Tasman Holidays Wanaka

Lodge Alterations, Unit 1 and 2

263 Studholme Road, Wanaka, New Zealand

Project Ref: H2535

Date: 26 May 2026

Rev. 0 - Building Consent Issue

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

Spec Version ID: 372199-444740
Document authenticity may be verified at masterspec.co.nz/verify/372199-444740
Prepared using Masterspec software

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1000 SPECIFICATION OVERVIEW

1 GENERAL

1.1 SPECIFICATION OVERVIEW

Hierarchy Group confirms this specification is intended for use across multiple units at Tasman Wanaka Holiday Park.

ORDER OF PRECEDENCE:
- Architectural and Consultant Specifications
- Architectural and Consultant Documentation
- Other supporting documentation

We note some sub-sections may not be applicable to some sites / unit typologies - please only refer to sections which are applicable to the specific typologies of each project.

The contractor and engineer to the contract are responsible for confirming ALL site specific scope items as required and in accordance with the architectural documentation, structural documentation and any other supporting information which might form part of the site specific packages.

ALL "~" characters found throughout the specification relate to items which may vary between project to project. In general if no specification is noted within architectural, structural and site specific supporting information, then the specification is yet to be confirmed and may vary from project to project.

Refer to the construction specification appendix for additional information and reference material.

If there are **ANY** queries with the specification and supporting documentation, the contractor is to notify and confirm with the engineer to the contract as soon as they are able.

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1013 DOCUMENT CONTROL

1 DOCUMENT CONTROL

Document Control

1.1 PREPARED BY

Company:	Hierarchy Group
Postal Address:	Level 1, 93 Manchester Street
Street Address:	As above
City:	Christchurch
Telephone:	03 963 8031
Email:	consents@hierarchy.co.nz

1.2 DOCUMENT DETAILS

Project Name:	Tasman Holidays Wanaka New Units
Project Number:	H2535
File Reference:	N/A
Client:	Tasman Holiday Parks
Client Contact:	Owen Burnie - owen.burnie@tasmanholidayparks.com
Version:	-

1.3 REVISION CONTROL

Issue:	Building Consent Issue
Revision:	0
Issued to:	Queenstown Lakes District Council
Date of Issue:	26/05/2026
Prepared by:	Shaun Lawson

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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

3 Blocks comprising 9 units, mix of Studio, 2 and 3 bedroom units. Conversion of House to Lodge Accommodation and Refurbishment of Reception

1.3 INCONSISTENCIES

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

1.4 RESTRICTED BUILDING WORK

This project includes Restricted Building Work.

1.5 INSPECTIONS

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

1.6 KEY PERSONNEL

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

Include the following as applicable:

- Person with the appropriate site license
- Carpenter
- Registered drainlayer
- Registered plumber
- Registered electrician
- Roofer
- Bricklayer
- External window manufacturer
- Waterproof membrane applicator

1.7 QUALITY ASSURANCE

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

Design Construction Safety

1.8 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.

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1.9 DESIGN CONSTRUCTION SAFETY REPORT

Provide particular health and safety procedures and methods to mitigate any hazards or risks in the report, and specifically include them as well as any other health and safety matters in the site Health and Safety Plan. 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

1.10 PRINCIPAL'S KNOWN SITE HAZARDS

Site hazards known to the principal are indicated on the drawings.

1.11 PRINCIPAL'S SITE HEALTH AND SAFETY PLAN

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

Site

1.12 SITE

The site consists of:	An existing camping, campervan, caravan and cabins tourism grounds
As shown on drawing:	Refer to Architects, Landscape Architects and Civil Engineers and Structural Engineers documents

1.13 LEGAL DESCRIPTION

Lot 3 DPS 72582

1.14 EXISTING BUILDINGS

Existing buildings consist of:	Motel Units, Ablution Blocks, Reception and Offices
Refer drawing(s):	Architectural Drawings

1.15 EXISTING SERVICES

The following are the network utility services:

Electrical:	Yes
Communications:	Yes via WiFI
Water:	Yes
Gas:	Portable Ablution Blocks
Stormwater:	Yes
Foul water:	Yes

The services are also shown on the drawings.

1.16 SITE FEATURES

Site consists of generally level topography sloping towards the coast. There are hot pools on site with gravel access roads around the property

Site environment - Durability

1.17 EXPOSURE ZONE

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

The site zone is: B Low

Site environment - Wind

1.18 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: Very High/1.55kPa 50 m/s



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Site environment - Seismic

1.19 EARTHQUAKE ZONE - NON SPECIFIC DESIGN

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

The earthquake zone
is: Zone 3

Archaeological discovery

1.20 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: -
Nothing known at the time of documentation.

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1232 INTERPRETATION & DEFINITIONS

1 GENERAL

This general section relates to definitions and interpretation that are used in this specification.

Definitions

1.1 DEFINITIONS

Hold point:	A stage of the construction where the contract administrator and any other nominated person requires notice to be given that particular work is to be carried out. Work may not proceed on that particular part until the contract administrator and any other nominated person has advised that work can continue. A notice period of 2 Working Days is required unless stated otherwise.
Notification point:	A stage of the construction where the contract administrator and any other nominated person requires notice to be given that particular work is to be carried out. Work may continue and the contract administrator and any other nominated person may choose whether or not they wish to witness the particular work being carried out. A notice period of 2 Working Days is required unless stated otherwise.
Product:	A thing or substance produced by natural process or manufacture.
Proprietary:	Identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.
Provide and fix:	"Provide" or "fix" or "supply" or "fix" if used separately mean provide and fix unless explicitly stated otherwise.
Required:	Required by the documents, the New Zealand Building Code or by a statutory authority.
Review:	Review by the contract administrator and other consultants is for general compliance only. Review does not remove the need for the contractor to comply with the stated requirements, details and specifications of the manufacturers and suppliers of individual components, materials and finishes. Neither can the review be construed as authorising departures from the contract documents.
Working day:	Working day means a calendar day other than any Saturday, Sunday, public holiday or any day falling within the period from 24 December to 5 January, both days inclusive, irrespective of the days on which work is actually carried out.
Workplace:	Workplace means the place where work is being carried out, or is customarily carried out, for a business or undertaking including any place where a worker goes, or is likely to be, while at work (under Health and Safety at Work Act 2015).

1.2 PERSONNEL

Principal:	The person defined as "Principal" in the conditions of contract.
Contractor:	The person contracted by the principal to carry out the contract.
Contract administrator:	The person appointed by the principal to administer the contract on the principal's behalf. Where no person has been appointed by the principal, it means the principal or the principal's representative.

1.3 ABBREVIATIONS

The following abbreviations are used throughout the specification:

AAMA	American Architectural Manufacturers Association
AS	Australian Standard
AS/NZS	Joint Australian/New Zealand Standard
ASTM	American Society for Testing and Materials

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AWCINZ	Association of Wall and Ceiling Industries of New Zealand Inc.
BCA	Building Consent Authority
BPIR	Building Product Information Requirements
BPIS	Building Product Information Sheet
BPS	Building Product Specifications
BRANZ	Building Research Association of New Zealand
BS	British Standard
COP	Code of practice
CSIRO	Commonwealth Scientific and Industrial Research Organisation
HERA	Heavy Engineering Research Association
LBP	Licensed Building Practitioner
MBIE	Ministry of Business, Innovation and Employment
MPNZA	Master Painters New Zealand Association Inc
NZBC	New Zealand Building Code
NZS	New Zealand Standard
NZS/AS	Joint New Zealand/Australian Standard
NZTA	New Zealand Transport Agency
NUO	Network Utility Operator
OSH	Occupational Safety and Health
PCBU	Person Conducting a Business or Undertaking (under Health and Safety at Work Act 2015)
RBW	Restricted Building Work
SARNZ	Scaffolding and Rigging New Zealand Inc
SED	Specific Engineering Design
TA	Territorial Authority
TNZ	Transit New Zealand (Transit New Zealand is now New Zealand Transport Agency NZTA - some specifications are still prefixed TNZ)

1.4 DEFINED WORDS

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

1.5 WORDS IMPORTING PLURAL AND SINGULAR

Where the context requires, words importing singular only, also include plural and vice versa.

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1232S1 EXPLANATION OF SCHEDULE SECTIONS

1 GENERAL

This general section provides an explanation of schedule sections and their relationship to general sections and work sections.
Specific schedule sections contained within this specification are also identified.

1.1 EXPLANATION OF SCHEDULE SECTIONS

A schedule section identifies work sections that contain common requirements, as identified in the title of the schedule section. For example 1239S1 SCHEDULE OF OPERATION & MAINTENANCE identifies work sections that have requirements for operations and maintenance. Details of the requirements are contained in the identified work sections with additional requirements contained in the general section 1239 OPERATION AND MAINTENANCE.

Some schedule sections are identified by the 4 digit CBI (Co-ordinated Building Information) number of the general section that they relate to, followed by the letter "S" followed by a numeral (1-9). The numeral allows for multiple schedule sections to be associated with the same general section.

Other schedule sections that do not share a common CBI number with a general section, have their own unique 4 digit CBI number, followed by the letter "S" followed by a numeral. These schedule sections contain additional subject content relating to the schedules and the identified work sections.

1.2 SCHEDULE SECTIONS

The following Schedule sections are contained within the specification:

1237S1	Schedule of Warranties
1238S1	Schedule of As Built Documentation
1239S1	Schedule of Operation & Maintenance Info
1270S1	Schedule of Samples & Prototypes
1270S2	Schedule of Spares & Maintenance Products
1278SR	Schedule Of Slip Resistance Testing

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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

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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

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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.



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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.

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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



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- 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:	TBC by the principle
Revisions:	N/A

2.2 DOCUMENT RECEIPT - HARD COPIES

Hard copies of plans, specifications and other documents issued for construction shall be collected by the contractor on site, with written confirmation via email.

2.3 DOCUMENT RECEIPT - ELECTRONIC DOCUMENTS

Electronic documents issued for construction shall be sent via an agreed email address by the Engineer to the contract

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1237 WARRANTIES

1 GENERAL

This general section refers to the requirements for warranties/guarantees, referred to within this specification and referred to within separate specifications/documents relating to this project. It includes:

- Warranties for parts of the work required by the principal in a required form
- Installer/applicator warranties for parts of the work in the installer's/applicator's standard form
- Manufacturer/supplier warranties provided with products, appliances and the like in the manufacturer's/supplier's standard form
- Guarantees provided by contractor in the contractor's standard form

These guarantees/warranties are in addition to any warranties, implied warranties, or guarantees that are required by the Building Act, the Building Regulations, or the building consent.

1.1 SCHEDULE SECTION

Refer to 1237S1 SCHEDULE OF WARRANTIES for work sections contained in this specification that have requirements for warranties.

Warranties

1.2 PROVIDE WARRANTIES

Provide executed warranties in favour of the principal in respect of, but not limited to, materials, components, service, application, installation and finishing called for in that specified section of work. The terms and conditions of the warranty in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability under the terms of the warranty called for in that specified section of work.

- Conform to the WARRANTY AGREEMENT form included in the specification/conditions of contract.
- Commence warranties from the date of practical completion of the contract works (unless otherwise stated).
- Maintain their effectiveness for the times stated.
- Provide executed warranties prior to practical completion.

1.3 WARRANTIES - INSTALLER/APPLICATOR

Where installer/applicator warranties are offered covering execution and materials of proprietary products or complete installations, provide such warranties to the contract administrator. These warranties may be provided in lieu of the warranties that are otherwise required provided that these warranties are subject to similar conditions and periods.

Provide warranties in favour of the principal. The terms and conditions of such warranties in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

1.4 WARRANTIES - MANUFACTURER/SUPPLIER

Where warranties are offered covering materials, equipment, appliances or proprietary products, provide all such warranties to the contract administrator.

Provide warranties in favour of the principal. The terms and conditions of such warranties in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

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Submission

1.5 REVIEW BY CONTRACTOR

Obtain the warranties from the installers, applicators, manufacturers and suppliers at the earliest possible date and review to ensure that they are correctly filled out and executed. Where warranties are executed as a deed, ensure that a duplicate copy is provided for execution by the owner/principal. Keep safe and secure until required for submission.

1.6 WARRANTIES - REQUIRED BY BUILDING CONSENT AUTHORITY

Obtain copies of warranties required as a condition of the building consent in the form required for submission to the BCA. Keep safe and secure until required at the time of the BCA final inspection and Code Compliance Certificate.

1.7 WARRANTIES - REQUIRED BY CONTRACT

Obtain copies of warranties listed in the contract documents. Provide all warranties at the same time. If the project has an operations and maintenance documentation provision, present the warranties with the operations and maintenance information. If no operations and maintenance documentation provision exists, present the warranties to the contract administrator in a loose-leaf binder with a contents index suitably labelled and including the project name and details. Provide a title on the binder edge "Warranties for (project name)"

1.8 WARRANTIES - SUBMISSION NZS3915:2005 CONTRACT

Refer to NZS 3915 Conditions of contract for building and civil engineering construction (where no person is appointed to act as engineer to the contract), clause 11.5 for requirements relating to the time for submission for warranties and guarantees. Submit all warranties/guarantees to the principal before or at the time of the issue of the provisional defects liability certificate the end of the defects liability period.

1.9 WARRANTIES/GUARANTEES - SUBMISSION NZS 3916 CONTRACT

Refer to NZS 3916 Conditions of contract for building and civil engineering – Design and construct, clauses 11.5 and 11.6 for requirements relating to the time for submission of warranties and guarantees respectively. Submit all warranties/guarantees to the engineer no later than the date that the contractor notifies that it believes the contract works qualify for practical completion.

2 SELECTIONS

Project warranties / guarantees

Guarantees - Contractor - Master Build Services Ltd

2.1 MASTER BUILD SERVICES LTD - 10 YEAR KIWI GUARANTEE

Provide a 10 Year Kiwi Guarantee, include all costs in the contract price. Detach the guarantee application form from the guarantee agreement. Complete the form, obtain all required signatures (builder and owner). Send the completed form to Master Build Services for approval along with a copy of the building contract (include a full scope of work for any addition/alteration work), prior to any work commencing. Obtain the Master build Services acceptance letter and provide this to the owner along with the guarantee document. On completion of the building work complete the notice of practical completion form, obtain all required signatures (builder and owner) and forward the form to Master Build Services.

2.2 MASTER BUILD SERVICES LTD - 10 YEAR STANDARD GUARANTEE

Provide a 10 Year Standard Guarantee (including all optional cover), include all costs in the contract price. Detach the guarantee application form from the guarantee agreement. Complete the form, obtain all required signatures (builder and owner). Send the completed form to Master Build Services for approval along with a copy of the building contract (include a full scope of work for any addition/alteration work), prior to any work commencing. Obtain the Master build Services acceptance letter and provide this to the owner along with the guarantee document. On completion of the building work complete the notice of practical completion form, obtain all required signatures (builder and owner) and forward the form to Master Build Services.

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2.3 MASTER BUILD SERVICES LTD - 10 YEAR PREMIUM GUARANTEE

Provide a 10 Year Premium Guarantee (including all optional cover), include all costs in the contract price. Detach the guarantee application form from the guarantee agreement. Complete the form, obtain all required signatures (builder and owner). Send the completed form to Master Build Services for approval along with a copy of the building contract (include a full scope of work for any addition/alteration work), prior to any work commencing. Obtain the Master build Services acceptance letter and provide this to the owner along with the guarantee document. On completion of the building work complete the notice of practical completion form, obtain all required signatures (builder and owner) and forward the form to Master Build Services.

Weathertightness and watertightness warranty

2.4 WEATHERTIGHTNESS AND WATERTIGHTNESS WARRANTY

A warranty is required from the contractor for a minimum period of 2 years, covering the weathertightness of the complete building envelope and the watertightness of all liquid supply and disposal systems and fittings. This general warranty is in addition to any specific warranties required.

Provide this warranty in favour of the principal. The terms and conditions of this warranty in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

- Conform to the standard form WARRANTY AGREEMENT included in the contract documents.
- Commence the warranty from the date of Practical Completion.
- Maintain its effectiveness for the time stated.

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1237S1 SCHEDULE OF WARRANTIES

1 GENERAL

This schedule section identifies work sections in the specification that have requirements for warranties.

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- 1237 WARRANTIES
- Identified Work Sections

Warranties

1.2 WARRANTIES

Refer to the following sections:

4161FP	FPS Weathertight System
4161T	Thermakraft Underlays, Foils, DPC, DPM, & Tapes
4282RI	RCS Integra Lightweight Concrete Facade System
4283RM	RCS Fibre Cement Sheet Finishing Systems
4422AE	Ardex Weldtec Exposed Membrane System
4521AC	APL Commercial Aluminium Windows & Doors
4553	Exterior Doors
4610	Glazing Residential
4610AG	AGP Glazing Residential
4711P	Pink® Batts® Thermal Insulation
4811S	Sika Sealants
4852UB	Unex Architectural Barrier Systems
5231C	CS For Doors
5313KL	Rondo Systems - Plasterboard & Sheet Ceilings
5316RC	Rondo Direct-Fix Ceilings - Residential
5521AA	Assa Abloy Architectural Door Hardware
5531WC	Windoware Curtain Track & Blind Systems
5811	Signs & Displays
6122A	Ardex Floor Substrate Preparation
6211	Wall Tiling Systems
6211AW	Ardex Wall Tiling
6221A	ARDEX Floor Tiling Solutions
6312J	Jacobsen Timber Flooring
6511JC	Jacobsen Broadloom Carpeting
6812A	Ardex Undertile Waterproofing Membranes
7123	Hot & Cold Water System
7126RH	Rinnai Hot Water Systems
7451AL	Allproof Level Threshold Drainage Systems
7673	Split Unit Heat Pump Systems
7701	Electrical Basic
7811	Communications Cabling

1.3 PROJECT WARRANTIES

Refer to section 1237 WARRANTIES for project warranties.

1.4 WARRANTIES - ADDITIONAL ITEMS

Refer to separate documentation for warranties not contained within this specification.



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1238 AS BUILT DOCUMENTATION

1 GENERAL

This general section relates to common requirements for the preparation, submission and review of as built documentation referred to within this specification and referred to within separate specifications/documents relating to this project. Detailed requirements for as built documentation for particular parts of the work may be included in specific work sections.

1.1 SCHEDULE SECTION

Refer to 1238S1 SCHEDULE OF AS BUILT DOCUMENTATION for work sections contained in this specification that have requirements for as built documentation.

1.2 AS BUILT DOCUMENT REQUIREMENTS

Where requirements for the as built documents and records are not stated in a specific section, they shall include:

As built drawings recording:

- The actual positions as constructed of all sewer, stormwater, sanitary plumbing, piped and ducted services, electrical and mechanical services.
- Inverts and locations of services at key points within the building and at the property lines.
- Dimension services in relation to the structure and building grid lines.
- Ductwork, piping, conduit and equipment, including such items provided for future use.
- Depth of various elements of foundations in relationship to the ground floor level
- Field changes of dimensions
- Other significant deviations and changes which are concealed in construction and cannot be identified by visual inspection
- Access doors and panels

Records of:

- Products and materials selected for alternatives specified
- Approved substitutions and accepted alternatives
- Other approved changes and deviations to items specified.

1.3 PROVISIONAL AS BUILT DOCUMENTS

Prior to practical completion provide provisional/draft as built documents in sufficient detail to allow the principal to operate, maintain, adjust and re-assemble the contract works and to allow for review by the reviewer. Where no named reviewer has been nominated, submit the as built documentation to the contract administrator. Submit in hard copy and electronic form.

1.4 AS BUILT DOCUMENT REVIEW

As built document review indicates only that the reviewer is satisfied that the documents are legible. The review is not a check of the accuracy or completeness of the documents, however the reviewer may comment on any aspect of the documentation and require the documents to be revised and resubmitted. Review of as built documents does not relieve the contractor of responsibility for their correctness.

Where no time is stated in a specific section, allow 10 working days for review by the reviewer. Where a large amount of documentation is involved more time will be necessary.

1.5 COMPLETE AS BUILT DOCUMENTS

Prior to the end of the defects notification/liability period, provide complete as built documents reflecting any review requirements, with all Information of good quality and properly titled, numbered, cross-referenced and dated. Provide documents in sufficient detail to allow the principal to operate, maintain, adjust and re-assemble the contract works. Submit in hard copy and electronic form to the contract administrator.

1.6 AS BUILT DOCUMENTS - ELECTRONIC COPY

Provide an electronic copy of the as built documents in the following format:

Drawings:	PDF format (in addition provide DWG files if available)
Other documents:	PDF format

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1238S1 SCHEDULE OF AS BUILT DOCUMENTATION

1 GENERAL

This schedule section identifies work sections in the specification that have requirements for the submission of as built documentation.

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- 1238 AS BUILT DOCUMENTATION
- Identified Work Sections

As built documents

1.2 AS BUILT DOCUMENTS

Refer to the following sections:

2242	Backfilling
5313KL	Rondo Systems - Plasterboard & Sheet Ceilings

1.3 AS BUILT DOCUMENTS - ADDITIONAL ITEMS

Refer to separate documentation for as built documentation requirements not contained within this specification.

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1239 OPERATION & MAINTENANCE

1 GENERAL

This general section relates to operation and maintenance (O&M) documentation referred to within this specification and referred to within separate specifications/documents relating to this project. This documentation is required by the principal so that they can operate and maintain the contract works.

1.1 SCHEDULE SECTION

Refer to 1239S1 SCHEDULE OF OPERATION & MAINTENANCE INFO for work sections contained in this specification that have requirements for:

- Information for operation and maintenance
- Operation and maintenance manuals
- Maintenance contract proposals

Operation and maintenance documents

1.2 OPERATION AND MAINTENANCE INFORMATION - BUILDING ACT

Provide in writing the information and documentation prescribed by regulations made under the Building Act, to the owner/principal and the relevant territorial authority.

1.3 OPERATION AND MAINTENANCE INFORMATION

Provide operation and maintenance documentation necessary to operate and maintain the works. This documentation is to include:

- Contractors name and contact details.
- A complete list of subcontractors' names, addresses and telephone numbers noting which portions of the contract each provided.
- A complete list of equipment and appliances including serial numbers, manufacturers' names and sources of supply.
- Copies of all manufacturers' and suppliers' product literature containing maintenance requirements/instructions, for any products in the building work.
- Information for operation and maintenance as required by work sections.
- Operation and maintenance manuals as required by work sections.
- Maintenance contract proposals as required by work sections.
- Final as built documents.
- Originals of all warranties and guarantees properly executed.
- Other information listed or referred to in this general section.
- Operation and maintenance information required by other project documents.

1.4 MAINTENANCE REQUIREMENTS

Provide details of any maintenance requirements required by the Building Act. In addition provide maintenance requirements for items including:

- Details of suggested building washing programme.
- Details of suggested re-painting programme.
- Location of flushing points for sub soil drainage systems.
- Location of surface water filter systems requiring regular cleaning.
- Overflow relief gully location and means of keeping charged.

1.5 APPLIANCE MANUALS AND OPERATING INSTRUCTIONS

Provide appliance manuals and operating information for all appliances including details of all isolating valves and switches including:

- Water supply isolating valve.
- Location of isolating valves for appliances including dishwasher, clothes washer and fridge with and icemaker connection.
- Gas supply isolating valve.
- Electrical main switch and all sub boards.
- Location of isolating switches for electrical appliances including cooker and cook top, kitchen extract system, electric under floor heating.
- Fire and heating device operating instructions.

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1.6 EQUIPMENT AND APPLIANCE MANUALS AND OPERATING INSTRUCTIONS

Provide equipment and appliance manuals and operating information including details of all isolating valves and switches.

1.7 SELECTIONS INFORMATION

Provide details of actual selections used in the construction of the works including:

- Tapware type and supplier details.
- Sanitary ware including accessories type and supplier details.
- Light fitting type and supplier details.
- Door hardware type and supplier details.
- Carpet type and colour including underlay and the supplier details.
- Vinyl flooring type and colour including supplier details.
- Overlay timber floor type and supplier details.
- Tile type and supplier details.
- Fire supplier details.
- Aluminium joinery system and finish.
- Paint type and colours used.

Include brochures and other information included with the items supplied.

1.8 SELECTIONS INFORMATION - SUBSTITUTIONS

Provide details of any selections used in the construction of the works that are different from what was specified.

Documentation format

1.9 O&M DOCUMENTATION FORMAT

Unless otherwise specified in a work section,

- Provide O&M drawings at scales appropriate to the detail to enable good legibility.
- Provide manufacturers documentation at the original scale.
- Provide written text generally in A4 format using a font not less than 10 point.

Submit O&M documentation in both hard copy and as electronic portable document format (PDF) files.

Submission and review

1.10 O&M DOCUMENTATION SUBMISSION & REVIEW

Unless otherwise specified in a work section, provide draft O&M documentation no later than the date of practical completion or the date on which the principal takes occupation of the works, whichever occurs first.

Submit O&M documentation to the named reviewer for review.

- Where no time is stated in a specific section, allow 10 working days for review by the reviewer. Where a large amount of documentation is involved more time will be necessary.
- Where no person is named in a specific section as the reviewer, submit the O&M documents to the contract administrator.
- Submit a proposed index system (as required for final documentation) to the contract administrator for review.

O&M review indicates only that the reviewer is satisfied that the documents are legible. The review is not a check of the accuracy of the documents, however the reviewer may comment on any aspect of the documentation and require the documents to be revised and resubmitted. Review of operation and maintenance documentation does not relieve the contractor of responsibility for the correctness of the documentation.

The reviewer may advise that:

- The O&M documentation has been reviewed and has been accepted without the need for further modification. The information can be included in the final documentation; or
- The O&M documentation has been reviewed and the information can be included in the final documentation subject to revision required by notes, annotations or comments provided; or

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- The O&M documentation has been reviewed and is not acceptable, refer to notes, annotations or comments provided. Resubmit corrected/altered documentation for review.

Amalgamate the reviewed accepted and corrected O&M documentation into the final O&M documentation

Final documentation

1.11 SUBMISSION OF FINAL DOCUMENTATION

Prior to the end of the defects notification/liability period, provide complete O&M documentation in both hardcopy and electronic form.

1.12 FINAL O&M DOCUMENTATION - HARDCOPY

Provide the hard copy version of the O&M documentation in a loose-leaf binder with a contents index identifying operation and maintenance documents, requirements, manuals, operating instructions and selections. In addition include the project name, contractor's name and the date of practical completion on the index page.

Include indexed sections to identify all operation and maintenance manuals that are not contained within the binder. Provide a copy of the front cover or other identifying feature of the manual within the section with a note stating "this manual has been provided separately".

Provide a title on the binder edge "Operation and maintenance instructions for (project name)". If more than one binder is required identify each binder by number and ranking (e.g. Volume 2 of 3) and group information logically between the binders for ease of reference.

Provide operation and maintenance manuals clearly and neatly marked on the spine or front cover so as to identify the project name. Where operation and maintenance manuals are a collection of loose leaf documentation, provide documentation in a loose-leaf binder as described above.

1.13 FINAL O&M INFORMATION - ELECTRONIC COPY

Provide a copy of all hardcopy information in PDF format arranged in logical named folders. In addition provide DWG files of documentation if available.

1.14 REVIEW OF FINAL DOCUMENTATION

The contract administrator may review the final documentation and require alteration and resubmission.

2 SELECTIONS

O&M Documentation

2.1 FINAL DOCUMENTATION - INFORMATION FOR OPERATION AND MAINTENANCE

Provide a complete electronic copy to the contract administrator.

Provide two hardcopy sets of completed O&M documentation to the contract administrator. At least one set is to contain all available original documentation. The contractor is to retain a third hardcopy set for their records.

Provide any documentation (including required original documentation) as required to the relevant territorial authority.

2.2 FINAL DOCUMENTATION - OPERATION AND MAINTENANCE MANUALS

Provide a complete electronic copy to the contract administrator.

Provide two hardcopy sets of completed maintenance manuals to the contract administrator. At least one set is to contain all available original documentation. The contractor is to retain a third hardcopy set for their records.

Provide any documentation (including required original documentation) as required to the relevant territorial authority.

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Maintenance contract proposals

2.3 MAINTENANCE CONTRACT PROPOSALS

Unless otherwise specified in a work section, provide maintenance contract proposals to the contract administrator no later than the date of Practical Completion. Provide in electronic and hardcopy form.

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1239S1 SCHEDULE OF OPERATION & MAINTENANCE INFO

1 GENERAL

This schedule section identifies work sections in the specification that have requirements for the submission of:

- Information for operation and maintenance
- Operation and maintenance manuals
- Maintenance contract proposals

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- 1239 OPERATION & MAINTENANCE

Information for operation and maintenance

1.2 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the following sections:

4282RI	RCS Integra Lightweight Concrete Facade System
4283RM	RCS Fibre Cement Sheet Finishing Systems
4610AG	AGP Glazing Residential
4852UB	Unex Architectural Barrier Systems
5531WC	Windoware Curtain Track & Blind Systems
5811	Signs & Displays
6211AW	Ardex Wall Tiling
6221A	ARDEX Floor Tiling Solutions
6511JC	Jacobsen Broadloom Carpeting
7123	Hot & Cold Water System
7126RH	Rinnai Hot Water Systems
7612	Residential Extract Systems
7673	Split Unit Heat Pump Systems

Operation and maintenance manuals

1.3 OPERATION AND MAINTENANCE MANUALS

Refer to the following sections:

5811	Signs & Displays
7421	Sanitary Systems

Maintenance contract proposals

1.4 MAINTENANCE CONTRACT PROPOSALS

Refer to the following sections:

7673	Split Unit Heat Pump Systems

Additional Items

1.5 ADDITIONAL ITEMS

Refer to separate documentation for the submission of operation and maintenance requirements not contained within this specification.

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1240 ESTABLISHMENT

1 GENERAL

This general section relates to site establishment including:

- Notices and approvals
- Inspections
- Site preparation
- Temporary construction

Notices and approvals

1.1 STATUTORY OBLIGATIONS

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

1.2 BUILDING CONSENT AUTHORITY AND NETWORK UTILITY APPROVALS

Attend on building consent authority officers, statutory and network utility inspectors, as necessary to obtain approvals, including those required for the completion of the works.

1.3 NOTIFY NETWORK UTILITY OPERATORS

Notify all network utility operators of proposed works before commencing site operations. Ascertain location of services or confirm that none exist in the vicinity of the works. Take all necessary precautions to avoid damage to existing services.

Inspections

1.4 CARRY OUT INSPECTIONS

Contractor to carry out inspections required in accordance with the requirements of each sites specific requirements. Engineer to the contract to confirm with contractor prior to construction commencing.

Site preparation

1.5 SITE ACCESS

Access to the site is limited to: To be confirmed by the engineer to the contract

1.6 WORKING AREA

Limited to the following designated working areas on the site:
To be confirmed by the engineer to the contract

1.7 SITE AND SOIL SURVEYS

Carry out all investigations necessary and peruse all information available to determine ground conditions and likely ground performance both on the site and adjacent to it. Also refer to the territorial authority project information memorandum (PIM).

1.8 GROUND CONDITIONS

Refer to the geotechnical / soils report included with this specification.

Existing buildings

1.9 ALTERATIONS

Control access and working areas within existing buildings. Liaise with building owner to establish site limitations.

1.10 TEMPORARY ACCESS

Liaise with the building owner to arrange access to areas of the existing building which are not normally part of the contract.

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1.11 USE OF STAIRS

Any existing or proposed stairs are for use by the contractor for worker access and where necessary for goods deliveries. Do not leave goods in the stairway as these must remain available for emergency egress. Do not wedge or hold open fire doors or smoke control doors.

Temporary construction

1.12 TEMPORARY BUILDINGS

Provide as necessary temporary sheds, offices, lunch rooms, sanitary accommodation and other temporary buildings required for storage, management of the works, for the use of workers while on site and as required by Acts and Regulations.

1.13 TEMPORARY SITE FENCING

Provide and maintain a temporary site fence, 2 metres high from ground level on the side accessible to the public. Construct to comply with NZBC F5/AS1 Construction and demolition hazards.

1.14 SITE - SAFETY SIGNAGE

Provide hazard board and other safety signage as required.

1.15 SITE - PROJECT SIGN

Obtain approval to, provide and erect a timber framed sign board (size tbc by the engineer to the contract). Sign to be, fully painted with vinyl lettering or fully printed, and displaying:

- Title of contract
- Principal's name
- Contractor's name
- Consultants as listed in general section 1222 PROJECT PERSONNEL
- If the contractor wishes, names of subcontractors.

First aid

1.16 FIRST AID EQUIPMENT

Provide first aid equipment.

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1256 WASTE MANAGEMENT

1 GENERAL

This general section relates to the implementation of a site waste management plan.
It includes:

- **Full REBRI requirements**
- **Part REBRI requirements**

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:

REBRI	Resource Efficiency in the Building and Related Industries

1.2 DOCUMENTS

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

REBRI Contract Specification for Waste Management
REBRI Waste Management Plan
REBRI Waste Transfer Form
REBRI Guides and Resource Recovery Documents (various)

REBRI contact details

Organisation:	REBRI
Web:	www.branz.co.nz/REBRI
Email:	branz@branz.co.nz

Special requirements

1.3 SPECIAL REQUIREMENTS - GENERALLY

Clauses in this section are additional to or modify clauses in other standard sections, particularly those covering demolition. This section should be read in conjunction with the rest of this specification with regard to all waste management for the project.

Refer to the clause RELATED WORK above for the main sections that are affected by this section.

1.4 SPECIAL REQUIREMENTS - SUSTAINABLE/GREEN PROJECTS

This project is a formal sustainable/green project that is required to meet the requirements of either:

- Green Star
- Homestar
- Living Building Challenge
- Circular Economy - Model Office (CEMO)

Refer to the clause RELATED WORK above for the sustainable/green Special Requirements section(s) that affects this section. Clauses in that section(s) will add or modify clauses in this section.

Requirements - full REBRI

1.5 REBRI CONTRACT SPECIFICATIONS

Work to be carried out to the requirements of the project documents and the REBRI Contract Specifications for Waste Management document.

1.6 CONTRACTORS REBRI SITE COORDINATOR

Special requirements for 1222 PROJECT PERSONNEL.

The contractor to designate an on-site person (or persons) responsible for instructing and coordinating workers and overseeing and documenting results for REBRI requirements.

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1.7 WASTE MANAGEMENT PLAN

Prepare and submit a waste management plan in line with the REBRI Waste Management Plan and guidelines provided in the REBRI Guides www.branz.co.nz/REBRI

The submitted plan to include the following factors:

- site planning and material storage
- waste management
- purchasing
- recycling
- salvage

1.8 RECORD KEEPING

Maintain a record of waste materials, recycled, reused and disposed of by the project using the REBRI Waste Management Plan and REBRI Waste Transfer Form or a form generated by the contractor containing the same information.

- For each material recycled from the project, include the amount (in cubic metres or tonnes), or in the case of reuse, state quantities by number, type and size of items, and the destination (i.e. recycling facility, used building materials yard).
- For each material to landfill, include the amount (in cubic metres or tonnes) of material and the identity of the landfill, clean fill and/or transfer station.

If requested, submit to the Contract Administrator the REBRI Waste Management Plan, REBRI Waste Transfer Forms or bills, invoices and other documentation confirming that all materials have been received at the required locations.

1.9 CONTRACTORS DETAILED STATUS REPORT - REBRI REQUIREMENTS

Special requirements for 1260 PROJECT MANAGEMENT.

For Site Meetings Contractors detailed status report is to also address the following:

- Waste Management Plan and Waste Diversion Tracking Tables.
- Deconstruction and salvage.

Requirements - part REBRI

1.10 SITE COORDINATOR

The contractor is responsible for instructing and coordinating workers and overseeing and documenting results for REBRI requirements.

1.11 WASTE MANAGEMENT PLAN

Prepare and submit a waste management plan similar to the REBRI Waste Management Plan and REBRI Guides, and to suit the location of the project.

The submitted plan to include the following factors:

- site planning and material storage
- waste management
- purchasing
- recycling
- salvage.

1.12 REPORTING

Contractor provide a report to the site meeting based on the Waste Management Plan and similar to the Waste Transfer Form, of waste materials, recycled, reused and disposed of by the project.

If requested, submit to the Contract Administrator documentation confirming that all materials have been received at the required locations.

Requirements - General

1.13 ENSURE

Ensure all site management and staff, subcontractors, material and product suppliers and waste disposal companies are made aware that this is a REBRI project (in part or full) and provide access to or copies of the waste management plan.



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2 PRODUCTS

Equipment

2.1 CONTAINERS

Provide appropriately sized and sited containers/bins for the storage of reusable, recyclable and waste products. Clearly label each container.

3 EXECUTION

Conditions

3.1 STORAGE

Store all materials so they are not damaged prior to use.

3.2 PLANNING

Plan the measurement and ordering of materials and components to minimise waste.

Statutory requirements

3.3 HAZARDOUS WASTE

Conform to applicable regulations for disposal and removal of common and hazardous waste.

Handle and dispose of all hazardous and banned materials in accordance with national and local regulations - these hazardous and banned materials may include but are not limited to asbestos, underground storage tanks, polychlorinated biphenyls (PCBs), abandoned chemicals (petrol, pesticides, herbicides, flammable and combustible substances), freon from cooling equipment, lead-based paints, smoke detectors and mercury-containing switches, also contaminated soil or fill.

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4 APPLICATION

4.1 DEMOLITION

- Sort concrete and concrete block waste for recycling as aggregate, sub-base material or fill.
- Sort brick waste for reuse as whole bricks, or re-use as crushed brick for landscape cover, sub-base material or fill.
- Sort asphalt material by type for milling and recycling.

4.2 DISMANTLING/REUSE

- Dismantle, store and protect items, elements and components for reuse on site.
- Dismantle, store and protect items, elements and components for recycling off site.
- Dismantle store and protect items, elements and components for return to the owner.

4.3 SITE CLEARING

- Sort asphalt material by type for milling and recycling.
- Grind, chip or shred vegetation for mulching and composting on site.
- Grind, chip or shred vegetation for off site mulching and composting.
- Separate and recycle steel reinforcing and other metals.
- Provide suitable on-site locations for the disposal of excavated rock, soil and vegetation.

4.4 CONCRETE

- Plan for maximum re-use of concrete formwork.
- Separate and recycle concrete.
- Provide a suitable on-site location for the disposal of excess concrete.

4.5 WOOD

- Separate and recycle wood off-cuts and waste.
- Separate timber for reuse
- Provide a suitable storage area for sizeable off-cuts for use as spacers or blocking.
- Separate CCA treated timber from untreated timber.
- Chip untreated timber for mulching and composting on site.
- Chip untreated timber for off site mulching and composting.

4.6 PLASTERBOARD

- Include for both horizontal fitting of sheets and customised sheet lengths.
- Retain larger off-cuts for use around doors, windows or built-in items.
- Waste plasterboard, separate and recycle to compost (if locally available).

4.7 PLUMBING

- Select plumbing materials with a high recycled content.
- Ensure that reusable packaging materials are returned to the vendors.
- Retain PVC off-cuts for use as stubs.
- Separate and recycle plastics.

4.8 ELECTRICAL

- Select electrical materials with a high recycled content.
- Ensure that reusable packaging materials are returned to the vendors.
- Separate and recycle metals and wire.
- Separate and recycle plastics.

4.9 MECHANICAL

- Select mechanical materials with a high recycled content.
- Ensure that reusable packaging materials are returned to the vendors.
- Separate and recycle metals and wire.
- Separate and recycle plastics.

Completion

4.10 CLEANING

All cleaning materials used on the project to be biodegradable and non-toxic.

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1270 CONSTRUCTION

1 GENERAL

This GENERAL section relates to common requirements for construction issues including:

- Quality control and assurance
- Noise and nuisance
- Set-out and tolerances
- Common execution requirements
- Qualifications
- Common product requirements
- Common requirements for samples and prototypes
- Common requirements for spare and maintenance products
- Cleaning during the works
- Removal of protection
- Completion requirements
- Commissioning
- Practical completion submission
- Defects period submissions
- Completion submissions

1.1 SCHEDULE SECTION

Refer to 1270S1 SCHEDULE OF SAMPLES & PROTOTYPES for work sections contained in this specification that have requirements for samples and prototypes.

Refer to 1270S2 SCHEDULE OF SPARES & MAINTENANCE PRODUCTS for work sections contained in this specification that have requirements for spares and maintenance products.

Quality control and assurance

1.2 QUALITY ASSURANCE

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

- Concrete quality and finish.
- Dimensional accuracy of structural column locations (following completion of foundations).
- All perimeter columns and frames for plumb.
- Levels of all floors relative to the site datum.
- Framing timber moisture content.

Where any material, quality or dimension falls outside specified or required tolerances, obtain written direction from the contract administrator. Where building consent approval is affected, confirm remedial action with the Building Consent Authority.

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

1.3 PROVIDE QUALITY PLAN

Prepare a quality plan for the execution of the contract works and submit a copy of the quality plan to the Contract Administrator within 10 Working Days of the date of award of the contract. The quality plan shall describe the procedures for meeting the requirements of the contract in respect of:

- Materials and workmanship
- Monitoring and maintaining subcontractors' performance
- Record keeping
- The level of documentation for signing off the contract works as complete
- Procedures to ensure that all persons engaged in undertaking the contract works are qualified, experienced and trained for the work they are undertaking
- Inspection and testing required by the contract
- Auditing the quality plan

1.4 REVIEW OF QUALITY PLAN

Within 5 working days of the contractor submitting a quality plan to the contract administrator for review, the contract administrator may advise that:

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- they have completed their final review, or
- that they have undertaken a review and require resubmission of the quality plan.

Review by the contract administrator of the quality plan does not make the quality plan a contract document. The contractor at all times remains responsible for the construction of the Works. If resubmission of a quality plan is required, the contract administrator will give their reasons. The contractor shall take account of the reasons and resubmit a revised quality plan within a period of 5 working days.

1.5 COMMENCEMENT OF WORK

Do not commence any part of the contract works, other than establishment, setting out and site preparation until the contract administrator has completed their final review of the quality plan.

1.6 NOTICE

Give notice to the contract administrator and any other nominated person of hold points and notification points. Refer to work sections and 1260 PROJECT MANAGEMENT for hold points and notification points required.

1.7 NOTIFIABLE WORK

Lodge notice of the intention to commence any notifiable work and any work that will at any time include any notifiable work, in accordance with Health and Safety in Employment Regulations 1995.

Noise and nuisance

1.8 LIMIT CONSTRUCTION NOISE

Minimise the effects of noise generation by including in the planning of the work such factors as placing of plant, programming the sequence of operations and other management functions. Limit construction noise to comply with the requirements of NZS 6803, the requirements of the Resource Management Act sections 326, 327 and 328 and the Health and Safety in Employment Regulations 1995 clause 11.

1.9 ACCEPTABLE NOISE LEVELS

Refer to NZS 6803 Tables 2 and 3 for the upper limits of construction work noise received in residential zones, dwellings in rural areas, industrial areas and commercial areas, note also the allowed adjustments. Do not exceed these limits or any limits imposed by regional councils or territorial authorities.

1.10 PROVIDE INFORMATION TO NEIGHBOURS

Provide information to neighbours of any noise generation from the site liable to constitute a problem. Explain to them the means being used to minimise excessive noise and establish with them the timings most suitable for the noise generating work to be carried on.

Discuss with any complainant the measures being used to minimise noise. Where possible modify these measures to accommodate particular circumstances. Finally, determine the sound level at the location under discussion using methods and observation reporting as laid down in NZS 6803. If the noise level is above the upper limits of NZS 6803, table 2 and table 3, cease the noise generating operation and remedy the problem.

1.11 ADDITIONAL NOISE CONSTRAINTS

As confirmed by the engineer to the contract

1.12 INCONVENIENCE TO OTHERS

When the works are to be carried out in or around occupied premises, ascertain the nature and times of occupation and use. Carry out the works in a manner to minimise inconvenience, nuisance and danger to occupants and users.

1.13 ROADWAY AND FOOTPATH

Keep the adjacent footpath and road clear at all times. Where work must be carried out in the roadway or footpath, obtain required consents from the territorial authority. Where temporary use is made of the footpath or roadway for deliveries and the like ensure that public safety is protected and the goods and materials moved as soon as practicable. Sweep, wash and otherwise clean the roadway/footpath and restore it to its previous condition.

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1.14 VEHICLE CROSSING

Make good damage that has occurred as a result of carrying out the contract works. Where there has been significant damage, contact the territorial authority and obtain instructions for making good. Pay the territorial authority costs associated with making good.

1.15 TRAFFIC SAFETY

The management of traffic safety on-site and related traffic off-site, to WorkSafe Managing Work Site Traffic - Good Practice Guidelines. Movement on- and off-site also to territorial authority and/or NZTA requirements.

1.16 DIRT AND DROPPINGS

Remove dirt and droppings deposited on public or private thoroughfares from vehicles servicing the site to the satisfaction of the appropriate authorities and the contract administrator.

1.17 DAMAGE AND NUISANCE

Take precautions to prevent damage and nuisance from water, fire, smoke, dust, rubbish and all other causes resulting from the construction works.

1.18 SMOKE FREE REQUIREMENTS

In accordance with the Smoke Free Environments Act 1990 smoking is not allowed on site.

1.19 RESTRICTIONS

Do not:

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

Set-out and tolerances

1.20 SURVEY INFORMATION

Locate and verify survey marks and datum points required to set out the works. Where these do not exist or cannot be located advise the contract administrator who will arrange for the required points to be established.

Record and maintain their position. Re-establish and replace disturbed or obliterated marks.

1.21 DATUM

Establish a permanent site datum to confirm the proposed levels and their relationship to all other existing and new levels.

1.22 SET-OUT

Set out the work to conform with the drawings.

1.23 SET-OUT BY LICENSED CADASTRAL SURVEYOR

Before commencing construction provide the contract administrator with a certificate prepared by a licensed cadastral surveyor that the set-out is complete and that the building is accurately placed on the site.

During construction provide the contract administrator with a certificate, prepared by the same licensed cadastral surveyor confirming the set-out of the foundations and grid lines. Necessary adjustments are to be determined and agreed to by the contract administrator before proceeding further.

1.24 CONFIRM HEIGHT IN RELATION TO BOUNDARY

Arrange for the licensed cadastral surveyor to provide a certificate certifying that the building has been constructed within the allowed height in relation to boundary. Obtain details from the principal of the person they have engaged to carry out this certification and advise the surveyor when they can carry out the required survey.

Provide the certificate to the local authority. Provide a copy of the certificate to the contract administrator.



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1.25 USE OF SET-OUT INSTRUMENTS

Permit without charge, the use of instruments already on site for checking, setting out and levels.

1.26 CHECK DIMENSIONS

Check all dimensions both on drawings and site, particularly the correlation between components and work in place. Take all dimensions on drawings to be between structural elements before linings or finishes, unless clearly stated otherwise.

1.27 TOLERANCES

All work to be level, plumb, and true to line and face. Unless otherwise specified in specific work sections of this specification, tolerances for structural work shall comply with the following:

Concrete construction:	To NZS 3109 Concrete construction Clause 3.9 Tolerances for reinforcement Table 5.1 Tolerance for precast components Table 5.2 Tolerance for in situ construction To NZS 3114 Concrete surface finishes
Masonry construction:	To NZS 4210 Masonry construction: Materials and workmanship Clause 2.6.5 Tolerances Table 2.2 Maximum tolerances
Structural steelwork:	To NZS 3404.1 Steel structures standard Section 14.4 Tolerances (after fabrication) Section 15.3 Tolerances (erection)
Timber framing:	To NZS 3604 Timber-framed buildings Clause 2.2 Tolerances Table 2.1 Timber framing tolerances

Refer to work sections for tolerance requirements for finishes.

Execution

1.28 EXAMINE PREVIOUS WORK

Before commencing any part of the work carefully examine the previous work on which it depends, to ensure it is of the required standard.

1.29 REPORT DEFECTIVE PREVIOUS WORK

Refer defects to the contractor to be remedied, if the remedy is outside the scope of the contract documents the contractor shall obtain direction from the contract administrator. Do not carry out work over previous work that is defective and will affect the required standard.

1.30 EXECUTION GENERALLY

Construct the work in accordance with the documents issued for construction including any direction that may have been given by the contract administrator that varies the construction document.

1.31 EXECUTION - NO DETAIL IS PROVIDED

The documents issued for construction will not include all details relating to every material, junction and interface with other materials.

Where the detail provided is of a general nature, or where no detail is provided, refer to the manufacturer's documents for information relating to installation and execution of that part of the work.

Where there is more than one method or detail appropriate to the part of the work in question, refer the options to the Contract Administrator for direction as to which detail or method to use.

1.32 EXECUTION - ACCEPTABLE SOLUTION IS REFERRED TO

Where a NZBC Acceptable Solution is referred to in the specification but not shown on the plans, obtain a copy of that Acceptable Solution and make it available to the workers carrying out that part of the work.

1.33 MINIMISE DELAYS DUE TO WEATHER

Use appropriate techniques and methods to prevent damage and minimise delays due to weather.

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Defective or damaged work

1.34 DEFECTIVE OR DAMAGED WORK

Repair defective, damaged and marked elements, or replace them where repair is not possible or will not be acceptable. Adjust operation of equipment and moving parts not working correctly. Refer to individual work sections for any special requirements.

Hot work - fire safety

1.35 HOT WORK

Generally, to NZS 4781 Code of Practice for Safety in Welding and Cutting, includes but not limited to: Welding; flame cutting; disc cutting; grinding; bitumen blowers; blow lamps; brazing; burning off; soldering; use of hot air guns.

Note - where the standard refers to the use of asbestos, alternative fire-resistant materials are to be used.

1.36 COMBUSTIBLE MATERIAL

Manage fire risk to adjacent combustible materials by isolating hot work at a safe distance away, or store combustible materials away from fire hazards. Additional precautions may be necessary if combustible material cannot be separated from hot work, refer to NZS 4781, 6.1.4.

1.37 HOT WORK PERMIT

A hot work permit, issued by the main contractor, is required when it is not possible to isolate hot work from adjacent fire hazards. Refer to example in NZS 4781, Appendix A.

1.38 FIRE SYSTEMS

Fire systems should remain operational where possible while welding or cutting work is performed. Where required, shield fire systems to NZS 4781 clause 6.4.

1.39 DURING SUSPENDED WORK

Maintain a fire watch at least 30-minutes after hot works are suspended e.g. during lunch breaks or overnight, to NZS 4781, clause 6.2.7.

For hot works in confined spaces, prevent potential ignition of flammable gases, to NZS 4781 clause 6.5.

Qualifications

1.40 QUALIFICATIONS GENERALLY

The work is to be carried out by workers and / or supervisors who are experienced, competent and familiar with the materials and the techniques specified. Workers must also be familiar with the manufacturers' and suppliers' installation and application instructions and standard details provided by them in relation to the use of the products for this project. If requested provide evidence of qualification / experience.

1.41 QUALIFICATIONS WORKERS – RESTRICTED BUILDING WORK

Where restricted building work (RBW) forms part of the contract works, workers, or supervisors of that work must be licensed building practitioners (LBP) holding current licenses for the particular restricted building work.

For rare instances where non-RBW also requires an LBP refer to individual work sections for details.

1.42 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

Where required by a manufacturer or supplier, workers must be specifically trained /approved / accredited / registered / licensed / certified by them. Refer to individual work sections for details.

1.43 QUALIFICATIONS WORKERS – LICENSED UNDER STATUTE

Where workers and / or supervisors of work are required to be licensed, registered or similar under legislation, they must have a current license before they start the work and maintain currency until their part of the work has been completed and all documentation that is required has been provided.

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1.44 QUALIFICATIONS WORKERS – INDUSTRY QUALIFICATION REQUIREMENTS

Where workers and / or supervisors of work are required to be trained / licensed / certified or similar under industry rules or contractual requirements, they must have a current qualification before they start the work and maintain currency until their part of the work has been completed. Refer to individual work sections for details.

1.45 QUALIFICATIONS – PRODUCER STATEMENTS

Where producer statements are required for parts of the work, ensure that person is suitably qualified and authorized to issue such producer statements.

1.46 REPLACEMENT OF PERSON

Should it be necessary to replace a person, ensure that records of work, producer statements, warranties and the like required for the part of the work they have carried out are obtained.

Ensure that the replacement person takes responsibility for the work they carry out and that they are able to provide such records of work, producer statements, warranties and the like required as a condition of the contract and the building consent.

Products

1.47 NEW PRODUCTS

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

1.48 COMPATIBILITY OF PRODUCTS

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

1.49 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Protect products during transit and delivery on site and / or off site. Reject and replace goods that are defective or damaged or will not provide the required finish.

Handle products carefully to avoid damage and distortion and in accordance with codes of practice and the manufacturer's or supplier's requirements. Avoid any contact with potentially damaging surfaces or conditions.

Store products to avoid visual damage, environmental damage, mechanical damage and distortion. Store in accordance with codes of practice and the product manufacturer's or supplier's requirements. Maintain the proper condition of any protective packaging, wrapping and support.

Refer to individual work sections for any special requirements.

1.50 SUBSTRATE CONDITIONS

Ensure substrate conditions are within the manufacturer's or supplier's stated guidelines both before and during the installation of any material, product or system. Obtain written instructions on the necessary action to rectify unsatisfactory conditions.

1.51 INSTALLING PRODUCTS

Install in accordance with the manufacturer's or supplier's technical literature. Ensure that all installers are familiar with the required substrate conditions and the manufacturer's or supplier's specified preparation, fixing and finishing techniques.

1.52 COMPLY WITH STANDARDS

Comply with the relevant and/or cited Standard for any material or component. Obtain certificates of compliance when requested by the contract administrator.

1.53 CONDITION OF PRODUCTS

To be in perfect condition when incorporated into the work.



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1.54 INCOMPATIBLE PRODUCTS

Separate incompatible materials and metals with separation layers, sleeves or gaskets of plastic film, bituminous felt or mastic or paint coatings, installed so that none are visible on exposed surfaces.

Samples

1.55 SAMPLES FOR REVIEW

Where specified in the work sections submit samples and any nominated supporting documentation to the named reviewer and notify the contract administrator of the submission. Where no person is named as the reviewer, submit to the contract administrator.

Samples for review may be described as a portable sample for review, portable control sample, fixed sample for review or fixed control sample. A portable sample refers to a sample that is easily movable, convenient for carrying. A fixed sample refers to a sample that is not portable. If the location of a fixed sample is not defined in the work section, obtain direction from the contract administrator.

For samples that are located on site, or by agreement with the contract administrator are located off site, notify the reviewer and contract administrator of their location and availability for review.

Timing for the provision and review of samples is to be included in the contract programme. Where no time is stated in a work section allow 10 working days for each review. Allow for such resubmission and further review as may be required. No extension of time will be allowed for resubmission and further review.

Obtain written instructions in relation to the samples from the contract administrator. Do not proceed further with related work items until advised to continue.

Samples may be incorporated in the finished work if confirmed in writing by the contract administrator, otherwise allow to completely remove any fixed samples. Remove from the site any rejected samples.

Refer to SAMPLES clauses in work sections for further detail.

1.56 CONTROL SAMPLES

Samples become control samples if an instruction is given by the contract administrator to that effect. Control samples will be used for comparison purposes throughout the contract. Control samples may be portable or fixed in place, refer to SAMPLES clauses in work sections for further detail.

Control samples that are to remain on site, or otherwise in the care of the contractor, are to be maintained in original condition.

If confirmed by the contract administrator, fixed control samples may be incorporated in the finished work, otherwise allow to remove fixed control samples from site when instructed by the contract administrator.

1.57 OTHER SAMPLE REQUIREMENTS

Where specified in the work sections obtain samples for the purposes described.

Prototypes

1.58 PROTOTYPES - TESTING

Where specified in the work sections provide and test prototypes. Timing for the provision, testing, disassembling, re-assembling, retesting and review of prototypes and test results is to be included in the contract programme. Where no time is stated in a work section allow 10 working days for each review of test results. Submit test results to the named reviewer and to the contract administrator. Where no person is named as the reviewer submit test results to the contract administrator.

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Obtain written instructions in relation to the prototype from the contract administrator. Do not proceed further with related work items until advised to continue.

Refer to PROTOTYPES - TESTING clauses in work sections for further detail.

1.59 PROTOTYPES - REVIEW

Where specified in the work sections provide prototypes for review. Timing for the provision, disassembling, re-assembling and review of prototypes is to be included in the contract programme. Where no time is stated in a work section allow 10 working days for review by the named reviewer. Where no person is named as the reviewer notify the contract administrator for direction.

Obtain written instructions in relation to the prototype from the contract administrator. Do not proceed further with related work items until advised to continue.

Refer to PROTOTYPES - REVIEW clauses in work sections for further detail.

1.60 PROTOTYPES - GENERAL

Refer to the PROTOTYPES - TESTING and PROTOTYPES - REVIEW clauses in work section for details on what is to happen after the review and or testing of the prototype is complete. Where no information is provided refer to the contract administrator for direction.

Prototypes may become control samples if an instruction is given by the contract administrator to that effect.

Spares & maintenance products

1.61 SPARES & MAINTENANCE PRODUCTS

Collect, protect, package, label and store safely all spares and maintenance products specified in the work sections. Give the contract administrator an inventory of all spares and maintenance products.

If no instruction is given within a work section for the location of spares and maintenance products, then deliver to the owner as confirmed by the engineer to the contract.

If no instruction is given within a work section for timing in relation to the provision of spares and maintenance products, then provide at practical completion.

Refer to SPARES & MAINTENANCE PRODUCTS clauses in work sections for further detail.

Cleaning during the works

1.62 PERIODIC SITE CLEANING

Carry out periodic site cleaning during the contract period. Place waste material in appropriate storage pending removal from the site. Keep food waste separate from construction waste.

1.63 TRADE CLEANING

Keep the work area clean, remove of all debris, unused and temporary materials and elements from the site as work progresses and on completion. Refer to individual work sections for any specific requirements.

1.64 SPECIAL SITE CLEANING

As confirmed by the engineer to the contract

Remove protection

1.65 REMOVE PROTECTION

Remove all temporary markings, labels, packaging and coverings to products unless instructed otherwise, or where they are required for protection.

Maintain temporary protection until removal is required by the manufacturer/supplier, the execution of the work or the requirements of individual work sections. Re-establish protection as necessary.



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Remove temporary protection and special protection immediately prior to practical completion or before when there is no further risk of damage.

Refer to individual work sections for any special removal requirements.

Completion

1.66 SPECIAL REQUIREMENTS

Refer to individual work sections for any special completion requirements.

1.67 LEAVE WORK

Leave work to the standard required for the following procedures.

1.68 COMPLETION - TESTS & CERTIFICATION

Carry out tests as detailed in the work sections. If testing identifies a failure to meet performance requirements, notify the contract administrator and any nominated recipient, identify and correct the cause of failure and repeat the test. Submit test results and certification documentation to the contract administrator and any nominated recipient.

1.69 REMOVE CONSTRUCTION WASTE

Remove all debris, unused materials and the like from the site. Arrange for material to be recycled to be collected or delivered to the recycler.

1.70 COMPLETE ALL SERVICES

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

1.71 CLEANING BY CONTRACTOR

Clear the contract works of all construction materials, waste, dirt and debris. Clean the contract works including:

- Wipe all surfaces to remove construction dust.
- Clean out service ducts and accessible concealed spaces.
- Clean out all gutters and rainwater heads.
- Wipe dust from both sides of glass. Take particular care when removing paint or cementitious materials to not damage the glass. Do not use metal scrappers that may damage the glass.
- Remove adhesive residue left by labels and other temporary protection/markings.
- Clean out the interior of all cabinetry.
- Wash down external concrete including driveways and concrete masonry. Take care when waterblasting to not cause damage to the surface or allow water to enter the building.
- Remove rubbish and building material from the area immediately adjacent to the contract works.

1.72 CLEANING BY COMMERCIAL CLEANER

In addition to cleaning carried out by the contractor, use a commercial cleaning company to clean the whole of the interior of the building, including all appliances, equipment, fittings, surfaces and finishes to leave it without any blemish. Cleaning to include:

- Clean and wash down all external surfaces to remove dirt, debris and marking.
- Clean all interior surfaces including cabinetwork, joinery, sanitary and hardware items.
- Clean all floor finishes.
- Clean and polish all glass, both sides. Take particular care when removing paint or cementitious materials to not damage the glass. Do not use metal scrappers that may damage the glass.

Commissioning

1.73 SPECIAL REQUIREMENTS

Refer to individual work sections for any special commissioning requirements.

1.74 MOVING PARTS

Adjust, ease and lubricate all doors, windows, drawers, hardware, appliances, controls and all moving parts to give easy and efficient operation.

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1.75 COMMISSIONING - TESTS & CERTIFICATION

Carry out tests as detailed in the work sections. If testing identifies a failure to meet performance requirements, notify the contract administrator and any nominated recipient, identify and correct the cause of failure and repeat the test. Submit test results and certification documentation to the contract administrator and any nominated recipient.

1.76 INSTRUCTION AND DEMONSTRATION

Provide instruction and demonstration to the owner/occupier to the extent that is listed below and as required for them to reasonably occupy and use the building. This is to include at least the following:

- Location and isolation of all services connections.
- Operation of all emergency systems.
- Locking and security arrangements.
- Operation of basic building services including lighting, heating, mechanical ventilation, air conditioning and security.
- Special cleaning requirements and procedures.
- Any other features that the owner/occupier needs to know about.

1.77 SECURITY AT COMPLETION

Remove any temporary lock cylinders and complete final keying prior to handing over keys to the principal on completion of the works. Leave the works secure with all accesses locked. Account for all keys/cards/codes and hand to the principal along with an itemised schedule, retaining a duplicate schedule signed by the principal as a receipt.

Practical completion submission

1.78 ADDITIONAL PRACTICAL COMPLETION INFORMATION

In addition to requirements in the contract and contained elsewhere in the specification provide the following information submissions for practical completion:

- All documents which the contractor has obtained on behalf of the owner/occupier.
- Information required by the owner/occupier to be able to use the building.
- Advice that NUO accounts in the contractor's name have been closed and as appropriate changed to be in the name of the owner/occupier.
- A list of persons to be contacted to carry out any emergency or remedial work including 24 hour/7 day contact details.

1.79 ADDITIONAL PRACTICAL COMPLETION REQUIREMENTS

Refer to the conditions of contract for the definition of practical completion and the conditions relating to practical completion.

In addition to the requirements in the contract, the following conditions also apply:

- as confirmed by the engineer to the contract

Defects period submissions

1.80 DEFECTS REMEDIATION - SUBMISSIONS

Provide the following at periods required by the contract administrator, where no period is stated, provide this information monthly:

- A copy of the contractor's check list identifying remaining defects and omissions to be completed recording progress made in completing and correcting the items.
- A copy of lists issued by the principal/employer identifying omissions and defects recording progress made in completing and correcting the items.
- A copy of lists issued by the contract administrator identifying omissions and minor defects recording progress made in completing and correcting the items.

Completion submissions

1.81 FINAL COMPLETION - SUBMISSIONS

In addition to requirements in the contract and contained elsewhere in the specification provide:

- Contractors advice that all defects have been corrected and omissions and deferred work completed.
- All documents which the contractor has obtained on behalf of the owner/occupier.

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1270S1 SCHEDULE OF SAMPLES & PROTOTYPES

1 GENERAL

This schedule section identifies work sections in the specification that have requirements for:

- The submission of samples
- The submission of prototypes for review
- The provision and testing of prototypes

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- 1270 CONSTRUCTION
- Identified Work Sections

Samples

1.2 SAMPLES

Refer to the following sections:

6211 Wall Tiling Systems

1.3 SAMPLES - ADDITIONAL ITEMS

Refer to separate documentation for sample requirements not contained within this specification.

Prototypes

1.4 PROTOTYPES - REVIEW

Refer to the following sections:

4821 Flashings

1.5 PROTOTYPES - TESTING

There are no work section requirements.

1.6 PROTOTYPES - ADDITIONAL ITEMS

Refer to separate documentation for prototype requirements not contained within this specification.



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1270S2 SCHEDULE OF SPARES & MAINTENANCE PRODUCTS

1 GENERAL

This schedule section identifies work sections in the specification that have requirements for spares and maintenance products.

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- 1270 CONSTRUCTION
- Identified Work Sections

Spares & maintenance products

1.2 SPARES & MAINTENANCE PRODUCTS

Refer to the following sections:

5811	Signs & Displays
6211AW	Ardex Wall Tiling
6221A	ARDEX Floor Tiling Solutions

1.3 SPARES & MAINTENANCE PRODUCTS - ADDITIONAL ITEMS

Refer to separate documentation for sample requirements not contained within this specification.

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1278SR SCHEDULE OF SLIP RESISTANCE TESTING

1 GENERAL

This section relates to the testing of surfaces for slip resistance. It includes:

- test methods and minimum test values required for slip resistance testing.
- general reporting requirements.

This section includes schedules identifying work sections with:

- slip resistant surfaces exempt from testing and slip resistant surfaces that have been tested and comply with NZBC D1/AS1 requirements for testing.
- surfaces that require slip resistance testing.

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- Work sections identified in the schedule(s)

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:

BPN	British Pendulum Number
COF	Coefficient of friction
SDV	Slope design value
SRV	Slip resistance value

Documents

1.3 DOCUMENTS

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

NZBC D1/AS1	Access routes
AS 4586	Slip resistance classification of new pedestrian surface materials

Slip resistance - surfaces not requiring testing

1.4 SLIP RESISTANCE - SURFACES EXEMPT FROM TESTING

Walking surfaces on access routes that do not require testing for slip resistance include surfaces identified in NZBC D1/AS1, Table 2 as acceptable. These surfaces are covered in the following Work sections:

6312J Jacobsen Timber Flooring

1.5 SLIP RESISTANCE - PREVIOUSLY TESTED SURFACE

There are no work section requirements.

Slip resistance - surfaces requiring testing

1.6 SLIP RESISTANCE - SURFACES REQUIRING TESTING

Refer to the following work sections for surfaces to be tested for slip resistance, including location, test condition, slope requirement and specific reporting requirements:

6221A ARDEX Floor Tiling Solutions

1.7 TEST METHODS & MINIMUM TEST VALUES

Refer to tables below for test methods and minimum test values required for the stated test condition.

Test condition:	Minimum test value required:	Test method:

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Level access wet	39 SRV	Wet pendulum test method of AS 4586, Appendix A using the Slider 96 rubber.
Sloping access wet	Refer to sloping access wet table below, select BPN value for stated slope.	Wet pendulum test method of AS 4586, Appendix A
Stairs wet - with slip resistant nosings	39 SRV	Wet pendulum test method of AS 4586, Appendix A using the Slider 96 rubber.
Stairs wet - without slip resistant nosings	50 BPN	Wet pendulum test method of AS 4586, Appendix A
Wet areas primarily used barefoot	“B” Classification	Obtain classification from the ramp method of AS 4586, Appendix C
Level access dry	0.4 COF	Obtain slip resistance value from the dry floor friction test method of AS 4586, Appendix B
Sloping access dry	Refer to sloping access dry table below, select COF value for stated slope.	Obtain slip resistance value from the dry floor friction test method of AS 4586, Appendix B
Stairs dry - with slip resistant nosings	0.4 COF	Obtain slip resistance value from the dry floor friction test method of AS 4586, Appendix B
Stairs dry - without slip resistant nosings	0.525 COF	Obtain slip resistance value from the dry floor friction test method of AS 4586, Appendix B

Sloping access wet - minimum test values required for a given slope

Minimum test value required (SDV)	Maximum gradient	Maximum slope in degrees
42 BPN	1 in 39	1.5°
43 BPN	1 in 29	2.0°
44 BPN	1 in 23	2.5°
45 BPN	1 in 20	3.0°
45 BPN	1 in 17	3.5°
46 BPN	1 in 15	4.0°
47 BPN	1 in 13	4.5°
48 BPN	1 in 12	5.0°
49 BPN	1 in 11	5.5°
50 BPN	1 in 10	6.0°

Sloping access dry - minimum test values required for a given slope

Minimum test value required (COF)	Maximum gradient	Maximum slope in degrees
0.433	1 in 39	1.5°
0.444	1 in 29	2.0°
0.455	1 in 23	2.5°
0.466	1 in 20	3.0°
0.477	1 in 17	3.5°
0.488	1 in 15	4.0°
0.499	1 in 13	4.5°
0.504	1 in 12	4.76°
0.521	1 in 11	5.5°
0.525	1 in 10	5.7°
0.543	1 in 9	6.5°

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0.557	1 in 8	7.125°

1.8 GENERAL REPORTING REQUIREMENTS

Provide slip resistance test results to the contract administrator, including a statement that the tested surface meets or exceeds the nominated minimum test value. Refer to individual work sections for additional requirements. If no time is nominated for the submission of test results in the work section, then provide test results prior to practical completion.

If testing identifies a failure to meet performance requirements, notify the contract administrator and manufacturer/supplier. Consult with the manufacturer/supplier to identify the cause, then correct the failure and repeat the test.

Slip resistance - additional items

1.9 SLIP RESISTANCE - ADDITIONAL ITEMS

Refer to separate documentation for slip resistance requirements not contained within this specification.

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2111 DEMOLITION

1 GENERAL

This section relates to the demolition of existing buildings and structures to the extent necessary to carry out the contract works.

1.1 RELATED WORK

Refer to ~ for ~.

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 F5/AS1	Construction and demolition hazards
NZS 6803	Acoustics - Construction noise
NZDAA	Best practice guidelines for demolition in New Zealand

Health and Safety at Work Act 2015
Health and Safety at Work (Hazardous Substances) Regulations 2017

Requirements

1.3 QUALIFICATIONS

Carry out demolition:

- only under the supervision of a suitably experienced person, using only operators and drivers trained for this work
- using only experienced certified/licensed construction blasters for explosives demolition
- calling upon engineering expertise in those areas of demolition required by the NZDAA - Best practice guidelines for demolition in New Zealand.

1.4 NOTIFIABLE WORK

Notify the appropriate WorkSafe office of work, 24 hours before starting the work, or for explosives, at least 3 working days before to the Health and Safety at Work (Hazardous Substances) Regulations.

1.5 NOISE

Refer to NZS 6803 tables 2 and 3 for the upper limits of construction work noise in residential and industrial areas over the various time periods, particularly 0730 to 1800 hours and plan the work using silenced and noise insulated plant to comply with those requirements. Do not exceed these limits, or any more stringent limits imposed by the territorial authority.

1.6 HEALTH AND SAFETY

Comply with the Health and Safety at Work Act 2015 in general, NZBC F5/AS1 and NZDAA - Best practice guidelines for demolition in New Zealand, in particular section 4.8 Site-specific health, safety and environmental (HSE) plan and 4.9 Hazard management and recording

1.7 EXPLOSIVES

Do not use explosives except with the written approval of the territorial authority/WorkSafe. Comply with their safety requirements and use construction blasters holding a current, appropriate Approved Handler Certificate and Controlled Substance Licence issued by WorkSafe, to the Health and Safety at Work (Hazardous Substances) Regulations.

1.8 EXISTING FIRE SAFETY SYSTEMS

During partial demolition work any existing fire safety systems must be maintained and in demolition areas progressively deactivate affected parts of systems as demolition advances.

During full demolition any existing building hydrant system must be maintained and progressively deactivated as demolition advances. Once below the appropriate limits prescribed in NZBC C/AS2, 2.2 Fire safety systems, the whole remaining system can be removed.
Compliant temporary facilities may be required during this work.

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Performance

1.9 BUILDING CONSENT REQUIREMENTS

Demolition work to be carried out to building consent requirements

1.10 INSPECTIONS

Inspection of the demolition work to take place at each of the stages as scheduled in the building consent. Confirm a written programme to facilitate these inspections, including notification when each stage of the work is ready for inspection.

Obtain and pay for any required inspections which are additional to the building consent.

1.11 DEMOLITION PLAN (METHOD STATEMENT)

Prepare a written demolition plan including sketches as described in the NZDAA - Best practice guidelines for demolition in New Zealand, section 4.7 Demolition plan (method statement) and covering:

- the extent of the work
- the plant being used
- the proposed method for each roof, wall and floor
- hazard identification
- hazard assessment and control
- precautions for safety of employees on site
- precautions for persons in the vicinity
- emergency procedures
- proposed dust controls
- proposed noise controls
- proposed vibration control
- precautions for safety of the public.

1.12 PLAN APPROVAL

Provide copies of the demolition drawings and/or plan for review by the architect/engineer before proceeding. Also submit the drawings and/or plan to WorkSafe when required under the NZDAA - Best practice guidelines for demolition in New Zealand.

1.13 HOT WORK - FIRE SAFETY

Refer to 1270 CONSTRUCTION

2 PRODUCTS

Materials

2.1 ELEMENTS FOR DEMOLITION AND DISPOSAL

Demolish, remove from site and dispose of elements and components to be demolished which are not otherwise to be salvaged or re-used.

2.2 REMAINING ELEMENTS

Store all elements not scheduled for salvage or re-use on site until convenient for removal.

2.3 REMOVAL OF DEMOLITION MATERIAL FROM SITE

Remove demolished material and elements continually from the site through the period of the demolition.

3 EXECUTION

Conditions

3.1 EXISTING SERVICES

Notify the network utility operators and arrange for them to locate the position of all services adjacent to and entering the site. Disconnect and seal off services before work commences. Protect services adjacent to the site.

3.2 USE THE CHECK LISTS

Use the checklists included in the NZDAA - Best practice guidelines for demolition in New Zealand,

- Appendix A: Demolition hazards

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- Appendix B: Excavator checklist
- Appendix C: Pre-demolition checklist
- Appendix D: Demolition safety checklist

to ensure that all major points in this contract are covered.

3.3 SITE INSPECTION

Visit and check the site, the building or structural work being demolished and any contents for likely hazards.

3.4 ADJOINING BUILDINGS

Check the relationship and condition, including the contents of adjoining buildings to ensure they will not be adversely affected by the demolition work.

3.5 PLANS AND DESCRIPTIONS

Carefully examine all available plans of the building, including those of the territorial authority and the network utility operators, all descriptions and past uses, and become totally familiar with the past and present condition and use of the building and its services.

3.6 LOADINGS

If intending to use heavy plant and machinery or load debris on roofs and floors, allowable loadings must first be calculated by a suitably qualified person. Use propping or strengthening if necessary.

3.7 EXAMINE STRUCTURE

Examine roofs, walls, cantilevered structures and basements as required by the Approved code of practice for demolition and follow their requirements.

3.8 WELLS AND UNDERGROUND STORAGE TANKS

Refer to NZDAA - Best practice guidelines for demolition in New Zealand, section 5.22 Storage tanks. Test for flammable vapours or any other hazardous gases and follow established procedures to manage any hazards.

3.9 SPECIAL BUILDINGS

Refer to the NZDAA - Best practice guidelines for demolition in New Zealand and follow the advice given in respect of caution and the obtaining of advice.

3.10 DO NOT DISTURB SUPPORT

Do not disturb support to foundations of buildings on adjoining property, or the ground of adjoining property.

3.11 ADJOINING BUILDINGS

Refer to NZDAA - Best practice guidelines for demolition in New Zealand, section 5.28 Protection of properties. Where demolition exposes the walls of buildings on adjoining property, ensure they are self-supporting. If not, make provision for and provide the necessary support, stability and protection until the permanent construction work making them self-supporting is carried out.

3.12 EXPOSED WALLS, ADJOINING BUILDINGS

Refer to NZDAA - Best practice guidelines for demolition in New Zealand. Protect and make weathertight temporarily with 0.125mm black polythene film. Lap and tape joints to the manufacturer's requirements and nail or masonry nail to the wall face with 50mm x 25mm timber battens at 600mm centres.

3.13 SAFETY DURING DEMOLITION

Refer to NZBC F5/AS1 and the NZDAA - Best practice guidelines for demolition in New Zealand. Carry out the requirements laid down in section 5 Demolition safety in respect of:

- instability
- supervision
- plant, tools and equipment
- personal protective equipment
- protection of the public
- unauthorised access to site.

3.14 DEMOLITION PROCEDURES

Refer to NZDAA - Best practice guidelines for demolition in New Zealand. Carry out demolition to the requirements laid down in section 6 methods of demolition including:

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- scaffolding
- health
- disposal of debris and waste material
- fire protection.

3.15 BUILDINGS

Refer to NZDAA - Best practice guidelines for demolition in New Zealand. Carry out the requirements in respect of:

- buildings
- prestressed concrete structures
- storage tanks
- underwater demolition
- fire-damaged buildings.

3.16 HAND TOOL AND PERSONAL PROTECTIVE EQUIPMENT

Refer to the NZDAA - Best practice guidelines for demolition in New Zealand. Carry out the requirements laid down in section 5.14 Plant, tools and equipment and section 5.32 Personal protective equipment (PPE) and clothing (PPC), for:

- hand tools
- power tools
- personal protective equipment
- cutting and welding.

Application

3.17 CARRY OUT DEMOLITION

Carry out all demolition to the requirements of the WorkSafe Approved code of practice for demolition.

3.18 METHOD OF DEMOLITION

Refer to NZDAA - Best practice guidelines for demolition in New Zealand, Section 6 Methods of demolition. Carry out the selected methods in the demolition plan for this work, to the requirements under the following methods of demolition:

- by hand
- with the ball
- by pusher arm
- by deliberate collapse
- by wire rope pulling
- by explosion or implosion
- using power grapples and shears
- by other methods.

3.19 CONTAMINATED SITES

If the site is chemically contaminated carry out the procedures, management and control to NZDAA - Best practice guidelines for demolition in New Zealand, Section 7 Guidelines for clean-up of contaminated sites.

3.20 DIG OUT

Dig out foundations, footings, basement, floor slabs, paths, drains, cesspits and manholes that are part of or service the demolished building. Leave the voids that result. Do not backfill.

Completion

3.21 MAKE GOOD

Make good damage to adjoining buildings or property caused by demolition work.

3.22 REINSTATE

Reinstate where any damage is caused by this demolition to those parts of the existing building, other buildings and the remainder of the site being retained.

3.23 LEAVE

Leave work to the standard required by following procedures.

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3.24 TAKE AWAY

Take away from the site all plant, tools and equipment, temporary access works, and demolished materials and elements, to leave the site completely clean and tidy.

4 SELECTIONS

4.1 DEMOLITION TIME RESTRICTIONS

8Demolition work is restricted to:

Weekdays:	8am to 5pm
Saturdays:	8am to 1pm
Sundays:	n/a
Public holidays:	n/a

4.2 DEMOLITION WASTE REMOVAL RESTRICTIONS

The removal of demolition waste material is restricted to:

~

4.3 ELEMENTS FOR SPECIAL PROTECTION

Element/component	Location/Special protection required
Mature trees identified as remaining	protection to roots at drip line and exclusions zones set to prevent activity around trees.

4.4 ELEMENTS FOR DEMOLITION AND DISPOSAL

Element/component	Location
Laundry and Storage Building	Zone 1 area
Asphalt forecourt as required by Civils	Zone 1 between new units and existing units
Landscaping effected by works	Zone 1

4.5 ELEMENTS FOR SALVAGE AND DISPOSAL BY CONTRACTOR

Salvage the following elements.

Element/component	Location	Disposal requirements
~		



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2221 REMOVING VEGETATION

1 GENERAL

This section relates to the removal of vegetation, trees and shrubs in whole or in part, to the extent necessary to carry out the contract works.

Related work

1.1 RELATED SECTIONS

Refer to Civils, landscaping and Architecture drawings for extent of works.

2 EXECUTION

Conditions

2.1 FIRES

Do not light rubbish fires on site.

2.2 REPORT

Report any survey pegs, bench marks and the like on any features, leaving them undisturbed until approval is given for removal.

2.3 RETAINED TREES AND SHRUBS

Refer to SELECTIONS/drawings for those to be retained and protected. Mark trees and shrubs using yellow plastic tapes or tags and keep the tapes permanently in place throughout the work.

2.4 PROTECT TREES AND SHRUBS

Protect trees and shrubs being retained from damage with substantially staked and orange plastic netting covered enclosures, 1800mm high and 900mm clear of the trunk.

2.5 RETAINED FEATURES

Refer to SELECTIONS/drawings for those features to be retained. Mark out those features with 1 metre high 50mm x 50mm timber stakes with yellow plastic tape between, to avoid accidental damage.

Application

2.6 CUT DOWN AND REMOVE

Except for identified retained vegetation or features, cut down all growth, grub up all major roots and remove from the site. Identify perennial weeds to be removed. Where regrowth can occur from residual plant material, ensure all plant material (including roots) is completely removed. Dispose of safely at authorised refuse transfer station.

Completion

2.7 LEAVE

Leave work to the standard required by following procedures.

2.8 TAKE AWAY

Take away from the site all material resulting from clearance of the site, leaving it clear and tidy.

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3 SELECTIONS

3.1 RETAINED TREES AND SHRUBS

Trees as outlined in landscape and architecture drawings

3.2 RETAINED FEATURES

shrubs and trees outside of construction zone. Retain landscaped retaining walls and batter land up against to create landscape features

3.3 PRUNE OR PARTIALLY REMOVE

Trees identified as being in the way of the 3 blocks and prune back shrubs as required to allow for works.

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2223 REMOVING SUBSURFACE CONSTRUCTIONS

1 GENERAL

This section relates to the removal of disused subsurface building elements in whole or in part, including foundations and services, to the extent necessary to carry out the contract works.

Related work

1.1 RELATED SECTIONS

Refer to ~ for ~.

1.2 DOCUMENTS REFERRED TO

Documents referred to in this section are:

Health and Safety at Work Act 2015

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

Requirements

1.3 EXPLOSIVES

Confirm territorial authority and WorkSafe approvals before storing or using explosives on site. Comply with all requirements of the Health and Safety at Work Act 2015. Only certified/licensed construction blasters to manage, handle, or use explosives.

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 EXECUTION

Conditions

2.1 REPORT

Report any survey pegs, bench marks, and the like on any features, leaving them undisturbed until approval is given for removal.

2.2 MARK FEATURES

Refer to SELECTIONS/drawings for those features to be retained. Mark out those features with 1 metre high 50mm x 50mm timber stakes with yellow plastic tape between, to avoid accidental damage.

2.3 ITEMS FOR DISPOSAL

Carefully dismantle and/or remove and store on site where directed. Protect from damage until taken away.

Application

2.4 REMOVE DISUSED FOUNDATIONS

Break out and remove old foundations and concrete slabs as necessary for construction, or as detailed.

2.5 REMOVE DISUSED PILES

Unless detailed for removal, cut off below grade, at or below sub-base level.

2.6 REMOVE DISUSED DRAINS

Break out and remove old drains and fittings as necessary for construction, or as detailed. Seal off ends of pipes to territorial authority requirements at the boundaries.



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Completion

2.7 FIRES

Do not light rubbish fires on site.

2.8 SURPLUS MATERIAL

Remove spoil from the site continually as the work proceeds. Clean up continually if dropped on footpaths or roads.

2.9 LEAVE

Leave work to the standard required by following procedures.

2.10 TAKE AWAY

Take away from the site all other material resulting from clearance of the site, leaving it clear and tidy.

3 SELECTIONS

3.1 FEATURES TO BE RETAINED

refer to Civils drawings. Remove landscaped island next to Reception. Reduce asphalt hard standing to extent of proposed road and parking in line with Civil engineers design

3.2 ITEMS FOR DISPOSAL

Items for removal but remaining the property of ~ are ~.



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2241 EXCAVATION

1 GENERAL

This section relates to the excavating required for the building works, removing surface soils and the disposal of excavated material.

Related work

1.1 RELATED SECTIONS

Refer to Structural and Civil Design for extent of excavation works.

Documents

1.2 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZS 4402	Methods of testing soils for civil engineering purposes
WorkSafe	Good Practice Guidelines - Excavation Safety

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

Requirements

1.3 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.

Performance

1.4 ACCESS FOR MACHINES

Determine working conditions and access for machines. Take into account the time of year, the nature of the ground and subsoil to be excavated, the ground water table and all matters influencing the carrying out of the work.

1.5 SAFE WORKING CONDITIONS

Provide safe working conditions and adequate support to excavations at all times to WorkSafe, Good Practice Guidelines - Excavation Safety. Cover holes and fence off trenches and banks.

1.6 FOUNDATION BEARING

Request written instructions if a natural bearing is:

- reached at a lesser depth or
- not reached at the depth shown on the drawings.

In made-up ground excavate down to a natural bearing. Remove unsuitable material that is exposed and replace with compacted backfill.

1.7 INSPECTION

Arrange for inspections and before placing any new work. If bearing becomes inadequate due to any cause then stop work and request further instructions.

1.8 SITE MEASUREMENT, OTHER FORMATIONS

If for any reason the excavations have to vary from the drawings, those affected to be solid measured and the quantity recorded and agreed to in writing as the excavation proceeds.

2 PRODUCTS

Materials

2.1 TOPSOIL

Weathered soil, with organic inclusions capable of supporting the growth of vegetation.

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2.2 CUT MATERIAL

Consisting of sands, gravels, sedimentary materials, clays, scoria and similar deposits.

2.3 ROCK

Defined as material encountered in excavations which because of its size or position can be removed only by breaking up by explosives or mechanical plant such as jack hammers or percussion drills.

2.4 UNCONTROLLED FILL

Variable fill material placed with little or no compaction control.

2.5 EXCAVATED FILL

Material from other formations in the excavation which may be selected and approved as suitable for filling and complying with NZS 4402 by having grading and moisture content properties that will allow compaction to 95% of maximum density.

3 EXECUTION

Conditions

3.1 REPORT

Report any survey pegs, bench marks, and the like on any features, leaving them undisturbed until approval is given for removal.

3.2 RETAINED FEATURES

Refer to SELECTIONS/drawings for those features to be retained. Mark out those features to be retained with 1 metre high 50mm x 50mm timber stakes with yellow plastic tape between, to eliminate accidental damage.

3.3 COMPLY

Comply with the requirements of WorkSafe, Good Practice Guidelines - Excavation Safety.

3.4 WORK BY OTHERS

Before taking over work done on the site by others check all levels and conditions and report any discrepancies affecting further work.

3.5 EXISTING SERVICES AND FOUNDATIONS

Locate underground services and foundations before work is started. Any information provided regarding the location of these services and foundations is given from available records but with no guarantee of accuracy as regards alignment or depth. Furthermore no guarantee is given or implied that the information provided covers all existing services and foundations. Make good at no extra cost damage to existing services to the satisfaction of the appropriate network utility operator. Protect existing roads, footpaths, gutters, crossings etc from damage during work.

3.6 EXCAVATION NEAR TREES

Do not excavate or remove topsoil within the drip line of retained trees unless specifically directed. If excavation is directed, use hand methods, taking care to avoid damage to roots. Do not cut roots greater than 50mm diameter. Do not stockpile spoil against tree trunks or beneath the drip line of retained trees. Report any damage to tree boles or branches, with necessary remedial work by an approved tree surgeon.

3.7 KEEP FREE OF WATER

Keep excavations free from water and keep water from excavations clear of other construction work.

3.8 TERRITORIAL AUTHORITY REQUIREMENTS

Obtain from the territorial authority requirements for the method of discharging water from the site.

3.9 FORM SUMPS

Form sumps outside the line of foundations and deep enough to drain excavations. Pump from sumps without disturbing excavations or any material in place.

3.10 SILT CONTROL

Undertake silt control measures required by territorial authorities and network utility operators in relation to design, location and discharge into the drainage system.

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Application

3.11 STRIP TOPSOIL

Strip topsoil carefully over the whole site and stockpile where directed on the site, on the prepared subgrade, for re-spreading at the completion of the contract.

3.12 STRIP TO SUBGRADE

Strip the soil over the whole site to form a subgrade generally, but at a minimum of 200mm below the original ground level. Leave the subgrade level, clear of all loose material and with no impediment for the excavation work.

3.13 DIVERT WATERWAYS

Temporarily divert as necessary all ditches, field drains and other waterways encountered during the excavations and reinstate to approval on completion.

3.14 DIVERT DRAINS AND SERVICE LINES

Divert services, drains and field drains encountered in the excavations to new routes clear of the building and reconnect to the requirements of the network utility operator.

3.15 BREAK OUT

Break out and remove old foundations, floor slabs, drains, manholes and septic tanks, seal up connections and remove contaminated soil. Grub out roots in excess of 75mm diameter to a minimum of 500mm below the bottom level of footings or paving. Backfill with selected excavated material, well rammed in layers.

Take special care when working close to retained trees and shrubs.

3.16 EXCAVATION GENERALLY

Excavate for pads, strip foundations and tie beams to the profiles and levels shown on the drawings. Allow clearance for working space and formwork as necessary. Trim to required profiles, falls and levels. If pouring against natural ground excavate an extra 25mm that side to provide 75mm minimum cover to reinforcement horizontally. Bench surface of sloping ground to receive filling.

Use plant and equipment suitable for the purpose.

3.17 OVER EXCAVATION

Make good with well compacted backfill.

3.18 EXCAVATED BACKFILL

Stockpile selected excavated backfill on site where directed so that it does not impede continuing works until it is required.

Finishing

3.19 BATTERS, TEMPORARY PROTECTION

Protect batters with a change of level between crest and toe of more than 1.5 metres from weather erosion with a waterproof covering of either hessian and tar, or heavy duty black polythene sheet. Seal at joints and securely fix down at crest and toe. Maintain coverings in good condition until the ground is secured by permanent construction.

Completion

3.20 LEAVE

Leave work to the standard required by following procedures.

3.21 SURPLUS TOPSOIL

Remove unwanted stripped soil from the site continually as the work proceeds. Clean up continually any soil if dropped on footpaths or roads.

3.22 SURPLUS MATERIAL

Remove surplus excavated material from the site continually as the excavation proceeds. Clean up continually any excavated material dropped on footpaths or roads.

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4 SELECTIONS

4.1 RETAINED FEATURES

retain all landscape features outside of works demise

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2242 BACKFILLING

1 GENERAL

This section relates to the supply, placing and compaction of materials for backfill, basecourse or built-up ground, as required for the contract works.

Related work

1.1 RELATED SECTIONS

Refer to Civil, Structures and Geotechnical Documents for extent of backfilling.

Documents

1.2 DOCUMENTS

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

NZS 3104	Specification for concrete production
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
NZS 4431	Code of practice for earth fill for residential development
NZS 4402	Methods of testing soils for civil engineering purposes
NZTA F2	Specification for pipe subsoil drain construction
TNZ M/04	Specification for basecourse aggregate
NZCMM	NZ Concrete Masonry Manual section 6.1 Masonry Retaining Walls

1.3 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:	~

Requirements

1.4 AS BUILT DOCUMENTS - NZS 4431

Refer to the general section 1238 AS BUILT DOCUMENTATION for the requirements for submission and review of as built documents and records.

Provide the following as built documents and records:

- Provide as built contour plan relating final topography to original topography.
- Record areas of filled ground including areas of low density filling and areas not considered to meet the standard.
- Record location of associated drainage.
- Record location and relative levels of levelling points and benchmarks, including the date of the levelling
- Provide draft as built information prior to practical completion.
- Provide final as built information prior to the end of the defects liability period.
- Provide copies to the owner of the land and to the TA

1.5 CONTROL TESTING FOR FILLS - NZS 4431

During construction of earth fills undertake required quantitative control tests on the fill material.

1.6 INSPECTION NOTIFICATION - NZS 4431

Notify the inspecting engineer of the times required for inspection.



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1.7 INSPECTION NOTIFICATION

Notify the inspecting engineer of the times required for inspection.

1.8 STATEMENT OF SUITABILITY - NZS 4431

Provide a statement of suitability of earth fill for residential development in accordance with Appendix A of NZS 4431, including engineers report.

2 PRODUCTS

Earth fill materials

2.1 EARTH FILL – COMMERCIAL AND INDUSTRIAL DEVELOPMENTS

Earth fill as specified/identified by the geo-professional. Refer to SELECTIONS.

Granular fill materials - Specific Design

2.2 GRANULAR FILL MATERIAL – SPECIFIC DESIGN

Refer to SELECTIONS.

2.3 BLINDING LAYER – SPECIFIC DESIGN

Refer to SELECTIONS.

Simple standalone concrete masonry retaining walls

2.4 GRANULAR FILL MATERIAL – NZCMM section 6.1

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 4402.2, 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
600µm	18-40
300µm	3-25
150µm	8 maximum
75µm	0

2.5 BEDDING & BACKFILL - SUB SOIL DRAIN

Drainage metal surround comprising of filter material to the NZTA F2 specification.

Pipe bedding not less than 75mm deep. Backfill not less than 300mm deep.

Concrete pavements

2.6 SUBGRADE - CONCRETE PAVEMENTS

Refer to SELECTIONS.

2.7 SUBBASE - CONCRETE PAVEMENTS

Refer to SELECTIONS.

Dressing course

2.8 DRESSING COURSE

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

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Drainage materials

2.9 EXPANDED POLYSTYRENE FOAM DRAINAGE SHEET

Expanded polystyrene (EPS) sheets offering drainage. Refer to SELECTIONS.

Geotextile Fabric

2.10 GEOTEXTILE FABRIC

Geotextile fabric. Refer to SELECTIONS.

3 EXECUTION

Conditions

3.1 UNSUITABLE MATERIALS

Remove from site all unsuitable filling material.

3.2 SPREAD SURPLUS

Spread and level surplus imported filling materials where directed.

3.3 PLACE FILLING

Place filling using approved methods, to required dimensions, levels, lines and profiles.

3.4 PROTECTION OF FORMATION

Do not allow construction traffic on filling until the level has been raised not less than 150mm above formation level by properly compacted temporary protective filling. Remove temporary protective filling from the site before beginning permanent construction. Do not stockpile materials on newly filled areas without permission.

3.5 DIFFERING MATERIALS

Where materials of widely divergent characteristics are used for filling, spread and compact in clearly defined separate layers.

3.6 EARTHMOVING EQUIPMENT

Do not use earthmoving equipment for compaction.

3.7 COMPACTION NEAR EDGE SUPPORTS

Ensure that edge supports are strong enough to support compaction forces without movement, cracking or other damage. Make good damage caused by compaction.

3.8 MOISTURE CONTENT, GENERAL FILL

Moisture content at time of compaction to be within the range of optimum less 6% up to optimum. Do not use filling with moisture content above optimum value. If necessary:

- adjust moisture content of filling by turning and drying
- provide water sprinkling equipment if fill is too dry.

Application - Earth fill materials

3.9 SITE PREPARATION - NZS 4431

Before fill is placed on stripped natural ground, the ground surface shall be smoothed and compacted in a manner similar to that to be used on the layers of fill.

3.10 FILL PLACING - NZS 4431

Fill shall be placed in a systematic manner, with near-horizontal layers of uniform thickness of material each being deposited progressively across the fill area. The uncompacted thickness of a layer shall be no greater than 230 mm. Fill water content control and uniformity to the requirements of NZS 4431.

3.11 FILL COMPACTION - NZS 4431

Each layer shall be compacted as a specific construction operation, using plant specifically assigned to the compaction task and following systematic patterns of travel tracks which progressively work across the surface of the fill. Recompact any compacted layer that has deteriorated after the interruption of the work.

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Application - Granular fill material

3.12 SPREAD AND COMPACT GRANULAR FILL - GENERAL

Spread and level in layers not more than 150mm loose depth from the approved level. Compact filling in layers as specified by at least four passes of a vibratory roller having a static linear loading of 1.8 - 2.3 kg/mm, or twelve passes of a vibratory roller having a static linear loading of 0.8 - 1.2 kg/mm. Achieve a density of not less than 95% of maximum at optimum moisture content to NZS 4402. Compact with a vibrating plate compactor for small areas and in confined shapes.

Alternative compaction plant may be used provided it can be shown that the density requirement can be achieved.

3.13 SAND BLIND SURFACE

Blind surface of area being covered with a concrete slab with sand to required thickness. Roll or compact with a vibrating plate tamper ready to take damp-proofing. Finish the surface with a non-vibrating smooth wheeled roller.

3.14 AP 7 BLIND SURFACE

Blind surface of area being covered with a concrete with AP 7 to required thickness. Roll or compact with a vibrating plate tamper ready to take damp-proofing. Finish the surface with a non-vibrating smooth wheeled roller.

Application - Geotextile Fabric

3.15 GEOTEXTILE FABRIC

Install geotextile fabric to manufacturer's requirements.

3.16 PROTECT RETAINING WALL TANKING

Protect tanking membranes with protection sheets fixed/placed in accordance with manufacturer's requirements.

3.17 BACKFILL TO RETAINING WALLS - NZCMM section 6.1

Place granular fill in layers not exceeding 150 mm thick loose depth. Compact to provide support of not less than that of the adjacent material. Where geocomposite drain is used, the backfill shall follow the manufacturer's recommendations.

Completion

3.18 LEVELLING POINTS - NZS 4431

Set permanent levelling points in the upper surface of the fill to the requirements of NZS 4431.

3.19 LEAVE

Leave work to the standard required by following procedures.

3.20 REMOVE

Remove all debris and unused materials from the site.

4 SELECTIONS

Earth fill

4.1 EARTH FILL – COMMERCIAL AND INDUSTRIAL DEVELOPMENTS

Location: As denoted on Civil and Structural Documents
Type: ~

Granular fill - specific design

4.2 GRANULAR FILL MATERIAL – SPECIFIC DESIGN

Location: As denoted on Civil and Structural Documents
Type: ~

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4.3 BLINDING LAYER – SPECIFIC DESIGN

Location: As denoted on Civil and Structural Documents
Type: ~

Granular fill - simple standalone concrete masonry retaining walls

4.4 GRANULAR FILL MATERIAL – NZCMM section 6.1

Location: As denoted on Civil and Structural Documents
Type: ~

4.5 BEDDING & BACKFILL – SUB SOIL DRAIN

Location: As denoted on Civil and Structural Documents
Type: Free draining imported hardfill to NZTA F2 specification.
Depth under pipe / total (minimum): 75mm / 300mm

Concrete pavements

4.6 SUBGRADE – CONCRETE PAVEMENTS

Location: As denoted on Civil and Structural Documents
Type: ~

4.7 SUBBASE – CONCRETE PAVEMENTS

Location: As denoted on Civil and Structural Documents
Type: ~

Drainage materials

Geotextile Fabric

4.8 GEOTEXTILE FABRIC

Location: As denoted on Civil and Structural Documents
Type: ~

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3821 TIMBER FRAMING

1 GENERAL

This section relates to the supply and erection of timber framing, as a framed structure, or as part of a partitioning system.

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®
COC	Chain of Custody
PEFC	Programme for the Endorsement of Forest Certification

The following definitions apply specifically to this section:

SG Structural grade	to NZS 3604, 1.3 Definitions

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 2904	Damp-proof courses and flashings
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3604	Timber-framed buildings
NZS 3622	Verification of timber properties
NZS 3631	New Zealand timber grading rules
NZS 3640	Chemical preservation of round and sawn timber
WorkSafe	Guidelines for the provision of facilities and general safety in the construction industry.
BRANZ BU 673	Cavity battens

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

1.4 DIMENSIONS

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

Requirements

1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

2 PRODUCTS

Materials

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.

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2.2 TIMBER FRAMING, CHEMICAL FREE

Species, grade and moisture content in service as set out in NZS 3602, NZBC B2/AS1.

2.3 APPEARANCE TIMBERS

Graded to NZS 3631, treated where required by NZBC B2/AS1, NZS 3602, table 1, and treatment to NZS 3640.

2.4 STRAPPING

Treated to NZBC B2/AS1, NZS 3602, table 1 and to NZS 3640, clause 6.3.1.

Species:	Radiata pine
Grade:	SG6
Size:	70mm x 45mm, 45mm x 45mm or 45mm x 19mm

2.5 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.

2.6 EXTERIOR CAVITY WALL BATTENS - TIMBER - NON-STRUCTURAL

To NZBC E2/AS1. H3.1 Radiata pine battens, 20mm thick, 45mm minimum 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.

2.7 EXTERIOR CAVITY WALL BATTENS - TIMBER - STRUCTURAL

To BRANZ BU 673, part 6. H3.2 SG6 Radiata pine kiln dried battens, 20mm thick, 40mm minimum 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.

2.8 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"

2.9 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

Components

2.10 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.

2.11 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.

2.12 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.

2.13 THREADED RODS

Use stainless steel threaded rods of the required length, with washers and nuts at both ends, when stainless steel bolts of the required length are not available.

2.14 TIMBER CONNECTORS AND FIXINGS

Supply for each particular joint the connectors and fixings as noted on the drawings. Comply with the requirements of the manufacturer, NZS 3604, section 4, Durability, and of the number and form required for each particular junction to NZS 3604, sections 6-10.



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2.15 BRACING STRAPS

Nail-on type to the requirements of NZS 3604, section 4, Durability, and of the number and form required for each particular application to NZS 3604, sections 6-10.

2.16 POWDER ACTUATED FASTENERS

To type, size and charge required by the powder actuated tool manufacturer for each particular member and the substrate.

2.17 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).

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 PROTECT TIMBER

Protect all timber against damage and from inclement weather. Ensure that any variation in moisture content is kept to a minimum, before and after erection and before enclosure.

Installation/application

3.4 EXECUTION

Execution to comply with 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).

3.5 FIT STRUCTURAL CAVITY BATTENS

Fit and fix 20mm cavity battens over wall underlay or rigid air barrier. Permanently fix battens onto the framing using 60mm x 2.8mm jolt head (60mm x 2.87mm power-driven) hot-dip galvanized nails, or 64mm x 2.8mm power driven stainless steel annular grooved nails at 300mm centres maximum up to Very High Wind Zone and 250mm centres maximum for Extra High Wind Zone, and staggered 12mm either side of the batten centreline, to BRANZ BU 673, part 6. Make allowances for cladding control joints where required. Fit and fix related flashings. Fit and fix cavity closers to base of walls, open horizontal (or raking) junctions and over openings (windows, meters etc). Use cavity spacers set to 5° fall where fixing is required between cavity battens.

3.6 COMPLETION MATTERS

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

3.7 SEPARATION

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

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

3.8 PRE-INSTALLATION REQUIREMENTS

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

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

Moisture content:	
At erection	24% EMC maximum
At enclosure	20% EMC maximum
At lining	16% EMC maximum

3.9 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Timber framing tolerances shall be in accordance with NZS 3604 Table 2.1 Timber framing tolerances.

Application

3.10 SET-OUT

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

3.11 SET TIMBERS

Set timbers true to required lines and levels with mitres, butt joints, laps and housings cut accurately to provide full and even contact over the whole of the bearing surface.

3.12 TIMBER CUTTING

Select and cut spanning members to minimise allowable defects and avoiding knots and short grain on edges in the middle third, and shakes, splits and checks at mid-span and close to ends.

3.13 TIMBER PLATES AND FURRING

Fix to steelwork with bolts and washers or approved proprietary fastenings at 1 metre maximum spacing and not less than 2 fixings to each member, or to engineering specific design.

3.14 HOLES AND NOTCHES

Limit holes and notches, checks and half-housing for the structure to those allowable in NZS 3604. Neatly form holes and notches for services without lessening the structural integrity of the member.

3.15 STRAIGHTENING STUDS

Cutting for straightening to comply with NZS 3604, 8.5.3, Straightening studs.

3.16 EXPOSED TIMBER CONNECTORS AND FIXINGS

Do not use steel timber connectors and fixings on any structural framing exposed to view unless detailed on the drawings.

3.17 POWDER-ACTUATED FASTENING TOOLS

Comply with the requirements of WorkSafe and the Health and Safety at Work Act 2015. Powder-actuated fastening tool operators to have the appropriate current Certificate and/or Licence and tools to have the appropriate certificate of fitness if necessary.

3.18 ADDITIONAL FRAMING

Position and fix all necessary members for the fixing of all services, fittings, fixtures, edges of linings or claddings, and to provide lateral support to load carrying framing.

3.19 FORM NAILED JOINTS

Fully drive nails in all structural joints with the number and location for each particular joint, to the requirements of the nailing schedules of NZS 3604. Where splitting could occur, pre-drill to 80% of nail diameter.

3.20 FORM BOLTED JOINTS

Drill for and set bolts to ensure full bearing and development of the joint strength, with tension to just set the washers into timber or to engineering specific design.

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3.21 FIT CONNECTORS AND FIXINGS

Fit connectors and fixings to obtain full bearing over all contact surfaces and full development of the required loading capacity for that particular joint and in accordance with the manufacturer's requirements or to engineering specific design.

3.22 FIT JAMB BATTENS

For walls with direct fix cladding, fit 20mm (nominal) jamb battens over the wall underlay, to the jambs of window and door rough openings, to NZBC E2/AS1, Figure 9.1.9.4: General window and door opening for direct fixed. Cut around sill flashings. Fix with 60 x 2.8 flat head galvanized nails at 300mm centres.

3.23 FIT CAVITY BATTENS

Fit and fix 20mm cavity battens over wall underlay or rigid air barrier. Temporary fix battens before being permanently fixed into the framing with the cladding fixings, to the requirements of the manufacturer or to NZBC E2/AS1 and BRANZ BU 673. Make allowances for cladding control joints where required. Fit and fix related flashings. Fit and fix cavity closers to base of walls, open horizontal (or raking) junctions and over openings (windows, meters etc). Use cavity spacers set to 5° fall where fixing is required between cavity battens.

3.24 FIT BRACING

Fit and fix subfloor, wall and roof bracing elements to the requirements of the manufacturer or to NZS 3604, to develop the full number of bracing units required.

3.25 DPC TO LOSP TREATED TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.26 DPC TO TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section

Completion

3.27 CLEAN UP

Clean up timber framing as the work proceeds so no offcuts, chips, sawdust or any other matter or items remain behind the claddings or linings.

3.28 LEAVE

Leave work to the standard required by following procedures.

3.29 REMOVE

Remove debris, unused materials and elements from the site.

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4 SELECTIONS

4.1 FLOOR FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Mid floor joists:	Radiata pine	SG8	H1.2
Boundary joists:	Radiata pine	SG8	H1.2

4.2 EXTERIOR WALL FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Exterior walls:	Radiata pine	SG8	H1.2
Nogs	Radiata pine	SG8	H1.2
Jamb battens	Radiata pine	Merch	H3.1
Bottom Plate	Radiata pine	SG8	H3.1

4.3 ROOF FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Trusses:	Radiata pine	SG8	H1.2 (clear if exposed)

4.4 CEILING FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Timber ceiling battens:	Radiata pine	SG8	H1.2

4.5 INTERIOR WALL FRAMING - RADIATA PINE

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

4.6 EXTERIOR EXPOSED TIMBER

Member	Species	Grade	Treatment
Joists:	Radiata pine	SG8	H3.2 CCA

Note: All CCA preservative code 01 or 02

4.7 SPECIAL FRAMING ELEMENTS

Member	Species	Grade	Treatment
Varies - refer architectural / structural documentation			

4.8 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

4.9 NAILS

Location	Type	Material	Finish
Varies - refer architectural / structural documentation		galvanized steel	

4.10 SCREWS

Location	Type	Material	Finish
Varies - refer architectural / structural documentation		galvanized steel	

4.11 BOLTS AND COACH SCREWS

Location	Type	Material	Finish
Varies - refer architectural / structural documentation		galvanized steel	

4.12 NAIL PLATES

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Location	Type	Material	Finish
Varies - refer architectural / structural documentation		galvanized steel	

4.13 CONNECTORS

Location	Type	Material	Finish
Varies - refer architectural / structural documentation		galvanized steel	

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4161FP FPS WEATHERTIGHT SYSTEM

1 GENERAL

This section relates to Frame Protection Systems Limited FPS® Weathertight® System roof and wall underlays.

It includes:

- Flexible underlays
- Tapes
- Penetration seals
- Components and accessories to complete installation

1.1 RELATED WORK

Refer to 3821 TIMBER FRAMING for timber framing and cavity battens.
Refer to ~ for ~

1.2 ABBREVIATIONS AND DEFINITIONS

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

Documents

1.3 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
AS 1530.2	Methods for fire tests on building materials, components and structures - Test for flammability of materials
NZS 3602	Timber and wood-based products for use in building

CodeMark Certificate CMNZ70030 ver2 - FPS Weathertight System

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:
FPS Technical Data Sheets
FPS Technical Manual - FPS Weathertight System - Version 1.3 September 2024

FPS Weathertight Building Underlay System Installation Guide 2024 - Version 1.3
Wall Installation Checklist for FPS Weathertight System - Version 1.1 April 2021
Roof Installation Checklist for FPS Weathertight System - Version 2.2 April 2021

Manufacturer/supplier contact details

Company:	Frame Protection System Limited
Trading as:	FPS Weathertight
Web:	www.frameprotection.co.nz
Email:	info@frameprotection.co.nz
Telephone:	0800 723 426

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

50 years	For FPS Weathertight products

- 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.

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

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2 years For installation workmanship

- 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

1.7 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for 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.

Compliance information

1.9 CODEMARK CERTIFICATE

FPS Weathertight System meets the requirements of the NZBC when used within the Conditions and Limitations of Certificate CMNZ70030.

Performance - General

1.10 FLAMMABILITY INDEX

FPS Weathertight System underlays have a flammability index of ≤5, tested to AS 1530.2 in accordance with NZBC C/AS2.

Quality control and assurance

1.11 INSTALLATION CHECKLIST

Complete FPS Weathertight Installation Checklist and make available to the contract administrator on request.

1.12 INSPECTIONS

~ ~

2 PRODUCTS

Materials

2.1 WALL & ROOF UNDERLAY - EUROTOP N35

135g/m², three-layer flexible polypropylene vapour permeable and waterproof wall and roof underlay, supplied in rolls 1.5m x 50m (75m²).

2.2 WALL UNDERLAY - EUROTOP W35

140g/m², three-layer flexible polypropylene vapour permeable and waterproof wall underlay, supplied in rolls 2.75m x 50m (137.5m²).

Components

2.3 STAPLES

9.5mm staples for Stinger manual feed and auto feed gun, and 16mm or 22mm staples for Stinger pneumatic staple gun. With proprietary staple caps.

2.4 SCREWS

Self-tapping screws with proprietary screw caps, supplied by FPS Weathertight.

2.5 FLASHING & SEALING TAPE

Euroband S, self-adhesive reinforced polyethylene tape in 25m long rolls with FPS application Squeegee:

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60mm wide	for seam sealing and repairs
120mm wide	for flashing 90mm framing
180mm wide	for flashing 140mm framing

2.6 PENETRATION SEALS

FPS Weathertight penetration seals for pipe diameter 15mm - 165mm. Refer to SELECTIONS.

2.7 DOUBLE SIDED FOUNDATION AND EDGE TAPE

Euroband DS Black, double sided tape, 30mm wide x 30m rolls.

2.8 DOUBLE SIDED OVERLAP JOINING TAPE

Euroband DS Brown, double sided tape, 40mm wide x 50m rolls.

Components - wall/roof cavity

2.9 ROOF COUNTER BATTENS

H1.2 minimum treated, finger-jointed merchant grade Radiata pine battens, 20mm thick x 45mm width minimum. Refer to SELECTIONS.

2.10 COUNTER BATTEN FIXINGS

Countersunk screws, type, size and material being appropriate for its location and purpose. 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.

Application - generally

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 APPLICATION GENERALLY

Application in accordance with CodeMark CMNZ70030 and FPS Weathertight installation instructions and details. N15 and N35 underlays require minimum 2 people for application. W35 underlay requires minimum 3 people for application.

3.6 APPLICATION - TIMBER FRAMING MOISTURE CONTENT

FPS Weathertight System can be applied to timber framing that has been exposed to weather and is damp/wet. Moisture testing to be completed after application of FPS Weathertight System and prior to commencement of internal work and linings.

3.7 WINDOW AND DOOR OPENINGS

Apply underlay over window and door openings and leave uncut until joinery units are to be installed. Larger opening such as garage doors require temporary support of underlay.

3.8 EXPOSURE TO WEATHER

Complete installation of cladding within 90 days of commencement of FPS Weathertight System installation.

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Application - wall underlay

3.9 MARK UPPER FIXING LINE - N15/N35

Commencing from bottom of wall, measure and mark upper fixing line across nogging using a chalk line, allowing bottom of underlay to sit 35mm minimum below the bottom plate for concrete foundations or terminate at bottom of boundary joist for timber foundations.

3.10 FIX TOP EDGE - N15/N35

Unroll underlay with branded face outwards and top edge on the upper fixing line. Pull underlay taut across framing and fix top edge at 250mm - 300mm horizontal spacings within 60mm of top edge using plain/bare staples/screws without caps.

3.11 MEASURE AND CUT UNDERLAY - W35

Commencing from bottom of wall, measure and cut underlay with top edge covering top plate and allowing bottom of underlay to sit 35mm minimum below the bottom plate for concrete foundations or terminate at bottom of boundary joist for timber foundations.

3.12 FIX TOP EDGE - W35

Position underlay with branded face outwards and top edge covering top plate. Pull underlay taut across framing and fix into top plate at 250mm - 300mm horizontal spacings using plain/bare staples/screws without caps.

3.13 FIX INTERNAL CORNERS

Push underlay into corner without cutting the corner and fix on either side of corner.

3.14 FIX UNDERLAY - GENERALLY

Fix using staples/screws with caps generally. Fix using plain/bare staples/screws without caps where fixings are to be covered by cavity battens.

3.15 FIX UNDERLAY - N15/N35

Commencing from middle of wall length, pull bottom edge of underlay down flat and taut against framing. Working across and down, fix underlay to studs and nogs at spacings in accordance with installation manual fixing spacing table, keeping underlay taut and flat across framing. Continue with next layer of underlay above, overlapping previous layer by 60mm minimum. Overlap any vertical seams by 60mm minimum.

3.16 FIX UNDERLAY - W35

Commencing from middle of wall horizontally, pull bottom edge of underlay down flat and taut against framing. Working across and down, fix underlay to studs and nogs at spacings in accordance with installation manual fixing spacing table, keeping underlay taut and flat across framing. Overlap any vertical seams by 60mm minimum.

3.17 TAPE SEAL UNDERLAY

Seal underlay to concrete foundation/boundary joist using Euroband DS Black double-sided tape. Seal all horizontal seams using Euroband DS Brown double-sided tape. Seal all vertical seams using Euroband S 60 tape. Cover all bare staples/screws and repair all holes, rips, tears and punctures using Euroband S tape.

3.18 PREPARE WINDOW AND DOOR OPENINGS

Where timber framing has been exposed to weather and is wet at time of underlay application, cut 200mm long strips of underlay, width to match framing, and push 1 strip into each internal corner of opening and staple fix to framing.

3.19 FORM WINDOW AND DOOR OPENINGS

Cut underlay at 45º from each corner towards the opening mid-point. Trim and fold each flap into the opening and fix to inner face of the framing.



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3.20 TAPE SEAL WINDOW AND DOOR SILL/HEAD

Cut a 75mm minimum length of Euroband S tape and cut into 2 pieces on the diagonal. Position wide end of tape piece onto vertical face of wall underlay at each sill corner and fold pointed end into corner, pressing firmly in place. Measure 200mm up from each corner of the opening and mark. Cut a 400mm length of tape and align top of the tape with the mark, and the side of the tape with the internal edge of the opening. Using provided squeegee, press the tape down into the corner and across the sill, removing any air bubbles. Cut overhanging tape at the corner and fold down onto the outside face of the wall underlay. Repeat for opening head corners.

Application - roof underlay

3.21 MEASURE AND CUT UNDERLAY

Measure and cut horizontal lengths of underlay with branded face outwards, allowing 200mm overhang on each side of the roof and overhang into gutter.

3.22 FIX UNDERLAY - GENERALLY

Fix using staples/screws with caps generally. Fix using plain/bare staples/screws without caps where fixings are to be covered by roof counter battens.

3.23 FIX FIRST LENGTH OF UNDERLAY - FRAMED ROOF

Commencing from bottom edge of roof, lay first length of underlay across roof framing with branded face outwards, pull taut and fix to framing along top edge and where fixings will be covered by laps, joins or counter battens.

3.24 FIX COUNTER BATTENS - FRAMED ROOF

Cut vertical counter battens minimum 60mm shorter than width of underlay. Position pre-drilled counter battens over underlay at every truss/frame location and fix into framing, tight to underlay.

3.25 FIX COUNTER BATTENS - PANEL CONSTRUCTION/SARKING

Cut vertical counter battens minimum 60mm shorter than width of underlay. Position pre-drilled counter battens over underlay and fix into framing, tight to underlay.

3.26 CO-ORDINATE

Co-ordinate with the installation of purlins/tile battens over counter battens as the work proceeds.

3.27 FIX SUCCESSIVE LENGTHS OF UNDERLAY - FRAMED ROOF

Lay next length of underlay across roof framing, overlapping previous length by 60mm, pull taut and fix to framing along top edge and where fixings will be covered by laps, joins or counter battens. Tape seal all horizontal seams using Euroband DS Brown double-sided tape. Working progressively up the roof line over each subsequent layer of underlay, continue fixing counter battens, allowing for the installation of purlins/tile battens as work proceeds.

3.28 FIX SUCCESSIVE LENGTHS OF UNDERLAY - PANEL CONSTRUCTION/SARKING

Lay next length of underlay across roof, overlapping previous length by 60mm, pull taut and staple fix to roof where fixings will be covered by laps, joins or counter battens, covering all exposed roof panel ends, soffits and overhangs with underlay. Tape seal all horizontal seams using Euroband DS Brown double-sided tape. Working progressively up the roof line over each subsequent layer of underlay, continue fixing counter battens, allowing for the installation of purlins/tile battens as work proceeds.

3.29 FIX UNDERLAY AT RIDGE

Lay last length of underlay across roof framing with minimum 300mm overhanging over ridge onto opposite side of roof and fix. Alternatively, fix a 600mm wide strip of underlay over the ridge to overlap onto underlay on both sides of the roof.

3.30 FIX UNDERLAY AT MONO-PITCH/SKILLION ROOF RIDGE

Fix underlay behind ridge fascia supported by cavity battens forming air gap between underlay and fascia. Gap to be 50% smaller than opening at gutter.

3.31 FIX UNDERLAY AT VALLEYS

Lay 500mm wide strip of underlay down valley floor lapping under horizontal layer of roof underlay. Alternatively, run horizontal layer of underlay from one side of the roof, through the valley and onto the opposite side of the roof.

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3.32 FIX UNDERLAY BEHIND GUTTER FASCIA

Fix underlay behind fascia supported by cavity battens forming air gap between underlay and fascia.

3.33 TAPE SEAL UNDERLAY

Seal all horizontal seams using Euroband DS Brown double-sided tape. Seal any vertical seams using Euroband S 60 tape. Cover all bare staples/screws and repair all rips, tears and punctures using Euroband S tape.

Application - penetration seals

3.34 FIT PENETRATION SEALS

Position seal over penetration, with seal edges oriented at 45º to the face of the underlay. Tape seal all edges of penetration seal to face of underlay using Euroband S 60 tape.

Completion & Commissioning

3.35 COMPLETION MATTERS

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

3.36 COMPLETION - TESTS & CERTIFICATION

Refer to 1270 CONSTRUCTION for general test and certification requirements at completion. Complete frame moisture test prior to commencement of internal work/lining, timber moisture content to NZS 3602. Provide results to contract administrator.

4 SELECTIONS

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

Materials

4.1 FPS WEATHERTIGHT SYSTEM - WALL UNDERLAY

Location:	New walls, Existing wall infills
Supplier:	FPS Weathertight
Type:	Eurotop N35
Fixings:	Stinger staples with proprietary staple caps
Foundation sealing tape:	Euroband DS Black
Horizontal seam sealing tape:	Euroband DS Brown
Vertical seam sealing tape:	Euroband S 60
Window/door opening flashing tape:	Euroband S 120 (120mm wide for 90mm framing)

Components

4.2 FPS PENETRATION SEAL

Location:	Refer to Architectural Drawings for penetrations through walls and roof
Supplier:	FPS Weathertight
Type:	FPS CS
Pipe dimeter:	varies
Sealing tape:	Euroband S 60

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4161T THERMAKRAFT UNDERLAYS, FOILS, DPC, DPM, & TAPES

1 GENERAL

This section relates to the supply and installation of Kingspan's Thermakraft product range including DPC, DPM, Wall & Roof Underlays, Foils, Flashing Tapes, and accessories.

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:

DPC	Damp proof course
DPM	Damp proof membrane
EPDM	Ethylene propylene diene monomer

The following definitions apply specifically to this section:

Wall underlay	The same meaning as defined in NZBC E2/AS1, covering kraft based and synthetic wall underlays, sometimes called wall wraps, building wraps or building papers.

Documents

1.2 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
AS 1530.2	Methods for fire tests on building materials, components and structures - Test for flammability of materials
AS/NZS 2904	Damp-proof courses and flashings
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
AS/NZS 4347	Damp-proof courses and flashings - Methods of test
AS/NZS 4389	Roof safety mesh
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire

CodeMark CMNZ10002 ver04 - Watergate Plus Wall Underlay
CodeMark CMNZ30028 (Rev J) - Thermakraft Covertek 407 Roof and Wall Underlay
CodeMark CMNZ30030 (Rev J) - Thermakraft Covertek 405 Roof and Wall Underlay
CodeMark CMNZ30069 (Rev I) - Thermakraft Covertek 403 Roof and Wall Underlay

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Thermakraft's Product Data Sheets
Thermakraft's Installation Guides
BRANZ Appraisal 329 (2022) - Supercourse 500 Damp-Proof Course and Concealed Flashing - Amendment 29.08.2023
BRANZ Appraisal 651 (2024) - Thermakraft Covertek 407 Roof and Wall Underlay - Amended 01.07.2025
BRANZ Appraisal 695 (2023) - Watergate Plus Wall Underlay - Amended 01.07.2025
BRANZ Appraisal 743(2025) - Thermakraft Covertek 405 Roof and Wall Underlay
BRANZ Appraisal 878 (2025) - Thermakraft Aluband Window Flashing Tape
BRANZ Appraisal 912 (2021) - Thermakraft 220 Synthetic Wall Underlay - Amended 01.07.2025
BRANZ Appraisal 917(2025) - Thermakraft Covertek 403 Roof and Wall Underlay
BRANZ Appraisal 942 (2022) - OneSeal Multi-fit Pipe and Cable Penetration Seals - Amendment 04.06.2024
BRANZ Appraisal 943 (2021) - Thermakraft Covertek 401 Roof and Wall Underlay - Amended 01.07.2025

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BRANZ Appraisal 1000 (2023) - Thermakraft Thermabar 397 Light Diffusing Reflective Underlay - Amended 01.07.2025
BRANZ Appraisal 1029 (2023) - Thermakraft Ausnet Hexagonal Wire Mesh
BRANZ Appraisal 1104 (2020) - Thermathene Orange Concrete Underlay - Amendment 06.09.2024
BRANZ Appraisal 1122 (2020) - Thermaflash Flashing Tape - Amendment 02.09.2024
BRANZ Appraisal 1229 (2023) - Thermakraft Covertek 215 Roof Underlay - Amended 19.06.2025
BRANZ Appraisal 1277 (2025) - Thermakraft RainArmor Self Adhesive Roof Underlay and Wall Underlay

Manufacturer/supplier contact details

Company:	Kingspan Insulation NZ Ltd
Web:	www.thermakraft.co.nz
Email:	technical@kingspaninsulation.co.nz
Telephone:	0800 806 595

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years	For Kingspan Thermakraft product range.

- 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

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this work under normal environmental and use conditions against failure of materials and execution. Thermakraft Ltd warrant performance of products if design and installation comply with relevant technical literature, NZBC, and recognised industry Codes of Practice. Copy of Thermakraft™ Product Warranty available on request.

1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.7 NO SUBSTITUTIONS

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

Compliance information - CodeMark certified

1.8 CODEMARK CERTIFICATE - THERMAKRAFT WATERGATE PLUS

Thermakraft Watergate Plus wall underlay meets the requirements of the NZBC when used within the conditions and limitations of its CodeMark Certificate of Conformity CMNZ10002 ver04.

1.9 CODEMARK CERTIFICATE - THERMAKRAFT COVERTEK 407

Thermakraft Covertek 407 roof and wall underlay meets the requirements of the NZBC when used within the conditions and limitations of its CodeMark Certificate of Conformity CMNZ30028 (Rev J).

1.10 CODEMARK CERTIFICATE - THERMAKRAFT COVERTEK 405

Thermakraft Covertek 405 roof and wall underlay meets the requirements of the NZBC when used within the conditions and limitations of its CodeMark Certificate of Conformity CMNZ30030 (Rev J).

1.11 CODEMARK CERTIFICATE - THERMAKRAFT COVERTEK 403

Thermakraft Covertek 403 roof and wall underlay meets the requirements of the NZBC when used within the conditions and limitations of its CodeMark Certificate of Conformity CMNZ30069 (Rev I).

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Compliance information - BRANZ appraised

1.12 BRANZ APPRAISED - THERMAKRAFT SUPERCOURSE 500

Thermakraft Supercourse 500 DPC has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 329

1.13 BRANZ APPRAISED - THERMAKRAFT COVERTEK 407

Thermakraft Covertek 407 roof and wall underlay has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 651

1.14 BRANZ APPRAISED - THERMAKRAFT WATERGATE PLUS

Thermakraft Watergate Plus wall underlay has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 695

1.15 BRANZ APPRAISED - THERMAKRAFT COVERTEK 405

Thermakraft Covertek 405 roof and wall underlay has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 743

1.16 BRANZ APPRAISED - THERMAKRAFT ALUBAND

Thermakraft Aluband flashing tape has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 878

1.17 BRANZ APPRAISED - THERMAKRAFT 220

Thermakraft 220 wall underlay has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 912

1.18 BRANZ APPRAISED - THERMAKRAFT COVERTEK 403

Thermakraft Covertek 403 roof and wall underlay has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 917

1.19 BRANZ APPRAISED - THERMAKRAFT ONESEAL

Thermakraft OneSeal multi-fit pipe and cable penetration seal has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 942

1.20 BRANZ APPRAISED - THERMAKRAFT COVERTEK 401

Thermakraft Covertek 401 roof and wall underlay has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 943

1.21 BRANZ APPRAISED - THERMAKRAFT THERMABAR 397

Thermakraft Thermabar 397 roof and wall underlay has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 1000

1.22 BRANZ APPRAISED - THERMAKRAFT AUSNET

Thermakraft Ausnet wire netting has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 1029

1.23 BRANZ APPRAISED - THERMAKRAFT THERMATHENE ORANGE

Thermathene Orange DPM has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 1104

1.24 BRANZ APPRAISED - THERMAKRAFT THERMAFLASH

Thermakraft Thermaflash flashing tape has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 1122

1.25 BRANZ APPRAISED - THERMAKRAFT COVERTEK 215

Thermakraft Covertek 215 roof underlay has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 1229

1.26 BRANZ APPRAISED - THERMAKRAFT RAINARMOR

Thermakraft RainArmor self-adhesive roof underlay has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 1277

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2 PRODUCTS

DPC

2.1 THERMAKRAFT SUPERCOURSE 500

BRANZ appraised, 0.5mm thick embossed black film DPC composed of recycled alloyed polyethylene. Tested to AS/NZS 4347 in accordance with AS/NZS 2904. Available in various width. Refer to SELECTIONS.

2.2 THERMAKRAFT PERIMETER

Sand coated black paper DPC composed of cardboard, bitumen and fine sand. Tested to AS/NZS 4347 in accordance with AS/NZS 2904. Available in various width. Refer to SELECTIONS.

DPM

2.3 THERMAKRAFT THERMATHENE ORANGE

BRANZ appraised, 0.3mm thick x 4000mm wide orange DPM composed of recycled alloyed polythene. Membrane has a vapour flow resistance of at least 90MNs/g to NZS 3604 and NZS 4229 Damp-Proof Membranes. Refer to SELECTIONS.

2.4 THERMAKRAFT THERMATHENE BLACK

0.25mm x 4000mm wide black DPM composed of recycled alloyed polythene. Membrane has a vapour flow resistance of at least 90MNs/g to NZS 3604 and NZS 4229, Damp-Proof Membranes. Refer to SELECTIONS.

2.5 THERMAKRAFT COVERTEK 405

CodeMark certified and BRANZ appraised self-supporting synthetic roof and wall underlay, white with yellow logo print, composed of a water resistant vapour permeable film laminated to two layers of non-woven, spun bonded polyolefin sheet. Fire retardant, tested to AS 1530.2 and assigned a Flammability Index of ≤12. Available in 1250mm and 2550mm width. Refer to SELECTIONS.

Foil underlay & vapour control layers

2.6 THERMAKRAFT COVERTEK 405

CodeMark certified and BRANZ appraised self-supporting synthetic roof and wall underlay, white with yellow logo print, composed of a water resistant vapour permeable film laminated to two layers of non-woven, spun bonded polyolefin sheet. Fire retardant, tested to AS 1530.2 and assigned a Flammability Index of ≤12. Available in 1250mm and 2550mm width. Refer to SELECTIONS.

Components - sealing

2.7 THERMAKRAFT THERMAFLASH

BRANZ appraised self-adhering synthetic flexible flashing tape, white on the top surface. Available in 75mm, 150mm and 200mm width. Refer to SELECTIONS.

2.8 THERMAKRAFT ALUBAND

BRANZ appraised, black, self-adhering polymeric faced bituminous flashing tape. Available in 75mm, 150mm and 200mm width. Refer to SELECTIONS.

2.9 THERMAKRAFT PREMIUM JOINING TAPE

75mm wide, black self-adhering multi-layer synthetic construction tape. Refer to SELECTIONS.

2.10 THERMAKRAFT WHITE GENERAL PURPOSE TAPE

60mm wide, white polypropylene general purpose tape with acrylic adhesive. Refer to SELECTIONS.

Components - secure strapping/netting

2.11 THERMAKRAFT THERMASTRAP

19mm wide, rigid embossed polypropylene strap, colour blue. Refer to SELECTIONS.

2.12 THERMAKRAFT STUD STRAP

25mm wide, flexible woven and coated polythene strap, colour black. Refer to SELECTIONS.



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Fixings

2.13 FIXINGS - TO TIMBER

Little grippers, staples, clouts or screws to suit application. Refer to SELECTIONS.

2.14 FIXINGS - TO STEEL

Construction grade double sided tape, adhesive or galvanized flat head screws to suit application. Refer to SELECTIONS.

2.15 THERMAKRAFT ONESEAL

BRANZ appraised black multi-fit pipe and cable penetration seal composed of adhesive coated, 1.2mm thick flexible synthetic rubber material (EPDM) with pre-notched ring markings. Refer to SELECTIONS.

2.16 THERMAKRAFT CORNER MOULDS

Orange, flexible inert polythene moulded window corner flashing. 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/application - generally

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Installation - DPC

3.5 INSTALL DPC

Ensure substrate's surface is smooth, flat and free from sharp ridges/projections that may puncture membrane. Install as a single layer with minimum 50mm overlap at joints to the Installation Guide.

Installation - DPM

3.6 INSTALL DPM - CONCRETE FLOOR

Install DPM over sand blinding below concrete floors, install in a neat fashion with a smooth surface as a single layer with minimum 150mm overlap at joints to the Installation Guide.

3.7 INSTALL DPM - SUSPENDED TIMBER FLOOR

Install DPM on ground below suspended timber floors to NZS 3604, Ground Cover:

- In a manner draining water to the exterior and preventing water accumulation on membrane
- Covering the total subfloor area
- Weighted down and held against air movement by bricks or rocks
- With minimum 75mm overlap at joints
- Butted up to surrounding foundation walls, piles and other penetrating elements

3.8 APPLY TAPE TO LAPPED DPM JOINTS

Ensure DPM is free of dust and contaminates, where required clean with a dry cloth. Apply tape to the Installation Guide centred over joint laps by firmly pressing down without stretching or pulling tape.

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Installation - wall underlay

Installation - roof underlay

3.9 INSTALL ROOF UNDERLAY - HORIZONTAL

Install underlay to the Installation Guide horizontally and in true alignment over exterior face of roof framing. Place first sheet overlapping guttering (max. 20mm) or if eaves flashing is used terminate on the upper side of the flashing, draw sheet taut and fix at maximum 300mm centres to roof framing members. Install additional sheets in row repeating the process for the first sheet with sheet end laps to be of at least 150mm. Install sheets up to and over the ridge repeating the installation process for the first row and overlapping higher over lower sheets by at least 150mm.

3.10 SEAL VAPOUR CONTROL LAYER

Ensure vapour layer is free of dust and contaminates, where required clean with a dry cloth. Apply tape to the Installation Guide over joint laps and over any other projections and penetrations by firmly pressing down without stretching or pulling.

Preparation of wall underlay for window/door placement

3.11 FORM OPENINGS

Form openings in wall underlay to the Installation Guide. Cut underlay diagonally from corner to corner across the opening and tightly fold underlay flaps into opening over the full depth. Secure underlay to the back face of opening framing with staples. Trim excess underlay off at internal face. Remove dust and contaminates from underlay with a dry cloth.

3.12 INSTALL CORNER MOULDS

Install corner moulds with tight fit to sill/jamb corners to the Installation Guide.

3.13 FLASHING TAPE APPLICATION - GENERALLY

Install flashing tape to the Installation Guide. Fold tape back onto exterior wall surface by at least 50mm, cover opening depth in full and finish by lining up with inside edge of opening framing. Fix tape by applying even pressure by hand or a roller leaving no air bubbles beneath the tape.

3.14 APPLY FLASHING TAPE ACROSS SILL/JAMB CORNERS

Cut 75mm wide tape to 100mm length. Apply to exterior wall surface across sill/jamb corners at 45°, overlap corners by 3mm.

3.15 APPLY FLASHING TAPE TO SILL

Use 150mm wide tape for up to 100mm deep opening framing and 200mm wide tape for deeper framing. Cut tape to sill length plus 400mm. Remove release film from tape, align back edge of tape with interior sill edge allowing for at least 200mm tape upstand at jambs, apply tape to sill and jamb. Cut tape overhang at external sill/jamb corners, fold back onto and apply to exterior wall face.

3.16 CREATE PENETRATION SELF-SEAL AT SILL

Cut 75mm wide flashing tape to sill length. Apply along entire length of sill at window/door fixing location to ensure fixing penetration self-seal.

3.17 APPLY FLASHING TAPE TO HEADER

Use 150mm wide tape for up to 100mm deep opening framing and 200mm wide tape for deeper framing. Cut tape to 400mm length. Remove release film from tape, align back edge of tape with interior opening framing edge and apply 200mm along head and 200mm down jambs. Cut tape overhang at external head/jamb corners, fold back onto and apply to exterior wall face.

3.18 APPLY FLASHING TAPE ACROSS HEAD/JAMB CORNERS

Cut 75mm wide tape to 100mm length. Apply to exterior wall surface across head/jamb corners at 45°, overlap corners by 3mm to create a seal at corner junctions.

Completion

3.19 COMPLETION MATTERS

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

4 SELECTIONS

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

DPC

4.1 THERMAKRAFT SUPERCOURSE 500™ DPC

Location:	Refer to Architectural Drawings
Type:	Supercourse 500™
Joining tape:	Thermakraft™ Aluband™ joinery and flashing tape
Applications	Suitable between concrete and timber, primarily the external bottom plate. DPC in brick veneer coursing and around windows and door units in brick veneer as a concealed flashing. Note: Supercourse 500™ is suitable for placing between brick, stone, concrete, timber and metal as a protection against moisture. Roll widths range between 50mm up to 1000mm.

4.2 THERMAKRAFT PERIMETER™ DPC

Location:	Refer to Architectural Drawings
Type:	Thermakraft Perimeter™
Joining tape:	Thermakraft™ Aluband™ joinery and flashing tape

DPM

4.3 DPM - THERMAKRAFT THERMATHENE ORANGE

Location:	~
Manufacturer:	Thermakraft
Brand:	Thermathene Orange
Type:	Damp proof membrane
Width:	4000mm
Joint tape:	~
Maximum UV exposure:	30 days

4.4 THERMAKRAFT THERMATHENE BLACK™ DPM

Location:	Concrete floor applications
Type:	Thermathene Black™
Joining tape:	Thermakraft White General Purpose Tape™ at the laps joints to form a complete vapour barrier.
Thickness:	0.25mm min. Thermathene Black meets the requirements of NZBC 3604:2011 Clause 7.5.4.2, NZBC Acceptable Solutions E2/AS1, Table 23 and NZS 4229:2013 Clause 7.4 & 7.6.

4.5 ROOF & WALL UNDERLAY - THERMAKRAFT COVERTEK 405

Location:	New exterior walls and infills to existing walls
Manufacturer:	Thermakraft
Brand:	Covertek 405
Type:	Synthetic roof and wall underlay
Width:	~
Fixings:	~
Maximum UV exposure:	Walls - 60 days Roofs - 7 days

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Components for sealing wall underlay penetrations

4.6 75MM FLASHING TAPE - THERMAKRAFT THERMAFLASH

Location:	~
Manufacturer:	Thermakraft
Brand:	Thermaflash
Type:	Flashing tape
Width:	75mm
Maximum UV exposure:	180 days

4.7 150MM FLASHING TAPE - THERMAKRAFT THERMAFLASH

Location:	~
Manufacturer:	Thermakraft
Brand:	Thermaflash
Type:	Flashing tape
Width:	150mm
Maximum UV exposure:	180 days

4.8 200MM FLASHING TAPE - THERMAKRAFT THERMAFLASH

Location:	~
Manufacturer:	Thermakraft
Brand:	Thermaflash
Type:	Flashing tape
Width:	200mm
Maximum UV exposure:	180 days

4.9 75MM FLASHING TAPE - THERMAKRAFT ALUBAND

Location:	~
Manufacturer:	Thermakraft
Brand:	Aluband
Type:	Flashing tape
Width:	75mm
Maximum UV exposure:	42 days

4.10 150MM FLASHING TAPE - THERMAKRAFT ALUBAND

Location:	~
Manufacturer:	Thermakraft
Brand:	Aluband
Type:	Flashing tape
Width:	150mm
Maximum UV exposure:	42 days

4.11 200MM FLASHING TAPE - THERMAKRAFT ALUBAND

Location:	~
Manufacturer:	Thermakraft
Brand:	Aluband
Type:	Flashing tape
Width:	200mm
Maximum UV exposure:	42 days

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Components for securing underlays

4.12 SECURE STRAPPING - THERMAKRAFT STUD STRAP

Location:	~
Manufacturer:	Thermakraft
Brand:	Stud Strap
Type:	Secure strapping
Width:	25mm
Fixings:	~

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4282RI RCS INTEGRA LIGHTWEIGHT CONCRETE FACADE SYSTEM

1 GENERAL

This section relates to the supply and fixing of Resene Construction Systems Integra Lightweight Concrete Facade System, cavity based exterior wall cladding system based on Integra AAC light weight concrete panels fixed over a drained cavity to timber framing and with a Mineral or Acrylic render system finished with a hand applied textured surface finish.

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:

PPCS	Proprietary Plaster Cladding Standard
MPNZA	Master Painters New Zealand Association
LRV	Light Reflectance Value

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 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 E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
AS 3566	Self-drilling screws for the building and construction industries
NZS 4210	Masonry construction: Materials and workmanship
ISO 5660.1	Reaction-to-fire tests - Heat release, smoke production and mass loss rate
WorkSafe	Guidelines for the provision of facilities and general safety in the construction industry
MPNZA	Health and Safety Programme

Health and Safety at Work Act 2015

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this section are:

Resene Construction Systems Technical Manual
Resene Construction Systems Trade Spec™
Resene Construction Systems Project Guide
Resene Total Colour System
BRANZ Appraisal 681 (2024) - Integra Light Weight Facade System - Amended 31 March 2025

Materials and execution to Resene Construction Systems specification except where varied by this specification and supported by architectural detailing.

Manufacturer/supplier contact details

Company:	Resene Construction Systems
Web:	www.reseneconstruction.co.nz
Email:	help@reseneconstruction.co.nz
Telephone:	0800 50 70 40

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Contact details for Resene literature is 0800 RESENE (0800 737 363) or web site www.resene.co.nz.

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years: For materials by Resene Construction Systems

- Provide this warranty on the Resene Construction Systems standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years: For execution/workmanship - by Registered Plasterer

- Provide this warranty on the Resene Construction Systems standard form.
- 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 WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

Use only PPCS (Proprietary Plaster Cladding Standard) Registered Plasterers licensed to apply the Resene Construction Systems exterior render systems. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.8 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Resene Construction Systems exterior render system.

1.9 INFORMATION FOR OPERATION AND MAINTENANCE

Provide Resene Construction Systems Maintenance Guide on or before practical completion of the contract for issuing to the building owner. Resene Construction Systems Maintenance Guide to be provided on request. Provide ongoing maintenance instructions to meet the performance requirements of NZBC B2/AS1.

Compliance Information

1.10 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

- Applicator approval certificate from the manufacturer
- Manufacturer / supplier warranty
- Installer / applicator warranty
- Producer Statement - Construction from the applicator / installer
- Other information required by the BCA in the Building Consent Approval documents.

1.11 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety at Work Act 2015 updates and WorkSafe: Guidelines for the provision of facilities and general safety in the construction industry.

If the elimination or isolation of potential hazards and risks is not possible then minimise hazards and risks in this work on site by using the proper equipment and techniques as required in the MPNZA Health and Safety Programme. Supply protective clothing and equipment. Inform employees and others on site of the hazards and risks, and put into place procedures for dealing with emergencies. Obtain from Resene Construction System the material safety data sheets for each product. Keep sheets on site and comply with the required safety procedures.



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1.12 DURABILITY

The work covered by this part of the specification has been designed and constructed to achieve a durability of 15 years.

Performance

1.13 PERFORMANCE

Accept responsibility for the structural and weather-tight performance of the cladding installation.

1.14 FIXINGS, WIND

Design the installation to the manufacturer's requirements and as appropriate for the project wind design stated in the general section 1220 PROJECT.

Performance - Fire

1.15 EXTERNAL FIRE SPREAD - CLADDING EXEMPT FROM TESTING

To NZBC C/AS1, 5.3 External cladding systems, or NZBC C/AS2, 5.5 External cladding systems, where external walls are located at a distance greater than or equal to 1.0m from a relevant boundary and a building height less than 10m.

1.16 EXTERNAL FIRE SPREAD - CLADDING MATERIALS

The Integra Lightweight Concrete Façade System comprising a mineral base coat, a mineral texture and finished with Limelock and Resene X200 or Resene Lumbersider has been tested in accordance with ISO 5660.1 and achieves a Type A classification (peak heat release rate ≤100 kW/m², total heat release rate ≤25 MJ/m²). Refer to BRANZ Appraisal 681.

1.17 PROTECTION OF NEW PLASTER

Confirm the protection systems to be applied to fresh plaster coats. Plastering not to begin until systems are confirmed.

1.18 INSPECTIONS

Allow to inspect the whole of the work at each stage. Determine a programme for inspections including notification when each part and stage of the work is ready for inspection prior to the work commencing. Permit representatives of Resene Construction Systems to inspect the work in progress and to take samples of their products from site if requested refer to Resene Construction Systems Project Guide.

2 PRODUCTS

Materials

2.1 RESENE CONSTRUCTION SYSTEMS RENDER PREP

Waterborne acrylic polymer dispersion.

2.2 INTEGRA AAC 50MM PANEL

50mm thick fibre reinforced aerated concrete, 2200mm x 600mm panel.

2.3 AAC ADHESIVE

Multi-purpose adhesives:

- Rockcote MultiStop FRP Bedding Compound, a polymer-modified, portland cement-based, thin section jointing plaster supplied in 15 kg bags and mixed on-site with clean water.
- PSL AAC Adhesive, a multi-purpose plaster adhesive supplied in 15kg bags and mixed on-site with clean water.
- Soudal Gorilla Grip 1 or 2 Hour Cure construction adhesives, single component polyurethane-based construction adhesives.

2.4 ACRYLIC RMAXX RENDER

A high yielding cement free dispersion based basecoat plaster.

2.5 ACRYLIC TEXTURE

100% acrylic, high-build texture coating.

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2.6 RESENE X-200

Resene X-200 waterproof membrane, colour selection from Resene Total Colour System.

2.7 REINFORCING MESH

Resene Construction Systems Qual brand alkali-resistant fibreglass woven mesh and sticky mesh 150mm wide.

Components

2.8 FLASHINGS AND ACCESSORIES

Resene Construction Systems proprietary profiles made from rigid uPVC for head, sill, jamb, starter strips (vermin proofing); expansion and control joints; jamb sill and head jamb soakers; corner and base exterior applications to suit the cavity width.

Components - 20mm cavity

2.9 RESENE CONSTRUCTION SYSTEMS CAVITY BATTENS

40mm x 20mm RCS Graphex peel and stick battens

2.10 CLADDING FIXINGS, TIMBER FRAME -50mm AAC PANEL

Minimum 100mm x 14 g countersunk screws for 20mm cavity. Fixings to be galvanized or zinc plated steel to AS 3566 class 3.

2.11 EXTERIOR CAVITY BASE VENTED STARTER TRACK

Rigid uPVC Resene Construction Systems ventilated starter track for 20mm cavity.

Accessories

2.12 SEALANT

BRANZ appraised modified silicon (MS) sealant.

2.13 PRIMING STEEL

Resene Galvo-Prime, a brush applied waterborne galvanised iron primer or Zinc rich spray pack primer / solvent borne an exterior solvent borne spray application.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

Keep plaster products dry in transit. Take delivery of plaster products dry and undamaged, in original unopened packaging with labels intact. Provide dry storage on site, stack carefully, protect from mechanical damage. Keep bagged render off concrete surfaces. Do not store PVC corner beads in direct sunlight.

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.

Do not commence work until openings and apertures have been cut, pipes, fixtures, fixing pads and plugs have been fixed and flashings and other preparations are complete. All defects in substrate must be rectified by the trades applicable prior to application of plaster coatings. Ensure that backgrounds and adjoining surfaces are, after the preparation called for in this section, is of the standard required by Resene Construction Systems. All mortar joints to be flush finished with all nibs and protrusions ground off by the brick / blocklayer.

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3.4 PANEL APPLICATION CONDITIONS

Carry out panel fixing to Resene Construction Systems specification under conditions which will not adversely affect the finished work. Temperature must be above 5°C, cover work to protect it from cooler temperatures, refer to Resene Construction Systems specification.

3.5 PROTECT

Before installation of Integra AAC panels and subsequent application of plaster, apply masking film and tape to all joinery, pipes, roofs and all areas likely to be marked by the plaster. Use drop cloths and ground covers to keep the working areas clean. Clean off droppings onto finished work immediately.

3.6 PLASTERING CONDITIONS

Carry out plastering to Resene Construction Systems specification under conditions which will not adversely affect the finished work.

3.7 FLASHING AND DETAILING

Comply with NZBC E2/AS1, 4.0 Flashings, and Resene Construction Systems penetration flashing guidelines. Carry out to the required standard of execution to ensure water does not penetrate.

3.8 ALIGNMENT OF FRAMING

To the standard required by the Resene Construction Systems, plumb, level and in true alignment.

3.9 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Comply with the tolerances laid down in NZS 4210 Table 2.2. To have no deviation more than 3mm from a straight edge 1200mm long.

3.10 CONFIRM LAYOUT

Before commencing work confirm the layout with the owner the position of expansion joints and other visual detailing of the finished work.

Application

3.11 CAVITY BATTENS

Apply peel and stick cavity battens full length to studs, to achieve the required thickness drained cavity to NZBC E2/AS1, 9.0 Wall claddings. 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). Horizontal cavity battens must be no longer than 100mm. Use cavity spacers where fixing is required between cavity battens. Fix additional battens to internal and external corners and around openings to Resene Construction Systems standard details.

3.12 PENETRATIONS

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

- wall underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- claddings neatly finished off to all sides of openings
- installation of flashings (those required to be installed prior to installation of penetrating elements).
- where electrical cables pass through cladding, ensure that there is no direct contact with the Integra panel, conduit required to be installed by electrician.

3.13 PENETRATION FLASHINGS

Fix in place required uPVC trims, profiles flashings and control joints. Service penetrations such as piping and light fittings to be sealed by specific trade.

3.14 INTEGRA AAC PANELS

Horizontally screw fix in a stretcher bond pattern to the battens to Resene Construction Systems requirements. Fixings to be a minimum of 50mm from the edge of the panel. Bond all horizontal and vertical joints with MultiStop bedding compound. Panels can cantilever beyond a stud to a maximum of 305mm.

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3.15 SEAL COAT INTEGRA PANEL

Seal Integra Panel with one coat of Resene Construction Systems RenderPrep.

3.16 PRIMING STEEL

Use either Resene Galvo-Prime or Zinc rich spray pack primer to make sure that all exposed steel has been spot primed.

3.17 PANEL PATCHING

Apply Rockcote MultiStop as a substrate patching to Resene Construction Systems requirements. MultiStop Bedding to bug/blow holes greater than 10mm but less than 40mm diameter. MultiStop Finishing to bug/blow holes less than 10mm.

3.18 MOVEMENT CONTROL JOINTS

Provide movement control joints in the plaster to coincide with movement joints in the background and/or junctions between dissimilar backgrounds in the same plane and / or where shown on the drawings and to Resene Construction Systems requirements. Reinforcing mesh is not continuous across control joints. Exposed control joints to be reflected through final coatings from substrate. Confirm locations in writing to the owner before work commences.

3.19 FIT FLASHINGS AND ACCESSORIES

Check and ensure head flashings have been installed. Fit flashings to jambs and sill on recessed joinery using Resene Construction Systems proprietary flashings. Reinforce bottom edges of Integra panels with uPVC channel extrusions to Resene Construction Systems technical and installation manual.

Application - acrylic render with acrylic texture

3.20 ACRYLIC RMAXX RENDER BASE AND MESH COAT

Apply base plaster coat 2-3mm thickness maximum based on RCS RMaxx Render. Embed fibreglass mesh into the wet plaster. Overlap each successive length by 100mm minimum. Apply sticky mesh around all external corners and into all window reveals. Apply diagonal reinforcement strips at all corners of windows, doors and other exterior openings.

3.21 ACRYLIC RENDER LEVELING COAT

Apply by trowel a second coat of RCS RMaxx Render 1-2mm thickness. Trowel flat and leave to touch dry before floating off with a large plastic float to remove any imperfections and leave a level surface.

3.22 ACRYLIC RENDER, ACRYLIC TEXTURED FINISH COAT

Apply acrylic texture coat 1mm thickness minimum to achieve the specified finish and colour (optional) to Resene Construction Systems requirements.

Application - finishing

3.23 PROTECTIVE FINISH COAT RESENE X-200

Apply two coats of Resene X-200 reinforced waterproof membrane to achieve a protective acrylic based finish.

3.24 FINISHING

Refer to SELECTIONS for system texture finishes and colour.

Completion

3.25 FINAL INSPECTION

A final inspection by Resene Construction Systems applicator and project assessor of the entire finished cladding to take place immediately after completion of the wall cladding work and any defects or subsequent damage made good immediately.

3.26 COMPLETION MATTERS

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

4 SELECTIONS

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

Materials

4.1 RESENE CONSTRUCTION SYSTEMS CAVITY 50mm PANEL

Location:	Refer to drawings
Type:	50mm Integra AAC Panel

4.2 RESENE CONSTRUCTION SYSTEMS 20MM CAVITY BATTENS

Location:	Cavity walls to new walls of Reception Building
Type:	40mm x 20mm polystyrene battens

4.3 RESENE CONSTRUCTION SYSTEMS UPVC VENTILATED STARTER TRACK

Type:	Resene Construction Systems uPVC ventilated starter track

4.4 RESENE CONSTRUCTION SYSTEMS INTEGRA AAC PANEL FIXINGS

Type/finish (class):	14g x 100mm Class 3 screw for 50mm AAC panel on 20mm cavity

4.5 RCS INTEGRA LIGHTWEIGHT CONCRETE FACADE SYSTEM ACRYLIC RENDER & ACRYLIC TEXTURE - LRV >25%

Location:	Refer to drawings
Manufacturer:	Resene Construction Systems
Basecoat 1st layer:	RCS RMAXX render; plus fibreglass mesh
Second layer:	RCS RMAXX render
Sealer coat:	n/a
Texture coat:	Rockcote Classico
Texture finish:	Classico (hand trowelled, floated)
Texture colour:	Colour to LRV of 25% minimum
Paint coat:	LRV of texture coat (recommended) >25% Resene ~
Paint colour:	to match existing render colour

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4283RM RCS FIBRE CEMENT SHEET FINISHING SYSTEMS

1 GENERAL

This section relates to Resene Constructions Systems exterior Fibre Cement Sheet Finishing Systems.
It includes:

- Mineral Fibre Cement Sheet Finishing System with mineral or acrylic textured finish coat or
- Acrylic Fibre Cement Sheet Finishing System with acrylic textured finish coat
- All required components and accessories to complete jointing and finishing

Resene Constructions Systems products must be installed by an approved applicator.

1.1 RELATED WORK

Refer to 4256HM JAMES HARDIE® MONOLITHIC CLADDING for Hardie™ Axon™ Panel for textured coating systems

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting
Refer to 6711R RESENE PAINTING EXTERIOR for exterior paint systems

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

LRV	Light reflectance value
MPNZA	Master Painters New Zealand Association
PPCS	Proprietary Plaster Cladding Standard

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
NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
NZS 4210	Masonry construction: materials and workmanship
MPNZA	Health and Safety Programme
WorkSafe:	Guidelines for the provision of facilities and general safety in the construction industry

Health and Safety at Work Act 2015

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

Resene Construction Systems - Fibre Cement Sheet Finishing System - 9mm Axon™ - Fully Meshed - Acrylic RenderSpec, May 2024
Resene Construction Systems - Fibre Cement Sheet Finishing System - 9mm Axon™ - Fully Meshed - Mineral RenderSpec, May 2024
Resene Construction Systems - Fibre Cement Sheet Finishing System - 9mm Axon™ - Fully Meshed - RMaxx RenderSpec, May 2024
Resene Constructions Systems Fibre Cement Sheet Render System Sheets
Resene Total Colour System
BRANZ Appraisal 500 [2022] - Fibre Cement Sheet Finishing System

Manufacturer/supplier contact details

Company:	Resene Construction Systems
Web:	www.reseneconstruction.co.nz
Email:	help@reseneconstruction.co.nz
Telephone:	0800 50 70 40

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Company: Resene
Web: www.resene.co.nz
Telephone: 0800 RESENE (0800 737 363)

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years For materials by Resene Construction Systems

- Provide this warranty on the Resene Construction Systems standard form
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years For execution / workmanship by RCS licenced plasterer

- Provide this warranty on the Resene Construction Systems standard form
- 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 WORKERS - MANUFACTURER / SUPPLIER REQUIREMENTS

Workers to be PPCS (Proprietary Plaster Cladding Standard) Registered Plasterers licensed to apply the Resene Construction Systems exterior render systems. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.8 NO SUBSTITUTIONS

Substitutions are not permitted to any of the Resene Construction Systems Fibre Cement Sheet Finishing System, components and associated products listed in this section.

1.9 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:

Resene Construction Systems Maintenance Guide to be provided on request. Provide this information prior to practical completion.

1.10 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety at Work Act 2015 updates and WorkSafe: Guidelines for the provision of facilities and general safety in the construction industry.

If the elimination or isolation of potential hazards and risks is not possible then minimise hazards and risks in this work on site by using the proper equipment and techniques as required in the MPNZA Health and Safety Programme. Supply protective clothing and equipment. Inform employees and others on site of the hazards and risks, and put into place procedures for dealing with emergencies. Obtain from Resene Construction Systems material safety data sheets for each product. Keep sheets on site and comply with the required safety procedures.

Compliance information

1.11 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

- Applicators approval certificate from the manufacturer
- Manufacturer / supplier warranty
- Installer / applicator warranty
- Producer Statement - PS3 Construction from the Registered Plasterer
- Other information required by the BCA in the Building Consent Approval documents.



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1.12 DURABILITY

The work covered by this part of the specification has been designed and constructed to achieve a durability of 15 years.

Performance

1.13 PERFORMANCE

Accept responsibility for the structural and weather-tight performance of the Resene Construction Systems Fibre Cement Sheet Finishing System.

Quality control and assurance

1.14 INSPECTIONS

Allow for inspections of the whole of the work at each stage by the Contract Administrator (or nominated person).

Determine a programme for inspections including notification or hold points when each part and stage of the work is ready for inspection prior to the work commencing.

1.15 MANUFACTURER'S INSPECTION

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

1.16 PROTECTION OF NEW PLASTER

Confirm the protection systems to be applied to fresh plaster coats during curing. Plastering not to begin until protection systems are confirmed.

2 PRODUCTS

Materials - Fibre Cement Sheet Finishing System Jointing / slurry coat

2.1 ROCKCOTE MULTISTOP BEDDING COMPOUND

Rockcote Multistop Bedding compound is a polymer modified, cement based dry plaster mix used in conjunction with jointing mesh to joints in backing boards and for mixing slurry coat. Supplied in 15kg bags.

Materials - Fibre Cement Sheet Finishing System

2.2 ACRYLIC RMAXX RENDER

A high yielding cement free dispersion based plaster.

2.3 ACRYLIC TEXTURE

Ready mixed, tintable, mineral-filled, polymer based elastomeric high-build coating.

2.4 RESENE X-200

Resene X-200 waterproof membrane colour selection from Resene Total Colour System.

Accessories

2.5 ACRYLBOND

Cemix Acrylbond is an acrylic water resistant modifier and bonding agent. Used in conjunction with Multistop to form a slurry coat.

2.6 MULTISTOP BEDDING COMPOUND uPVC PRIMER

uPVC primer when mixed with diluted Acrylbond resin or water.

2.7 SEALANT

Soudal Gorilla MS Sealant, UV resistant, solvent-free, flexible and paintable sealant.

2.8 REINFORCING MESH - FOR JOINTING

RCS Sticky Mesh, alkali-resistant fibreglass woven mesh 75mm wide, 160gsm. Supplied in 50 metre rolls.

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2.9 REINFORCING MESH - FOR RENDER BASE COAT

Resene Construction Systems alkali-resistant fibreglass woven mesh 6mm x 5mm weave, 1200mm wide and RCS sticky mesh, alkali-resistant fibreglass woven mesh 150mm wide. Both supplied in 50 metre rolls.

2.10 uPVC COMPONENTS

uPVC extrusions.

2.11 WATERPROOF MEMBRANE TAPE

Tape covered by a valid BRANZ Appraisal for use as a waterproof membrane over the top of plastered parapets, balustrades and fixing blocks.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

Keep plaster products dry in transit. Take delivery of plaster products dry and undamaged, in original unopened packaging with labels intact. Provide dry storage on site, stack carefully, protect from mechanical damage. Keep bagged render off concrete surfaces.

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.

Do not commence work until openings and apertures have been cut, pipes, fixtures, fixing pads and plugs have been fixed and flashings and other preparations are complete. All defects in substrate must be rectified by the trades applicable prior to application of plaster coatings. Ensure that backgrounds and adjoining surfaces are, after the preparation called for in this section, is of the standard required by Resene Construction Systems.

3.4 CHECK FLASHINGS AND ACCESSORIES

Check and ensure all required flashings have been installed to NZBC E2/AS1, 4.0 Flashings. Make sure that all window sills are left open between joinery and plaster. All window sills are to have an appropriate sill flashing/membrane that has been installed by the main contractor. Notify Contract Administrator if flashings are not installed to required standard.

3.5 PROTECT

Before application of plaster, apply masking film and tape to all joinery, pipes, roofs and all areas likely to be marked by the plaster. Use drop cloths and ground covers to keep the working areas clean. Clean off droppings onto finished work immediately.

3.6 PLASTERING CONDITIONS

Carry out plastering to Resene Construction Systems specification under conditions which will not adversely affect the finished work. Generally, apply plaster systems in dry conditions when temperature is between 5°C and 30°C and will be in that range for the 24 hours period following application.

3.7 CURING

Confirm the curing and protection systems to be applied to fresh plaster coats. Plaster systems should be protected from hot drying winds and direct sunlight for the first 16 hours and protected from rain and water run off for the first 24 hours.

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Application - general / surface preparation

3.8 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Comply with the tolerances laid down in NZS 4210 Table 2.2. To have no deviation more than 3mm from a straight edge 1200mm long.

3.9 PREPARE SUBSTRATE

Before plastering is commenced, ensure backing board surface is clean, sound, dry and free from dust, dirt, grease, & other surface contaminants. Make good any defects in the background which may adversely affect the quality of the plaster coating.

3.10 MOVEMENT CONTROL JOINTS

Provide movement control joints in the plaster to coincide with movement joints in the backing board and / or where shown on the drawings and to Resene Construction Systems requirements. Reinforcing mesh is not continuous across control joints. Exposed control joints to be reflected through final coatings from substrate.

3.11 APPLY JOINT BEDDING PLASTER AND JOINT MESH

Mix Rockcote MultiStop Bedding Compound in accordance with manufacturer's requirements and apply to all rebated board joints with a steel trowel or broad-knife at approximately 2mm thick. Lay in mesh and trowel well to embed mesh into Multistop Bedding Compound. Apply levelling coat of Multistop Bedding Compound to ensure the joint is level with surrounding sheet plan. Leave to dry overnight.

3.12 APPLY SLURRY COAT

For bare substrates, mix a slurry from 50:50 mix of Acrylbond/Water and Multistop Bedding Compound, in accordance with manufacturer's requirements and apply to backing board using a roller.

For painted substrates, mix a slurry from Acrylbond and Multistop Bedding Compound, in accordance with manufacturer's requirements and apply to backing board using a roller.

Application - acrylic render with acrylic texture

3.13 ACRYLIC RMAXX RENDER BASE AND MESH COAT

Mix RCS RMaxx in accordance with manufacturer's requirements and apply base plaster coat 2-3mm thickness maximum. Embed fibreglass mesh into the wet plaster in accordance with RCS RenderSpec requirements starting at the top of the wall and overlapping each successive length by 100mm minimum. Ensure there are no wrinkles or trapped bubbles in the mesh and that it is fully embedded just below the surface of the render.

Ensure the fibreglass mesh covers all exposed areas of the substrate, including any recesses around the exterior joinery and internal corners. Fibreglass Mesh must be bought to the outside edge of all flashings. Apply sticky mesh around all external corners and into all opening reveals. Apply 450 x 150 mm strips of fibreglass mesh `butterflies' diagonally at every corner of at all corners of windows, doors and other exterior openings. After the render mix has cured, trim off excess length accurately against the flashing edge.

3.14 ACRYLIC LEVELLING COAT

Mix RCS RMaxx in accordance with manufacturer's requirements and apply by trowel a second coat of 1-2mm thickness. Trowel flat and leave to touch dry before floating off with a large plastic float, to remove any imperfections and leave a level surface.

3.15 ACRYLIC TEXTURED FINISH COAT

Apply selected acrylic texture coat 0.5mm-2mm thickness to achieve the specified finish and colour (optional) to Resene Construction Systems requirements. Refer to SELECTIONS for acrylic texture finish and colour.



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Application - finishing

3.16 SEALANT

Apply selected sealant in accordance with manufacturer's requirements to all construction joints and to all internal corners of system prior to painting.

3.17 PROTECTIVE FINISH COAT - RESENE X-200

Apply two coats of Resene X-200 reinforced waterproof membrane in accordance with manufacturer's requirements to achieve a protective acrylic based finish.

3.18 FINISHING

Refer to SELECTIONS for finishes and colours.

Completion & Commissioning

3.19 FINAL INSPECTION

A final inspection by Resene Construction Systems applicator and Contract Administrator (or nominated person) of the entire finished cladding to take place immediately after completion of the wall cladding work and any defects or subsequent damage made good immediately.

3.20 COMPLETION MATTERS

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

4 SELECTIONS

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

Materials

4.1 RCS FIBRE CEMENT SHEET ACRYLIC RENDER & ACRYLIC TEXTURE

Location:	Existing Window infills, New window into existing wall installations
Manufacturer:	Resene Construction Systems
Substrate:	9mm Hardie™ Axon™ Panel for textured coating systems
Jointing System:	Rockcote Multistop bedding compound with 75mm wide mesh
Slurry Coat:	Rockcote Multistop bedding compound - mixed with 50/50 mix of Acrylbond/Water
Render Basecoat:	RCS RMAXX Render with fibreglass mesh
Render 2nd coat:	RCS RMAXX Render
Texture coat:	Rockcote Classico
Texture finish:	To match existing plaster system
Texture colour:	TBC
Paint coat:	2 coats of Resene X-200, LRV of texture coat (recommended) >40%
Paint colour:	TBC

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4422AE ARDEX WELDTEC EXPOSED MEMBRANE SYSTEM

1 GENERAL

This section relates to **Ardex New Zealand Ltd** exposed WeldTec membranes installd as a single layer waterproofing covering:
It includes:

- WeldTec membrane
- All required components & accessories to complete installation

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:

PIR	Polyisocyanurate (Polyiso)

Documents

1.2 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 1604.1	Preservative-treated wood-based products - Part 1: Products and treatment
AS/NZS 2269.0	Plywood - Structural
AS 4654.1	Waterproofing membranes for external above ground use-Materials.
Codemark™ CMNZ70189 ver0	Ardex WPM 715 and WPM 1000

1.3 MANUFACTURER DOCUMENTS

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

ARDEX WeldTec Data Sheets
ARDEX WeldTec Detail Drawings
ARDEX WeldTec Design Guide
ARDEX WeldTec Installation Guide
ARDEX WeldTec Care and Maintenance Guide
Ardex Waterproofing Accessories - Brochure
BRANZ Appraisal 1061 (2025) - ARDEX Weldtec Exposed Membrane Systems
Codemark™ CMNZ70189 ver0 - Ardex WPM 715 and WPM 1000

Copies of the above literature are available from **ARDEX New Zealand Ltd**

Web:	www.ardex.co.nz
Email:	specification@ardexnz.com
Telephone:	0800 227 339

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

20 years	For standard applications

- Provide this warranty on the ARDEX manufacturer/supplier standard form
- Commence the warranty from the date of installation of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

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1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

10 years For installation by ARDEX approved applicator.

- Provide this warranty on the ARDEX installer/applicator standard form
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS

Workers to be approved Ardex applicators with current training certificate. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.7 NO SUBSTITUTIONS

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

1.8 SYSTEM ARDEX PROJECT NOTIFICATION

Contact ARDEX with any relevant key dates and for a list of approved applicators. The contractor is to contact ARDEX prior to starting the project.

1.9 SPECIAL DETAILS

Where a standard detail does not exist, or if a standard detail cannot be applied, an approved alternative to be obtained from Ardex before proceeding with the installation.

Compliance information

1.10 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Applicator approval certificate from the manufacturer / importer / distributor
- Manufacturer / supplier warranty
- Installer / applicator warranty
- Producer Statement - Construction (PS3) from the applicator / installer
- Other information required by the BCA in the Building Consent Approval documents.

1.11 COMPLIANCE - BRANZ APPRAISAL

ARDEX Weldtec Exposed Membrane System has been appraised as meeting the provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 1061.

1.12 COMPLIANCE - CODEMARK CERTIFICATE

ARDEX WPM 715 meets the requirements of the NZBC when used within the conditions and limitations of its CodeMark Certificate of Conformity CMNZ70189.

Performance - General

1.13 WEATHERTIGHT PERFORMANCE

Accept responsibility for the weather-tight performance of the completed roofing system, including all penetrations through the roof and junctions with walls and parapets. All penetrations to comply with NZBC E2/AS1 and ARDEX recommendations.

Quality control and assurance

1.14 INSPECTIONS

Contractor is required to carry out or engage consultants to carry out inspections of parts of the work.



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2 PRODUCTS

Materials

2.1 ARDEX WEDLTEC WPM 715

Double ply, single layer membrane formulated with Impervashield technology, with heat weldable laps and seams.

Rolls 1.4m x 20m = 28m² coverage and thickness 1.5mm

Components

2.2 PRIMER - WELDTEC

Prime extremely absorbent surfaces where required with a 50/50 blend of ARDEX WA 98 A and ARDEX WA 98 S

2.3 REPAIR ADHESIVE

ARDEX RA 88 is a two component, ceramic blend epoxy. It is no-drip, non-sag, trowelable repair adhesive.

2.4 CONTACT ADHESIVE

ARDEX WA 98 A is a solvent-based contact adhesive ARDEX external waterproofing membranes.

2.5 ELEVATE BONDING ADHESIVE BA-2012 S/TF - SPRAY CONTACT ADHESIVE

Elevate Bonding Adhesive BA-2012 S/TF, a proprietary solvent based contact adhesive in cannister form, for use with WeldTec membranes.

2.6 SOLVENT

ARDEX WA 98 S is a solvent for cleanup of ARDEX WA 98 A.

2.7 DETAIL TAPE

WPM 710 DTdetail tape, self-adhesive butyl detail/finishing strip, 1.0mm thick. Available in 100mm x 20m, 150mm x 20m and 300mm x 20m roll.

2.8 DETAIL PATCH

ARDEX WPM 710 DT 150mm diameter circles for use when over flashing external corners.

2.9 KICKOUT FLASHINGS

Weldable moulded kickout flashings for use with WeldTec membranes. Available in black/grey.

2.10 SEALANT

ARDEX CA 20 P sealant and construction adhesive for use with WeldTec membranes.

2.11 PRESSURE BAR

Ardex Pressure Bar, an aluminium bar designed for the attachment of waterproof membrane against smooth walls in all roofing situations. Supplied in 38mm wide x 1.8m long bars.

2.12 RELEASE TAPE

ARDEX release tape is a 25mm wide pressure sensitive tape between two silicone release backings. For all joints in plywood and Strandsarking and junctions of plywood and Strandsarking with other materials.

Accessories

2.13 CLAMPING RING ROOF DRAINS OR OVERFLOWS

Clamp sealed drains or overflows - 65mm, 80mm, 100mm or 150mm. Refer to SELECTIONS.

2.14 ROOFING ACCESSORIES

ARDEX Drains, Leaf Guards or other accessories.

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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 that preliminary work, including formation of falls, flashing rebates, grooves, ducts, provision of battens and fillets and fixing of vents and outlets to levels and confirm it is of the required standard for this part of the work.

Confirm the moisture content of substrates:

Concrete substrate:	Relative humidity of 75% maximum
Plywood/ timber substrate:	Moisture Content of 20% maximum

For concrete substrates, check relative humidity using a hygrometer.

For green concrete where relative humidity is greater than 75%, apply 2 coats of Ardex WPM 300 to control moisture within the substrate prior to the installation of membrane.

3.4 CONDITIONS

Do not lay membrane in wet or misty conditions or below 6ºC. Check that the substrate is dry at time of laying.

3.5 CONFIRM MEMBRANE LAYOUT

If not detailed on the drawings, confirm the sheet layout to suit site conditions and Ardex specification. Placement of plinths, roof vents and or special effects are to be agreed between the Contract Administrator and approved membrane installer prior to proceeding with the work.

Installation/application - general / preparation

3.6 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.7 GENERALLY

All work and materials to comply with current ARDEX recommendations, BRANZ Appraisal 1061 and NZBC E2/AS1.

3.8 PRELIMINARY WORK

Ensure that preliminary work, including the formation of falls, flashing rebates, grooves, ducts, provision of fillets /battens and fixing of vents and outlets to levels, is complete and properly constructed to enable the system to work as intended. This work and the substrate to be smooth, clean, dry and stable.

3.9 ACCEPTANCE OF SUBSTRATE

Ensure that the substrate, including fillets, outlets and projections, meets design specification and ARDEX conditions.

Ensure whichever is the greater falls are provided:

- as shown in the drawings
- to the membrane manufacturer's requirements
- minimum to NZBC E2/AS1, paragraph 8.5.1.2, - 1:30 for roofs, 1:40 for plywood decks, 1:60 for concrete and 1:100 for gutters.

Falls must be built into the substrate and slope to an outlet.

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3.10 PLYWOOD SUBSTRATE

Ensure plywood is:

- a minimum of 17.5mm thick and complying with AS/NZS 2269.0
- CD structural grade with the sanded C side upwards
- hazard Class H3.2 with waterborne CCA treatment to AS/NZS 1604.1, and kiln dried after treatment
- laid with staggered joints (brick bond) with all edges of the sheets fully supported or with tongue and groove jointing
- laid with the face grain at right angles to the supports
- provide with 20mm H3.2 CCA treated triangular timber fillets at the base of all upstands and chamfer all external edges a minimum of 5mm
- fixed with 10-gauge x 50mm stainless steel countersunk head screws with 3mm gaps between all sheets
- fixed at 150mm centres on edges and 200mm in the body of the sheets.
- All joints with other materials to have 25mm release tape. Refer ARDEX technical data details.

Prepare the plywood surface to leave smooth, free of sharp edges, clean, dry and free of debris.

Note: LOSP treated plywood is NOT be used under ARDEX waterproofing membranes in any circumstances or conditions.

Application - Laying WPM 715 WeldTec

3.11 PRIMER

Substrates in cases of extreme porosity are to be primed. Prime with ARDEX WA 98A + ARDEX WA 98 S 50/50 Blend.

3.12 VENTING - ROOF/DECK SUBSTRATES

Install a minimum one ARDEX substrate vent for the first 40m² of flat roof area and one vent per 90m² thereafter, to ARDEX installation details.

3.13 VENTING - CONCRETE SUBSTRATE

Lay a 600mm grid pattern using 25mm self adhesive tape, venting to the roof perimeter, and fix a substrate vent at the appropriate tape intersections. Provide one vent for an area over 40m² then one vent for every 90m² thereafter.

3.14 POSITION WELDTEC WPM 715 SHEETS

Unroll WeldTec WPM715 membrane onto the prepared substrate as close to the required final positions as possible and allow to relax for a minimum of 20 minutes prior to attachment and welding.

The membrane to be positioned allowing minimum 40mm side and end laps with the adjoining membrane at all edges. Lay out the membrane in a fashion so that seams are installed to shed water.

3.15 APPLY ADHESIVE

Fold the membrane back onto itself to expose the substrate. Apply WA98 Adhesive to the exposed underside of the membrane and to the corresponding substrate. Apply using a brush, roller or airless spray equipment, in a thin, even coat at a coverage rate of 2.5m² per litre (includes coverage on both membrane and insulation).

3.16 APPLY SPRAY ADHESIVE

Fold the membrane back onto itself to expose the substrate. Apply Elevate Bonding Adhesive BA 2012 ST/F with the spray gun 20cm-30cm from the surface, to the exposed underside of the membrane and to the corresponding substrate. Apply the adhesive in a single even layer at a coverage rate of 70m² per cylinder (includes coverage on both membrane and substrate). Take care not to apply the spray adhesive over areas to be welded. Do not apply the adhesive when wind conditions are not favourable.

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3.17 INSTALL WELDTEC WPM 715 SHEETS

Allow adhesive to flash off until tacky without transfer to a dry finger. Roll the coated portion of the membrane onto the coated substrate slowly and evenly to minimise wrinkles. Fold back the un-bonded half of the sheet and repeat procedure. Roll membrane to field area with 35kg roller to ensure full contact of adhesive.

3.18 LAP JOINTS & WELD

All lap splices will be hot-air welded. Wherever possible all field (horizontal) splices to be completed using an automatic hot-air welding machine. Hand welders to be used on vertical splices or where an automatic welder is not practical. Optimum welding temperature is 460 degrees and speed of 2.0m / minute. Test welds shall be completed every time welder is started. Test pieces shall be marked with time and date and photographs taken for future reference and kept in the job file.

Seams to be a minimum of 40mm wide.

3.19 PENETRATIONS

Form and finish upstands, downturns, penetrations, sumps and vents to conform with ARDEX details and NZBC E2/AS1. WeldTec membranes are to be welded to the accessory if not mechanically clamped.

3.20 PENETRATIONS AND JUNCTIONS

Check that adjoining walls and parapets are prepared ready for the installation of the roofing. Confirm that the openings have been prepared ready for the installation of skylights and other penetrations through the roof. Required work includes the following:

- roofing installation neatly finished to all sides of openings and to all wall and parapet junctions
- installation of flashings (those required to be installed prior to installation of penetrating elements and/or wall linings).

If required, form and install movement joints to the Ardex recommended details.

3.21 INSPECT

Probe all completed welds to verify seam integrity daily. Do not probe seams until they have been allowed to cool. Any seams found to be insufficiently welded to be repaired.

Finishing

3.22 DEFECTIVE OR DAMAGED WORK

In the event of damage to the membrane, the membrane must be repaired by removing the damaged portion and replaced as for new. Leave work to the standard required for following procedures.

3.23 PROTECTION

Provide the following temporary protection of the finished work:

- foot traffic is to be limited during and after laying
- provide access boards for later operations and remove when no longer needed

3.24 ACCEPTANCE

Arrange for an inspection of the completed work. Protect and maintain roofing until completion of the contract works. A slip sheet protection layer should be used when a topping is required.

Completion & Commissioning

3.25 COMPLETION MATTERS

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

4 SELECTIONS

For further details on selections go to www.ardex.co.nz.
Substitutions are not permitted to the following.

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4.1 ARDEX WPM 715

Location:	Lodge membrane roof replacement - Refer Roof Plan
Substrate:	Structural Suitable Plywood - Existing to be review by applicator/contractor to determine if suitable for application.
Brand/type:	ARDEX WeldTec WPM 715
Thickness:	1.5mm
Colour:	Black
WPM Adhesive:	ARDEX WA98 A

4.2 ARDEX RAIN HEADS

Location:	External Roof
Brand/type:	ARDEX 10834 Moulded rainhead with overflow / 100mm or 150mm (indent only). ARDEX 10805 Moulded rainhead with overflow / 100mm or 150mm. ARDEX 10806 Moulded rainhead with overflow / 100mm or 150mm. ARDEX 10803 Moulded rainhead metal fixing strip. ARDEX 10802 Square Moulded rainhead / 100mm or 150mm (indent only).
Outlet Size:	100 or 150mm downpipe.

4.3 ARDEX ROOF OUTLETS

Location:	External Roof
Brand/type Option #1:	Aquaknight Roof Outlets, available with a clamping ring and grate.
Brand/type Option #2:	ALLProof roof drainage outlets, with grill or dome.
Note:	Include any SS grates or leaf guards.
Outlet:	65mm, 80mm, 100mm or 150mm diameter.

4.4 ARDEX SCUPPER OUTLETS

Location:	External Roof
Brand/type:	ARDEX 10276 200mm Scupper. ARDEX 23321 200mm Scupper Overflow.

4.5 ARDEX TERMINATION BAR

Location:	External Roof
Brand/type:	ARDEX Pressure Bar, 38mm wide.
Sealant:	ARDEX CA20 P.

4.6 ELECTRONIC LEAK DETECTION - ALTERNATIVE OPTION TO FLOOD TESTING.

Location:	External Roof
Substrate #1:	Structural Plywood - Requires the installation of an additional conductive surface prior to the membrane being placed. The conductive surface may be a detection grid, water-based carbon conductive coating or, if used foil faced PIR, a conductive ribbon.
System Note:	Contact ARDEX for further information. Refer to relevant electronic leak detection system Masterspec section or provide details of proposed electronic leak detection system.

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4521AC APL COMMERCIAL ALUMINIUM WINDOWS & DOORS

1 GENERAL

This section relates to the fabrication, supply and installation of APL Window Solutions commercial window and door systems manufactured by either Altherm, First or Vantage. It includes:

- APL Aluminium windows and doors
- Hardware and furniture
- Flashings and sealants

1.1 RELATED WORK

Refer to appropriate glazing sections for glass types

1.2 ABBREVIATIONS AND TERMS

SLS	Serviceability limit state
ULS	Ultimate limit state
WGANZ	Window & Glass Association NZ
PQAS	Powder Coating Quality Assurance System

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 G4/AS1	Ventilation of buildings
NZBC H1/AS1-AS2	Energy efficiency
NZBC H1/VM1-VM2	Energy efficiency
AS/NZS 1170.2:2011	Structural design actions - Wind actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 1580.108.1	Methods of test for paints and related materials - Determination of dry film thickness on metallic substrates - Non destructive methods
AS/NZS 1734	Aluminium and aluminium alloys - Flat sheet, coiled sheet and plate
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
NZS 3604	Timber-framed buildings
NZS 4211	Specification for performance of windows
NZS 4223.3	Glazing in buildings - Human impact safety requirements
NZS 4303	Ventilation for acceptable indoor air quality
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
BS EN 673	Glass in building - Determination of thermal transmittance (U-value) - Calculation method
AAMA 2603	Voluntary specification, performance requirements, and test procedures for pigmented organic coatings on aluminium extrusions and panels (with coil coating appendix)
AAMA 2604	Voluntary specification, performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels
AAMA 2604.05	Performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels
AAMA 2605	Voluntary specification, performance requirements and test procedures for superior performing organic coatings on aluminium extrusions and panels

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BS 3900	Methods of tests for paints, Part C5: Determination of film thickness
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
ISO 12631	Thermal performance of curtain walling - Calculation of thermal transmittance
BRANZ BU 636	Protecting Glass From Damage

Window & Glass Association NZ (WGANZ) documents:

Window Installation Guide	Guide to Window Installation as described in E2/AS1
PQAS	Powder Coating Quality Assurance System
SFA 3503-03	Anodic Oxide coatings on wrought aluminium for external architectural application (2005)

US Federal Specification:

TT-S-001543A	Sealing compound, silicone rubber base (for caulking, sealing and glazing in buildings and other structures)
TT-S-00230C	Sealing compound, elastomeric type, single component (for caulking, sealing and glazing in buildings and other structures)

CodeMark™ CMNZ10033 ver2	APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors.

1.4 MANUFACTURER / SUPPLIER DOCUMENTS

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

Altherm Specifier's Guide
First Specifier's Guide
Vantage Specifier's Guide
APL Specifier Guide to Fluoroset FP - Selling, Fabricating, Handling, Care and Maintenance
APL Window Energy Efficiency Rating System (WEERS) Report Series
APL Metro Series ThermalHEART® with Centrafix™ System Guide V1, April 2023
BRANZ Appraisal 1188 [2023] - APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors
BRANZ Appraisal 1259 [2024] - APL ThermalHEART+® Window and Door Systems

Manufacturer/supplier contact details

Company:	APL Window Solutions
Web:	www.altherm.co.nz www.firstwindows.co.nz www.vantage.co.nz www.aplnz.co.nz
Email:	specifiersguide@aplnz.co.nz
Telephone:	07 849 2113

Warranties

1.5 WARRANTY - MANUFACTURER / SUPPLIER

Provide a material manufacturer/supplier warranty:

5 years:	For fabrication
2 years:	For hardware

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements

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1.6 WARRANTY - INSTALLER / APPLICATOR

Provide an installer/applicator warranty:

5 years: For installation

- Provide this warranty in the installer/applicator standard form.
- 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 SHOP DRAWINGS

Refer to the general section 1235 SHOP DRAWINGS for the requirements for submission and review and the provision of final shop drawings.

Provide shop drawings to show the general arrangement including, but not be limited to:
Fully dimensioned elevations of all elements
Construction details (minimum scale 1:5) showing the interface between joinery elements and the building structure including: -

- Jointing details and method of fixing between individual elements and between this installation and adjacent work
- Interaction between claddings and linings
- Flashing details
- Sealants and air seals
- Non standard fixing details including bracketing

And where required the following:

- Design calculations
- Producer Statement in the form PS1 Producer Statement Design
- Rebate sizes
- Dimensions of all typical elements and of any special sizes and shapes
- Provision for the exclusion and/or drainage of moisture
- Provision for adjustment of fixings to ensure true alignment of windows and doors
- Sealant types and full size sections of all sealants and backing rods
- Provision for thermal movement
- Provision for seismic movement and movement under wind loads
- Sequence of installation
- Glazing specification and details

Where requested provide the following additional information

- Information of Professional Indemnity Insurance held by the person providing the calculations and shop drawings

Submit shop drawings for review to ~.

- ~ working days (at least) before fabrication is planned to commence, provide shop drawings for review.
- Complete shop drawing review before commencing fabrication and/or installation.

1.8 NO SUBSTITUTIONS

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

1.9 QUALIFICATIONS

Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

Compliance Information

1.10 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:



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- Manufacturer / supplier warranty
- Installer / applicator warranty
- Other information required by the BCA in the Building Consent Approval documents.

1.11 COMPLIANCE

Windows and doors to be manufactured and installed to NZBC E2/AS1.

1.12 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.

Performance

1.13 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.

1.14 STRUCTURAL / WEATHER-TIGHTNESS

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

1.15 PERFORMANCE - THERMAL

Thermal performance of windows & doors to NZBC H1/AS1-AS2 & NZBC H1/VM1-VM2. The construction R-value of windows & doors determined in accordance with Appendix E, E1 Vertical windows and doors:

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

Refer to SELECTIONS for construction R-values.

Performance - Wind

1.16 DESIGN PARAMETERS - NON SPECIFIC DESIGN

Design the installation to the wind zone parameters of NZS 3604, table 5.1.

Refer to SELECTIONS for wind zone.

Finishes

1.17 CERTIFY COATINGS - POWDER COATING

Certify on request, compliance with this specification and support with control and sampling records. Test for film thickness to BS 3900, part C5, method No. 4, using method (b) or to AS/NZ 1580.108.1 for certifying thickness and method (a) where any dispute arises as to the thickness provided.

The coating should be applied by an applicator who can certify that the coating has been applied in accordance with the specification.

2 PRODUCTS

2.1 WINDOWS

Refer to SELECTIONS for type and finish.

2.2 DOORS

Refer to SELECTIONS for type and finish.

Materials

2.3 ALUMINIUM EXTRUSIONS

Alloy designation to comply with AS/NZS 1866. Branded and extruded for anodising or powder coating.

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2.4 ALUMINIUM SHEET AND STRIP

Complying with AS/NZS 1734 of suitable thickness. Rolled for anodising or powder coating.

Alloy designation: 5251 - H16 or 5005 - H16

2.5 STAINLESS STEEL SHEET AND STRIP

Type: 316 austenitic steel
Finish grade: 2B (satin lustre)

2.6 GLASS

Refer to the glazing section for glass types and installation.

Reveals

2.7 REVEALS - TIMBER PAINTED

Timber reveals for paint finish with all sides primed grooved for wall linings or flush finished for architraves.

Accessories

2.8 FLASHINGS GENERALLY

To NZBC E2/AS1, 9.1.10 Windows and Doors. Material, grade and colour of head flashings to match the window frames. Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

Components for installation - cavity systems

2.9 STANDARD CAVITY CLOSER

A device constructed from either aluminium or PVC to close the cavity above the window or door unit, between the cladding and head flashing, to provide ventilation in accordance with NZBC E2/AS1 to the spaces above the window or door.

2.10 SUPPORT BAR

WGANZ extruded aluminium support bar with built in drainage and ventilation to NZBC E2/AS1, to provide continuous support to the window unit. Size to suit cladding type.

Components

2.11 GLAZING GASKETS

Thermoplastic rubber. Do not stretch glazing gaskets during installation. Measure and cut gaskets 5-10% over length before installation.

2.12 HARDWARE AND FURNITURE

Hinges, stays, catches, fasteners, latches, locks and furniture as offered by the window and door manufacturer. Refer to SELECTIONS for type and finish. Key alike all lockable window hardware able to be keyed alike.

2.13 SAFETY STAYS

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

2.14 FIXING BRACKETS

Designed by manufacturer to specific design.

Sealants

2.15 STRUCTURAL SEALANT

Silicone chemically curing sealant specifically formulated and tested or approved equivalent with not less than a ± 40% movement factor complying with US Federal Specification TT-S-001543A.

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2.16 WEATHERING/INSTALLATION SEALANT

Building sealant used in accordance with manufacturer's instructions for weather sealing aluminium frames to the cladding, complying with US Federal Specification TT-S-001543A, or a one-part polyurethane moisture curing, elastic joint sealant of medium modulus (± 25% movement) to US Federal Specification TT-S-00230C.

2.17 TRICKLE VENTILATORS

Refer to SELECTIONS.

Finishes

2.18 DURALLOY POWDER COATED ALUMINIUM

Polyester powder organic coating in accordance with WGANZ PQAS and AAMA 2603.

3 EXECUTION

Conditions - generally

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.

3.4 PROTECTIVE COVERINGS

Retain protective coverings and coatings to BRANZ BU 636 and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades. Remove protection on completion.

3.5 ADDITIONAL PROTECTION

Supply and fix additional protection as necessary to prevent marking of surfaces which will be visible on completed work.

Assembly

3.6 FABRICATION

Fabricate frames as detailed on shop drawings. Install fixing brackets, glazing, hinges, stays and running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.

3.7 TIMBER REVEALS

Before fixing to aluminium frames, ensure that timber reveals which are being painted have been primed on all surfaces. Securely fix reveals through aluminium fin.

3.8 HARDWARE GENERALLY

Factory fit all required and scheduled hardware. Account for all keys and deliver separately to the site manager.

3.9 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.

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Installation - windows and doors

3.10 SUPPLY OF FIXINGS

Use only fixings and fastenings recommended by the manufacturer of the component being fixed and to comply with the ULS wind pressure stated in SELECTIONS.

3.11 EXPOSED FIXINGS AND FASTENINGS

Fixings and fastenings exposed to the weather to be aluminium, or Type 304 stainless steel.

3.12 PROTECTED FIXINGS AND FASTENINGS

Fixings and fastenings not exposed to the weather may be hot-dip galvanized steel with a coating weight of 610 g/m² complying with AS/NZS 4680.

3.13 CORROSION PROTECTION

Before fixing, apply suitable barriers of bituminous coatings, stops or underlays between dissimilar metals in contact, or between aluminium in contact with concrete.

3.14 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 cladding 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.
- Full height 20mm jamb battens to NZBC E2/AS1, Figure 9.1.9.4: General window and door opening for direct fixed, (direct fix only)
- claddings neatly finished off to all sides of openings
- installation of flashings (those which are required to be installed prior to frames).
- application of waterproof sealer to all door and window sills in concrete floor or concrete sill situations. To door sills only, apply a suitable membrane over the sealer.
- all in accordance with the shop drawings, where applicable.

3.15 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.16 INSTALLATION

Fix to comply with the reviewed shop drawings and installation details including flashings and bedding compounds, pointing sealants and weathering sealants.

3.17 INSTALLATION FIXING

To NZBC E2/AS1, paragraph 9.1.9.10. Fix windows/doors through reveal to frame with a pair of 75 x 3.15mm minimum galvanised jolt head nails or a pair of 8 gauge x 65mm minimum stainless steel screws. Fix at a maximum of 450 centres along all reveals and a maximum of 150mm from reveal ends. Ensure fixings do not penetrate metal flashings.

Install packers between reveals and framing at fixing points, except at the head.

3.18 INSTALLATION CAVITY CONSTRUCTION

Install to WGANZ Window Installation Guide details and drawings including WGANZ sill support bars.

For thresholds with support bars fixed through membranes, pre-fill support bar screw holes with silicone sealant to NZBC E2/AS1, Figure 8.5.6.1D: Junctions with walls for membrane.

3.19 INSTALL FLASHINGS

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

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Except where window/door frames are recessed, ensure that head flashings over-sail unit by 20mm plus any jamb scriber width at each end.

3.20 COMPLETE AIR SEAL

To NZBC E2/AS1, 9.1.5 Air seals. Form an air-tight seal by means of proprietary expanding foam or sealants used with PEF backing rods, applied between the window / door reveal and structural framing to a depth of 10 - 20mm, to provide a continuous air tight seal to the perimeter of the window or door.

3.21 FIX HARDWARE

Fix all sash and door hardware and furniture as scheduled.

Application - jointing and sealing

3.22 SEAL FRAMES ON SITE

Seal frames to each other and to adjoining structure and finishes, to the requirements of the window and sealant manufacturer and to make the installation weathertight. In very high and extra high or greater wind zones, seal between the window head and the head flashing. Do not seal the junction between the sill member and the cladding or sill flashing which must remain open.

3.23 PREPARE JOINTS

Ensure joints are dry. Remove loose material, dust and grease. Prepare joints in accordance with the sealant manufacturer's requirements, using required solvents and primers where necessary. Mask adjoining surfaces which would be difficult to clean if smeared with sealant.

3.24 BACK UP

When using back-up materials do not reduce depth of joint for sealant to less than the minimum required by the manufacturer of the sealant. Insert polyethylene rod or tape back-up behind joints being pointed with sealant.

3.25 SEALANT FINISH

Tool sealant to form a smooth fillet with a profile and dimensions required by the sealant manufacturer. Remove excess sealant from adjoining surfaces, using the cleaning materials nominated by the sealant manufacturer and leave clean.

3.26 PROTECTIVE COVERINGS

Retain protective coverings and coatings and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades.

Anodised finishes should be protected from cement products and requires immediate clean-up of cement splashes. Only use tapes that have passed WGANZ testing on powder coated products. Remove protection on completion.

3.27 IN-SITU TOUCH-UP TO POWDER COATED ALUMINIUM

In situ touch-up of polyester or fluoropolymer coated aluminium is only permitted to minor surface scratching. Otherwise replace all damaged material.

3.28 SAFETY

Indicate the presence of transparent glasses for the remainder of the contract period, with whiting, tape or signs compatible with the glass type. Indicators other than whiting must not be applied to the glass surface. Masking tape must not be used for this purpose.

3.29 MANIFESTATIONS

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

Completion & Commissioning

3.30 COMPLETION MATTERS

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

4 SELECTIONS

For further details on selections go to www.aplnz.co.nz.

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

4.1 NOMINATED FABRICATOR

The nominated fabricators for this section of work are;

Brand:	APL
Company:	Hagley Commercial
Contact:	John Peez
Email:	John.Peez@hagley.co.nz
Telephone:	021 532 047

4.2 SUPPLY AND INSTALLATION

Supply and installation of the specified APL aluminium joinery system.

Supply:	By fabricator
Installation:	By fabricator

Performance

4.3 THERMAL PERFORMANCE - VERTICAL WINDOWS & DOORS

Refer to the Window & Door Schedule for individual windows/door construction R-values

Performance - Wind

4.4 DESIGN PARAMETERS - NON SPECIFIC DESIGN

Building wind zone	VH (refer to NZS 3604, table 5.1)

Finishes - Powder Coating

4.5 DURALLOY PLUS + - POWDER COATING FINISH

Type:	Polyester organic powder coating
System integrity:	Minimum 15 years film integrity, 15 years colour integrity
Colour:	TBC
Finish:	TBC

Glazing

4.6 GLASS

Type/thickness:	Refer to appropriate AGP glazing sections for type and thickness.

Hardware

4.7 WINDOW HARDWARE

Window fastener:	Refer to Window Shop Drawings

4.8 DOOR HARDWARE

Locks & handles:	TBC

4.9 HARDWARE FINISH

Finish:	Powder coat
Colour:	Black

4.10 MANIFESTATIONS

Location:	Full hieght glazed doors
Type/details:	Tasman Brand decal

Flashings and Sealant

4.11 FLASHINGS

Material/type:	0.7mm powdercoated aluminium
Pattern:	Formed to suit details provided



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4.12 WEATHERING SEALANT

Type:	1-part polyurethane moisture curing, elastic joint sealant
Colour:	to match joinery

Reveals

4.13 TIMBER JAMB REVEALS

Timber species:	Radiata Pine
Grade/treatment:	Finger jointed to AS/NZS 1491 and pre-primed. / H3.1
Thickness:	25mm
Reveals:	Grooved for wall linings
Finish:	Paint finish

Window and door system - APL Architectural Series ThermalHEART

4.14 APL ARCHITECTURAL SERIES THERMALHEART AWNING WINDOWS

Brand:	APL Architectural Series ThermalHEART®
Window No.:	as per window and door schedule included on drawings
Sash Type:	Facing
Frame size:	Refer to shop drawings

4.15 APL ARCHITECTURAL SERIES THERMALHEART SLIDING DOORS

Brand:	APL Architectural Series ThermalHEART®
Door No.:	as per window and door schedule included on drawings
Frame size:	Refer to Shop drawings

4.16 APL ARCHITECTURAL SERIES THERMALHEART+ HINGED DOORS

Type:	APL Architectural Series THERMALHEART+®
Door No.:	as per window and door schedule included on drawings
Frame size:	Refer to Shop drawings
Stile size:	Refer to Shop drawings
Rail size:	Refer to Shop drawings

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4553 EXTERIOR DOORS

1 GENERAL

This section relates to the supply and installation of:

- exterior door frames and doors that are not of the same type as the generally specified windows and doors

1.1 RELATED WORK

Refer to glazing sections for glazing

Refer to painting section/s for paint 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

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 H1/AS1-AS2	Energy efficiency
NZBC H1/VM1-VM2	Energy efficiency
AS/NZS 1170.2: 2011	Structural design actions - Wind actions
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications
NZS 4211	Specification for performance of windows
NZS 4214	Methods for determining the total thermal resistance of parts of buildings
NZS 4223.3	Glazing in buildings - Human impact safety requirements
BS EN 673	Glass in building - Determination of thermal transmittance (U-value) - Calculation method
BS 6510	Steel framed windows, and glazed doors
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
AAMA 2603	Voluntary specification, performance requirements, and test procedures for pigmented organic coatings on aluminium extrusions and panels (with coil coating appendix)
AAMA 2604	Voluntary specification, performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels.
AAMA 2605	Voluntary specification, performance requirements and test procedures for superior performing organic coatings on aluminium extrusions and panels.

Window & Glass Association NZ (WGANZ) documents:

PQAS	Powder Coating Quality Assurance System

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SFA 3503-03 Anodic Oxide coatings on wrought aluminium for external architectural application (2005)

Warranties

1.4 WARRANTY

5 years: Supply and installation

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 to NZS 4211

1.5 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.

1.6 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 - thermal

1.7 PERFORMANCE - THERMAL, HOUSING ONLY

Thermal performance of glazed doors to NZBC H1/AS1. The construction R-Value of doors to be determined by Appendix E, Table E1.1.1 Construction R-values (R window) of selected generic windows and doors. Refer to SELECTIONS for construction R-values.

1.8 PERFORMANCE - THERMAL, OPAQUE DOORS

Thermal performance of opaque doors and door panels to NZBC H1/AS1. The construction R-Value of opaque doors and door panels to be determined by NZS 4214. Refer to SELECTIONS for details.

1.9 PERFORMANCE - THERMAL

Thermal performance of doors to NZBC H1/AS1-AS2 & NZBC H1/VM1-VM2. The construction R-value of windows & doors determined in accordance with Appendix E, E1 Vertical windows and doors:

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

Refer to SELECTIONS for construction R-values.

Performance - wind - exterior doors and frames

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 - general

2.1 EXTERIOR TIMBER

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

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

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

2.4 ALUMINIUM EXTRUSIONS
Alloy designation to comply with AS/NZS 1866. Branded and extruded for anodising or powder coating.

2.5 STANDARD DOORS
Frames to profile as detailed and dimensioned.

2.6 GLASS
Refer to glazing sections for glass type and thickness. To NZS 4223.3 for human impact safety requirements.

2.7 PANELS
Refer to SELECTIONS for type.

Components

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

2.9 DOOR FURNITURE
Refer to 5521 HARDWARE for type.

2.10 METAL FASTENINGS
Stainless steel or non-corrodible metal.

2.11 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.

2.12 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.

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

Finishes - Timber

2.14 PRIMER -TIMBER DOORS AND FRAMES
Alkyd wood primer coating system.

Finishes - Aluminium

2.15 POWDER COATED ALUMINIUM - EXTRA-DURABLE POLYESTER
Polyester powder organic coating in accordance with WGANZ PQAS, AS 3715, and AAMA 2603

2.16 POWDER COATED ALUMINIUM - HIGH-DURABILITY POLYESTER
High-performance polyester powder coating in accordance with WGANZ PQAS , and AAMA 2604.

2.17 POWDER COATED ALUMINIUM - HIGH DURABILITY FLUOROPOLYMER
Very high-performance PVF2 fluoropolymer powder coating in accordance with WGANZ PQAS and AAMA 2605.

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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 CHECK ALL OPENINGS

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

3.6 CONFIRM PREPARATION OF EXTERIOR WALL OPENINGS

Confirm that exterior wall openings have been prepared ready for the installation of door frames. Do not proceed with the 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 door frames to NZBC E2/AS1, 9.1.4 Wall underlays to wall openings.
- full height 20mm jamb battens to NZBC E2/AS1, Figure 9.1.9.4: General window and door opening for direct fixed,
  (direct fix only).
- claddings neatly finished off to all sides of openings
- installation of flashings (those which are required to be installed prior to frames).

Assembly

3.7 FABRICATION GENERALLY

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

3.8 HINGES

Fit hinges to doors to support the door size and weight - minimum of

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

3.9 FACTORY FINISHING

Before delivery to site:

- 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.

3.10 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.

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- Re-prime/seal any subsequently cut edge.
- Refer to painting section/s for finishing.

Installation - frames

3.11 FIXING FRAMES

Fit flashings to frame and framing as required. Fix with corrosion resistant fixings and assemble frames rigidly in place, plumb, level and true to line and face without distortion and with all doors fully and easily operating. Ensure fixings in vicinity of hinges and opposite lock/latch. Fit facings, scribers, draught-stopping and sealants.

3.12 TIMBER STUD WALLS - TIMBER FRAMES

Wedge into opening and screw or 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.

3.13 METAL FRAMES - TIMBER REVEALS

Screw or nail through reveals to NZBC E2/AS1, paragraph 9.1.9.10. Install packers at fixing points except at head.

3.14 METAL FRAMES - HIDDEN FIXINGS

Fix in place using proprietary fixing anchors, brackets or straps, etc, to the manufacturer's requirements.

3.15 METAL FRAMES - EXPOSED FIXINGS

Fix in place to the manufacturer's requirements.

3.16 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.

3.17 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.

3.18 INSTALL FLASHINGS

Install flashings to heads, jambs and sills of frames as required by the door 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 unit by 20mm minimum plus any jamb scriber width 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.

Installation - doors

3.20 INSTALL PANELS OR GLAZING

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.

3.21 FIX HARDWARE

Fix all sash hardware and furniture as scheduled.

3.22 MANIFESTATIONS

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

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3.23 INSTALL FURNITURE

Install latches, locks and door furniture as scheduled.

3.24 CHECK

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

Completion

3.25 PROTECTION

Protect door sill from damage. Protect all finishes against damage from adjacent and following work.

3.26 REPLACE

Replace damaged, cracked or marked elements.

3.27 TRADE CLEAN

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

3.28 LEAVE

Leave work to the standard required for following procedures.

3.29 REMOVE

Remove safety indicators and protective coverings, and wipe down all doorsets thoroughly to leave them perfectly clean. Remove all debris, unused materials and elements from the site.

4 SELECTIONS

Performance - thermal

4.1 THERMAL PERFORMANCE - DOORS

Door Number:	Construction R-value:
Refer Architectural drawings	0.50 - R-value to NZBC H1/AS1& VM1

Frames

4.2 EXTERIOR DOORS - ALUMINIUM FRAMES (POWDER COAT FINISH)

Location:	Refer to architectural drawings
Type:	Exposure Zones B to D - High-Durability powder coating (AAMA 2604), with minimum 15-years film and colour integrity. For over 3-storeys, and within Exposure Zones B and C - minimum 15-years for film and colour integrity. For over 3-storeys within Exposure Zone D contact manufacturer for clarification of powder coat type.
Powder Coating:	Refer to NZS 3604, Section 4.2, for Exposure Zones, and BRANZ BU 634, Table 1.
Thickness:	Average of 90 microns with a minimum of 50 microns
Colour:	Refer to architectural drawings
Finish:	Refer to manufacturer literature.

Doors / door leafs

Hardware and accessories

4.3 FLASHINGS

Material/type:	Varies - Refer to architectural detail set
Pattern:	Formed to suit details provided

4.4 SEALS

Brand /type:	Varies - refer to architectural and structural documentation

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4.5 HINGES

Type:	Varies - refer to architectural and structural documentation
Size:	100mm. All exterior door to have at least 3 hinges.
Pin:	Fixed pin
Material:	Stainless steel

4.6 HARDWARE

Door number:	Refer architectural drawings
Location:	Refer architectural drawings

Panels and glazing

4.7 GLAZING

Type:	Glazing is Argon filled / low-e clear double glazing, weighted and sized for the application in accordance with NZS 4223. All Glazing shall comply with NZS4223:3:2016
Safety Glazing:	Safety glazing, when required, to be head soaked toughened safety glass to the thickness required by NZS 4223. Generally safety glazing required for fully framed panels greater than 500 x 1000mm and within 500mm of the floor, or for side panels greater than 500 x 1000mm or with 500mm of the floor. Safety glazing required for any door (except vision panel) or an internal partition.
Colour/finish:	All glazing is clear and, where required for privacy, is surface-treated, etched glass.

4.8 MANIFESTATIONS

Type:	Varies - refer to architectural and structural documentation

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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 4521 ALUMINIUM WINDOWS AND DOORS for aluminium joinery.

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
NZBC F4/AS1	Safety from falling
NZBC F9/AS1	Means of restricting access to residential pools
NZBC H1/AS1-AS2	Energy Efficiency
NZBC H1/VM1-VM2	Energy Efficiency
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

Warranties

1.4 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.

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Performance

1.5 ENERGY EFFICIENCY

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

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 TEXTURED, PATTERNED OR OBSCURE GLASS

Translucent, annealed, rolled glass with a decorative pattern on one surface.

2.3 LAMINATED GLASS

Grade A Safety Glass to AS/NZS 2208 with PVB or CIP resin interlayer.

2.4 TOUGHENED GLASS

Grade A Safety Glass to AS/NZS 2208.

Heat soaked toughened glass to NZS 4223.1, Appendix E required for critical areas.
Refer to SELECTIONS.

2.5 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, 3.5.
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 #3 - cavity face of the interior pane. Low E4.

Materials, mirrors

2.6 SAFETY MIRROR GLASS

4mm, 5mm and 6mm annealed float glass mirror vinyl back safety glazing material to AS/NZS 2208.

Components, aluminium and uPVC glazing

2.7 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.

2.8 SETTING BLOCKS

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

Components, wall mounted glass (mirrors and splashbacks)

2.9 GLASS ADHESIVE

Adhesive mirror-mastic and double-sided adhesive tape.

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.

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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.

Application - wall mounted glass (mirrors and splashbacks)

3.16 WALL MOUNTED GLASS, ADHESIVE FIXED

For mirrors and splashbacks, fix with adhesive mirror-mastic and double-sided adhesive tape. Adhesive area 0.2 m2 per 1 m2 of glass to NZS 4223.3.



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Finishing

3.17 SAFETY

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

Completion

3.18 TRADE CLEAN

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

3.19 REPLACE

Replace damaged, cracked or marked glass.

3.20 LEAVE

Leave work to the standard required by following procedures.

3.21 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

Performance - wind

4.1 WIND ZONE

Ensure design meets site wind zone: as determined from NZS 3604, NZS 4223.4

Glass by type

4.2 CLEAR FLOAT GLASS

Location:	Varies - refer to architectural documentation
Thickness:	4 - 6mm

4.3 OBSCURE GLASS IN BATHROOM & TOILET ROOM WINDOWS

Location:	Bathroom and toilet windows
Type:	Toughened obscure glass; Etchlite obscure pattern

4.4 TOUGHENED GLASS

Location:	Varies - refer to architectural documentation
Brand/type:	Toughened
Thickness:	10mm

4.5 INSULATING GLASS UNITS (IGU'S)

Type:	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, 3.5. Low E4 on surface #3/ Argon gas filled. Thermally improved spacer. Grey Tint to Unit (sample of glass required for client sign off/0

4.6 BATHROOM MIRROR 6MM SAFETY VINYL BACKED MIRROR GLASS WITH POLISHED EDGES

Screw fixings with proprietary stainless steel countersunk screw heads fitted with black neoprene washers with fine threaded upstands to receive chrome plated dome screw covers. Edgework polished and bevelled.

Safety Vinyl Back Mirror in Grade A Safety Glass to AS/SNZ 2208 and standard thickness 6mm. Refer to NZS 4223.3, 8 and 17, and/or manufacturer's catalogue. Large mirrors (0.3sqm - 0.6sqm) are screw fixed with white powder coated aluminium channel top and bottom edges only with end caps

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4610AG AGP® GLAZING RESIDENTIAL

1 GENERAL

This section relates to the supply and fixing of **AGP®** glass products for use with APL Window Solutions external and internal joinery in residential type buildings and includes:

- Window and door glazing

This **AGP** section is to be read in conjunction with **APL Window Solutions** branded sections

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:

IGU	Insulating Glass Units
PVB	Polyvinyl Butyral
uPVC	Unplasticised polyvinyl chloride

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 B2/AS1	Durability provisions for building elements
NZBC F2/AS1	Hazardous building materials
NZBC H1/AS1	Energy Efficiency
NZBC H1/VM1	Energy Efficiency
AS/NZS 1170.2:2011	Structural design actions - Wind actions
AS/NZS 2208	Safety glazing materials in buildings
AS/NZS 4667	Quality requirements for cut and processed glass
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
BPS	Building Product Specifications

1.4 MANUFACTURER'S DOCUMENTS

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

- Product notes and manufacturing limitations
- Care and maintenance of your AGP glass
- Condensation guide
- AGP Glass handling, storage & transportation guide
- Guide to visual quality of residential glass and insulating glass units (IGUs)
- Insulating glass unit (IGU) warranty

Manufacturer/supplier contact details

Company:	AGP
Web:	www.agpl.co.nz
Email:	technical@agpl.co.nz
Telephone:	07 849 8880



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Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

12 years:	For insulating glass units (IGUs)
12 years:	For float glass
12 years:	For toughened glass
12 years:	For laminated glass

- 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 supply.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 NO SUBSTITUTIONS

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

1.7 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.8 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:

- Care and maintenance of your AGP glass
- Condensation guide

Provide this information prior to practical completion.

Compliance information

1.9 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Applicator approval certificate from the manufacturer / importer / distributor
- Manufacturer / supplier warranty
- Installer / applicator warranty
- Producer Statement - Construction from the applicator / installer
- Other information required by the BCA in the Building Consent Approval documents

Performance

1.10 THERMAL STRESS ANALYSIS

For non-heat treated glass obtain a thermal stress analysis for tinted, reflective and other solar control vision glass including IGU's for review before placing final order.

1.11 ENERGY EFFICIENCY

Provide glazing to comply with H1 Energy efficiency requirements of NZBC H1/AS1 or NZBC H1/VM1.
Refer to SELECTIONS and schedules for location and type of glazing.

Performance – Wind (design by contractor)

1.12 DESIGN PARAMETERS WIND - DESIGN BY CONTRACTOR

Design the installation to the manufacturer requirements and as appropriate for the project wind design parameters. Refer to SELECTIONS.

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2 PRODUCTS

Materials, windows and doors

2.1 CLEAR FLOAT GLASS

Clear ordinary transparent float glass for general window/door glazing application. Thickness to NZS 4223.1, NZS 4223.Supp1, NZS 4223.3 and NZS 4223.4.

2.2 OBSCURE GLASS

Translucent rolled glass, sand-blasted or acid etched on one surface for a decorative finish.

2.3 LAMINATED GLASS

Grade A safety glass to AS/NZS 2208 with PVB interlayer.

2.4 TOUGHENED GLASS

Grade A safety glass to NZBC F2/AS1 and AS/NZS 2208.

Heat soaked toughened glass to NZS 4223.1, Appendix E for critical areas.
Refer to SELECTIONS.

2.5 INSULATING GLASS UNITS (IGU'S)

To the performance requirements of NZS 4223.2.
Marking to NZS 4223.2 as modified by NZBC B2/AS1, 3.5.
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

2.6 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.

2.7 SETTING BLOCKS

APL Window and Door Systems setting blocks consisting of PE, PP or PA material selected to suit the frame and panel type.

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To NZS 4223.1, NZS 4223.2, NZS 4223.3 as modified by BPS paragraph 4.4.1.4, and NZS 4223.4.
Interface between external glazing and other elements to be wind and watertight on completion.

3.2 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products, and to the AGP Glass handling, storage & transportation guide.

3.3 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.

3.4 PRE-INSTALLATION REQUIREMENTS

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

3.5 GLASS CONDITION

All glass to have undamaged edges and surfaces in accordance with AS/NZS 4667.

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3.6 GLASS THICKNESS

Whether stated in a glazing schedule or not, confirm glass thicknesses to NZS 4223.1, NZS 4223.3, NZS 4223.4. 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.

3.7 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.

Conditions - human impact safety requirements

3.8 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 as modified by BPS paragraph 4.4.1.4, for thickness and maximum areas of safety glass.

3.9 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.

3.10 CONTAINMENT

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

Assembly

3.11 WORKING OF GLASS

All working of glass as required in NZS 4223.1.

3.12 EDGE WORK

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

Installation/application

3.13 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.
Refer to AS/NZS 4667 and NZS 4223.1 for glass and glazing.

3.14 INSTALL SAFETY GLASS

To NZS 4223.3.

3.15 INSTALLING INSULATING GLASS UNITS

Refer to the APL branded window manufacturer's requirements and before glazing ensure that the materials forming the opening are strong enough to accept the weight, the rebates are the correct size and prepared to receive the units to the manufacturers requirements. Fit setting and location blocks and bead glaze units using a compatible sealant.

Application aluminium

3.16 INSTALL GLASS TO ALUMINIUM FRAMES

Install glass to NZS 4223.1.

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

Finishing

3.17 SAFETY

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

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3.18 MANIFESTATIONS

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

Completion & Commissioning

3.19 COMPLETION MATTERS

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

3.20 COMPLETION - TESTS & CERTIFICATION

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

~

4 SELECTIONS

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

Performance - wind

4.1 WIND ZONE - NON-SPECIFIC DESIGN

Refer to general section 1220 PROJECT for design wind pressures.

Glass by type

4.2 AGP OBSCURE GLASS

Location:	Bathrooms and WC's
Brand:	AGP
Pattern:	Acid Etch
Thickness:	to suit standards

4.3 AGP PVB LAMINATED GLASS

Location:	As required
Brand:	AGP
Type:	PVB
Colour:	Clear
Interlayer:	0.38mm Standard
Thickness:	As required

4.4 AGP TOUGHENED GLASS

Location:	As required
Brand:	AGP
Type:	Toughened and Heat Soaked
Thickness:	As required

4.5 AGP INSULATING GLASS UNIT (IGU)

Location:	All Glazing
Brand/type:	AGP Double Glazing System
Outer glass type:	Clear
Outer glass thickness:	As required
Spacer width:	20mm
Spacer type:	ATS-Architectural Thermal Spacer®
Space gas:	Argon
Inner glass type:	Clear
Inner glass thickness:	As required

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4711P PINK® BATTS® THERMAL INSULATION

1 GENERAL

This section relates to Comfortech Building Performance Solutions™ Pink® Batts® thermal insulation materials for walls, floors, ceilings and roofs.

1.1 RELATED WORK

Refer to 4161 UNDERLAYS, FOIL AND DPC for wire netting, wall underlays and roofing underlays

Refer to 4721P Pink® Batts® Acoustic Insulation for acoustic insulation.

1.2 ABBREVIATIONS AND DEFINITIONS

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

Documents

1.3 DOCUMENTS

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

NZBC H1/AS1-AS2	Energy efficiency
NZS/AS 1530.1	Methods for fire tests on building materials, components and structures - Combustibility test for materials
AS/NZS 3000	Electrical installations (Known as the Australian/New Zealand Wiring Rules)
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents related to this section are:

Comfortech H1. Done - Insulation Guide
Comfortech Pink® Batts® Insulation - Safety Data Sheet.
Comfortech Pink® Batts® Thermal Solutions - Product Guide
Comfortech Pink® Superbatts® Thermal Solutions - Installation Guide
Comfortech Pink® Batts® - Product Data Sheets
Comfortech Pink® Batts® - Installation Instructions
BRANZ Appraisal 238 - Pink® Batts® Insulation
BRANZ Appraisal 632 - Pink® Batts® SnugFloor® Insulation
BRANZ Appraisal 767 - Pink® Batts® Skillion Roof Insulation

Manufacturer/supplier contact details

Company:	Tasman Insulation NZ Ltd
Trading as:	Comfortech Building Performance Solutions™
Web:	www.pinkbatts.co.nz
Telephone:	0800 746 522

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

50 years	For Pink® Batts® thermal insulation products

- 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.

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Refer to the general section 1237 WARRANTIES for additional requirements.

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

50 years	For Pink® Batts® insulation products

- 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

1.7 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for 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.

Compliance information

1.9 BRANZ APPRAISAL

Pink® Batts® Insulation meets the requirements of the NZBC when used in accordance with the conditions and limitations listed in the following Branz Appraisal:

BRANZ Appraisal 238 - Pink® Batts® Insulation
BRANZ Appraisal 632 - Pink® Batts® SnugFloor® Insulation
BRANZ Appraisal 767 - Pink® Batts® Skillion Roof Insulation

Performance - Fire

1.10 FIRE PROPERTIES

Pink® Batts® insulation products, with the exception of Pink® Batts® R2.6 Wall Insulation and Pink® Batts® R2.8 Wall Insulation products, are classified as non-combustible when tested to NZS/AS 1530.1 and achieve a Group Number of 1-S.

1.11 FIRE HAZARD TESTING

Pink® Batts® insulation products withstand the 30s Needle Flame test in accordance with AS/NZS 60695.11.5, that is required for insulation abutting or covering recessed downlights intended to be in contact with IC, CA 80, CA 135 luminaires.

2 PRODUCTS

Materials

2.1 PINK® BATTS® WALL INSULATION

Pink® Batts® Wall Insulation (Pink® Batts® Classic, Pink® Batts® Narrow, Pink® Batts® Ultra®, Pink® Batts® Ultra® 140mm Wall, Pink® Batts® Ultra® 140mm Narrow Wall) rectangular bio-soluble fibrous glass wool slabs manufactured from up to 80% recycled window glass and bonded with thermosetting resin. Coloured Pink for identification. Available in different R-values, sizes and thicknesses. Refer to SELECTIONS.

2.2 PINK® BATTS® SKILLION ROOF INSULATION

Pink® Batts® Skillion Roof Insulation (Pink® Batts® Skillion Roof and Pink® Superbatts®) rectangular bio-soluble fibrous glass wool slabs manufactured from up to 80% recycled window glass and bonded with thermosetting resin. Coloured Pink for identification. Available in different R-values, sizes and thicknesses. Refer to SELECTIONS.

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Components

2.3 FASTENERS

Insulation anchors complete with retaining washer.

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 and ceiling locations.

2.6 ADHESIVE TAPE

Pressure sensitive adhesive tape.

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. Check that framing is free from moisture. Check cavities are not interconnected. Check required wire netting, roof/ underlays are in place and are dry, clean and homogeneous before installing insulation. Ensure main power is isolated and tagged prior to installation.

3.4 HANDLING

Wear protective clothing as necessary and when handling, avoid delamination or distortion of the rectangular form. Refer to Pink® Batts® Insulation - Safety Data Sheet.

Installation

3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.6 INSULATION CLEARANCES

Install Pink® Batts® insulation with clearances to mechanical and electrical services and equipment, including ducts, chimneys and other heat sensitive materials in accordance with tables below based on NZS 4246, or to equipment manufacturers requirements if they require larger clearances. Installed clearances not to be more than 50mm larger than the required clearance. Smaller clearances that are required by manufacturer can be used for equipment specifically manufactured with heat shielding or similar (excludes light fittings).

The following installation clearances tables are subject to:

- Requirements of NZS 4246
- Insulation is exposed to the source of heat or equipment etc.
- Insulation has passed the needle flame test to AS/NZS 60695.11.5 and/ or is non-combustible.
- Clearances to hot surfaces may have to be increased with non-compliant insulation and plastic/ polymeric type insulation (EPS, XPS, PIR, etc), check with insulation manufacturer.
- Clearances to hot surfaces may be able to be reduced with non-combustible insulation, check with equipment manufacturer.
- "Secure insulation" if required means, glue, mechanical fix, or provide fixed barriers at gap edge of insulation to hold in place. Rigid or semi rigid insulation may only need a firm friction fit (secure loose pieces).
- Loose fill insulation require fixed barriers to NZS 4246 to maintain clearances.

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(1) CLEARANCES TO LIGHT FITTINGS :

Type of fitting	Minimum insulation clearance	Comments
Recessed, marked NON-IC, or unmarked	100mm (increase if over 100W)	NON-IC fittings and new or old unmarked & unknown fittings, and/or insulation. Secure insulation.
Recessed, CA 80, CA 90 or CA 135	Abut fittings	Do NOT cover the fittings
Recessed, IC, IC-F or IC-4	Abut & cover fittings	Ensure insulation complies
Recessed, marked Do-Not-Cover	Manufacturer clearances	Do not cover the fittings
Independent control gear	Place on top of insulation & 50mm from fitting	If not on top allow 50mm clearance to insulation, do not cover. Includes, transformers, ballasts & drivers etc.
Surface fittings not exposed to insulation	Nil	Where surface fittings are isolated from insulation by appropriate linings. Excludes high heat fittings.
Surface fittings & exposed insulation	200mm	This is exposed insulation to any part of the exposed fitting & bulb/tube (e.g. exposed light in an unlined basement). Secure insulation.

(2) CLEARANCES TO RECESSED HOT APPLIANCES:

Appliance	Minimum insulation clearance	Comments
Electrical heaters	100mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Gas appliance exposed flame	200mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Excludes uncommon appliances, refer NZS 4246.
Gas appliance flues	75mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation. Excludes uncommon appliances refer NZS 4246.
Oil-fired appliances and flues	230mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Open fireplace opening	200mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Brick masonry chimneys	50mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Metal chimneys & flues	75mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Solid fuel appliance	600mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Solid fuel appliance flue	600mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.

(3) CLEARANCES TO EXTRACTS, VENTS, PIPES & ROOF UNDERLAY:

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Application	Minimum insulation clearance	Comments
Ducted fan motors	50mm	Includes ducted rangehoods, extractors etc. Applies to the motor unit and electrical enclosures (not the ducts)
Ducted fan ducts	Abut	Excludes motor unit and electrical enclosures.
Unducted fan motors usually discharging to ceiling space	200mm	Includes unducted, rangehoods, extractors etc, discharging into roof space. To prevent debris falling into motor. Clearance may be able to be reduced, by providing a fixed barrier around the vent.
Passive vents (still in use)	200mm	To prevent debris falling through. Clearance may be able to be reduced, with more cohesive insulation, like some of the rigid plastic types or providing a fixed barrier around the vent.
Plumbing penetrations through floors	100mm	Keep gap between pipe penetration and floor insulation in case of leaks.
Roofing material/underlay	25mm	From underside of roofing or flexible roofing underlay, to prevent wicking

3.7 RECESSED LIGHT FITTINGS - NON-RESIDENTIAL

Non-residential recessed light fittings to AS/NZS 3000, 4.5.2.3.5;

- Existing fittings or retrofit situations, fittings maybe unmarked
- New fittings can only be labelled - CA 80, CA 90, CA 135, IC, IC-F, IC-4, NON-IC or Do-not Cover

Refer to clause INSULATION CLEARANCES GENERALLY for clearances.

3.8 RECESSED LIGHT FITTINGS - RESIDENTIAL

Residential recessed light fittings to AS/NZS 3000, 4.5.2.3.5;

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

Refer to clause INSULATION CLEARANCES GENERALLY for clearances.

3.9 LAY WIRE NETTING - UNDER JOISTS / PURLINS

Lay at right angles across the rafters/ roof joists (under purlins). Pull tight and fix. Continue with installing Pink® Batt® insulation under purlins.

3.10 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. Continue with installing Pink® Batt® insulation over purlins.

3.11 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.

3.12 PREPARATION

Before installation, gently agitate the insulation by gentle shaking or bouncing to assist recovery to the nominal thickness stated on the product label. Ensure the product is installed dry.

3.13 INSTALL INSULATION - GENERALLY

Install Pink® Batts® insulation in a dry protected environment. Lay, fit and fix insulation without gaps, tucks, folds and over compaction to NZBC H1/AS1-AS2 and Pink® Batts® installation 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. Insulate around vents (not over them) to allow unhindered ventilation. Confirm with fireplace manufacturer for clearances; Pink® Batts® insulation is non-combustible and need not be separated except if used in conjunction with, or attached to other heat sensitive materials. Lift up electrical wires, lighting transformers/ controllers and lay the insulation underneath.

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3.14 INSTALL PINK® BATTS® WALL INSULATION

Friction fit Pink® Batts® Wall Insulation slabs between framing. If cutting is required, cut oversize by 5-10mm to ensure a friction fit. Fill gaps around windows and doors with off-cuts. Insulate around vents (not over them) to allow unhindered ventilation. Fit insulation slabs behind electrical wiring and plumbing. Ensure there are no gaps, folds or undesirable compression at edges.

3.15 INSTALL PINK® BATTS® SKILLION ROOF INSULATION

Friction fit Pink® Batts® Skillion Roof Insulation slabs between framing. Ensure that the product is installed dry; if wet replace before installation. If cutting is required, cut oversize by 5-10mm to ensure a friction fit. Insulate around vents (not over them) to allow unhindered ventilation. Fit insulation slabs beneath electrical wiring and plumbing. Install to the outer edge of the top plate. Maintain a 25mm gap clearance between the insulation slabs and roof underlay.

Completion

3.16 COMPLETION MATTERS

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

4 SELECTIONS

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

Materials

4.1 PINK® BATTS® WALL INSULATION

Location:	140mm Wall Framing
Brand/ Type:	Pink® Batts® Ultra® R4.0 Wall Insulation
R-value:	4
Nominal stabilised thickness:	140 mm

4.2 PINK® BATTS® WALL INSULATION

Location:	90mm Wall Framing
Brand/ Type:	Pink® Batts® Ultra® R2.8 Wall Insulation
R-value:	R2.8
Nominal stabilised thickness:	90 mm

4.3 PINK® BATTS® CEILING INSULATION

Location:	Trussed Roof Void
Brand/ Type:	Pink® Batts® R2.6 Ceiling Insulation + Pink® Superbatts® R4.5 Ceiling Insulation
R-value:	R2.6 (Truss bottom chord) + R4.5 (Truss Second Layer)
Nominal stabilised thickness:	110 + 210 mm

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4811S SIKA SEALANTS

1 GENERAL

This section relates to the selection of Sika sealants/adhesives and appropriate application methods for sealants nominated in other work sections.

It includes:

- Sika sealants
- Sika fire rated sealants
- Sika adhesives
- All required associated primers, cleaners and accessories necessary for installation.

1.1 ABBREVIATIONS

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

VOC	Volatile Organic Compound

Documents

1.2 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
AS 1530.4:2005	Methods for fire tests on building materials, components & structures. Part 4: Fire resistance test of elements of construction
ASTM C719	Standard test method for adhesion and cohesion of elastomeric joint sealants under cyclic movement
EN 1366.4	Fire resistance tests for service installations. Linear joint seals.
ISO11600	Building construction - Jointing products - Classification and requirements for sealants

1.3 MANUFACTURER'S DOCUMENTS

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

Relevant Sika Product	Technical Data Sheets
Relevant Sika Product	Safety Data Sheets
CETEC Test Certificates	For VOC content of selected Sika sealants
CSIRO Test certificates	For fire rating of various Sika sealants
EXOVA Test certificates	For fire rating of various Sika sealants
BRANZ Appraisal 311 [2024]	Sikaflex® MS (Building Sealant)
BRANZ Appraisal 613 [2024]	Sikaflex® AT - Facade Sealant

Manufacturer/supplier contact details:

Company:	Sika (NZ) Ltd
Web:	nzl.sika.com
Email:	info@nz.sika.com
Telephone:	0800 SIKA NZ, 0800 745 269

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Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years: For Sika sealants and adhesives

- Provide this warranty on the Sika standard form. (For materials only. Warranty excludes application)
- Commence the warranty from the date of practical completion of the contract works.
- **Sika** (NZ) Ltd will warrant that Sika sealant products will perform in accordance with the information stated in **Sika** (NZ) Ltd current Technical Data Sheets.
- Refer to **Sika** (NZ) Ltd for further information on warranty.

Refer to the general section 1237 WARRANTIES for additional requirements

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

2 years: For installation

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

Sealant work, including preparation, to be carried out by competent and experienced sealant applicators.

1.7 SEALANT SELECTION

Refer to the **Sika** (NZ) Ltd current Technical Data Sheet before commencing sealant installation. Ensure that the correct sealant has been selected for the intended application and substrates. Check that the joint design allows for movement and or substrate thermal expansion and contraction, and is within the sealants range of service.

1.8 NO SUBSTITUTIONS

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

2 PRODUCTS

Joint Substrate Primers & Accessories

2.1 NON-POROUS SUBSTRATE CLEANER - TO IMPROVE SEALANT ADHESION

Sika Aktivator-205, a transparent, alcohol based, one component cleaner with adhesion promoters for cleaning and activating non-porous substrates prior to the application of Sika sealants. For use with Sika products only.

2.2 POROUS SUBSTRATE PRIMER - TO IMPROVE SEALANT ADHESION

Sika Primer-3N, transparent solvent based, one component, reactive epoxy resin primer for use on a wide range of porous substrates. For use with Sika products only.

2.3 BACKING ROD - TO CONTROL DEPTH OF JOINT SEALANT

Sika PEF Backing Rod is a closed cell polyethene foam backing rod used to fill the base of a joint to control depth of applied sealant. Available in a range of diameters.

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2.4 BOND BREAKER TAPE

A pressure sensitive self-adhesive polyethylene or PVC bond breaker tape. Masking tape is not permitted.

Facade sealants for concrete / masonry brickwork - non-fire rated

2.5 FACADE SEALANT - MEDIUM MOVEMENT, HYBRID, PAINTABLE

Sikaflex® AT-Facade, is a one component hybrid (silane terminated polymers), low VOC, moisture curing sealant with good weathering and a joint movement capacity +/-25%. Conforms to ISO 11600 Type F, Class 25LM and has a BRANZ Appraisal 613.

Can be over-painted with a range of paints and coatings.

Facade sealants for timber / fibre cement sheets and boards

2.6 FACADE SEALANT - MEDIUM MOVEMENT, HYBRID, PAINTABLE

Sikaflex® AT-Facade is a one component hybrid (silane terminating polymer), low VOC, moisture curing sealant with good weathering and a joint movement capacity +/-25%. Conforms to ISO 11600 Type F, class 25LM and has a BRANZ Appraisal 613.

Can be over-painted with a range of paints and coatings.

Window and door sealants - aluminium / timber / PVC

2.7 WINDOW & DOOR SEALANT - MEDIUM MOVEMENT, HYBRID, PAINTABLE

Sikaflex® AT-Facade, is a one component hybrid (silane terminating polymer), low VOC, moisture curing sealant with good weathering and a joint movement capacity +/-25%. Conforms to ISO 11600 Type F, class 25LM and has a BRANZ Appraisal 613.

Can be over-painted with a range of paints and coatings.

Roofing sealants

2.8 ROOFING SEALANT - METAL ROOFING PROFILES & FLASHINGS

Sikasil® Roofing and Plumbing, a one component neutral curing silicone sealant with movement joint capacity of +/-25%. Non-corrosive to metals and has excellent adhesion to many substrates including copper and zinc. Conforms to ISO 11600 Type F, class 25LM.

Interior sealants / adhesives

2.9 BATHROOM SEALANT - ACRYLIC BATHWARE

Sikasil ® NG, a one component, neutral curing silicone sealant formulated for use with acrylic, ASB and polycarbonate bathware.

2.10 INTERIOR GENERAL SEALANT - WALL PANELS, MOULDINGS ETC

Sikasil ® Wet Areas is a one component, neutral curing wet area silicone sealant with joint movement capacity of +/-25%. Good durability and adhesion to a wide range of substrates including standard wet area substrates. Conforms to ISO 11600 Type F & G, class 25LM.

2.11 INTERIOR LOW VOC ADHESIVE - BONDING WALL PANELS

Sikaflex 123MS Bond is a one component, polyurethane / MS hybrid flexible sealant /adhesive based on silane terminated polymers. Excellent adhesion to many porous and non-porous substrates including wet area internal lining panels such as seratone or hardiglaze.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

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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.

3.4 CONDITIONS FOR APPLICATION

Ensure conditions for application are clean, dry and dust free as possible. Avoid dust, dirt, water and other contamination settling on the cleaned and prepared joint substrate.

Ensure adequate ventilation is maintained during the preparation and application of sealant work and all relevant health and safety equipment is utilised.

Ensure application of Sika products occurs when the ambient and substrate temperature is in accordance with the appropriate Product Data Sheet.

3.5 JOINT DESIGN

Ensure that joints to be filled are in accordance with the current best practice such as BRANZ Bulletin 584 and in accordance to joint requirements stated in the relevant Product Data Sheet.

Unless stated otherwise in relevant Product Data Sheet, a typical joint should be configured on a 2:1 width to depth ratio. Minimum joint width should be not less than 10mm and should not exceed 50mm.

A Sika PEF backing rod should be applied to the base of all open backed joints and a generic bond breaker tape should be adhered to the base of all shallow joints to prevent 3-sided adhesion.

3.6 COMPATIBILITY

Ensure compatibility by using only Sika branded sealants with Sika branded products including cleaners, primers, sealants, adhesives, filler and backing rods. Products should not be substituted without the prior approval of the specifier.

3.7 SUBSTRATE STAINING

Note that some sealants can cause staining on porous substrates such as concrete, masonry and natural stone. If in doubt, compatibility testing should be undertaken to confirm suitability prior to application.

3.8 SEALANT PAINTABILITY

Ensure that a paintable sealant is selected when the sealant joint requires painting. The overpainting of sealant will reduce its flexibility at the coating interface. If in doubt about the sealant / over-coating compatibility, testing should be undertaken to confirm suitability prior to application.

NOTE: This excludes silicon based sealants which are not paintable.

3.9 COLOURS

Refer to SELECTIONS for colour option/s. Where colour is not specified, choose sealant colours from the **Sika** standard/special colour ranges.

3.10 LIMITATIONS

All relevant and current Sika Technical Data Sheets must be consulted prior to application, to ensure that the specified product is suitable based on the actual site / joint conditions observed. All current technical literature is available on nzl.sika.com or by phoning 0800 SIKANZ.

Installation/application

3.11 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

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Preparatory work

3.12 PRE-COMMENCEMENT CHECK

Ensure that joints to receive Sika sealants are suitable for the proposed application and are within the specified width to depth ratios in accordance with the relevant and current Product Data Sheet.

Ensure that surfaces are sound, dry, free from dust, dirt, scale, laitance, corrosion or other loose material, oil, grease, paint, release agents or other contaminants which may affect the bond, or the performance of the sealing material.

3.13 TEST SUBSTRATES

If in doubt about the suitability of substrate, test the affected substrate for indications of poor adhesion, staining and contamination.

If poor adhesion is evident from initial tests, consult **Sika** about the application of a suitable cleaning and preparation process and the application of a primer. Only use combinations of sealants and substrates for which favourable adhesion and compatibility have been confirmed.

3.14 SUBSTRATE CLEANING & PREPARATION

Prepare and clean joint substrates in accordance with the relevant and current Product Data Sheet. Protect adjacent surfaces from abrasion or other damage.

Typically concrete surfaces should be ground to remove concrete laitance and other surface contaminates. Non-porous surfaces such as metal to be cleaned with a Sika approved cleaner / activator to remove any contaminating films or barriers.

Apply a suitable masking tape to the adjacent surfaces along the length of joints to prevent contamination during application. Mask off any surfaces which would be difficult to clean if smeared with sealant, or where excess sealant could not be neatly trimmed off or removed.

Application - sealants / adhesives

3.15 INSTALLATION BACKING ROD

Insert a Sika PEF backing rod to the specified depth within the cleaned and prepared joint to provide a solid base for the sealant application.

The diameter of the Sika PEF backing rod should be 25% larger than the gap width and compressed evenly into the joint using a blunt instrument to avoid puncturing or damaging the rod. Do not twist the rod during application. Punctured rod may lead to 'out-gassing' which can cause the bubbling during sealant curing.

The rod should be consistently and evenly installed without any gaps. The midpoint of the installed rod should be sitting at the specified depth for each joint.

3.16 INSTALLATION BOND BREAKER TAPE

Adhere a suitable bond breaker tape to the base of the cleaned and prepared joint. The width of the tape needs to be slightly narrower than the width of the joint and must be adhered in a manner that avoids adhesion to either side of the joint.

3.17 PRIMING - POROUS SUBSTRATES

Confirm the porous primer selection with the selected sealant current Product Data Sheet. Generally, porous substrates such as concrete, masonry or unpainted timber, apply by brush a uniform, thin film of Sika Primer 3N to the substrate. The primer seals, densifies and increases the surface area of substrate to promote adhesion of the selected sealant.

Allow primer to dry for the recommended time, at least 30 minutes before the application of sealant and should be left no more than 8 hours. Do not prime more than can be sealed in one day. Primed joints that have been left for more than specified time (or overnight) or have become contaminated will need to be cleaned and re-primed prior to sealant application.

Do not contaminate the bond breaker tape or backing rod with primer.



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3.18 PRIMING - NON-POROUS SUBSTRATES

Confirm the non-porous primer selection with the selected sealant current Product Data Sheet. Generally, non-porous substrates such as aluminium (coated / anodised), stainless steel, galvanised steel, powdercoated metals, zinc, glazed tiles and paint/epoxy coatings, should be cleaned and treated using Sika Aktivator-205.

Wipe on Sika Aktivator-205 with a clean cloth and allow to dry for minimum 15 minutes and a maximum of 6 hours prior to sealant application. Primed joints that have been left for more than 6 hours (or overnight) or have become contaminated will need to be cleaned and re-treated.

Do not allow primer to contaminate other surfaces as a slight discolouration on some finishes may occur.

For substrates not mentioned above, refer to the relevant and current Sika Sealant Product Data sheet for priming requirements.

3.19 PRIMING - FOR ACRYLIC AND BITUMEN BASED SEALANTS

Substrate cleaning and preparation to be in accordance with the relevant and current Sika Sealant Product Data sheet. No primers are required for these products.

3.20 SEALANT APPLICATION

Sika sealants are supplied ready to use, insert the cartridge / uni-pack into a sealant pressure gun. After the necessary substrate / joint preparation and priming, extrude uniformly the selected sealant into the joint cavity.

Apply sealant to ensure full contact with the substrate on each side of the joint with no voids or pockets of entrapped air. There should be a minimum amount of overfill.

3.21 SEALANT TOOLING & FINISHING

Tool sealant as soon as practical after application and prior to the sealant surface forming a skin. Tool sealant face firmly to compact into the joint to form a smooth, flat or concave profile, to give the desired effect when cured.

Tooling must be carried out carefully, ensuring that the sealant minimum depth profile is not compromised.

A compatible tooling agent or fresh clean water can be used sparingly to assist with the smoothing of the tooled surface. Do not use products containing solvent, alcohol or fuel, as these products will inhibit the curing of the sealant.

Remove masking immediately after tooling and remove excess sealant from adjoining surfaces before sealant surface starts to skin. Refer to the relevant and current Product Data Sheet for information on curing times. Note skinning times are temperature dependent.

Any cured sealant can only be removed mechanically and care must be taken to avoid damage of surrounding surfaces.

3.22 ADHESIVE APPLICATION

Apply selected Sika adhesive for bonding shower liners and wall panels such as seratone and hardiglaze in accordance with Sika NZ Ltd instruction and the relevant and current Product Data Sheets.

3.23 SURROUNDING WORK

Leave surrounding surfaces in a neat, clean condition with no evidence of spill over.

Completion

3.24 COMPLETION MATTERS

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

4 SELECTIONS



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For further details on selections go to nzl.sika.com.
Substitutions are not permitted to the following, unless stated otherwise.

Facade joints - concrete, masonry & brickwork - non-fire rated

4.1 SIKAFLEX® AT-FACADE SEALANT - WEATHER AND AIR SEAL

Location:	Refer to Architectural drawings
Application detail:	Exterior and Interior sealing of facade joints - horizonal or vertical joints
Product:	Sikaflex® AT-Facade
Product colour:	Grey
Joint width:	10mm minimum to 50mm maximum. Refer to Product Data sheet for guidance if required
Substrate:	Brickwork
Primer/cleaner:	Sika Primer 3N - for porous substrates
Backing:	Sika PEF Backing rod - (diameter - 25% wider than joint)

Facade joints - Timber, fibre-cement sheets & boards

4.2 SIKAFLEX MS - FACADE SEALANT FOR TIMBER / FIBRE CEMENT

Location:	External cladding
Application detail:	Exterior or interior sealing of facade joints in timber or fibrecement sheets or boards - horizontal or vertical joints. Use Sikaflex AT Facade where medium movement capacity is required (+/-25%).
Product:	Sikaflex® AT Facade
Product colour:	Grey
Joint width:	10mm
Substrates:	Timber or fibre cement. Any adjacent substrates such as precast or insitu concrete.
Primer/cleaner:	Sika Primer 3N - for porous substrates
Backing:	Sika PEF Backing rod - (diameter - 25% wider than joint)

Window & Door Sealant - Aluminium

4.3 SIKAFLEX® AT-FACADE - WINDOW & DOOR SEALANT

Location:	Windows and doors
Application detail:	Air seal
Product:	Sikaflex® AT-Facade
Product colour:	Grey
Joint width:	10mm
Substrates:	Aluminium
Primer/cleaner:	Sika Aktivator 205 - for non-porous substrates or Sika Primer 3N - for porous substrates
Backing:	Sika PEF Backing rod - (diameter - 25% wider than joint)

Roof sealant

4.4 SIKASIL® ROOFING AND PLUMBING - METAL ROOFING PROFILES & FLASHINGS

Location:	Refer Architectural drawings
Application detail:	For roofing and plumbing applications including metal roofing systems, flashings, joints, peripheral joints, gutters, downpipes, skylights etc.
Product:	Sikasil® Roofing and Plumbing
Product colour:	Translucent
Substrates:	Coated metal roofing.
Primer/cleaner:	None

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Interior sealants and adhesives

4.5 SIKASIL NG - SEALANT FOR HARDIGLAZE TO BATHROOM

Location:	Refer Architectural drawings
Application detail:	Use for bonding hardiglaze onto wall linings.
Product:	Sikasil NG
Product colour:	Translucent or Arctic White
Substrates:	Unpainted plasterboard, fibrecement wall linings or directly to timber substrate.
Primer/cleaner:	None

4.6 SIKAFLEX 123MS BOND - ADHESIVE FOR BONDING WALL PANELS, LOW VOC

Location:	Refer Architectural drawings
Application detail:	Use for bonding hardiglaze directly to timber studs or to wall linings
Product:	Sikaflex 123MS Bond - low VOC
Product colour:	To match linings
Substrates:	Unpainted plasterboard, fibrecement wall linings or directly to timber substrate.
Primer/cleaner:	None

4.7 SIKAFLEX MS - GENERAL INTERIOR PAINTABLE SEALANT

Location:	Vanity and kitchen bench
Application detail:	Vanity and kitchen bench -Use for general purpose silicone in wet areas such as around wall panels, mouldings, fittings etc
Product:	Sikaflex MS
Product colour:	White
Substrate:	Painted surfaces, glass, stainless steel, acrylics.
Primer/cleaner:	None

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4821 FLASHINGS

1 GENERAL

This section relates to the fabrication and installation of flashing systems not forming part of a proprietary system.

Documents

1.1 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 2728	Prefinished/prepainted sheet metal products for interior/exterior building applications - Performance requirements
AS 3566	Self-drilling screws for the building and construction industries - General requirements and mechanical properties
NZS 3604	Timber-framed buildings
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

Requirements

1.2 QUALIFICATIONS

Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

1.3 VERIFY DIMENSIONS

Verify dimensions against site measurements prior to fabrication.

Standards of performance

1.4 DURABILITY REQUIREMENTS

Design and install the flashings appropriate for the durability applications in accordance with NZBC B2/AS1. The Building Code B2, 3.2 requires that all hidden elements have at least the same durability as that of the element that covers it. Refer to NZBC B2/AS1, Table C.1.1.1 and NZBC E2/AS1, Table C.1.1.1A: Material selection.

1.5 COMPATIBILITY REQUIREMENTS

Each flashing material shall be selected in accordance with NZBC E2/AS1, Table C.1.1.1A: Material selection, to minimise corrosion. Refer to either NZS 3604 Clause 4.2 or AS/NZS 2728 for the relevant exposure conditions. For compatibility of materials in contact and subject to run-off, refer to NZBC E2/AS1, Table C.1.1.1B: Compatibility of materials in contact, and Table C.1.1.1C: Compatibility of materials subject to run-off.

1.6 PROTOTYPES - REVIEW

Refer to the general section 1270 CONSTRUCTION for details of how prototypes will be reviewed and how instructions to proceed will be given. For flashings where there are no specific details or drawings, provide full size prototypes of the flashings to integrate components into the weathertight system. Co-ordinate with the trades affected by the installation. Provide the prototype flashings to the contract administrator for review.

3 EXECUTION

Conditions

3.1 DELIVERY

Keep flashings dry in transit. Take delivery of flashings in an undamaged condition. Reject all damaged materials.

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3.2 STORAGE

Store materials and accessories on a level, firm base, in dry conditions, well ventilated, out of direct sunlight and completely protected from weather and damage. Ensure storage areas are away from current work areas. Cover to keep dry until fixed.

3.3 HANDLING

Avoid distortion and contact with potentially damaging surfaces/substances. Do not drag flashings across each other, or across other surfaces. Protect edges, corners and surfaces from damage.

3.4 SUBSTRATE

Do not commence work until the substrate is of the standard required by the installer for the specified flashings, level and in true alignment.

3.5 PROTECT

Protect surfaces, window and door joinery, and finishes already in place, from the possibility of damage during the installation process.

3.6 CONFIRM LAYOUT

Before commencing work confirm the proposed installation of the flashings and expansion joints and other visual considerations of the finished work.

3.7 CO-ORDINATE INSTALLATION

Co-ordinate installation of flashings with associated trades.

Application

3.8 INSTALLATION

Install flashings in accordance with NZMRM CoP and in compliance with NZBC E2/AS1, 4.0 Flashings. For very high wind zones and where the pitch of the roof is below 15° the flashing joint laps shall be sealed with sealant at each end of the lap to prevent the ingress of water.

Refer to NZBC E2/AS1, Table 4.5.1.1: General dimensions of metal flashings and other flashings as listed, for general dimensions of flashings.

3.9 FIXINGS

Fix flashings with fasteners appropriate to the situation. For fixing flashings with proprietary brackets or clips ensure they are aligned to allow for movement and are compatible with the flashing material.

Fix screws with the shank perpendicular to the surface of the flashing with the washer fitted firmly against the flashing. Screws to be compatible with the flashing material.

Rivets 'blind' or 'pop' are to be sealed when used. Aluminium rivets are compatible with zinc or AZ coated steel. Monel and stainless steel rivets can be used to fix galvanized steel flashings. Minimum diameter of rivet to be used is 4.0mm. Drill hole 1mm larger than the rivet size. Seal head of rivet with neutral cured silicone.

3.10 JOINTING - SEALANTS

Clean surfaces to be lapped using a solvent ensuring all traces of the solvent are removed with a clean rag. Apply sealant by gun in a continuous bead of approximately 5mm diameter. Width of sealant when compressed should not exceed 25mm. Sealant joints shall be mechanically fixed for strength. Refer to NZMRM CoP for details.

3.11 JOINTING - SOLDER

Solder joints in galvanized steel and non-ferrous metals when specified with lead/tin solder. Clean joint ensuring it is dry and free of grease immediately prior to applying a proprietary flux. Lap the flashing 25mm in the direction of the water flow and fasten the lap with rivets or screws at 50mm centres. Completely sweat the joint to avoid leaving any flux residue. Wash down the joint to remove any trace of flux.

3.12 FINAL INSPECTION

A final inspection by the installer to take place after completion of the flashing work. Any defects or subsequent damage to be made good.

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Completion

3.13 PROTECT
Protect new work from damage.

3.14 REPLACE
Replace all damaged or marked elements.

3.15 LEAVE
Leave work to the standard required for following procedures.

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

4 SELECTIONS

4.1 FLASHINGS

Type	Material and finish/colour
General flashings:	0.55mm Colorsteel
Window/doors:	
- Head:	0.9mm or 0.7mm aluminium powder coated to match window
- Sill:	0.9mm or 0.7mm aluminium powder coated to match window
Cladding:	
- Internal corner:	0.55mm Colorsteel
Wall/roof junctions:	0.55mm Colorsteel
Roof penetrations:	0.55mm Colorsteel

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4852UB UNEX ARCHITECTURAL BARRIER SYSTEMS

1 GENERAL

This section relates to the fabrication and installation of UNEX Systems balustrade and barrier systems for residential and commercial applications.

It includes:

- Aluminium balustrade systems
- Aluminium and glass balustrade systems
- Handrail systems
- Components and accessories required to complete the installation

1.1 ABBREVIATIONS AND DEFINITIONS

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

Documents

1.2 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 B1/VM1	Structural design of buildings
NZBC F2/AS1	Hazardous Building Materials
NZBC F4/AS1	Safety from falling
NZBC F9/AS1	Means of restricting access to residential pools
NZS 4223.3	Glazing in buildings - Human impact safety requirements

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
UNEX Systems Product Brochures

UNEX Systems Fabricators Manuals
UNEX Systems Fixing Details and Producer Statements - Design
UNEX Systems Care & Maintenance of UNEX Balustrades
UNEX Systems B2 Durability Statement
UNEX Systems BPIR Documentation

Manufacturer/supplier contact details

Company:	UNEX Systems (NZ) Limited
Trading as:	UNEX Systems
Web:	www.unex.co.nz
Email:	info@unex.co.nz
Telephone:	0800 333 777
Or	07 850 9464

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years	For UNEX Systems aluminium balustrade systems and products

- Provide this warranty on the suppliers' standard form (if unavailable 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.

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1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

2 years	Workmanship warranty for installation of UNEX Systems balustrade system

- Provide this warranty on the installers' standard form (if unavailable use the standard form in the general section 1237WA WARRANTY AGREEMENT).
- Commence the warranty from the date of Practical Completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS WORKERS - MANUFACTURER / SUPPLIER REQUIREMENTS

Installers to be UNEX Systems Authorised Fabricators. Refer to the general section 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.7 NO SUBSTITUTIONS

Substitutions are not permitted to any of the UNEX Systems specified systems, components or associated product listed in this section.

1.8 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:

UNEX Systems Care & Maintenance of UNEX Balustrades

Provide this information prior to practical completion.

Compliance information

1.9 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.

1.10 COMPLIANCE - PRODUCER STATEMENT, BALUSTRADES & BARRIERS

UNEX Systems balustrades and their fixings are designed to NZBC B1/AS1, NZBC B1/VM1, NZBC F2/AS1 and NZBC F4/AS1. Refer to SELECTIONS for Producer Statement - Design (PS1) by UNEX Systems.

Quality control and assurance

1.11 INSPECTIONS

~

2 PRODUCTS

Postless & Fin Balustrade Systems

2.1 UNEX FINLINE BALUSTRADE SYSTEM

Powder coated aluminium balustrade system comprised of 12mm wide x 40mm deep vertical fin balusters cantilevered from side-mount base channel with 16mm high x 50mm wide top rail. Supplied with 316 stainless steel fixings. Refer to SELECTIONS.

Handrail Systems

2.2 UNEX HANDRAIL SYSTEM

Powder coated aluminium handrail profiles available with a range of powder coated and stainless steel top-mount and side-mount Leada brackets. Supplied with 316 stainless steel fixings. Refer to SELECTIONS.

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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 FABRICATION & INSTALLATION

Fabricate and install in accordance with UNEX Systems Fabricator Manuals and PS1 documentation.

Completion & Commissioning

3.6 COMPLETION MATTERS

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

4 SELECTIONS

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

Postless & Fin Balustrade Systems

4.1 UNEX FINLINE POSTLESS BALUSTRADE SYSTEM

Location:	Existing Balcony
Supplier:	UNEX Systems (NZ) Ltd
Type/Brand:	Finline Postless Balustrade
PS1 document:	~
Balustrade height:	1200mm
Fixing type:	Side fix
Substrate:	Dry Timber to Balconies and Stair Landing, Wet Timber to Reception Entrance Steps and Ramp, Steel to Rear Stair
Top rail type:	CRT - 50mm wide x 16mm high rectangular profile
Finish/colour:	Powdercoated - colour tbc

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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

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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.

1.7 SOUND INSULATION REQUIREMENTS

Provide the GIB® Noise Control Systems. Refer to SELECTIONS for system/STC. Include for forming and treating of perimeters of openings and penetrations in the elements to ensure the specified performance. Ensure absence of adjoining flanking paths.

Compliance

1.8 COMPLIANCE - BRANZ APPRAISAL 394

GIB® Noise Control Systems has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 394.

1.9 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.

1.10 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

1.11 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.

1.12 SURFACE FIRE PROPERTIES - UNFINISHED BOARD

All GIB® unfinished plasterboard sheet materials achieve a Group Classification of, Group 1-S to NZBC C/AS2, Table 4.12.1.1: Maximum permitted Group Number for internal surface finishes, following testing in accordance with ISO 5660.1 and ISO 5660.2.

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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 CEILING BATTENS

GIB® Rondo® metal ceiling battens, batten joiners and perimeter channel.

2.3 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.

2.4 TAPE ON TRIMS AND EDGES

GIB® Goldline™ tape-on trims

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

2.5 METAL ANGLE TRIMS

GIB® galvanized steel slim angle trims.

2.6 CONTROL JOINTS

GIB® Rondo® P35 control joints.

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

Accessories

2.7 ADHESIVE

Timber frame and/or steel frame:

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

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2.8 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

2.9 JOINTING TAPE

GIB® jointing tape.

2.10 FIRE/ACOUSTIC SEALANT

GIB Fire Soundseal® ultra low VOC, mulit use acoustic sealant that resists passage of smoke and fire.

2.11 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 PRE-INSTALLATION REQUIREMENTS - STEEL 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 requirement. Refer to GIB® Site Guide.

3.6 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.

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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.

3.7 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

3.8 INSTALL CEILING BATTENS

Install to GIB® Rondo® Ceiling Batten Systems requirements.

3.9 LINING WALLS AND CEILINGS GENERALLY

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

3.10 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.

3.11 FORM NOISE CONTROL SYSTEMS

Form to GIB® Noise Control Systems requirements.

3.12 FORM WET AREA SYSTEMS

Form to GIB Aqualine® Wet Area Systems requirements.

3.13 FORM BRACING SYSTEMS

Form bracing systems to:

- GIB Ezybrace® Systems.

3.14 FORM CONTROL JOINTS

Form control joints to GIB® Site Guide requirements.

3.15 INSTALL TAPE-ON TRIMS

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

Finishing

3.16 FINISHING GENERALLY

To GIB® Site Guide and AS/NZS 2589.

Completion & Commissioning

3.17 COMPLETION MATTERS

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



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4 SELECTIONS

Plasterboard

4.1 GIB® STANDARD SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Making good existing walls	GIB® Standard plasterboard	10mm	4
Refer floor plan	GIB® Standard plasterboard	13mm	4

4.2 GIB® WATER RESISTANT SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Making good existing walls	GIB Aqualine® plasterboard	10mm	4
Refer floor plan	GIB Aqualine® plasterboard	13mm	4

4.3 GIB® STANDARD SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Refer RCP	GIB® Standard plasterboard	13mm	4

4.4 GIB® WATER RESISTANT SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Refer RCP	GIB Aqualine® plasterboard	13mm	4

4.5 GIB® SOUND RATED SYSTEMS

Refer to GIB® Noise Control Systems

Location	Plasterboard type / Lining requirements	STC / System specification	Finish Level
Wall between unit 1 and 2	2 Layers 13mm GIB® Standard plasterboard	GBTLA 30a	4

4.6 GIB® BRACING SYSTEMS

Refer to:

- GIB Ezybrace® Systems

For bracing element location refer to structural engineers documentation.

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Refer Floor Plan and Structural Engineer's documentation	GIB® Standard plasterboard	13mm	4
Refer Floor Plan and Structural Engineer's documentation	GIB Braceline® GIB Noiseline®	13mm	4

Accessories

4.7 GIB® RONDO® CEILING BATTENS

Location: Refer RCP
Brand/type: GIB® Rondo® Ceiling battens
Batten type: Gib Rondo GR 310 DF
Clip type: N/A - Direct Fix

4.8 GIB® TAPE ON EDGE OR CORNER TRIMS

Brand/type: Read the sheet manufacturer's technical information for the range of trims and edgings available.

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4.9 GIB® EDGE PROFILES

Brand/type: Read the sheet manufacturer's technical information for the range of profiles available.



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5151 INTERNAL TRIM

1 GENERAL

This section relates to simple lengths of trim fixed on site as of isolated internal members, with simple end joints.
It includes:

- timber
- MDF
- metal
- plastic

Documents

1.1 DOCUMENTS

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

NZBC C/AS1, C/AS2	Protection from fire
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 3610	Specification for profiles of mouldings and joinery

2 PRODUCTS

Materials

2.1 TIMBER TRIM

To NZS 3610 and to profiles detailed on the drawings. Timber species, grade and treatment to NZS 3602.

Components

2.2 NAILS

Bright steel to dimension requirements of NZS 3604. Use galvanized where prone to dampness.

2.3 BRADS

Bright steel of a length three times the thickness of the member being fixed. Use cadmium plated where prone to dampness.

2.4 SCREWS, STEEL

Bright steel of a length to penetrate the substrate up to the shank. Use stainless steel in wet areas.

2.5 SCREWS, CHROME PLATED

Chrome plated of a length to penetrate the substrate up to the shank.

3 EXECUTION

Conditions

3.1 GENERALLY

To comply with 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 STORAGE

Take delivery of trims undamaged and unmarked and store on site under cover, away from moisture, heat and direct sunlight in adequately ventilated area and clear of areas where work is in progress, to ensure materials are of the required standard when fixed in place.

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3.3 ACCLIMATISE MATERIALS

Remove materials from packaging, separate and allow to acclimatise in the proposed installation area for 48 hours minimum prior to installation.

3.4 ENSURE

Ensure that the substrate to trims will allow work of the required standard. If it does not, do not proceed until the substrate has been remedied.

Application - Generally

3.5 INSTALL TIMBER TRIM

Use full lengths. Fit with scribed internal joints, mitred external joints and, mitred and returned at stop ends. Fix plumb, level and true to line and face using nails or brads to suit. Leave secure and with no movement possible.

3.6 INSTALL PLASTIC SKIRTING

Joint fit and fix, level and true to line and face all to the skirting manufacturer's requirements.

3.7 INSTALL PROPRIETARY TRIM

Use full lengths. Scribe joint and fix securely, plumb, level and true to line and face to the trim manufacturer's requirements.

3.8 INSTALL PROPRIETARY METAL TRIM

Mitre and weld where direction changes. Fold and weld stop ends. Site measure and carry out all fabrication in a workshop. Screw fix securely, plumb, level and true to line and face, all as detailed.

Finishing

3.9 PUNCH

Punch all nail heads below the face of trim ready to receive stopping, as specified under painting preparation.

3.10 COUNTERSINK

Countersink screw heads not less than 2mm below the faces of trim to be painted. Stop and finish off flush with the face, as specified under painting preparation.

3.11 PELLETING

Countersink screw head 6mm below the faces of trim which is to be clear finished. Glue in grain-matched pellets not less than 6mm thick and cut from matching timber. Finish off flush with the face.

Completion

3.12 LEAVE

Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following procedures.

3.13 PROTECTION

Protect the completed work and make good before any surface finish is applied.

3.14 REPLACE

Replace damaged or marked elements.

3.15 REMOVE

Remove debris, unused materials and elements from the site.



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4 SELECTIONS

4.1 RADIATA PINE TRIM WITH PAINT FINISH

Manufacturer: Varies - Refer to Architectural Documentation
Species/grade: H3.1 Primed Radiata pine
Finish: Painted

Member	Reference	Code reference
Architrave	Varies - Refer to Architectural Documentation	
Skirting	Varies - Refer to Architectural Documentation	

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5231 INTERIOR DOORS & WINDOWS

1 GENERAL

This section relates to the supply and installation of interior:

- doors
- windows
- doors and frames
- doorsets

1.1 RELATED WORK

Refer to ~ for ~

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:

AS/NZS 1170.1	Structural design actions - Permanent, imposed and other actions
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 3610	Specification for profiles of mouldings and joinery
NZS 4223.3	Glazing in buildings - Human impact safety requirements

Window & Glass Association NZ (WGANZ) documents:

PQAS	Powder Coating Quality Assurance System
SFA 3503-03	Anodic Oxide coatings on wrought aluminium for external architectural application (2005)

Performance - doorsets

1.4 PERFORMANCE REQUIREMENTS

Refer to 5241 FIRE AND ACOUSTIC INTERIOR DOORS AND WINDOWS for fire and acoustic performance details.

2 PRODUCTS

Materials - doorsets

2.1 STANDARD DOORSETS, SIDE HUNG DOOR

Frames to profile as detailed and dimensioned, fitted with solid or hollow core door.

Refer to SELECTIONS.

2.2 STANDARD DOORSETS, SLIDING

Frames to profile as detailed and dimensioned, fitted with solid or hollow core door.

Refer to SELECTIONS.

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Components

2.3 WINDOW AND DOOR FURNITURE

Refer to 5521 HARDWARE for type and finish.

2.4 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.

2.5 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.

2.6 DOOR HINGES

Size and gauge to carry door size and weight. 3 hinges per door.

Type:	Loose pin
Size:	89mm
Material:	Zinc-plated steel
Pin:	Loose-pin zinc-plated steel

2.7 INTERIOR SLIDING DOOR GEAR

To suit door size and weight and as detailed.

2.8 DOOR SKIN (FACINGS)

Doors skins as detailed and dimensioned.

Finish

2.9 TIMBER - PAINT FINISH

Factory applied coating system.

Materials - door and window frames general

2.10 TIMBER DOORS AND WINDOWS

To NZS 3602. Moisture content 10-14%. To NZS 3610.

2.11 DOOR FRAMES, FIBREBOARD

To profile as detailed and dimensioned, including stops.

Materials - doors general

2.12 TIMBER

To NZS 3602. Moisture content 10-14%. To NZS 3610. Solid or hollow core.

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, 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.

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3.5 FABRICATE DOORSETS

Fabricate doorsets and windows 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

To NZS 3604.Check all openings on site for size and standard of execution before installing window or door frames. Installation tolerances of windows subject to earthquake design to comply with AS/NZS 1170.1.

Assembly

3.8 FABRICATION GENERALLY

Manufacture and fabricate frames and doors as detailed. Install hinges and running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.

Application - generally

3.9 FIXING FRAMES

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 architraves.

3.10 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.

3.11 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.

Application - doorsets

3.12 PROPRIETARY ELEMENTS

Fix in accordance with the door manufacturer's requirements.

3.13 INSTALLATION GENERALLY

Wedge frames into opening and fix through into the wall framing. 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.

3.14 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.

3.15 BOTTOM CLEARANCE

Provide for specified floor coverings plus 5mm clearance at any point of swing. When floor covering is not specified, allow 25mm total.

For ventilated and/or air conditioned spaces allow 20mm clearance above finished floor coverings for supply/return air.

3.16 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.

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3.17 INSTALL FURNITURE

Install latches, locks and door furniture as scheduled.

3.18 CHECK

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

Application - windows

3.19 CONFIRM PREPARATION OF WALL OPENINGS

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

3.20 INSTALLATION

Fix to comply with the installation details including bedding compounds and pointing sealants.

3.21 FIX HARDWARE

Fix all sash and door hardware and furniture as scheduled.

Completion

3.22 PROTECTION

Protect all finishes against damage from adjacent and following work.

3.23 REPLACE

Replace damaged, cracked or marked elements.

3.24 TRADE CLEAN

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

3.25 LEAVE

Leave work to the standard required for following procedures.

3.26 REMOVE

Remove safety indicators and protective coverings, and wipe down all doorsets thoroughly to leave them perfectly clean. Remove all debris, unused materials and elements from the site.

4 SELECTIONS

Frames

4.1 STANDARD DOORSETS, SIDE HUNG DOOR

Door Type:	EPS Core, H grade, 1.98m height and width 410mm to 910mm, (860mm standard) UV cured primer, edge branded “4SPC”
Material:	4mm flush MDF skin with high density solid polystyrene core; solid timber edge rails
Door leaf size:	Varies - Refer to Architectural Documentation
Grade:	Varies - Refer to Architectural Documentation
Frame:	30mm finger jointed Radiata pine pre-primed
Frame Finish:	Paint
Leaf size:	Varies - Refer to Architectural Documentation
Thickness:	Varies - Refer to Architectural Documentation

4.2 WHITE CEILING ACCESS HATCH 635MM X 535 ALUMINIUM TRIM WITH MELTECA BOARD

Door type:	Bunnings PSL SKU 00920836 Other equally performing products may be approved
Material:	Melteca board in white aluminium frame with timber edge frame
Door leaf size:	635mm x 535mm
Frame:	Radiata pine

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Glazing

4.3 GLAZING

Refer to glazing section.

Finish

4.4 PAINT FINISH

Refer to section on PAINTING INTERIOR

Hardware

4.5 HARDWARE

Refer to 5521 HARDWARE section.

Door handles: Mount lever type handles 1.0m above FFL Schlage ‘Medio’ Series Centra, height 51mm x length 112mm, chrome finish. Latch furniture passage, privacy and dummy trim. Wardrobe and storage door closer: Horizontal dummy lever handles with soft close counter sunk magnetic catches flush rebated into top of door and frame.
Miles Nelson Door Magnets Pai 332CP, GEMNDM332CP, diameter 22mm x height 8mm. Other equally performing products/systems may be approved. Internal garage doors to have door closer and handle fitted 1.5m above FFL Bathroom and toilet rooms to have horizontal lever type handles that are accessible from outside the room.
Door stops fitted to all doors



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5231C CS FOR DOORS®

1 GENERAL

This section relates to the supply and installation of **CS FOR DOORS®** product range.
It includes;

- cavity sliders
- wardrobe sliders
- track systems
- door leaves
- CaviLock® handle hardware

1.1 RELATED WORK

Refer to glazing section/s for glazing for timber doors.

Documents

1.2 DOCUMENTS

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

AS/NZS 1170.1	Structural design actions - Permanent, imposed and other actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
NZS 3602	Timber and wood-based products for use in building
NZS 4223.3	Glazing in buildings - Human impact safety requirements

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

CS FOR DOORS® Specifiers Guide
BIA Accreditation #93/006A.
BRANZ Appraisal 900 - CS Cavity Sliders

Manufacturer/supplier contact details

Company:	CS FOR DOORS®
Web:	www.csfordoors.co.nz
Email:	info@csfordoors.co.nz
Telephone:	0800 754 337 09 276 0800 Auckland 07 928 0800 Waikato/Bay of Plenty 03 348 6158 South Island

Warranties

1.4 WARRANTY

Provide the following CS FOR DOORS® warranties

10 Years on the following product categories:
Cavity Sliders, Wardrobe Sliders, Pre- Hung Jambs, Track Systems.

5 Years on the following product categories:
CS manufactured Door Leaves, Automatic Units

2 Years on the following product categories:
CaviLock® Handle Hardware

12 Months on the following product categories:
Electrical components and parts

Provide this warranty on the manufacturer's standard form.

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Refer to the general section 1237 WARRANTIES for additional requirements. Refer to www.csfordoors.co.nz for guarantee terms and conditions.

Requirements

1.5 NO SUBSTITUTIONS

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

1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

2 PRODUCTS

Materials - general

2.1 TIMBER

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

2.2 GLASS

Refer to SELECTIONS for frameless glass cavity slider doors.

Refer to glazing section/s for glazing to timber and aluminium doors.

2.3 INTERIOR TIMBER

To NZS 3602. Moisture content approximately 10-14%.

Materials - Wardrobe Slider Units

2.4 WARDROBE SLIDER UNITS

CS For Doors® wardrobe slider units to profile as scheduled, detailed and dimensioned. Refer to SELECTIONS.

Components

2.5 DOOR FURNITURE

CS CaviLock® architectural handles and locks as scheduled.

2.6 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.

2.7 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.

2.8 SLIDING DOOR GEAR

CS CavitySliders® track to suit door size, weight and application. Stainless steel carriages and mount plates are available for the CS240 kg and CS500 kg systems.

Finish

2.9 FINISH

~

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

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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 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, stairs).

3.4 FABRICATE DOORSETS

Fabricate doorsets in the **CS FOR DOORS®** factory with doors hung, provision for furniture made, finishes applied and fully operable.

3.5 FABRICATE DOORS

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

3.6 CHECK ALL OPENINGS

Check all openings on site for size and standard of execution before installing window or door frames. Installation tolerances of windows subject to earthquake design to comply with AS/NZS 1170.1 or NZS 1170.5.

Assembly

3.7 FABRICATION GENERALLY

Manufacture and fabricate frames and doors as detailed. Install running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.

Application - generally

3.8 FIXING FRAMES

Fit to frame as required. Fix and assemble frames rigidly in place, plumb, level and true to line and face without distortion. Fit facings, scribers, draught-stopping and sealants.

3.9 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.

3.10 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.

Application - doorsets

3.11 PROPRIETARY ELEMENTS

Fix in accordance with **CS FOR DOORS®** requirements.

3.12 INSTALLATION GENERALLY

Frames finished to match the width of lined walls. Wedge frames into opening and nail through into the studs making sure you have one fixing in the vicinity of the lock.

Hang doors on sliding gear as specified and to operate freely. Fit all hardware and door furniture to CS FOR DOORS® instructions.

3.13 TIMBER STUD WALLS - TIMBER FRAMES

Fix direct to opening and pack, with one fixing in the vicinity of the lock.

3.14 STEEL STUD WALLS - STEEL FRAMES

Using a pilot hole in the frame, fix to steel studs with countersunk self-drilling corrosion proof screws. Fix direct to opening and pack, with one fixing in the vicinity of the lock.



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3.15 STEEL STUD WALLS - TIMBER FRAMES

Drill the timber frame and fix to steel studs with countersunk self-drilling corrosion proof screws. Fix direct to opening and pack, with one fixing in the vicinity of the lock.

3.16 BOTTOM CLEARANCE

Provide for specified floor coverings plus a minimum of 5mm clearance at any point of slide. When floor covering is not specified, allow 25mm total.

For ventilated and/or air conditioned spaces allow 20mm clearance above finished floor coverings for supply/return air.

3.17 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.

3.18 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.

3.19 MANIFESTATIONS

To comply with NZS 4223.3.

3.20 INSTALL FURNITURE

Install latches, locks and door furniture as scheduled.

3.21 CHECK

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

Completion & Commissioning

3.22 COMPLETION MATTERS

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

4 SELECTIONS

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

Wardrobe sliders

4.1 CS TOPFIX 2T-90

Location:	Laundries
Leaf dimensions:	1980mm x 1280 & 1150mm
Door type:	36mm
Door finish:	Paint
Closing action:	Standard
Number of doors:	2
Framing/size:	Timber 90mm for 2 track
Handle type:	Refer to CaviLock® specialised hardware

Aluminium door leaves

Hardware

4.2 CAVILOCK® SLIDING-DOOR HANDLE HARDWARE

Provide the following CS CaviLock® specialised handle hardware:

Location	Handle Type	Finish	Fitting Height to centre	Door Thickness	Comments
Sliding Doors	CL400 Passage	brushed s/s	990mm	34 - 52mm	~

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5313KL RONDO SYSTEMS - PLASTERBOARD & SHEET CEILINGS

1 GENERAL

This section relates to the supply and installation of **Rondo Ceiling Systems.** It includes;

- Rondo KEY-LOCK Concealed Ceiling System
- Rondo XPRESS® Drywall Grid System
- Rondo Steel Stud Drywall Concealed Ceiling System
- Direct-fix or fully suspended applications
- Non-fire rated and fire-rated systems
- Bulkhead, curved ceilings
- Seismic and acoustic designs

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 of New Zealand Inc

Documents

1.2 DOCUMENTS

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

BPS	Building Product Specifications
NZBC B1/VM1	Structural design of buildings
NZBC B2/AS1	Durability provisions for building elements
AS/NZS 1170.0	Structural design actions - General principles
AS/NZS 1170.1	Structural design actions - Permanent, imposed and other actions
AS/NZS 1170.2: 2011	Structural design actions - Wind actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2785	Suspended Ceilings - Design & Installation
NZS 4219	Seismic performance of engineering systems in buildings
NZS 4541	Automatic fire sprinkler systems
AS/NZS 4600:2005	Cold formed steel structures
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Rondo Professional Design Manual
Rondo KEY-LOCK® installation guide
Rondo XPRESS® Drywall Grid System Rondo brochure
Rondo Steel Stud Drywall Concealed Ceiling System in Design Guide
Certificate of Licence for New Zealand Made trademark - Licence No. 806965

Manufacturer/supplier contact details

Company:	**Rondo Building Services Pty Ltd**
Web:	www.rondo.co.nz
Email:	steve.hardy@rondo.co.nz
Telephone:	09 636 5110

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

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10 years	For Rondo branded products against defects in materials under normal use. In addition, Rondo warrants that the Rondo KEY-LOCK® Suspended Ceiling Systems will remain structurally sound for a period of 15 years.

- Provide this warranty on the manufacturer/supplier standard form
- Commence the warranty from the date of purchase.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

Provide evidence of experience, listing completed projects of similar size and complexity.

1.6 QUALIFICATIONS WORKERS – INDUSTRY QUALIFICATION REQUIREMENTS

Installation by a manufacturer accredited installer, using the manufacturer technical services. Installers are to be members of the AWCINZ. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

Provide evidence of experience, listing completed projects of similar size and complexity.

1.7 NO SUBSTITUTIONS

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

1.8 AS BUILT DOCUMENTS

Refer to the general section 1238 AS BUILT DOCUMENTATION for the requirements for submission and review of as built documents and records.

Provide the following as built documents and records:
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- Provide draft as built information prior to practical completion.
- Provide final as built information prior to the end of the defects liability period.

Compliance information

1.9 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Manufacturer / supplier warranty.
- Internal Rondo engineered design - refer to SELECTIONS.
- Producer Statement (PS1) - Design from supplier independent engineer.
- Producer Statement (PS3) - Construction from the applicator / installer.
- Producer Statement (PS4) - Construction Review from an acceptable suitably qualified person.
- Other information required by the BCA in the Building Consent Approval documents.

Performance

1.10 LOADING CODE REQUIREMENT

To AS/NZS 2785, comply with the requirements of; AS/NZS 1170.0, AS/NZS 1170.1, AS/NZS 1170.2, NZS 1170.5, NZBC B1/VM1, as appropriate.

1.11 CERTIFICATION

Provide:

- Certificates and other evidence that the system complies with the standards of performance specified.
- Producer Statements.



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1.12 FIRE RATING REQUIREMENT

Design the ceiling system so that together with the floor and ceiling lining system, to BPS, 8.2 Fire resistance. Refer to SELECTIONS.

1.13 ENVIRONMENTAL REQUIREMENTS

Durability to NZBC B2/AS1.

Performance - Wind (design by contractor)

1.14 DESIGN PARAMETERS WIND - DESIGN BY CONTRACTOR

Design the installation to the wind pressure parameters of AS/NZS 1170.2. Refer to general section 1220 PROJECT for general details.

Contact Rondo Building Services Pty Ltd for their internal engineering design service or to facilitate Producer Statement - Design (PS1).
Refer to SELECTIONS specific design performance requirements.

Performance - Seismic (design by contractor)

1.15 SEISMIC - SPECIFIC DESIGN

Design the system and its anchorages/fixings to resist the earthquake loads of the seismic zone in accordance with NZS 1170.5. Refer to general section 1220 PROJECT for general details. Contact Rondo Building Services Pty Ltd for their internal engineering design service or to facilitate Producer Statement - Design (PS1).

Refer to SELECTIONS specific design performance requirements.

Quality control and assurance

1.16 INSPECTIONS

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2 PRODUCTS

Suspension system - Rondo KEY-LOCK suspended ceiling system

2.1 KEY-LOCK SUSPENDED CEILING SYSTEM

KEY-LOCK suspended ceiling system to AS/NZS 2785, hot-dip galvanized steel elements manufactured from G2 steel strip to AS 1397 including furring channels and snap in sections. Primary (Top Cross Rail) and secondary components (Furring Channel).

2.2 SEISMIC RESTRAINT

To AS/NZS 2785, 4.3.3 Seismic Restraint Types and/or suitable proprietary back braces for ceiling systems.

2.3 PRIMARY SECTIONS

Rondo 25mm or 38mm top cross rail to AS 1397. Steel grade and zinc coating class G2 Z275 to AS 1397.

2.4 FURRING BATTEN SECTIONS

Rondo 16mm, 28mm, or 35mm furring/batten sections to AS 1397. Steel grade and zinc coating class G2 Z275 to AS 1397.

Components

2.5 SECTION JOINERS

Hot-dip galvanized steel elements manufactured from steel strip to AS 1397.

2.6 RONDO WALL TRIM

Rondo wall trim sections to AS 1397. Steel grade and zinc coating class G2 Z275 to AS 1397.

2.7 RONDO SUSPENSION RODS, BRACKETS CLIPS, RODS & ANCHORS

Rondo components to AS 1397. Steel grade and zinc coating class G2 Z275 to AS 1397.



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Accessories

2.8 FASTENERS SUSPENSION SYSTEM

Pop rivets or 8g-16 x 12mm (minimum) self drilling wafer head screws to join furring channels and C channels as detailed in Rondo Professional Design Manual and to Rondo Building Services Pty Ltd requirements.

2.9 SCREWS

25mm x 6 gauge non-rusting Type S self-drilling and self-tapping bugle head screws as detailed in Rondo Professional Design Manual and to Rondo Building Services Pty Ltd requirements.

Lining and Insulation

2.10 PLASTERBOARD

Gypsum plaster core encased in a face and backing paper formed to AS/NZS 2588. Refer to SELECTIONS for type and thickness.

2.11 LINING BOARD

Refer to SELECTIONS for type, thickness and finish.

2.12 INSULATION

Refer to SELECTIONS for type and thickness.

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 SUBSTRATE

Ensure substrate is plumb, level and in true alignment. Do not start erection if the substrate will not allow work of the required standard. Complete any remedial work found necessary before framing erection.

3.4 COMMENCING THIS WORK

Commencing this work means the substrate is accepted as allowing work of the required standard.

3.5 CO-ORDINATE SERVICES

Co-ordinate and co-operate with electrical and mechanical work to avoid conflict between suspension members and luminaires, diffusers, pipework and ducting. Confirm the provision of extra hangers and fixings.
Ensure co-operation with work in and above the ceiling, including the marking of specific ceiling tiles below major access points to above-ceiling services. Colour coded markings to follow the standards laid down by mechanical and electrical services.
Services and other attachments, attached to or supported by the ceiling grid system to AS/NZS 2785, ensure that:

- items over 7.5kg and items under 7.5kg but falling greater than 3m, require a tether to AS/NZS 2785, anchored to structure.
- items attached to the ceiling grid must be under 10kg mass, items over 10kg cannot be attached to the grid and must be independently supported.
- unless designed otherwise, the ceiling systems total load of services and other attachments must not exceed 3kg/m².
- light fittings installed to AS/NZS 2785 and NZS 4219.
- ceiling system clearances to structure and services etc. that are not attached to the ceiling system, to be to NZS 4219, and/or NZS 4541 for sprinklers.

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3.6 SITE CONDITIONS

Do not begin installation until the building is closed in, fully glazed, the roof watertight, and mechanical and electrical duct work above the ceiling completed. To AS/NZS 2785, Appendix C, site Conditions, Installation and Inspections.

Installation generally

3.7 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.8 SETTING OUT

Set out the framing work true to line and square before starting erection.

3.9 INSTALL

Installation to AS/NZS 2785 minimum standards, and the systems Rondo Professional Design Manual and Rondo Building Services Pty Ltd requirements.

Allowance for support members:

- Space required by the loads on the system and the type of ceiling.
- For the installation of services and accessories, including ductwork, light fittings and diffusers.
- Additional back support or suspension members for the fixing of services and accessories to prevent distortion, overloading or excessive vertical deflection.
- For access for maintenance of services.

Allowance for a ceiling system where failure of any one suspension point does not cause a progressive failure of the ceiling.
Allowance for height adjustment with a length adjustment device at each suspension point, permitting length variation of at least 50mm.

If required, allow for notch grid members at the junction with the perimeter trim to make sure the ceiling lining lies flat on the perimeter trim. Do not attach the suspension system to the lip or flange of purlins.

Fix, erect and fit to finish rigid, plumb, square and true to line and face. Where components required cutting on site, use metal snips, fine-toothed band or hack saws. Adjust all suspension systems and clips by laser level until they are all level. Hangers and bracing are not to be fixed closer than 150mm to plenum building services.

Install all movement joints required.

Services support to conform to the following:

- If the service has not been designed to accept the ceiling load, do not fix suspension members to services (e.g. ductwork).
- If services obstruct the ceiling supports, provide bridging and suspension on each side of the services.
- Do not support services terminals on ceiling lining, unless specified.

3.10 BULKHEADS

Form bulkheads to manufacturer requirements. Diagonally brace at regular intervals to provide lateral stability. In addition to the dead load of the bulkhead, all bulkheads should be designed for the following minimum loads:

- 0.25 kPa laterally.
- 0.15 kPa vertically.

3.11 INSTALL SEISMIC RESTRAINTS

Install ceiling system seismic restrains and bracing as required to prevent lateral movement and resist the imposed horizontal seismic force, to AS/NZS 2785.

3.12 PENETRATIONS

To AS/NZS 2785 and NZS 4219 generally, with sprinkler systems to NZS 4219 and/or NZS 4541.

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Accommodate recessed light fittings, air conditioning outlets and other electrical and/or mechanical services that are fixed to or pass through the ceiling system. Provide independent support for these as necessary.

3.13 ISOLATE

Isolate dissimilar metals with neoprene sheeting, tape or pipe lagging.

3.14 INSULATION

Install insulation to insulation manufacturer and Rondo Building Services Pty Ltd requirements.

3.15 LINING

Fix and finish lining boards to manufacturer and Rondo Building Services Pty Ltd requirements.

Install services before lining. Stagger sheet joins.

3.16 ACCESSIBILITY

Provide access to the ceiling system and the in-ceiling and above-ceiling services so that maintenance and removal of any part can be carried out without damage to the ceiling system or panels.

3.17 PROTECT EXISTING WORK

Protect adjacent existing work from damage during the installation.

Installation - Rondo KEY-LOCK Ceiling System

3.18 INSTALLATION

Install the Rondo KEY-LOCK suspension system to AS/NZS 2785, and the Rondo Professional Design Manual and KEY-LOCK® installation guide.

Screw-fix sheets to furring channel sections at the centres required by the ceiling lining manufacturer. Stagger joints and fully support on furring sections and primary sections at centres to suit the load and Rondo installation manual.
Refer to 5113 PLASTERBOARD LININGS for plasterboard and stopping specification.

Completion

3.19 COMPLETION MATTERS

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

4 SELECTIONS

For further details on selections go to www.rondo.co.nz
Substitutions are not permitted.

Rondo KEY-LOCK Ceiling System

4.1 RONDO KEY-LOCK SUSPENDED CEILING SYSTEM

Location:	Unit 2 Kitchen / Dining
Type/Brand:	KEY-LOCK Suspended Ceiling System
Top Cross Rails (TCR):	#127 (25mm deep)
Furring Channels (FC):	#129 (28mm deep)
TCR to FC Joiners:	#139 (for 127 & 128 to 129 & 308)
Perimeter Trims:	#140 Channel to suit 129 (28mm)
Suspension Brackets & Clips:	To suit substrate and component selection, Contact Rondo Building Services Pty Ltd

4.2 RONDO KEY-LOCK BULKHEAD SYSTEM

Location:	Unit 2 Kitchen / Dining
Type/Brand:	KEY-LOCK Bulkhead System

Components

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5316RC RONDO DIRECT-FIX CEILINGS - RESIDENTIAL

1 GENERAL

This section relates to the manufacture, supply and installation of:

- Concealed direct-fix ceiling systems for residential type buildings, to meet acoustic, fire-rated, wind loading and seismic design applications, and strong enough to support layer(s) of sheet ceiling linings e.g. plasterboard, fibre cement sheet.

This section includes:

- Rondo KEY-LOCK® Direct Fix Ceiling System
- Rondo SCREWFIX® Concealed Ceiling System
- Rondo XPRESS® Drywall Grid Ceiling System
- Panther® Access Panels

1.1 RELATED WORK

Refer to 5113 PLASTERBOARD LININGS for ceiling lining.

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:

AWCINZ	Association of Wall and Ceiling Industries of New Zealand Inc
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Documents

1.3 DOCUMENTS

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

NZBC B1/VM1	Structure general
NZBC B2/AS1	Durability
NZBC C/AS1	Protection from fire
NZBC C/AS2	Protection from fire
AS/NZS 1170.0	Structural design actions - General principles
AS/NZS 1170.1	Structural design actions - Part 1: Permanent, imposed and other actions
AS/NZS 1170.2: 2011	Structural design actions - Wind actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 2785	Suspended ceilings - Design and Installation
NZS 4219	Seismic performance of engineering systems in buildings
NZS 4541	Automatic fire sprinkler systems
AS 1397	Continuous hot-dipped metallic coated steel sheet and strip - Coating of zinc and zinc alloyed with aluminium and magnesium.

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:
Rondo KEY-LOCK® design manual
Rondo KEY-LOCK® installation guide
Rondo KEY-LOCK® online Seismic Wizard

Rondo SCREWFIX® design manual
Rondo SCREWFIX® installation guide
Rondo SCREWFIX® online Seismic Wizard
Rondo XPRESS® design manual
Rondo XPRESS® installation guide
Rondo XPRESS® online Seismic Wizard



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Rondo PANTHER® access panel design manual
Rondo PANTHER® access panel installation guide
Certificate of Licence for New Zealand Made trademark - Licence No. 806965

Manufacturer/supplier contact details

Company:	**Rondo Building Services Pty Ltd**
Web:	www.rondo.co.nz
Email:	steve.hardy@rondo.co.nz
Telephone:	09 636 5110

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years	For Rondo branded products against defects in materials under normal use.
15 years	In addition, Rondo warrants that the Rondo KEY-LOCK® direct-fix, Rondo SCREWFIX DF®, Rondo XPRESS® systems will remain structurally sound.

- 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.

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

2 years	For workmanship

- 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

1.7 QUALIFICATIONS - GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.
Installers are to be members of the AWCINZ. Provide evidence of experience, listing completed projects of similar size and complexity.

1.8 NO SUBSTITUTIONS

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

1.9 RONDO SPECIFIC DESIGN DOCUMENTS

Refer to SELECTIONS for project specific design documentation by Rondo Building Services Pty Ltd, generally consisting of:

- Design calculations
- Dimensioned plans/elevations of elements
- Details of construction, connections and support systems
- Dimensions of all typical elements
- Jointing details and method of fixing between individual elements and between this installation and adjacent work.
- Provision for thermal and seismic movement.
- Bracing requirements, due to wind and seismic loads.
- A schedule of materials, finishes and componentry

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Compliance information

1.10 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Manufacturer / supplier warranty
- Internal Rondo engineered design - Refer to SELECTIONS
- Producer Statement (PS1) - Design from supplier independent engineer
- Producer Statement (PS3) - Construction from the applicator / installer.
- Producer Statement (PS4) - Construction Review from an acceptable suitably qualified person
- Other information required by the BCA in the Building Consent Approval documents.

Performance

1.11 LOADING CODE REQUIREMENT

To AS/NZS 2785, comply with the requirements of: AS/NZS 1170.0, AS/NZS 1170.1, AS/NZS 1170.2, NZS 1170.5, NZBC B1/VM1, as appropriate.

1.12 CERTIFICATION

Provide:

- Certificates and other evidence that the system complies with the standards of performance specified.
- Producer Statements

1.13 ENVIRONMENTAL REQUIREMENTS

To NZBC B2/AS1, Durability.
Refer to SELECTIONS

1.14 FIRE GROUP NUMBERS

The Group Number Classification to NZBC C/AS2, Table 4.3, has been determined in accordance with NZBC C/VM2 Appendix A, following testing and data reduction to ISO 5660.1.

Refer to SELECTIONS

1.15 FIRE RATING REQUIREMENT

Design the ceiling system so that together with the floor and ceiling lining system, it is to NZBC C/AS Appendix E3.1 and NZBC C/AS2 Appendix C5.1 Protection from fire. Refer to SELECTIONS

Quality control and assurance

1.16 INSPECTIONS

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2 PRODUCTS

2.1 RONDO KEY-LOCK® DIRECT-FIX CEILING SYSTEM

KEY-LOCK® direct fix system designed to AS/NZS 2785, and Rondo KEY-LOCK® design manual. Primary (Top Cross Rail), secondary components (Furring Channel), furring channels, battens, and snap in sections all hot-dipped (Z275) galvanized steel to AS 1397, manufactured from G2 BlueScope base metal.
Provide diagonal bracing for lateral stability where required. Perimeter trim, expansion joints and seismic joints etc. to AS/NZS 2785.
Refer to SELECTIONS.

Components

2.2 RONDO DIRECT-FIX BRACKETS

Rondo Direct-Fix Brackets manufactured from G2 BlueScope Steel, hot-dipped galvanized (Z275), to AS 1397.
Refer to SELECTIONS

2.3 RONDO PRIMARY AND SECONDARY SUPPORT MEMBERS

Rondo primary and secondary support members manufactured from G2 BlueScope Steel, hot-dipped galvanized (Z275) to AS 1397.

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Refer to SELECTIONS

2.4 SECTION JOINERS

Rondo section joiners manufactured from G2 BlueScope Steel, hot-dipped galvanized (Z275) to AS 1397.
Refer to SELECTIONS

2.5 EXPANSION JOINTS

Flexible backing strip by others, and EXANGLE Plaster Stopping Bead, to Rondo XPRESS® technical brochure

2.6 CONTROL JOINTS

to Rondo XPRESS® technical brochure

2.7 RONDO WALL TRIM

Rondo wall trim sections manufactured from G2 BlueScope Steel, hot-dipped galvanized (Z275) to AS 1397.

Accessories

2.8 ACCESS PANEL

PANTHER® range of access panels.
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 SUBSTRATE

Ensure substrate is plumb, level and in true alignment. Do not start erection if the substrate will not allow work of the required standard.

Complete any remedial work found necessary before framing erection.

3.4 CO-ORDINATE SERVICES

Co-ordinate and co-operate with electrical and mechanical work to avoid conflict between suspension members and luminaires, diffusers, pipework and ducting. Confirm the provision of extra hangers and fixings.

Ensure co-operation with work in and above the ceiling, including the marking of specific major access points to above-ceiling services. Colour coded markings to follow the standards laid down by mechanical and electrical services.
Services and other attachments, attached to or supported by the ceiling grid system to AS/NZS 2785, ensure that:

- items over 7.5kg and items under 7.5kg, but falling greater than 3m, require a tether to AS/NZS 2785, anchored to structure.
- items attached to the ceiling grid must be under 10kg mass, items over 10kg cannot be attached to the grid and must be independently supported.
- unless designed otherwise, the ceiling system total load of services and other attachments must not exceed 3kg/m².
- light fittings installed to AS/NZS 2785 and NZS 4219.
- Ceiling system clearances to structure and services etc. that are not attached to the ceiling system to NZS 4219, and/or NZS 4541 for sprinklers.

3.5 SITE CONDITIONS

To AS/NZS 2785: Appendix C2, Site Conditions and time of installation; Appendix C4, Inspection.

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Installation generally

3.6 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.7 INSTALLATION - GENERAL

Install the system to AS/NZS 2785, and Rondo Professional Design Manual and Rondo Building Services Pty Ltd requirements.

Fix, erect and fit to finish rigid, plumb, square and true to line and face.

3.8 SETTING OUT

Set out the framing work true to line and square before starting erection.

3.9 ISOLATE

Isolate dissimilar metals with neoprene sheeting, or tape.

3.10 ACCESSIBILITY

Provide access hatches where required to the ceiling system to enable servicing, maintenance, and removal of any part can be carried out without damage to the ceiling system or lining.

3.11 PENETRATIONS

To AS/NZS 2785 and NZS 4219 generally, with sprinkler systems to NZS 4219 and/or NZS 4541. Accommodate recessed light fittings, and services that are fixed to or pass through the ceiling system. Provide independent support for these as necessary.

3.12 BULKHEADS

Form bulkheads to manufacturer requirements. Diagonally brace at regular intervals to provide lateral stability.

3.13 PROTECT EXISTING WORK

Protect adjacent existing work from damage during the installation.

Completion

3.14 COMPLETION MATTERS

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

4 SELECTIONS

For further details on selections go to www.rondo.co.nz
Substitutions are not permitted.

Performance

Rondo KEY-LOCK® System - direct-Fix

4.1 RONDO KEY-LOCK® DIRECT-FIX CEILING SYSTEM

Location:	As per Architectural Documents
Type/Brand:	KEY-LOCK® Direct-Fix Ceiling System
Furring Channels	310, 35mm Ceiling batten
Ceiling height:	As per Architectural Documents

Components

4.2 PLASTERBOARD SHEET LINING

refer to 5113 PLASTERBOARD LININGS section

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4.3 ACCESS PANEL

Location:	~
Brand:	PANTHER®
Panel Type:	Non-Sound Rated Metal Faced; High-Performance Access Panel (RW51)
Part number:	Refer to RONDO website for PANTHER panel details
Edge detail:	Set Bead
Panel Finish/colour:	paint
Size:	600mm x 600mm
Fire Rating:	n/a
Sound Rating:	n/a
Hardware/Security:	standard

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5433 PLYWOOD FLOORS

1 GENERAL

This section relates to the use of plywood sheets for floors.

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:

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

Documents

1.2 DOCUMENTS

Documents referred to in this section are:

NZBC C/AS2	Protection from fire
NZBC C/VM2	Protection from fire
AS/NZS 1604.1	Preservative-treated wood-based products - Part 1: Products and treatment
AS/NZS 2269.0	Plywood - structural - specifications
NZS 3604	Timber-framed buildings

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

Requirements

1.3 QUALIFICATIONS

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

Performance

1.4 SURFACE FIRE PERFORMANCE - UNFINISHED FLOORING

Unfinished plywood flooring, ≥ 12mm thick and ≥ 400kg/m³, has a critical radiant flux 2.2kW/m² as defined by NZBC C/VM2 Appendix B, Table B1 and in accordance with performance requirements of NZBC C/AS2, 4.17.3 and Table 4.5 Critical Radiant Flux Requirements for Flooring.

2 PRODUCTS

Materials

2.1 PLYWOOD

Radiata pine veneer ply to AS/NZS 2269.0, face sanded, grade as scheduled.

H3 CCA treated to AS/NZS 1604.1, when used as a wet area substrate. Confirm compatibility with adhesives being used with the waterproofing membrane. F11 grade to be used for flooring.

Components

2.2 NAILS

Refer to the plywood manufacturer's requirements for size and use.

15mm ply:	50mm x 2.8mm galvanized annular grooved flooring nails
17 - 21mm ply:	60mm x 2.8mm galvanized annular grooved flooring nails
25mm ply:	75mm x 3.15mm galvanized annular grooved flooring nails

Jolt head nails to be used for exposed (clear finished) plywood.



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2.3 SCREWS

Counter-sunk screws, stainless steel for treated plywood, minimum Class 3 or stainless steel for untreated plywood. Refer to the plywood manufacturer's requirements for size and use.

15mm ply:	No. 8 x 40mm
17mm ply:	No. 10 x 40mm
19 - 21mm ply:	No. 10 x 45mm
25mm ply:	No. 10 x 50mm

2.4 ADHESIVE

Polyurethane adhesive to American Plywood Association specification AFG 01.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE AND HANDLING

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 SUBSTRATE

Do not commence work until the framing is plumb and level, in true alignment and to suit the floor manufacturer's requirements.

Ensure framing suits the required laying pattern.

3.4 FLOOR DIAPHRAGMS

Install floor diaphragms in accordance with NZS 3604, 7.3 Structural floor diaphragms and floor manufacturer's requirements.

3.5 EXPANSION JOINTS - LARGER FLOORS

Lay flooring to allow for a large expansion gap for large floor areas to manufacturer's requirements. Locate as shown, under internal walls where possible.

Application

3.6 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.7 SUPPORT AND JOINTS - SQUARE EDGE SHEETS

Fully support edges and joints on square edged sheets.

3.8 SUPPORT AND JOINTS - T&G EDGE SHEETS

Fully support edges and joints on square edges of sheets. T&G edges of sheets are not fully supported unless shown otherwise.

3.9 SUPPORT AND JOINTS - DIAPHRAGMS

Fully support all edges and joints on all sheets, to NZS 3604, fig 7.9 **Floor Diaphragms**.

3.10 FIXING PLYWOOD SHEETS

Fix sheets to the plywood manufacturers requirements and NZS 3604, section 7.2.3, **Wood-based Sheet Flooring**. Lay sheets in a staggered layout, face-grain of sheet at right-angles to support and with sheets in square, true alignment and plane.

3.11 WET AREAS

Ensure plywood is structural grade treated to H3 or H3.2 (CCA treated) to AS/NZS 1604.1. Plywood substrates must have moisture content not more than 18% before installing membrane. With primed/sealed face and edges.

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NOTE: Treated plywood must be allowed to breath for a minimum of 7 days before installation of membrane. Fixing must be to manufacturer's specifications.
LOSP treated plywood must not be used.

Requirements if used for:
Flooring: Stress grade F8, minimum thickness 18mm with framing at minimum 400mm centres both ways, or min 21mm with framing at 600mm centres both ways. Fixing, glue and stainless steel screws.
Floor Overlay: Stress grade 8, minimum thickness 12mm.

3.12 ADHESIVE FIXING

Apply a 10mm adhesive bead to joists.

3.13 FIXINGS

Minimum 10mm, maximum 15mm from the edge, 150mm centres along edges and 300mm centres on intermediate supports.

Completion & Commissioning

3.14 COMPLETION MATTERS

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

4 SELECTIONS

4.1 PLYWOOD - SQUARE EDGE SHEET FLOORING

Location:	Refer to architectural drawings
Brand/grade:	CD
Stress grade:	F11
Thickness:	19 mm
Treatment:	H3 treated in wet areas
Fixing:	Screw plus adhesive or nail plus adhesive

4.2 NAILS

Type/size/material:	60mm x 2.8mm galvanized annular grooved flooring nails Stainless steel for treated plywood, minimum Class 3 or stainless steel for untreated plywood

4.3 SCREWS

Type/size/material:	No. 10 x 45mm counter sunk screws Stainless steel for treated plywood, minimum Class 3 or stainless steel for untreated plywood

4.4 ADHESIVE

Type:	As recommended by plywood manufacturer

4.5 CONSTRUCTION METHOD

Method:	Platform method - sheet edge to perimeter of building with all top plates on top of sheet

4.6 DIAPHRAGM CONSTRUCTION METHOD

Method:	1200mm wide sheets with all edges supported, nail or nail plus adhesive fixed, sheet edge to perimeter of building with all wall plates on top of sheet.

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5511 JOINERY & CABINETRY FIXTURES

1 GENERAL

This section relates to custom joinery fittings and cabinetwork, purpose made in a factory and fitted on site.

1.1 RELATED WORKS

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for fittings for bathrooms, toilets and washrooms.

Refer to 5521 HARDWARE for hardware separately specified.

Documents

1.2 DOCUMENTS REFERRED TO

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

AS/NZS 1859.1	Reconstituted wood based panels - Specifications - Particleboard
AS/NZS 1859.2	Reconstituted wood based panels - Specifications - Dry processed fibreboard
AS/NZS 1859.3	Reconstituted wood based panels - Specifications - decorative overlaid wood panels
AS/NZS 4386.1	Domestic kitchen assemblies - Kitchen units
AS/NZS 4386.2	Domestic kitchen assemblies - Installation

2 PRODUCTS

Materials

2.1 MEDIUM DENSITY FIBRE BOARD - MELAMINE VENEER

Urea-formaldehyde resin bonded wood fibre sheet to AS/NZS 1859.2 and AS/NZS 1859.3 veneered both sides with melamine sheet.

2.2 PRE-FINISHED BACKING BOARD

Urea-formaldehyde resin bonded fine wood fibre sheet to AS/NZS 1859.2 and AS/NZS 1859.3, veneered one side with melamine sheet.

Minimum thickness: 6mm

Components

2.3 BENCHTOPS

As detailed on the drawings and as required for specified fittings and appliances.

2.4 CARCASE CONNECTORS

One-piece steel, straight deep-cut thread, fibre board screws with press fit plastic trim cap.

2.5 CARCASE FASTENERS

Knock down type centric sphere zinc alloy connectors with connecting bolts, sleeves and dowels, to suit each particular fastening location.

2.6 BUTT HINGES

Butt, broad butt, flush butt or overlay steel or brass, to suit the location, or as detailed.

2.7 CONCEALED HINGES

All-metal zinc alloy with automatic spring and screw-fixed. Door stops of plastic foam with self adhesive backs, or plastic buttons clear or coloured to match unit.

2.8 DRAWER RUNNERS

Under mounted type, precision running ball-mounted full extension, bright steel finish system.

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Accessories

2.9 ADHESIVES

As approved by the manufacturer for the timber product or pre-finished timber product joint being used.

3 EXECUTION

Conditions

3.1 JOINERY FIXTURES GENERALLY

Execution to include those methods, practices and processes contained in the current syllabus for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs). Take responsibility for the completed joinery fixtures including fittings included within fixtures and the on site installation.

3.2 DOMESTIC KITCHEN ASSEMBLIES

Unless otherwise specified / detailed, domestic kitchens to be constructed to AS/NZS 4386.1 and installed to AS/NZS 4386.2

3.3 SITE MEASURE

Site check and confirm dimensions after wall linings have been fixed. Verify positions of electric power outlets, wiring to light fittings included in joinery fixtures, water supplies and waste pipe locations.

3.4 SHRINKAGE

Arrange jointing and fixing so that shrinkage in any part and direction does not impair the strength or appearance of the finished work or damage the adjoining work.

3.5 TOLERANCES

Provide reasonable tolerances at connections between the joinery fittings and the building fabric so that any irregularities are adequately compensated for in the site fixing.

3.6 NATURAL FINISH TIMBER

Select timber for match or uniformity or symmetry of colour or grain of adjacent pieces. Finish to same standard on all faces.

3.7 PRE-FINISH MELAMINE VENEER

Select and match all adjacent pieces. Clash exposed edges of wood grains with solid matching timber strips and with selected PVC strips to other patterns.

Conditions - site

3.8 TRANSIT

Load, transport and unload fittings without distortion or damage and keep covered to protect from the weather.

3.9 DELIVERY

Deliver fittings to the site only when floor, wall and ceiling surfaces are in place and the fittings can be immediately placed in their final location.

Assembly

3.10 MACHINING

Carry out machining within the practices required for the particular timber, wood product or pre-finished wood product being used. Machine drill holes, cut recesses and form joints ready for assembly to the componentry manufacturer's requirements. Ensure work is accurate, square and true to line.

3.11 MAKE CUT OUTS FOR APPLIANCES AND FITTINGS

Obtain fitting templates from the appliances and other fittings to be installed within joinery fixtures and bench tops. Ensure appliances and fittings can be installed with the required tolerances and clearances. Where bench tops are being provided under other work sections, provide templates and confirm dimensions to others.

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3.12 ASSEMBLY

Carry out gluing, dowelling, and other operations necessary for the proper assembly of the fittings as detailed with fixings concealed unless detailed otherwise. Scribe fit adjustable shelves with 4 shelf pins to each and with force fit pin holes at 50mm maximum centres in solid cheeks. Construct drawers and using groove mounting runners, fit them with 3mm clearance into drawer space. Hang doors on concealed hinges with 115 degree openings except where detailed for 170 degrees.

3.13 GLUE JOINTS

Use glue joints where provision for shrinkage is not required. Cross-tongue or otherwise reinforce. Surfaces in contact to have an even sawn or planed finish and be free of contamination. Mix, apply and set to the glue manufacturer's requirements with adequate pressure applied to ensure intimate contact that will be maintained while the glue sets.

3.14 CONNECTOR JOINTS

Locate and drive connectors to the board manufacturer's requirements. Fit plastic trim cap where detailed. Conceal or hide from sight other connector heads.

3.15 FASTENER JOINTS

Locate and drive connecting bolts to the board manufacturer's requirements. Form joint and fit and rotate centric sphere connector to finish it rigid and tightly fitting over the whole length of the joint.

Application

3.16 FIXING ON SITE

- Scribe fit and conceal fix rigidly in place square, level, plumb and true to line and face as detailed and to the required standard.
- Assemble fittings on-site if brought in sections.
- Fit counter and bench tops and upstands.
- Complete with moveable parts in place and freely moving in their proper range.

3.17 PROTECT

Protect finished surfaces from damage, particularly benchtops.

Completion

3.18 REPLACE

Replace damaged or marked elements.

3.19 LEAVE

Leave work complete, clean and without blemish and to the standard required by following procedures.

3.20 REMOVE

Remove debris, unused materials and elements from the site.



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4 SELECTIONS

4.1 KITCHEN JOINERY 18MM LPL WITH PVC EDGES. FIT CHILD PROOF LATCH TO CUPBOARDS BELOW SINK

Thickness:	18mm
Pattern/Colour:	Melteca Standard Puregrain Classic Oak to overhead cabinetry Melteca Standard Baikal, Naturale to Below bench cabinetry
Clashing:	2mm PVC
Backing Board:	6mm urea-formaldehyde resin bonded fine wood fibre sheet, veneered one side with melamine sheet
Kitchen Cabinets:	18mm thick moisture-resistant MDF pre-finished with low pressure laminate to both sides and 2mm PVC edgings. Toe kick is 100mm high and moisture resistant. Doors are maximum width 450mm, hinges are 115 degree to 170 degree opening and recess mounted, three per under-bench leaf and four to doors over bench height. Child resistant catch provided to one cupboard, preferably beneath the sink. The underside of the bench has drawers in banks of four - two smaller drawers above two larger drawers. Provide cutlery insert trays for top drawer
Handles:	Metal bow pull style with 150mm x 25mm finger clearance
Pantry:	Pantry has 3 full-width adjustable shelves, 1 fixed shelf

4.2 WARDROBE WITH DEEP SHELFS AND HANGING RAIL

Shelf:	18mm thick low pressure laminate with 2mm PVC edges
Size:	2200h x 1200w x 600d
Colour:	Melteca - Baikal Naturale - tbc
Material:	18mm thick low pressure laminate with 2mm PVC edges.
Hanging Rails	CRT Closet rail and tube C channel set at 1.55m above FFL and 300mm off back wall. Full width hanging rail.
For accessible & older persons	Wardrobe shelf is adjustable height from 1m to 1.65m above FFL

4.3 LOW UNIT WITH DRAWERS

Shelf:	18mm thick low pressure laminate with 2mm PVC edges
Size:	1200h x 1200w x 600d
Colour:	Melteca - Baikal Naturale - tbc
Material:	18mm thick low pressure laminate with 2mm PVC edges.
Rails	Hafele luggage rails to top of unit

4.4 LINEN CUPBOARD WITH 5X400MM DEEP TIMBER SLAT SHELVES

Shelves:	Three fixed shelves Bottom shelf to be positioned 1.25m above finished floor level. (Broom and vacuum storage)
Size:	400mm deep and full width of cupboard
Material:	18mm low pressure laminate with 2mm PVC egdes
Colour:	Melteca - Baikal Naturale
Rails:	70 x 20mm rails along back and at ends

4.5 HOT WATER CUPBOARD WITH FIXED TIMBER SLAT SHELF

Shelf:	Two fixed upper shelves (full width) with lowest shelf positioned 1500mm above FFL. Three fixed lower shelves (400mm wide) with lowest shelf positioned 500mm above FFL.
Material:	70mm x 20mm solid timber slats spaced with 10mm gaps between boards and screw fixed at ends
Rails:	70 x 20mm rails at ends Posts: 90 x 45mm posts at end of lower shelves

4.6 FULL WIDTH LAUNDRY SHELF 25MM THICK HIGH PRESSURE LAMINATE ON PROPRIETARY BRACKETS 1500MM ABOVE FFL

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Shelf:	One fixed shelf positioned 1500mm above FFL. 300mm deep and full width of laundry cupboard
Material:	High pressure laminate 25mm thick with 2mm PVC edges on wall mounted proprietary brackets
Colour:	Melteca - Baikal Naturale

4.7 KITCHEN BENCH - ENGINEERED STONE

Kitchen bench:	Caeserstone 20mm Quartz Top - 4001 Fresh Concrete, Matt - sample to be provided for client sign off or Tavolo Stone 12mm Acrylic ST001

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5521 HARDWARE

1 GENERAL

This section covers the supply and installation of door and window hardware and furniture.

1.1 RELATED WORK

Refer to 5511 for JOINERY AND CABINETRY FIXTURES

Refer to 5231 INTERIOR DOORS AND WINDOWS for hardware and furniture for interior timber windows and doors.

Documents

1.2 DOCUMENTS

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

Requirements

1.3 SUPPLIER

A specialist in the supply of hardware, employing an experienced architectural hardware representative available to assist during the course of the hardware installation.

1.4 SUBMIT A SUPPLIER'S SCHEDULE

Varies - Refer to Architectural Documentation

2 PRODUCTS

2.1 DOOR HARDWARE

Refer to SELECTIONS for product selection.

2.2 WINDOW HARDWARE

Refer to SELECTIONS for product selection.

2.3 CABINET WORK HARDWARE

Refer to SELECTIONS for product selection.

Components

2.4 FIXINGS

Provide matching fixings, including screws, clips, bolts and brackets for hardware supplied.

3 EXECUTION

Conditions

3.1 RETAIN

Retain hardware in the manufacturer's original packaging. Ensure that units are complete with fixings and installation instructions. Label each unit separately with its hardware number and door/window number to match the submitted and approved schedule.

3.2 PACKAGE

Package required hardware units in clear plastic and label each package with its hardware and door/window number and location to match the drawings and the submitted and approved schedule. Place packages in cartons selected for "level", "location", and/or "sector" and label the packages and the cartons similarly.

3.3 STORE

Store hardware packages in a shelved, dry and securely locked area. Provide supervision when the secure area is unlocked and packages and cartons are being distributed; signing off each package from the schedule as released.



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Installation

3.4 INSPECTION

Before starting the hardware installation, check frames, doors, sashes and adjacent finishes are ready for the proper installation of the hardware.

3.5 LOCATE

Locate hardware units at heights and/or locations shown on the drawings, or as required to comply with relevant Codes and Standards. Before proceeding, confirm any dimension not shown or known.

3.6 CUTTING AND FITTING

Carry out cutting and fitting of the substrate necessary for installing any hardware unit before painting or finishing of that surface. Remove hardware when required for painting, placing it in the packaging or carton originally supplied and returning it to the secure store until ready for re-installation.

3.7 INSTALL HARDWARE

Install each hardware unit in accordance with the hardware manufacturer's requirements using templates and tools supplied or recommended by them. Set units level, plumb and true to line and required location, with all moving parts and actions freely and easily operating. Do not make any modifications to supplied units.

Completion

3.8 ADJUST

Adjust and check each operating hardware unit for correct and smooth functioning. Replace those units that cannot be adjusted if they do not function correctly. Clean units and adjoining surfaces upon completing their installation. Only use lubricant if and when recommended by the hardware manufacturer/supplier.

3.9 REPLACE

Replace damaged or marked elements.

3.10 LEAVE

Leave work with parts fully and freely working and to the standard required by following procedures.

3.11 REMOVE

Remove debris, unused materials and elements from the site.

3.12 PROTECT

Protect hardware units from damage or marking.

3.13 FINAL ADJUSTMENT

Where hardware is installed more than a month prior to project completion, return and make a final check and adjustment of hardware units to ensure they are operating correctly, fitted properly and are undamaged.



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4 SELECTIONS

4.1 INTERIOR DOOR HARDWARE

Standard doors	Schlage Medio Series Alba Passage Lever BSC. To be fitted 1.0m above FFL.
Wardrobe/Cupboard and Kitchen doors	Arezzo 4030 Mardeco Kitchen Handles. Fitted at 1.0m above FFL (128mm, 160mm, 192mm, 256mm.
Door Locks (Bathroom and WC only)	Schlage Medio Series Alba Privacy Lever BSC. Includes snib to lock the door.
Door Magnets (all Wardrobes and Cupboards)	Miles Nelson 22mm 332CP (4556374). Doors to be fitted with soft-close, counter sunk magnetic catches flush finished into top edge of door and frame. Ensure doors are easily operable.
Door Stops	Air Cushion Door Stops (4584793, EA 70107265). Fitted to all interior doors. All hardware must be operable by persons with reduced hand function. Fit stops to all doors. Garage internal door to be fitted with a door closer and ensure the door handle is mounted 1.5m above finished floor level. Bathroom and toilet locks must be openable from the outside in event of an emergency.

4.2 EXTERIOR DOOR HARDWARE

Entry door	Lever type handle. Key-less exit. Aluminium door fitted with euro-cylinder lock. All door handles to be fitted 1.0m above FFL.
Dead Lock	Lockwood Deadlatch lever (4582533, L002 - 1L 1SP). Single Cylinder, Stainless steel finish. Open in and open out. Includes non-locking latch set.

4.3 WINDOW HARDWARE

Proprietary hardware fitted by window manufacturer. Fit security and safety stays. Fit locking wedge fasteners. Refer 4521 4.3

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5521AA ASSA ABLOY ARCHITECTURAL DOOR HARDWARE

1 GENERAL

This section covers the supply and installation of **ASSA ABLOY New Zealand Limited** door hardware and furniture for commercial and residential applications.
It includes:

- door hardware
- door control products
- door control systems

1.1 RELATED WORK

Refer to 5511 JOINERY AND CABINETRY FIXTURES for handles and furniture for built in furniture, cabinet work and joinery items.

Refer to 7150 SANITARY FIXTURES, TAPWARE & ACCESSORIES for bathroom accessories and proprietary cabinets and units.

Documents

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS.

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

ASSA ABLOY Commercial Hardware Catalogue
ASSA ABLOY Online Catalogue

Manufacturer/supplier contact details

Company:	**ASSA ABLOY New Zealand Limited**
Web:	www.assaabloy.co.nz
Email:	nzsales@assaabloy.com
Telephone:	09 448 9188

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

5 years:	For ASSA ABLOY products and materials
10 years:	For ASSA ABLOY door suite of products and materials
25 years:	For Lockwood mechanical door products

- Provide this warranty on the ASSA ABLOY standard form.
- Commence the warranty from the date of practical completion.

Refer to the section 1237 WARRANTIES for additional requirements.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

1 year:	For installation of ASSA ABLOY door hardware and furniture

- Provide this warranty on the installer/applicator standard form.
- Provide the installer audit with this warranty to the main contractor.
- Commence the warranty from the date of practical completion.

Refer to the general section 1237 WARRANTIES for additional requirements.

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Requirements

1.6 QUALIFICATIONS GENERALY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.7 NO SUBSTITUTIONS

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

1.8 SUBMIT A SUPPLIER'S SCHEDULE

Where an ASSA ABLOY hardware schedule has not been prepared and appended to this section, submit a supplier's hardware schedule, based on the hardware selections specified in this section.

1.9 FINAL AUDIT

Provide main contractor with documentation showing installed hardware has been audited to ASSA ABLOY requirements.

2 PRODUCTS

2.1 ASSA ABLOY DOOR HARDWARE

Refer to SELECTIONS for product selection.

2.2 ASSA ABLOY DOOR CONTROL PRODUCTS

Refer to SELECTIONS for product selection.

2.3 ASSA ABLOY DOOR CONTROL SYSTEMS

Refer to SELECTIONS for system selection.

Components

2.4 FIXINGS

Provide matching fixings, including screws, clips, bolts and brackets for hardware supplied.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

- Retain hardware in the ASSA ABLOY original packaging. Ensure that units are complete with fixings and installation instructions. Label each unit separately with its hardware number and door/window number to match the submitted and approved schedule.
- Package required hardware units in clear plastic and label each package with its hardware and door/window number and location to match the drawings and the submitted and approved schedule. Place packages in cartons selected for "level", "location", and/or "sector" and label the packages and the cartons similarly.
- Store hardware packages in a shelved, dry and securely locked area. Provide supervision when the secure area is unlocked and packages and cartons are being distributed; signing off each package from the schedule as released.

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 HARDWARE FOR SUPPLY TO OTHERS

Package, label with their hardware and door/window number and location, and supply to the window/door manufacturers for installation, hardware units selected for but not supplied under:

- 4511 EXTERIOR TIMBER WINDOWS AND DOORS
- 4521 ALUMINIUM WINDOWS AND DOORS
- 4531 STEEL WINDOWS AND DOORS
- 4551 COMPOSITE WINDOWS AND DOORS

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- 5231 INTERIOR DOORS AND WINDOWS

Installation

3.4 INSPECTION

Before starting the hardware installation, check frames, doors, sashes and adjacent finishes are ready for the proper installation of the hardware.

3.5 LOCATE

Locate hardware units at heights and/or locations shown on the drawings, or as required to comply with relevant Codes and Standards. Before proceeding, confirm any dimension not shown or known.

3.6 CUTTING AND FITTING

Carry out cutting and fitting of the substrate necessary for installing any hardware unit before painting or finishing of that surface. Remove hardware when required for painting, placing it in the packaging or carton originally supplied and returning it to the secure store until ready for re-installation.

3.7 INSTALL HARDWARE

Install each hardware unit in accordance with the hardware manufacturer's requirements using templates and tools supplied or recommended by them. Set units level, plumb and true to line and required location, with all moving parts and actions freely and easily operating. Do not make any modifications to supplied units.

3.8 CONSTRUCTION KEYING

Install for use during construction temporary key cylinders to all lock sets. All temporary cylinders are to be keyed alike to a single key. At specified date replace with master keyed cylinders and return construction cylinders to supplier. Refer to SELECTIONS for master keyed option.

Completion

3.9 COMPLETION MATTERS

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

3.10 ADJUST

Adjust and check each operating hardware unit for correct and smooth functioning. Replace those units that cannot be adjusted if they do not function correctly. Clean units and adjoining surfaces upon completing their installation. Only use lubricant if and when recommended by the hardware manufacturer/supplier.

3.11 FINAL ADJUSTMENT

Where hardware is installed more than a month prior to project completion, return and make a final check and adjustment of hardware units to ensure they are operating correctly, fitted properly and are undamaged.

3.12 FINAL AUDIT

On completion provide main contractor with documentation showing installed hardware has been audited to confirm all ASSA ABLOY specified hardware has been correctly supplied, installed and adjusted.

4 SELECTIONS

For further details on selections go to www.assaabloy.co.nz.

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Commercial hardware

4.1 LOCKWOOD MORTICE LOCKS & LATCHES - TIMBER DOORS

Location:	Internal
Brand:	LOCKWOOD
Description:	Multi-function mortice lock, function to suit opening/space
Type/model:	3572EASC - Privacy 3574SC - Passage
Backset:	60mm
Finish:	Satin Chrome

4.2 LOCKWOOD SLIDING DOOR DEADLOCK

Location:	Internal
Brand:	LOCKWOOD
Description:	Short backset sliding door deadlock
Type/model:	3573WTSC - Sliding Door Deadlock Cyl & Turn 3573TSC - Sliding Door Deadlock
Backset:	60mm
Finish:	Satin chrome plate

4.3 LOCKWOOD DOOR FURNITURE - TIMBER DOORS

Location:	Internal
Brand:	LOCKWOOD
Design:	Brass Plate Series
Description:	170mm x 45mm forged brass plate furniture
Type/model:	1800/1900
Finish:	Satin chrome plate

4.4 LOCKWOOD DOOR STOPS - FLOOR MOUNTED

Location:	Internal
Brand:	LOCKWOOD
Description:	Floor mounted stop
Type/model:	A250SC
Finish:	Aluminium

4.5 LOCKWOOD DOOR STOPS - WALL MOUNTED

Location:	Internal
Brand:	LOCKWOOD
Description:	Wall mount stop
Type/model:	A350SC
Finish:	Aluminium

4.6 LOCKWOOD MASTER KEYING

Location:	~
Brand:	LOCKWOOD
Description:	Restricted profile master keying, complete with 2 keys per master keyed group
Type/model:	Generation 6T

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5531WC WINDOWARE CURTAIN TRACK & BLIND SYSTEMS

1 GENERAL

This section relates to the supply and installation of Windoware™ curtain track and blind systems for residential and commercial applications.

It includes:

- curtain tracks and decorative rods
- blind systems
- motorisation and control systems
- components and accessories to complete the installation

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.

Documents

1.3 DOCUMENTS

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

AS 1530.2	Methods for fire tests on building materials, components and structures - Test for flammability of materials

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:
Windoware product catalogues
Windoware Installation Instructions
Windoware How to Care Guide

Manufacturer/supplier contact details

Company:	Curtain Studio
Web:	www.curtainstudio.co.nz
Email:	
Telephone:	

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

5 years	For Roller Blind components and For curtain tracks and rods

- 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 dispatch from factory.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.7 NO SUBSTITUTIONS

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

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1.8 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:
Windoware How to Care Guide

Provide this information prior to practical completion.

Performance - fire

1.9 FIRE HAZARD PROPERTIES

Windoware roller blind fabrics are tested to AS 1530.2 and achieve a Flammability index of ≤12.

Quality control and assurance

1.10 INSPECTIONS

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2 PRODUCTS

Blinds

2.1 ROLLER BLINDS

38mm and 50mm tube single and double roller blinds with a range of translucent, blockout, blackout, sunscreen and sheer fabrics and bottom rail profiles. Available with manual chain operation and motorised operation, single blinds available with FastRise Mini Clutch. Supplied with universal bracket system. Refer to SELECTIONS.

Curtain tracks

2.2 RECESSED CURTAIN TRACKS

Recessed extruded aluminium hand draw curtain track, 16mm wide by 13mm high with 7mm wide flanges. Available in Pearl White with a range of gliders. Refer to SELECTIONS.

Accessories

2.3 CHILD SAFETY DEVICES

Chain guides, cord cleats and cord tensioners. 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 in accordance with Windoware installation instructions, plumb, square and true to line and face.

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Installation - Roller blinds

3.6 INSTALL ROLLER BLINDS

Mark bracket positions, pre-drill holes and screw fix brackets to substrate. Insert blind roll spring-loaded pin end into central hole of first end bracket. Keeping gentle pressure on pin end of blind roll, align hooks on clutch end with vertical slots on opposite bracket with clutch pointing downwards. Insert hooks into the bracket, allow the hooks to settle into place and pull down gently to secure the blind roll in the bracket.

Installation - Curtain tracks

3.7 INSTALL RECESSED CURTAIN TRACKS

Fit track into prepared ceiling lining cutout and screw fix into ceiling substrate.

Installation - Child safety

3.8 FIX CHILD SAFETY DEVICE

Mark position, pre-drill holes and screw fix device to substrate.

Completion & Commissioning

3.9 COMPLETION MATTERS

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

4 SELECTIONS

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

Blinds

4.1 WINDOWARE ROLLER BLIND - SINGLE

Location/Blind Number:	Kitchens and Bathrooms
Supplier:	Curtain Studio
Tube size:	38mm
Width:	to suit opening
Drop:	to suit opening
Fit:	inside
Roll orientation:	standard
Operation:	Manual Chain
Remote control type:	n/a
Fabric range:	Blockout
Fabric colour:	tbc
Bottom rail type:	Flat - 27mm
Bottom rail colour:	tbc
Chain drop:	750mm
Chain colour:	Nickel
Bracket colour:	white

Curtain tracks

4.2 WINDOWARE RECESSED CURTAIN TRACK

Location/Curtain Number:	Bedrooms and Living Spaces
Supplier:	Curtain Studio
Length:	Up to 5.85m in a single piece
Glider type:	MiniExcel gliders
Colour:	Pearl White

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Accessories

4.3 WINDOWARE CHILD SAFETY DEVICE

Location/Blind Number:	all roller blind chains
Supplier:	Curtain Studio
Type:	Curtain cord tensioner

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5811 SIGNS & DISPLAYS

1 GENERAL

This section relates to the supply and fixing of signs and displays, for internal and external applications.
It includes;

- Vinyl sign systems
- Engraved, individual letter, Braille, traffic and pylon sign systems
- Illuminated sign systems, general signs and emergency exit signs
- Custom design and made signs

1.1 RELATED WORK

Refer to ~for ~

Documents

1.2 DOCUMENTS

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

NZBC F6/AS1	Visibility in escape routes
NZBC F8/AS1	Signs
AS/NZS 1428.4	Design for access and mobility - tactile indicators
AS 2293.1:2005	Emergency escape lighting and exit signs for buildings - System design, installation and operation
AS/NZS 2293.2:1995	Emergency evacuation lighting and exit signs for buildings - Inspection and maintenance
AS 2293.3:2005	Emergency escape lighting and exit signs for buildings - Emergency escape luminaires and exit signs
NZS 4223.3	Glazing in buildings - Human impact safety requirements
NZS 8603	Design and application of outdoor recreation symbols
NZS 9201.8	Model general bylaws - control of advertising signs
MOTSAM.1	NZTA Manual of traffic signs and markings - Part 1: traffic signs.
NZTA TCD	Traffic Control Devices Manual (TCD manual)

Note; MOTSAM 1 (& MOTSAM 2) is partly superseded by parts of NZTA TCD, so MOTSAM and TCD may have to be read together. In case of conflict NZTA TCD takes precedence.

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

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Manufacturer/supplier contact details

Company:	Ecoglo International
Web:	www.ecoglo.com/nz
Email:	info@ecoglo.com
Telephone:	03 348 3781

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

~ years:	For ~

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

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1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

~ years: For ~

- Provide this warranty on the installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS

Work to be carried out by tradespeople experienced, competent and familiar with the materials and techniques specified.

1.7 NO SUBSTITUTIONS

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

1.8 INFORMATION FOR OPERATION AND MAINTENANCE

Provide the following general operation and maintenance information as electronic PDF format documents:

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Provide this information prior to practical completion.

1.9 OPERATION AND MAINTENANCE MANUALS

Refer to the general section 1239 OPERATION & MAINTENANCE for the requirements for submission and review of operation and maintenance manuals.

Provide the following operation and maintenance manual(s):
Inspection and Maintenance Instructions

Include the following in the operation and maintenance manual(s):
~

Compliance information

1.10 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

- Applicators approval certificate from the manufacturer / importer / distributor Manufacturer's, importer's or distributors warranty
- Installer / applicator's warranty
- Producer Statement - Construction from the applicator / installer
- Producer Statement - Construction Review from an acceptable suitably qualified person

Performance

1.11 DESIGN - GENERAL

Signage to comply with NZBC F8/AS1 for escape routes, emergency related safety features, potential hazards and accessible routes and facilities for people with disabilities. Pictograms to NZBC F8/AS1, 2.4 **Pictograms.** Emergency illuminated signs also to NZBC F6/AS1 and AS 2293.1.

1.12 DESIGN - ADVERTISING

Design the signage to comply with NZS 9201.8.



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2 PRODUCTS

Illuminated signs

2.1 PHOTOLUMINESCENT SIGNS

To NZBC F8/AS1, 4.5.4, Photoluminescent signs. Provide photoluminescent signs that, in the event of a power failure, must continue to provide a luminescent sign at the prescribed level with no electrical or battery connection for the prescribed time to NZBC F6/AS1, 1.6 Duration. Text and pictograms for exit signs to comply with NZBC F8/AS1, 4.0 Exit Signs and to be in safety green to NZBC F8/AS1, 4.4.1

Components

2.2 VINYL TAPE

Vinyl Tapes with dead stretch properties and chemical and abrasion resistance. The transfer resistant rubber adhesive system is to provide immediate adhesion properties.

2.3 LIQUID ADHESIVES

Structural and non structural strength adhesives to suit system requirements.

3 EXECUTION

Conditions

3.1 DELIVERY

Only deliver to the site signs that can be immediately unloaded in to suitable storage or be placed for direct installation.

3.2 INSTALLATION

Install to manufacturers requirements, firmly and securely in locations specified on drawings.

3.3 COORDINATE

Confirm appropriate fixing points needed for each sign have been provided. Do not proceed if the appropriate fixing points or services do not match the sign requirements.

3.4 SUBSTRATES

Ensure substrates and fixings will allow work of the specified standard. Ensure finishes are complete as appropriate.

3.5 MATERIALS, FITTINGS AND EQUIPMENT

New and undamaged, of the required standard and complying with the relevant Standards, Codes and Regulations.

3.6 SIGNAGE LOCATIONS

Signage locations shown on the drawings are their actual location, but subject to verification for final height and position. Clarify the location of all elements and units relative to surrounding materials and finishes. Confirm final positioning.

Application

3.7 MOUNTING SIGNAGE

Locate and fix, ensuring they are positioned as designed, and relative to plumb and level requirements.

Completion

3.8 REPLACE DAMAGED WORK

Replace damaged, cracked or marked elements.

3.9 LEAVE CLEAN

Leave units and fittings clean and in full working order, wiring concealed and fire protected as required and with adjacent surface finishes unmarked. Leave work to the standard required by following procedures.

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3.10 ENSURE CORRECT OPERATION

Ensure work is operating correctly, with equipment clean and light bulbs and tubes operational.

3.11 PROTECT

Protect items from damage or marking.

4 SELECTIONS

Refer to the project signage schedules/drawings for details.

4.1 PHOTOLUMINESCENT SIGNS

Manufacturer:	Ecoglo
Model:	Pictogram directional signage
Location:	As required by the Fire report
Type:	Surface Mounted or ceiling mounted
Size:	up to 290 x 162
Mounting:	Screw fixed to substrate

Spares & maintenance products

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6122A ARDEX FLOOR SUBSTRATE PREPARATION

1 GENERAL

This section relates to preparing for and carrying out floor levelling work over a range of substrates, prior to the installation of floor coverings.

1.1 RELATED WORK

Refer to 1278SR Schedule of Slip Resistance Testing.

Refer to 6221A ARDEX FLOOR TILING SOLUTIONS for preparation of floor surfaces for tiling.
Refer to 6211AW ARDEX WALL TILING SOLUTIONS for preparation of wall surfaces for tiling.
Refer to 6812A ARDEX Undertile Waterproofing Membranes for selections for internal waterproofing membranes.
Refer to ARDEX Tanking Specification for documentation related to pool house interior.

Documents

1.2 DOCUMENTS

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

NZS AS 1884	Floor coverings - Resilient sheet and tiles - Installation practices
NZS 3114	Specification for concrete surface finishes
BRANZ BU 360	Floor levelling compounds

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

1.3 MANUFACTURER'S DOCUMENTS

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

ARDEX floor levelling compounds manual

Copies of the above literature are available from ARDEX:

Web:	www.ardexnz.com
Email:	info@ardexnz.com
Telephone:	0800 2 ARDEX (27339)

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

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

Warranty period (WPM materials only):	15 years
Warranty period (Construction materials):	10 years
Form of warranty:	ARDEX standard form

Refer to the general section 1237 WARRANTIES for details of when completed warranties must be submitted.

Requirements

1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any specified ARDEX materials, or associated products.

1.6 QUALIFICATIONS

Applicators to be experienced in the application of floor levelling compounds. Application to be strictly in accordance with ARDEX technical literature.

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1.7 SYSTEMS ARDEX PROJECT

Contact ARDEX with any relevant key dates and for a list of approved applicators. The contractor is to contact ARDEX prior to starting the contract.

2 PRODUCTS

Materials - Moisture Barrier

2.1 ARDEX 2 PART MOISTURE BARRIER - WPM 300

Provides a moisture barrier over both old and new concrete floors where moisture exceeds New Zealand Standards. Also used for curing seepage and dampness problems on internal cement-based surfaces of basements, tunnels, lift shafts, below grade retaining walls, car parks and as a primer for floors requiring a degree of consolidation. Will withstand 250kPa of hydrostatic pressure which is equivalent to a 25 metre head of water.

Materials -Primers and Admixes

2.2 ARDEX P 51 PRIMER

P 51 is a water-based primer, precoat, bonding agent and pore closer for concrete substrates. As a pore closer Ardex P51 prevents air bubbles rising from substrates and creating defects in the underlays.

2.3 ARDEX P9 PRIMER

P9 is a water-based, single part, synthetic primer and bonding agent used prior to the application of sub-floor levelling compounds and thin bed mortars.

2.4 ARDEX E 25 RESILIENT EMULSION / MORTAR ADMIX

Synthetic resin admixture. Ardex E 25 is a liquid admixture designed to enhance tensile strength, improve surface toughness, and increase flexibility of selected Ardex mortars and floor levelling compounds.

Materials - Levelling Compound

2.5 ARDITEX K 60 FLEXIBLE LEVELLING COMPOUND

ARDITEX K 60 is formulated with excellent adhesion designed to work under a damp proof membrane. Also used to pre-level existing timber floors prior to the installation of sheeting for a stable base for new floor coverings. Internal and external applications.

Materials - Preparation and Repair Mortar

2.6 ARDEX A 46 CONCRETE EXTERNAL REPAIR MORTAR

External or internal repair mortar. Rapid-hardening and drying with Ardurapid effect. A slump-free and shrinkage free finish make Ardex A 46 also suitable for building up new, coves, ramps, etc. Internal and external applications.

Materials - Screed

2.7 ARDEX A 48 SCREED

Ardex A 48 is a premixed, rapid-set, cement screed preparation that has been designed for all types of floor coverings and is especially effective when installing moisture sensitive coverings. A 48 rapid cure process allows floor coverings to be installed quicker than regular screeds. Internal and external applications.

3 EXECUTION

Conditions

3.1 COMPLY

Comply with all Ardex requirements and instructions.

3.2 STORE

Store materials under conditions that ensure no deterioration or damage.

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3.3 CHECK SUBSTRATE

Check that the substrate will allow work of the required standard. Complete any remedial work identified before commencing any floor levelling work.

Application - substrate preparation

3.4 PREPARATION - GENERAL

Ensure that all surfaces are sound, clean and free of oil, grease, wax dirt, asphalt, curing compounds, latex and gypsum compounds, dust, paint, or any contaminants which might act as a bond breaker. Carry out moisture test and PH test in accordance with NZS AS 1884. Refer to the Ardex floor levelling compounds manual for specific and detailed instructions for various substrates and their condition.

3.5 PREPARE CONCRETE SUBSTRATE

Ensure that floors are solid, with any contaminants, over-watered, frozen or otherwise weak concrete removed mechanically to provide a sound base.

3.6 PREPARE TIMBER SUBSTRATE

Sand, using a course abrasive, to remove all foreign matter and any existing protective coatings to provide a clean, mechanical surface. Vacuum all dust and debris. Do not use solvents, strippers, or cleaners to remove contamination.

3.7 PREPARING SPECIAL SUBSTRATES

Refer to the Ardex floor levelling compounds manual for preparation of non-porous and metal substrates.

3.8 CRACK REPAIR

Repair all dormant cracks in new and old concrete. Contact Ardex for a suitable crack repair system.

3.9 MOISTURE BARRIER

Prepare for and apply Ardex moisture barrier strictly in accordance with the manufacturer's requirements.

Application - general

3.10 PRIMING

Prepare for and apply Ardex primer strictly in accordance with Ardex's requirements and instructions.

3.11 FLOOR LEVELLING

Prepare materials and carry out floor levelling strictly in accordance with Ardex requirements and instructions.

3.12 PREPARATION AND REPAIR MORTAR

Prepare materials and carry out concrete repair and patching strictly in accordance with Ardex requirements and instructions.

3.13 SCREED

Ensure good ventilation during application of screed system. Prepare and apply system as per Ardex requirements and instructions, including mixing, applying, number of coats, finishing and curing. Protect from damp, condensation and water for at least 24 hours once application is completed.

Completion

3.14 REMOVE

Remove all debris, unused materials and elements from the site.

3.15 PROTECT

Protect completed work from damage for the period between completion of the floor levelling work and completion of flooring.

4 SELECTIONS

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

Moisture Barrier

4.1 ARDEX MOISTURE BARRIER

Location:	Internal Areas
Substrate:	Concrete
Moisture barrier:	ARDEX WPM 300

Floor Levelling Compound

4.2 ARDEX FLOOR LEVELLING COMPOUND - INTERNAL COMMERCIAL FLOORS

Location:	Internal Areas
Substrate:	Concrete
ARDEX Primer (non-porous):	ARDEX P 9
ARDEX Primer (porous):	ARDEX P 51
ARDEX product:	ARDEX K 60

4.3 ARDEX FLEXIBLE FLOOR LEVELLING COMPOUND - INTERNAL TIMBER FLOORS

Location:	Internal Areas
Substrate:	Timber - 6mm CFC Overlay. Refer to architectural drawings set by Hierarchy Group.
ARDEX Primer (non-porous):	ARDEX P 9
ARDEX Primer (porous):	ARDEX P 51
ARDEX product:	ARDEX K 60

Concrete Preparation & Repair Compound

4.4 ARDEX CONCRETE PREPARATION & REPAIR COMPOUND - INTERNAL

Location:	Internal Areas
Substrate:	Concrete
ARDEX Primer (non-porous):	ARDEX P 9
ARDEX Primer (porous):	ARDEX P 51
ARDEX Repair Mortar:	ARDEX A 46

Screed & Bulk Filling

4.5 ARDEX CONCRETE SCREED MATERIAL - INTERNAL

Location:	Internal Areas
Substrate:	Concrete
ARDEX Primer (non-porous):	ARDEX P 9
ARDEX Primer (porous):	ARDEX P 51
ARDEX Repair Mortar:	ARDEX A 46
ARDEX Engineered Screed:	ARDEX A 48

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6211 WALL TILING SYSTEMS

1 GENERAL

This section relates to the supply and installation of interior and exterior wall tiling systems:
It includes:

- Tiles
- Tile adhesives and grouts
- All relevant underlays, components and accessories necessary to complete installation.

1.1 RELATED WORK

Refer to 6221 FLOOR TILING SYSTEMS for floor tiling systems.

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:

WMAI	Waterproofing Membrane Association NZ 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/AS2	Protection from fire
NZBC E3/AS1	Internal moisture
NZBC E3/AS2	Internal moisture
AS 3958.1	Ceramic tiles - Guide to the installation of ceramic tiles
AS/NZS 4671	Steel reinforcing materials
AS/NZS 4858	Wet area membranes
AS ISO 13007.1	Ceramic tiles - Grouts and adhesives -Terms, definitions and specifications for adhesives
AS ISO 13007.3	Ceramic tiles - Grouts and adhesives - Terms, definitions and specifications for grouts
BS EN 12004.1	Adhesives for ceramic tiles. Requirements, assessment and verification of constancy of performance, classification and marking
BS EN 13888.1	Grouts for ceramic tiles. Requirements, classification, designation, marking and labelling.
WMAI	Code of Practice for Internal Wet-area Membrane Systems

Health & Safety at Work Act: 2015

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

~ ~

Manufacturer/supplier contact details

Company:	Tile Depot
Web:	~
Email:	~
Telephone:	~

Warranties - tiling

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

~ years	For ~

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- 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.

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

2 years For installation of tiling systems

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Warranties - waterproofing

1.7 WARRANTY - MANUFACTURER/SUPPLIER - FOR WATERPROOFING SYSTEMS

Provide a material manufacturer/supplier warranty:

~ For waterproofing system

- Provide this warranty on manufacturer/supplier standard warranty 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.

1.8 WARRANTY - INSTALLER/APPLICATOR - FOR WATERPROOFING SYSTEMS

Provide an installer/applicator warranty:

5 years For installation of waterproofing systems

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.9 QUALIFICATIONS GENERALLY - TILING SYSTEMS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.10 QUALIFICATIONS - WATERPROOFING SYSTEMS

Workers to be approved / accredited / registered / licensed / certified by manufacturer / supplier. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.11 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.

1.12 NO SUBSTITUTIONS

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

1.13 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:	Bathroom Wall Tile	Bathroom Floor Tile	Kitchen Splash Back

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Sample type:	tile sample	tile sample	tile sample
Number:	1	1	1
Location:	~	~	~
Supporting documentation:	~	~	~
Reviewer:	Contract administrator~	Contract administrator~	Contract administrator~
Time for review:	10 working days ~	10 working days ~	10 working days ~
Review criteria:	~	~	~

1.14 HEALTH & SAFETY - SILICA DUST

Comply with Health & Safety at Work Act:2015 and take all necessary precautions as recommended in WorkSafe guidelines for Respirable Crystalline Silica (RCS).

Compliance information

1.15 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

- Manufacturer / supplier warranty -waterproofing membrane
- Installer / applicator warranty -waterproofing membrane
- Producer Statement - Construction (PS3) from the waterproof membrane applicator / installer
- Other information required by the BCA in the Building Consent Approval documents.

Performance

1.16 INTERNAL MOISTURE - WET AREA MEMBRANES

Wet area membranes under tiled areas to comply with NZBC E3/AS1 & sections 1-4 of WMAI Code of Practice for Internal Wet-area Membrane Systems as modified by NZBC E3/AS2 for interior applications.

2 PRODUCTS

Materials

2.1 TILES

Refer to SELECTIONS.

Materials - preparation & underlays

2.2 REINFORCING MESH

To AS/NZS 4671, galvanized with mesh size between 25mm x 25mm and 75mm x 50mm and fabricated from wire between 1.2mm and 2mm diameter.

2.3 SEPARATING MEMBRANE

Proprietary separating membrane. Refer to SELECTIONS.

2.4 MORTAR BED

Mix of 1 part Portland cement with 5 parts damp sand to form mortar bed nominally 32mm thick.

2.5 LEVELLING COMPOUND / RENDER

Proprietary cementitious render / levelling compound for concrete / concrete masonry walls. Refer to SELECTIONS for details.

2.6 WATERPROOFING MEMBRANE - INTERIOR

Proprietary interior wet area waterproofing system to AS/NZS 4858. Refer to SELECTIONS.

Materials - adhesive and grout

2.7 TILE ADHESIVE

Tile adhesive, and if required primer, to suit particular location/use. To AS ISO 13007.1 and BS EN 12004.1. Refer to SELECTIONS.

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2.8 PROPRIETARY GROUT

Proprietary grout to suit particular location/use. To AS ISO 13007.3 and BS EN 13888.1. Refer to SELECTIONS.

Accessories

2.9 MOVEMENT JOINT SEALANT

Neutral cured or acid-cured sealant to AS 3958.1, 2.7.5 Sealant. Refer to SELECTIONS.

2.10 TILE EDGE TRIMS

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.

Inspect tiles on delivery to ensure that they are as specified, from the same batch, of a consistent colour and pattern and sufficient to complete the work. Reject tiles that vary widely in colour or pattern and any tiles that are damaged.

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.

Ensure that the substrate, with the preparation called for in this section, are of the quality necessary to allow tiling of the required standard. Ensure all services and accessories are in place and located to suit the tile layout.

Ensure concrete or concrete masonry walls are fully cured and dry. Ensure new concrete has cured for 28 days or more.

If in doubt check for moisture content by hygrometer. Ensure moisture content is:
Concrete 75% relative humidity or less

3.4 CONFIRM LAYOUT

Before commencing work confirm the proposed layout of tiles, movement joints and other visual considerations of the finished work. Minimise in number of cut tiles and where possible, no cut tiles less than half size and only at the perimeter of the work.

3.5 TEMPERATURE

Unless otherwise specified by selected tiling installation product manufacturer, do not carry out tiling where the air temperature is below 5°C or substrate temperature is above 40°C.

3.6 EXTERNAL CONDITIONS

Ensure any areas of external tiling, waterproofing, floor levelling, grouting or concrete repair must be protected from hot windy conditions, rain and/or frosts during application.

3.7 LIGHTING

Light the tile work as closely and clearly as possible to that of the finished lighting, to ensure that differences in plane surface are highlighted during installation.

Installation/application

3.8 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

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3.9 GENERALLY

Prepare surface and complete tiling installation in accordance with AS 3958.1 and if required complete interior waterproof membrane installation to sections 1-4 of WMAI Code of Practice for Internal Wet-area Membrane Systems as modified by NZBC E3/AS2.

Application - substrate preparation

3.10 PREPARE SUBSTRATES

Prepare backgrounds as described in AS 3958.1, Section 4. All surfaces to be structurally sound, dry, clean and free from movement, dirt, dust, oil, grease, wax and any other loose or contaminating materials. Concrete substrates should also be free of laitance, efflorescence, curing compounds and release agents.

Remove any projections or unevenness. Substrate material must be even and true with a maximum variation in plane of no greater than 4mm in every 2m, in accordance with AS 3958.1, section 4.

Suitably prepare backgrounds and substrates in accordance with the manufacturer's instructions of the tiling installation products for the relevant substrate type.

3.11 CONTAMINATED SUBSTRATES - GENERAL

Ensure contaminated substrates are prepared in accordance with the manufacturer's instructions of the tiling installation products. Completely remove existing surface contaminates or surface finishes oil that may affect bonding or adhesion. Surface to finish clean and dry with a texture giving a complete key.

3.12 PRIME SUBSTRATE

If required, surfaces should be primed as per manufacturer's instructions for the selected products and substrate types. Refer to SELECTIONS.

3.13 LEVELLING SUBSTRATE

Smooth out irregular concrete / concrete masonry substrates using proprietary levelling compound or render in accordance with manufacturer's requirements. Ensure maximum variation in plane of no greater than 4mm in every 2m, in accordance with AS 3958.1, section 4.

3.14 SEPARATING LAYER WITH REINFORCED MORTAR BED

Install separating layer to exterior wall substrate in accordance with manufacturers requirements. Mechanically fix reinforcing mesh back to substrate and use spacers to centralise it in the mortar bed. Install mortar bed to required thickness.

Application - waterproofing

3.15 INSTALL WATERPROOFING MEMBRANE - INTERIOR WET AREAS

Install interior waterproofing membrane to manufacturers requirements and in accordance with NZBC E3/AS1 and sections 1-4 of WMAI Code of Practice for Internal Wet-area Membrane Systems as modified by NZBC E3/AS2.

3.16 INSPECT - INTERIOR WET AREAS

Prior to application of tiling over, visually inspect waterproof membrane in accordance to WMAI Code of Practice for Internal Wet-area Membrane Systems, 4.0.5. Make good any damage that is identified in accordance with waterproof membrane manufacturer/supplier requirements.

Application -tiling

3.17 FITTING TILES

Setting out, cutting and fitting of tiles to be as described in AS 3958.1, section 5. If not shown on drawings, confirm set out, bond and pattern before installation.

- Ensure cut edges are smooth and installed without jagged or flaked edges.
- Always use whole tiles or if tiles have to be cut the largest portion of a cut tile possible.
- Maintain the heights of wall tile work in full courses to the nearest dimension.
- Within allowed tolerances, ensure corners of tiles are flush and level with corners of adjacent tiles.

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- Keep joint lines, including mitres, straight and of an even width.
- Fully bed trim units, moulded or shaped pieces and other accessories with an appropriate bedding material.
- Fix accessories level, plumb and true to the designated projection at detailed locations and heights.

3.18 TILE FINISH AND JOINTS

Provide tile finish and joints, including tolerances, as described in AS 3958.1, 5.4.6. Joint widths to be suited to tile and to the manufacturer's instructions.

- Ensure finished surfaces are flat and true to a tolerance of ±4mm in 2 metres from the required plane.
- Lippage between adjacent tiles shall not exceed 2mm and where joint widths are less than 3mm wide lippage shall not exceed 1mm. For tiles ground flat, such as polished tiles, lippage shall not exceed 1.5mm.
- Ensure joint widths are consistent throughout the installation, measured at the tile face.
- Ensure joint alignment is consistent throughout the installation and to a tolerance of ±4mm in 2 metres from the detailed joint alignment.
- Clean surplus bedding material from joint spaces and tile surface.

3.19 ADHESIVE APPLICATION - THIN BED

Apply a thin bed of selected tile adhesive to the adhesive manufacturer's requirements, generally final bed thickness does not exceed 3mm. Install using the following methods:

Notched trowel method

- Adhesive application to be as described in AS 3958.1, 5.6.2(a) and to adhesive manufacturers requirements. Apply adhesive to substrate to a uniform thickness and rib using notched trowel. Select trowel square notch size to suit tile size and type, to achieve full coverage. Press tile firmly onto substrate and beat into place. Additional back buttering of tiles may also be required, usually required for tiles 400x400mm and larger.

Floating method

- Adhesive application to be as described in AS 3958.1, 5.6.2(b) and to adhesive manufacturers requirements. Apply adhesive to substrate to a uniform thickness. Apply tiles with a twisting or sliding action and tap back firmly into the floated bedding.

Buttering method

- Adhesive application to be as described in AS 3958.1, 5.6.2(c) and to adhesive manufacturers requirements. Apply adhesive evenly to the back of each tile with a flat edged trowel. Press tile firmly onto substrate and tap into place. This method is not suitable for mosaic tile installation.

Tiles in awkward locations

- The buttering method may be required, or fixing might be necessary to achieve full bedding, even though the notched trowel method is used generally.

Ensure that the whole of the back of the tile is in good contact with the adhesive with no voids. Remove a tile periodically during installation to ensure correct coverage. Do not fix tiles over skinned adhesive.

3.20 INSTALL TRIMS

Accurately locate and fully bed edge trim units, dividing strips, moulded or shaped pieces and other accessories with an appropriate bedding material. Fix accessories level, plumb and true to the designated projection at detailed locations and heights.

3.21 APPLY GROUTING

Remove any spacer inserts, prepare joints and apply grout in accordance with manufacturers requirements and as described in AS 3958.1, 5.7 Grouting. Ensure finish is uniform in colour, smooth and without voids, pinholes or low spots.

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Application - movement joints

3.22 FORM MOVEMENT AND EXPANSION JOINTS

Install movement joints in accordance with AS 3958.1, 5.4.5 Movement Joints. Joints to go right through the tile and bed to the background, maintaining any waterproofing.

Movement joints to walls to be a minimum of 6mm wide and to be located:

- Over existing movement joints
- At junction between different background materials
- Where tiling abuts other materials, including sanitary fixtures and windows/doors frames.
- At inter-storey height horizontally and at 3m to 4.5m apart vertically.
- At internal vertical corners in shower compartments.

3.23 MOVEMENT AND EXPANSION JOINTS, INSTALL COMPOUND/SEALANT FILL

Carefully clean out the joint, if required install bond breaker or backing rod to control width/depth ratio, and fill with compound/sealant placed by gun. After the correct interval, finish the surface off smooth, and flush on flat areas or concave in corners, to the compound/sealant manufacturer's requirements.

Cleaning

3.24 CLEAN TILES

Upon completion of setting and grouting, thoroughly sponge and wash the tiles to leave them completely clean and without blemish. Finally polish glazed tiles with a clean dry cloth.

Completion

3.25 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 - Tiles

4.1 WALL TILES

Location:	Bathroom Walls
Supplier:	Tile Depot
Tile type:	ENZO
Tile colour:	Moon Matt Microtec
Tile size:	600mm x 600mm
Grout colour:	Mapei 110 Manhatten
Grout width:	3mm
Sealant colour:	Mapei 110 Manhatten

4.2 FLOOR TILES

Location:	Bathroom Floors
Supplier:	Tile Depot
Tile type:	ENZO
Tile colour:	Moon Matt Microtec
Tile size:	600mm x 600mm
Grout colour:	Mapei 110 Manhatten
Grout width:	3mm
Sealant colour:	Mapei 110 Manhatten

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4.3 WALL TILES

Location:	Kitchen Backsplash
Supplier:	Tile Depot
Tile type:	Zellige
Tile colour:	Salvia Gloss laid to create a random installation and colour
Tile size:	100mm x 100mm
Grout colour:	Mapei 110 Manhatten
Grout width:	3mm
Sealant colour:	Mapei 110 Manhatten

4.4 WALL TILES

Location:	Bathroom Accent Shower Tile
Supplier:	Tile Depot
Tile type:	Tribeca laid in stacked vertical layout (on wall without plumbing fixture
Tile colour:	Sage Green, Gloss
Tile size:	60mm x 264mm
Grout colour:	Mapei 110 Manhatten
Grout width:	3mm
Sealant colour:	Mapei 110 Manhatten

Materials - preparation & underlays

4.5 WATERPROOFING MEMBRANE - INTERIOR

Location:	Shower enclosure walls and accessible shower floors
Substrate:	Plywood
Primer:	Check selected waterproofing membrane for primer requirements
Brand/type:	Mapei Mapegum WPS liquid waterproofing membrane
Accessories:	

Materials - adhesive and grout

4.6 TILE ADHESIVE

Location:	Bathrooms and Kitchens
Substrate:	Plywood / Gib Aqualine
Primer:	Primer G
Tile adhesive:	Mapei Kerabond Plus

4.7 GROUT

Location:	Bathrooms and Kitchen
Grout type:	Ultrcolour Plus
Colour:	Refer to relevant tile selection for grout colour
Grout width:	Refer to relevant tile selection for grout joint width

Accessories

4.8 MOVEMENT JOINT SEALANT

Location:	Bathrooms and Kitchens
Brand/type:	Mapei Mapesil AC
Colour:	Refer to relevant tile selection for sealant colour

4.9 TILE EDGE TRIMS

Location:	Exposed Edges and External Corners
Brand/type:	Anodised Aluminium
Dimensions:	To match tile thickness
Finish/colour:	anodised

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6211AW ARDEX WALL TILING

1 GENERAL

This section relates to the supply and installation of ARDEX New Zealand Ltd internal and external wall tiling systems.

It includes:

- Primers
- Waterproofing systems
- Adhesives
- Sealants
- Grouts

1.1 RELATED WORK

Refer to 1278SR Schedule of Slip Resistance Testing.

Refer to 6122A ARDEX FLOOR SUBSTRATE PREPARATION for further options for floor levelling and substrate preparation.
Refer to 6221A ARDEX FLOOR TILING SOLUTIONS for preparation of floor surfaces for tiling.
Refer to 6812A ARDEX Undertile Waterproofing Membrane for internal sheet waterproofing options.
Refer to appropriate tiling section for the selection and installation of floor and wall tiles.

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:

PVC	Polyvinyl chloride
WMAI	Waterproofing Membrane Association (NZ) Incorporated
WPM	Waterproofing membrane

Documents

1.3 DOCUMENTS

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

AS 3958.1	Ceramic tiles - Guide to the installation of ceramic tiles
ISO 13007.1	Ceramic tiles - Grouts and adhesives - Terms, definitions and specifications for adhesives
ISO 13007.3	Ceramic tiles - Grouts and adhesives - Terms, definitions and specifications for grouts
WMAI CoP	Code of Practice for Internal Wet Area Membrane Systems

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:
ARDEX Tiling and Substrate Preparation Systems (October 2023)
ARDEX Product Technical Data Sheets
ARDEX Technical Tiling Systems Bulletins
ARDEX Product Building Product Information Sheets
ARDEX Tiling General Care information sheet
BRANZ Appraisal 727 (2023) - ARDEX Undertile Sheet Membrane (WPM 750)

Manufacturer/supplier contact details

Company:	ARDEX New Zealand Ltd
Web:	www.ardex.co.nz
Email:	info@ardexnz.com
Telephone:	0800 227339

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Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

Warranty period (WPM materials only):	15 years
Warranty period (Construction materials):	10 years
Form of warranty:	ARDEX standard form

- 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.

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

10 years For installation

- 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

1.7 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.8 QUALIFICATIONS WORKERS - MANUFACTURER / SUPPLIER REQUIREMENTS

Waterproofing applicators to be approved by ARDEX New Zealand. Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.9 NO SUBSTITUTIONS

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

1.10 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:
ARDEX Tiling General Care

Provide this information prior to practical completion.

Compliance information

1.11 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Applicator approval certificate from the manufacturer / importer / distributor
- Producer Statement - Construction from the applicator / installer
- Other information required by the BCA in the Building Consent Approval documents.

2 PRODUCTS

Materials - patching compound

2.1 ARDEX A 46

Rapid setting and drying, slump free cement-based mortar.

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Materials - substrate preparation

2.2 ARDEX MULTIPRIME
One part, water-based primer for porous substrates.

2.3 ARDEX P 9
One part, water-based primer for non-porous substrates.

2.4 ARDEX P 51
One part water-based, primer, pre-coat, and bonding agent for porous substrates.

2.5 ARDEX WPM 300 MOISTURE BARRIER
Two-component, water-based, epoxy polyamide primer/barrier hydrostatic resistant coating.

2.6 ARDEX WPM 750
Fleece-lined, synthetic rubber sheet membrane, 0.75mm thick, 1.4m wide x 20m long rolls.

Materials - adhesives

2.7 ARDEX X 18
Flexible, polymer fortified, fibre reinforced, cement-based adhesive, formulated with non-slumping mastic type properties. Classified C2TES1 to ISO 13007.1.

2.8 ARDEX X 77
Fibre reinforced, polymer modified adhesive. Classified C2FTES1 to ISO 13007.1.

Materials - grout

2.9 ARDEX FG 8
Fine sanded, cement-based, standard grout for joints 1mm to 8mm wide. Classified CG2W to ISO 13007.3.

2.10 ARDEX FS-DD
Non-sanded, cement-based grout for joints 1mm to 4mm wide. Classified CG1 to ISO 13007.3.

2.11 ARDEX EG 15
Three part stain and chemical resistant epoxy grout for joints 1.5mm to 15mm wide. Classified RG to ISO 13007.3.

Materials - additives

2.12 ARDEX E 90
Synthetic dispersion additive for use with ARDEX cement-based adhesives, to increase bond strength, elasticity and water resistance.

2.13 ARDEX ABALASTIC
Liquid polymer additive for use with cement-based adhesive to improve adhesion, water resistance and flexibility.

2.14 ARDEX GROUT BOOSTER
Water-based synthetic polymer grout additive for use with cement-based grouts to improve adhesion strength, flexibility and abrasion resistance.

Components

2.15 ARDEX ST TAPE
Uncured, self-adhesive butyl tape, fleece lined one side.

2.16 ARDEX CA 750 CONTACT ADHESIVE
Water-based contact adhesive.

2.17 ARDEX CA 20 P PLUS CONSTRUCTION ADHESIVE
One part, flexible, silane modified polymer adhesive.

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2.18 TRIMS

Tile trims and edge strips. Available in aluminium, brass and stainless steel. Refer to SELECTIONS.

2.19 MOVEMENT JOINT - ANGLE

Metal or PVC angle. Refer to SELECTIONS.

2.20 MOVEMENT JOINT - INSERT

Polyurethane or neoprene insert. Refer to SELECTIONS.

2.21 MOVEMENT JOINT - SEALANT

One part, flexible acetic or neutral cure silicone sealant for joints 1mm to 30mm. Refer to SELECTIONS.

2.22 MOVEMENT JOINT - BACKING ROD

Polyethylene foam (PEF) backing rod. 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.

Moisture content concrete:	75% maximum relative humidity, minimum 28 day cured

Installation/application

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 APPLICATION GENERALLY

To AS 3958.1, ARDEX New Zealand Ltd instructions, and to WMAI CoP recommendations.
Surfaces to be clean, sound and free of dust, oil, grease, curing compounds or release agents.

Installation - patching compound

3.6 APPLY PATCHING COMPOUND

Mix patching compound to ARDEX instructions. Trowel onto prepared substrate to required thickness.

Installation - substrate preparation

3.7 APPLY MOISTURE BARRIER

Spray fine mist of water over substrate. Roll moisture barrier liberally over entire substrate. Apply two coats.

3.8 APPLY PRIMER

Sponge, brush or roll primer liberally over entire substrate.

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Installation - waterproofing

3.9 APPLY ARDEX LIQUID WPM

Reinforce corners and penetrations with ARDEX ST TAPE. Mix waterproofing components to ARDEX instructions. Brush or roll on liquid waterproofing membrane over prepared substrate. Apply two coats to achieve required minimum total dry film thickness to ARDEX product technical data sheet.

3.10 APPLY ARDEX SHEET WPM

Lay sheet membrane allowing for 50mm overlap with adjacent sheet. Working in rows lengthwise, fold back half of the width of the membrane sheet. Brush ARDEX contact adhesive to substrate and underside of membrane, avoiding the 50mm overlap. Unfold the membrane and press onto the substrate. Heat weld the 50mm overlapped membranes together.

Installation - adhesive

3.11 TILE SETTING OUT

Confirm the layout and bond pattern. Cut tiles to tile manufacturer's recommendations. Provide joint widths to the tile manufacturer's instructions.

3.12 MOVEMENT JOINTS GENERAL

Provide movement joints to AS 3958.1:

Depth:	Movement joints to go right through the tile and bed to the background.
Width:	6mm
Locations:	At junctions with floors, columns, nibs, and similar. Around sanitary fixtures. Around fixtures interrupting the tile surface (e.g. at junctions with joinery fixtures, window/door frames, and built in cupboards). At changes in substrate.
Large areas:	Provide vertical joints at not less than 3.5 metres spacing along the length of a wall. Provide horizontal joints at each storey rise in the height of a wall. Provide joints over existing joints in the substrate.

3.13 ADHESIVE APPLICATION GENERAL

For general wall tiling, use a 6mm x 6mm x 6mm notched trowel.

For mosaics, use a 4.5mm x 4.5mm x 4.5mm notched trowel.
Remove a tile periodically during installation to check for correct adhesive coverage. Do not fix tiles over skinned adhesive.

3.14 APPLY ADHESIVE

Mix adhesive to ARDEX instructions. Spread adhesive over prepared substrate with a notched trowel to ARDEX recommended bed thickness.

3.15 INSTALL TRIM

Press trim into wet adhesive.

3.16 INSTALL MOVEMENT JOINT ANGLE

Press angle into wet adhesive.

3.17 LAY TILES

Firmly press tiles into the adhesive bed for full contact between tile and adhesive with no voids. Butter the back of tiles with ribbed or keyed underside before laying into adhesive bed by spreading a thin layer of adhesive on the back of the tile. Remove surplus adhesive from tile surfaces before adhesive sets.

Installation - grout

3.18 APPLY GROUT

Mix grout to ARDEX instructions. Work grout into joints with a rubber trowel. Allow the grout to firm up in the joint before wiping tile surface with a damp, dense sponge.

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Installation - movement joint

3.19 INSTALL MOVEMENT JOINT INSERT

Place insert between movement joint angles.

3.20 INSTALL MOVEMENT JOINT BACKING ROD & SEALANT

Place PEF backing rod into movement gap. Apply a continuous bead of silicone sealant over PEF backing rod.

Completion & Commissioning

3.21 COMPLETION MATTERS

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

4 SELECTIONS

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

4.1 TILES

Location:	Internal Areas
Supplier:	TBC
Type #1:	Ceramic
Type #2:	Porcelain
Class:	TBC
Bond pattern:	TBC
Note:	If tile dimensions exceed 600 x 600 x 10mm, contact ARDEX for advice.

4.2 ARDEX MOISTURE BARRIER

Location:	Internal Area Ground Floor
Substrate:	Concrete
Moisture barrier:	ARDEX WPM 300

ARDEX Tiled Internal Walls

4.3 ARDEX INTERNAL WALL TILING SYSTEM OVER PLASTERBOARD [DRY AREA}

Location:	Internal Areas
Substrate:	Plasterboard
ARDEX Primer (non-porous):	ARDEX P9
ARDEX Primer (porous):	ARDEX P51
Adhesive:	ARDEX X 18 + ARDEX E 90
Grout (Option 1):	ARDEX EG 15 Epoxy Grout 1.5 - 15mm joints
Grout (Option 2):	ARDEX FS-DD, 1 - 4mm joints; ARDEX FG 8, 4 - 8mm joints with ARDEX Grout Booster
Grout colour:	Refer to ARDEX for colour range of selected grout
Silicone:	ARDEX SE or ARDEX ST
Silicone colour:	Refer to ARDEX for colour range of selected silicone

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4.4 ARDEX INTERNAL WET AREA WALL TILING SYSTEM OVER PLASTERBOARD [WET AREA]

Location:	Internal Areas
Substrate:	Plasterboard
ARDEX Primer (non-porous):	ARDEX P9
ARDEX Primer (porous):	ARDEX P51
WPM:	ARDEX WPM 750
Adhesive:	ARDEX X 18 + ARDEX E 90
Grout (Option 1):	ARDEX EG 15 Epoxy Grout 1.5 - 15mm joints
Grout (Option 2):	ARDEX FS-DD, 1 - 4mm joints; ARDEX FG 8, 4 - 8mm joints with ARDEX Grout Booster
Grout colour:	Refer to ARDEX for colour range of selected grout
Silicone:	ARDEX SE or ARDEX ST
Silicone colour:	Refer to ARDEX for colour range of selected silicone

Components

4.5 TRIMS

Location:	Internal Areas
Supplier:	TBC
Type:	Tile trim, Edge strip, Floor finish divider strip, or Weather bar
Material:	Aluminium, Brass, Stainless steel, or PVC

4.6 MOVEMENT JOINT - ANGLE & INSERT

Location:	Internal Areas
Supplier:	TBC
Angle:	Aluminium, Brass, Stainless steel, or PVC
Insert:	Polyurethane or, Neoprene

4.7 MOVEMENT JOINT - BACKING ROD & SEALANT

Location:	Internal Areas
Backing rod:	Closed cell polyethylene foam
Diameter:	Diameter to be 25-30% greater than joint width
Sealant:	ARDEX SE (acetic silicone) (cannot be used within pool application). ARDEX ST (neutral cure silicone)
Sealant colour:	Refer to ARDEX for colour range

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Selections - Waterproofing

4.8 ARDEX SYSTEMS - INTERNAL WATERPROOFING

Location:	Internal Areas
Waterproofing - Primary Selection	ARDEX WPM 750
Note:	Refer to 6812A ARDEX Undertile Waterproofing Membrane for internal sheet waterproofing options.

Spares & maintenance products

4.9 SPARES & MAINTENANCE PRODUCTS

Refer to the general section 1270 CONSTRUCTION for details of how spares and maintenance products will be handled. Provide the following spares and maintenance products:

Item:	To be organised with contractors and/or applicator.
Quantity:	TBC
Location:	Refer to 1270 CONSTRUCTION

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6221A ARDEX FLOOR TILING SOLUTIONS

1 GENERAL

This section relates to the supply and installation of ARDEX New Zealand internal and external floor tiling systems.

It includes:

- Acoustic underlays
- Levelling screeds
- Primers
- Waterproofing systems
- Adhesives
- Sealants
- Grouts

1.1 RELATED WORK

Refer to 1278SR Schedule of Slip Resistance Testing.

Refer to 6122A ARDEX FLOOR SUBSTRATE PREPARATION for further options for floor levelling and substrate preparation.
Refer to 6211AW ARDEX WALL TILING SOLUTIONS for preparation of wall surfaces for tiling.
Refer to 6812A ARDEX Undertile Waterproofing Membrane for internal sheet waterproofing options.
Refer to appropriate tiling section for the selection and installation of floor and wall tiles.

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:

CFC	Compressed fibre cement
PVC	Polyvinyl chloride
WMAI	Waterproofing Membrane Association (NZ) Incorporated
WPM	Waterproofing membrane

Documents

1.3 DOCUMENTS

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

NZBC D1/AS1	Access routes
NZBC E2/AS1	External moisture
NZBC E3/AS1	Internal moisture
NZBC G3/AS1	Food preparation and prevention of contamination
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
AS 3958.1	Ceramic tiles - Guide to the installation of ceramic tiles
ISO 13007.1	Ceramic tiles - Grouts and adhesives - Terms, definitions and specifications for adhesives
ISO 13007.3	Ceramic tiles - Grouts and adhesives - Terms, definitions and specifications for grouts
NZS 4121	Design for access and mobility - Buildings and associated facilities
WMAI CoP	Code of Practice for Internal Wet Area Membrane Systems

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

ARDEX Tiling and Substrate Preparation Systems (October 2023)
ARDEX Product Technical Data Sheets
ARDEX Technical Tiling Systems Bulletins
ARDEX Product Building Product Information Sheets
ARDEX Tiling General Care information sheet

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BRANZ Appraisal 727 (2023) - ARDEX Undertile Sheet Membrane (WPM 750)

Manufacturer/supplier contact details
Company: ARDEX New Zealand Ltd
Web: www.ardex.co.nz
Email: info@ardexnz.com
Telephone: 0800 227339

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

Warranty period (WPM materials only):	15 years
Warranty period (Construction materials):	10 years
Form of warranty:	ARDEX standard form

- 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.

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

10 years For installation

- 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

1.7 QUALIFICATIONS WORKERS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.8 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

Waterproofing applicators to be approved by ARDEX New Zealand. Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.9 NO SUBSTITUTIONS

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

1.10 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:

- ARDEX Tiling General Care

Provide this information prior to practical completion.

Compliance information

1.11 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Applicator approval certificate from the manufacturer / importer / distributor
- Producer Statement - Construction from the applicator / installer
- Other information required by the BCA in the Building Consent Approval documents

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Performance - fire

1.12 SURFACE FIRE PERFORMANCE - FLOORS

Tiles composed entirely of ceramic are non-combustible.

Performance - Slip resistance

1.13 TEST - SLIP RESISTANCE

Test walking surfaces for slip resistance, refer to SELECTIONS for test condition.

Contractor to undertake or organise tests as required.

2 PRODUCTS

Materials - underlay

2.1 FLOORING UNDERLAY

Fibre cement board to AS/NZS 2908.2 manufactured from cellulose fibre, Portland cement, sand and water, or glass-mat gypsum board manufactured from gypsum core with coated fiberglass mat facing.

Materials - levelling screeds

2.2 ARDEX K 60

Two part, self-levelling latex compound.

2.3 ARDEX A 46

Rapid setting and drying, slump free cement-based mortar.

2.4 ARDEX A 48 SCREED

Premixed, rapid-set, cement and aggregate screed.

Materials - substrate preparation

2.5 ARDEX MULTIPRIME

One part, water-based primer for porous substrates.

2.6 ARDEX P 9

One part, water-based primer for non-porous substrates.

2.7 ARDEX P 51

One part water-based, primer, pre-coat, and bonding agent for porous substrates.

2.8 ARDEX WPM 300 MOISTURE BARRIER

Two-component, water-based, epoxy polyamide membrane/barrier hydrostatic pressure resistant coating.

Materials - waterproofing

2.9 ARDEX WPM 750

Fleece-lined, synthetic rubber sheet membrane, 0.75mm thick, 1.4m wide x 20m long rolls.

Materials - adhesives

2.10 ARDEX X 18

Flexible, polymer fortified, fibre reinforced, cement-based adhesive, formulated with non-slumping mastic type properties. Classified C2TES1 to ISO 13007.1

Materials - grouts

2.11 ARDEX FG 8

Fine sanded, cement-based standard grout for joints 1mm to 8mm wide. Classified CG2W to ISO 13007.3.

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2.12 ARDEX FS-DD

Non-sanded, cement-based grout for joints 1mm to 4mm wide. Classified CG1 to ISO 13007.3.

2.13 ARDEX EG 15

Three part stain and chemical resistant epoxy grout for joints 1.5mm to 15mm wide. Classified RG to ISO 13007.3.

Materials - additives

2.14 ARDEX E 90

Synthetic dispersion additive for use with ARDEX cement-based adhesives, to increase bond strength, elasticity and water resistance.

2.15 ARDEX GROUT BOOSTER

Water-based, synthetic polymer grout additive for use with cement-based grouts to improve adhesion strength, flexibility and abrasion resistance.

2.16 ARDEX ST TAPE

Uncured, self-adhesive butyl tape, fleece lined one side.

2.17 ARDEX CA 750 CONTACT ADHESIVE

Water-based contact adhesive.

2.18 TRIMS

Tile trim, edge strips, floor finish divider strips and weather bars. Available in aluminium, brass and stainless steel. Refer to SELECTIONS.

2.19 MOVEMENT JOINT - ANGLE

Metal or PVC angle. Refer to SELECTIONS.

2.20 MOVEMENT JOINT - INSERT

Polyurethane or neoprene insert. Refer to SELECTIONS.

2.21 MOVEMENT JOINT - SEALANT

One part, flexible acetic or neutral cure silicone sealant. Refer to SELECTIONS.

2.22 MOVEMENT JOINT - BACKING ROD

Polyethylene foam (PEF) backing rod. 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.

Moisture content concrete:	75% maximum relative humidity, minimum 28 day cured
Moisture content plywood:	18% maximum
Moisture content particleboard:	16% maximum

Installation/application

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

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3.5 APPLICATION GENERALLY

To AS 3958.1, ARDEX New Zealand Ltd instructions, and to WMAI CoP recommendations. Surfaces to be clean, sound and free of dust, oil, grease, curing compounds or release agents.

3.6 APPLY LEVELLING SCREED

Mix levelling screed to ARDEX instructions. Trowel onto prepared substrate to required thickness and fall, where required:

1:40 minimum	deck acting as a roof to NZBC E2/AS1
1:40 minimum	accessible showers to NZBC G1/AS1
1:50 minimum	shower bases to NZBC E3/AS1
1:50 minimum	shower bases for people with disabilities to NZS 4121
1:50 minimum	food processing areas (e.g. commercial kitchens) to G3/AS1
1:50 maximum	cross fall for outdoor accessways in public areas to NZS 4121

3.7 FLOORING UNDERLAY

Lay and fix flooring underlay to the manufacturer's instructions. Fill gaps between sheets and corners with a neutral cure silicone sealant.

3.8 APPLY ARDEX WPM 300 MOISTURE BARRIER

Spray fine mist of water over substrate. Spread barrier evenly over entire substrate with a stiff nylon broom. Apply second coat with a long nap roller.

3.9 APPLY PRIMER

Sponge, brush or roll primer liberally over entire substrate.

3.10 APPLY ARDEX LIQUID WPM

Reinforce corners and penetrations with ARDEX ST TAPE. Mix waterproofing components to ARDEX instructions. Brush or roll on liquid waterproofing membrane over prepared substrate. Apply two coats to achieve required minimum total dry film thickness to ARDEX product technical data sheet.

3.11 APPLY ARDEX SHEET WPM

Lay sheet membrane allowing for 50mm overlap with adjacent sheet. Working in rows lengthwise, fold back half of the width of the membrane sheet. Brush ARDEX contact adhesive to substrate and underside of membrane, avoiding the 50mm overlap. Unfold the membrane and press onto the substrate. Heat weld the 50mm overlapped membranes together.

3.12 SETTING OUT

Confirm tile layout and bond pattern. Cut tiles to tile manufacturer's recommendations. Lay tiles level, maintaining falls to drainage where required (e.g. floor wastes). Provide joint widths to the tile manufacturer's recommendations.

3.13 MOVEMENT JOINTS GENERAL

Provide movement joints to AS 3958.1:

Depth:	Movement joints to go right through the tile and bed to the background.
Width:	6mm
Locations:	At walls, columns, nibs, hobs and similar.
	Around sanitary fixtures.
	Around fixtures interrupting the tile surface (e.g. at junctions with joinery fixtures, window/door frames, and built in cupboards).
	At changes in substrate.
Large areas:	Provide joints at not less than 4.5 metres spacing in both directions for internal floors.
	Provide joints at not less than 3.5 metres spacing in both directions for external floors.
	Provide joints over existing joints in the substrate.

3.14 ADHESIVE APPLICATION GENERAL

For general floor tiling, use a 10mm x 10mm x 10mm notched trowel.



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For large format tiles, use a 12mm x 12mm x 12mm notched trowel.
For mosaics, use a 4.5mm x 4.5mm x 4.5mm notched trowel.
Remove a tile periodically during installation to check for correct adhesive coverage. Do not fix tiles over skinned adhesive.

3.15 APPLY ADHESIVE

Mix adhesive to ARDEX instructions. Spread adhesive over prepared surface with a notched trowel to ARDEX recommended bed thickness.

3.16 INSTALL TRIM

Press trim into wet adhesive.

3.17 INSTALL MOVEMENT JOINT ANGLE

Press angle into wet adhesive.

3.18 LAY TILES

Firmly press tiles into the adhesive bed for full contact between tile and adhesive with no voids. Butter the back of tiles with ribbed or keyed underside before laying into adhesive bed by spreading a thin layer of adhesive on the back of the tile. Remove surplus adhesive from tile surfaces before adhesive sets.

3.19 APPLY GROUT

Mix grout to ARDEX instructions. Work grout into joints with a rubber trowel. Allow the grout to firm up in the joint before wiping tile surface with a damp, dense sponge.

3.20 INSTALL MOVEMENT JOINT INSERT

Place insert between movement joint angles.

3.21 INSTALL MOVEMENT JOINT BACKING ROD

Place PEF backing rod into movement gaps. Apply a continuous bead of silicone sealant over PEF backing rod.

Completion & Commissioning

3.22 COMPLETION MATTERS

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

4 SELECTIONS

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

4.1 TEST - SLIP RESISTANCE

Test walking surface for slip resistance to comply with NZBC D1/AS1, 2.1 Slip resistance. Refer to 1278SR SCHEDULE OF SLIP RESISTANCE TESTING for test method, minimum test value required and general reporting requirements.

Location:	Internal Areas
Note:	Slip Resistance by Others. Testing for Slip Resistance by Others. Refer to section 1278SR SCHEDULE OF SLIP RESISTANCE TESTING.

4.2 TILES

Location:	Internal Areas
Supplier:	TBC
Type #1:	Ceramic
Type #2:	Porcelain
Class:	TBC
Bond pattern:	TBC
Note:	If tile dimensions exceed 600 x 600 x 10mm, contact ARDEX for technical advice.

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4.3 COMPRESSED FIBRE CEMENT UNDERLAY

Location:	Unit 2: Ensuite A Bathroom B, WC
Supplier:	By Others - Confirm as suitable with manufacture/supplier.
Type/Brand:	By Others - Must be suitable for internal wet areas.
Thickness:	6mm. Refer to architectural drawing set by Hierarchy Group.
Note:	Changes to CFC or in general the substrate configuration and/or layering will affect ARDEX system specifications. ARDEX to be notified of any changes.

4.4 ARDEX MOISTURE BARRIER

Location:	Internal Area Ground Floor
Substrate:	Concrete
Moisture barrier:	ARDEX WPM 300

ARDEX Tiled Internal Floors

4.5 ARDEX INTERNAL TILING SYSTEM OVER CONCRETE FLOOR [WET AREA]

Location:	Unit 1: Ensuite A, Ensuite B Unit 2: Ensuite
Substrate:	Concrete
Levelling:	Refer to 6122A ARDEX Floor Substrate Preparation.
ARDEX Primer (non-porous):	ARDEX P9
ARDEX Primer (porous):	ARDEX P51
WPM:	ARDEX WPM 750
Adhesive:	ARDEX X 18 + ARDEX E 90
Grout (Option 1):	ARDEX EG 15 Epoxy Grout 1.5 - 15mm joints
Grout (Option 2):	ARDEX FS-DD, 1 - 4mm joints; ARDEX FG 8, 4 - 8mm joints with ARDEX Grout Booster
Grout colour:	Refer to ARDEX for colour range of selected grout
Silicone:	ARDEX SE or ARDEX ST
Silicone colour:	Refer to ARDEX for colour range of selected silicone

4.6 ARDEX INTERNAL TILING SYSTEM OVER CFC FLOORING OVERLAY [WET AREA]

Location:	Unit 2: Ensuite A Bathroom B, WC
Substrate:	Compressed fibre cement sheet
ARDEX Primer (non-porous):	ARDEX P9
ARDEX Primer (porous):	ARDEX P51
WPM:	ARDEX WPM 750
Adhesive:	ARDEX X 18 + ARDEX E 90
Grout (Option 1):	ARDEX EG 15 Epoxy Grout 1.5 - 15mm joints
Grout (Option 2):	ARDEX FS-DD, 1 - 4mm joints; ARDEX FG 8, 4 - 8mm joints with ARDEX Grout Booster
Grout colour:	Refer to ARDEX for colour range of selected grout
Silicone:	ARDEX SE or ARDEX ST
Silicone colour:	Refer to ARDEX for colour range of selected silicone

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Components

4.7 TRIMS

Location:	Internal Areas
Supplier:	TBC
Type:	Tile trim, Edge strip, Floor finish divider strip, or Weather bar
Material:	Aluminium, Brass, Stainless steel, or PVC

4.8 MOVEMENT JOINT - ANGLE & INSERT

Location:	Internal Areas
Supplier:	TBC
Angle:	Aluminium, Brass, Stainless steel, or PVC
Insert:	Polyurethane or, Neoprene

4.9 MOVEMENT JOINT - BACKING ROD & SEALANT

Location:	Internal Areas
Backing rod:	Closed cell polyethylene foam
Diameter:	Diameter to be 25-30% greater than joint width
Sealant:	ARDEX SE (acetic silicone) (cannot be used within pool application). ARDEX ST (neutral cure silicone)
Sealant colour:	Refer to ARDEX for colour range

Selections - Waterproofing

4.10 ARDEX SYSTEMS - INTERNAL WATERPROOFING

Location:	Internal Areas
Waterproofing - Primary Selection	ARDEX WPM 750
Note:	Refer to 6812A ARDEX Undertile Waterproofing Membrane for internal sheet waterproofing options.

Spares & Maintenance

4.11 SPARES & MAINTENANCE PRODUCTS

Refer to the general section 1270 CONSTRUCTION for details of how spares and maintenance products will be handled. Provide the following spares and maintenance products:

Item:	To be organised with contractors and/or applicator.
Quantity:	TBC
Location:	Refer to 1270 CONSTRUCTION

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6312J JACOBSEN TIMBER FLOORING

1 GENERAL

This section relates to the supply, laying and finishing of **Jacobsen** timber flooring:

- Prefinished engineered Jacobsen TimberTop & Jacobsen Bespoke timber flooring
- Underlays as a floating or glued down over-layment over existing substrates.

1.1 RELATED WORK

Refer to ~ for ~.

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
NZBC D1/AS1	Access routes
EN 13501	Fire Classifications of construction products and building elements
ISO 9239-1:2010	Reaction to fire tests for floorings - Determination of the burning behaviour using a radiant heat source

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Jacobsen Wood installation instructions
Jacobsen Wood maintenance instructions
Jacobsen Wood warranty
Jacobsen Underlays Technical Data
Jacobsen Wood fire test report

Manufacturer/supplier contact details

Company:	**Jacobsen**
Web:	www.jacobsen.co.nz
Email:	support@jacobsen.co.nz
Freephone:	0800 800 460

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years:	Residential
5 years:	Commercial

- Provide this warranty on 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. Refer to supplier Warranty and Manufacturer's recommendations.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

2 years:	For installation

- Provide this warranty on 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.

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Requirements

1.6 QUALIFICATIONS

Floor layers to be experienced competent workers, familiar with the materials and the techniques specified.

1.7 NO SUBSTITUTIONS

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

1.8 HEALTH AND SAFETY

~

Performance

1.9 PRODUCT INSTALLATION LIMITATIONS

Do not install Jacobsen wood flooring in wet areas.

1.10 TESTING MOISTURE CONTENT

Sample and test the substrate to ensure that moisture content is within the limits specified. Provide a written record.

1.11 SURFACE FIRE PERFORMANCE

Pre-finished Jacobsen timber flooring meets the requirements of NZBC C/AS2, Table 4.5 Critical Radiant Flux required for flooring.

Flooring:	Critical Radiant Flux:
Jacobsen TimberTop	4.3kW/m² to EN ISO 9239-1
Jacobsen Bespoke	2.2kW/m² to NZBC C/VM2 Appendix B, Table B1

Performance - Slip resistance

1.12 SLIP RESISTANCE - SURFACES EXEMPT FROM TESTING

Walking surfaces comply with NZBC D1/AS1, Table 2 for slip resistance requirements and are exempt from testing.

2 PRODUCTS

Materials - Prefinished timber flooring

2.1 PREFINISHED JACOBSEN TIMBERTOP TIMBER FLOORING

Jacobsen TimberTop is a prefinished timber overlay flooring for floating or glue down applications. Available in two plank sizes:14.2mm thick x 190mm wide x 2130mm long or 14.2mm thick x 240mm wide x 2130mm long. Refer to SELECTIONS for finish.

Components

2.2 ADHESIVE - DIRECT STICK

Adhesive - floor to timber overlay: Uzin MK95

2.3 WATERPROOF MEMBRANE – DIRECT STICK APPLICATION

The installation of a moisture barrier is mandatory for all direct stick installations.

Accessories

2.4 FINISHING TRIM AND TRANSITION BARS

Jacobsen Tredsafe aluminium finishing trims and transition bars of varying profiles and finishes or Jacobsen Bespoke Timber finishing trims and stair nosings.

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3 EXECUTION

Conditions

3.1 STORAGE AND HANDLING

Accept cartons and packs of timber and accessories undamaged and dry. Store on level, dry surfaces in non-traffic, non-work areas that are enclosed and dry. Avoid damage to cartons and packs of timber. Do not use damaged timber.

3.2 CHECK TIMBER

Check that the timber supplied is as specified. Check the moisture content of the timber to ensure it is at the required level for the installation environment.

Check laminated strip and plank flooring to ensure it has been supplied at the moisture content recommended by the suppliers for the proposed location. Do not remove planks from packs until just prior to installation.

3.3 DO NOT START

Do not start laying before the building is enclosed, doors are hung and lockable, wet work complete, full lighting available and in the case of air-conditioned buildings the air-conditioning operating for 6 weeks.

3.4 INSPECT THE SUBSTRATE

Inspect the substrate to ensure it provides a suitable finish. Do not start laying if the substrate will not allow work of the required standard.

3.5 STARTING WORK

Starting work means the floor layer accepts the substrate as allowing work of the required standard.

3.6 CARRY OUT THE WORK

Carry out the work to conform with this specification and in accordance with Jacobsen's technical requirements.

3.7 TECHNIQUE DISCUSSION

Before beginning the installation, confirm the proposed layout of the timber, grain direction, any other visual considerations of the finished work and specified expansion requirements relating to the specified product.

3.8 SURFACE TOLERANCES - GLUE DOWN APPLICATIONS

Substrate to have no deviations greater than 3mm over a 3 metre straightedge in any given direction and no abrupt variations greater than 1mm over 250mm.

Application - Surface preparation

3.9 INSTALLING WATERPROOF MEMBRANE – DIRECT STICK – CONCRETE SUBSTRATE

Waterproof membrane must be applied to the substrate when installing flooring by direct stick application.

3.10 PREPARATION, NEW PLYWOOD OR PARTICLEBOARD

Clear substrate of debris, machine sand to remove surface contamination, then vacuum to remove dust. Check for moisture content and do not commence installation until readings for the whole area show a moisture content of:

8 - 12% for air conditioned buildings
10 - 14% for intermittently heated buildings
12 - 16% for unheated buildings

Refer to allowable surface tolerances. Refer to 6192 FLOORING SUBSTRATE PREPARATION.



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Application - Installation direct stick

3.11 LAYING TIMBER - DIRECT STICK

Apply Uzin MK95 with a notched trowel following manufacturer's instructions. Follow requirements for open time, taking note of substrate porosity, ambient temperature and relative humidity. Remove excess adhesive as the work proceeds using approved techniques. Install the flooring strictly in accordance with Jacobsen's stated requirements. Ensure the required expansion gap is left at perimeters and around fixed obstacles.

Application – Installation edges / joints

3.12 EXPANSION GAPS, PERIMETERS

Calculate expansion gaps strictly in accordance with Jacobsen's stated requirements, to suit the environment, size of the installation and product type.

3.13 EXPANSION JOINTS

Cover by timber or brass trim fixed one side only, to allow unrestricted movement of the flooring.

3.14 EDGES

Install skirtings after installation of the timber floor covering to cover the required expansion gap.

Completion

3.15 ROUTINE CLEANING

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

3.16 LEAVE TIMBER FLOORING

Leave timber flooring surfaces free of adhesive, dirt and debris. Vacuum off, damp mop with a low-foam neutral detergent and allow to dry.

3.17 DEFECTIVE OR DAMAGED WORK

Replace damaged or marked elements. Leave work to the standard required for following procedures.

3.18 PROTECT FINISHED SURFACE

Ensure that the completed surface is not used for traffic until curing is complete. Continue to protect the surface until completion of the contract works, or until acceptance/sign-off by ~.

4 SELECTIONS

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

4.1 JACOBSEN TIMBERTOP WOOD FLOORING

Location:	Living, Kitchen, Dining, Hallway, Laundry
Application:	Direct stick
Product:	Jacobsen TimberTop
Board size:	14.2mm x 190mm x 2130mm
Colour:	tbc - oak finish
Adhesive:	Uzin MK95 for direct stick E3 - Amendment 7 to Acceptable Sulition E3/AS1 for Internal Moisture All first floor areas to have Uzin PE414 BiTurbo Blocking Primer to act as a barrier against moisture penetration. Aliphatic D3 water resistant PVA adhesive applied into all joints and Uzin MK95-1-Component PUR wood flooring adhesive.

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4.2 FINISHING TRIMS / STAIR NOSINGS / TRANSITION BARS

Location: ~
Manufacturer: Jacobsen Tredsafe
Profile/size: ~/~
Material/finish: ~/~
Colour: brushed stainless steel

4.3 FINISHING TRIMS / STAIR NOSINGS / TRANSITION BARS

Location: ~
Manufacturer: Jacobsen Bespoke
Profile/size: ~/~
Material/finish: ~/~
Colour: brushed stainless steel

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6511JC JACOBSEN BROADLOOM CARPETING

1 GENERAL

This section relates to the supply and installation of Jacobsen carpet laid conventionally (stretched), direct stuck or double bonded (double direct stick).

It includes:

- broadloom carpet
- underlays
- adhesives
- components and accessories to complete installation

1.1 RELATED WORK

Refer to 6192 FLOORING SUBSTRATE PREPARATION for the preparation of flooring substrates.

Refer to 6614JT JACOBSEN TREDSAFE NOSINGS & TRANSITIONS for stair nosings and carpet transition trims.

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:

CRF	Critical Radiant Flux
RH	Relative Humidity

Documents

1.3 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
AS/NZS 2455.1	Textile floor coverings - Installation practice - General
ISO 9239-1:2010	Reaction to fire tests for floorings - Determination of the burning behaviour using a radiant heat source

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:
Jacobsen Technical Data Sheets
Jacobsen Carpet Warranty, Care & Maintenance
Royal Thai Axminster Basics Training Module

Manufacturer/supplier contact details

Company:	Jacobsen Creative Surfaces Ltd
Web:	www.jacobsen.co.nz
Email:	support@jacobsen.co.nz
Telephone:	0800 800 460

Warranties

1.5 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.

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Refer to the general section 1237 WARRANTIES for additional requirements.

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

2 years For installation workmanship

- 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

1.7 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for 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 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:
Jacobsen Carpet Warranty, Care & Maintenance

Provide this information prior to practical completion.

Performance

1.10 SURFACE FIRE PERFORMANCE

Critical Radiant Flux to NZBC C/AS2, Table 4.12.3.1: Critical radiant flux requirements for flooring (kW/m2), tested to ISO 9239-1. Refer to SELECTIONS.

2 PRODUCTS

Jacobsen cut pile carpet

2.1 JACOBSEN BREATHE EASY VISTA

Cut pile hard twist, 100% solution dyed nylon with Soft Back backing, 3.66m wide, pile height 11.5mm, total thickness 14.5mm, twist level 338 turns/metre, pile weight 2238g/m² (66oz). Refer to SELECTIONS.

2.2 JACOBSEN MEADOWBANK

Tufted cut pile twist, 100% solution dyed nylon with woven polypropylene backing, 3.66m wide, pile height 8.5mm, total thickness 10.9mm, pile weight 1290g/m² (36oz). Refer to SELECTIONS.

2.3 JACOBSEN ONEROA

Tufted cut pile twist, 100% solution dyed nylon with woven polypropylene backing, 3.66m wide, pile height 10.2mm, total thickness 13.1mm, pile weight 1910g/m² (55oz). Refer to SELECTIONS.

2.4 JACOBSEN REGAL PARK

Tufted cut pile, 100% Perma Soft Plus solution dyed nylon with woven synthetic primary backing and Easybac® secondary backing, 3.66m wide, pile height 13mm, total thickness 15mm, pile weight 1865g/m² (55oz). Refer to SELECTIONS.

2.5 JACOBSEN SERENITY SHORES

Tufted cut pile, 100% Perma Soft Plus solution dyed nylon with woven synthetic primary backing and Easybac® secondary backing, 3.66m wide, pile height 9mm, total thickness 11mm, pile weight 1356g/m² (40oz). Refer to SELECTIONS.

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Components

2.6 UNDERLAY

Carpet underlay to AS/NZS 2455.1. Refer to SELECTIONS.

2.7 EDGE GRIPPER

Carpet edge grippers to AS/NZS 2455.1.

Accessories

2.8 SEAM TAPE

Carpet seaming tape to AS/NZS 2455.1. 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.

Timber substrate moisture content:	8 -12% for air conditioned buildings 10 -14% for intermittently heated buildings 12 -16% for unheated buildings
Concrete substrate moisture content:	75% RH maximum

Installation - generally

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 INSTALLATION GENERALLY

All work to be in accordance with AS/NZS 2455.1.

3.6 ACCLIMATISE CARPET

Allow carpet and underlay to come to the same temperature and relative humidity as the area where it is to be laid prior to installation.

3.7 LAYOUT

Plan the general layout so that:

- seams run lengthways
- traffic runs along the seam
- light from windows is not across the seam
- pile faces away from the light source
- carpet is square with walls

Installation - conventionally laid (stretched)

3.8 INSTALL CARPET GRIPPERS

Fix carpet gripper strips around the perimeter of the area to be fitted, leaving a gap between the gripper and the wall of not more than 60% of the carpet thickness. Fit carpet grippers across doorways only where carpet is to abut another floor finish.

3.9 INSTALL UNDERLAY

Install carpet underlay in accordance with the manufacturer's instructions.

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3.10 LAY CARPET

Stretch carpet tight in both width and length evenly without bowing using a power stretcher and secure onto carpet gripper using a knee-kicker. Secure seams and cross-joins using carpet seam tape in accordance with the manufacturer's instructions.

Installation - carpet trims

3.11 FIX CARPET TRIMS

Refer to 6614JT JACOBSEN TREDSAFE NOSINGS & TRANSITIONS.

Completion & Commissioning

3.12 COMPLETION MATTERS

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

4 SELECTIONS

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

Jacobsen cut pile carpet

4.1 JACOBSEN CUT PILE CARPET

Location:	Bedrooms and Living Room
Brand:	Jacobsen Serenity Shores
Pile content:	Solution dyed nylon
Backing:	Woven polypropylene backing
Carpet width:	3.66m
Colour:	tbc
CRF:	5.3kW/m2
Installation method:	Conventionally laid (stretched)
Underlay:	High density bonded polyurethane foam (PBF)

Accessories

4.2 SEAM TAPE

Type/Brand:	Moisture Impervious Seam Sealer 8300 (required for warranty on EPBL backed carpets)

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6700 PAINTING GENERAL

1 GENERAL

This section relates to the general matters related to painting work

1.1 RELATED WORK

Refer to 6711 PAINTING EXTERIOR for exterior paint systems.

Refer to 6721 PAINTING INTERIOR for interior paint systems.

1.2 ABBREVIATIONS

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

APAS	Australian Paint Approval Scheme
MPNZA	Master Painters New Zealand Association Inc.
VOC	Volatile organic compound

Documents

1.3 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
AS/NZS 2311	Guide to the painting of buildings
AS/NZS 2312.1	Guide to the protection of structural steel against exterior atmospheric corrosion by the use of protective coatings - Paint Coatings
AS/NZS 5131	Structural steelwork - Fabrication and erection
AS/NZS ISO 9001	Quality management systems - requirements
SNZ TS 3404	Durability requirements for steel structures and components
WorkSafe	Guidelines for the provision of facilities and general safety in the construction industry
WorkSafe	Guidelines for the management of lead-based paint
MPNZA	Specification manual
MPNZA	Health and Safety Programme

Health and Safety at Work Act 2015

Requirements

1.4 QUALIFICATIONS

Painters to be a member of MPNZA and experienced competent workers, familiar with the materials and the techniques specified.

1.5 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety at Work Act 2015 and WorkSafe NZ: Guidelines for the provision of facilities and general safety in the construction industry. If the elimination or isolation of potential hazards is not possible then minimise hazards in this work on site by using the proper equipment and techniques as required in the MPNZA Health and Safety Programme. Supply protective clothing and equipment. Inform employees and others on site of the hazards and put in place procedures for dealing with emergencies.

Refer to WorkSafe NZ: Guidelines for the management of lead-based paint for the required procedures and precautions when:

- treating/removing lead-based paint
- burning off paint
- sanding off paint
- using solvent based paint removers.

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1.6 MATERIAL SAFETY DATA SHEET

Obtain from each paint manufacturer the material safety sheet for each product used. Keep sheets on site and comply with the required safety procedures.

Performance

1.7 MANUFACTURER'S INSPECTION

Allow the paint manufacturers to inspect the work in progress and to take samples of their products from site if requested.

1.8 INSPECTION OF WORK

Inspection of the whole of the work at each of the stages scheduled may be made. Agree a programme that will facilitate such inspection, including notification when each part and stage of the work is ready for inspection.

2 PRODUCTS

Materials

2.1 PAINT TYPES

Use the manufacturer's complete system and only the products specified.

2.2 MATERIALS GENERALLY

Use only the Manufacturer's products which are guaranteed for their consistency and performance under AS/NZS ISO 9001 and APAS approval, prepared, mixed and applied as directed in the Manufacturer's specification sheets, specification manuals and product data sheets.

2.3 THINNERS AND ADDITIVES

Only use thinners or additives within the stated limits for the particular situations specified.

Accessories

2.4 FILLERS

For recommendations on; fillers, stopping, paint strippers, cleaning agents, etching solutions, mould inhibitors, rust inhibitors, knotting and other commodities used for the surface preparation, refer to the manufacturer of the specified coating.

3 EXECUTION

Conditions

3.1 EXECUTION

To conform to manufacturer's requirements and those methods, practices and techniques contained in AS/NZS 2311, the MPNZA Specification manual, and WorkSafe NZ: Guidelines for the provision of facilities and general safety in the construction industry.

3.2 PREPARE

Prepare surfaces to the coating manufacturer's requirements.

3.3 COATED SURFACES

Ensure that substrate surfaces are able to achieve the specified finish.

3.4 PRE-PRIMED SURFACES

Sand down any breakdown or damage of the primer to a sound surface and immediately re-prime.

3.5 BRUSH DOWN

Brush down surfaces immediately before application, to remove dust, dirt and loose material.

3.6 COMPATIBILITY

Check that materials are as required by the paint manufacturers for the particular surface and conditions of exposure, and that they are compatible with each other. Use paint from the same manufacturer for each paint system. If not compatible, obtain instructions before proceeding.

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3.7 TREATED SURFACES

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

3.8 BACK PAINTING

Co-ordinate with cladding and/or lining installer as to who will do the work and timing.

Exterior
For exterior cladding and trim that require on site finishing, paint the back and exposed bottom edges at the base of the cladding (generally, bottom plate overhang and horizontal flashings) to the manufacturer's requirements, but at least to 150mm up from base. Coating to match front finish, generally apply 2 coats or 1 coat if pre-primed.
Refer to appropriate exterior paint sections SELECTION clauses for claddings to be back painted.

Interior
For lining and trim that require on site finishing and/or back painting (usually wet areas), paint the back and exposed bottom edges at the base of the lining, to the manufacturer's requirements, but at least to 150mm up from base. Coating to match front finish, generally apply 2 coats or 1 coat if pre-primed, or if no front finish seal to manufacturer's requirements.
Refer to appropriate interior paint sections SELECTION clauses for linings to be back painted.

3.9 ANCILLARY SURFACES

The coatings listed in schedules and elsewhere are of necessity simplified. Coat ancillary exposed surfaces to match similar or adjacent materials or areas, except where a fair-faced natural finish is required or items are completely prefinished. In cases of doubt obtain instructions before proceeding.

3.10 HARDWARE

Do not paint hinges or hardware that cannot be removed. If items can be removed, carefully remove hardware, fixtures and fittings before commencing work. Set aside where they cannot be damaged or misplaced and replace on completion.

Preparation - unpainted and pre-primed timber and wood based products

3.11 PREPARATION

Refer to the manufacturer's specification sheets for detailed substrate preparation.

Application - before applying final coatings

3.12 OFF-SITE WORK

Carry out off-site preparation and coating under cover, in a suitable environment and with adequate lighting. Store items both before and after coating in a clean, dry area, protected from the weather and mechanical damage, properly stacked and spaced to permit air circulation and to prevent sticking of surfaces.

3.13 PRIMING JOINERY

Before priming preservative treated timber ensure that any cut surfaces have been retreated. Liberally coat end grain, allow to soak in and then recoat. Ensure LOSP. treated joinery has dried sufficiently to lose odour.

3.14 CONCEALED JOINERY SURFACES

Apply off-site coatings to all surfaces including those which will be concealed when incorporated into the building.

3.15 CONCEALED METAL SURFACES

Apply primer to suit the coating system to all metal surfaces which will be concealed when incorporated into the building.

3.16 DOORS

Prime or seal and paint all six faces of doors before hanging.

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3.17 PUTTY GLAZING

Follow putty manufacturers recommendations for application, drying, and painting. Ensure that the putty is fully protected by the coating system as soon as it is sufficiently hard.

Application - generally

3.18 PAINTING GENERALLY

Comply with the paint manufacturer's requirements and any additional requirements in this specification.

3.19 MIXING

Thoroughly mix paints. Lift any settled pigment and ensure the paint is homogenous.

3.20 ENVIRONMENT

Paint exterior surfaces only in favourable weather conditions:

- warm dry days without frost or heavy dews
- avoid painting in direct sunlight any surfaces that absorb heat excessively
- as far as possible apply paint in the temperature range 15°C to 25°C
- do not paint if temperatures fall outside the range of 10°C and 35°C unless paints with the necessary temperature tolerance have been specified
- do not apply solvent borne paint if moisture is present on the surface

3.21 SEQUENCE OF OPERATIONS

Painting work to generally follow the following sequences:

- back painting and pre-installation painting, then post-installation exposed-face painting
- complete surface preparation before commencing painting
- apply paint in the specified sequence using the specified paint
- allow full drying time between coats to the paint manufacturer's requirements
- do not expose primers, undercoats and intermediate coats beyond manufacturers stated instructions before applying the next coat
- finish broad areas before painting trim
- ensure batch numbers of tins are matched for whole areas
- internally, paint ceilings before walls and walls before joinery, trim and other items

3.22 PAINT APPLICATIONS

Select brush, roller, or pad and apply paint to the requirements of the paint manufacturer and to obtain a smooth even coating of correct thickness, uniform gloss and colour.

3.23 DRYING TIME

Before handling or applying the next coat of paint, give each coat the full drying time as required by the paint manufacturer. Ensure that surfaces are dry and that condensation does not occur before the paint reaches surface-dry condition.

3.24 LIGHTLY SAND

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

3.25 DEFECTIVE WORK

Correct defective work immediately and re-coat as required, following precisely the paint system specified.

3.26 EACH COAT

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

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

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Completion

3.27 CLEAN

Clean adjoining surfaces, glass and fittings of any paint contamination. Clean off glass indicators at completion of the building works. Clean glass inside and out to a shining finish.

3.28 CLEAN EQUIPMENT

Use the Manufacturer's environmental wash system for the cleaning of water-based paint and plasters from brushes, rollers, plastering or spray equipment to separate the solids from the water component for safe disposal.

3.29 LEAVE

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

3.30 REMOVE

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

3.31 REPLACE HARDWARE

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

4 SELECTIONS

4.1 SELECTIONS

Refer to 6711 PAINTING EXTERIOR and 6721 PAINTING INTERIOR for selections.

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6711DE DULUX ENVIRONMENTAL PAINTING EXTERIOR

1 GENERAL

This section relates to the surface preparation and painting of new and existing exterior substrates using **Dulux** environmental exterior paint systems.

1.1 RELATED WORK

Refer to 6700D DULUX PAINTING GENERAL for general matters related to painting work.

2 PRODUCTS

2.1 PRODUCTS

Refer to 6700D DULUX PAINTING GENERAL for product clauses.

3 EXECUTION

3.1 EXECUTION

Refer to 6700D DULUX PAINTING GENERAL for execution clauses.

4 SELECTIONS

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

Refer to the DULUX Duspec for up to date VOC levels as these are subject to change.

4.1 BACK PAINTING SCHEDULE

Paint 2 coats (including any pre-prime) to match exposed face coating.

Cladding type	Extent of back painting
Weathertex	To cladding manufacturer's requirements

Timber substrates - new cladding

4.2 EXTERIOR TIMBER NEW - CLADDING - PAINT

Gloss level:	Semi Gloss
Coating type:	Water based
System:	DuSpec NZ_SD09216
1st coat:	DULUX 1 Step Prep Acrylic Primer Sealer & Undercoat @ 14 m²/L
2nd coat:	DULUX Weathershield X10 @ 16 m²/L
3rd coat:	DULUX Weathershield X10 @ 16 m²/L

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6711RE RESENE ENVIRONMENTAL PAINTING EXTERIOR

1 GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing exterior substrates using Resene Paints Ltd environmental architectural and decorative coating systems.

Related work

1.1 RELATED WORK

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.

2 PRODUCTS

Materials

2.1 PRODUCTS

Refer to 6700R RESENE PAINTING GENERAL for product clauses.

3 EXECUTION

Conditions

3.1 EXECUTION

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

4 SELECTIONS

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

Resene exterior paint systems

Environmental exterior concrete - new

4.1 RESENE NEW EXTERIOR CEMENTITIOUS RENDER/PLASTER

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 3/1
1st coat:	Resene Limelock D809, Acrylic Cure & Seal
2nd coat:	Resene X-200 D62, Acrylic Weathertight Membrane
3rd coat:	Resene X-200 D62, Acrylic Weathertight Membrane

Environmental Exterior cementitious - existing

4.2 RESENE EXISTING EXTERIOR CEMENTITIOUS RENDER/PLASTER

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 3/3
Spot prime:	Resene Sureseal D42, Solventborne Pigmented Sealer (NEC)
1st coat:	Resene Lumbersider Low Sheen D34, Waterborne Acrylic
2nd coat:	Resene Lumbersider Low Sheen D34, Waterborne Acrylic

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6721DE DULUX ENVIRONMENTAL PAINTING INTERIOR

1 GENERAL

This section relates to the surface preparation and painting of new and existing interior substrates using **Dulux** Environmental interior paint systems.

1.1 RELATED WORK

Refer to 6700D DULUX PAINTING GENERAL for general matters related to painting work.

2 PRODUCTS

2.1 PRODUCTS

Refer to 6700D DULUX PAINTING GENERAL for product clauses.

3 EXECUTION

3.1 EXECUTION

Refer to 6700 PAINTING GENERAL for execution clauses.

4 SELECTIONS

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

Refer to DULUX DuSpec for up to date VOC levels as these are subject to change.

4.1 BACK PAINTING SCHEDULE

Paint 2 coats (including any pre-prime) usually to match exposed face coating. If there is no coating use water resistant clear finish sealer.

Lining type	Extent of back painting
Gib Plasterboard	To lining manufacturer's requirements

Paperfaced plasterboard substrates - new ceilings

4.2 INTERIOR PAPERFACED PLASTERBOARD NEW - CEILINGS - ULTRA LOW VOC PAINT

Gloss level:	Low Sheen
Coating type:	Water based
Colours:	From White Base only
System:	DuSpec NZ_SD17918
Fire rating:	Group Number 1-S, Report Number 5054, NZBC C/VM2 A1.5
1st coat:	DULUX EnvirO2 Interior Acrylic Sealer Undercoat @ 14 m²/L (<1g/L)
2nd coat:	DULUX EnvirO2 Interior @ 16 m²/L (<1g/L)
3rd coat:	DULUX EnvirO2 Interior @ 16 m²/L (<1g/L)

4.3 INTERIOR PAPERFACED PLASTERBOARD NEW - CEILINGS - WET AREAS - PAINT

Gloss level:	Low Sheen
Coating type:	Water based
Colours:	From White Base only
System:	DuSpec NZ_SD09011
Fire rating:	Group Number 1-S, Report Number 5054, NZBC C/VM2 A1.5
1st coat:	DULUX 1 Step Prep Acrylic Primer Sealer & Undercoat @ 14 m²/L (<40g/L)
2nd coat:	DULUX Wash & Wear Plus Kitchen & Bathroom @ 16 m²/L (<16g/L)
3rd coat:	DULUX Wash & Wear Plus Kitchen & Bathroom @ 16 m²/L (<16g/L)

DULUX Wash & Wear Plus Kitchen & Bathroom is also available in a SEMI GLOSS option

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Paperfaced plasterboard substrates - new walls

4.4 INTERIOR PAPERFACED PLASTERBOARD NEW - WALLS - ULTRA LOW VOC PAINT

Gloss level:	Low Sheen
Coating type:	Water based
Colours:	From White Base only
System:	DuSpec NZ_SD17918
Fire rating:	Group Number 1-S, Report Number 5054, NZBC C/VM2 A1.5
1st coat:	DULUX EnvirO2 Interior Acrylic Sealer Undercoat @ 14 m²/L (<1g/L)
2nd coat:	DULUX EnvirO2 Interior @ 16 m²/L (<1g/L)
3rd coat:	DULUX EnvirO2 Interior @ 16 m²/L (<1g/L)

4.5 INTERIOR PAPERFACED PLASTERBOARD NEW - WALLS - WET AREAS - PAINT

Gloss level:	Low Sheen
Coating type:	Water based
Colours:	From White Base only
System:	DuSpec NZ_SD09011
Fire rating:	Group Number 1-S, Report Number 5054, NZBC C/VM2 A1.5
1st coat:	DULUX 1 Step Prep Acrylic Primer Sealer & Undercoat @ 14 m²/L (<40g/L)
2nd coat:	DULUX Wash & Wear Plus Kitchen & Bathroom @ 16 m²/L (<16g/L)
3rd coat:	DULUX Wash & Wear Plus Kitchen & Bathroom @ 16 m²/L (<16g/L)

DULUX Wash & Wear Plus Kitchen & Bathroom is also available in a SEMI GLOSS option

Timber substrates - new trim, doors, frames, etc - paint

4.6 INTERIOR TIMBER NEW TRIM, DOORS AND FRAMES - ULTRA LOW VOC (SEMI GLOSS ONLY)

Gloss level:	Semi Gloss
Coating type:	Water based enamel
Colours:	From White Base only
System:	DuSpec NZ_SD18638
Fire rating:	Group Number 3, Report Number 5095, NZBC C/VM2 A1.5
1st coat:	DULUX 1 Step Prep Acrylic Primer Sealer & Undercoat @ 14 m²/L (<40g/L)
2nd coat:	DULUX EnvirO2 Water Based Enamel @ 16 m²/L (<1g/L)
3rd coat:	DULUX EnvirO2 Water Based Enamel @ 16 m²/L (<1g/L)

Paperfaced plasterboard substrates - existing ceilings

4.7 INTERIOR PAPERFACED PLASTERBOARD EXISTING - CEILINGS - ULTRA LOW VOC PAINT

Gloss level:	Flat
Coating type:	Water based
System:	DuSpec NZ_SD09006
Spot prime:	DULUX Professional Enviro2 Acrylic Sealer Undercoat @ 14 m²/L
1st coat:	DULUX Professional Enviro2 Ceiling Flat @ 16 m²/L
2ndcoat:	DULUX Professional Enviro2 Ceiling Flat @ 16 m²/L

4.8 INTERIOR PAPERFACED PLASTERBOARD EXISTING - CEILINGS - WET AREAS - PAINT

Gloss level:	Flat
Coating type:	Water based
System:	DuSpec NZ_SD12413
Spot prime:	DULUX 1 Step Prep Acrylic Primer Sealer & Undercoat @ 14 m²/L
1st coat:	DULUX Ceiling White Plus Kitchen & Bathroom @ 12 m²/L
2nd coat:	DULUX Ceiling White Plus Kitchen & Bathroom @ 12 m²/L

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Paperfaced plasterboard substrates - existing walls

4.9 INTERIOR PAPERFACED PLASTERBOARD EXISTING - WALLS - ULTRA LOW VOC PAINT

Gloss level:	Low Sheen
Coating type:	Water based
System:	DuSpec NZ_SD09033
Spot prime:	DULUX Professional Enviro2 Acrylic Sealer Undercoat @ 14 m²/L
1st coat	DULUX Professional Enviro2 Interior @ 16 m²/L
2nd coat:	DULUX Professional Enviro2 Interior @ 16 m²/L

4.10 INTERIOR PAPERFACED PLASTERBOARD EXISTING - WALLS - WET AREAS - PAINT

Gloss level:	Low Sheen
Coating type:	Water based
System:	DuSpec NZ_SC09010
Spot prime:	DULUX 1 Step Prep Acrylic Primer Sealer & Undercoat @ 14 m²/L
1st coat:	DULUX Wash & Wear Plus Kitchen & Bathroom @ 16 m²/L
2nd coat:	DULUX Wash & Wear Plus Kitchen & Bathroom @ 16 m²/L

4.11 INTERIOR TIMBER NEW TRIM, DOORS AND FRAMES - WATER BASED PAINT (GLOSS OPTION)

Gloss level:	Gloss
Coating type:	Water based enamel
System:	DuSpec NZ_SD08884
Colours:	Most colours available
Fire rating:	Group Number 3, Report Number 5095, NZBC C/VM2 A1.5
1st coat:	DULUX 1 Step Prep Acrylic Primer Sealer & Undercoat @ 14 m²/L (<40g/L)
2nd coat:	DULUX Aquanamel @ 16 m²/L (<70g/L)
3rd coat:	DULUX Aquanamel @ 16 m²/L (<70g/L)

DULUX Aquanamel is also available in a SEMI GLOSS option



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6721RE RESENE ENVIRONMENTAL PAINTING INTERIOR

1 GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing interior substrates using Resene Paints Ltd environmental architectural and decorative coating systems.

Related work

1.1 RELATED WORK

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.

2 PRODUCTS

Materials

2.1 PRODUCTS

Refer to 6700R RESENE PAINTING GENERAL for product clauses.

3 EXECUTION

Conditions

3.1 EXECUTION

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

4 SELECTIONS

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

4.1 HARDWARE

Hardware for removal:	~

Resene interior paint systems

Environmental interior plasterboard - new

4.2 RESENE NEW INTERIOR PLASTERBOARD WALLS; DRY AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating:	Group 1-S. Test Report FH4967
1st coat	Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen Acrylic
3rd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen Acrylic

4.3 RESENE NEW INTERIOR PLASTERBOARD WALLS; DRY AREAS (ULTRA LOW VOC)

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating:	Group 1-S. Test Report FH4967
1st coat	Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat:	Resene Zylone Sheen Zero D302, Waterborne Low Sheen Acylic
3rd coat:	Resene Zylone Sheen Zero D302, Waterborne Low Sheen Acrylic

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4.4 RESENE NEW INTERIOR PLASTERBOARD WALLS; WET AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1A: 1/1
Fire rating:	Group 1-S. Test Report 7-593235-CO
1st coat	Resene Waterborne Sureseal D42a, Waterborne Pigmented Sealer (NEC)
2nd coat:	Resene SpaceCote Low Sheen Kitchen & Bathroom D311K, Waterborne Enamel
3rd coat:	Resene SpaceCote Low Sheen Kitchen & Bathroom D311K, Waterborne Enamel

4.5 RESENE NEW INTERIOR PLASTERBOARD CEILINGS; DRY AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating:	Group 1-S, Test Report FH4967
1st coat	Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat:	Resene Ceiling Paint D305, Waterborne Flat
3rd coat:	Resene Ceiling Paint D305, Waterborne Flat

4.6 RESENE NEW INTERIOR PLASTERBOARD CEILINGS; DRY AREAS (ULTRA LOW VOC)

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating:	Group 1-S, Test Report FH4967
1st coat	Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat:	Resene Ceiling Paint D305, Waterborne Flat
3rd coat:	Resene Ceiling Paint D305, Waterborne Flat

4.7 RESENE NEW INTERIOR PLASTERBOARD CEILINGS; WET AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1A: 1/1
Fire rating:	Group 1-S
1st coat	Resene Waterborne Sureseal D42a, Waterborne Pigmented Sealer (NEC)
2nd coat:	Resene SpaceCote Flat Kitchen & Bathroom D314K, Waterborne Enamel
3rd coat:	Resene SpaceCote Flat Kitchen & Bathroom D314K, Waterborne Enamel

Environmental Plasterboard – Existing

4.8 RESENE EXISTING INTERIOR PLASTERBOARD WALLS; DRY AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating:	Group 1-S, Test Report FH4925
1st coat	Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen Acrylic
3rd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen Acrylic

4.9 RESENE EXISTING INTERIOR PLASTERBOARD WALLS; DRY AREAS (ULTRA LOW VOC)

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/3
Spot Prime:	Resene Broadwall D403, Waterborne Wallboard Sealer
1st coat	Resene Zylone Sheen Zero D302, Waterborne Low Sheen Acrylic
2nd coat:	Resene Zylone Sheen Zero D302, Waterborne Low Sheen Acrylic

Refer to http://www.resene.co.nz/archspec/datashts/spec6_Ferrous_Metals.pdf

Refer to http://www.resene.co.nz/archspec/datashts/spec7_Non-Ferrous_Metals.pdf

Refer to http://www.resene.co.nz/archspec/datashts/spec9_Matai_Totara.pdf

Refer to http://www.resene.co.nz/archspec/datashts/spec11_Enamel_Glass_Tiles.pdf

Refer to http://www.resene.co.nz/archspec/datashts/spec12_Plastic_Materials.pdf

Refer to http://www.resene.co.nz/archspec/datashts/spec13_Brick_Terracotta.pdf

Refer to http://www.resene.co.nz/archspec/datashts/spec14_Clay_Tiles_Stone.pdf

Refer to http://www.resene.co.nz/archspec/datashts/spec16_Canvas_Wallpaper.pdf

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Refer to http://www.resene.co.nz/archspec/datashts/spec18_Flooring_Specialist.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec19_Anti-Graffiti_System.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec20_Textured_Coatings.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec21_Paint_Effects.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec26_Specialist_Acid_Cat.pdf

4.10 RESENE EXISTING INTERIOR PLASTERBOARD WALLS; WET AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1A: 1/3
Spot Prime:	Resene Waterborne Sureseal D42a, Waterborne Pigmented Sealer (NEC)
1st coat	Resene SpaceCote Low Sheen Kitchen & Bathroom D311K, Waterborne Enamel
2nd coat:	Resene SpaceCote Low Sheen Kitchen & Bathroom D311K, Waterborne Enamel

4.11 RESENE EXISTING INTERIOR PLASTERBOARD CEILINGS; DRY AREAS (ULTRA LOW VOC)

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/3
Spot Prime:	Resene Broadwall D403, Waterborne Wallboard Sealer
1st coat	Resene Ceiling Paint D305, Waterborne Flat
2nd coat:	Resene Ceiling Paint D305, Waterborne Flat

Refer to http://www.resene.co.nz/archspec/datashts/spec6_Ferrous_Metals.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec7_Non-Ferrous_Metals.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec9_Matai_Totara.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec11_Enamel_Glass_Tiles.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec12_Plastic_Materials.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec13_Brick_Terracotta.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec14_Clay_Tiles_Stone.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec16_Canvas_Wallpaper.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec18_Flooring_Specialist.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec19_Anti-Graffiti_System.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec20_Textured_Coatings.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec21_Paint_Effects.pdf
Refer to http://www.resene.co.nz/archspec/datashts/spec26_Specialist_Acid_Cat.pdf

4.12 RESENE EXISTING INTERIOR PLASTERBOARD CEILINGS; WET AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1A: 1/3
Spot Prime:	Resene Waterborne Sureseal D42a, Waterborne Pigmented Sealer (NEC)
1st coat	Resene SpaceCote Flat Kitchen & Bathroom D314K, Waterborne Enamel
2nd coat:	Resene SpaceCote Flat Kitchen & Bathroom D314K, Waterborne Enamel

Environmental interior timber - new

4.13 RESENE NEW INTERIOR TIMBER DOORS, JOINERY, SKIRTING

Surface Prep:	Resene SIPDS No2 and Spec Sheet 2: 9/1
1st coat	Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat
2nd coat:	Resene Lustacryl D310, Semi-Gloss Waterborne Enamel
3rd coat:	Resene Lustacryl D310, Semi-Gloss Waterborne Enamel

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4.14 RESENE NEW INTERIOR TIMBER DOORS - HIGH USE/WEAR AREAS

Surface Prep:	Resene SIPDS No2 and Spec Sheet 2: 9/1
1st coat	Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat
2nd coat:	Resene Waterborne Uracryl 802 RA55W, Semi-Gloss 2 Pack Urethane (NEC)
3rd coat:	Resene Waterborne Uracryl 802 RA55W, Semi-Gloss 2 Pack Urethane (NEC)

Note: Allow Resene Quick Dry to dry for 48 hours prior to applying Resene Waterborne Uracryl 802.

4.15 RESENE NEW INTERIOR TIMBER WALLS, PARTICLE BOARD, MDF, PLYWOOD

Surface Prep:	Resene SIPDS No2 and Spec Sheet 2: 14/1
1st coat	Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat
2nd coat:	Resene Spacecote Low Sheen D311, Waterborne Enamel
3rd coat:	Resene Spacecote Low Sheen D311, Waterborne Enamel

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6812A ARDEX UNDERTILE WATERPROOFING MEMBRANES

1 GENERAL

This section relates to **ARDEX** (WeldTec) Undertile Sheet Waterproofing Membrane System as:

- WPM 750 internal wet area membrane to be tiled over.

1.1 RELATED WORK

Refer to 1278SR SCHEDULE OF SLIP RESISTANCE TESTING

Refer to 6122A ARDEX FLOOR SUBSTRATE PREPARATION for further options for floor levelling and substrate preparation.
Refer to 6221A ARDEX FLOOR TILING SOLUTIONS for preparation of floor surfaces for tiling.
Refer to 6211AW ARDEX WALL TILING SOLUTIONS for preparation of wall surfaces for tiling.
Refer to appropriate tiling section for the selection and installation of floor and wall tiles.

Documents

1.2 DOCUMENTS

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

NZBC E2/AS1	External moisture
NZBC E3/AS1	Internal moisture
AS/NZS 1604.1	Preservative-treated wood-based products - Part 1: Products and treatment
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2908.2	Cellulose cement products - Flat sheets
AS 3740	Waterproofing of domestic wet areas
AS 3958.1	Ceramic tiles - Guide to the installation of ceramic tiles
NZS 4121	Design for access and mobility - Buildings and associated facilities
AS/NZS 4858	Wet area membranes
BRANZ	Good practice guide: Tiling
NZBC G1/AS1	Personal hygiene
NZBC E3/AS2	Internal Moisture - Internal Wet-area Membrane Systems.
IWAM CoP	Code of Practice for Internal Wet-area Membrane Systems.

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

BRANZ Appraisal 727 - ARDEX Undertile Sheet Membrane (WPM 750)
ARDEX WPM 750 Data Sheet
ARDEX Undertile Accessories

Manufacturer/supplier contact details

Company:	**ARDEX New Zealand Ltd**
Web:	www.ardex.co.nz
Email:	ardexspec@ardexnz.com
Telephone:	0800 2 ARDEX (27339) 09-636 0005 Auckland 04-568 5949 Wellington 03-373 6900 Christchurch

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years:	For ARDEX WPM 750 Undertile Membrane

- Provide this warranty on the ARDEX manufacturer/supplier standard form.

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- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years: For installation of ARDEX Undertile Membranes

- ARDEX approved installer to provide this warranty on the ARDEX installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 NO SUBSTITUTIONS

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

1.7 QUALIFICATIONS

Waterproofing work to be carried out by an ARDEX approved installer with experience in installation of adhesive fixed membranes. For a list of approved applicators visit www.ardex.co.nz or contact nearest ARDEX branch. Installation to be strictly in accordance with current ARDEX technical literature and to BRANZ Appraisal 727.

NOTE: An LBP is required to carry out RBW. An LBP must do or supervise this work. They must work within the scope of their licence class.

1.8 SYSTEMS ARDEX PROJECT

Contact ARDEX with any relevant key dates and for a list of approved applicators. The contractor is to contact ARDEX prior to starting the contract.

Email:	ardexspec@ardexnz.com
Telephone:	0800 2 ARDEX (27339)
	09-636 0005 Auckland
	04-568 5949 Wellington
	03-373 6900 Christchurch

Compliance information

1.9 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Applicator approval certificate from the manufacturer / importer / distributor
- Manufacturer warranty
- Installer/applicator warranty
- Producer Statement - Construction from the applicator/installer
- Other information required by the BCA in the Building Consent Approval documents.

Quality control and assurance

1.10 QUALITY ASSURANCE

Maintain quality necessary to assure that work is performed in accordance with this specification and the qualifying requirements of ARDEX.

1.11 TESTS

ARDEX Undertile Membrane (WPM 750) are tested to AS/NZS 4858 Wet area membranes.

2 PRODUCTS

Materials

2.1 UNDERTILE MEMBRANE - INTERIOR

ARDEX WPM 750 weldable undertile sheet waterproofing membrane, a 0.5mm thick single ply butyl rubber and polypropylene fibre, fully bonded system for waterproofing internal tiled areas such as showers and bathrooms, laundries, kitchens and other wet areas. Laps and corners to be heat formed and/or welded. Tiling can be adhered directly on the membrane with approved ARDEX tiling adhesives.

Components

2.2 ADHESIVES

Adhesives for use with ARDEX WPM 750 for fixing to substrate:

ARDEX CA 750 Adhesive	Water-based contact adhesive. Recommended to use ARDEX SpeedTec Catalyst
ARDEX AF 180 MS	ARDEX AF 180 MS is a solvent free, low odour, wet bond MS Polymer based floorcovering adhesive

Adhesive to be recommended by ARDEX and suitable for the particular application and the relevant temperature and conditions.

Accessories

2.3 WELDING KIT

Leister Triac S hand held hot air gun kit including a flat angled nozzle for seam welding and a rubber roller, to ensure seams and welds are securely welded together.

2.4 WASTE OUTLET

ARDEX Clamp Waste unit, moulded in PVC-U with multiple positioning outlet and a removable stainless steel grille. Integral part supplied with the ARDEX Undertile Membrane Product system. Refer to SELECTIONS.

2.5 ARDEX STB TAPE

ARDEX STB tape is a self-adhesive weldable uncured Butynol tape with a fleece layer. It is used as a waterproof band for sealing transitions and connections from a primary waterproofing layer. Undertile membrane welded on top.

2.6 RELEASE TAPE

ARDEX release tape is a 25mm wide pressure sensitive tape between two silicone release backings. For all joints in timber based sheet substrates, and junctions of timber based sheet substrates with other materials.

2.7 PREFORMED CORNERS

Internal and external corner detailing for ARDEX WPM 750 undertile membrane system. 95mm x 95mm x 60mm.

2.8 UNDERTILE PROFILE

Right angle undertile profile used for edge detailing with ARDEX WPM 750 undertile membrane system. 150mm x 70mm, 9m long (length made to order).

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE AND HANDLING

Take delivery of materials and goods and store on-site and protect from damage.

Store all materials in a dry place, up off concrete floors, at temperatures between 10°C and 32°C. Do not store in direct sunlight. The products have a shelf life of two years from date of manufacture. Materials must not be removed from the packaging until ready to use.



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Reject and replace goods that are damaged or will not provide the required finish.

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 COMPLY

Comply with the requirements and instructions of ARDEX for ARDEX WPM 750 undertile membrane waterproofing system and to AS 3740 Waterproofing of domestic wet areas.

3.4 CHECK SUBSTRATE

Ensure that the substrate is in a suitable condition to allow work of the required standard and will comply with the requirements of NZBC E3/AS1 and AS 3740 for the relevant substrate and ARDEX requirements.

Ensure that the substrate construction is well braced against movement and deflection and structurally sound. Ensure that the substrate fall complies, including correct fall to rainwater/water outlets to avoid ponding. Ensure all surfaces are clean, dry and free from dust and dirt, oils or grease with no projections of sharp materials. Ensure that sheet materials are screw fixed to specifications, with screw heads flush and sheets spaced to provide for thermal movement or shock. Complete any remedial work identified before commencing any work.

3.5 FALLS - INTERIOR

Unless stated otherwise, ensure minimum fall gradients to BRANZ Good Practice Guide - Tiling, clause 6.5 Falls in floors.

1 : 50 minimum	Unenclosed shower bases (to NZBC E3/AS1, 3.3.5)
1 : 60 minimum	Enclosed shower bases
1 : 50 minimum	Shower bases for people with disabilities (to NZS 4121, 10.5.11.3 (b).)
1 : 60 minimum	Commercial kitchens or similar

3.6 SURFACE PREPARATION - GENERAL

Ensure surface to receive ARDEX Undertile Membrane is clean, dry and free of any foreign matter that may adversely affect the adhesion of the membrane. Do not use the products in the following situations:

- Areas subject to hydrostatic or vapour pressure or rising damp
- When the substrate is wet
- Where the substrate surface temperature is below 5°C or above 35°C.

Installation - substrate

3.7 SUBSTRATE - STRANDFLOOR H3.1®

Ensure Laminex New Zealand Strandfloor H3.1® is 20mm thick, Square Edge or Tongue & Groove and H3.1 treated with a maximum period of exposure to the weather of 12 weeks. Installed with minimum 8mm clearance between panel edges and fixed objects such as bottom plates, columns, abutting concrete, etc and provided with continuous edge support at building perimeter, and panel edge support in wet areas.

Strandfloor H3.1® must be dry and the timber substructure to have a maximum moisture content of 16% when the membrane is applied. Consult with Strandfloor® manufacturer for correct testing technique. During the exposed period, do not allow water to pond on the surface. Remove water by sweeping. Do not directly cover panels with sheeting or apply liquid sealers to any surface. Panels should weather in their raw condition to allow release of absorbed moisture.

Requirements if used for:

Flooring:	Installed as per manufacturer instructions and BRANZ Appraisal 677 - Strandfloor H3.1® flooring (internal applications) or BRANZ Appraisal 946 – Strandsarking for low slope membrane roofs (external applications).

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Lay across joists with staggered joints (brick bond), with each cut sheet continuous over three joists minimum. Maximum allowable spacing for support floor framing is 600mm for square edge sheets (internal applications) or 400mm for square edge sheets (external applications), and 450mm for tongue and groove diaphragm floors.

Fix with construction adhesive to joists in conjunction with mechanical fixing. 50mm x 4.8mm (10 gauge) stainless steel countersunk head screws (unless diaphragm floor) or stainless steel 60mm x 2.8mm annular grooved flooring nails positioned no closer than 10mm from sheet ends and edges (except Tongue & Groove panels - 15mm from panel edge to clear tongue). Fixed at 150mm centres on sheet edges, and 200mm centres at intermediate supports.

3.8 SUBSTRATE - CONCRETE

Concrete must have a smooth steel trowel finish and be allowed to cure for a minimum of 28 days prior to installation of ARDEX Undertile Membrane. All curing compounds or formwork release agents and any imperfections in the concrete must be removed and any voids filled prior to membrane installation. The relative humidity of the concrete surface must be 75% RH or less.

3.9 SUBSTRATE - FIBRE CEMENT SHEET

Ensure fibre cement sheeting is wet area grade and is suitable for installing the membrane (refer to Sheet manufacturers details for correct fixing, thicknesses and sheet layout). Minimum Type B, Category 3. With primed/sealed face and edges.

Requirements if used for:

Flooring:	Minimum thickness 18mm with joists at minimum 400mm centres and blocking at 1200 centres. Fixing, glue and stainless steel screws.
Wall lining	Minimum thickness 9mm with framing at minimum 600mm centres.
Floor Overlay	Minimum thickness 6mm.

3.10 SUBSTRATE - PLASTERBOARD

Plasterboard wall lining must be wet area plasterboard, manufactured to AS/NZS 2588 and installed to manufacturer's instructions. ARDEX Undertile Membranes are suitable for use over wet area plasterboard that has been stopped. Minimum thickness 10mm

3.11 SUBSTRATE - CLOSED CELL POLYURETHANE FOAM

Water resistant board, installed to manufacturer's instructions. Confirm suitable products with ARDEX. Refer to SELECTIONS.

3.12 BOND BREAKER/TAPE

Bond breaker/tape to AS/NZS 4858 and AS 3740. Applied over substrate joints to bridge and accommodate joint movement. Movement and control joints in the substrate must be transferred to tile finish.

Installation - interior

3.13 FALLS FLOOR

Ensure outlet pipes are fixed securely and that the waste flange is recessed into the floor. All floors must have adequate falls either built into the substrate or achieved with a sand/cement screed prior to the installation of ARDEX WPM 750 / WPM 1000 Undertile Membrane. Undertile heating system wires must be covered with a thin screed prior to laying the membrane.

3.14 WASTE OUTLET

Incorporate a flange to waste outlets for the ARDEX Clamp waste outlet and set the top surface flush with the surface receiving ARDEX WPM 750 / WPM 1000 Undertile Membrane application. Complete with shower trap and variety of grills.

NOTE: Fitting of the waste outlet is the responsibility of the contractor or plumber.

3.15 PREPARATION

Surfaces to be dry and clean before application of the adhesive.



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3.16 ADHESIVE

Apply water-based ARDEX CA 750 contact adhesive for interior applications. Apply adhesive to dry clean surfaces by spray, brush or roller. Use in conjunction with ARDEX Catalyst Spray to speed up installation during adverse conditions.

3.17 INSTALL MEMBRANE

Roll out ARDEX WPM 750 Undertile Membrane and cut to the measured length. Smooth the membrane on contact to minimise air entrapment beneath the membrane.

Floor sheets of ARDEX WPM 750 Undertile Membrane must extend up the wall at least 150mm. Ensure the membrane is laid tightly into all corners. Wall sheets of ARDEX WPM 750 Undertile Membrane to overlap the upstand a minimum of 40mm and heat welded. Laps and corners to be heat formed and/ or welded. Weld seams and laps with the Leister Triac S hot air gun. Roll with a rubber roller to ensure seams and laps are secure.
Where water resistant wall finishes such as prefinished sheet materials are used, they must flash over the membrane a minimum of 30mm.

3.18 EXTENT OF MEMBRANE

To AS 3740. Apply the ARDEX WPM 750 Undertile Membrane 1800mm up the walls or to a height of 300mm above the shower rose if higher. For unenclosed showers with concrete and compressed fibre cement sheet floors the membrane must extend a minimum of 1500mm out from the shower rose, and for timber floors (plywood, strandsarking) membrane must extend to entire floor. Refer also to ARDEX Technical Datasheets.

3.19 TILES

Tiles to be direct bonded to the ARDEX WPM 750 Undertile Membrane using ARDEX approved tile adhesive, either ARDEX X 56 for timber substrates or ARDEX X 77 for concrete substrates.

Completion

3.20 COMPLETION MATTERS

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

3.21 PROTECTION

ARDEX WPM 750 Undertile Membranes are not suitable as an exposed trafficable surface. ARDEX WPM 750 Undertile Membrane is compatible with under tile heating systems (wires must be covered with a thin screed prior to laying the membrane).

It is the responsibility of the main building contractor to ensure all sub-trades likely to be working in the vicinity of the membrane are aware that a waterproofing membrane has been installed and all care must be taken to protect the membrane from damage. May require temporary covers until finishing completed.

Commissioning

3.22 FINAL INSPECTION AND TESTING

Conduct a flood test to ensure ARDEX WPM 750 Undertile Membrane is acting as a waterproof membrane. Meet the BCA compliance requirements for the test and documentation of the test

4 SELECTIONS

For further details on selections go to www.ardex.co.nz.
Substitutions are not permitted to the following.

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4.1 UNDERTILE MEMBRANE - INTERNAL

Location:	Internal Wet Areas
Brand/type:	ARDEX WPM 750 Undertile Membrane
Gauge:	0.5mm
Roll size:	1.4m wide x 20m long
Adhesive:	ARDEX AF 180 MS
Substrate (Floor #1):	Concrete
Substrate (Floor #2):	CFC Overlay
Substrate (Floor #3):	Marmox Preforemed Shower Base and Shower Hob
Substrate (Wall):	Wet Area Suitable Plasterboard
Waste:	ARDEX Clamp waste outlet
Waste grill:	Removable soap strainer
Tile finish:	Refer to Client selections.

Refer to 6221A ARDEX Floor Tiling Solutions.

Refer to 6211AW ARDEX Wall Tiling.

If tile dimensions exceed 600 x 600 x 10mm, contact ARDEX for advice.

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7123 HOT & COLD WATER SYSTEM

1 GENERAL

This section relates to piped potable water supply systems from the network utility supply authority water main to designated points and appliances, the installation of hot water heating appliances, distributing piped hot water to other appliances, and the installation of valves.

1.1 RELATED WORK

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures and tapware selections.

Documents

1.2 DOCUMENTS

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

NZBC B2/AS1	Durability
NZBC C/AS1-AS2	Protection from fire
NZBC G4/AS1	Ventilation
NZBC G12/VM1	Water supplies
NZBC G12/AS1	Water supplies
NZBC H1/AS1-AS2	Energy Efficiency
AS/NZS 2492	Cross Linked Polyethylene (PE-X) pipe for pressure applications
AS/NZS 2537.2	Mechanical joining fittings for use with crosslinked Polyethylene (PE-X) for pressure applications - Plastics piping systems for hot and cold water installations - Crosslinked Polyethylene (PE-X) - Fittings
AS/NZS 2642.1	Polybutylene pipe systems - Polybutylene (PB) pipe extrusion compounds
AS/NZS 2642.2	Polybutylene pipe systems - Polybutylene (PB) pipe for hot and cold water applications
AS/NZS 2642.3	Polybutylene pipe fittings - Mechanical jointing fittings for use with polybutylene (PB) pipes for hot and cold water applications
AS/NZS 2845.1	Water supply - Backflow prevention devices - Materials, design and performance requirements
AS 2845.3	Water supply - Backflow prevention devices - Field testing and maintenance
AS/NZS 3500.1: 2018	Plumbing and drainage - Water services
AS/NZS 3500.4: 2018	Plumbing and drainage - Heated water services
NZS 3501	Specification for copper tubes for water, gas and sanitation
AS/NZS 4130	Polyethylene (PE) pipes for pressure applications
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
NZS 4617	Tempering (3-port mixing) valves
AS/NZS 5601.1	Gas installations - general installations
DIN 8077	Polypropylene (PP) Pipes - PP-H, PP-B, PP-R, PP-RCT - Dimensions
DIN 8078	Polypropylene (PP) Pipes - PP-H, PP-B, PP-R, PP-RCT - General quality requirements and testing.
Gas (Safety and Measurement) Regulations 2010	
Plumbers, Gasfitters and Drainlayers Act 2006	
NZ Backflow Testing Standard:	NZ Backflow Testing Standard 2011, Field testing of backflow prevention devices and verification of air gaps

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Warranties

1.3 WARRANTY

Provide warranty for:

2 years: For the supply and installation of the plumbing system and fixtures

- Provide the warranty in the standard form in the general section 1237WA WARRANTY AGREEMENT.
- Commence the warranty from the date of practical completion of the contract works.

Requirements

1.4 QUALIFICATIONS

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

1.5 INFORMATION FOR OPERATION AND MAINTENANCE

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

1.6 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.
- 55ºC - for personal hygiene fixtures in all other buildings.

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.

Performance

1.7 TESTING - TO NZBC G12/AS1

Test to NZBC G12/AS1, 7.5, **Watertightness**, for hot and cold water.

- Test to a pressure of 1500 kpa for period not less than 15 minutes.

Confirm the timing before carrying out any tests. Supply potable water and the apparatus needed. Slowly fill service pipes with water to exclude air. Test and ensure there is no measurable loss of pressure for the minimum period. Slowly fill distribution pipes with water to exclude air. Ensure that with draw-off taps closed the system must remain water-tight.

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2 PRODUCTS

Materials

2.1 COPPER PIPE

To NZS 3501 complete with copper-alloy compression fittings or crox type joints and seal ring compression joints complete with fittings and accessories brand matched to the pipe manufacturer's requirements with durability to NZBC B2/AS1, Table 1 and NZBC G12/AS1, Table 1.

2.2 POLYBUTYLENE PIPE

Polybutylene tubing to AS/NZS 2642.1, AS/NZS 2642.2 and AS/NZS 2642.3 complete with fittings and accessories brand-matched with durability to NZBC B2/AS1, table 1 and NZBC G12/AS1, table1. Protect from sunlight.

2.3 POLYETHYLENE PIPE - COLD WATER ONLY

2.4 WATER METER

To the requirements of the network utility operator.

2.5 VALVES

Pressure reducing or limiting valve, filter, non-return valve, cold water expansion valve, pressure relief or temperature valve, pressure relief valve and isolating valves to NZBC G12/AS1.

2.6 BACKFLOW PREVENTION DEVICES

Provide backflow prevention devices to AS/NZS 2845.1 where it is possible for water or contaminants to backflow into the potable water supply. Refer to NZBC G12/ AS1 3.4 Backflow protection, and table 2, Selection of Backflow Protection.

2.7 TEMPERING VALVE

Tempering valve to NZS 4617 to NZBC G12/AS1.

Materials - Hot water heating appliances

2.8 ELECTRIC HOT WATER CYLINDER, MAINS PRESSURE

To NZS 4305, ceramic-coated steel thermal storage cylinder, insulated and complete with required fittings.

2.9 HEAT PUMP WATER HEATER - SPLIT SYSTEM

Heat pump water heating system, with insulated storage cylinder and separate compressor/condenser/evaporator, complete with required fittings. With flow and return pipe work for water between cylinder and heat pump. Insulated exposed flow and return pipe work.

Components

2.10 INSULATION

Pre-formed pipe sections complete with bends and fittings, with fixing tape to the manufacturer's requirements and to NZBC H1/AS1-AS2 and AS/NZS 3500.4.

2.11 PROTECTIVE TAPE

Plasticised PVC tape system with primer, mastic fixing and outer coating.

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3 EXECUTION

3.1 EXECUTION GENERALLY

Generally carry out the whole of this work and tests to NZBC G12/VM1 or NZBC G12/AS1.

3.2 HANDLE AND STORE

Handle and store 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 tapware in a shelved, dry and securely locked area. Retain tapware in the manufacturer's original packaging, complete with all fixings and installation instructions. Label each unit separately with its space/fixture number to match.

3.3 CORE HOLES AND SLEEVES

Review location and fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Strip core holes and make good after installation of pipework.

3.4 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.

3.5 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.

3.6 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.

3.7 PIPE SIZE

Flow rates to each outlet to be no less than those given in NZBC G12/VM1 or NZBC G12/AS1, table 3, Acceptable flow rates to sanitary fixtures. Pipe size as determined in NZBC G12/AS1, table 4, Tempering valve and nominal pipe diameters.

3.8 ELECTROLYTIC ACTION

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

3.9 EXCAVATE

Excavate for the water main to a firm, even trench base in straight runs. Allow to backfill.

Application - Jointing

3.10 JOINTING COPPER PIPE

Braze pipe, fit alloy compression fittings, crox type joints and seal ring compression joints to NZBC G12/AS1.

3.11 JOINTING POLYBUTYLENE PIPE

Aluminium clamped, seal ring compression or push fit "O" ring seal jointing to pipe system manufacturer's requirements.

Application - Pipework installation

3.12 WATER SUPPLY CONNECTION

Arrange with the network utility operator for a connection to the water main and from there through a water meter and gate valve. Provide back flow prevention to NZBC G12/AS1.

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3.13 POTABLE WATER SUPPLY PIPEWORK INSTALLATION

From connection point, run pipes complete with all fittings, support and fixing, joins and install to manufacturers specifications. Size the pipes and branches in straight runs to deliver the acceptable flow rate to NZBC G12/VM1 or NZBC G12/AS1, table 3, Acceptable flow rates to sanitary fixtures at each outlet. Allow for the expected concurrent use of adjoining fixtures and size the piping layout to eliminate loss of pressure at any point by simultaneous draw-off. Pipework support spacing to be firmly fixed and buffered to eliminate noise and hammer, with preformed tee-connection take-offs and branches, with machine made 3 diameter bends, complete with necessary valves and fittings. Conceal pipework and pressure test before the wall linings are fixed.

3.14 HOT WATER PIPEWORK

Use a take-off spigot to give separate branches to each fitting, lay out pipes with support spacing to NZBC G12/VM1 or NZBC G12/AS1, table 7 Water supply pipework support spacing. Fix firmly and buffer to eliminate noise and hammer, with preformed tee-connection take-offs and branches, and preformed 3 diameter bends, complete with all necessary valves and fittings.

Lag all pipes with rigid insulation to the manufacturer's requirements and NZBC G12/VM1 or NZBC G12/AS1.

3.15 EQUIPOTENTIAL BONDING METALLIC WATER SUPPLY PIPES

If it is an electrical requirement, before enclosing, ensure metallic water supply pipes and metallic sanitary fixtures are equipotential bonded (or at least conductor cable attached) to NZBC G12/AS1, 9.0.

3.16 IN-LINE FILTER

Install an in-line filter immediately adjacent to the main isolating valve at the point of entry to the building, in an accessible position to allow for easy cleaning.

3.17 PENETRATIONS

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

Application - Hot water systems

3.18 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. Valve-vented systems to NZS 4607.

3.19 SEISMIC RESTRAINTS - NON-GAS WATER HEATING APPLIANCES

Non-gas (electric, wet-back, solar etc) water heating appliances (storage water heaters) to be restrained to manufacturer's requirements and NZBC G12/AS1, 6.11, Water Heater Installation.

3.20 INSTALLING HOT WATER PIPE INSULATION

Insulate all hot water pipes to NZBC H1/AS1-AS2 Energy Efficiency, AS/NZS 3500.4, 8.2 Thermal Insulation, and to the insulation manufacturer's instructions. Cut insulation sections tight between timber framing and tight between the webs of steel studs.

3.21 INSTALL ELECTRIC HOT WATER CYLINDERS AND BOILING CYLINDERS

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

3.22 INSTALL LOW PRESSURE UNDER-SINK HOT WATER CYLINDER

Install hot water cylinders complete to the manufacturer's requirements and to NZBC G12/AS1, 6.11 Water heater installation. Connect to sink tap.

3.23 INSTALL HEAT PUMP WATER HEATER - SPLIT SYSTEM

Install complete with the necessary fittings and pipe work, to the manufacturer's installation instructions.

3.24 INSTALL STORAGE HOT WATER CYLINDER OVERFLOW TRAY

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



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3.25 INSTALL TEMPERING VALVE

Install 1 metre minimum from outlet of hot water cylinder and to manufacturer's instructions. Install copper pipework for 1 metre minimum downstream of tempering valve prior to connection of non-metallic pipework.

Application - Fire resistant work

3.26 FIRE STOPPING SYSTEMS

Refer to 7382 FIRE STOPPING SYSTEMS for fire stopping devices for pipe penetrations through fire walls and floors.

Installation - valves

3.27 INSTALLING BELOW GROUND ISOLATING VALVE

Install all below ground items such as main isolating valves and water meters in preformed concrete pits or approved equivalent.

3.28 INSTALLING APPLIANCE ISOLATING VALVES - CONCEALED

Install isolating valves for appliances in accessible positions. Locate in adjacent cupboards and position to allow for easy connection and operation.

3.29 INSTALLING BACKFLOW PREVENTION DEVICE

Provide and install backflow prevention device as near as practicable to the potential source of contamination, and in an accessible position for maintenance and testing to AS 2845.3 or NZ Backflow Testing Standard.

Completion

3.30 LABEL

Label all pipework with permanent adhesive markers at 3 metre minimum intervals.

3.31 CLEAN IN-LINE FILTER

Clean all in-line filters on completion of works.

3.32 REPLACE

Replace damaged or marked elements.

3.33 LEAVE

Leave work to the standard required by following procedures.

3.34 REMOVE

Remove debris, unused materials and elements from the site.



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4 SELECTIONS

4.1 SELECTIONS

Refer to Architectural Drawings

4.2 25MM OD POLYETHYLENE WATER MAIN

Size:	25mm outside diameter (i.e. DN 25 in AS/NZS 4130)

4.3 PLASTIC HOT & COLD WATER SUPPLY PIPES - REFER TO SERVICES ENGINEERS DRAWINGS

Manufacturer:	Provide 25 year guarantee Maximum flow rate at hot water fixtures is 8 liters per minute

4.4 EXPOSED PIPES

Type:	Stainless steel hose braid fitted with stainless steel nuts Chrome plated copper pipe
Accessories:	Selected pipework finish to include escutcheon plates and bends and elbows protruding from walls or fittings

4.5 PIPEWORK INSULATION

Brand:	Insulate all hot water pipes as required to suit pipe size

4.6 HOT WATER CYLINDER (CHECK MODEL TO SUIT HEIGHT OF HWC CUPBOARD) ON PROPRIETARY TRAY ON 90X45 FRAME (H1.2) PAINT FINISH

Location:	Refer to architectural drawings - locate to minimize pipe runs
Capacity:	2 bed - 135L (3kW) 3 & 4 bed - 180L (3kW)
Brand/type:	Rheem vitreous enamel low pressure electric 3kW: 135 litre diameter 488mm x height 1335mm 14813515T 135 litre diameter 580mm x height 935mm 15813515T 180 litre diameter 488mm x height 1720mm 14818015T 180 litre diameter 580mm x height 1166mm 15818015T Rheem vitreous enamel mains pressure electric 3kW: 135 litre diameter 488mm x height 1335mm 31213515 135 litre diameter 580mm x height 935mm 32213515 180 litre diameter 488mm x height 1720mm 31218015 180 litre diameter 580mm x height 1166mm 32218015
Safety tray:	Drained plastic safety tray and 40mm plastic waste: 540mm X 540mm CTRAY540 or 610mm X 610mm CTRAY610 Drain to exterior in a location where discharge will be obvious and install anti-vermin trap
Installation:	Install corrosion resistant seismic restraints; vandal resistant signage "No scrap value" Tempering valve has anti-tamper device and is set to 50 deg C for closest tap and 45 - 50 deg C at other outlets.

4.7 WATER METER

Location:	Refer to site drawings - existing location
Brand/Type:	To the requirements of the network utility operator.

4.8 MAIN ISOLATING VALVE

Location:	Refer to site drawings
Brand/Type:	To the requirements of the network utility operator.

4.9 APPLIANCE ISOLATING VALVES - CONCEALED

Brand/Type:	Refer to tapware slections

4.10 APPLIANCE ISOLATING VALVES - EXPOSED

Appliance:	Washing machine
Brand/Type:	Refer to tapware selections

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4.11 TEMPERING VALVE

Location:	Hot water cylinder - refer to architectural drawings
Brand/Type:	To comply with NZBC G12, clause 4.13, a tempering valve will be needed in any hot water system

4.12 BACKFLOW PREVENTION DEVICE

Brand:Type:	Zurn Wilkins OR other equivalent performing products - refer to services documentation

4.13 IN-LINE FILTER

Location:	Adjacent to the main isolating valve and positioned for easy access for cleaning
Brand/Type:	To the requirements of the network utility operator.

4.14 EXTERNAL HOSE TAP

Location:	Refer to site drawings
Brand/Type:	Brass screw thread outlet

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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)

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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.

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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.

Performance

1.11 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.

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.

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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:	Refer to Drawings for location
Cylinder type:	Indoor / Outdoor
Construction:	Enamel inner, corrosion resistant outer casing with polyurethane foam insulation
Brand:	Rinnai
Capacity/element /model:	1 Bedroom - 135L, 3.0kW - ME135488E30 2 Bedroom - 180L, 3.0kW - ME180488E30 3 Bedroom - 250L, 3.0kW - ME250590E30
Thermostat range:	60° - 75°C

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7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES

1 GENERAL

This section relates to the supply and installation of sanitary fixtures, tapware and sanitary accessories.
NOTE:
Sanitary fixtures are to comply with the following (or greater) WELS ratings:
Showers: WELS rating 3 Star
WCs (dual flush): WELS rating 4 Star
Bathroom taps: WELS rating 6 Star
Kitchen sink mixer: WELS rating 4 Star

1.1 RELATED WORK

Refer to 7120 or 7123 HOT AND COLD WATER SYSTEM for hot water cylinders.

Refer to 7420 or 7421 SANITARY SYSTEMS for the supply and fitting of waste disposal pipework
Refer to the electrical section/s for electrical connection of accessories.

Documents

1.2 DOCUMENTS

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

NZBC E3/AS1	Internal moisture
NZBC G1/AS1	Personal hygiene
NZBC G12/VM1	Water supplies
NZBC G12/AS1	Water supplies
NZBC G13/AS1	Foul water
NZBC G13/AS3	Plumbing and drainage
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3500.1: 2018	Plumbing and drainage - water services
AS/NZS 3500.2: 2018	Plumbing and drainage - sanitary plumbing and drainage
NZS 4223.3	Glazing in buildings - Human impact safety requirements
Plumbers, Gasfitters and Drainlayers Act 2006	

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

Requirements

1.3 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.4 NO SUBSTITUTIONS

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

3 EXECUTION

3.1 ELECTRICAL SANITARY ACCESSORIES

Refer to SELECTIONS for product selection.

Conditions

3.2 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

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3.3 PRE-INSTALLATION REQUIREMENTS

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

Ensure water supply and drainage pipework match the requirements of selected fixtures without force or distortion.

Installation/application

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 INSTALLATION REQUIREMENTS INCLUDING NZBC G13/AS1

Install to NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC G13/AS1, NZBC E3/AS1 and to the fixture manufacturer's installation requirements for each component.

3.6 INSTALLATION REQUIREMENTS INCLUDING AS/NZS 3500.2: 2018

Install to NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC E3/AS1, AS/NZS 3500.2: 2018, as modified by NZBC G13/AS3, and to the fixture manufacturer's installation requirements for each component.

3.7 INSTALLATION SANITARY FIXTURES

Carry out preparatory and assembly work, including connections to supply and drainage services and the application of all required slurries/bedding and sealants in sequence.

Fit the sanitary fixture in position, plumb, level, flush and rigid without stressing the attachment points of the component. Fixings to be corrosive resistant.

Seal between all sanitary fixtures and floors, wall linings, fixtures and the tops they are in, the tops and wall linings, to NZBC E3/AS1, 3.2. Fixtures include toilets, urinals, baths, basins, tubs, sinks. Tops include, vanities, bath surrounds, sink benches, etc, and their upstands. Form joint or seal between shower bases or urinals and impervious wall linings to NZBC E3/AS1, 3.3.

3.8 INSTALLATION TAPWARE

To AS/NZS 3500.1: 2018 and in accordance with the manufacturer's requirements. Maintain safe water temperatures to comply with NZBC G12/AS1.

3.9 SEAL SHOWER TAPWARE

Seal shower wall lining penetrations such as shower head, shower hose, mixer, taps etc to NZBC E3/AS1, Fig. 6.

3.10 SANITARY APPLIANCES

Install and provide all required connections to sanitary appliances in accordance with manufacturers requirements.

3.11 EARTHING OR EQUIPOTENTIAL BONDING METALLIC FIXTURES

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

Application - sanitary accessories

3.12 INSTALLING ACCESSORIES

Fit specified fittings firmly in place, all plumb and level.

Locate at heights and/or locations shown on the drawings, or as required to comply with NZBC G1/AS1. For any dimension not shown or known, request direction before proceeding

3.13 CUTTING AND FITTING

Where cutting and fitting of the substrate is necessary for installing any unit, carry out this work before the painting or finishing of that surface. Remove any hardware when required for painting, placing it in the packaging or carton originally supplied and returning it to the secure store until ready for re-installation.



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3.14 INSTALLING UNITS

Install each unit in accordance with the proprietary fixture manufacturer's requirements, using the templates and tools supplied or recommended by them. Set units level, plumb and true to line and required location, with moving parts and actions freely and easily operating. Do not make any modifications to supplied units.

Completion & Commissioning

3.15 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.

4.1 TOILET SUITE

Location:	**Standard Bathrooms**
Toilet pan:	Floor mounted vitreous china concealed S trap pan. 4.5/3 litre flush cistern. WELLs 4 star water rating. Utah Close Coupled S Suite LEVUTAHS .
Trap Type:	S Trap
Isolating valve:	White

4.2 SANITARY ACCESSORIES

Location:	**All Bathrooms**
Toilet Roll holder:	LeVivi Bella Toilet Roll Holder LEVBELTPC, Chrome finish.
Towel ring:	LeVivi Bella Towel Ring LEVBELTRC. To be set a min. 850mm above FFL. 160mm x 90 x 182mm. WC only, separate toilet room has one towel ring. Installed to HNZ requirements.

4.3 SHOWER

Location:	**Standard Bathrooms**
Shower tray:	Marmox Preformed Shower Base with Marmox Preformed Shower Hob to open edges of shower enclosure. Cut down standard shower base to suit each shower enclosure. Suits 90mm Waste. Fitted with aquacheck seal. Aquacheck to prevent capillary action. Includes proprietary aluminium cap notched tthe o fit over threshold. Can sustain a point load of 350KG+. Easily cleaned hygienic surface.
Shower Lining:	Tiled walls with membrane behind
Shower Rail:	Miles Nelson 19mm Shower curtain rail, 025CP191800, Chrome finish.
Shower Rail Brackets:	Miles Nelson 19mm Towel Rail Brackets, 3699303, 024CP19TBP.
Shower Screen:	Glass screen and door to two sides

4.4 KITCHEN S/STEEL SINK 410W 355D 170H WITH INTEGRAL OVERFLOW & MIN. 440 X390MM DRAINGE TRAY.

Location:	**Kitchen**
Sink drainer model:	304 grade polished stainless steel. Minimum sink size 410mm wide x 355mm deep x 170mm high, with integral overflow and minimum 440 x 390mm drainage tray.
Note	Top-mounted sink bowls are not permitted
Sink mixer:	Single lever chrome plated sink mixer, All pressure Cr. 4 Star WELS rating, max. flow rate of 7.5l/min. LeVivi Classic Sink Mixer LEVSNKAPCP.

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4.5 TOWEL LADDER

Location:	**All Bathrooms**
Towel Rail:	7 bar Towel rail
Model:	Goldair 7 bar towel ladder CDBTR7NH
Note:	Polished Stainless steel finish, 800 h x 630 w x 135mm d.

4.6 SLIDE SHOWER SLIDE AND MIXER

Location:	**All Bathrooms**
Shower Rose Mixer:	LeVivi Classic Shower Mixer (LEVSHRAPCP). A/P, Chrome finish.
Shower Slide:	Felton single spray slide shower, DHSKCSR. Hose, hand piece, slide, wall rail, brackets, Suitable for all water pressures.

4.7 FLOOR WASTE GULLY WITH CLAMP RING TO FINISH FLUSH WITH FLOORING

Location	**Standard Bathrooms, WC & Laundry**
FWG Type:	FWG shall have DN 80 riser with a removable grate flush with the finished floor level. To be installed in accordance with AS 3500.2. Brass, satin chrome finish 50-65 diameter, to be installed flush to the surrounding floor finish.
Model:	e.g Allproof Vinyl Clamp Ring Floor Waste 168.80VCRSS. Vinyl membrane clamped using 3 x Stainless Steel screws and clamp ring, clamp ring to finish flush with flooring.

4.8 WC - BASIN UNIT

Location:	WC
Model:	St Michel Vanity, 30302.04.
Colour:	Gloss White
Notes:	Wall hung basin, 500 x 250mm. White Velvet. Combination overflow waste included.
WC basin mixer:	LeVivi Classic 35mm Mini Basin mixer LEVMBMAPCP, All pressure, 6 star rated Wels rated. Chrome finish.

4.9 BATHROOM VANITY UNIT WALL HUNG MOUNTED

Location:	**Standard Bathrooms**
Vanity:	Wall hung and securely fixed, resistant to moisture, cracking and stains, easily cleanable hygienic surface. Where there is a gap of 100mm between the vanity and a shower or bath, the wall hung vanity is to be used.
Model:	LeVivi Preston Range, Wall hung LEVPRE900WHWH: 900mm wide.
Notes:	Allow between vanity and medicine cabinet 4.5mm x 300mm high white gloss acrylic sheet liner.
Colour:	Gloss White
WC basin mixer:	LeVivi Classic Basin Mixer, LEVBSNAPCP, All pressure, chrome finish.

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7421 SANITARY SYSTEMS

1 GENERAL

This section relates to above ground gravity flow sanitary systems;

- for foul water
- from sanitary fixtures to first underground drain connection
- including system wastes, floor wastes, floor waste gullies, traps, vents and valves
- with associated components and accessories to make the system work

1.1 RELATED SECTIONS

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures.

Refer to 7123 HOT AND COLD WATER SYSTEM for potable water systems.
Refer to 7431 DRAINAGE COMMON REQUIREMENTS for underground drains.
Refer to 7142 GREYWATER SYSTEMS for greywater systems.

Documents

1.2 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZBC G1/AS1	Personal hygiene
NZBC G12/AS1	Water supplies
NZBC G13/AS1	Foul water - Sanitary plumbing
NZBC G13/AS3	Foul water - Sanitary plumbing and drainage
AS 1589	Copper and copper alloy waste fittings
AS 2887	Plastic waste fittings
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent applications
AS/NZS 2032	Installation of PVC pipe systems

AS/NZS 3500.2: 2018 Plumbing and drainage - Sanitary plumbing and drainage
Plumbers, Gasfitters and Drainlayers Act 2006

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

1.3 MANUFACTURER'S DOCUMENTS

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

Refer to Architectural Drawings

Requirements

1.4 QUALIFICATIONS

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

1.5 PIPEWORK LAYOUTS

Refer to Architectural Drawings - Varies site per site

1.6 OPERATION AND MAINTENANCE MANUALS

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

Performance

1.7 TESTING

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

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2 PRODUCTS

Materials

2.1 PVC-U WASTE PIPES AND TRAPS

To AS/NZS 1260, complete with fittings and accessories to the pipe manufacturer's requirements, all brand matched.

2.2 PVC-U VENT PIPE

To AS/NZS 1260, complete with fittings and accessories to the pipe manufacturer's requirements and all brand matched.

2.3 EXPOSED PLASTIC PIPES AND TRAPS

To AS 2887. Exposed pipes and traps white polybutylene or PVC, including all associated fittings, refer to SELECTIONS.

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for locations and types of traps.

2.4 FLOOR WASTES

Floor wastes and floor waste gullies to AS/NZS 3500.2, complete with chrome grates to suit flooring.

Components

2.5 PROTECTIVE TAPE

Plasticised PVC tape system with primer, mastic fixing and outer coating.

3 EXECUTION

Conditions

3.1 EXECUTION GENERALLY - NZBC G13/AS1

Carry out this work to NZBC G13/AS1 and NZBC G1/AS1 and complete all tests to G13/AS1, 7.1 Test Methods.

3.2 ELECTROLYTIC ACTION

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

3.3 HANDLE AND STORE

Handle and store 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.

3.4 SETTING OUT

Set out location of all stacks, discharge pipes, fittings and vent pipes and the completeness of their discharge into the drainage system.

3.5 CORE HOLES AND SLEEVES

Fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Sleeve diameter to be 25mm larger than outside diameter of pipe accommodated. Strip core holes and make good after installation of pipework.

3.6 PIPE ACCESS

Fit and fix stacks, wastes and pipes in ducts independent of all other services so they are easily replaceable for their full length. Wrap or tape pipes buried in concrete.

3.7 FITTINGS ACCESS

Fit and fix traps and wastes to enable access for cleaning and for maintaining the total system.

3.8 CONFIRM LOCATIONS

Unless the location and height are clearly delineated on the drawings, confirm installation height and plan locations of sanitary fittings before commencing the piping installation.

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3.9 TRAPS AND WASTES

Conceal traps and wastes in the fabric of the building unless detailed otherwise. Fit and fix satin chrome plated exposed pipes, traps and wastes unless detailed otherwise.

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for locations and types of traps.

3.10 CORROSION

Separate 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.

Application - jointing

3.11 JOINTING PVC-U PIPE

Prime and solvent weld joints using spigots and sockets, flanged joints and seal ring compression joints to AS/NZS 2032.

Application - fixing

3.12 THERMAL MOVEMENT

Accommodate longitudinal movement in pipes resulting from temperature changes. Incorporate expansion joints in copper and PVC-U pipes. Install PVC pipes to AS/NZS 2032. Take particular care to allow for movement at horizontal take-off locations from stacks.

3.13 TRAPS AND FIXTURE DISCHARGE PIPES - NZBC G13/AS1

Size traps and pipes as required for each fixture or appliance. Establish the developed length of waste pipes. Vent and allow access for cleaning as required. Follow the most direct line with the least number of bends to NZBC G13/AS1: Foul water sanitary plumbing, table 4, Discharge unit loading for stacks and graded discharge pipes and NZBC G13/AS1, table 7, Distance between supports.

3.14 DISCHARGE STACKS AND VENTS - NZBC G13/AS1

Size stacks and vents to NZBC G13/AS1, table 2, Fixture discharge pipe sizes and discharge units and NZBC G13/AS1, table 6, Vent pipe sizes. Extend up past the highest branch to form a discharge stack vent terminating to NZBC G13/AS1, figure 12 and finishing at the base with a 45 degree bend. Support system to NZBC G13/AS1, table 7, Distances between supports.

3.15 FLASH ROOF PENETRATIONS

Flash or arrange for roofer to flash all penetrations to NZBC E2/AS1.

For profiled metal roofs, fit proprietary EPDM pipe collar flashings to NZBC E2/AS1, 8.4.17 Roof Penetrations, and manufacturer's requirements.

Application - fire resistant penetrations

3.16 FIRE RESISTANT SEALER

Thoroughly clean the penetration of the floor or wall. Pack if necessary to support sealant. Implant sealant to the sealant manufacturer's requirements to ensure full penetration and to obtain the fire resistance rating required. Tool surface flush and smooth and allow to cure. Inspect for and make good if adhesion and seal are not complete.

3.17 FIRE RESISTANT FOAM SEALER

Thoroughly clean opening and box each side with fibreboard to contain the sealer. Mix sealer and inject into opening to the volume and time limits in the sealer manufacturer requirements to obtain the fire resistance rating required. Allow to cure, remove boxing and make good voids with sealer.

3.18 FIRE RESISTANT STRIP

Wrap around the pipe and tape in place in the hole, caulking each side with fire resistant sealer. Tool the surface flush and smooth and allow to cure. Inspect for and make good if adhesion and seal are not complete.

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3.19 FIRE RESISTANT COLLARS

Insert circular type collars into holes provided in the concrete. Supply canister type collars. Locate and fix to the boxing before concrete is placed. Comply with the collar manufacturer's requirements for use of these elements, complete with accessories, tapes and sealants required for each particular situation.

3.20 FIRE RESISTANT PANELS

Secure steel frames or mullions within the openings to panel manufacturer's details. Cut panels to suit the opening and the services and fit neatly and flush with the required maximum clearances. Seal round panels and services with fire resistant foam sealer, to maintain the fire resistance rating of the floor or wall.

Completion

3.21 REPLACE

Replace damaged or marked elements.

3.22 LEAVE

Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following procedures.

3.23 REMOVE

Remove debris, unused materials and elements from site.

4 SELECTIONS

4.1 UPVC WASTE PIPES AND TRAPS

Location:	Refer to Architectural Drawings
Manufacturer/Brand:	Marley Optim DWV or equal

4.2 UPVC VENT PIPE - REFER TO SERVICES ENGINEER'S DOCUMENTS

Manufacturer:	Marley Optim DWV or equal

4.3 FLOOR WASTES

Manufacturer:	Allproof Interior Floor Waste or equal
Grate/finish:	Chrome on brass

4.4 SANITARY SYSTEMS - PROTECTIVE TAPE

Brand:	Contractors choice

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7451AL ALLPROOF LEVEL THRESHOLD DRAINAGE SYSTEMS

1 GENERAL

This section relates to **Allproof Industries** level threshold drainage systems suitable for residential and commercial applications.
It comprises of an in-ground drainage channel complete with a range of grate options and fittings including connection to the network utility operators system.
It includes:

- Allproof Perimeter Drain
- Allproof Cantilever Bracket (CB) level threshold drainage system
- Allproof Threaded Leg (TL) level threshold drainage system

1.1 RELATED WORK

Refer to 7431 DRAINAGE COMMON REQUIREMENTS for general matters

Refer to 7441 GROUNDWATER DRAINAGE for sub-soil drainage
Refer to 7461 FOUL WATER DRAINAGE for waste/foul water drainage

Documents

1.2 DOCUMENTS

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

NZBC E1/AS1	Surface water
NZBC E1/AS2	Surface water
NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
AS/NZS 3500.3	Plumbing and drainage - Stormwater drainage

Plumbers, Gasfitters and Drainlayers Act 2006

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Allproof Industries Level Threshold Brochure
Allproof Industries Level Threshold Technical Details
Allproof Industries Level Threshold Installation Details

Manufacturer/supplier contact details

Company:	**Allproof Industries**
Web:	www.allproof.co.nz
Email:	info@allproof.co.nz
Telephone:	09 481 8020

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years	For Allproof Industries Level Threshold Drainage System components. For warranty conditions and details refer to Allproof Industries.

- Provide this warranty on Allproof Industries Ltd standard form.
- Commence the warranty from the date of purchase.

Refer to the general section 1237 WARRANTIES for additional requirements.

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Requirements

1.5 QUALIFICATIONS

Drainlayers / contractors 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.

1.6 NO SUBSTITUTIONS

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

1.7 ORDERING REQUIREMENTS

Allow manufacturing / delivery lead time after on-site measurement for the following custom products:

- Allproof Perimeter Drain Stainless Steel Grates
- Allproof Cantilever Bracket (CB) System
- Allproof Threaded Leg (TL) level threshold drainage System

1.8 SITE CONFIRMATION

Meet with the territorial authority drainage inspector to confirm the drainage layout in relation to site conditions. Confirm changes resulting and seek written site instruction before carrying out any work.

1.9 SITE CONDITIONS

Before starting work check on site the drainage layout, dimensions, levels and invert levels and ensure that line, level, falls and cover are correct.

Performance

1.10 TECHNICAL APPLICATION

Refer to Allproof Industries for technical support on grate performance and engage a hydraulics engineer for hydraulic performance, run layout and scheduling, ponding analysis and information on the chemical resistance of the trench and grate materials.

1.11 COMPLIANCE WITH NZ BUILDING CODE

All work to comply with:

- NZBC E2/AS1, paragraph 7.4.2.2, system materials and construction.
- NZBC E1/AS1: Surface water, 3.0 Drainage system materials and construction.

2 PRODUCTS

Materials - Allproof level threshold drainage systems

2.1 ALLPROOF PERIMETER DRAIN

Perimeter Drain level threshold drainage system, complies with NZBC E2/AS1, paragraph 7.4.2.2, and Figure 7.4.2.1: Level thresholds for ground level, and is comprised of the following:

- L Shaped pre-cast polymer concrete channel 200mm wide x 195mm high (internal depth 180mm) with two standard and two custom grate options.

Refer to SELECTION for options.

3 EXECUTION

Conditions

3.1 GROUND CONDITIONS

Specific ground conditions or contaminated ground may require an increase in the concrete surround dimensions or the addition of reinforcement.

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3.2 TEMPORARY INSTALLATION

Allproof Industries level threshold drainage channels are not trafficable until fully installed. During site work and after the trench run is laid, route site traffic away from the trench. If temporary crossings are required lay base course of minimum 1 metre wide either side of the trench for protection and install temporary protective cover or timber infill for support.

Installation

3.3 GENERAL

All work to NZBC E2/AS1, paragraph 7.4.2.2, system materials and construction, AS/NZS 3500.3 as modified by NZBC E1/AS2 : and Allproof Industries Installation Details.

3.4 INSTALL ALLPROOF PERIMETER DRAIN

Install Allproof Perimeter Drain in accordance with Allproof Industries Level Threshold Technical Details, and as follows:

- Set channel up against building line. Level channel and make any cuts that are required working from the centre outwards.
- Install grates or insert timber into channel. This will reduce any movement when pouring the concrete.
- Pour concrete.
- Lay screeding towards the outlet to create a 1:200 fall in accordance with NZBC E2/AS1, paragraph 7.4.2.2, and Figure 7.4.2.1: Level thresholds for ground level.
- Install grates. Cut down grates and place into the channel keeping a 12mm distance between the grate and the building line. Clip grates into place or install into bracket. Or measure and order custom fabricated grates.

Installation - connection

3.5 CONNECT TO SURFACE WATER DRAIN

Connect Allproof level threshold drainage system to stormwater drain to the requirements and satisfaction of the network utility operator.

3.6 CLEAN

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

Completion

3.7 REPLACE

Replace damaged or marked elements.

3.8 LEAVE

Leave the whole of this work discharging completely and freely into the stormwater system and free of all debris. Leave work to the standard required by following procedures.

3.9 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

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

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Materials - Allproof level threshold drainage systems

4.1 ALLPROOF PERIMETER DRAIN

Location:	Grid 5 and Grid 4 exterior walls
Manufacturer:	Allproof Industries
Grate code:	PC180LHCI
Grate type:	1m length of perimeter drain with Heelproof Cast Iron grate
Grate width:	Adjustable up to 185mm on selected grates
Grate finish:	Cast Iron
Threshold finish:	Concrete
Load rating:	A - Pedestrian (330kg nominal wheel load)

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7612 RESIDENTIAL EXTRACT SYSTEMS

1 GENERAL

This section relates to the supply and installation of extract systems for residential applications. It includes:

- Kitchen extract systems
- Bathroom and laundry extract systems

Documents

1.1 DOCUMENTS

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

NZBC E2/AS1	External moisture
NZBC E3/AS1	Internal moisture
NZBC G4/AS1	Ventilation
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 60335.1	Household and similar electrical appliances - Safety - General requirements

Electricity (Safety) Regulations 2010 (Reprint as at 21 January 2019).

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

1.2 MANUFACTURER/SUPPLIER DOCUMENTS

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

Refer to Architectural Drawings

Requirements

1.3 CO-ORDINATE WORK

Co-ordinate all items with the main contractor, in particular cutting of penetrations and waterproofing. Exterior penetrations to NZBC E2/AS1 as consistent with the project requirements.

1.4 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.5 ELECTRICAL QUALIFICATION

Registered electrician to carry out work to Electricity (Safety) Regulations 2010.

1.6 NO SUBSTITUTIONS

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

1.7 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1234 DOCUMENTATION for provision of the following general operation and maintenance information as electronic PDF format documents:

Provide this information prior to practical completion.

Performance

1.8 EXTRACT FLOW RATES

To NZBC G4/AS1.

Extract fans (including associated ducts) to have a minimum flow rate of:

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



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Compliance information

1.9 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Manufacturer, importers or distributors warranty
- Installer warranty
- Other information required by the BCA in the Building Consent Approval documents.

2 PRODUCTS

Kitchen extract systems

2.1 KITCHEN RANGEHOOD EXTRACT - TO ROOF

Mechanical rangehood extract system comprised of rangehood canopy, extract fan, filter, lighting, controls, metal ducting, proprietary roof flashing and cowl.

Refer to SELECTIONS for options.

2.2 KITCHEN RANGEHOOD EXTRACT - TO EXTERIOR WALL / SOFFIT

Mechanical rangehood extract system comprised of rangehood canopy, extract fan, filters, lighting, controls, metal ducting, solid duct wall sleeve, exterior grille and weatherproof cowl.

Refer to SELECTIONS for options.

2.3 KITCHEN POWERPACK EXTRACT SYSTEM - DUCTED TO ROOF

Mechanical extract system installed in overhead cabinetry comprised of powerpack componentry, extract fan, filter, lighting, controls, metal ducting, proprietary roof flashing and cowl.

Refer to SELECTIONS for options.

2.4 KITCHEN POWERPACK EXTRACT SYSTEM - DUCTED TO EXTERIOR WALL / SOFFIT

Mechanical extract system installed in overhead cabinetry comprised of powerpack componentry, extract fan, filter, lighting, controls, metal ducting, solid duct wall sleeve, exterior grille and weatherproof cowl.

Refer to SELECTIONS for options.

2.5 KITCHEN DOWNDRAFT EXTRACT SYSTEM - DUCTED TO EXTERIOR WALL

Mechanical extract system installed in benchtop or backsplash wall area comprised of downdraft componentry, extract fan, filter, controls, metal ducting, solid duct wall sleeve, exterior grille and weatherproof cowl.

Refer to SELECTIONS for options.

Bathroom and laundry extract systems

2.6 BATHROOM / LAUNDRY TWO-ROOM EXTRACT VENT

Mechanical venting system comprised of ceiling diffusers, metal ducting serving back to back rooms, a single motor unit housing mixed flow inline fan with two way switch, and proprietary vent cap and roof flashing.

Refer to SELECTIONS for options.

2.7 ROOF / CEILING MOUNTED FAN DUCTED TO ROOF

Mechanical venting system comprised of ceiling diffuser, extract fan, filter, controls, metal ducting, proprietary roof flashing and cowl.

Refer to SELECTIONS for options.

2.8 CEILING MOUNTED FAN, DUCTED TO EXTERIOR WALL / SOFFIT

Mechanical fan ducted system comprised of ceiling fan, filters, controls, aluminium foil flexi ducting joined to a solid duct sleeve sloped to remove condensation, exterior weatherproof grille and flashing.

Refer to SELECTIONS for options.

2.9 WALL MOUNTED FAN, DUCTED TO EXTERIOR WALL / SOFFIT

Mechanical fan ducted system comprised of wall fan, solid duct sleeve sloped to remove condensation, exterior weatherproof grille and flashing.

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Refer to SELECTIONS for options.

3 EXECUTION

Installation - mechanical ventilation

3.1 INSTALL KITCHEN RANGEHOOD

Install rangehood to AS/NZS 3000, AS/NZS 60335.1 and manufacturer installation instructions. Connect unit with ducting to exit either through roof or exterior wall / soffit. Plug into electrical socket.

3.2 INSTALL KITCHEN POWERPACK EXTRACT SYSTEM

Install powerpack extract system to AS/NZS 3000, AS/NZS 60335.1 and manufacturer installation instructions. Connect unit with ducting to exit either through roof or exterior wall / soffit. Plug into electrical socket.

3.3 INSTALL KITCHEN DOWNDRAFT EXTRACT SYSTEM

Install downdraft extract system to AS/NZS 3000, AS/NZS 60335.1 and manufacturer installation instructions. Connect unit with ducting to exit either through roof or exterior wall / soffit. Plug into electrical socket.

3.4 INSTALL BATHROOM / TOILET / LAUNDRY EXTRACT FANS

Install exterior ducted fans to manufacturer requirements to AS/NZS 3000 and NZBC G4/AS1. Duct through to roof or exterior wall / soffit. Plug into electrical socket.

3.5 INSTALL THROUGH WALL FAN UNIT

Install through wall fan unit to manufacturer requirements to AS/NZS 3000 and NZBC G4/AS1. Plug into electrical socket.

Refer to SELECTIONS for options

3.6 INSULATION CLEARANCE

Provide 50mm clearance between insulation and motor unit / electrical enclosure. Insulation can abut ducts.

3.7 ELECTRICAL INSTALLATION

Install switch and socket outlets to AS/NZS 3000 and AS/NZS 60335.1. Refer to electrical section(s) for requirements.

Conditions

3.8 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

3.9 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.

Completion & commissioning

3.10 COMPLETION MATTERS

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

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4 SELECTIONS

Kitchen extract systems

4.1 KITCHEN RANGEHOOD EXTRACT - TO EXTERIOR WALL / SOFFIT

Location:	Refer to Architectural Drawings
Manufacturer:	Just Life Group - Unilux Range
Product/model:	ULX150
Cladding:	Weatherboard
Cowl type:	To suit cladding type and profile, supplier flashing (BRANZ appraised) or custom made

Bathroom and laundry extract systems

4.2 BATHROOM/LAUNDRY SINGLE - ROOM MECHANICAL EXTRACT VENT WITH DELAY TIMER, THROUGH WALL

Location:	Refer to Architectural Drawings
Supplier:	Just Life Group
Product/model:	EX-SURM-TW-HF-T (HT150-K).
Switch type:	With run on timer
Duct type/size:	150mm
Grille type/size:	To suit cladding type and profile, provided by manufacturer or custom made
Cladding:	Weatherboard
Cowl type:	To suit wall cladding type and profile, supplier flashing (BRANZ appraised) or custom made

4.3 PROPRIETARY WALL PENETRATION COWL

Location:	Refer to extract penetrations
Size:	To suit wall penetration
Material:	Plastic/Stainless Steel
Durablity:	To match adjacent cladding
Finish:	Painted to match adjacent cladding
Wall cladding type:	Weatherboard

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7673 SPLIT UNIT HEAT PUMP SYSTEMS

1 GENERAL

This section relates to heat pump air conditioning systems.

1.1 RELATED WORK

N/A

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:

L10 :	Centile Level, sound level that is equalled or exceeded for 10% of the time.
HFC:	Hydro-fluorocarbon
mm Hg:	mm mercury - unit of pressure
NIWA	National Institute of Water and Atmospheric Research
ASHRAE	American Society of Heating and Air Conditioning Engineers
IRHACE	Institute of Refrigeration, Heating and Air Conditioning Engineers

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
NZBC G4/AS1	Ventilation
AS 1324.2	Air filters for use in general ventilation and air conditioning - methods of test
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS/NZS 1571	Copper - seamless tubes for air conditioning and refrigeration
AS/NZS 2107	Acoustics - Recommended design sound levels and reverberation times for building interiors
AS/NZS 3666.1	Air handling and water systems of buildings - Microbial control - Design, installation and commissioning
AS/NZS 3823.1.1	Performance of electrical appliances - Airconditioners and heat pumps - Part 1.1: Non-ducted airconditioners and heat pumps - Testing and rating for performance
AS/NZS 3823.1.2	Performance of electrical appliances - Airconditioners and heat pumps - Part 1.2: Ducted airconditioners and air-to-air heat pumps - Testing and rating for performance
AS/NZS 3823.2	Performance of electrical appliances - Air conditioners and heat pumps - Energy labelling and minimum energy performance standard (MEPS) requirements
AS 4254.1	Ductwork for air handling systems in buildings - Flexible duct
NZS 4303	Ventilation for acceptable indoor air quality
AIRAH DA9, ASHRAE or Carrier	Manual calculation methods
ACADS-BSG Camel, Carrier E20	Electronic calculation methods

1.4 MANUFACTURER'S DOCUMENTS

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

Refer to Architectural Drawings

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Copies of the above literature are available from:
Web: https://www.panasonic.com/nz
Email:
Telephone:
Other:

Warranties

1.5 WARRANTY - INSTALLER/APPLICATOR

Installer's warranty for the system under normal environmental and use conditions against failure.

~ years Execution warranty

Provide this warranty on the installer's standard form.

1.6 WARRANTY - MANUFACTURER/SUPPLIER

Manufacturer's warranty for the system under normal environmental and use conditions against failure.

~ years: Warranty

Provide this warranty on the manufacturer's standard form.

Requirements

1.7 CO-ORDINATE WORK

Co-ordinate all items with the main contractor, in particular cutting of penetrations and waterproofing. Exterior penetrations to NZBC E2/AS1 as consistent with the project requirements.

1.8 DRAWINGS AND BROCHURES

Submit, on request for review drawings and brochures of units, grilles and any other elements that affect the interior finishes.

1.9 QUALIFICATIONS

Work to be carried out by approved trades people, qualified, experienced, competent and familiar with the equipment, systems, materials and techniques specified.

Handling or recovering refrigerant to be carried out by the appropriate Approved Filler and/or Handler, with a test certificate under the HNSO Act.

1.10 AIR CONDITIONING LOAD CALCULATIONS

General: Calculate the cooling and heating loads using one of the following:

- Manual methods: AIRAH DA9, ASHRAE or Carrier.
- Electronic methods: ACADS-BSG Camel, or Carrier E20

1.11 AIR CONDITIONING DESIGN BASIS

General

Outside design conditions: Use outdoor design conditions listed in publications from NIWA, ASHRAE, IRHACE or other reliable sources for weather data, for the location geographically closest and most relevant to the site.

Inside design conditions

Summer: 22°C dry bulb, 50% relative humidity.
Winter: 21°C dry bulb.
Limit the temperature difference in air conditioned spaces served by the same zone or system to ± 1.5°C when measured:

- Between any 2 points in the space from floor level to 1500mm above floor level, > 2000mm from cooking equipment and > 1000mm from any other appliance.
- When outside conditions are in the range specified above.
- After the plant has been operating for one hour.
- In the same 5 minute period.

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Divide the systems into temperature controlled zones to meet the specified permissible temperature variation and documented system divisions.
Where ventilation requirements are not met by natural means and do not comply with NZBC G4/AS1, supply fresh air to spaces with air conditioning systems via the air handling system, or separate mechanical ventilation system in accordance with NZS 4303.

Heating
Reverse cycle.

Building Enclosure
Refer to drawings for construction of windows, walls, floors, roofs and insulation.

External window shading:	Type: n/a
Internal window shading:	Type: curtains / blinds

Noise
Indoor noise emitted - to AS/NZS 2107, depending on space served, occupancy and activity.
Noise received in all habitable rooms shall not exceed that permitted by the applicable Territorial Authority for the time of day or day of the week for the zoning of the site. Not more than L10: 35dbA between 2300 and 0700 hours. This shall apply to both the property in question and the neighbouring properties.

1.12 SHOP DRAWINGS

Refer to the general section 1235 SHOP DRAWINGS for the requirements for submission and review and the provision of final shop drawings.

Provide shop drawings to show the general arrangement including, but not be limited to:
- general location and layout drawings, and installation details of units, pipes, ducts and grilles.

Submit shop drawings for review to the engineer of the contract.

- 10 working days (at least) before fabrication is planned to commence, provide shop drawings for review.
- Complete shop drawing review before commencing fabrication.

1.13 INFORMATION FOR OPERATION AND MAINTENANCE

Provide the following general operation and maintenance information as electronic PDF format documents:

All units, filters, controls, pumps, traps, drain trays, refrigerant

1.14 MAINTENANCE CONTRACT PROPOSAL

Provide a proposed contract for the ongoing servicing of the heat pump system. Refer to SELECTIONS.

2 PRODUCTS

Material

2.1 REVERSE CYCLE UNITS

Split system heat pumps shall meet the requirements of AS/NZS 3823.1.1 and AS/NZS 3823.1.2 with minimum energy performance standards (MEPS) in accordance with AS/NZS 3823.2.

Provide effective outdoor coil defrost facility that prevents room temperature dropping more than 2°C during defrost.

2.2 CABINETS

Aluminium, powder coated steel or moulded acrylonitrile-butadiene-styrene (ABS) plastic with zinc - coated steel or stainless steel fasteners. Insulate and vapour seal cabinet and drain trays to prevent external condensation under all operating conditions.

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2.3 DRAIN TRAYS

Aluminium, stainless steel or plastic to collect all moisture inside indoor and outdoor units.

2.4 FILTERS

Washable panel type.(85% of arrestance when tested to AS 1324.2, Test Dust No.4 or Class EU2 rated.

2.5 COILS

Copper tube with aluminium plate fins.

2.6 CONTROLS

Provide as a minimum the following functions:

- Temperature control for each zone located to accurately sense zone temperature.
- Fan speed selection for multi and variable speed fans.
- Day/night zone changeover if scheduled.
- Time switch for each system with (6 temperature programs per day, separate programs for each day of the week, manual set point over ride and 'Vacation' or 'Holiday' temperature set back.

2.7 DUCTS

Metallic-coated sheet steel to AS 1397, coating class G2/Z275.

Flexible ducting shall be metallized fabric clamped on formed metal helix with polyester insulation blanket wrapped around duct and covered with an outer vapour barrier.

2.8 REFRIGERATION PIPEWORK KIT

Split system manufacturer's standard pre-charged piping kit.

2.9 REFRIGERATION PIPEWORK CUSTOM

Copper tubing, de-oxidised seamless refrigeration quality, either half hard or soft drawn. Jointing shall be brazed or flared connections to equipment.

2.10 REFRIGERANT

Refrigerant HFC type with no phase out date, such as R410a or R407a, unless approved otherwise.

3 EXECUTION

Conditions

3.1 DELIVERY

Keep materials and equipment dry in transit. Take delivery of materials and equipment in an undamaged condition. Reject all damaged materials.

3.2 STORAGE

Store materials and accessories on a level, firm base, in dry conditions, out of direct sunlight and completely protected from weather and damage. Ensure storage areas are away from current work areas. Cover to keep dry until installed.

3.3 CONFIRM LAYOUT

Before commencing work confirm the proposed location of pipes, ducts and controls.

3.4 CONCEALED PIPING

All refrigeration and condensate piping shall be concealed within the building structure unless stated otherwise.

3.5 CO-ORDINATE SERVICES

Co-ordinate and co-operate with other sub-trades to avoid any conflict with the installation of the system with other subcontractors work.

3.6 PROTECT SURFACES

Protect surfaces, equipment and finishes already in place from the possibility of damage during the installation process.



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Application

3.7 INSTALLATION DUCTWORK

Install flexible duct as straight as possible with minimum number of bends. Maximise bend radius. Check for and rectify any crushed flexible duct.

Install and support to AS 4254.1,2.5, limit sag to < 40mm/m.

Insulate ducts to reduce heat gain and prevent condensation. Provide continuous vapour barrier around ducts carrying conditioned air. Insulate flexible connections on ducts carrying air below ambient temperature.

Clean interior of ductwork progressively during installation.

3.8 INSTALLATION PIPE WORK

Install general pipe work to AS/NZS 1571

Purge the system at all times with dry nitrogen when brazing or heating pipework.

Pipes to be installed to manufacturer's requirements, adequately supported, also arranged and sized to prevent excessive pressure drop and ensure correct circulation of refrigerant and oil.

All refrigeration pipework test to 1800 kPa.

Insulate all refrigerant and drain piping that may sweat with chemically blown closed cell elastomeric insulation. Suction lines are to be insulated over the entire length between connections to indoor and outdoor units. Protect insulation from sunlight and mechanical damage.
Insulation thickness: 13mm for pipes < DN 20, 19mm otherwise.

Provide trapped (DN 20 condensate drains to AS/NZS 3666.1 from each indoor coil and safety tray, to an approved drain point. Provide drains from each reverse cycle outdoor coil unless casing freely drains to a roof or other location where condensate will not cause damage or pond.

3.9 INSTALLATION UNIT

Provide clearance around outdoor units for condenser air flow and maintenance access, to manufacturer's requirements. Ensure discharge air does not short-circuit to condenser intake.

For equipment at ground level, ensure they are mounted on 100mm level concrete plinth or equivalent impervious material.
Provide internal or external flexible duct connections at indoor unit.

For vibration isolation of suspended units, provide (4 metal spring or rubber-in - shear isolation mountings with (25mm static deflection and 98% isolation efficiency. For floor mounted units, provide neoprene waffle pads. Bolt in place.

If leaks or condensation from equipment could cause nuisance or damage to the building or its contents provide a galvanized steel safety tray under the equipment.

3.10 INSTALLATION REFRIGERANT

The completed system including all pipework, to be evacuated to 0.2mm Hg or better with a vacuum pump and maintained at this pressure for 2 hours, then broken with refrigerant.

Completion

3.11 COMMISSIONING

Commission the systems to manufacturer's recommendations using instruments calibrated in the last 12 months. Submit signed commissioning check list on completion.

3.12 CLEANING

Clean filters, outdoor coils, grilles and diffusers.

Remove debris, unused materials and elements from the site. Clean soiled or marked work. Replace damaged, cracked or marked elements. Leave the whole of this work to the standard required by following procedures.



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3.13 PROTECT

Protect new work from damage.

4 SELECTIONS

4.1 SPLIT UNIT HEAT PUMP MANUFACTURER / MODEL

Manufacturer:	Panasonic
Haier Flexis Series Models:	Developer Series Heat Pump (AP24)
Other	Controls for heat pump to be confirmed with client team

Heat Pump to be sized to accommodate HRV system to bedrooms and bathrooms

4.2 MAINTENANCE CONTRACT PROPOSAL

Contract to commence from:	Refer to Architectural Drawings
Contract period:	1 year

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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 7123 for HOT AND COLD WATER SYSTEMS

Refer to 7612 for MECHANICAL EXTRACT SYSTEMS

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
ELV	Extra Low Voltage
GLS	general lighting service
IP	international (ingress) protection classification
NUO	Network Utility Operator
PCB	printed circuit board
PIR	passive infrared
SIA	security integration architecture
TPS	tough plastic sheathed
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
NZBC F6/AS1	Visibility in escape routes
NZBC F7/AS1	Warning systems
NZBC G4/AS1	Ventilation
NZBC G9/AS1	Electricity
AS/NZS 1125	Conductors in insulated electric cables and flexible cord
AS/NZS 1768	Lightning protection
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 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 3100	Approval and test specification-general requirements for electrical equipment
AS/NZS 3112	Approval and test specification - Plugs and socket-outlets

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AS/NZS 3113	Approval and test specification - Ceiling roses
AS/NZS 3190	Approval and test specification - Residual current devices (current-operated earth-leakage devices)
AS/NZS 3439.3	Low-voltage switchgear and controlgear assemblies - Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards
AS 3786	Smoke alarms using scattered light, transmitted light or ionization
NZS 4514:2009	Interconnected smoke alarms for houses
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 60335.1	Household and similar electrical appliances - Safety - General requirements
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 61643	Components for low voltage surge protection devices

Electricity (Safety) Regulations 2010 (Reprint as at 21 January 2019).
TCF Premises Wiring Cable Installers Guidelines for Telecommunication Services

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

Warranties

1.4 WARRANTY

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

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

1.5 COMPLY

Comply with the Electricity (Safety) Regulations 2010, AS/NZS 3000, AS/NZS 3008.1.2, and TCF Premises Wiring Cable Installers Guidelines for Telecommunication Services 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.

1.6 QUALIFICATIONS WORKERS – LICENSED UNDER STATUTE

Workers and supervisors to be appropriately qualified to applicable legislative requirements.

Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.7 QUALIFICATIONS - SECURITY SYSTEM

Installation by an installer licensed under the Private Investigators and Security Guards Act. Installation of all security equipment to comply with AS/NZS 2201.1 Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance.

1.8 SAFETY OF INSTALLATION - DESIGN BY ELECTRICAL ENGINEER

Before installation work commences obtain from the electrical engineer a Certified Design. The Certified Design is to comply with the Electricity (Safety) Regulations (2010), regulation 58.

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1.9 SAFETY OF INSTALLATION - DESIGN BY ELECTRICIAN

Before installation work commences provide a Certified Design. The Certified Design is to comply with the Electricity (Safety) Regulations (2010), regulations 58. It must be signed by the designer of the installation.

1.10 ELECTRICAL CERTIFICATE OF COMPLIANCE

Supply a certificate of compliance (CoC) to the owner, and if required the NUO, as required by the Electricity (Safety) Regulations 2010, prior to connection.

- 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 regulation 70.

1.11 ELECTRICAL SAFETY CERTIFICATE

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



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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 3439.3 , or AS/NZS 61439.3, and installed in accordance with AS/NZS 3000. Manufactured from engineering grade resin with a glow wire rating of 850°C, 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 CIRCUIT PROTECTION

General requirements including main switch 63A or 100A. Residual current protection 30mA, ensure RCCBs' meet Type A and comply with AS/NZS 3190. MCBs to 4.5kA or 6kA rated.

2.6 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.

2.7 SWITCH UNITS

Single pole switches to be 16 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.

2.8 HOT WATER SYSTEM SWITCH

One way 20 amp switch complete with cable clamp for flexible PVC conduit to element enclosure.

2.9 SWITCHED SOCKET UNITS

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10 amp, 230 volt flat 3 pin socket outlets fitted with safety shutters and manufactured to AS/NZS 3100, AS/NZS 3112 and AS/NZS 3113, single or multi gang as detailed.

2.10 SMOKE ALARMS

Type 1 domestic smoke alarm to NZBC F7/AS1. 1.2 **Descriptions of alarm systems**. Alarm to AS 3786. A wired 230 volt ionised smoke detector type.

2.11 SURGE PROTECTION

Protection for the homes 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.

2.12 CEILING ROSES

White plastic mounting base with screwed cover, manufactured to AS/NZS 3113. Terminal type. Suspended fittings to have sheathed round flexible cord to AS/NZS 3008.1.2. Refer to SELECTIONS.

2.13 BATTEN HOLDERS

Standard white plastic bayonet cap, with cap angled where wall mounted. Brass liners.

2.14 DOOR BELL SYSTEM

Complete with transformer for mounting on distribution board.

2.15 LIGHT FITTINGS

Fluorescent and High Intensity Discharge fittings with low loss control gear and power factor corrected to 0.95 minimum. Control gear suitable for dimming if this is required. All fittings complete with lamps; Incandescent GLS lamps pearl, coiled-coil 230v rated, bayonet cap; Fluorescent triphosphor 2700K; CFL; halogen ELV 12v dichroic reflector with cover glass unless detailed otherwise; integral/non-integral LEDs, reflectors, lenses, heatsinks and drivers - 3,000K to 4,000K, CRI >80, L70.

2.16 RESIDENTIAL RECESSED LIGHT FITTINGS

Residential recessed luminaires to AS/NZS 60598.2.2, types IC-F, IC, CA-80 or CA-135 only.

2.17 EMERGENCY LIGHT FITTINGS

Emergency escape lighting and exit signs for buildings to AS 2293.3. Exit, recessed, ceiling or wall mounted. Refer to SELECTIONS.

2.18 SPACE HEATERS

Fixed wired room heaters radiant or convector, and compliant with AS/NZS 60335.1. Flush or surface mount, fitted with safety cut-outs.

2.19 EXHAUST FANS

Ceiling, wall or duct mounted exhaust fans for ventilation to NZBC G4/AS1, and compliant with AS/NZS 60335.1.

2.20 HEATED TOWEL RAILS

Fixed wired heated towel warmers, double insulated, IPX4 splash-proof, compliant with AS/NZS 60335.1, scratch resistant powdercoated or chrome finish.

2.21 EXTERIOR SWITCHES AND SWITCHED SOCKET UNITS

Using materials with superior UV protection, impact strength, and addition chemical resistance when compared with interior polycarbonate fittings. Weather protected, switches and sockets to IP56 minimum. Sockets fitted with safety shutters behind socket pins, and all products able to be padlocked off or on.

Electrical automation system

2.22 ELECTRICAL AUTOMATION SYSTEM

Electrical automation system designed to enable if required:

- Lighting - automated control and dimming timer control.
- Heating including heated towel rails and ventilation systems.
- Security - programmable to simulate lights and other devices to give appearance home is occupied - ability to interface with security system and smoke detectors to activate lights.

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- Energy efficiency - automatically switch circuits off when not required or on during low tariff times.
- Appliances.
- Spa pools.
- Irrigation systems.

Security system

2.23 CONTROL PANEL

Control panel system with a minimum of one installer code, one master code, 6 zones minimum and 6 user codes. The installer to select codes to suit installation.

2.24 DETECTORS

There are two main types of detectors:

- Standard passive infrared sensors: Install in stable environments with no wind flow and no direct bright sunlight.
- Passive infrared/ microwave sensors: Install in area where environmental stability is an issue.

2.25 AUDIBLE DEVICES

Internal sirens can be either a 12V Piezo Siren or a Horn speaker with a sound pressure level of no less than 95dB.

External siren can be either a stainless steel design or have hardened plastic casing. Both designs to be fully weatherproof but not limited to IP66 Rating. The siren box to contain a strobe diffuser in either blue or red. The siren shall contain a horn speaker, 12v speaker or an electronic siren. The external siren box to have both a cover and rear wall tamper mechanism.

2.26 CABLING

Security alarm wiring to NZS/AS 1125 for cables.

Security alarm wiring to be multi stranded and not single stranded, minimum 0.5mm².

2.27 PERIPHERALS

Fit anti-tamper devices to detectors, control panels and equipment housings, programmed to give a tamper indication when the system is unset and a tamper alarm when the system is set.

Standard keypad manufactured of moulded hardened plastic with either a LED or LCD screen, to match the style of the wiring accessories in diameter, colour and aesthetics.

2.28 COMMUNICATIONS

Digital dialler to be built into the PCB of all control panels, with the options for both monitoring and remote dial in windows based software. Digital dialler to comply with all the industry standard communication formats including contact I.D and SIA, and NZ Telepermit certification.

Remote software able to upload / download programming changes and or history events and change status of the security alarm with the ability to be turned off if required.

Fire rated sealers and liners

2.29 FIRE RATED SEALERS AND LINERS

Sealants, collars, wraps, expanding foam, mortars and liners, used to seal around pipe, conduit and sleeve penetrations through fire and acoustic walls and floors. Refer to SELECTIONS for type.

Fire rated accessories

2.30 WALL BOXES AND SWITCH UNITS - FIRE RATED

Proprietary intumescent pad for plastic electrical sockets installed in plasterboard lined fire rated partitions providing an acoustic barrier and fire protection. Refer to SELECTIONS for type.

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3 EXECUTION

3.1 MAIN SUPPLY

Lay underground mains to the NUO requirements. Excavate trench, install cable and marker tape and backfill.

3.2 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 fig 69. Arrange for meter installation and connection.

3.3 DISTRIBUTION BOARD

Fit to AS/NZS 3000 and board manufacturer requirements. Recess into wall or surface mount and ensure fire containment properties of the enclosure are maintained. Ensure Distribution board is not installed on a bracing wall. Refer to structural engineering drawing

3.4 CIRCUIT PROTECTION

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

3.5 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

3.6 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

3.7 MAIN EARTH

Provide a plastic toby box to contain and protect the earth electrode. Fix the connecting earth wiring closely and securely against wall surfaces.

3.8 EARTH LEAKAGE PROTECTION

Install RCD protection to AS/NZS 3000.

3.9 RCD - RESIDENTIAL INSTALLATIONS

Install 30mA RCD protection at the switchboard for all final sub circuits to control outlets and lighting except for fixed or stationary cooking equipment, to AS/NZS 3000.

3.10 RCD - SPECIFIC INSTALLATIONS

Install fixed wired RCD protected outlets (SRCD) in the following higher risk areas:

- Wet areas: bathrooms, laundries, kitchens.
- Near pools and water features.
- Where intended for use with cleaning equipment.
- Hand-held tools subject to movement in use, i.e. work-shops, garages.

3.11 SET-OUT

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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.

3.12 CABLING

Install wiring systems to AS/NZS 3000. All cabling run concealed. No TPS cable laid directly in concrete. Locate holes in timber framing for the passage of cables at the centre line of the timber member. Install cable in conduits where required to pass through concrete or underground. In walls run cabling horizontally and vertically in straight lines. In ceilings either run cabling along ceiling framing or attached to catenary wires. Clip cabling to ceiling framing/catenary wires.

3.13 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.

3.14 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.

3.15 SWITCH AND SOCKET UNITS

Fit all single and double switch units, all sockets to the following heights (to the centre of the unit) unless shown otherwise on the drawings.

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

Mount light switches and switch socket outlets vertically and socket units horizontally. Label all switch units that control electrical equipment or special lighting circuits by colour filled engraving on the switch. Use proprietary engraved switch mechanisms where applicable.

3.16 ISOLATING SWITCHES

Locate isolating switches in positions as confirmed by the owner, when not specifically shown on the drawings.

3.17 LIGHT FITTINGS

Install light fittings in locations and at heights specified and confirmed by the owner, in accordance with the fitting manufacturer requirements.

3.18 EXTRA LOW VOLTAGE LIGHTING

Use electronic, transformers (halogen) or drivers (LED) for ELV lamps, one transformer/driver per lamp. Locate to manufacturer requirements and as close as practicable to the lamp. Ensure transformers/drivers and rear of light fittings are adequately ventilated and appropriately clear of any building elements, to AS/NZS 3000.

3.19 RECESSED LIGHT FITTINGS - CLEARANCE TO INSULATION

Non-residential applications;
The clearance between insulation and recessed downlights;

- Leave 100mm gap to AS/NZS 3000, figure 4.9
- Provide larger gaps where required by the downlight manufacturer

Residential applications;

- Ensure new recessed downlights are one of the new classes classified in AS/NZS 60598.2.2; CA 80, CA 135, IC and IC - F.
- Classification type CA 80, CA 135, to AS/NZS 60598.2.2; insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to AS/NZS 60598.2.2; insulation can abut and cover over the top of the downlight
- Provide larger gaps where required by the light manufacturer
- In a retrofit situation where the insulation is non-approved or unknown, ensure 100mm

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clearance from the insulation to AS/NZS 3000, figure 4.9.

3.20 EMERGENCY LIGHTING

Emergency escape lighting and exit signs for buildings to AS 2293.1 and NZBC F6/AS1. Fit emergency light fittings to manufacturer specifications. Refer to plans for position of fittings.

3.21 ELECTRIC HOT WATER SYSTEM

For storage heaters, wire as a separate circuit through a wall-mounted isolating switch, with the cable from switch to element encased in flexible PVC conduit, clamp fixed at each end. Hot water cylinders, thermostats and 3000 watt element supplied and fitted under the hot and cold water system section.

3.22 SPACE HEATERS

Install to the heater manufacturer requirements, and to AS/NZS 3000. Fit neatly and without damage to surrounding finishes. Ensure control switches and thermostats are fitted to appliance, or otherwise connect to a control switch located adjacent to the heater and a remote thermostat.

3.23 SMOKE ALARMS

Install Type 1 domestic smoke alarm system to NZBC F7/AS1 3.0 **Domestic smoke alarms**, NZS 4514 and to the alarm manufacturer requirements. Fit neatly and without damage to the surrounding finish.

3.24 SURGE PROTECTION

Install surge protection devices to manufacturer requirements and in accordance with AS/NZS 3000 and AS/NZS 1768. When fitting IEC 61643 Class II protection at the switchboard, protect the device by a dedicated MCB.

3.25 ELECTRIC POWERED FITTINGS AND EQUIPMENT

Install and wire fittings and equipment to individual fittings and equipment manufacturer requirements. Refer to the drawings for required layouts and locations for equipment. Refer to SELECTIONS for schedules of fittings.

3.26 BATHROOM ELECTRICAL FIXTURES

Install all electrical fixtures. Connect the following bathroom and toilet electrical items:

- Heated towel rails: Install to manufacturers requirements and installed in accordance with AS/NZS 3000
- Mirror demisters: Locate centrally above the wash hand basin(s). Connect wiring to room lighting unless specified otherwise.
- Exhaust fans: Install exhaust fans to manufacturer requirements. Installed in accordance with AS/NZS 3000 and NZBC G4/AS1.

3.27 OUTDOOR/EXTERIOR SERVICES

Install all wiring systems in accordance with AS/NZS 3000 and in accordance with the manufacturer recommendations:

Provide circuits and connections for exterior installations, including ELV 12/24 Volt path lighting and electronic irrigation systems. Refer to drawings for connection points. Where underground, ensure appropriate protection, such as thickness of sheathing, conduit, depth of cabling, and proximity to other services.

Use the appropriate rated fittings for power control and power supply. Weather protected switches and sockets to IP56. 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. RCDs are recommended for visible awareness of protection.

3.28 ELECTRICAL AUTOMATION SYSTEM

Fit distribution cabinet in wall, cut-out to finish flush with the wall surface, or surface mounted. Configure installation to manufacturer instructions. Provide adequate user training and operating manual to the owner.

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3.29 LABELLING

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.

Fire rated sealers and liners

3.30 SEAL ALL PENETRATIONS

Seal all penetrations, including in and around conduits and sleeves, in accordance with manufacturer instructions. For fire and/or acoustic rated elements, maintain the rating with the seal systems.

3.31 PROVIDE CABLE SLEEVES

Provide PVC sleeves formed from pipe sections, unless fire and/or acoustic systems require sleeves for other building elements and/or different material for the sleeve.

Fire rated accessories

3.32 INSTALL WALL BOXES AND SWITCH UNITS - FIRE RATED

Install proprietary fire rated wall boxes and switch units in accordance with manufacturer instructions.

Completion & Commissioning

3.33 COMPLETION MATTERS

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

4 SELECTIONS

Materials

4.1 SELECTIONS - FITTINGS AND HARDWARE

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

4.2 ELECTRICITY METER BOX

Brand / type:	Site architect to use Remote Read Smart Meters unless site conditions require meter to be wall mounted
Notes:	Installation of wall-mounted recessed electricity meter in insulated external walls is strongly discouraged. Where permitted it is recommended that external recessed wall mounted meters are installed in non insulated areas such as adjacent to entry door's in duplex designs - site architect to confirm fire design compliance. Where external recessed wall mounted meters are installed in insulated external walls impact to the insulation R-value should be minimised. Earth pin protected by a plastic toby

4.3 DISTRIBUTION BOARD

Location:	Refer to services drawings
Brand / type:	Internal distribution board with 20% spare capacity. Flush board fitted into wall.

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Outlets - fittings

4.4 INTERIOR OUTLETS

Item	**Brand / type**
Switch / socket outlets:	Double socket polycarbonate with rocker switch, mounted horizontally at 500mm above floor level, 250mm above benchtops and minimum 500mm away from internal corners. Polycarbonate with rocker switch, mounted at 1m above floor level. Hallways and stairs have 2-way switches at each end. Layout to Bedrooms to be agreed before being installed
Coverplate colour:	White
Data, phone and TV:	Mount horizontally 500mm above floor level, 250mm above benchtops and minimum 500mm away from internal corners. TV related outlets to be located mounted behind TV on wall

Item - RCD	**Brand / type**
Socket outlet:	Refer to Architectural Drawings

4.5 INTERNAL LIGHT FITTINGS

Fitting	**Brand / type**
Internal Lights:	Ceiling-mounted LED double insulated with acrylic diffuser, 3000k, IP rated for wet areas. Recessed to flat ceilings and track lighting to exposed ceiling areas, 18watt and 30watt or equal approved. Wall lights behind beds
Light Switches:	Polycarbonate with rocker switch, mounted at 1m above floor level. Hallways and stairs have 2-way switches at each end. Bedrooms to have 3 way switching.

4.6 SMOKE ALARMS

Location:	Refer to Architectural Drawings for location in each bedroom, hallway, stair, living space, separate dining area as applicable
Brand / type:	Type 5 Smoke Alarm system to meet Fire Engineers requirements FRS FireAngel Smoke Alarm Thermoptek 10 year wireless listed to EN14604:2005 Standard

4.7 EXTERIOR SWITCHES AND SOCKETS

Item	**Brand / type**
Weatherproof socket outlets:	To each outdoor area

4.8 EXTERNAL LIGHT FITTINGS

Fitting	**Brand / type**
External Lights:	Bollard lighting as per lighting design. Wall lights to Balconies, Stairs, Entries and ground floor outdoor area

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4.9 MISCELLANEOUS ELECTRICAL ITEMS

Item	Brand / type
Door Bell:	To be approved
Wall oven:	Panasonic 60cm Built-In Oven with 7 functions - Stainless steel (HL-FD6155JPQ)
Dishwasher	Panasonic 14 Place Setting Freestanding Dishwasher Stainless Steel (NP-6F2MUQNZ)
Cooktop	Panasonic 60cm 4 Zone Ceramic Cooktop - Black (KY-R64ARLJPQ)
Rangehood	Arisit 52cm Undermounted Interated Rangehood - Silver (ARU52BX-L)
Bathroom Mirror	LED backlight wall mirror to each bathroom
Accessible bathroom:	Power outlet RCD protected located adjacent to WC and bath for mobile hoist

4.10 SPACE HEATERS

Location:	Refer to Architectural Drawings
Brand / type:	Electric hard-wired into independent circuits and separately switched, permanently wall mounted with electric thermostat. Energy efficient heat retention, internal overheat protected, resistant to rust, anti-freezing, IP24. Located in each Bedroom and fan heater in Bathroom at high-level

4.11 HEATED TOWEL RAILS

Location	Brand / type
Bathrooms	Refer to Architectural Drawings

4.12 BATHROOM FANS AND HEATERS

Location	Brand / type
Bathroom / ensuite-Heating:	Goldair bathroom heater 2400W GOL3508W OR equal approved heater
Bathroom / ensuite-Extract:	Refer to Architectural Drawings

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7811 COMMUNICATIONS CABLING

1 GENERAL

This section relates to generic structured communications cabling systems for commercial projects.

Related work

1.1 RELATED SECTIONS

Refer to electrical section/s

Documents

1.2 DOCUMENTS

Documents referred to in this section are:

NZBC E2/AS1	External moisture
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3080	Information technology - Generic cabling for customer premises
AS/NZS 3084	Telecommunications installations - Telecommunications pathways and spaces for commercial premises
AS/NZS 3085.1	Telecommunications installations - Basic requirements
AS/CA S009	Installation requirements for customer cabling (Wiring Rules)

Electricity (Safety) Regulations 2010 (Reprint as at 21 January 2019).

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

1.3 MANUFACTURER DOCUMENTS

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

~

Copies of the above literature are available by phoning ~.

Requirements

1.4 COMPLY

Comply with Electricity (Safety) Regulations 2010, AS/CA S009, AS/NZS 3000, AS/NZS 3080, AS/NZS 3084, AS/NZS 3085.1, and the manufacturer's requirements. Arrange for the required manufacturer inspections of the listed work

1.5 QUALIFICATIONS

Communications cabling installation to be carried out by competent workers experienced with the materials and in the techniques specified and accredited to work on the proposed manufacturer's system.

Warranties

1.6 WARRANTY

Warrant this part of the work under normal environmental and use conditions against failure of materials and execution.

2 years:	Warranty period

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

1.7 WARRANTY - MANUFACTURER/SUPPLIER

Manufacture's warranty for the performance of the system under normal environmental and use conditions against failure.

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~ years: Warranty

Provide this warranty on the manufacture's standard form.

2 PRODUCTS

Components

2.1 COMMON COMPONENTS

All system components (distributors, cabling and outlets), where possible, to be of a common manufacturer and every component to meet the required level of performance.

2.2 DEMARCATION FRAME

Supply and install to the Telecommunications Service Provider's requirements

2.3 CABLE DISTRIBUTOR

Wall mounted cable distributor or rack mounted 8-pin modular patch fields for incoming voice cables (1 pair terminated per jack) and outgoing outlet field cables (4 pair terminated per jack). Provide rack space and check that power outlets are provided and suitably located. Provide cable management rings and jumper bars. Minimum 30% spare space capacity in each field and overall rack capacity.

2.4 EQUIPMENT CORDS

Install equipment cords between the wall-mounted distributor and the equipment rack, or supply patch cords, for connecting between the equipment and the jack fields.

2.5 OUTLETS

Telecommunications outlets:	100 ohm balanced category 6 - multiple outlets on common faceplates.
Outlet face plates:	To match electrical socket outlet faceplates. Refer to SELECTIONS.

2.6 TV AERIAL

Aerial suitable for both VHF, UHF, analogue and digital reception, of all local free-to-air broadcast and pay channels.

3 EXECUTION

Application

3.1 NETWORK CONNECTION

Arrange for Telecommunication Service Provider (TSP) to supply conduit for lead-in cable. Install conduit to location nominated by TSP. Arrange for TSP to install and terminate the lead-in cable.

3.2 DISTRIBUTORS

Install to the manufacturer's requirements.

3.3 CABLES

Install to the manufacturer's requirements.

Backbone cable:	From demarcation point to distributor or enclosure. Multi-pair voice grade (Category 3), terminate one pair per jack. From distributor or enclosure, to PABX. Multi-pair voice grade (Category 3), terminate one pair per jack.
Horizontal cable:	4 pair 100 ohm balanced Category 6, per outlet, terminate 4 pair per jack.

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3.4 CABLE INSTALLATION

Comply with AS/CA S009. Conceal all cables. Support all cables clear of hot and sharp surfaces without placing unnecessary strain on the cables or terminations. Earthed or insulated high tensile catenaries or cable trays in ceiling/floor cavities. Cable trays for greater than 24 cables in a common route. Cables run parallel to power cables separated by 300mm and cross at right angles with segregation. Do not share cable supports or penetrations with other services.

3.5 OUTLETS

Quantities and locations as drawn. Allow to move up to 2 metres prior to installation. Confirm all locations prior to installation. Mount at 400mm above finished floor level unless noted otherwise. Mount aligned with electrical socket outlets where present, separated at 100mm centres. Mount on Category 6 compliant skirting trunking where indicated.

3.6 CONNECTING HARDWARE

To AS/NZS 3080 and the manufacturer's requirements.

3.7 TV AERIAL AND CABLING

Fix aerial, and ensure the system is suitable for high quality reception of all VHF, UHF, digital and satellite channels - Sky satellite TV installation practices minimum. Test to ensure adequate TV/video at every outlet with a RF field strength meter. Cable penetrations through the cladding to be weatherproofed to comply with NZBC E2/AS1.

Completion

3.8 TESTING

At completion test to manufacturer's requirements and provide a certified copy of the results. Correct or replace any sub-standard items and re-test.

3.9 LABELLING

To AS/NZS 3085.1. Common and consistent labelling on each outlet and at the Distributor. Machine made permanent labels. Arrange numbering sequentially by floor, then by room and then around the walls of each room.

3.10 REPLACE DAMAGED WORK

Replace damaged, cracked or marked elements. Jointing cables is not permitted - replace any damaged or short cables.

3.11 LEAVE CLEAN

Leave work clean, undamaged, in full working order and to the standard required by following procedures.

3.12 REMOVE DEBRIS

Remove debris, unused materials and elements from inside enclosures and from the rest of the site.

4 SELECTIONS

Materials

4.1 COMMUNICATIONS CABLING ENCLOSURES

Manufacturer:	Clients Contractor
Brand/catalogue number:	Clients Contractor

4.2 DISTRIBUTORS

Manufacturer:	Clients Contractor
Brand/catalogue number:	Clients Contractor

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4.3 COMMUNICATIONS CABLES

Cable	Manufacturer / Type
Multi-pair voice grade (Category 3):	~
4 pair 100 ohm balanced Category 6:	~

4.4 COMMUNICATIONS OUTLETS

Manufacturer: ~
Brand/catalogue number: ~ (8 position modular sockets)
Colour: ~

4.5 MISCELLANEOUS ITEMS

Item	Brand / type
TV aerial:	~
TV aerial amplifier:	~
Satellite dish:	~

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