven or non-woven) must be dimensionally stable and resistant to delamination.

© CIL Masterspec Sep 2026

3 EXECUTION

3.1 EXCAVATE

Excavate for drains to a firm even base with correct gradients set in straight runs.
Trenches running parallel, below and close to foundations of buildings to NZS 3604 or NZS 4229 to be separated to:

- NZBC E1/AS1, 3.9.7, Proximity of Trench to Building, for stormwater and subsoil drains.
- AS/NZS 3500.3, 6.2.8, Installation near and under buildings, as modified by NZBC E1/AS2.
- NZBC G13/AS2, 5.6, Proximity of Trench to Building, for foul water drains.

3.2 MANUFACTURER'S REQUIREMENTS

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

3.3 FOUL WATER DRAINAGE GENERALLY - AS/NZS 3500.2

Carry out this work to AS/NZS 3500.2 and complete all tests to AS/NZS 3500.2, section 15 Testing of Sanitary Plumbing and Sanitary Drainage Installations.
Lay uPVC pipe systems to relevant sections of AS/NZS 2032. Lay polyethylene pipes and fittings to relevant sections of AS/NZS 2033.

3.4 SURFACE WATER DRAINAGE GENERALLY - AS/NZS 3500.3

Carry out stormwater drainage work to AS/NZS 3500.3, and complete all tests to AS/NZS 3500.3, section 9, as modified by NZBC E1/AS2.
Lay uPVC pipe systems to relevant sections of AS/NZS 2032, AS/NZS 2566.1 and AS/NZS 2566.2. Lay polyethylene pipes and fittings to relevant sections of AS/NZS 2033 and AS/NZS 2566.1.

3.5 LAY FOUL WATER DRAINS

Lay drains in straight runs to correct gradients, to discharge into the network utility operator's sewer. Set inspection fittings on a concrete base.

3.6 CONSTRUCT GULLY TRAPS - AS/NZS 3500.2

Set in a minimum 100mm thick concrete with top surround 25mm above paving and 75mm above other surfaces, to AS/NZS 3500.2, section 4.6, Gullies.

3.7 LAY STORMWATER DRAINS

Confirm the required location of downpipes and finished ground levels before commencing pipework. Set downpipe bends in concrete with the concrete brought up to protect the top of the bend from damage. Lay drains in straight runs to correct gradients to discharge into the network utility operator's stormwater system.

3.8 INSTALL FOUL WATER INSPECTION CHAMBERS - AS/NZS 3500.2

Construct as detailed on a poured concrete footing to AS/NZS 3500.2, 4.7 Inspection openings and 4.8 Inspection chambers, as modified by NZBC G13/AS3. Provide all necessary haunching to channels. Fit a cast iron cover and frame.

3.9 TESTING - FOUL WATER

Confirm timing before carrying out any tests. Supply potable water and apparatus needed.
Test to NZBC G13/AS1, 7.1 Test Methods or AS/NZS 3500.2, section 15 Testing of Sanitary Plumbing and Sanitary Drainage Installations, as required. Carry out and record a visual inspection that each joint showed no evidence of leaks.

3.10 TESTING - SURFACE WATER

Confirm timing before carrying out any tests. Supply potable water and apparatus needed.
Test to NZBC E1/VM1, 8.0 Drain Leakage Tests or AS/NZS 3500.3, section 9, as modified by NZBC E1/AS2 as required. Carry out and record a visual inspection that each joint showed no evidence of leaks.

Backfilling and encasement - Foul water and surface water

3.11 CONCRETE ENCASEMENT

Concrete encase shallow drains and drains under driveways, on a 100mm deep 17.5 MPa concrete bed reinforced with three 10mm mild steel bars. Surround pipes with a polythene membrane to allow movement and encase in 100mm 17.5 MPa concrete.

© CIL Masterspec Sep 2026

3.12 TRENCH BACKFILLING GENERALLY - FOUL WATER

Granular bedding and selected fill shall be placed in layers no greater than 100 mm loose thickness and compacted. Base bedding (beneath the pipe) shall be placed and compacted before pipes are laid. Up to 300mm above the pipe, compaction shall be by tamping by hand tool over the entire surface of each layer to produce a compact layer without obvious voids, without disturbing or distorting the drain. Run marker tape along line of the pipe on top of the bedding.

Up to 300mm above the pipe, compaction shall be by tamping by hand using a rod with a pad foot (having an area of 75 ± 25 mm by 75 ± 25 mm) over the entire surface of each layer to produce a compact layer without obvious voids, without disturbing the drains.

More than 300 mm above the pipe, compaction shall be by at least four passes of a mechanical tamping foot compactor (whacker type) with a minimum weight of 75 kg. For plastic based pipes, ensure care taken to avoid impact loading of the pipe.

3.13 TRENCH BACKFILLING GENERALLY - SURFACE WATER - AS/NZS 3500.3

Trench fill to be placed in loose layers not more than 200 mm thick and compacted to not less than 90% or 95% under pavements of the standard maximum dry density specified in AS 1289.5.4.1 or AS 1289.5.6.1, in such a way that the pipes are neither dislodged nor damaged.

The finished surface (top of trench fill) and the trench surround shall be restored, as near as practicable, to the level and condition of the existing surface before commencement of the excavation.

3.14 FOUL WATER TRENCH BACKFILLING - AS/NZS 3500.2

Carry out foul water trench backfilling to AS/NZS 3500.2, 5.1, 5.2 and 5.5 as modified by NZBC G13/AS3.

PVC-U pipe to AS/NZS 2032 and polyethylene pipes to AS/NZS 2033.

3.15 SURFACE WATER TRENCH BACKFILLING - AS/NZS 3500.3

Carry out surface water trench backfilling to AS/NZS 3500.3, 6.3.5.2.

PVC-U pipe to AS/NZS 2032 and polyethylene pipes to AS/NZS 2033.

Subsoil ground water drainage

3.16 FILTER FABRIC TO DRAINAGE MATERIAL - SUBSOIL DRAINAGE

Where details require drainage material to be encapsulated in filter fabric to prevent fines from blocking the aggregate. Place fabric and carefully hold in place by pinning and/or by controlled use of aggregate as ballast. After drain installation and required backfilling, complete encapsulation with fabric. Ensure filter fabric is correctly placed, sufficiently overlapped and pinned and/or secured.

3.17 LAY PERFORATED PIPING - SUBSOIL DRAINAGE

Lay perforated groundwater drainage piping with filter sock, firmly on a bed of drainage material screeded to the required gradient. Lay in straight runs to discharge into surface water drainage system. The pipe must not excessively elongate during installation. Carry drainage material up and over the pipes without disturbing them. Extend the high end of all lines up to the surface in capped, solid pipe to provide for flushing out.

3.18 CLEAN OUT SUBSOIL DRAIN INSTALLATION

Clean and flush out the whole subsoil drain installation and remove silt and debris before handing over.

© CIL Masterspec Sep 2026

4 SELECTIONS

4.1 PVC-U PIPES

Brand/type: ~

4.2 PERFORATED DRAINAGE PIPING - SUBSOIL DRAINAGE

Pipe brand/type: ~
Diameter: 110mm
Sock brand/type: ~

4.3 DRAINAGE MATERIAL - SUBSOIL DRAINAGE

Location: ~
Type: ~

4.4 FILTER FABRIC

Brand: ~
Type: ~

© CIL Masterspec Sep 2026

7701 ELECTRICAL BASIC

1 GENERAL

This section relates to the wiring for domestic and small scale commercial installations, including:

- power
- lighting
- electrical automation
- security system
- complete with componentry
- electrically-powered fittings
- fire rated sealers, liners and accessories

1.1 RELATED WORK

Refer to ~ for ~.

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:

AFDD	Arc Fault Detection Device
COC	Certificate of Compliance
ELV	Extra Low Voltage
IP	international (ingress) protection classification
MCB	Miniature circuit breakers
NUO	Network Utility Operator
PCB	printed circuit board
RCCB	Residual Current-operated Circuit Breaker
RCD	Residual Current Device
SIA	security integration architecture
TCF	Telecommunications Carriers' Forum

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 provisions for timber-framed buildings up to 10 m in height
NZBC F6/AS1	Visibility in escape routes
NZBC F8/AS1	Signs
NZBC G4/AS1	Ventilation of buildings
NZBC G9/AS1	Electricity
AS/NZS 1125	Conductors in insulated electric cables and flexible cord
AS/NZS 2201.1	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
AS 2293.1:2005	Emergency escape lighting and exit signs for buildings - System design, installation and operation
AS 2293.3:2005	Emergency escape lighting and exit signs for buildings - Emergency escape luminaires and exit signs
AS/NZS 2648.1	Underground marking tape - Non-detectable tape
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3008.1.2	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical New Zealand installation conditions
AS/NZS 3111	Approval and test specification - Miniature overcurrent circuit-breakers

© CIL Masterspec Sep 2026

AS/NZS 3112:2017	Approval and test specification - Plugs and socket-outlets
AS/NZS 3113	Approval and test specification - Ceiling roses
NZS 3604	Timber framed buildings
NZS 4246	Energy Efficiency - Installing bulking thermal insulation in residential buildings
AS/NZS 5000.2	Electric cables - Polymeric insulated - for working voltages up to and including 450/750v
AS/NZS 60898	Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Series
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance.
AS/NZS 61439.3	Low-voltage switchgear and controlgear assemblies - Part 3: Distribution boards intended to be operated by ordinary persons (DBO).
IEC 61008.1	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) - Part 1: General rules
IEC 61009.1	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules
IEC 61643	Components for low voltage surge protection devices
IEC 62423	Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses
IEC 62606	General requirements for arc fault detection devices

Electricity (Safety) Regulations 2010
NZ Telecommunications Forum (TCF) Premises Wiring Guidelines
Private Security Personnel Investigations Act 2010

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents related to this section are:

~

Manufacturer/supplier contact details:

Company:	~
Web:	~
Email:	~
Telephone:	~

Warranties

1.5 WARRANTY

Warrant the complete electrical installation under normal environmental and use conditions against failure of materials and execution.

1 year:	Warranty period

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

Requirements

1.6 COMPLY

Comply with the Electricity (Safety) Regulations 2010, AS/NZS 3000, AS/NZS 3008.1.2, and TCF Premises Wiring Guidelines for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection. Arrange for the required inspections of listed work. Pay all fees.

1.7 QUALIFICATIONS WORKERS – LICENSED UNDER STATUTE

Electrical workers holding a current Practising Licence (with an appropriate Registration class) to carry out prescribed electrical work. An Electrical Worker who holds a Trainee Limited Certificate or a Limited Certificate to be supervised by a licensed electrical worker with an appropriate Registration class.

Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.8 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.9 CONFIRM SELECTIONS

Confirm selections of all outlet fittings and hardware with the owner in writing before ordering.

1.10 INSPECTIONS

Type:	~
Requirement:	~
Location:	~
Notify:	Contract administrator
	~
Notification:	2 working days prior to work/item being carried out.

Requirements - Compliance

1.11 ELECTRICAL CERTIFICATE OF COMPLIANCE

At the completion of electrical work provide a Certificate of Compliance (CoC) to Electricity (Safety) Regulations 2010, regulation 65-67. Provide a copy to the Contract Administrator and NUO prior to connection and when required to the BCA for Code Compliance.

- Arrange for the NUO to inspect before the meter installation, listed work inspection, polarity check and supply becoming live.
- Arrange for an inspector to inspect high risk electrical work as required by Electricity (Safety) Regulations 2010, regulation 70 High-risk prescribed electrical work to be inspected.

1.12 ELECTRICAL SAFETY CERTIFICATE

Provide an Electrical Safety Certificate (ESC), as required by the Electricity (Safety) Regulations 2010, Reg 74A, to the Contract Administrator and when required the BCA. To be provided no later than 20 working days after connection and prior to Practical Completion.

1.13 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Other information required by the BCA in the Building Consent Approval documents

© CIL Masterspec Sep 2026

2 PRODUCTS

2.1 MAINS SUPPLY

Tough plastic sheathed neutral screened cable to AS/NZS 5000.2 and AS/NZS 3008.1.2, with a minimum rating of 60 amps per phase. Include pilot cable where required by network utility company.

2.2 CABLES

Tough plastic sheathed copper conductors to AS/NZS 5000.2, stranded above 1.0mm², and to AS/NZS 3008.1.2. Minimum sizes as below. Increase sizes if the method of installation, thermal insulation, cable length or load will reduce the cable rating below that of the MCB rating, or produce an excessive voltage drop.

Lighting circuits:	Domestic: 1.5mm² on 10 amp MCBs
Lighting circuits:	Commercial: 1.5mm² on 16 amp MCBs
Power circuits:	2.5mm² on 16 amp MCBs for domestic and unenclosed or unfilled cavity construction
	2.5mm² on 16 amp MCBs for domestic insulated construction, or filled cavity
	2.5mm² on 20 amp MCBs for unenclosed or unfilled cavity construction
	2.5mm² on 16 amp MCBs for insulated construction, or filled cavity, or lengths over 30 metres
Hot water cylinder circuits:	Single phase: 2.5mm² on 20 amp MCBs
Range/oven/hob circuits:	Single phase: 6mm² high temperature cable on 32 amp MCBs

Heat resistant cable for final connections to all heated appliances, and high temperature cable in ambient conditions that may be above 35°C (roof spaces above insulation etc).

2.3 METER BOX

Proprietary manufactured, zinc plated powder coated metal case, or ABS plastic, with glazed panel door, weatherproof where mounted outdoors, and complete with meter mounting, main switch and fuse.

2.4 DISTRIBUTION BOARD

Flush surface mount boards manufactured to AS/NZS 61439.3, and installed in accordance with AS/NZS 3000, 2.10 Switchboards. Complete with neutral and earth busbars, and insulated comb phase bar. Distribution boards to have 20% spare capacity for future additions and alterations.

2.5 EARTH ELECTRODE

To AS/NZS 3000, 5.3.6 Earth electrodes and Table 5.2 Acceptable Earth Electrodes. Installed as a vertical-type electrode to a minimum depth of 1.8m or a strip-type electrode buried in horizontal trench with not less than 0.5m cover and minimum horizontal length of 7.5m.

2.6 CIRCUIT PROTECTION

General requirements including main switch 63A or 100A to AS/NZS 3000, 2.3.3 Main Switches and additional isolating switches to AS/NZS 3000, 2.3.4 Additional isolating switches.

Residual current protection, maximum sensitivity of 30mA, to AS/NZS 3000, 2.6 Additional Protection by Residual Current Devices, as modified by Electricity (Safety) Regulations 2010. RCD and RCCBs' to meet Type A to IEC 61009.1 / IEC 61008.1 or Type F or Type B RCD to IEC 62423.

Miniature Circuit Breakers (MCB) to AS/NZS 60898 series or AS/NZS 3111, 4.5kA domestic or 6kA for commercial.

2.7 CIRCUIT PROTECTION - ARC FAULT DETECTION DEVICES

Arch Fault Detection Devices (AFDD) to IEC 62606 and to AS/NZS 3000, 2.9 Protection against fire hazard due to Arching Faults. Provide to all final subcircuits not exceeding 20A.

2.8 SURGE PROTECTION

© CIL Masterspec Sep 2026

Provide surge protection device(s) to AS/NZS 3000, Appendix F Surge Protection Devices. Protection for the home's appliances with IEC 61643 Class ll surge protection devices fitted to the switchboard. For variable electronic equipment fit IEC 61643 Class lll surge protection to switched socket outlets.

2.9 WALL BOXES

Standard grid size or equivalent to be manufactured from plastic or metal, with 2 or more gang size to be metal with steel inserts for accessory securing screws. Screw fixed.

2.10 SWITCH UNITS

Single pole switches to be 10 amp minimum rated, double pole or intermediate to be 16 amp minimum rated. All switches to be 230 volt a.c. polycarbonate flushplate units.
Label all switch units that control electrical equipment or special lighting circuits by proprietary engraved switch mechanisms where applicable.
Refer to drawings/schedules for number of switches per unit, dimmer units, neon (indicator or toggle) units and 2 way units.
Refer to SELECTIONS.

2.11 SWITCHED SOCKET UNITS

To AS/NZS 3000, 4.4 Socket-Outlets, 10 amp, 230 volt flat 3 pin socket outlets fitted with safety shutters to AS/NZS 3112 clause 3.12 as modified by Electricity (Safety) Regulation, single or multi gang as detailed. Refer to SELECTIONS.

2.12 LIGHT FITTINGS

To AS/NZS 3000, 4.5 Lighting Equipment and Accessories and if required, complete with lamps and, if required, transformer and control gear for dimming. Refer to SELECTIONS.

2.13 EXTERIOR LIGHT FITTINGS

Using materials with superior UV protection, impact strength, and addition chemical resistance.
Weather protection minimums:

- IP54 for protected areas under eaves or verandahs etc.
- IP55 for exposed areas not subject to pressurised water (hoses).
- IP66 for areas subject to pressurised water or major splashing.
- IP67 for inground lights
- IP68 for submerged pool fittings

Refer to SELECTIONS.

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

Check work previously carried out and confirm it is of the required standard for this part of the work.

Installation

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 INSTALLATION GENERALLY

Install electrical wiring and systems in accordance with Electricity (Safety) Regulations 2010, AS/NZS 3000 and other cited standards.

© CIL Masterspec Sep 2026

3.6 MAIN SUPPLY

Lay underground mains to the NUO and AS/NZS 3000, 3.11 Underground Wiring Systems requirements. Excavate trench, ensure minimum depth of cover to AS/NZS 3000 Table 3.6 Under-Ground Wiring Systems - Minimum Depth of Cover, install cable and marker tape complying with AS/NZS 2648.1 and backfill. If required, provide permanent cable marker signs to indicate the point where a cable enters or leaves a structure.

3.7 METER BOX

Fit to meter box manufacturer and Electricity Retailer requirements. Recess into external wall in sheltered area and flash to weatherproof to NZBC E2/AS1, Figure 9.1.8.3B: General meterbox and similar penetrations. Arrange for meter installation and connection.

3.8 DISTRIBUTION BOARD

Fit to AS/NZS 3000, 2.10 Switchboards and board manufacturer requirements. Recess into wall or surface mount and ensure fire containment properties of the enclosure are maintained.

3.9 LABELLING

To AS/NZS 3000, 2.10.5 Equipment identification, include label under each controller, switch and circuit breaker on distribution boards. Include a warning notice if light dimmers are used in the installation. List the rating of each circuit.

3.10 CIRCUIT BREAKERS

Install MCBs at distribution board to AS/NZS 3000 to protect each final sub circuit.

3.11 EARTHING CONDUCTIVE STRUCTURE & MATERIALS

Earth all at risk structural metalwork and conductive building materials to AS/NZS 3000, 5.4.6, and the Electricity (Safety) Regulations 2010.

If they form part of the building, this includes:

- Structural steel frames or members
- Light steel framing
- Exposed conductive materials, like metal sink/tub or vanity benches etc, with attached electrical units or equipment

3.12 EQUIPOTENTIAL BONDING

Equipotential Bond extraneous conductive parts together and to the electrical installation earthing system to AS/NZS 3000, 5.6, and the Electricity (Safety) Regulations 2010 and the fitting manufacturer requirements.

If they form part of the building, this includes:

- Conductive water piping (including tap etc) and exposed related connected conductive surfaces (like metal sink benches or metal cladding etc). Not required where isolated by non-conductors (plastic pipe etc) from the mass of earth.
- Other conductive piping (not earthed by other means) and exposed related connected conductive surfaces.
- Concrete reinforcing - for floor or wall forming part of a room with a shower or bath, or the shell and surround of a swimming/spa pool
- Built-in Swimming pool and spa pool - exposed conductive parts of electrical equipment, as well as exposed conductive, fixtures, fittings and pool structures within 1.25m of pool edge

3.13 MAIN EARTH

Install main earthing conductor to AS/NZS 3000, 5.5.1 Main Earthing conductor. Provide a plastic toby box to contain and protect the earth electrode. Fix the connecting earth wiring closely and securely against wall surfaces.

3.14 ARC FAULT DETECTION DEVICE (AFDD)

To AS/NZS 3000 clause 2.9, AFDD on all final sub-circuits not exceeding 20A. Install to AS/NZS 3000, Appendix O, Installation of Arc Fault Detection Devices (AFDD'S)

3.15 SURGE PROTECTION

Install surge protection devices to manufacturer requirements and in accordance with AS/NZS 3000, Appendix F, F1.2.2 Installation.

© CIL Masterspec Sep 2026

3.16 RCD - RESIDENTIAL INSTALLATIONS

Install 30mA RCD protection at the switchboard for all final sub circuits to control outlets (except for fixed or stationary cooking equipment), lighting & directly connected handheld electrical equipment, to AS/NZS 3000, 2.6.3.3.1 Residential installations - New Zealand only.

3.17 RCD - DAMP SITUATIONS

Install 30-mA RCD protection as required to AS/NZS 3000, section 6 for damp situations, including in the following higher risk areas:

- Wet areas: bathrooms, laundries, kitchens.
- Near pools and water features.
- Where intended for use with cleaning equipment.

3.18 SET-OUT - OUTLETS & EQUIPMENT

The position of outlets and equipment shown on drawings is indicative of requirements. Confirm documents and site conditions are not in conflict with other services or features. Resolve conflicts and discrepancies before proceeding with work affected. Confirm on site the exact location, disposition and mounting heights of all outlets, fittings, equipment, penetrations, and use of exposed wiring. Fix outlet items level, plumb and in line.

3.19 CABLING

Install wiring systems to AS/NZS 3000, Section 3 Selection and Installation of Wiring Systems. All cabling run concealed fix in position by suitable clips, saddles or clamps. Where possible, run cabling horizontally / vertically in straight line.

Locate holes in timber framing for the passage of cables at the centre line of member ensuring structural strength in maintained to NZS 3604 requirements. In steel studs/ structural steel, ensure aperture is brushed and shaped to minimize abrasion of cable. Cables may be supported by suspended ceiling systems unless not permitted by suspended ceiling manufacturer. Install cable in conduits where required to pass through concrete or underground.

3.20 CABLING CIRCUITS

Install all circuits with the appropriately rated cable and circuit protection. Install with a maximum of 8 light switch units or 4 double or single switched socket units on any circuit. Minimum 2 lighting circuits per floor. Separate circuits for all electric heating appliances. Kitchen sockets to be on at least two different circuits.

3.21 OUTDOOR/EXTERIOR SERVICES

Provide circuits and connections for exterior installations, including ELV 12/24 Volt path lighting and electronic irrigation systems, in accordance with AS/NZS 3000 and the fixture/fitting manufacturer's recommendations.

Where underground, ensure appropriate protection, such as thickness of sheathing, conduit, depth of cabling, and proximity to other services to AS/NZS 3000, 3.11 Underground Wiring Systems.

Use the appropriate rated fittings for power control and power supply. Weather protected switches and sockets to IP56 minimum. Install to manufacturer specifications using recommended fittings and sealants to maintain the products integrity.

Earth leakage protection to be provided for in areas where there is increased risk to human safety in the form of either RCDs at the distribution board, or socket outlet.

3.22 PROTECTION OF CABLING NEAR BUILDING SURFACES

Protect concealed wiring to AS/NZS 3000, 3.9.4 Protection against mechanical damage, where wiring is fixed in position by fastening, or held in position by thermal insulation or passes through an opening in a structural member and they are located within 50mm from the surface of a wall, roof, ceiling or floor.

3.23 WALL BOXES

Mount flush in cavity construction size to fit products selected. Fix vertically mounted wall boxes to studs. Screw fix horizontally mounted switched socket outlet wall boxes to solid blocking or nogs. Fix switch panel wall boxes to solid blocking.

© CIL Masterspec Sep 2026

3.24 SWITCHES AND SWITCHED SOCKET UNITS

Fit all switch units and socket units to the manufacturers requirements with heights and mounting directions as indicated in SELECTIONS.

3.25 LIGHT FITTINGS

Install light fittings in locations and at heights as confirmed by the Contract Administrator, when not specifically shown on the drawings. Install to the luminaire manufacturer's requirements (including clearances) and to AS/NZS 3000, 4.5 Lighting Equipment & Accessories, in correct orientation for light output, complete with lamps.

Fix through linings to structure or framing, provide additional nogs, trim and packing if required. Ensure transformers/drivers and luminaires are adequately ventilated and clear of any building elements, to AS/NZS 3000.

3.26 AIR CONDITIONING & HEAT PUMP SYSTEMS

Connect to electricity supply to manufacturer's requirements and to AS/NZS 3000, 4.19 Air Conditioning & Heat Pump Systems. Any system incorporating a compressor shall be provided with a lockable isolating switch installed adjacent to the unit.

Completion & Commissioning

3.27 COMPLETION MATTERS

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

3.28 COMPLETION - TESTS & CERTIFICATION

Refer to 1270 CONSTRUCTION for general test and certification requirements at completion.

Testing:	To Electricity (Safety) Regulations 2010 and AS/NZS 3000, 8.3 testing
Certificate of Compliance:	To Electricity (Safety) Regulations 2010 and ensure Verification Records supplied to AS/NZS 3000, clause 8.4
Submit results to:	~

4 SELECTIONS

Materials

4.1 METER BOX

Location:	~
Brand / type:	~

4.2 DISTRIBUTION BOARD

Location:	~
Brand / type:	~

4.3 FIRE & SMOKE ALARM SYSTEM

Refer to appropriate fire and smoke alarm section:

~

Electrical outlets, fittings & fixtures

4.4 INTERIOR SWITCHES AND SWITCHED SOCKET UNITS

Location	Refer to drawings
Type/Brand:	~
Colour:	~

4.5 INTERIOR LIGHT FITTINGS

Location:	Refer to drawings
Type/Brand:	~
Controls:	~

© CIL Masterspec Sep 2026

4.6 EXTERIOR LIGHT FITTINGS

Location: refer to drawings
Type/Brand: ~
IP Rating:
Controls: ~

© CIL Masterspec Sep 2026