84 Golf Course Road

Building Consent

84 Golf Course Road, Wānaka, New Zealand
Project Ref: 226014
Date: 08 October 2026



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

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1013 DOCUMENT CONTROL

1 DOCUMENT CONTROL

Document Control

1.1 PREPARED BY

Company:	Assemble Ltd
Postal Address:	PO Box 9408 Newmarket
Street Address:	2/6 Leek Street, Newmarket
City:	Auckland
Telephone:	09 966 7530

1.2 DOCUMENT DETAILS

Project Name:	84 Golf Course Rd
Project Number:	26014
Client:	Warkick and Trish Jones

1.3 REVISION CONTROL

Issue:	**Building Consent**
Revision:	A
Amendment Details:	For Building Consent
Issued to:	Queenstown Lakes District Council
Date of Issue:	

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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

~

1.3 RESTRICTED BUILDING WORK

This project includes Restricted Building Work.

Design Construction Safety

1.4 DESIGN CONSTRUCTION SAFETY

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

Principal's Health & Safety Matters

1.5 PRINCIPAL'S KNOWN SITE HAZARDS

Site hazards known to the principal are:

~

1.6 PRINCIPAL'S SITE HEALTH AND SAFETY PLAN

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

Site

1.7 SITE

The site consists of:	Rear site at 84 Golf Course Road. Topography falls towards the center of the site, creating a slight depression.
As shown on drawing:	A011

1.8 LEGAL DESCRIPTION

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

1.9 SITE FEATURES

~

Site environment - Durability

1.10 EXPOSURE ZONE

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

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The site zone is: ~

Site environment - Wind

1.11 WIND DESIGN PARAMETERS - NON SPECIFIC DESIGN

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

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

Site environment - Seismic

1.12 EARTHQUAKE ZONE - NON SPECIFIC DESIGN

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

The earthquake zone is: ~

Archaeological discovery

1.13 REPORT FINDING ANY ANTIQUITIES AND ITEMS OF VALUE

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

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

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

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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.

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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
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 1235S1 SCHEDULE OF SHOP DRAWINGS identifies work sections that have requirements for shop drawings. Details of the requirements are contained in the identified work sections with additional requirements contained in the general section 1235 SHOP DRAWINGS.

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:

1239S1 Schedule of Operation & Maintenance Info
1278SR Schedule Of Slip Resistance Testing

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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

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- 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

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.

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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.

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.



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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.

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.



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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
- 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 DOCUMENT RECEIPT - ELECTRONIC DOCUMENTS

Electronic documents issued for construction shall be in PDF generally. Other formats to be agreed.

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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 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.

1.7 SELECTIONS INFORMATION - SUBSTITUTIONS

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

Documentation format

1.8 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

1.9 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,

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annotations or comments provided; or
- 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

1.10 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.

1.11 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.

1.12 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.

1.13 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.

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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.

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
- Identified Work Sections

Information for operation and maintenance

1.2 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the following sections:

4231HA	James Hardie Axon™ Panel Cladding
4239	Soffit Cladding
4239JH	James Hardie® Soffits
4521AR	APL Residential Aluminium Windows & Doors

Operation and maintenance manuals

1.3 OPERATION AND MAINTENANCE MANUALS

There are no work section requirements.

Maintenance contract proposals

1.4 MAINTENANCE CONTRACT PROPOSALS

There are no work section requirements.

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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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

There are no work section requirements.

1.5 SLIP RESISTANCE - PREVIOUSLY TESTED SURFACE

Walking surfaces on access routes that have previously been tested for slip resistance and found to comply with NZBC D1/AS1 requirements are covered in the following Work sections:

6221M Mapei Floor Tiling Solutions

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:

6221M Mapei 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.

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Test condition:	Minimum test value required:	Test method:
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
Contaminated walking surfaces	R~	Obtain classification from the oil-wet inclining platform test method of AS 4586, Appendix D

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°

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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°
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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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 ~ for ~.

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.

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2 PRODUCTS

Materials

2.1 TOPSOIL

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

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 COMPLY

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

3.3 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.

3.4 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.

3.5 KEEP FREE OF WATER

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

3.6 TERRITORIAL AUTHORITY REQUIREMENTS

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

3.7 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.

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3.8 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.

Application

3.9 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.

3.10 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.

3.11 DIVERT WATERWAYS

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

3.12 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.

3.13 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.

3.14 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.

3.15 OVER EXCAVATION

Make good with well compacted backfill.

3.16 EXCAVATED BACKFILL

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

Finishing

3.17 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

3.18 LEAVE

Leave work to the standard required by following procedures.

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3.19 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.

3.20 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.

4 SELECTIONS

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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 MANUFACTURER/SUPPLIER DOCUMENTS

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

~

Manufacturer/supplier contact details

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

1.5 DIMENSIONS

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

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Requirements

1.6 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.

2.2 APPEARANCE TIMBERS

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

2.3 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

2.4 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.

2.5 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.

2.6 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

Components

2.7 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.

2.8 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.

2.9 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.

2.10 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.

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2.11 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.

2.12 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.

2.13 POWDER ACTUATED FASTENERS

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

2.14 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 PRE-INSTALLATION REQUIREMENTS

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

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

3.4 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

3.5 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.

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3.6 SEPARATION

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

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

3.7 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).

3.8 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.

3.9 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.

3.10 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.

3.11 STRAIGHTENING STUDS

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

3.12 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.

3.13 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.

3.14 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.

3.15 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.

3.16 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.

3.17 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.

3.18 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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3.19 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.

3.20 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.

3.21 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.

3.22 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.

3.23 DPC TO LOSP TREATED TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.24 DPC TO TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section

Completion

3.25 COMPLETION MATTERS

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

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4 SELECTIONS

4.1 EXTERIOR WALL FRAMING - RADIATA PINE

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

4.2 ROOF FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Rafters:	Radiata pine	SG8	H1.2
Trusses:	Radiata pine	SG8	H1.2
Purlins:	Radiata pine	SG8	H1.2
Valley boards:	Radiata pine	Merch	H1.2
Sarking:	Radiata pine	Merch	H1.2
Skillion roof framing:	Radiata pine	SG8	H1.2
Enclosed flat roof framing:	Radiata pine	SG8	H1.2

4.3 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

4.4 CEILING FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Ceiling joists:	Radiata pine	SG8	H1.2
Timber ceiling battens:	Radiata pine	SG8	H1.2
Proprietary ceiling battens:	Manufacturer ~	Type ~	Reference ~

4.5 CAVITY BATTENS

Cavity battens	Species	Grade	Treatment
Timber - Structural	Radiata pine	Merch	H3.2
Timber - Non Structural	Radiata pine	Merch	H3.1
Cavity closer:	TBC	-	-

4.6 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

4.7 NAILS

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Location	Material	Finish
Framing in "Exposed areas" (as defined in NZS3604)	Steel	Galvanized
Framing in "Sheltered areas" (as defined in NZS3604)	Steel	Galvanized
Framing in "Closed areas" (as defined in NZS3604)	Mild Steel	
Non- structural cladding		
Cladding that acts as bracing		

4.8 SCREWS

Location	Type	Material	Finish
~			

4.9 BOLTS AND COACH SCREWS

Location	Material	Finish
Sheltered (as defined in NZS3604)	Steel	Hot-dipped galvanized
Exposed (as defined in NZS3604)	Stainless Steel	Type 304

4.10 NAIL PLATES

Location	Material	Finish
Sheltered (as defined in NZS3604)	Steel	Hot-dipped galvanized
Exposed (as defined in NZS3604)	Stainless Steel	Type 304

4.11 CONNECTORS

Location	Material	Finish
Sheltered (as defined in NZS3604)	Steel	Hot-dipped galvanized
Exposed (as defined in NZS3604)	Stainless Steel	Type 304

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4131N NURALITE NURAPLY 3P COVERED TANKING SYSTEMS

1 GENERAL

This section relates to the application of NURALITE NURAPLY 3P Covered Tanking Systems for basement and retaining wall tanking and damp-proofing.

It includes:

- NURAPLY 3PT for below ground walls and footings with moderate hydrostatic pressure
- NURAPLY 3PTM for underslab, footings and blindside wall tanking
- NURAPLY 3PG for root-resistant membrane for below ground walls and footings

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:

NZS 3604 Timber-framed buildings
CodeMark CM70033 - The Nuraply 3P Waterproof Tanking Membrane system

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

NURALITE NURAPLY 3P Technical Data Sheets
NURAPLY 3P Covered Membrane Installation Manual 2024
NURAPLY 3P Covered Check Sheets and Maintenance Programme
NURALITE Waterproofing Limited: CAD Tanking drawings®

Manufacturer/supplier contact details

Company:	Nuralite Group Limited
Web:	www.nuralite.co.nz
Email:	info@nuralite.co.nz
Telephone:	09 579 2046 Auckland 0800 Nuralite (0800 687 254)

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

20 years:	For system under normal environmental and use conditions against failure

- 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 completion of the application

Refer to the general section 1237 WARRANTIES for additional requirements.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years:	NURAPLY applicator to warrant this work under normal environmental and use conditions against failure of materials, waterproofing and execution

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- 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 completion of application

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 NO SUBSTITUTIONS

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

1.7 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

Workers to be Nuralite Group Limited Authorised Membrane Applicators. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

Conditions

1.8 EXCAVATION CONDITIONS FOR DAMP-PROOFING

Ensure that excavations are free of running water and seepage during dry weather. If water is present the Contract Administrator is to be notified before any damp-proofing work is started. This specification is not suitable for any hydrostatic pressure conditions or installation below the water table.

1.9 EXCAVATION CONDITIONS FOR WATERPROOFING

Ensure that excavations are free of running water during dry weather. If running water is present the Contract Administrator is to be notified before any waterproofing work is started. This specification is not suitable for high hydrostatic pressure conditions or installation below the water table.

Performance

1.10 COMPLIANCE CODEMARK CERTIFICATE - NURAPLY 3P

NURAPLY 3P Waterproof Tanking Membrane System meets the requirements of the CodeMark® certificate CodeMark CM70033 when used within the conditions and limitations of its Certificate of Conformity.

2 PRODUCTS

Waterproofing

2.1 NURALITE UNDERGROUND WATERPROOFING MEMBRANE

NURAPLY 3PT reinforced fibre asphalt film faced flexible, tough, waterproofing system for walls, applied and joined by traditional NURALITE techniques. Thickness not less than 3mm.

Components

2.2 PRIMER

NURAFLUX QD surface primer for the tanking system, to prepare the substrate for optimum adhesion.

2.3 TOP EDGE ANCHOR STRIP

Aluminium or stainless steel anchor strip.

2.4 NURADRAIN POLYETHYLENE PROTECTION SHEET

Dimpled rot-proof board for use as a protective barrier and drainage medium behind retaining walls.

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2.5 NURALITE GREENDRAIN

20SRXSSc3g is a geo-composite drainage and water attenuation layer comprising a perforated cuspated HDPE (High Density Polyethylene) core with selected geotextiles thermally bonded on each side.

Accessories

2.6 ALUMINIUM TAPE

3M 150mm and 48mm wide aluminium tape.

2.7 BITUMEN FILLET

NURALITE triangular fillet.

2.8 LEVELLING COMPOUND

NURAFLUSH levelling compound.

2.9 EXPANDING FOAM

Holdplast Gorilla Nailpower fire rated expanding foam.

2.10 SEALANTS

IKO Stickall Bitumen or Millennium LPS.

2.11 TERMINATION BAR

NURALITE pre-formed termination bar.

2.12 FIXINGS

NURALITE self-adhesive mechanical fixing.

2.13 PENETRATION SEAL

Lockin Pocket.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

- Store NURALITE rolls and accessory materials under conditions that ensure no deterioration or damage.

Store in shade or cover in hot sun. Protect liquid components from freezing.

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 NURALITE requirements and instructions.

3.4 STORE

Store NURALITE rolls and accessory materials under conditions that ensure no deterioration or damage. Store in shade or cover in hot sun. Protect liquid components from freezing.

3.5 WEATHER CONDITIONS

Apply NURALITE tanking systems only in fair weather with air temperature above 5°C. Apply adhesives and make site joints only in weather conditions compatible with perfect jointing.

3.6 DE-WATERING

Maintain water level at not less than 300mm below the level of the base concrete during the progress of the tanking work and until protective loading coats and walls are complete and fully set.

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3.7 DRAINAGE

Install approved drainage system to remove water from foundations. Ensure drain is protected with geotextile cloth to prevent it clogging with fines, and that it is correctly located, 150mm from the membrane and below the footing.

3.8 CHECK SUBSTRATE

Check that the substrate will allow work of the required standard with adequate safe working space for applicators. Complete any remedial work identified and allow to cure before commencing tanking application.

3.9 CURING OF NEW CONCRETE

Allow concrete and masonry to dry to the NURALITE requirements before applying tanking. Minimum curing of new concrete: 28 days. This is not applicable for blockwork or site lean concrete.

Application - Preparation

3.10 ENSURE SUBSTRATE

Ensure all surfaces are clean and free from voids, spalled areas, loose particles, and sharp protrusions. Ensure no projections of sharp materials exist that will cause damage to tanking. Check that masonry joints are struck off flush.

Ensure form oils or release agents and curing compounds are completely removed.

3.11 PREPARE SUBSTRATE

Remove projections, wire-brush and remove all debris, leaving the surface dust-free, oil-free and clean, with nothing that could diminish the adhesion of primers. Fill tie holes flush and smooth with NURAFLUSH. Grind off steps or sharp protrusions caused by formwork joints.

3.12 TURN UPS

Where tanking is turned up against hardened concrete, ensure the surface is smooth and free of all sharp projections. Fill internal corners with NURALITE bitumen triangular fillets.

3.13 TURN DOWNS

Where NURAPLY 3PT is turned over an external corner, first grind the corner to produce a smooth 25mm radius or chamfer.

3.14 CLEAN SURFACES

Clean surfaces with a broom or oil free compressed air to remove dust, loose particles and material that could affect bonding.

3.15 DRESS OFF HARDFILL SURFACE

Dress off surface of hardfill with a 15mm layer of fine, clean sand rolled to a smooth surface. Ensure concrete surface is a smooth steel trowel U3 surface to NZS 3114. Grind off any steps or sharp protrusions.

3.16 REMOVE OTHER FORMWORK

Ensure that formwork has been removed or partially removed from the other face(s) to the membrane face, to the extent that it allows moisture to escape from the concrete to ensure no vapour pressure develops beneath the membrane..

3.17 PRIMING

Ensure concrete or masonry substrates are sufficiently cured and dry to permit the intended performance of the NURAFLUX QD primer. Apply NURAFLUX QD primer at the coverage rate recommended by NURALITE.

3.18 ALLOW PRIMER TO DRY

Allow the primer to dry. Do not prime more than can be covered in one working day. Prevent contamination of the primed surface prior to application of the tanking system.



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Waterproofing application - walls

3.19 3PT APPLICATION METHOD - WATERPROOFING

Apply the NURAPLY 3PT waterproofing system with laps and joints and reinforcing pieces at junctions to provide a waterproof finish.

3.20 WELD NURAPLY 3PT JOINTS

Heat fuse joints minimum laps side 80mm, ends 150mm, using self checking lap welding techniques.

Application - general

3.21 ADDITIONAL THICKNESS

Provide a double layer of tanking around pipes and penetrations and at all junctions and changes of direction. Seal edges to NURALITE requirements.

3.22 SEALING EDGES WITH ANCHOR STRIPS

At edges of the membrane, adhere firmly on to the substrate and anchor strip on all top edges of tanking.

3.23 SECTIONAL COMPLETION

As sections of tanking are completed, arrange for inspection of the work before covering with protective sheets, walls, or slabs.

3.24 PROTECT VERTICAL SURFACES

Protect vertical surfaces from damage before covering with NURADRAIN protective sheets.

3.25 PROTECT HORIZONTAL SURFACES

Protect the horizontal tanking from damage during laying by ensuring applicators wear soft soled shoes. Except for inspection purposes do not allow traffic on the tanking after installation and before protection sheets have been laid.

3.26 INSTALL NURADRAIN PROTECTION SHEETS

Fix sheets with Nuralite self-adhesive mechanical fixings to NURALITE requirements for this work, to fully protect the whole of the tanking from backfill.

3.27 INSTALL GREENDRAIN PROTECTION SHEETS

Place sheets and tape joins before the placement of the Green roof medium.

3.28 SUPERVISION OF BACKFILLING

Supervise backfilling operations to ensure no damage is caused to the waterproofing system. Refer to the appropriate drainage section for subsoil drainage and backfilling.

Completion

3.29 COMPLETION MATTERS

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

3.30 CLEAN UP

Clean up as the work proceeds.

4 SELECTIONS

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

4.1 PRESSURE RATING FOR WATERPROOFING

Designated water pressure head: ~ metres

For waterproofing systems only (not for damp-proofing systems).



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Waterproofing - underground walls

4.2 NURAPLY 3PT TANKING SYSTEM - UNDERGROUND WALLS

Location: Pool ha-ha retaining wall
Supplier: Nuralite Group Ltd
Brand: NURAPLY 3PT

Spec Version ID: 382786-462746
Document authenticity may be verified at masterspec.co.nz/verify/382786-462746
Prepared using Masterspec software

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4161 UNDERLAYS, FOIL AND DPC

1 GENERAL

This section relates to the application of:

- DPC/DPM
- wall underlays includes Kraft based and synthetic wall underlays
- roofing underlays includes kraft based and synthetic roof underlays
- foils
- vapour barriers
- accessories

1.1 RELATED WORK

Refer to ~ for ~

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

NZMRM	New Zealand Metal Roofing Manufacturers Inc.
W2	Wall underlay Kraft/bituminous based Heavy grade
W3	Wall underlay Synthetic based non-absorbent
W4	Wall underlay Synthetic based absorbent
R1	Roof underlay Kraft/bituminous based Heavy grade
R2	Roof underlay Kraft/bituminous based Self-supporting
R3	Roof underlay Synthetic based Heavy grade
R4	Roof underlay Synthetic based Self-supporting

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

1.3 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
NZS/AS 1530.2	Methods for fire tests on building materials, components and structures - Test for flammability of materials
NZS 2295	Pliable, permeable building underlays
AS/NZS 2904	Damp-proof courses and flashings
NZS 3604	Timber-framed buildings
AS/NZS 4200.1	Pliable building membranes and underlays
AS/NZS 4347.0	Damp-proof courses and flashings - Methods of test - General introduction, list of methods and test specimen requirements
AS/NZS 4389	Roof safety mesh
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

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~

Manufacturer/supplier contact details
Company: ~
Web: ~
E-mail: ~
Telephone: ~

Requirements

1.5 INSTALLATION SKILL LEVELS

Installers to be familiar with the manufacturer's technical literature and the NZMRM CoP NZ Metal Roof and Wall Cladding Code of Practice.

2 PRODUCTS

Materials

DPC

2.1 POLYETHYLENE DPC

Polyethylene film to AS/NZS 2904 and to the appropriate test methods set out in AS/NZS 4347.0. Thickness 500 microns minimum, manufactured for use as a damp-proof course and concealed flashings to doors and windows.

DPM

2.2 DAMP PROOF MEMBRANE - CONCRETE FLOOR

Polyethylene sheet with minimum thickness of 0.25mm to NZS 3604, 7.5.6, **Polyethelene (polythene) sheet damp-proof membranes**.

Rigid Wall Underlays

2.3 RIGID WALL UNDERLAYS

Plywood or fibre cement sheet over-fixed with flexible wall underlay to NZBC E2/AS1, paragraphs 9.1.6.2 - 9.1.6.4. Refer to the appropriate section.

Roofing Underlay

2.4 SYNTHETIC NON-WOVEN SELF SUPPORTING ROOFING UNDERLAY (R4)

A non-woven self supporting roofing underlay, consisting of two spun-bonded polyolefin fabric layers bonded to a micro porous inner layer, designed for use as a water absorbent, breathable, water resistant roofing underlay for sloped roofs; with flammability index tested to NZS/AS 1530.2, AS/NZS 2295.

Accessories

2.5 WINDOW DOOR SEALING SYSTEM

Proprietary window and door flashing tape and accessories to NZBC E2/AS1, 4.2.12 Flexible flashing tape, and 9.1.4 Wall underlays to wall openings.

2.6 GUTTER AND UNDER FLASHINGS

Bituminous breather type underlay cut to width by manufacturer for use under valley, apron flashing and internal gutters. Soffit liner cut to width from bituminous breather type underlay.

2.7 ADHESIVE TAPE

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

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3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To NZBC E2/AS1, Table C.2.1.1 Properties of roof underlays and wall underlays, and manufacturers technical literature.

Note: Care should be taken not to expose the underlay to continuous wet and windy conditions.

3.2 STORAGE

Store wall and roofing underlays and accessory materials, under conditions that ensure no deterioration or damage. Store rolls in an upright position on a smooth floor and protected from sunlight, UV radiation and moisture.

3.3 INSPECTION

Before starting work, check that the framing will allow work of the required standard. Carry out remedial work identified before laying underlay.

Application - DPC

3.4 POLYETHYLENE DPC TO TIMBER

Lay polyethylene DPC under treated and untreated timber, including LOSP treated timber, of all timber framed walls on concrete and concrete masonry, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

3.5 DPC TO MASONRY AND BRICK VENEER

Lay DPC along base of cavity and fix top edge to studs with galvanized clouts. Turn DPC out over concrete rebate under bottom course of veneer.

3.6 DPC BETWEEN DISSIMILAR MATERIALS

Lay DPC between dissimilar materials where required.

Application - DPM

3.7 DPM TO CONCRETE FLOOR

Lay DPM under concrete floor substrate over sand binding, in a single layer with 150mm overlaps at joints to provide a waterproof barrier.

Application - Roofing Underlay

3.8 ROOF UNDERLAY

Lay vertically over purlins on wire netting with a 150mm side lap. Fix securely to purlins with galvanized fixing clips. Lay underlay to avoid excessive dishing between purlins. When used vertically limit individual runs to 10 metres for bituminous based roofing underlays, 7 metres for fire retardant underlays and 20 metres for synthetic roofing underlays. Do not lay vertically on roof pitches under 10°.

Lay horizontally across the rafter/trusses starting at the gutter line with succeeding sheets in true alignment and lapping 150mm. Scribe around and fit neatly to all penetrations. Avoid prolong exposure by installing the roof immediately. UV exposure to manufacturers requirements, maximum 7 days.

3.9 GUTTER AND UNDER FLASHINGS

Lay bituminous breather type underlay cut to width by manufacturer for use as an underlay to valley, apron flashings, internal gutters and soffit liner. Lap under flashings with adjoining underlays. Fix soffit liner from top plate down 150mm past ribbon plate.



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Completion

3.10 CLEAN UP

Clean up as the work proceeds.

3.11 LEAVE

Leave work to the standard required by following procedures.

3.12 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 DPC

Location:	Generally, as separation layer between concrete / timber & steel /timber. As separation layer between Corrugate cladding and timber cavity battens. Refer to Architectural Details
Brand / type:	TBC

4.2 DPM - CONCRETE FLOOR

Location:	Under concrete slab
Brand / type:	TBC / polyethylene DPM
Jointing tape:	As per manufacturer's recommendations

4.3 ROOFING UNDERLAY

Location:	Roof, between Corrugate and timber purlins
Brand / type:	TBC
Jointing tape:	TBC

Accessories

4.4 WINDOW/DOOR SEALING SYSTEM

Brand / type:	TBC / flashing tape

4.5 AIR SEAL BACKING ROD

Location:	Refer to Architectural Details
Brand / type:	TBC
Size:	TBC

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4171E ECOPLY® BARRIER RIGID AIR BARRIER SYSTEM

1 GENERAL

This section relates to the supply and installation of Carter Holt Harvey Plywood Limited Ecoply® Barrier plywood as a rigid wall underlay and air barrier behind cavity wall cladding 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:

CCA	Copper chrome arsenate
PF	Phenol formaldehyde
uPVC	Unplasticized polyvinyl chloride

Documents

1.2 DOCUMENTS

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

NZBC C/AS1	Protection from fire for buildings with sleeping (residential) and outbuildings (risk group SH)
NZBC C/AS2	Protection from fire for buildings other that risk group SH
AS/NZS 1604.3:2012	Preservative-treated wood-based products - Plywood
AS/NZS 2269.0	Plywood - structural - specifications
NZS 3604	Timber-framed buildings

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Ecoply® Structural Rigid Air Barrier - Barrier Specification & Installation Guide (June 2026)
Ecoply® Barrier Plywood Product Technical Statement and Building Product Information Sheet
Ecoply® Barrier Safety Data Sheet
Ecoply® Barrier sITe App
Ecoply® Barrier CAD drawings
BRANZ Appraisal 827 (2025) - Ecoply® Barrier Rigid Air Barrier

Manufacturer/supplier contact details

Company:	Carter Holt Harvey Plywood Limited
Web:	www.chhply.co.nz
Email:	info@ecoply.co.nz
Telephone:	0800 326 759

Requirements

1.4 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.5 NO SUBSTITUTIONS

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

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Compliance information

1.6 COMPLIANCE - BRANZ APPRAISAL

Ecoply® Barrier Rigid Air Barrier has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 827.

Performance

1.7 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.

2 PRODUCTS

Materials

2.1 ECOPLY BARRIER PLYWOOD

7mm thick, square edge, synthetic phenolic (PF) resin Type A bonded timber veneer plywood sheets, manufactured to AS/NZS 2269. H3.2 CCA treated to AS/NZS 1604.3:2012. Stress grade F8/F8. Appearance grade DD with water-resistant beige polyester powder coated on front face and four edges. Sheets marked Ecoply® Barrier. Sheets 1197mm wide. Available in 2440mm and 2745mm lengths. Refer to SELECTIONS.

Components

2.2 NAILS

Refer to SELECTIONS.

2.3 ECOPLY BARRIER SILL TAPE

Flexible weathertight tape with butyl rubber and polyethylene film carrier paper, siliconized foil release paper. 20m long roll. Available in 150mm and 200mm widths to suit application. Black colour.

2.4 ECOPLY BARRIER SEALING TAPE

Water-resistant tape with polypropylene fleece carrier paper and siliconized release paper. 25m long roll. Available in 60mm, 150mm, and 200mm widths to suit application. Grey colour.

2.5 TIMBER PRESERVATIVE TREATMENT

Soudal Metalex Concentrated Timber Preservative treatment, in clear or green colour. Refer to SELECTIONS.

Accessories

2.6 PRO CLIMA KAFLEX CABLE SEALING GROMMET

EPDM backed, siliconized water-resistant self-adhesive grommet.

2.7 PRO CLIMA ROFLEX SEALING GROMMET

EPDM watertight grommet, size to suit penetration.

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.

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Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.

3.3 PRE-INSTALLATION REQUIREMENTS - TIMBER FRAMING

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

Timber substrate: 18% maximum moisture content

Installation/application

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 INSTALLATION GENERALLY

Install in accordance with Ecoply® Structural Rigid Air Barrier - Barrier Specification & Installation Guide.

3.6 TREAT CUTS

Brush timber preservative onto cut edges and penetration cut outs.

3.7 FIT ECOPLY BARRIER SHEETS

Fit Ecoply® Barrier sheets with long edge oriented vertically, beige polyester powder coated face outwards, and cut sheet ends oriented upward. Sheets to overhang the bottom plate, joist or bearer by a minimum of 25mm. Allow 2mm expansion gap between sheets.

3.8 FIXING TO RESIST UPLIFT

Nail fix the top of the sheet directly to the centre of the top plate using the specific Ecoply nail pattern for a 4.7kN fixing of the top plate to the studs. Fix the remainder of the sheet to standard nailing pattern. Horizontal sheet joints are not permitted within 300mm of top plate. Maintain clearances to sheet edges to Ecoply requirements. Finish fastener heads flush with the panel surface.

3.9 LINTEL CONNECTION FOR UPLIFT

Nail framing and Ecoply® Barrier sheets to Ecoply lintel connection detail for uplifts not exceeding 7.5kN.

3.10 TAPE - GENERAL

Remove dust from sheets before adhering tape. Apply pressure to seal the tapes with minimal wrinkles.

3.11 VERTICAL ECOPLY BARRIER SHEET JOINTS - WALL PLANE

Centre Ecoply® Barrier Sealing Tape over vertical sheet joints.

3.12 VERTICAL ECOPLY BARRIER SHEET JOINTS - CORNERS

Centre Ecoply® Barrier Sealing Tape over sheet joints at external and internal wall corners.

3.13 HORIZONTAL SHEET JOINT - TAPE Z FLASHING

Apply Ecoply® Barrier Sealing Tape over lower sheet with 60mm overlap to sheet and 80mm upstand to form a Z flashing. Fit upper Ecoply® Barrier sheet over tape upstand with a 15mm expansion gap between upper sheet edge and taped-over lower sheet edge.

3.14 HORIZONTAL SHEET JOINT - FACE SEAL

Fit Ecoply® Barrier sheets with 5mm expansion gap between edges. Apply 150mm wide Ecoply® Barrier Sealing Tape to sheet face centred over sheet joint.

3.15 TAPE SPLICES & JOINTS

Where tape splices occur at a junction, create an overlapping splice of at least 50mm. Take special care to remove any wrinkles or voids at splice areas.



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3.16 WINDOW & DOOR OPENINGS

Apply Ecoply® Barrier Sill Tape to cover the bottom of the opening and Ecoply® Barrier Sealing Tape to the vertical trimmer stud and lintel, reinforce corners at each end of the lintel with 100m strip of 150mm wide Ecoply® Barrier Sealing Tape.

3.17 PENETRATIONS - ECOPLY BARRIER SILL TAPE

Apply Ecoply® Barrier Sill Tape to flash to Ecoply® Barrier sheet, provide 100mm minimum cover to sheet. Bandage around pipes with Ecoply® Barrier Sealing Tape with 25mm minimum width of cover to pipe.

3.18 PENETRATIONS - PRO CLIMA KAFLEX CABLE SEALING GROMMET

Apply self-adhesive Pro Clima Kaflex Cable Sealing Grommet over cable penetration to Pro Clima installation instructions.

3.19 PENETRATIONS - PRO CLIMA ROFLEX SEALING GROMMET

Apply Pro Clima Roflex Grommet over penetration and seal grommet flange to Ecoply® Barrier sheets with Ecoply Barrier Sealing Tape to Pro Clima installation instructions.

3.20 FLASHINGS

Apply Ecoply® Barrier Sealing Tape over horizontal flashings as required.

Completion

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

Components

4.1 NAILS

Type:	Refer to Structural Engineer requirements for bracing
Finish:	Stainless Steel

4.2 TIMBER PRESERVATIVE TREATMENT

Supplier:	Soudal Ltd.
Brand:	Metalex Concentrated Timber Preservative
Colour:	TBC

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4221 TIMBER BOARD CLADDING

1 GENERAL

This section relates to the supply and fixing of timber cladding:

- weatherboards
- shiplap
- board and batten

1.1 RELATED WORK

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

Refer to 4223 PLYWOOD CLADDING for plywood used as a rigid backing.

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

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

Documents

1.3 DOCUMENTS

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

NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 3617	Profiles of weatherboards, fascia boards and flooring
NZS 3631	New Zealand timber grading rules

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

~

Manufacturer/supplier contact details

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

Performance

1.5 FIXINGS, WIND

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

1.6 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed cladding system, including all penetrations.

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2 PRODUCTS

Materials

2.1 UNDERLAYS

Refer to 4161 UNDERLAYS, FOIL AND DPC section

2.2 EXTERIOR CAVITY WALL BATTENS

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

2.3 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

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

2.4 COVER BOARDS, BOXED CORNERS AND SCRIBERS

To profiles as detailed, with species and grading to NZS 3602, NZS 3631, but with all knots excluded. To NZS 3602, table 2, reference 2A.3, Requirements for wood-based building components to achieve a 15-year durability performance.

Components

2.5 NAILS, STAINLESS STEEL

60mm x 2.8mm and 75mm x 3.15mm stainless steel.

2.6 FLASHINGS

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

2.7 SOAKERS, ALUMINIUM/ZINC COATED STEEL

Machine folded aluminium/zinc coated steel sheet to profile of weatherboard and mitred corner joints.

2.8 SOAKERS, COPPER

Machine folded half-hard copper sheet to profile of weatherboard and mitred corner joints.

Finishes

2.9 SEMI-TRANSPARENT STAIN

Water borne acrylic stain, solvent borne semi-transparent oil stain, or solvent-borne semi-transparent oil-alkyd stain to suit the timber.

3 EXECUTION

Conditions

3.1 GENERALLY

Execution to NZBC E2/AS1.

3.2 STORAGE

Take delivery of timber, dry, unmarked and undamaged. Store on site, laid flat and true under cover.

3.3 SUBSTRATE

Before starting fixing ensure that the substrate conforms with NZS 3604, section 2, table 2.1, **Timber framing tolerances** and the requirements of NZS 3604, section 6, **Foundation and subfloor framing** and NZBC E2/AS1, governing support for timber board cladding.

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3.4 MOISTURE CONTENT

Immediately before starting fixing, test the moisture content of the boards. Use an electrical moisture meter to test 5% of boards, but not less than 10 boards in the centre of the length. Do not start fixing until 90% of the values obtained are within the range in NZS 3602 table 4, Allowable moisture content (%) at time of installation or in the case of framing timber at time of enclosure.

Application - preparation

3.5 FIX UNDERLAYS

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.6 INSTALL DRAINED CAVITY

20mm minimum thickness drained cavity to NZBC E2/AS1: 9.0 Wall claddings, where required. Fix vertical cavity battens to wall framing studs. The battens are fixed by the cladding fixings which will penetrate the wall framing studs over the wall underlay. Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc). Do not use horizontal cavity battens. Use cavity spacers where fixing is required between cavity battens.

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

3.8 SET-OUT

Using laser or mechanical devices set-out the overlap boards to ensure dimension to exposed face in line of weather is constant and that boards remain horizontal/vertical. Use a string line to set out all nailing that will be visible in the finished work. Align all nailing accurately in straight lines.

Application - fixing

3.9 FIXING, CLEAR FINISH

Coat all cut ends before fixing. Drill all fixings located within 25mm of board ends. Finish fixings flush.

3.10 FIXING VERTICAL SHIPLAP WEATHERBOARDS

Adjust horizontal set-out to ensure there is a minimum 2mm expansion gap at the overlap between successive boards. Boards to be continuous lengths over a storey height. Nail tongue to every fixing point (nogs at maximum 480mm centres). Nail other side of board just clear of lap. Line nails horizontally across the boards.

Provide cover boards to external corners in accordance to NZBC E2/AS1, Figure 9.4.5.5: External corners for vertical weatherboards. Back flash internal corners in accordance to NZBC E2/AS1, Figure 9.4.4.5: Internal corners for horizontal or vertical weatherboards, either scribe and notch internal corner or use 'W' internal corner flashing.

3.11 INSTALL FLASHINGS

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

3.12 COMPLETE

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

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Completion

3.13 REPLACE
Replace all damaged or marked elements.

3.14 LEAVE
Leave work to the standard required for following procedures.

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

4 SELECTIONS

4.1 BUILDING WRAPS/UNDERLAYS
Refer to 4161 UNDERLAYS, FOIL AND DPC section

4.2 CAVITY BATTENS
Refer to Section 3821

4.3 CAVITY CLOSER/VERMIN-PROOFING

Brand/type:	TBC
Material:	TBC

4.4 WEATHERBOARDS

Location:	Refer to Architectural Details
Species:	Accoya
Grade:	TBC
Treatment:	TBC
Profile:	TBC

4.5 NAILS, SCREWS AND FASTENINGS

Cladding:	Accoya shiplap
Type:	TBC
Centres:	As per manufacturer's specifications

4.6 FLASHINGS

Location:	Refer to Architectural Details
Material:	Steel
BMT:	0.55
Finish:	Zincalume

4.7 SEMI-TRANSPARENT STAIN

Brand/type:	TBC
Colour:	TBC

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4231HA JAMES HARDIE AXON™ PANEL CLADDING

1 GENERAL

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

1.1 RELATED WORK

Refer to ~ for ~.

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

1.2 ABBREVIATIONS AND DEFINITIONS

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

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

Documents

1.3 DOCUMENTS

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

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

CodeMark Certificate CMNZ30165 - Axon™ Panel Cladding by James Hardie

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

James Hardie® documents relating to this part of the work:

Axon™ Panel Timber Cavity Batten Technical Specification March 2024
Axon™ Panel Fixed to Hardie™ CLD™ Structural Cavity Batten Technical Specification March 2024
Axon™ Panel Direct Fixed Technical Specification March 2024
Hardie™ Flex Sheet technical specification
Fire and Acoustic Design Manual by James Hardie, May 2025
BRANZ Appraisal 1211 [2022] - Axon™ Panel Cladding
BRANZ Appraisal 1285 (2025) - James Hardie Fire And Acoustic Wall Systems - Amended 16 June 2026

Manufacturer/supplier contact details
Company: James Hardie New Zealand Limited

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

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

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

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 NO SUBSTITUTIONS

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

1.7 SAFE WORKING

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

1.8 INFORMATION FOR OPERATION AND MAINTENANCE

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

Performance - Wind

1.9 PERFORMANCE - WIND

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

Performance - Fire

1.10 EXTERNAL FIRE SPREAD - CLADDING EXEMPT FROM TESTING

To NZBC C/AS1, 5.3 External cladding systems or NZBC C/AS2, 5.5 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.

2 PRODUCTS

Materials

2.1 RIGID AIR BARRIERS

Refer to section 4171HR JAMES HARDIE RIGID AIR BARRIERS.

2.2 EXTERIOR CAVITY WALL BATTENS

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

2.3 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

Perforated uPVC, with upstands.

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2.4 AXON™ PANEL

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

2.5 AXENT™ TRIM

Hardie™ Axent™ Trim, 45mm, 70mm and 89mm wide x 19mm thick, manufactured from cellulose fibre reinforced cement to AS/NZS 2908.2. Refer to SELECTIONS.

Components

2.6 FASTENER TYPE

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

Refer to NZBC E2/AS1, Table C.1.1.1A: Material selection, for fixing material, and NZBC E2/AS1, Table C.1.1.1B: Compatibility of materials in contact, for selection of suitable fixing materials and their compatibility with other materials.

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

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

Refer to SELECTIONS.

2.7 NAIL - AXON™ PANEL FIXING TO TIMBER CAVITY BATTEN

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

Over RAB™ Board: 75mm x 3.15mm Hardie™Flex nails

Refer to SELECTIONS.

2.8 NAIL - AXON™ PANEL DIRECT FIX

40mm x 2.8mm Hardie™Flex nails.

2.9 NAIL - AXENT™ TRIM

40mm brad nails.

Accessories

2.10 FLASHING TAPES - TIMBER CAVITY BATTEN

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

2.11 FLASHING TAPES - HARDIE™ CLD™ STRUCTURAL CAVITY BATTEN

Polypropylene DPC under Hardie™ CLD™ Structural Cavity Batten internal corners. Refer to James Hardie® Axon™ Panel technical specification for selection of required width.

2.12 ALUMINIUM ACCESSORIES

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

2.13 SEALANT

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

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3 EXECUTION

Conditions

3.1 STORAGE

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

3.2 HANDLING

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

3.3 SUBSTRATE

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

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

3.4 SEAL EDGES

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

Application - generally

3.5 RIGID AIR BARRIER

Refer to 4171HR JAMES HARDIE RIGID AIR BARRIERS.

3.6 TIMBER CAVITY BATTENS

Install 18mm minimum thick cavity battens to NZBC E2/AS1, 9.0 Wall claddings, where required. Fix vertical cavity battens to wall framing studs. The battens are fixed by the cladding fixings which will penetrate the wall framing studs over the wall underlay. Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc).

Do not use continuous horizontal cavity battens at nogs or at bottom plate. Use cavity spacers where fixing is required between cavity battens.

3.7 PENETRATIONS AND FLASHINGS

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

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

Install Axon™ Panel cladding

3.8 PANEL LAYOUT

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

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3.9 FASTENER - SIZE AND LAYOUT

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

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

3.10 FIXING - DIRECT FIXED TO FRAME

Fix with 40mm x 2.8mm Hardie™ Flex nails. Fix sheet at 200mm centres at all sheet edges as well as all intermediate framing. Alternatively fix with ND50 brad nails at 150mm centres.

3.11 FIXING - TIMBER CAVITY CONSTRUCTION, RIGID AIR BARRIER

Fix with 75mm x 3.15mm Hardie™ Flex nails when fixed over a rigid air barrier. Fix sheet at 200mm centres at all studs.

3.12 GUN NAILING

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

3.13 VERTICAL JOINT

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

3.14 HORIZONTAL JOINT

Provide a horizontal joint at floor joist levels to accommodate the movement resulting from timber joist shrinkage and settlement. Install a 'z' flashing where drainage is required at floor level.

For Axon™ Panels use a Hardie™ 9mm Panel aluminium 'h' mould complete with 'h' mould jointer, external corner jointer or a Hardie™ 9mm aluminium angled 't' mould complete with angled 't' mould jointer, external corner jointer or a purpose made 'z' flashing to form a horizontal joint.

3.15 INTERNAL CORNER JOINT - TIMBER CAVITY BATTENS

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

3.16 EXTERNAL CORNER JOINT - TIMBER CAVITY BATTENS

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

3.17 EXTERNAL CORNER JOINT WITH H MOULD

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

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

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



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3.18 FIX AXENT™ TRIM

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

3.19 FINISHING

Refer to painting section/s for protective coating system.

Completion

3.20 REPLACE

Replace all damaged or marked elements.

3.21 LEAVE

Leave work to the standard required for following procedures.

3.22 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

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

4.1 TIMBER CAVITY BATTENS

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

4.2 JAMES HARDIE AXON™ PANELS - SHEET CLADDING PANELS

Brand/type:	James Hardie Axon Panel Smooth
Thickness:	9mm
Fastener type:	75mm x 3.15mm Hardie™Flex nail over rigid air barrier
Fastener finish:	TBC
External corner type:	TBC

Finishing

4.3 PAINTING

Refer to painting section/s for details.

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4239 SOFFIT CLADDING

1 GENERAL

This section relates to the supply and fixing of cladding to the underside of exterior soffits, verges and eaves and includes:

- Fibre cement sheet
- Plywood
- Timber board
- Jointers
- Trim

1.1 RELATED WORK

Refer to ~ for ~.

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

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/NZS 1604.1	Preservative-treated wood-based products - Part 1: Products and treatment
AS/NZS 2269.0	Plywood - structural - Specifications
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 3617	Profiles of weatherboards, fascia boards and flooring
NZS 4251.1	Solid plastering: Cement plasters for walls, ceilings and soffits

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

~ ~

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

Requirements

1.5 QUALIFICATIONS

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

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1.6 HEALTH AND SAFETY

Comply with all manufacturer/supplier and WorkSafe New Zealand requirements for health and safety.

1.7 NO SUBSTITUTIONS

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

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:

~

Provide this information prior to practical completion.

2 PRODUCTS

Timber board soffit cladding

2.1 SHIPLAP WEATHERBOARDS

Shiplap timber weatherboard profile as per NZS 3617 or as detailed. In long lengths with species and grading to the requirements of NZS 3602, table 2, Requirements for wood-based building components to achieve a 15-year durability performance. Select appearance grades to NZS 3631 requirements.

Timber board soffit cladding fasteners

2.2 NAILS - GALVANIZED

Refer to SELECTIONS for size and use; galvanized countersunk or stainless steel to NZS 3604, Table 4.1.

2.3 NAILS - STAINLESS STEEL

Refer to SELECTIONS for size and use; galvanized countersunk or stainless steel to NZS 3604, Table 4.1.

2.4 SCREWS - STAINLESS STEEL

Refer to SELECTIONS for size and use; galvanized countersunk or stainless steel to NZS 3604, Table 4.1.

Timber profiles

2.5 TIMBER TRIM

18 x 18 mm timber trim with 6 mm minimum chamfer to internal corner. Species and grading to the requirements of NZS 3602 , table 2, Requirements for wood-based building components to achieve a 15-year durability performance, treated H3.1 unless durable heartwood. Select appearance grades to NZS 3631 requirements, but with all knots excluded.

2.6 DECORATIVE TIMBER TRIM

To profiles detailed/scheduled. Species and grading to the requirements of NZS 3602 , table 2, Requirements for wood-based building components to achieve a 15-year durability performance, treated H3.1 unless durable heartwood. Select appearance grades to NZS 3631 requirements, but with all knots excluded.

3 EXECUTION

Conditions

3.1 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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Moisture content:	~% maximum

3.2 HANDLING

Avoid distortion and contact with potentially damaging surfaces. Do not drag sheets across each other, or across other materials. Protect edges, corner and surface finish from damage. Reject all product with damaged faces or edges

3.3 SUBSTRATE

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

3.4 MOISTURE CONTENT TIMBER BOARD

Immediately before starting fixing, test the moisture content of the boards. Use an electrical moisture meter to test 5% of boards, but not less than 10 boards in the centre of the length. Do not start fixing until 90% of the values obtained are within the range in NZS 3602 table 4, Allowable moisture content (%) at time of installation.

3.5 PENETRATIONS

Form small holes to accommodate penetrations through the soffit as per the method detailed in the sheet manufacturer's technical literature.

Install timber board soffit cladding

3.6 FIXING SHIPLAP WEATHERBOARDS AS SOFFIT CLADDING

Adjust set-out to ensure there is a 2mm expansion gap between successive boards. Using full length boards only, clench nail tongue to every fixing point. Nail other side of board just clear of lap.

3.7 SCARF JOINTS

Where possible run boards/sarking full length. If this is not possible, provide scarf joints over framed support.

3.8 FIXING, PAINT FINISH

Prime all cut ends before fixing. Drill all fixings located within 25mm of board ends. Punch all fixings.

3.9 FIXING, CLEAR FINISH

Coat all cut ends before fixing. Drill all fixings located within 25mm of board ends. Finish fixings flush.

Install timber profiles

3.10 EXECUTION

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

3.11 TIMBER TRIM

Using full lengths, scribe internal joints and mitre external and running joints. Fully support all joints and fix securely and true to line and face, fully nailed. For paint finish prime joint edges before fixing, otherwise seal them without runs onto any exposed face.

3.12 NAILING, PAINT FINISH

Punch nails and patch prime external trim being painted, before stopping as specified under painting preparation.

3.13 NAILING, CLEAR FINISH

Punch nails flush with the face of external trim being stained or clear finished.



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Completion

3.14 COMPLETION MATTERS

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

4 SELECTIONS

Shiplap Weatherboard soffit cladding

4.1 SHIPLAP WEATHERBOARD - SOFFIT CLADDING

Soffit profile and finish to match wall cladding

Accessories

4.2 TIMBER TRIM

Profile:	TBC
Timber species:	Accoya - to match the weatherboard soffit profile

Spec Version ID: 382786-462746
Document authenticity may be verified at masterspec.co.nz/verify/382786-462746
Prepared using Masterspec software

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4239JH JAMES HARDIE® SOFFITS

1 GENERAL

This section relates to the supply and fixing of James Hardie® soffit and eave linings.
It includes:

- James Hardie® Eclipsa™ Eaves Lining
- James Hardie® Hardie™ Flex Eaves Lining
- James Hardie® Hardie™ Groove Soffit Lining
- James Hardie® Villaboard™ Soffit Lining

Documents

1.1 ABBREVIATIONS AND DEFINITIONS

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

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/NZS 1170.2:2011	Structural design actions - Wind actions
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
NZS 3604	Timber-framed buildings

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Eaves and Soffits Installation Manual by James Hardie® (Feb 2025)
Fire and Acoustic Design Manual by James Hardie, May 2025
James Hardie® Eclipsa™ Eaves Lining Product Technical Statement
James Hardie® Hardie™ Groove Lining Product Technical Statement
James Hardie® Villaboard™ Lining Product Technical Statement
James Hardie® Eaves and Soffit Care and Maintenance
BRANZ Appraisal 1285 (2025) - James Hardie Fire And Acoustic Wall Systems - Amended 16 June 2026

Manufacturer/supplier contact details

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

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years:	For lining product and accessories

- 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 purchase

Refer to the general section 1237 WARRANTIES for additional requirements.

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Requirements

1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

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

James Hardie® Eaves and Soffit Care and Maintenance

Performance

1.8 PERFORMANCE - UP TO AND INCLUDING VERY HIGH WIND ZONE

The design wind speeds/zones are to NZS 3604, up to and including Very High Wind Zone. Eaves and Soffits Installation Manual by James Hardie® requirements are suitable for these conditions.

2 PRODUCTS

Materials

2.1 VILLABOARD™ SOFFIT LINING

James Hardie® Villaboard™ Soffit Lining, 6mm and 9mm thick cellulose fibre reinforced cement sheet. Manufactured to AS/NZS 2908.2 from Portland cement, ground sand, cellulose fibre and water.

Components

2.2 FASTENER TYPE

Fasteners to minimum durability requirements of the NZBC. Refer to NZBC E2/AS1, Table C.1.1.1A: Material selection, for fixing material, and NZBC E2/AS1, Table C.1.1.1B: Compatibility of materials in contact, for selection of suitable fixing materials and their compatibility with other materials.

Exposure	Fixing	Fixing Material	Zone
Sheltered	Nail	Hot-dip galvanized steel	B
Sheltered	Nail	Stainless steel	B, C, D, E
Sheltered	Screw	Stainless steel	B, C, D, E

Check against SED (specific engineering design) requirements for microclimate conditions. Refer to SELECTIONS for fastener type.

Components - Villaboard™ Soffit Lining

2.3 CONTROL JOINT

Refer to SELECTIONS.

2.4 HARDIE™ DRIVE SCREW

Hardie™ Drive Screw, 316 stainless steel, 30mm x 7g

2.5 VILLADRIVE SCREW

Villadrive Screw, 30mm x 6g, Class 3

2.6 FIBREZIP® SCREW

FibreZip® Screw, self drilling rib head screw, Class 3

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2.7 HARDIE™ FLEX NAILS

Hardie™ Flex Nail, 40 x 2.8mm stainless steel or galvanized nail, Refer to SELECTIONS.

2.8 SEALER

Multiplast resin by Plaster systems

2.9 BASE COMPOUND

Hardie™ Base Coat for flush finishing over recessed screw heads.

2.10 JOINT REINFORCING TAPE

52mm wide perforated paper tape.

2.11 BEDDING COMPOUND

Hardie™ Base Coat compound powder.

2.12 FINISHING COMPOUND

Hardie™ Top Coat topping compound premixed.

Components - General

2.13 FLEXIBLE JOINT SEALANT

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 timber framing: 18% maximum

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Application - general

3.5 SHEET LAYOUT

All sheet edges must be fully supported by framing or rebates in fascia and barge boards.

3.6 OFFSET PATTERN SHEET LAYOUT

All sheet edges must be fully supported by framing or rebates in fascia and barge board. Sheets must be laid in an offset pattern so that adjacent end joints do not coincide.

3.7 CUTTING SOFFIT CLADDING

Cut sheets dry using score and snap method, hand guillotine method or fibreshear heavy duty method. If these methods are not feasible, use an alternative manufacturer approved method.

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3.8 CIRCULAR HOLE FORMING

Mark the centre of the hole on the sheet, pre-drill a pilot hole. Use the pilot hole as a guide for a hole saw fitted to a heavy duty electric drill.

3.9 IRREGULAR HOLE FORMING

Drill a series of small holes around the perimeter of the proposed hole, tap out the waste piece from the sheet face.

3.10 INSTALL VILLABOARD™ SOFFIT LINING

Install in accordance with James Hardie® installation manual requirements. Refer to SELECTIONS for fixing and jointing methods.

3.11 SEAL EDGES

Seal Villaboard™ Soffit Lining sheet edges with Multiplast Resin in a diluted form prior to flush stopping.

3.12 CONTROL JOINT

Install control joint to James Hardie® installation manual requirements.

3.13 FASTENER - SIZE AND LAYOUT

Fix sheets to framing using fasteners as nominated in SELECTIONS. Fix to James Hardie® installation manual requirements.

3.14 SEALANTS

Application and use of sealants to manufacturer's instructions. Check with sealant manufacturer prior to coating over sealants.

3.15 FINISHING OVER DRIVEN FASTENERS

Fill over driven fasteners with Hardie™ Base Coat to the required level of finish.

3.16 VILLABOARD™ JOINT FINISHING - LEVEL 3 FINISH

Set joints with Hardie™ jointing compounds reinforced with perforated paper tape. Jointing and finishing to requirements of James Hardie installation manual to achieve a level 3 finish.

3.17 VILLABOARD™ JOINT FINISHING - LEVEL 4 FINISH

Set joints with Hardie™ jointing compounds reinforced with perforated paper tape. Jointing and finishing to requirements of James Hardie® installation manual to achieve a level 4 finish.

3.18 VILLABOARD™ JOINT FINISHING - LEVEL 5 FINISH

Set joints with Hardie™ jointing compounds reinforced with perforated paper tape. Jointing and finishing to requirements of James Hardie® installation manual to achieve a level 5 finish.

3.19 PAINTING

Refer to painting section/s for protective coating system.

Completion

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

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Materials

4.1 VILLABOARD™ SOFFIT LINING - FLUSH JOINTED

Location:	Patio
Brand/type:	James Hardie® Villaboard™ Soffit Lining
Thickness/Edge:	9mm thick sheet with 2 recessed edges to length
Joint:	Flush joint (base compound and topping compound)
Fixing method:	Screw and adhesive
Fixing Type:	FibreZip® Screw
Adhesive:	Sikaflex-11FC by Sika or Seal N Flex-1 by Bostik
Level of Finish:	Level 4
Control joint type:	Hardie™ uPVC control joint for use in flush stopped applications. Alternative options include Rondo P35 control joint or expressed control joint with polythene tape.

Painting

4.2 PAINTING

Refer to painting section/s for details.



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4241 PROFILED METAL CLADDING

1 GENERAL

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

1.1 RELATED WORK

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

1.2 ABBREVIATIONS

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

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc

Documents

1.3 DOCUMENTS

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

NZBC C/AS1	Protection from fire for buildings with sleeping (residential) and outbuildings (risk group SH)
NZBC C/AS2	Protection from fire for buildings other than risk group SH
NZBC C/VM2	Framework for fire safety design
NZBC E2/AS1	External moisture provisions for timber-framed buildings up to 10 m in height
AS/NZS 1170.2:2011	Structural design actions - Wind actions
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 3566	Self-drilling screws for the building and construction industries
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

~

Manufacturer/supplier contact details

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

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

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

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

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Requirements

1.6 WARRANTY - INSTALLER/APPLICATOR

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

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

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

1.7 QUALIFICATIONS

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

Performance

1.8 PERFORMANCE

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

1.9 SPREAD OF FIRE

To NZBC C/AS1, 5.3 External cladding systems, NZBC C/AS2, 5.5 External cladding systems, or NZBC C/VM2.

Performance - Wind (design by contractor)

1.10 DESIGN PARAMETERS - NON SPECIFIC DESIGN

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

Refer to general section 1220 PROJECT for details.

2 PRODUCTS

Materials

2.1 EXTERIOR CAVITY WALL BATTENS

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

2.2 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

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

2.3 HOT-DIPPED ALUMINIUM/ZINC/MAGNESIUM COATED STEEL, UNPAINTED

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

2.4 FASTENERS GENERALLY

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

2.5 FIXING CLIPS

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

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2.6 FIXING SCREWS

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

2.7 RIVETS

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

Components

2.8 FLASHINGS GENERALLY

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

2.9 FLASHINGS

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

2.10 WALL AND PARAPET FLASHINGS

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

Accessories

2.11 SEALANT

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

2.12 CLOSURE STRIPS

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

2.13 LAP SEALING TAPE

Closed cell self adhesive nitrile tape.

3 EXECUTION

Conditions

3.1 INSPECTION

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

3.2 FRAMING TIMBER MOISTURE

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

3.3 STORAGE

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

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3.4 HANDLING

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

3.5 SEPARATION

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

Application

3.6 SET-OUT

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

3.7 AVOID END LAPS

End laps are not permitted, except where specifically detailed.

3.8 MOVEMENT JOINTS

Fixing and jointing to conform with the cladding manufacturer's requirements for thermal movement.

Over timber framing, transverse flashings (those running along continuous framing members) to have expansion joints at maximum 12m centres.

3.9 FIXING GENERALLY

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

3.10 INSTALL DRAINED CAVITY

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

3.11 PENETRATIONS

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

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

3.12 MARKING AND CUTTING

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

3.13 FIX SHEETS

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



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3.14 INSTALL FLASHINGS

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

3.15 COMPLETE

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

3.16 SEPARATION

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

Completion

3.17 REPLACE

Replace all damaged or marked elements.

3.18 LEAVE

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

3.19 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 TIMBER CAVITY BATTENS

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

4.2 CAVITY CLOSER

Brand/type:	TBC
Material:	TBC

4.3 HOT-DIPPED ALUMINIUM/ZINC/MAGNESIUM COATED STEEL, UNPAINTED

Brand:	TBC
Profile:	Corrugated 18mm
BMT:	0.55
Coating:	Zincalume - Unpainted

4.4 CLOSURE STRIPS

Brand:	TBC

4.5 NAILS, SCREWS AND FASTENINGS

Sheathing material:	To selected manufacturer recomendations
Fixing/fastening:	To selected manufacturer recomendations
Centres:	To selected manufacturer recomendations

4.6 FLASHINGS

Material/thickness:	0.55mm Aluminium/zinc/magnesium coated steel
Finish:	~

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4311 PROFILED METAL ROOFING

1 GENERAL

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

1.1 RELATED WORK

Refer to 4312 PROFILED PLASTIC ROOFING for plastic sheeting

Refer to 7411 RAINWATER SPOUTING SYSTEMS for rainwater disposal

1.2 ABBREVIATIONS

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

The following abbreviations apply specifically to this section:

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
MS	Modified silyl

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
AS/NZS 1170.2:2011	Structural design actions - Wind actions
AS/NZS 1665	Welding of aluminium structures
AS/NZS 1734	Aluminium and aluminium alloys - flat sheet, coiled sheet and plate
AS/NZS 1554.6	Welding stainless steels for structural purposes
ISO/TS 15510	Stainless steels - Chemical composition
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 3566	Self-drilling screws for the building and construction industries
NZS 3604	Timber-framed buildings
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

1.4 MANUFACTURER'S DOCUMENTS

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

~

Copies of the above literature are available from ~

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

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Warranties

1.5 WARRANTY - INSTALLER/APPLICATOR

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

5 years:	from the date of completion of the roof
Form:	Roofing installers standard form

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

1.6 WARRANTY - MANUFACTURER/SUPPLIER

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

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

Requirements

1.7 QUALIFICATIONS

Carry out work with experienced, competent installers familiar with the products being used and with appropriate qualifications such as the National Certificate in Metal Roofing and Cladding.

Performance

1.8 CO-ORDINATE

Co-ordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof. Ensure that all necessary members are positioned so that flashings can be fastened at both edges through the roof profile or cladding to the primary structure.

1.9 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed roofing system, including penetrations through the roof and junctions with walls and parapets.

1.10 FIXINGS, WIND

Design and use the fixings appropriate for the design loads of this site; refer to general section 1220 PROJECT for details of wind zone. Allow for specific loadings at corners and the periphery of the roof, where localised pressure factors apply.

Performance - Wind (design by contractor)

1.11 DESIGN PARAMETERS - NON SPECIFIC DESIGN

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

Refer to general section 1220 PROJECT for details.

2 PRODUCTS

Materials

2.1 WIRE NETTING AND SAFETY MESH

Refer to 4161 UNDERLAYS, FOIL AND DPC.

2.2 UNDERLAY AND REFLECTIVE FOIL

Refer to 4161 UNDERLAYS, FOIL AND DPC.

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2.3 INSULATION

Refer to appropriate insulation section.

2.4 STAINLESS STEEL

Stainless steel sheet manufactured to ASTM A240 and ASTM A480. Welding to AS/NZS 1554.6.

2.5 HOT-DIPPED ALUMINIUM/ZINC/MAGNESIUM COATED STEEL, UNPAINTED

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

2.6 ALUMINIUM

Aluminium alloy series 5000 temper H16 or H18 to suit application. Aluminium alloy series 5000 temper H34 for welded flashings.

Components

2.7 FLASHINGS GENERALLY

To NZBC E2/AS1, 4.0 Flashings.

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

2.8 FLASHINGS TO VERGE, RIDGE AND HIP

Supplied by the roofing manufacturer to match or to suit the roofing in the same material as the roof.

2.9 BOOT FLASHINGS

Generally to NZBC E2/AS1, 8.4.12 Roof penetrations

EPDM proprietary pipe flashing laid on 45º bias to roofing, with over-flashing (soaker flashing) if required.
A boot flashing should be positioned so that it dams a roofing pan no more than 50%, if this cannot be avoided use an over-flashing back to the ridge and fix the boot flashing to that.

2.10 ALUMINIUM FLASHINGS - WELDED

Aluminium alloy series 5000 temper H34 minimum thickness 1.6mm BMT to AS/NZS 1734. Aluminium welding to AS/NZS 1665.

2.11 STAINLESS STEEL FLASHINGS - WELDED

Welded stainless steel flashings shall be minimum thickness BMT 1.2mm and grade 304 or 316 stainless steel in accordance with Table 1 of ISO/TS 15510. Welding to AS/NZS 1554.6.

Refer to SELECTIONS for details.

Fixings

2.12 FASTENERS GENERALLY

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

2.13 FIXING CLIPS

Galvanized steel (powder coated for aluminium) to suit the material and profile of the rigid sheet and location as required by the roofing manufacturer. Fix to steel with 16mm x 10 gauge galvanized wafer head self-drilling screws and to timber with 30mm x 10 gauge galvanized wafer head screws to NZBC E2/AS1, 8.4.7 Fixings: trough profile.

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2.14 FIXING SCREWS

To AS 3566. Screws appropriate to the roofing material and the supporting structure, as required by the roofing manufacturer and with a minimum Class 4 durability and not less than the material being fixed. Screws into timber to penetrate by minimum 30mm.

2.15 RIVETS

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

Accessories

2.16 SEALANT

Neutral Curing silicone or MS polymer sealant as required by the roofing manufacturerand used as directed.

2.17 CLOSURE STRIPS

Compressible, closed cell profiled foam strips to fit the sheet profile.

2.18 LAP SEALING TAPE

Closed cell self adhesive nitrile tape.

3 EXECUTION

Conditions

3.1 INSPECTION

Inspect the roof framing and supporting structure to ensure that it is complete and fully braced ready for roofing and free from any misalignments or protrusions that could adversely affect the roofing.

3.2 FRAMING TIMBER MOISTURE

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

3.3 STORAGE

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

3.4 HANDLING

Avoid distortion and contact with damaging substances, including cement. Do not drag sheets across each other and other materials. Protect edges and surface finishes from damage. Use soft, flat soled shoes when fixing and for all other work on the roof.

3.5 SEPARATION

Place isolators between dissimilar metals, also separate roofing from treated timber and cement based materials. Do not use unpainted lead sheet or copper in contact with or allow water run-off onto galvanized or Zincalume® materials.

Application

3.6 WELDING ALUMINIUM FLASHINGS

Welding to be carried out by a welder qualified under AS/NZS 1665. Preparation and welding to comply with AS/NZS 1665. Finish welds smooth and without abrupt surface changes ready for coatings. Refer to SELECTIONS for BMT and coatings.

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3.7 WELDING STAINLESS STEEL FLASHINGS

Weld stainless steel flashings to AS/NZS 1554.6. Preparation and welding to comply with AS/NZS 1554.6. Finish welds smooth and without abrupt surface changes ready for coatings. Refer to SELECTIONS for BMT and coatings.

3.8 FIX INSULATION

Refer to Thermal Insulation sections.

3.9 SET-OUT

Carefully set out with consideration of the position of side laps to take account of the line of sight. Ensure all sheets are square and oversailing the gutter true to line. Check during fixing to eliminate creep or spread and string lines along purlin centres to keep fastenings in line.

3.10 END LAPS

End laps are not permitted, except where specifically detailed.

3.11 MOVEMENT JOINTS

Fixing and jointing to conform with the roofing manufacturer's requirements for thermal movement.

Over timber framing, transverse flashings (those running long continuous framing members) to have expansion joints at maximum 12 centres.

3.12 FIXING GENERALLY

Install and fix in accordance with the NZMRM CoP requirements, and to roofing manufacturer's recommendations. Paint colour matched fixings and accessories before installation.

3.13 MARKING AND CUTTING

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

3.14 FIX SHEETS

Fix sheets in place using the fastening system required by the roofing manufacturerfor specified profiles, making due allowance for dynamic local wind pressures on the building and thermal movement in the sheet.

3.15 STOP ENDS AND DOWNTURNS

Form stop-ends at the upper end of sheets. Form downturns at the gutter line where the roof pitch is less than 8 degrees. Form using purpose made tools.

3.16 FLASHINGS

Flash roof to parapets, walls and penetrations to detail. Where no detail is provided flash to NZMRM CoP recommendations and the roofing manufacturer's requirements. Cut accurately and fix using sealant and rivets to detail and to the roofing manufacturer's requirements to form a weatherproof cover. For highly visible flashings, plan joints/junction to take account of the aesthetic requirements.

3.17 USE OF SEALANTS

Select and use sealants only as recommended by the roofing manufacturer. Apply sealant in two narrow beads transversely across flashing intersections, close to the two edges. Avoid exposing sealant on outside surfaces.

3.18 FLASHING PENETRATIONS

Flash all penetrations through the roof. Fit pipe flashings with a proprietary collar flashing to manufacturer's requirements, with other penetrations flashed as detailed and to provide a weathertight installation. Ensure that flashings are set to avoid any ponding of water.

3.19 INSTALL RIDGING

Install ridging by fastening to the purlins through the leading edge of the roofing to manufacturer's requirements.

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Completion

3.20 REPLACE

Replace damaged or marked elements.

3.21 LEAVE

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

3.22 REMOVE

Remove trade rubbish and unused materials from the roof and surrounds daily during the work. Sweep down at the end of each day, and clean out spoutings, gutters and rainwater pipes on completion of the roof. Remove debris, unused materials and elements from the site.

4 SELECTIONS

Roofing

4.1 HOT-DIPPED ALUMINIUM/ZINC/MAGNESIUM COATED STEEL, UNPAINTED

Brand:	TBC
Profile:	Corrugate 18mm
BMT:	0.55mm
Coating:	Zincalume - Unpainted

Accessories

4.2 FLASHING

Material/thickness: To match roofing

4.3 FLASHING - INACCESSIBLE

Material/thickness: To match roofing

4.4 CLOSURE STRIP

Brand: TBC

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4422NT NURAPLY TPO ROOF & DECK MEMBRANE

1 GENERAL

This section relates to Nuralite Group Limited Nuraply TPO Roof and Deck Membrane installed as a single ply external waterproof covering with associated components & accessories.
It includes;

- Nuratherm, insulated roof system with Nuraply TPO Fleece-Back, mechanically fixed or fully adhered, over Nuratherm insulation installed over concrete, plywood, strandboard (for roofs only), cross laminated timber or metal tray deck substrates.
- Nuraply TPO Smooth or Fleece-Back, mechanically fixed or fully adhered installed directly over concrete, plywood, strandboard (for roofs only), or cross laminated timber substrates.

1.1 RELATED WORK

Refer to 4381NJ NURAJACK DECK SUPPORT SYSTEM for pedestal support systems for floating timber and tile / stone paved decks

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:

TPO	Thermoplastic polyolefin

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 2122.1	Combustion characteristics of plastics - Determination of flame propagation - Surface ignition of vertically orientated specimens of cellular plastics
AS/NZS 2269.0	Plywood - Structural - Specifications
NZS 3604	Timber-framed buildings
ASTM D6878	Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing

Codemark certificate CMNZ70166 version 0 - Nuraply TPO Waterproofing membrane

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

Nuraply TPO Technical information

Manufacturer/supplier contact details

Company:	Nuralite Group Limited
Web:	www.nuralite.co.nz
Email:	info@nuralite.co.nz
Telephone:	09 579 2046 0800 NURALITE (0800 687 254)

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

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20 years	For Nuraply TPO membrane
20 years	For Nuraply TPO fleece backed membrane

- 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 installation.

Refer to the general section 1237 WARRANTIES for additional requirements.

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years	For Nuraply TPO membrane system installation

- Provide this warranty on the Nuraply TPO installer/applicator standard form.
- Commence the warranty from the date of installation.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.7 NO SUBSTITUTIONS

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

1.8 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

Workers to be Nuralite Group Limited Authorised Membrane Applicators. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

Compliance Information

1.9 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

- Applicators' approval certificate from the distributor
- Distributor warranty
- Installers' / applicators' warranty
- Producer Statement - Construction from the applicator / installer
- Other information required by the BCA in the Building Consent Approval documents.

1.10 COMPLIANCE - CODEMARK CERTIFICATE

Nuraply TPO waterproofing membrane meets the requirements of the NZBC when used within the Conditions and Limitations of certificate CMNZ70166

Performance - general

1.11 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed Nuraply TPO roofing system, including all penetrations through the roof decking and junctions with walls and parapets. In the event that there are issues relating to any aspect of this work, arrange for a meeting to resolve these issues. The following should attend:

- NuraplyTPO roofing applicator
- Nuralite representative
- Contractor
- Principal
- Principal's consultant(s)

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1.12 AS APPROVED

"As approved" means that the materials are compatible with Nuraply TPO roofing and are part of the system required by the roofing supplier for each specific location.

Performance - wind

1.13 WIND ZONE DESIGN PARAMETERS – LOW TO HIGH

According to the wind zone parameters of NZS 3604, table 5.4 this project is rated as high or lower. Ensure that the installation is adequate for this standard or greater.

Performance - Nuratherm Insulated roof system

1.14 DURABILITY

Nuratherm insulated roof system complies with NZBC B2/AS1 when maintained to Nuralite requirements.

1.15 ENERGY EFFICIENCY

IKO Nuratherm ALU insulation board has an aged thermal resistance (R Value) of the following:

40mm	R1.80
50mm	R2.25
60mm	R2.70
70mm	R3.15
80mm	R3.60
100mm	R4.55

based on an aged thermal conductivity of 0.022 W/mK.

1.16 FIRE SAFETY

IKO Nuratherm PIR insulation board complies with the flame propagation criteria as specified in AS 2122.1.

2 PRODUCTS

Materials - Nuratherm insulated roof system with Nuraply TPO

2.1 INSULATION BOARD

IKO Nuratherm ALU insulation board, comprised of a core of hard polyisocyanurate foam coated on both sides with tri-ply gas-tight aluminium.

2.2 TAPERED INSULATION BOARDS

Nuralite Nuratherm tapered insulation materials available to provide a 1:60 slope.

2.3 VAPOUR BARRIER

Nuraply ALU, 0.6mm thick self-adhesive modified bitumen sheet membrane with a top side of polyester reinforced aluminium foil. Used as a vapour barrier between the substrate and insulation board when required. Supplied in 1.08m wide x 25m long rolls.

2.4 NURAPLY TPO FLEECE-BACK MEMBRANE

Nuraply TPO Fleece-Back Membrane, a reinforced TPO roofing and waterproofing membrane, with factory applied polyester fleece backing, to ASTM D6878. Refer to SELECTIONS.

Components

2.5 PRIMER - SOLVENT BASED

50/50 mixture of solvent and Nuraply TPO Bonding Adhesive, a solvent based rubberised contact adhesive to bond the membrane.

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2.6 NURAPLY TPO MEMBRANE BONDING ADHESIVE - SOLVENT BASED

Nuraply TPO Bonding Adhesive, a solvent based rubberised contact adhesive to bond the membrane.

2.7 NURAPLY TPO SOLVENT

Nuraply TPO Solvent is used to cut back Nuraply TPO Adhesive for use as a primer and for cleaning of equipment.

Components - Nuratherm insulated roof system with Nuraply TPO

2.8 MECHANICAL FIXING - FASTENERS AND PLATES FOR INSULATION PANELS

Nuratherm IKO Fix Screws and Flange system.

Polypropylene telescopic sleeves for fixing insulation panels and TPO membrane. Screws supplied in lengths to suit both the substrate and installed insulation.

2.9 PRIMER - FOR VAPOUR BARRIER

Nuraflux QD primer for substrate preparation prior to bonding Nuraply ALU vapour barrier to concrete, timber and metal deck substrates.

2.10 NURATHERM ADHESIVE

Nurabond Hi Foaming & Low Foaming PU adhesive, a permanent elastic high-performance moisture-cured single part polyurethane adhesive with high foaming capacity for bonding Nuratherm insulation boards to vapour control layer and with low foaming capacity for bonding Nuratherm insulation boards to each other.

2.11 EXPANDING FOAM

Soudal Gorilla Nailpower fire rated expanding foam for filling gaps in insulation layer.

Accessories

2.12 NURAPLY TPO DETAIL MEMBRANE

Nuraply TPO Detail Membrane easily forms flashings around corners and penetrations. Specifically designed for use in areas that cannot be properly detailed with TPO field membrane.

2.13 NURAPLY TPO PRE-FORMED CORNERS

NuraplyTPO pre-formed non-reinforced internal and external corners and T joint patches, used for detailing internal/external and 3-way lap joints.

2.14 NURAPLY TPO SEALANT

Nuraply TPO Sealant is an approved sealant compatible with Nuraply TPO and other accessories.

2.15 NURAPLY TPO MEMBRANE CLEANER

Nuraply Membrane Cleaner is used for lap preparation and removing marks from the membrane surface.

2.16 NURAPLY TPO PVC BOND BREAKER TAPE

Nuraply TPO PVC Bond Breaker Tape is a pressure sensitive, self-adhesive 36mm wide bond breaker tape used as venting grid tape

2.17 NURAPLY TPO DRAIN

Nuraply TPO Drains are a selected range of clamp ring drains in varying size and configurations.

2.18 NURAPLY TPO PRE-LINED SCUPPER

Nuraply TPO Pre-Lined Scupper is designed to be recessed into the substrate. 200mm high x 75mm high x 380mm long.

2.19 NURAPLY TPO SCUPPER OVERFLOW

Nuraply Aluminium Scupper Overflow is designed to be recessed into the substrate. 200mm high x 75mm wide x 300mm long.



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2.20 NURAPLY TPO SUMP WITH OVERFLOW

Nuraply Aluminium Sump with Overflow is designed to be recessed into the substrate. 400mm long x 250mm wide x 200mm deep, with 100mm dia overflow.

2.21 NURAPLY TPO PENETRATION POCKET

Nuraply TPO Penetration Pocket is a two-piece moulded TPO pocket with a rigid vertical wall and pre-formed flange, used to seal uneven penetrations. 190mm x 150mm oval.

2.22 NURAPLY TPO POURABLE SEALER

Nuraply TPO Pourable Sealer is a two-part polyurethane sealant used as a penetration pocket filler. 4.26 litre kit.

2.23 NURAPLY TPO PIPE BOOT

Nuraply TPO Pipe Boots are flexible, smooth, non-reinforced TPO cone-shaped boot with a pre-formed flange. 250mm to 152mm diameter

2.24 NURAPLY TPO DRIP EDGE

Nuraply Aluminium Drip Edge used for the drip edge into external gutters. 50mm x 50mm x 2.5 metres long

2.25 NURAPLY TERMINATION BARS

Nuraply Aluminium Termination Bars are used to terminate the TPO on vertical and horizontal services. Pre-drill holes at 200mm centres. Flat - 28mm wide x 3mm thick x 2.5 metres long. Folded - 45mm wide x 3mm thick x 2.4 meters long.

2.26 NURAPLY DIVERTERS

Nuraply Aluminium Diverters used for diverting water into a gutter at roof/wall intersections. Left and right hand configurations.

2.27 NURAPLY TPO NURATRIM

Nuraply Aluminium Nuratrim is an extruded profile to terminate the TPO on same plain parapets, verges and outer edges. Factory manufactured internal and external corners. Joining plates are used to assemble the lengths and corners together. The Nuratrim comes with pre-punched fixing holes. 100mm high x 78mm wide x 3metre long. Corners 300mm legs. Joining plate 90mm x 100mm.

2.28 MOUNTING PLATE

Nuralite Fixing Plate, provides a universal fixing offering one M10 x 20mm female threaded anchor point for securing most types of rails and bars.

2.29 CABLE DUCT

Nuralite Goose Neck.

2.30 NURAPLY TPO PEEL AND STICK REINFORCED PERIMETER STRIP

Nuraply TPO Peel and Stick Reinforced Perimeter Strip is a reinforced TPO membrane with a factory applied peel and stick adhesive tape on the outer face. 152mm wide x 30.48metres long.

2.31 NURAPLY TPO COVER TAPE

Nuraply TPO Cover Tape is a non-reinforced TPO detailing tape with a peel and stick adhesive backing. 152mm or 250mm wide x 30.48metres long.

2.32 NURAPLY TPO BUTYL TAPE

Nuraply Butyl Tape is 1mm thick, single sided butyl tape with a polypropylene fleece face. Designed to bond permanently to most surfaces including TPO.

2.33 ALUMINIUM TAPE

3M Aluminium tape in 150mmm or 48mm widths.

2.34 ELECTRONIC LEAK DETECTION - CONDUCTIVE TAPE

Nuralite Electronic Leak Test Tape, 50mm wide self-adhesive conductive tape.

2.35 ELECTRONIC LEAK DETECTION - EARTHING PLATE

Nuralite Electronic Leak Test Earthing Plate with earthing cable.

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3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to the general section 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 GENERALLY

Work and materials to Nuralite installation instructions and NZBC E2/AS1.

3.4 WEATHER

Lay Nuraply TPO membrane in fair weather, with ambient air temperature no less than 5°C.

3.5 INSTALLATION SEQUENCE

Install Nuraply TPO membrane systems in sections to produce a weather tight at the end of each work period. Ensure that moisture absorbent substrates and insulation panels are covered with Nuraply TPO membrane on the same day they are laid or ensure that the base is kept covered and dry until Nuraply TPO membrane is laid. Seal exposed Nuraply TPO membrane edges at the end of each work period to ensure complete system remains dry.

Installation - preparation

3.6 PRELIMINARY WORK

Ensure that preliminary work, including formation of falls, flashing rebates, grooves, ducts, provision of battens and fillets 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.

3.7 ACCEPTANCE OF SUBSTRATE

Confirm that the substrate complies with Codemark CMNZ70166 for the relevant substrates and Nuralite documents, including sumps, outlets and projections, and ensure work is of the required standard.

Confirm the moisture content of substrates:

Concrete substrate:	Relative humidity of 75% maximum
Plywood/ timber substrate:	Moisture Content of 20% maximum

Confirm constructed falls:

Roofs and decks:	1:80 minimum
Gutters:	1:100 minimum

3.8 PLYWOOD SUBSTRATE

Ensure that sheets have been stretcher bond laid to falls, are rigid, with joints flush, edges arrised, upstands filleted, no lumps or hollows, smooth, clean, dry and free of debris. Plywood grain across the line of supports below.

Constructed falls on roofs and decks to be 1 in 80 minimum and 1 in 100 for gutters.

3.9 RIGID AIR BARRIER (RAB)

Fibre cement or Gypsum where they are placed behind cladding only.

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Application - Nuratherm insulated roof system with Nuraply TPO

3.10 LAY VAPOUR BARRIER

Lay Nuraply ALU self-adhesive vapour barrier into the Nuraflux QD primed substrate to Nuralite requirements, with joints being rolled and well-sealed shut.

3.11 LAY NURATHERM INSULATION

Ensure that sheets have been stretcher bond laid to falls, are rigid, with joints flush upstands filleted, no lumps or hollows, smooth, clean, dry and free of debris.

For double layered systems, use one fixing to hold the first layer of sheets and then fix down the second sheet using IKOfix thermal flanges at the prescribed amount.

Seal any gaps in the insulation with expanding foam to produce a continuous insulation blanket with no gaps. Apply a layer of Aluminium Tape to any exposed ends of insulation sheets, fixings and sheet joins to provide a surface for the membrane to adhere to. On the lip of gutters, a Gutter Lip Trim may be installed if the insulation sheet edge requires additional protection from damage.

When using tapered boards to create the fall, layout needs to be carefully considered before commencing so that there is positive drainage to all outlets.

Secure the sheets to the substrate with Nuratherm fasteners at a rate based in the Installation checklist.

3.12 APPLY ELECTRONIC LEAK DETECTION SYSTEM

Apply 50mm wide strips of Nuralite Electronic Leak Test Tape centred over every Nuratherm insulation board join. Install Nuralite Electronic Leak Test Earthing Plates to the surface of Nuratherm insulation boards at a rate of 1 per 500m2 roof area. Run and connect earthing cable through a dedicated Goose Neck cable duct in accordance with Nuralite installation details.

3.13 POSITION MEMBRANE

Position Nuraply TPO membrane over acceptable substrate and fold membrane back to expose half of the underside.

3.14 APPLY ADHESIVE (ADHESIVE FIX)

Apply bonding adhesive to the exposed underside of the membrane and to the corresponding substrate. Apply using a plastic core, medium nap paint roller, at a coverage rate of 1.5m² per litre per finished surface (includes coverage on both membrane and substrate).

3.15 INSTALL MEMBRANE SHEETS (ADHESIVE FIX)

Allow bonding adhesive to dry tacky and roll the coated Nuraply TPO membrane onto the coated substrate. Brush down the bonded section of Nuraply TPO membrane immediately with a soft bristle broom. Fold back the un-bonded half of the sheet and repeat procedure.

3.16 LAP JOINTS ADHERED MEMBRANE AND HOT-AIR WELD (ADHESIVE FIX)

Allow for overlapping membrane edges a minimum of 75mm to provide for a minimum 40mm hot-air weld.

3.17 HOT AIR WELD

Hot-air weld the adjoining Nuraply TPO membrane sheets with an automatic hot-air welding machine or using hand welding techniques.

3.18 PENETRATIONS

Form and finish upstands, downturns, penetrations, sumps and vents to conform with Nuralite required details.

3.19 PENETRATIONS AND JUNCTIONS

Check that adjoining walls and parapets are prepared ready for the installation of the Nuraply TPO membrane. Note: Ensure that no penetrations will occur until after the Nuraply TPO membrane has been laid.

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Testing

3.20 TEST - ELECTRONIC LEAK DETECTION - WARM ROOFS

Carry out leak detection testing on warm roofs using Nuralite Electronic Leak Detection system upon completion of membrane installation and prior to any covering. Make good any lack of water tightness when the surface is completely dry. Depending on conditions, repeat a total or localised test process after making repairs.

Finishing

3.21 FOOT TRAFFIC

Keep foot traffic to a minimum after laying the Nuraply TPO membrane. Lay protection at all traffic concentration points.

3.22 ACCESS BOARDS

Provide access boards for later operations and remove when no longer needed.

3.23 ACCEPTANCE

Arrange for an inspection of the completed work. Protect and maintain roofing until completion of the contract works.

3.24 SUBSEQUENT WORK

Make good any covering that has been cut or deformed by later work. Making good to take the form of inserting a new whole or part infill sheet to maintain the appearance of the covering as originally laid.

Completion

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

Nuratherm insulated roof system with Nuraply TPO Fleece-back Membrane

4.1 NURATHERM INSULATED ROOF SYSTEM ON TIMBER SUBSTRATES WITH NURAPLY TPO FLEECE-BACK MEMBRANE - ADHESIVE FIX

Location:	Flat roof
Supplier:	Nuralite
Substrate:	Plywood
Substrate adhesion:	Nuraflux QD
Vapour barrier:	Nuraply ALU
Insulation layer:	IKO Nuratherm ALU insulation board
Thickness:	Varies
R-value:	R3.31
Fixings:	IKO Fix fasteners - fixing pattern to suit wind loading (for fixing insulation board to substrate)
Membrane:	Nuraply TPO Fleece-Back Membrane
Thickness:	1.5mm
Colour:	Grey
Finish:	Smooth
Adhesive:	Nuraply TPO Membrane Bonding Adhesive

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Materials - detail membrane

4.2 NURAPLY TPO DETAIL MEMBRANE

Location:	Flat roof
Supplier:	Nuralite
Description:	Nuraply TPO Detail membrane
Size:	1.5mm thick x 1524m long x 610mm wide
Colour:	grey

Accessories

4.3 NURAPLY TPO MATERIAL ACCESSORIES

Supplier:	Nuralite
Type:	TBC

Spec Version ID: 382786-462746
Document authenticity may be verified at masterspec.co.nz/verify/382786-462746
Prepared using Masterspec software

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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
- APL Minima Sliding Door System
- APL Shopfront system
- APL Flushglaze
- APL Structural Glaze
- APL Roof Windows and Overhead glazing
- APL Ventient trickle ventilators
- Hardware and furniture
- Flashings and sealants

1.1 RELATED WORK

Refer to appropriate AGP 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	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/AS2	Energy efficiency for buildings greater than 300m²
NZBC H1/VM1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/VM2	Energy efficiency for buildings greater than 300m²
AS/NZS 1170.2:2011	Structural design actions - Wind actions
NZS 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

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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
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
APL Testing of APL new window and installation to EM9 test method
BRANZ Appraisal 1188 [2023] - APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors
BRANZ Appraisal 1259 [2024] - APL ThermalHEART+® Window and Door Systems

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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:	apl.techinfo@aplnz.co.nz altherm.techinfo@aplnz.co.nz firstwindows.techinfo@aplnz.co.nz vantage.techinfo@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
12 years:	For AGP glass

- 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

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

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- 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:

- Manufacturer / supplier warranty
- Installer / applicator warranty
- Other information required by the BCA in the Building Consent Approval documents.

1.11 COMPLIANCE - CODEMARK CERTIFICATE

APL Metro Series ThermalHEART® with Centrafix™ meets the requirements of the NZBC when used within the Conditions and Limitations of its CodeMark Certificate of Conformity CMNZ10033.

1.12 COMPLIANCE

Windows and doors to be manufactured and installed to NZBC E2/AS1.

1.13 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

1.14 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.

1.15 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.



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1.16 THERMAL PERFORMANCE - WINDOWS & DOORS

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

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

Refer to SELECTIONS for construction R-values.

1.17 THERMAL PERFORMANCE - SKYLIGHTS

Thermal performance of skylights to NZBC H1/AS1 or NZBC H1/AS2 & NZBC H1/VM1 or NZBC H1/VM2. The construction R-value of skylight determined by NZBC H1/VM1 or NZBC H1/VM2, Appendix D, D2 Skylights:

- Thermal transmittance of skylights in accordance with ISO 10077-1.
- Thermal transmittance of framing in accordance with ISO 10077-2.
- Thermal transmittance of glazing using BS EN 673, considering the effects of horizontal or angled glazing on the heat transfer.

Refer to SELECTIONS for Construction R-values.

Performance - Wind

1.18 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

1.19 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.

2.3 SHOPFRONT

Refer to SELECTIONS for type and finish.

2.4 ROOF WINDOWS AND OVERHEAD GLAZING SYSTEMS

Refer to SELECTIONS for type and finish.

Materials

2.5 ALUMINIUM EXTRUSIONS

Alloy designation to comply with AS/NZS 1866. Branded and extruded for anodising or powder coating.

2.6 ALUMINIUM SHEET AND STRIP

Complying with AS/NZS 1734 of suitable thickness. Rolled for anodising or powder coating.

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Alloy designation: 5251 - H16 or 5005 - H16

2.7 STAINLESS STEEL SHEET AND STRIP

Type: 316 austenitic steel
Finish grade: 2B (satin lustre)

2.8 GLASS

Refer to the glazing section for glass types and installation.

Accessories

2.9 FLASHINGS GENERALLY

To NZBC E2/AS1, 9.1.9 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.

Materials - Roof windows and overhead glazing systems

2.10 ROOF WINDOWS AND OVERHEAD GLAZING SYSTEM

Refer to SELECTIONS/drawings for type and finish.

Components for installation - cavity systems

2.11 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.

2.12 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.

2.13 CENTRAFIX SILL SUPPORT BAR

Extruded aluminium sill support bar to suit Centrafix window profile and provide continuous support to the window / door unit.

Components

2.14 GLAZING GASKETS

PPL Thermoplastic rubber. Do not stretch glazing gaskets during installation. Measure and cut gaskets 5-10% over length before installation.

2.15 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.

2.16 SAFETY STAYS

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

2.17 FIXING BRACKETS

Designed by manufacturer to specific design.

Sealants

2.18 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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2.19 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.

Finishes

2.20 DURALLOY +PLUS POWDER COATED ALUMINIUM

Polyester powder organic coating in accordance with WGANZ PQAS and AAMA 2603.

2.21 DURATEC POWDER COATED ALUMINIUM

High-performance polyester powder coating in accordance with WGANZ PQAS and AAMA 2604.

2.22 FLUOROSET POWDER COATED ALUMINIUM

Very high-performance PVF2 fluoropolymer powder coating in accordance with WGANZ PQAS and AAMA 2605.

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 HARDWARE GENERALLY

Factory fit all required and scheduled hardware. Account for all keys and deliver separately to the site manager.

3.8 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

3.9 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.

3.10 EXPOSED FIXINGS AND FASTENINGS

Fixings and fastenings exposed to the weather to be aluminium, or Type 304 stainless steel.

3.11 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.

3.12 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.

3.13 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.

3.14 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.15 INSTALLATION

Fix to comply with the reviewed shop drawings and installation details including flashings and bedding compounds, pointing sealants and weathering sealants.

3.16 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.

3.17 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.

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3.18 INSTALLATION METRO SERIES THERMALHEART WITH CENTRAFIX

Install in accordance with Centrafix™ System Guide with glazing and thermal insulators aligned with the wall insulation. Face fix through protruding aluminium fins overlapping the outside face of the framing through building underlays.

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.

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.

Installation - Roof windows and overhead glazing system

3.22 INSTALL ROOF WINDOWS AND OVERHEAD GLAZING SYSTEMS

Check that the trimmed openings are formed and constructed to suit the required units. Do not proceed until roof and structural openings are properly formed. Install flashings and over-flashings as detailed and as required to make the installation completely weatherproof. Install and fix the roof window units strictly in accordance with the roof window manufacturer's requirements and installation instructions.

3.23 ROOF WINDOW ACCESSORIES AND OPERATING SYSTEMS

Install selected accessories and hardware. Install and complete all operating systems.

Application - jointing and sealing

3.24 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.

3.25 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.

3.26 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.

3.27 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.



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3.28 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.

3.29 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.

3.30 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.

Completion & Commissioning

3.31 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.
Substitutions are not permitted to the following, unless stated otherwise.

Performance

4.1 THERMAL PERFORMANCE - VERTICAL WINDOWS & DOORS

Refer to WEERS report prepared by Aitken Joinery

Performance - Wind

4.2 DESIGN PARAMETERS - NON SPECIFIC DESIGN

Building wind zone	Medium (refer to NZS 3604, table 5.1)

Finishes - Powder Coating

4.3 POWDER COATING FINISH

Type:	TBC
System integrity:	Minimum 15 years film & colour integrity
Colour:	TBC
Finish:	TBC

Glazing

4.4 GLASS

Type/thickness:	Refer to 4611AG AGP GLAZING COMMERCIAL for type and thickness.

Hardware

4.5 WINDOW HARDWARE

Window fastener: TBC

4.6 DOOR HARDWARE

Locks & handles: TBC

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4.7 HARDWARE FINISH

Finish:	Powder coat
Colour:	TBC

Flashings and Sealant

4.8 FLASHINGS

Material/type:	0.55 BTM Steel
Pattern:	Formed to suit details provided

4.9 WEATHERING SEALANT

Type:	1-part polyurethane moisture curing, elastic joint sealant
Colour:	TBC

Shopfront system

4.10 APL SHOPFRONT - 100MM

Brand:	APL Shopfront
Window No.:	Refer to Window schedule
Frame size:	100mm
Glazing system:	Double glazing

Spec Version ID: 382786-462746
Document authenticity may be verified at masterspec.co.nz/verify/382786-462746
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4521AR APL RESIDENTIAL ALUMINIUM WINDOWS & DOORS

1 GENERAL

This section relates to the fabrication, supply, and installation of APL Window Solutions residential window and door systems.

1.1 RELATED WORK

Refer to appropriate AGP glazing sections for glass types.

~

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:

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	Energy efficiency for all housing and buildings up to 300m²
NZBC H1/AS2	Energy efficiency for buildings greater than 300m²
NZBC H1/VM1	Energy efficiency for all housing and buildings up to 300m²
NZBC H1/VM2	Energy efficiency for buildings greater than 300m²
AS/NZS 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 4211	Specification for performance of windows
NZS 4223.3	Glazing in buildings - Human impact safety requirements
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 2605	Voluntary specification, performance requirements and test procedures for superior performing organic coatings on aluminium extrusions and panels
ISO 10077-1	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - General

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ISO 10077-2	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Numerical method for frames

Window & Glass Association NZ (WGANZ) documents:

Window Installation Guide	Guide to Window Installation as described in E2/AS1
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 and supplier documents relating to this part of the work:

APL Window Solutions	Specifier Guide
APL Window Solutions	Metro Series ThermalHEART® with Centrafix™ System Guide (Version 08/23a)
APL Window Solutions	Windows and Doors for Residential Purposes BPIR
APL Window Solutions	Windows and Doors for Residential Purposes - Thermally Insulated BPIR
APL Window Solutions	Entrance Door Overview
APL Window Solutions	Testing of APL new window and installation to EM9 test method

BRANZ Appraisal 1188 (2023) - APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors - Amended 2 May 2024
BRANZ Appraisal 1259 (2024) - APL ThermalHEART+® Window and Door Systems - Amended 2 May 2024

Manufacturer/supplier contact details

Company:	Architectural Profiles Ltd.
Trading as:	APL Window Solutions
Web:	www.altherm.co.nz www.firstwindows.co.nz www.vantage.co.nz www.aplnz.co.nz
Email:	apl.techinfo@aplnz.co.nz altherm.techinfo@aplnz.co.nz firstwindows.techinfo@aplnz.co.nz vantage.techinfo@aplnz.co.nz
Telephone::	07 849 8888

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

5 years:	For materials including hardware and componentry
12 years:	For AGP glass

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~ years: For ~

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

Refer to the general section 1237 WARRANTIES for additional requirements.

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 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 NO SUBSTITUTIONS

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

1.9 DESIGN PARAMETERS - WIND

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

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:
APL Window Solutions Specifier Guide

Provide this information prior to practical completion.

1.11 MARKING - EXTERNAL WINDOWS / DOORS

Each window claimed by the manufacturer to be complaint with NZS 4211 to be labelled on the frame to NZS 4211.

Compliance Information

1.12 COMPLIANCE - BRANZ APPRAISAL

APL ThermalHEART+® Window and Door Systems has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 1259.

Performance

1.13 EXTERNAL WINDOW PERFORMANCE

APL Window Solutions windows and doors have been tested to NZS 4211 and the requirements of BPS, 4.4.1 Structural and weathertightness provisions.

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1.14 THERMAL PERFORMANCE - WINDOWS & GLAZED DOORS, HOUSING ONLY

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

1.15 THERMAL PERFORMANCE - SKYLIGHTS

Thermal performance of skylights to NZBC H1/AS1 or H1/AS2 & NZBC H1/VM1 or H1/VM2. The construction R-value of skylight determined by NZBC H1/VM1 or H1/VM2, Appendix D, D2 Skylights:

- Thermal transmittance of skylights to ISO 10077-1.
- Thermal transmittance of framing to ISO 10077-2.
- Thermal transmittance of glazing using BS EN 673, considering the effects of horizontal or angled glazing on the heat transfer.

Refer to SELECTIONS for Construction R-values.

2 PRODUCTS

2.1 WINDOWS

Refer to SELECTIONS.

2.2 DOORS

Refer to SELECTIONS.

2.3 ROOF WINDOWS AND OVERHEAD GLAZING SYSTEMS

Refer to SELECTIONS.

Materials

2.4 ALUMINIUM EXTRUSIONS

Alloy designation to comply with AS/NZS 1866. Branded and extruded for anodising or powder coating.

2.5 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

2.6 STAINLESS STEEL SHEET AND STRIP

Type: 316 austenitic steel
Finish grade: 2B (satin lustre)

2.7 GLASS

Refer to the glazing section for glass types and installation.

Flashings

2.8 FLASHINGS GENERALLY

To NZBC E2/AS1, 9.1.9 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.

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2.10 SUPPORT BAR

WGANZ extruded aluminium support bar with built in drainage and ventilation to NZBC E2/AS1, and support bar location bracket, to provide continuous support to the window unit. Size to suit cladding type.

Components

2.11 GLAZING GASKETS

PPL 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.

2.15 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.

Finishes

2.16 DURATEC POWDER COATED ALUMINIUM

High-performance polyester powder coating in accordance with WGANZ PQAS and AAMA 2604. 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

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 INSTALLATION GENERALLY

Install in accordance with manufacturer's shop drawings and installation instructions.

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Fabrication

3.6 FABRICATION

Fabricate frames as detailed on shop drawings. Install glazing, hinges, stays and running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.

3.7 HARDWARE GENERALLY

Factory fit all required and scheduled hardware. Account for all keys and deliver separately to the site manager.

3.8 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.

3.9 PASSIVE VENTILATION

Factory fit all required and scheduled passive ventilation systems to NZBC G4/AS1, paragraph 2.2.2.5, NZS 4303 and manufacturer's requirements.

Installation - windows and doors

3.10 SUPPLY OF FIXINGS

Use only fixings and fastenings recommended by the manufacturer of the component being fixed.

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 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.

3.15 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.

3.16 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.

3.17 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.

3.18 FIX HARDWARE

Fix all sash and door hardware and furniture as scheduled.

Installation - roof windows and overhead glazing systems

3.19 INSTALL ROOF WINDOWS AND OVERHEAD GLAZING SYSTEMS

Check that the trimmed openings are formed and constructed to suit the required units. Do not proceed until roof and structural openings are properly formed. Install flashings and over-flashings as detailed and as required to make the installation completely weatherproof. Install and fix the roof window units strictly in accordance with the roof window manufacturer's requirements and installation instructions.

Application - jointing and sealing

3.20 SEAL FRAMES ON SITE

Seal frames to each other and to adjoining structure and finishes, all as required by 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.

3.21 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.

3.22 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.

3.23 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.

3.24 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.

3.25 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.

Completion & Commissioning

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

4.1 SUPPLY AND INSTALLATION

Supply and installation of the specified APL aluminium joinery.

Supply:	By fabricator
Installation:	TBC

Performance

4.2 THERMAL PERFORMANCE - WINDOWS & DOORS

Refer to WEERS report prepared by Aitken Joinery

4.3 THERMAL PERFORMANCE - SKYLIGHTS

4.4 AIR INFILTRATION

For NZS 4211, table 3 Air infiltration.

Non-air conditioned zones:	TBC
Air conditioned zones:	TBC

Finishes - Powder Coating

4.5 POWDER COATING FINISH

Type:	TBC
System integrity:	Minimum 15 years film & colour integrity
Colour:	TBC
Finish:	TBC

Glazing

4.6 GLASS

Type/thickness:	Refer to 4610AG AGP GLAZING RESIDENTIAL for type and thickness.

Flashings and Sealant

4.7 FLASHINGS

Material/type:	0.55 BMT Steel
Pattern:	Formed to suit details provided

4.8 WEATHERING SEALANT

Type:	1-part polyurethane moisture curing, elastic joint sealant
Colour:	TBC

Window and door system - RESIDENTIAL SERIES - THERMALHEART+®

4.9 APL RESIDENTIAL THERMALHEART+ FIXED WINDOW

Type:	APL Residential Series THERMALHEART+®
Frame type:	Thermally Improved
Window No.:	Refer to Window Schedule

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4.10 APL RESIDENTIAL THERMALHEART+ AWNING WINDOW

Type:	APL Residential Series THERMALHEART+®
Frame type:	Thermally Improved
Window No.:	Refer to Window Schedule
Fastener range:	Urbo Helix
Fastener tongue:	TBC

4.11 APL RESIDENTIAL THERMALHEART+ BIFOLDING WINDOW

Type:	APL Residential Series THERMALHEART+®
Frame type:	Thermally Improved
Window No.:	Refer to Window Schedule

4.12 APL RESIDENTIAL THERMALHEART+ SLIDING DOOR

Type:	APL Residential Series THERMALHEART+®
Frame type:	Thermally Improved
Rail type:	TBC
Door No.:	Refer to Window Schedule

4.13 APL RESIDENTIAL THERMALHEART+ HINGED DOOR

Type:	APL Residential Series THERMALHEART+®
Frame type:	Thermally Improved
Door No.:	Refer to Window Schedule

4.14 APL RESIDENTIAL THERMALHEART+ BIFOLDING DOOR

Type:	APL Residential Series THERMALHEART+®
Frame type:	Thermally Improved
Door No.:	Refer to Window Schedule

Window and door system - Metro Series THERMALHEART+®

4.15 APL METRO SERIES THERMALHEART+ SLIDING DOOR

Type:	APL Metro Series THERMALHEART+®
Door No.:	Refer to Window Schedule
Frame Type:	Facing
Interior colour:	TBC
Exterior colour:	TBC

Roof windows and Overhead glazing systems

4.16 APL THERMALHEART ROOF WINDOW

Type:	ThermalHEART®+ Roof Window
Roof Window No.:	Refer to Window Schedule
Model number:	TBC
Control mechanism	TBC
Accessories:	TBC

4.17 APL OVERHEAD GLAZING SYSTEM

Type:	APL Overhead Glazing Systems
Rafter type:	TBC
Roof Window No.:	Refer to Window Schedule
Hardware:	TBC



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4610VR VIRIDIAN GLASS RESIDENTIAL GLAZING

1 GENERAL

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

- windows and doors
- frameless shower and bath screens
- splashbacks, wall linings
- mirrors and mirror frames
- shelving

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 F4/AS1	Safety from falling
NZBC F9/AS1	Means of restricting access to residential pools
NZBC H1/AS1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/AS2	Energy efficiency for buildings greater than 300m²
NZBC H1/VM1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/VM2	Energy efficiency for buildings greater than 300m²
AS/NZS 1170.2:2011	Structural design actions - Wind actions
AS/NZS 2208	Safety glazing materials in buildings
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 4666	Insulating glass units
BRANZ BU 636	Protecting glass from damage
BPS	Building Product Specifications

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Viridian Architectural Glass, Architectural Glass Guide

Manufacturer/supplier contact details

Company:	**Viridian**
Web:	www.viridianglass.co.nz
Email:	info@viridianglass.net.nz
Telephone:	0800 847 434

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Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years:	For insulating glass units
10 years:	For toughened glass
5 years:	For laminated glass

- 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.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any specified **Viridian Glass**, products or systems.

Performance

1.6 THERMAL STRESS ANALYSIS

Obtain the glass manufacturer's thermal stress analysis for spandrel panels and for tinted, reflective and other solar control vision glasses for review before placing final order.

1.7 THERMAL PERFORMANCE - EXTERNAL GLAZING

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

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

2 PRODUCTS

Materials

2.1 CLEAR FLOAT GLASS

Clear ordinary annealed transparent float glass for general window glazing. Thickness as required by 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 glazing material to AS/NZS 2208 with PVB, EVA or SentryGlass interlayer.

2.4 TOUGHENED GLASS

Grade A safety glazing material to AS/NZS 2208. Refer to SELECTIONS.

2.5 TINTED FLOAT GLASS

Body tinted float glass.

2.6 REFLECTIVE AND COATED FLOAT GLASS

Either coated float glass incorporating both solar and thermal insulation properties; or coated float glass with only the thermal insulation properties.

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2.7 SEALED INSULATING GLASS UNITS (IGU'S)

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

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

- Surface #1 - outer face of the 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, general

2.8 JOINTING, PUTTY AND SEALING MATERIALS

Ensure jointing, putty and sealing materials compatible with glass substrates. Confirm compatibility with laminated glass, IGU's and coatings.

Components, aluminium and uPVC glazing

2.9 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.

2.10 SETTING BLOCKS

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

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To NZS 4223.1, NZS 4223.2, NZS 4223.3 as modified by BPS paragraph 4.4.1.4 and 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.

3.3 GLASS CONDITION

All glass of accurate size with clean, 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**.

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Conditions - human impact safety requirements

3.6 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.

3.7 SAFETY GLAZING MATERIAL

Use only safety glazing materials defined in NZS 4223.3, as modified by BPS paragraph 4.4.1.4, 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.

3.8 CONTAINMENT

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

Assembly

3.9 WORKING OF GLASS

All working of glass as required in NZS 4223.1.

3.10 EDGE WORK AND BEVELLING

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

3.11 SURFACE TREATMENT

Refer to SELECTIONS/drawings for finish.

3.12 SURFACE CUTTING

Refer to SELECTIONS/drawings for finish.

Application aluminium

3.13 INSTALL GLASS TO ALUMINIUM FRAMES

Install glass to NZS 4223.1.

- Bead glaze to Section 4, **Glazing**.
- Channel glaze to Section 4, **Glazing**, Section 5, **Framed**, **Unframed**, **Partly FramedGlass Assemblies**.

3.14 INSTALL SAFETY GLASS

To NZS 4223.3.

3.15 INSTALL GLASS BALUSTRADES

Confirm/design and carry out installation to;

- Viridian Glass SSPS1.
- NZS 4223.3, 22 Barriers (Balustrades, fences, and screens) as modified by BPS paragraph 4.4.1.4.
- NZBC F4/AS1: Safety from falling, 1.0 **Barriers in buildings**.

3.16 INSTALL GLASS POOL FENCES

Confirm/design and carry out installation to;

- Viridian Glass SSPS1.
- NZBC F9/AS1 Means of restricting access to residential pools
- NZS 4223.3, 22 Barriers (Balustrades, fences, and screens) as modified by BPS paragraph 4.4.1.4.
- NZBC F4/AS1: Safety from falling, 1.0 **Barriers in buildings**.

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. Indicators other than whiting must not be applied to the glass surface.

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Completion

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

3.19 REPLACE
Replace damaged, cracked or marked elements.

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

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

Performance - wind

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

Glass by type

4.2 VIRIDIAN GLAZING TYPES

Location:	Refer to Weers Report by Atkin Joinery
Brand/type:	Refer to Weers Report by Atkin Joinery
Thickness:	TBC

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4711 THERMAL INSULATION

1 GENERAL

This section relates to materials installed, laid, hung or fitted as thermal insulation to the building fabric.

1.1 RELATED WORK

Refer to 4721 ACOUSTIC INSULATION for acoustic insulation.

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

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:

BIB	Building Insulation Blanket (term used by some manufacturers)
EPS	Expanded polystyrene sheets

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 H1/AS1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/AS2	Energy efficiency for buildings greater than 300m²
NZBC H1/VM1	Energy efficiency for all housing, and buildings up to 300m²
NZBC H1/VM2	Energy efficiency for buildings greater than 300m²
AS/NZS 3000	Electrical installations (Known as the Australian/New Zealand Wiring Rules)
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
AS/NZS 4859.1	Thermal insulation materials for buildings - General criteria and technical provisions
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance.

Health and Safety at Work Act 2015

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents related to this section are:

~

Manufacturer/supplier contact details

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

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Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

~ years For ~

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

2 PRODUCTS

Materials

2.1 GLASS FIBRE THERMAL INSULATING PADS

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

2.2 GLASS FIBRE THERMAL BLANKET/ROLL

Glass fibres bonded with a thermosetting resin to form a flexible blanket roll.

2.3 POLYESTER FIBRE THERMAL INSULATING PADS

Polyester fibres bonded together to form a rectangular insulating pad.

2.4 POLYESTER FIBRE THERMAL BLANKET/ROLL

Polyester fibres bonded together to form a flexible blanket roll.

NOTE: When insulation abutting or covering recessed downlights is intended to be in contact with IC, CA 80, CA 135 luminaires the insulation must withstand a 30s Needle Flame test to AS/NZS 60695.11.5.

2.5 WOOL FIBRE THERMAL BLANKET/ROLL

Wool fibres bonded with a polymer fibre to form a flexible blanket roll.

2.6 FOIL-FACED THERMAL BLANKET/ROLL

Insulation bonded with a thermosetting resin to form a flexible blanket roll with a facing sheet/foil lightly adhered to one side.

2.7 SEMI-RIGID FLOOR INSULATION

Insulation with fibres bonded together to form a semi-rigid rectangular insulating pad.

2.8 CELLULAR POLYSTYRENE INSULATION

Proprietary expanded polystyrene (EPS) foam board.

Components

2.9 NAILS

Galvanized steel clouts, 25mm gauge.

2.10 STAPLES

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

2.11 SCREWS, POLYESTER BLANKET

Specially coated self drilling screws with embossed or profiled washer system suitable to cover oversize predrilled holes.

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2.12 WIRE NETTING

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

2.13 PLASTIC STRAPPING TAPES

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

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

2.14 ADHESIVE TAPE

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

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

3.2 ROUTINE MATTERS

Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.

Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.

3.3 HANDLING

Wear protective clothing as necessary and when handling, avoid delamination or distortion of the rectangular form. Maintain full thickness unless compression is an installation system requirement.

3.4 HAZARD & RISK MANAGEMENT

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

3.5 INSPECTION

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

Application

3.6 INSTALL INSULATION - GENERAL

Lay, install, fit and fix insulation without gaps, tucks, folds and over compaction to NZBC H1/AS1 or AS2 and insulation manufacturer's requirements. For all housing and buildings up to 300m², install in accordance to NZS 4246 sections 5 Walls, 6 Ceilings & Roofs, 7 Underfloor - Suspended Framed Floors and 10 Concrete Slab-on-Ground Insulation, for residential light timber or steel framed buildings. Allow insulation to re-loft/relax prior to installation. Do not cover vents. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

3.7 INSULATION CLEARANCES

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

3.8 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.



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3.9 LAY WIRE NETTING - UNDER JOISTS / PURLINS

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

3.10 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.

3.11 ADHESIVE TAPES

Fully seal all laps and all penetrations with adhesive tape.

3.12 FIT INSULATING PADS

Friction fit insulating pads in place to completely fill the whole of the cavities. Slightly oversize for friction fit to framing and each other. Use smaller pieces for smaller spaces and around penetrations. Leave no gaps between, and maintain full thickness of the insulating segments over the whole of the installation.

3.13 FIT INSULATING BLANKET/ROLL

Friction fit insulating blanket in place to completely fill the whole of the cavities. Slightly oversize for friction fit to framing. Use smaller pieces for smaller spaces and around penetrations. Leave no gaps between, and maintain full thickness of the insulating blanket over the whole of the installation.

3.14 FIT INSULATING BLANKET/ROLL/BIB OVER PURLINS

Ensure mesh/vapour barrier are laid over and draped between the purlins to the manufacturer's requirements. Lay blanket on and in the same direction as the mesh/vapour barrier, firmly butting edges together. Carefully size blanket to maintain firmly butted edges and ends. Maintain full thickness of the blanket over the draped areas, except where detailed otherwise.

3.15 FIT WOOL INSULATING BLANKET/ROLL

Hang between studs stapled to top plate, drop, tear at required length and staple to bottom of nog, repeating process down the wall. Leave no gaps and maintain full thickness of blanket over the whole of the installation. Lay at right angles to ceiling joists allowing the blanket to sag into the cavities. Tear around rafters/struts and again drop into cavities. Lay between purlins with a snug fit and staple if necessary to hold position.

3.16 SEMI-RIGID FLOOR INSULATION

Friction fit semi-rigid pads between the joists to NZS 4246, 7.5. Hold the long edge of sheet against internal corner formed by the joist and floor junction. Ensure the body of the sheet is pressed hard up against the body of the floor, leaving no gap between the insulation material and the underside of the floor. Fold the trailing edge to make a sharp crease ensuring that the friction fit is tight and the sheet is secure to manufacturer's specifications (generally folding edge depth is 25mm to 75mm). Ensure ends of sheet are snugly fitted. When a single joist becomes a double joist thickness, make a right angle cut and ensure a snug fit. Either cover the bottom plates of exterior walls or butt an end of the semi-rigid sheet to the plate if that plate is below the level of the floor. Leave a maximum of 100mm between the semi-rigid sheets and plumbing pipe work and fittings.

3.17 FIT CELLULAR PLASTIC RIGID BOARD (EPS)

Friction fit EPS board after roof and wall claddings have been installed. Cut oversize lengthways for a tight compression fit between framing. Leave no gaps between, and maintain full thickness of the insulating segments over the whole of the installation. Fit EPS between floor joists and timber framing using proprietary fixings. Ensure separation from electric cabling. In windy locations secure floor insulation with proprietary support brackets. For ceilings check with manufacturer for clearances to recessed light fittings and flues.

3.18 FIT EPS INSULATION - UNDER CONCRETE FLOORS

Lay EPS on damp proof membrane before pouring the concrete floor slab.



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Completion

3.19 COMPLETION MATTERS

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

3.20 CHECK WALL AND ROOF UNDERLAYS

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

4 SELECTIONS

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

4.1 THERMAL INSULATING PADS

Location:	Walls
Brand:	TBC
Material:	TBC
R Value	R4.3 minimum
Thickness:	140mm max

4.2 THERMAL BLANKET

Location:	Ceiling
Brand:	TBC
Material/Type:	TBC
R Value:	R3.2 min
Thickness:	TBC

4.3 EPS INSULATION

Location:	Slab & slab edge
Brand/type:	Insulslab
R Value:	As per Insulslab calculations
Thickness:	200mm under slab, 50mm slab edge



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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.

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 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

1.3 QUALIFICATIONS

Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

1.4 VERIFY DIMENSIONS

Verify dimensions against site measurements prior to fabrication.

Standards of performance

1.5 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.

1.6 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.

1.7 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.

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2 PRODUCTS

2.1 FLASHING MATERIALS

Acceptable materials for flashings are described in NZBC E2/AS1, 4.0 Flashings. Material, grade and colour as detailed and scheduled. Ensure that materials used for flashings are compatible with the building and cladding materials and their fixings.

2.2 FLASHING FABRICATION

Fabricate flashings generally to NZBC E2/AS1, 4.0 Flashings, from a ductile grade of metal designed for lateral strength by folding, stiffening or ribbing on external edges, having a maximum un-stiffened width of 300mm. Provide all hooks, hems, kick outs, bird's beaks, stop ends, soft edges and turn downs etc. to NZBC E2/AS1, 4.0 Flashings, or as shown on the drawings.

2.3 FIXINGS

Rivets, screws, nails and cleats to be compatible with the materials being fastened. Fasteners complying with the corrosion requirements of AS 3566 are suitable for use with ZINCALUME® steel products. Use only low carbon non-conductive sealing washers.

3 EXECUTION

Conditions

3.1 DELIVERY

Keep flashings dry in transit. Take delivery of flashings in an undamaged condition. Reject all damaged materials.

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.

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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 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.

Completion

3.11 PROTECT

Protect new work from damage.

3.12 REPLACE

Replace all damaged or marked elements.

3.13 LEAVE

Leave work to the standard required for following procedures.

3.14 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 FLASHINGS

All flashings to be unpainted 0.55mm Steel with zinc/aluminium/magnesium (Zincalume) coating.

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4851 EXTERIOR HANDRAILS & TIMBER BALUSTRADES

1 GENERAL

This section relates to the fabrication and installation of exterior handrails and timber balustrades.

Related work

1.1 RELATED SECTIONS

Refer to ~ for ~.

Documents

1.2 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZBC B2/AS1	Durability provisions for building elements
NZBC F4/AS1	Safety from falling
NZS 3602	Timber and wood-based products for use in building

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:	~

2 PRODUCTS

2.1 NON-TIMBER HANDRAIL

Proprietary handrail or non-fabricated handrail to manufacturer/supplier specifications and instructions. Refer to SELECTIONS for options.

2.2 HARDWARE

Handrail brackets, metal supports, angles and sundry fittings, all as shown and described on the drawings.

3 EXECUTION

Conditions

3.1 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).

Check site dimensions. Carry out machining within the practices recommended for the particular timber, wood product or pre-finished wood product being used. Machine drill and cut holes and recesses and form joints to the componentry manufacturer's recommendations. Work to be accurate, square and true to line and face.

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Application

3.2 HANDRAILS

Fabricate and install the handrails and balustrading as detailed, complete with all associated metal componentry and hardware. Unless otherwise detailed construct to comply with NZBC F4/AS1.

Completion

3.3 LEAVE

Leave work to the standard required by following procedures.

3.4 REMOVE

Remove all debris, unused materials and elements from the site.

4 SELECTIONS

4.1 ALUMINIUM POOL BARRIER

Description:	Selected aluminium barrier compliant with NZBC F9
Finish:	Powder coat - Colour TBC

4.2 ACCESSORIES

Gates:	Selected aluminium barrier compliant with NZBC F9
Finish:	Powder coat - colour to match barrier

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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®

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

Manufacturer/supplier contact details

Company:	Winstone Wallboards
Web:	www.gib.co.nz
Telephone:	0800 100 442

Requirements

1.4 NO SUBSTITUTIONS

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

1.5 QUALIFICATIONS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.6 INSPECTIONS AND ACCEPTANCE

Allow for inspection of the finished plasterboard surface:

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

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

Compliance

1.7 COMPLIANCE - BRANZ APPRAISAL 427

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

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.

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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

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 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.

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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.

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.

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3.11 FORM WET AREA SYSTEMS

Form to GIB Aqualine® Wet Area Systems requirements.

3.12 FORM CONTROL JOINTS

Form control joints to GIB® Site Guide requirements.

3.13 INSTALL TAPE-ON TRIMS

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

Finishing

3.14 FINISHING GENERALLY

To GIB® Site Guide and AS/NZS 2589.

Completion & Commissioning

3.15 COMPLETION MATTERS

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

4 SELECTIONS

Plasterboard

4.1 GIB® STANDARD SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Refer to Architectural drawings	GIB® Standard plasterboard	13mm	4

4.2 GIB® WATER RESISTANT SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Wet areas	GIB Aqualine® plasterboard	13mm	4

4.3 GIB® STANDARD SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Refer to Architectural drawings	GIB® Standard plasterboard	13mm	4

4.4 GIB® WATER RESISTANT SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Refer to Architectural drawings	GIB Aqualine® plasterboard	13mm	4

Accessories

4.5 GIB® RONDO® CEILING BATTENS

Location: Refer to Architectural drawings
Brand/type: GIB® Rondo® Ceiling battens
Batten type: tbc
Clip type: tbc

4.6 GIB® TAPE ON EDGE OR CORNER TRIMS

Brand/type: ~

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4.7 GIB® EDGE PROFILES

Brand/type: ~

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5124 TIMBER BOARD LININGS

1 GENERAL

This section relates to the supply and fixing of tongue and grooved narrow boards as lining, nailed, secret nailed or adhesive fixed.

1.1 RELATED SECTIONS

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:

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

Documents

1.3 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZS 3602	Timber and wood-based products for use in building
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.

1.4 MANUFACTURER'S DOCUMENTS

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

~

Copies of the above literature are available from ~

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

Requirements

2 PRODUCTS

Materials

2.1 LINING BOARDS

In long lengths tongue and groove profile as detailed or selected with species and grade to the requirements of NZS 3602.

Moisture content: 12 - 14% at fixing.

2.2 BEADS

To profiles as detailed.

Moisture content: 12 - 14% at fixing.

2.3 DAMP-PROOF COURSE

Heavy kraft strip laminates saturated and coated with bitumen.

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Components

2.4 NAILS

2½ times the thickness of the lining and of commensurate gauge.

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

Before starting fixing ensure that the substrate conforms to NZS 3604 and that the relative humidity is suitable to receive lining.

3.4 MOISTURE CONTENT, CONCRETE

Before starting fixing ensure that the concrete moisture content is less than 5%.

3.5 MOISTURE CONTENT, LINING

Immediately before starting fixing, test the moisture content of the lining to ensure the moisture content is acceptable. Use an electrical moisture meter to the board manufacturer's requirements, testing 5% of not less than 10 boards in the centre of the length. Do not commence laying if 90% of values obtained are not within the range specified.

3.6 HEATING OR AIR CONDITIONING

Make arrangements for operating the heating or air conditioning installation up to completion of the works.

3.7 ENVIRONMENTAL CONDITIONS, HEATING

The heating is designed to provide spaces with continuous/intermittent heating. Refer to SELECTIONS. Fix timber strip lining to suit these conditions.

3.8 ENVIRONMENTAL CONDITIONS, AIR CONDITIONING

The air conditioning system is designed to provide spaces with heating and humidity control. Refer to SELECTIONS. Fix timber strip lining to suit these conditions.

3.9 DO NOT START

Do not start cutting down and fitting and fixing linings before the building is enclosed and external moisture excluded from the area.

Application

3.10 FIX LININGS

Fix lining strips to studs/rafters in pattern as detailed in straight parallel lines with tongues tightly fitted into grooves. Slightly undercut end joints square, fully supported, fitted tight and random staggered across adjacent boards. Allow for movement at all corners. Select board lengths to give a minimum number of end joints. Fit beads to areas to be lined as detailed.

3.11 SECRET NAIL FIX

Secret nail fix with brads/panel pins diagonally through the tongue only. Punch nails to ensure correct alignment of the next board.

3.12 SAND LININGS

Sand linings with a machine sander to the standard required for the finish specified.

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Completion & Commissioning

3.13 COMPLETION MATTERS

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

4 SELECTIONS

4.1 LINING BOARDS

Manufacturer/profile number: ~

Species/grade:	Accoya - to match external cladding
Dimensions:	To match external cladding

4.2 DAMP-PROOF COURSE

Brand/ply:	Refer to Section 4161

4.3 NAILS

Material head type:	TBC

4.4 ADHESIVE

Panel adhesive manufacturer:	TBC

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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 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:

AWCINZ	Association of Wall and Ceiling Industries of New Zealand Inc

Documents

1.3 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

1.4 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

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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

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

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

1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

Provide evidence of experience, listing completed projects of similar size and complexity.

1.7 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.

1.8 NO SUBSTITUTIONS

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

1.9 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:
~

- 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

1.10 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



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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 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.

1.14 ENVIRONMENTAL REQUIREMENTS

Durability to NZBC B2/AS1.

Performance - Wind (design by contractor)

1.15 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)

1.16 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

1.17 INSPECTIONS

~

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.

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2.3 KEY-LOCK DIRECT FIX CEILING SYSTEM

KEY-LOCK direct fix ceiling system to AS/NZS 2785, including suspension depths of up to 200mm.
Furring channels, Direct fix clips for fixing to timber, steel and concrete, to carry ceiling sheets, light fixtures and air distribution elements to comply with NZS 1170.5. Provide diagonal bracing to provide lateral stability if required. Perimeter trim, expansion joints and seismic joints etc. to AS/NZS 2785, as required.
Hot-dip galvanized steel elements manufactured from steel strip to AS 1397.

2.4 PRIMARY SECTIONS

Rondo 25mm or 38mm top cross rail to AS 1397. Steel grade and zinc coating class G2 Z275 to AS 1397.

2.5 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

2.6 DIRECT FIX CLIPS

Hot-dip galvanized steel elements manufactured from steel strip to AS 1397.

2.7 SECTION JOINERS

Hot-dip galvanized steel elements manufactured from steel strip to AS 1397.

2.8 RONDO WALL TRIM

Rondo wall trim sections to AS 1397. Steel grade and zinc coating class G2 Z275 to AS 1397.

2.9 RONDO SUSPENSION RODS, BRACKETS CLIPS, RODS & ANCHORS

Rondo components to AS 1397. Steel grade and zinc coating class G2 Z275 to AS 1397.

Accessories

2.10 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.

2.11 FASTENERS DIRECT FIX

8g-16 x 25mm (minimum) self drilling wafer head screws for fixing to timbers detailed in Rondo Professional Design Manual and to Rondo Building Services Pty Ltd requirements.

2.12 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

2.13 PLASTERBOARD

Gypsum plaster core encased in a face and backing paper formed to AS/NZS 2588. Refer to SELECTIONS for type and thickness.

2.14 LINING BOARD

Refer to SELECTIONS for type, thickness and finish.

2.15 INSULATION

Refer to SELECTIONS for type and thickness.

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Access Panels

2.16 ACCESS PANEL

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 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.

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.

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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.

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.

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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 ACCESS PANEL

Install to Rondo Panther installation requirements.

3.18 PROTECT EXISTING WORK

Protect adjacent existing work from damage during the installation.

Installation - Rondo KEY-LOCK Ceiling System

3.19 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

3.20 COMPLETION MATTERS

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

4 SELECTIONS

For further details on selections go to www.rondo.co.nz
Substitutions are not permitted.

Rondo KEY-LOCK Ceiling System

4.1 RONDO KEY-LOCK SUSPENDED CEILING SYSTEM

Location:	Refer to Reflected Ceiling Plan
Type/Brand:	KEY-LOCK Suspended Ceiling System
Top Cross Rails (TCR):	TBC
Furring Channels (FC):	TBC
TCR to FC Joiners:	TBC
Perimeter Trims:	TBC
Suspension Brackets & Clips:	To suit substrate and component selection

4.2 RONDO KEY-LOCK DIRECT FIX CEILING SYSTEM

Location:	Refer to Reflected Ceiling Plan
Type/Brand:	KEY-LOCK Direct Fix Ceiling System
Furring Channels (FC):	TBC
Perimeter Trims:	TBC
Fasteners direct fix:	To suit substrate and component selection

4.3 RONDO KEY-LOCK BULKHEAD SYSTEM

Location:	Refer to Reflected Ceiling Plan
Type/Brand:	KEY-LOCK Bulkhead System

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Access Panels

4.4 METAL FACED ACCESS PANELS

Location:	~
Brand:	Rondo PANTHER® Access Panel Systems
Type:	Metal faced
Size:	~

Insulation & Linings

4.5 INSULATION

Refer to Section 4711

4.6 PLASTERBOARD

Refer to Section 5113G

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5538VH VANDA BLINDS & CURTAIN TRACK SYSTEMS

1 GENERAL

This section relates to the supply and installation of Vanda Holdings Ltd blinds and curtain track systems.

1.1 RELATED WORK

Refer to 5530 BLINDS & CURTAINS for curtains and accessories.

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:

Vanda Information and Technical Sheets
Forest Information and Technical Sheets

Manufacturer/supplier contact details

Company:	Vanda Holdings Ltd
Web:	www.vanda.co.nz
Email:	admin@vanda.co.nz
Telephone:	0800 826 326

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

~ years	For materials

- Provide this warranty on the standard form 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:

~ 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.

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Requirements

1.7 QUALIFICATIONS

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.

2 PRODUCTS

Blinds

2.1 VANDA ROLLER BLINDS

Fabric roller blind with Acmeda Systems hardware. Available in a range of fabrics. Manually operable and motorised with Somfy Motorisation Systems. Available in a range of operation methods. Refer to SELECTIONS.

Curtain tracks

2.2 VANDA FLUSH FIT RECESSED CURTAIN TRACK

Recessed curtain track 16mm wide x 13mm high with a 5mm flange each side. Top fix tracks include pre-drilled fixing holes. Supplied with glides, end stops, cover plates, and pan square head self-tapping screws. Powder coated finish available in a range of colours. Available straight or with a bend radius. 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

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 INSTALLATION GENERALLY

Install systems rigid, plumb, true to line and face and square in accordance with Vanda Holdings and Forest installation instructions.

3.6 INSTALL VANDA FLUSH FIT RECESSED CURTAIN TRACK

Insert track into 18mm wide gap in ceiling lining. Finish track 11mm shorter that required to fit and remove glides. Screw fit track with supplied screws in the pre-drilled fixing holes. Fit 5mm flanges over ceiling lining concealing edge of lining.

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Completion & Commissioning

3.7 COMPLETION MATTERS

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

4 SELECTIONS

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

Blinds

4.1 VANDA ROLLER BLIND

Location:	TBC by the client
Roller system:	TBC by the client
Width:	Varies - Refer to Window schedule
Height:	Varies - Refer to Window schedule
Cassette type:	TBC
Fixing:	TBC
Operating system:	Manual or motorised - TBC by the client

Curtain tracks

4.2 VANDA FLUSH FIT RECESSED CURTAIN TRACK

Location:	Refer to Architectural drawings
Model:	Vanda Flush Fit Recessed Curtain Track
Material:	Aluminium
Type:	TBC
Colour:	TBC

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6211MW MAPEI WALL TILING

1 GENERAL

This section relates to the supply and installation of MBP (NZ) Ltd internal and external wall tiling systems.

It includes:

- primers
- waterproofing membranes
- adhesives
- grouts
- sealants

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:

PVC	Polyvinyl chloride
WMAI	Waterproofing Membrane Association (NZ) Incorporated
WPM	Waterproofing membrane

Documents

1.2 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
NZS 4121	Design for access and mobility - Buildings and associated facilities
WMAI CoP	Code of Practice for Internal Wet Area Membrane Systems

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:
Mapei® Technical Manual - Tile Installer's Manual - Products for Ceramic Tiles (Sept 2016)
Mapei® Technical Manual - Cementitious adhesives for installing ceramic tiles and natural stone (Sept 2016)
Mapei® Technical Manual - Guide for the Installation of Ceramic Materials (Sept 2018)
Mapei® product Technical Data Sheets
BRANZ Appraisal 484 (2018) - Mapegum WPS, Mapelastic, Mapelastic Smart, and Mapelastic AquaDefense Wet Area Membranes - Amended 6 October 2022
BRANZ Appraisal 485 (2018) - Mapelastic Smart and External Waterproofing Membranes - Amended 6 October 2022
Mapei® product BPIR

Manufacturer/supplier contact details

Company:	MBP (NZ) Ltd.
Web:	www.mbpltd.co.nz
Email:	enquiries@mbpltd.co.nz

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Telephone: 09 921 1994

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years:	For Mapelastic AquaDefense, Mapelastic Smart and Mapegum WPS
10 years	For other Mapei ceramic tile and stone products (excluding Ultracare 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 purchase

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.7 QUALIFICATIONS WORKERS - MANUFACTURER / SUPPLIER REQUIREMENTS

Waterproofing applicators to be approved by MBP (NZ) Ltd. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.8 NO SUBSTITUTIONS

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

Compliance information

1.9 COMPLIANCE - BRANZ APPRAISAL 484

Mapegum WPS, Mapelastic AquaDefense and Mapelastic Smart internal wet area membranes have been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 484.

1.10 COMPLIANCE - BRANZ APPRAISAL 485

Mapelastic Smart external wet area membrane has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 485.

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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2 PRODUCTS

Levelling mortar

2.1 NIVORAPID & LATEX PLUS
Cement-based, thixotropic levelling mortar with flexible polymer water dispersion for thicknesses from 3mm to 20mm.

Primers

2.2 PRIMER 3296
Acrylic polymer based primer in water dispersion for porous substrates.

2.3 ECO PRIM T PLUS
Acrylic resin primer in water dispersion.

2.4 ECO PRIM GRIP PLUS
One component synthetic resin primer in water dispersion.

Waterproofing membrane

2.5 MAPEGUM WPS
One component synthetic resin-based paste in water dispersion liquid waterproofing membrane. Grey colour.

2.6 MAPELASTIC AQUADEFENSE
One component synthetic resin-based paste in water dispersion liquid waterproofing membrane. Light blue colour.

2.7 MAPELASTIC SMART
Two component flexible cementitious liquid waterproofing membrane.

Adhesives

2.8 GRANIRAPID
Two component, cementitious adhesive with synthetic rubber latex. Classified C2FS1 to ISO 13007.1.

2.9 KERAQUICK MAXI S1
Cementitious adhesive. Suitable for application in layers up to 15mm thick. Classified C2FTS1 to ISO 13007.1.

2.10 KERAQUICK MAXI S1 & LATEX PLUS
Cementitious adhesive with flexible polymer water dispersion. Suitable for application in layers up to 15mm thick. Classified C2FS2 to ISO 13007.1.

2.11 KERABOND PLUS & ISOLASTIC
Cementitious adhesive with elastic polymer water dispersion. Classified C2TS2 to ISO 13007.1.

2.12 KERALASTIC T
Two component, polyurethane adhesive. Classified R2T to ISO 13007.1.

2.13 KERAFLEX MAXI S1 ZERO
Cementitious adhesive with synthetic resin. Classified C2TES1 to ISO 13007.1.

2.14 KERAPOXY ADHESIVE
Two component epoxy adhesive. Classified R2T to ISO 13007.1.

2.15 ULTRAMASTIC III
Pre-mixed acrylic resin paste adhesive. Classified D2TE to ISO 13007.1.

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2.16 ADESILEX P10 & ISOLASTIC FOR MOSAICS

Two component cementitious adhesive with elastic polymer water dispersion. Classified C2TES1 to ISO 13007.1.

2.17 ULTRALITE S1 FLEX ZERO

One component cementitious adhesive with synthetic resin. Classified C2TES1 to ISO 13007.1.

2.18 ULTRALITE S2 T FLEX

One component thixotropic cement and synthetic resin based adhesive. Classified C2ES2 to ISO 13007.1.

Grouts

2.19 ULTRACOLOR PLUS

Cement-based, polymer-modified grout for joints from 2mm to 10mm, with water repellent DropEffect and anti-mould with BioBlock technologies.

2.20 KERAPOXY

Two-component, chemical resistant epoxy grout for joints 3mm to 10mm wide. Classified RG to ISO 13007.3.

2.21 KERAPOXY EASY DESIGN

Two-component, chemical resistant epoxy grout with anti-mould BioBlock technology for joints 3mm to 15mm wide. Classified RG to ISO 13007.3.

Components - waterproofing

2.22 MAPEBAND SA TAPE

Alkali resistant butyl self-adhesive waterproofing tape.

2.23 MAPEBAND SA GASKET

Alkali resistant butyl self-adhesive waterproofing gasket, 370mm x 370mm square.

2.24 MAPEBAND EASY TAPE

Alkali resistant rubber waterproofing tape with a non-woven fabric face and back.

2.25 MAPEBAND EASY GASKET

Alkali resistant rubber waterproofing gasket with a non-woven fabric face and back, available 200mm x 200mm and 400mm x 400mm square.

2.26 MAPENET 150 REINFORCING MESH

Alkali-resistant fiberglass reinforcing mesh.

2.27 MAPETEX SEL REINFORCING FABRIC

Alkali resistant non-woven polypropylene reinforcing and anti-fracture fabric.

Components - cleaning

2.28 ULTRACARE KERANET EASY

Acid-based, pre-mixed general tile and grout cleaner.

2.29 ULTRACARE KERAPOXY CLEANER

Concentrated liquid detergent for removing epoxy grout.

Accessories

2.30 TRIMS

Tile trim, edge strips, floor finish divider strips and weather bars. Available in aluminium, brass and stainless steel. Refer to SELECTIONS.

2.31 MOVEMENT JOINT - ANGLE

Metal or PVC angle. Refer to SELECTIONS.



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2.32 MOVEMENT JOINT - INSERT

Polyurethane or neoprene insert. Refer to SELECTIONS.

2.33 MOVEMENT JOINT - SILICONE SEALANT

One part, flexible silicone sealant, Mapesil AC for acetic cure or Mapesil LM for neutral cure. Refer to SELECTIONS.

2.34 MOVEMENT JOINT - POLYURETHANE SEALANT

Mapeflex PU40, one part flexible thixotropic polyurethane based sealant. Refer to SELECTIONS.

2.35 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 75% maximum relative humidity, minimum 28 day cured concrete:

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, Mapei technical data sheets, and to WMAI CoP recommendations. Surfaces to be clean, sound and free of dust, oil, grease, curing compounds or release agents.

3.6 APPLY PRIMER

Brush or roll primer over surface.

3.7 APPLY LEVELLING MORTAR

Mix levelling mortar to Mapei instructions. Trowel onto prepared substrate to required thickness and fall, where required:

3.8 APPLY WATERPROOFING MEMBRANE

Reinforce corners and penetrations with waterproofing tape. Mix waterproofing components to Mapei instructions. Trowel, brush or roll on liquid waterproofing membrane over prepared surface. Apply two coats to achieve required minimum total dry film thickness to Mapei product technical data sheet.

3.9 SETTING OUT

Confirm tile layout and bond pattern. Cut tiles to tile manufacturer's recommendations. Provide joint widths to the tile manufacturer's recommendations.

3.10 MOVEMENT JOINTS GENERAL

Provide movement joints to AS 3958.1:

Depth:

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	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.

3.11 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.

3.12 APPLY ADHESIVE

Mix adhesive to Mapei instructions. Spread adhesive over prepared surface with a notched trowel to Mapei recommended bed thickness.

3.13 INSTALL TRIM

Press trim into wet adhesive.

3.14 INSTALL MOVEMENT JOINT ANGLE

Press angle into wet adhesive.

3.15 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 a tile periodically during installation to check for correct adhesive coverage. Do not fix tiles over skinned adhesive. Remove surplus adhesive from tile surfaces before adhesive sets.

3.16 APPLY GROUT

Mix grout to Mapei instructions. Work grout into joints with a rubber trowel to AS 3958.1. Allow the grout to firm up in the joint before wiping tile surface with a damp, dense sponge.

3.17 INSTALL MOVEMENT JOINT INSERT

Place insert between movement joint angles.

3.18 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

3.19 COMPLETION MATTERS

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

4 SELECTIONS

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

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Materials

4.1 TILES

Type, size and colour to be confirmed by client.

Tiled Internal Walls

4.2 MAPEI INTERNAL WALL TILING SYSTEM OVER PLASTERBOARD - WET AREA

Location:	Wet area rooms - Refer to Architectural plans
Supplier:	MBP (NZ) Ltd.
Substrate:	Plasterboard - GIB Aqualine
Levelling mortar:	Nivorapid & Latex Plus
Primer:	TBC
WPM:	TBC
Adhesive:	TBC
Grout:	TBC
Grout colour:	TBC

Components

4.3 MAPEI WATERPROOFING DETAILING & REINFORCEMENT

Location:	Wet area rooms - Refer to Architectural plans
Supplier:	MBP (NZ) Ltd.
Edges/expansion joints:	TBC
Penetrations:	TBC
Reinforcement:	TBC

Accessories

4.4 MOVEMENT JOINT

Insert:	TBC - Dependant of selected system

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6221M MAPEI FLOOR TILING SOLUTIONS

1 GENERAL

This section relates to the supply and installation of MBP (NZ) Ltd internal and external floor tiling systems.

It includes:

- primers
- screed and levelling compounds
- acoustic underlays
- waterproofing membranes
- adhesives
- grouts
- sealants

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:

CFC	Compressed fibre cement
PVC	Polyvinyl chloride
WMAI	Waterproofing Membrane Association (NZ) Incorporated
WPM	Waterproofing membrane

Documents

1.2 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 provisions for timber-framed buildings up to 10 m in height
NZBC E3/AS1	Internal moisture
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

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Mapei® Technical Manual - Tile Installer's Manual - Products for Ceramic Tiles (Sept 2016)
Mapei® Technical Manual - Cementitious adhesives for installing ceramic tiles and natural stone (Sept 2016)
Mapei® Technical Manual - Guide for the Installation of Ceramic Materials (Sept 2018)
Mapei® product Technical Data Sheets
BRANZ Appraisal 484 (2018) - Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes - Amended 6 October 2022
BRANZ Appraisal 485 (2018) - Mapelastic Smart and External Waterproofing Membranes - Amended 6 October 2022

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Mapei® product BPIR

Manufacturer/supplier contact details
Company: MBP (NZ) Ltd.
Web: www.mbpltd.co.nz
Email: enquiries@mbpltd.co.nz
Telephone: 09 921 1994

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years:	For Mapelastic AquaDefense, Mapelastic Smart and Mapegum WPS
10 years	For other Mapei ceramic tile products (excluding Ultracare 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 purchase

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.7 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

Waterproofing applicators to be approved by MBP (NZ) Ltd. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.8 NO SUBSTITUTIONS

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

Compliance information

1.9 COMPLIANCE - BRANZ APPRAISAL 484

Mapegum WPS, Mapelastic AquaDefense and Mapelastic Smart internal wet area membranes have been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 484.

1.10 COMPLIANCE - BRANZ APPRAISAL 485

Mapelastic Smart external wet area membrane has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its BRANZ Appraisal 485.

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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

Performance - slip resistance

1.12 SLIP RESISTANCE - PREVIOUSLY TESTED SURFACE

The following walking surfaces have previously been tested for slip resistance, and comply with NZBC D1/AS1 requirements.

~

1.13 TEST - SLIP RESISTANCE

Test walking surfaces for slip resistance, refer to SELECTIONS for test condition.

2 PRODUCTS

Levelling compounds

2.1 FIBERPLAN

Cement-based, fibre-reinforced, self-levelling compound for thicknesses from 3mm to 10mm.

2.2 ULTRAPLAN RENOVATION

Cement-based, fibre-reinforced, self-levelling compound for thicknesses from 3mm to 40mm.

2.3 ULTRAPLAN ECO

Cement-based, self-levelling smoothing compound for thicknesses from 1mm to 10mm.

2.4 NIVORAPID

Cement-based, thixotropic levelling mortar for thicknesses from 3mm to 20mm.

2.5 UC LEVELLER

Cement-based, self-levelling compound for thicknesses from 3mm to 70mm.

2.6 MAPECEM

Cement-based, rapid setting hydraulic binder for shrinkage-compensated screeds.

2.7 MAPECEM PRONTO

Cement-based, pre-mixed, rapid setting shrinkage compensated screed.

2.8 TOPCEM

Cement-based, hydraulic binder for shrinkage-compensated screeds.

2.9 PLANICRETE

Synthetic-rubber latex additive for use with cement based screeds and adhesives to improve mechanical and adhesive characteristics.

Primers

2.10 PRIMER 3296

Acrylic polymer based primer in water dispersion for porous substrates.

2.11 ECO PRIM T PLUS

Acrylic resin primer in water dispersion.

2.12 ECO PRIM GRIP PLUS

One component synthetic resin primer in water dispersion.

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2.13 PLANISEAL MR

Two component water based epoxy primer/barrier hydrostatic resistant coating.

Waterproofing membrane

2.14 MAPEGUM WPS

One component synthetic resin-based paste in water dispersion liquid waterproofing membrane. Grey colour.

2.15 MAPELASTIC AQUADEFENSE

One component synthetic resin-based paste in water dispersion liquid waterproofing membrane. Light blue colour.

2.16 MAPELASTIC SMART

Two component flexible cementitious liquid waterproofing membrane.

Adhesives

2.17 GRANIRAPID

Two component, cementitious adhesive with synthetic rubber latex. Classified C2FS1 to ISO 13007.1.

2.18 KERAQUICK MAXI S1

Cementitious adhesive. Suitable for application in layers up to 15mm thick. Classified C2FTS1 to ISO 13007.1.

2.19 KERAQUICK MAXI S1 & LATEX PLUS

Cementitious adhesive with flexible polymer water dispersion. Suitable for application in layers up to 15mm thick. Classified C2FS2 to ISO 13007.1.

2.20 KERABOND PLUS & ISOLASTIC

Cementitious adhesive with elastic polymer water dispersion. Classified C2TS2 to ISO 13007.1.

2.21 KERALASTIC T

Two component, polyurethane adhesive. Classified R2T to ISO 13007.1.

2.22 KERAFLEX MAXI S1 ZERO

Cementitious adhesive with synthetic resin. Classified C2TES1 to ISO 13007.1.

2.23 KERAPOXY ADHESIVE

Two component epoxy adhesive. Classified R2T to ISO 13007.1.

2.24 ADESILEX P10 & ISOLASTIC FOR MOSAICS

Two component cementitious adhesive with elastic polymer water dispersion. Classified C2TES1 to ISO 13007.1.

2.25 ULTRALITE S1 FLEX ZERO

One component cementitious adhesive with synthetic resin. Classified C2TES1 to ISO 13007.1.

2.26 ULTRALITE S2 T FLEX

One component thixotropic cement and synthetic resin based adhesive. Classified C2ES2 to ISO 13007.1.

Grouts

2.27 ULTRACOLOR PLUS

Cement-based, polymer-modified grout for joints from 2mm to 10mm, with water repellent DropEffect and anti-mould with BioBlock technologies.

2.28 KERAPOXY

Two component, chemical resistant epoxy grout for joints 3mm to 10mm wide. Classified RG to ISO 13007.3.



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2.29 KERAPOXY EASY DESIGN

Two component, chemical resistant epoxy grout with anti-mould BioBlock technology for joints 3mm to 15mm wide. Classified RG to ISO 13007.3.

Components - waterproofing

2.30 MAPEBAND SA TAPE

Alkali resistant butyl self-adhesive waterproofing tape, 100mm wide roll.

2.31 MAPEBAND SA GASKET

Alkali resistant butyl self-adhesive waterproofing gasket, 370mm x 370mm square.

2.32 MAPEBAND EASY TAPE

Alkali resistant rubber waterproofing tape with a non-woven fabric face and back, 130mm wide roll.

2.33 MAPEBAND EASY GASKET

Alkali resistant rubber waterproofing gasket with a non-woven fabric face and back, available 200mm x 200mm and 400mm x 400mm square.

2.34 MAPENET 150 REINFORCING MESH

Alkali-resistant fiberglass reinforcing mesh.

2.35 MAPETEX SEL REINFORCING FABRIC

Alkali resistant non-woven polypropylene reinforcing and anti-fracture fabric.

Components - cleaning

2.36 ULTRACARE KERANET EASY

Acid-based, pre-mixed general tile and grout cleaner.

2.37 ULTRACARE KERAPOXY CLEANER

Concentrated liquid detergent for removing epoxy grout.

Accessories

2.38 UNDERTILE HEATING

Proprietary electric undertile heating system complete with thermostat/controller.

Refer to 7553 UNDERFLOOR HEATING MAT SYSTEM for undertile heating.

2.39 TRIMS

Tile trim, edge strips, floor finish divider strips and weather bars. Available in aluminium, brass and stainless steel. Refer to SELECTIONS.

2.40 MOVEMENT JOINT - ANGLE

Metal or PVC angle. Refer to SELECTIONS.

2.41 MOVEMENT JOINT - INSERT

Polyurethane or neoprene insert. Refer to SELECTIONS.

2.42 MOVEMENT JOINT - SILICONE SEALANT

One part, flexible silicone sealant, Mapesil AC for acetic cure or Mapesil LM for neutral cure. Refer to SELECTIONS.

2.43 MOVEMENT JOINT - POLYURETHANE SEALANT

Mapeflex PU40, one part flexible thixotropic polyurethane based sealant. Refer to SELECTIONS.

2.44 MOVEMENT JOINT - BACKING ROD

Polyethylene foam (PEF) backing rod. 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.

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.

3.5 APPLICATION GENERALLY

To AS 3958.1, Mapei technical data sheets, and to WMAI CoP recommendations. Surfaces to be clean, sound and free of dust, oil, grease, curing compounds or release agents.

3.6 APPLY PRIMER

Brush or roll primer over surface.

3.7 APPLY LEVELLING COMPOUND

Mix levelling compound to Mapei 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 minimum	cross fall for outdoor accessways in public areas to NZS 4121

3.8 APPLY WATERPROOFING MEMBRANE

Reinforce corners and penetrations with waterproofing tape. Mix waterproofing components to Mapei instructions. Trowel, brush or roll on liquid waterproofing membrane over prepared surface. Apply two coats to achieve required minimum total dry film thickness to Mapei product technical data sheet.

3.9 INSTALL UNDERTILE HEATING

Refer to 7553 UNDERFLOOR HEATING MAT SYSTEM for installation of undertile heating.



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3.10 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.

3.11 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 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.

3.12 ADHESIVE APPLICATION GENERAL

For general floor tiling, use a 10mm x 10mm x 10mm notched trowel.

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.

3.13 APPLY ADHESIVE

Mix adhesive to Mapei instructions. Spread adhesive over prepared surface with a notched trowel to Mapei recommended bed thickness.

3.14 INSTALL TRIM

Press trim into wet adhesive.

3.15 INSTALL MOVEMENT JOINT ANGLE

Press angle into wet adhesive.

3.16 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 underside before laying into adhesive bed by spreading a thin layer of adhesive on the back of the tile to AS 3958.1. Remove a tile periodically during installation to check for correct adhesive coverage. Allow for grout joints between laid tiles to tile manufacturer's recommended width. Do not fix tiles over skinned adhesive. Promptly remove surplus adhesive from the tile surface.

3.17 APPLY GROUT

Mix grout to Mapei instructions. Work grout into joints with a rubber trowel to AS 3958.1. Allow the grout to firm up in the joint before wiping tile surface with a damp, dense sponge.

3.18 INSTALL MOVEMENT JOINT INSERT

Place insert between movement joint angles.

3.19 INSTALL MOVEMENT BACKING ROD & SEALANT

Place PEF backing rod into movement gap. Apply a continuous bead of silicone sealant over PEF backing rod.

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Completion & Commissioning

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

Test

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:	Refer to Architectural Plans
Surface:	Tiled floors
Test condition:	Level access - Wet
Level / slope:	Level or minimal slope (shower)
Specific reporting requirements:	TBC

Materials

4.2 TILES

Location:	Refer to Architectural Plans
Supplier:	TBC
Type:	TBC - To match wall
Class:	Class 2 - residential floor/wall tiles (suitable for light traffic e.g. bedrooms, bathrooms, hallways)
Bond pattern:	TBC

Tiled internal floors

4.3 MAPEI INTERNAL TILING SYSTEM OVER CONCRETE FLOOR - HEATED WET AREA

Location:	Refer to Architectural Plans
Supplier:	MBP (NZ) Ltd.
Substrate:	Concrete
Heating system:	Refer Undertile Heating section
Levelling:	TBC
Primer:	TBC
WPM:	TBC
Adhesive:	TBC
Grout:	TBC
Grout colour:	TBC

Components

4.4 MAPEI WATERPROOFING DETAILING & REINFORCEMENT

Location:	Refer to Architectural Plans
Supplier:	MBP (NZ) Ltd.
Edges/expansion joints:	TBC
Penetrations:	TBC
Reinforcement:	TBC

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Accessories

4.5 MOVEMENT JOINT
TBC

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6511 CARPETING

1 GENERAL

This section relates to the supply and installation of carpet laid conventionally (stretched), direct stuck or double bonded (double direct stuck).
It includes:

- carpet underlay
- woven sheet carpet

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
AS/NZS 2270	Plywood and blockboard for interior use
AS/NZS 2455.1	Textile floor coverings - Installation practice - General
BPS	Building Product Specifications

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

~

Manufacturer/supplier contact details

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

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

1 year:	For materials

- 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.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

1 year:	For execution

- 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.

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Requirements

1.6 QUALIFICATIONS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.7 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.

1.8 NO SUBSTITUTIONS

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

2 PRODUCTS

Materials

2.1 UNDERLAY

To AS/NZS 2455.1 Soft underlay and underlays manufacturer's requirements.

Refer to SELECTIONS for product selection.

2.2 CARPET

To AS/NZS 2455.1 Textile floor coverings.

Refer to SELECTIONS for product selection.

Components

2.3 BINDER BARS

Anodised aluminium section with fluted face.

2.4 DIVIDER STRIPS

Hardwood strips 20mm x 15mm or as specified. Refer to SELECTIONS for type and size.

2.5 EDGE GRIPPER

Timber/plywood to AS/NZS 2270 with steel grippers to carpet manufacturer's requirements, constructed of sufficient pins and nails so as to withstand a minimum stretching force of 6580N over a 1220 mm length.

Accessories

2.6 TAPE

To carpet manufacturer's requirements.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

Handle carpet on flat dollies using carpet cradles, with probes on fork- lifts and without sharp bending or folding. Store carpet in flat bins with a maximum height of three rows. Keep dry. Protect from damage.

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.

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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 all fittings and fixtures around which the carpet is to be scribed are in place. Carry out such additional preparatory work as required in bringing the substrate to suitable condition.

Confirm moisture content of substrate in accordance with AS/NZS 2455.1. Appendix B Do not commence laying carpet until readings for the whole area are within acceptable levels as follows:

Moisture Content:	Timber substrate - 8 -12% for air conditioned buildings - 10 -14% for intermittently heated buildings - 12 -16% for unheated buildings
	Concrete substrate 75%RH

3.4 BEFORE COMMENCING WORK

Ensure that the building is enclosed, wet work complete, doors hung and lockable, finishes and trim complete, and good lighting available, before starting work.

3.5 TEMPERATURE

Acclimatise carpet to a room temperature above 15°C through the whole of the installation.

3.6 PROTECTION

Protect adjoining work surfaces and finishes during the carpet installation.

3.7 TAPE

Tape for binding and seaming using type and width required by the carpet manufacturer to suit the specified carpet and the standard of performance required.

3.8 LAYING GENERALLY

Carry out the whole of the work to AS/NZS 2455.1 and to the flooring manufacturer's requirements.

3.9 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.

Application - general / substrate preparation

3.10 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.11 PREPARING NEW CONCRETE FLOOR

To be level, smooth, clean, cured and dry. Remove loose material and dust.

Application - carpet laying

3.12 INSTALLATION, UNDERLAY

Installation to underlay manufacturer's requirements. Lay at right angles to the carpet direction.

3.13 INSTALLATION, CONVENTIONAL SYSTEM

Tape carpet joints, fix grippers to floor and install underlay and carpet to AS/NZS 2455.1, section 3. Stretch carpet tight in both width and length evenly without bowing, square with walls.

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3.14 FIXING TRIMS

Fix binder bars, carpet to carpet bars, and trims to all junctions with other materials and to carpet edges, to the carpet manufacturer's requirements. Ensure that junctions with other materials are neatly formed, with bars and trim securely fastened to the substrate, 20mm from each end and at a maximum of 100mm centres.

Completion

3.15 PROTECTION

Provide the following temporary protection of the finished work:

~

3.16 SPECIAL PROTECTION

Self Adhesive carpet protective film: ~

3.17 COMPLETION MATTERS

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

4 SELECTIONS

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

Materials

4.1 CARPET & UNDERLAY

Location	Brand/type /weight/code	Installation method
Refer to Architectural plans	TBC	TBC

Accessories

4.2 DIVIDER STRIPS

Brand/material: TBC
Dimension: TBC
Finish: TBC

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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 for buildings other than risk group SH
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	Health and Safety Programme

Health and Safety at Work Act 2015

1.4 MANUFACTURER'S DOCUMENTS

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

~

Copies of the above literature are available from ~

Web:	~
Email:	~
Telephone:	~

Requirements

1.5 NO SUBSTITUTIONS

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

1.6 QUALIFICATIONS

Painters to be a member of MPNZA and experienced competent workers, familiar with the materials and the techniques specified.

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1.7 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety at Work Act 2015 and WorkSafe: 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: 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.

1.8 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.

Warranties

1.9 WARRANTY

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

2 years: Warranty period

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

Performance

1.10 MANUFACTURER'S INSPECTION

Allow the paint manufacturers to inspect the work in progress and to take samples of their products from site if requested.

1.11 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.

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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 and WorkSafe: 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.

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.

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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.

3.11 PROTECTION

Use dropsheets, coverings and masking necessary to protect adjoining fixtures, fittings and spaces from paint drops, spots, spray and damage.

Preparation - gypsum plaster

3.12 PREPARING GYPSUM PLASTER

Fill and sand small crevices and cracks. Surface moisture content not to exceed 12% at time of coating.

Preparation - unpainted linings

3.13 PREPARING FIBROUS PLASTER

Check for and remove release agents and other contaminants by washing with clean water or solvent and allow to dry. Fill cracks and surface imperfections with patching plaster and lightly sand smooth. Remove dust.

3.14 PREPARING PLASTERBOARD

Check that joints are prepared to a smooth level surface finish. Fill cracks and surface imperfections with the sheet manufacturer's required stopping compound and lightly sand smooth. Remove dust.

Preparation - painted surfaces generally

3.15 SURFACE PREPARATION

Refer to the Manufacturer's specification sheets and product data sheets. Carry out the preparatory work required by them for each of the substrates.

For interior surfaces such as paper faced plasterboard use the Manufacturer's recommended finishing compound as an aid to achieving a Level 5 finish.

3.16 MOULD

Sterilise surface mould by washing or sponging the whole surface with a one part sodium hypochlorite household bleach to three parts clean water solution. Allow bleach to act for 30 minutes and wash off with clean water. Wash cloths and sponges regularly in clean water. Reapplication may be necessary. Treat with anti-mould solution to the treatment manufacturer's requirements.

3.17 GAP FILLING

Fill cracks, holes, indented and damaged surfaces with putty, plaster filler, wood filler, or plastic wood, as appropriate and in accordance with the paint manufacturer's requirements. Allow to dry or set before sanding back level with the surface. Prime coat or seal the timber before using putty. Wet cement or gypsum base plasters before applying filler. Use only Portland cement base types, or water-insoluble organic-based gap fillers in exterior or wet areas.



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Application - before applying final coatings

3.18 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.

3.19 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.

3.20 CONCEALED JOINERY SURFACES

Apply off-site coatings to all surfaces including those which will be concealed when incorporated into the building.

3.21 CONCEALED METAL SURFACES

Apply primer to suit the coating system to all metal surfaces which will be concealed when incorporated into the building.

3.22 DOORS

Prime or seal and paint all six faces of doors before hanging.

3.23 BEAD GLAZING

Before glazing apply the first two coats, or the primer and one undercoat, to rebates of stained, varnished or painted joinery and beads.

3.24 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

3.25 PAINTING GENERALLY

Comply with the paint manufacturer's requirements and any additional requirements in this specification.

3.26 MIXING

Thoroughly mix paints. Lift any settled pigment and ensure the paint is homogenous.

3.27 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

3.28 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

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- internally, paint ceilings before walls and walls before joinery, trim and other items

3.29 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.

3.30 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.

3.31 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.

3.32 DEFECTIVE WORK

Correct defective work immediately and re-coat as required, following precisely the paint system specified.

3.33 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

Completion

3.34 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.

3.35 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.

3.36 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.

3.37 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.

3.38 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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7411 RAINWATER SPOUTING SYSTEMS

1 GENERAL

This section relates to rainwater disposal systems including spouting and downpipes in:

- metal
- PVC

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.

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
Spouting	Roof gutter bracketed off the roof edge or fascia.
Gutter	Internal gutter or gutter formed as integral part of the roof fabric.

Documents

1.3 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
AS 1273	Unplasticised PVC (uPVC) downpipe and fittings for rainwater
AS/NZS 3500.3	Plumbing and drainage - Stormwater drainage
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

1.4 MANUFACTURER'S DOCUMENTS

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

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Copies of the above literature are available from ~

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

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this work under normal environmental and use conditions:

10 Years	For failure of coating adhesion
10 Years	For weatherproofing by material penetration

Form:	Manufacturer's standard warranty form
From:	Commence the warranty from the date of completion of installation

Refer to the general section 1237 WARRANTIES for details of when completed warranty must be submitted.

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1.6 WARRANTY - INSTALLER/APPLICATOR

Warrant this work under normal environmental and use conditions against:

3 years:	For weatherproofing by substandard workmanship:
From:	Commence the warranty from the date of completion of installation
Form:	Installers standard warranty form

Refer to the general section 1237 WARRANTIES for details of when completed warranty must be submitted.

Requirements

1.7 QUALIFICATIONS

Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

Performance

1.8 TEST

Test the completed rainwater disposal system with water to ensure spoutings are laid to correct falls, that both spouting and downpipes are unobstructed and that no ponding occurs in spoutings.

2 PRODUCTS

Materials - metal

2.1 SPOUTING

Complete with matching brackets to suit spouting and screws. Refer to SELECTIONS for type.

2.2 SPOUTING BRACKETS

All exposed brackets to be colour matched before installation. Brackets to be hot-dipped galvanised, zincalume, aluminium, stainless steel or brass as specified and to suit application. Electroplated components are not acceptable. Refer to SELECTIONS for type.

2.3 DOWNPIPES

Complete with stand-off brackets, screw fixed. Refer to SELECTIONS for type.

Components

2.4 DROPPERS

Metal or uPVC droppers, compatible with spouting material and sized to fit inside the downpipe.

2.5 FASTENERS GENERALLY

Minimum Class 4 durability and not less than the roofing material being fixed.

2.6 RIVETS

Sealed aluminium, minimum diameter 4mm.

2.7 SEALANT

MS Polymer sealant.

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3 EXECUTION

Conditions

3.1 HANDLE AND STORE

Handle and store downpipes, spouting 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. Avoid exposure to sunlight if strippable film is still on the product.

3.2 SUBSTRATE

Check that fascias, barges or cladding are level and true to line and face and will allow work of the required standard without distortion to the product alignment. Do not proceed until they are up to standard.

3.3 THERMAL MOVEMENT

Make adequate provision in the fixing and jointing of the spouting for thermal movement in the length of the spouting. Provide an expansion joint in spouting over 18 metres in length for steel gutter.

3.4 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. Do not allow copper downpipes to discharge onto lower galvanized or zinc aluminium coated steel roofs.

Application - metal

3.5 INSTALLATION GENERALLY

Install to NZMRM CoP recommendations where not otherwise specified.

3.6 INSTALL VALLEY GUTTERS

Attach valley gutters to valley boards by clips allowing for thermal movement to NZMRM CoP, clause 5.6, **Valley Gutters**. Separate valley gutter from valley boards with a layer of bituminous roof underlay.

3.7 INSTALL SECRET GUTTERS

Install secret gutters to fall allowing for thermal movement to NZMRM CoP, clause 5.5.7 **Secret Gutters**. Rivet and seal joints with MS Polymer sealant.

3.8 INSTALL METAL SPOUTING

Establish minimum falls necessary (minimum 1:500, 2mm in 1 metre) to outlets to prevent ponding and screw fix brackets, true to line at 750mm centres maximum for external gutters less than 175mm wide and at 600mm centres maximum for gutters 175mm to 300mm wide. In areas where snow fall is possible the centres should be reduced to 600mm maximum. Lap spouting joints a minimum of 40mm, silicone seal between surfaces and pop rivet to the manufacturer's recommendations. Ensure the joint is fixed over its full girth. Cut out neatly for and fit the pre-formed downpipe dropper and rivet and seal around the joint. All installation to NZMRM CoP recommendations.

3.9 INSTALL PRE-PAINTED METAL SPOUTING

Establish minimum falls necessary (minimum 1:500, 2mm in 1 metre) to outlets to prevent ponding and screw fix brackets true-to-line at 750mm centres maximum for external gutters less than 175mm wide and at 600mm centres maximum for gutters 175mm to 300mm wide. In areas where snow fall is possible the centres should be reduced to 600mm maximum. Lap spouting joints a minimum of 40mm and silicone seal and pop rivet to the manufacturer's recommendations. Cut out neatly for and fit the pre-formed downpipe dropper and silicone seal around the lap joint. All installation to NZMRM CoP recommendations.

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3.10 INSTALL DROPPERS

Install either 2 outlets or one outlet and an overflow to each spouting section. Cut out neatly for and fit the pre-formed downpipe dropper and rivet and seal around the joint. All installation to NZMRM CoP recommendations.

3.11 INSTALL METAL DOWNPIPES

Form downpipes complete with angle bends as needed with joints lapped and sealed. Screw fix with pipe clips to rigidly stand off the wall plumb and discharging into stormwater gully or inlet pipe. All installation to NZMRM CoP recommendations.

3.12 INSTALL SUMPS

Install sumps where required to NZMRM CoP, clause 5.8, **Sumps**.

3.13 INSTALL OUTLETS AND OVERFLOWS

Install outlets and overflows where required to NZMRM CoP, clauses 5.8.2, **Outlets and Overflows.**

3.14 INSTALL SUMP PROTECTION

Install leaf guards of the same area as the sump. Set the leaf guard above the calculated level of flow; not directly in the outlet.

Completion

3.15 REPLACE

Replace damaged or marked elements.

3.16 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.

3.17 REMOVE

Remove debris, unused materials and elements from the site.

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4 SELECTIONS

4.1 SPOUTING

Brand:	~
Profile/size:	Custom size - Refer to Roof Plan & Architectural Details
Cross section:	Varies - Refer to Roof Plan
Material:	Steel
Thickness:	0.55mm
Coating system:	Zincalume for externally visual spouting, Colorsteel maxam to concealed spouting
Colour:	TBC

4.2 SPOUTING BRACKETS

Material:	As per supplier's recommendations

4.3 DOWNPIPES

Brand:	~
Profile/size:	Refer to Roof Plan
Material:	Steel
Thickness:	0.55mm
Coating system:	Zincalume for externally visual pipes, PVC for internally routed pipes
Colour:	-

4.4 DOWNPIPE BRACKETS

Material:	To match dowpipe

Miscellaneous items

4.5 SUMPS

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