

SPECIFICATION

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

Omarino Boatshed Addition

Project Specification

285 MANAWAORA ROAD, PAREKURA BAY, New Zealand

Project Ref:

Printed: 28 August 2025



masterspec

Specification built using Masterspec software
Project ID: 332501 - 409775

TABLE OF CONTENTS

1220	PROJECT	3
1222	PROJECT PERSONNEL	5
1232	INTERPRETATION & DEFINITIONS	6
1233	REFERENCED DOCUMENTS	8
1234	DOCUMENTATION	9
1235	SHOP DRAWINGS	14
1235S1	SCHEDULE OF SHOP DRAWINGS	16
1237	WARRANTIES	17
1237S1	SCHEDULE OF WARRANTIES	19
1237WA	WARRANTY AGREEMENT	20
1239	OPERATION & MAINTENANCE	23
1240	ESTABLISHMENT	26
1270	CONSTRUCTION	28
2112	PARTIAL DEMOLITION	31
2221	REMOVING VEGETATION	34
2241	EXCAVATION	35
2361	STRIP FOOTINGS	38
3102	CONCRETE WORK - STANDARD	39
3130	PRECAST CONCRETE	40
3410	STRUCTURAL STEEL	41
3813	ENGINEERED WOOD PRODUCTS	42
3821	TIMBER FRAMING	43
4161	UNDERLAYS, FOIL AND DPC	47
4171E	ECOPLY® BARRIER RIGID AIR BARRIER SYSTEM	51
4231HA	JAMES HARDIE AXON™ PANEL CLADDING	55
4257M	METALCRAFT INSULATED PANEL SYSTEMS	60
4337E	ECOPLY® ROOFING & DECKING	66
4422NT	NURAPLY TPO ROOF & DECK MEMBRANE	69
4576MB	METALBILT COMMERCIAL & INDUSTRIAL DOORS & GRILLES	76
4611	GLAZING EXTERIOR	80
4811S	SIKA SEALANTS	84
4821	FLASHINGS	90
6141	GROUND, SEALED OR POLISHED CONCRETE	93



6700R	RESENE PAINTING GENERAL	95
6711R	RESENE PAINTING EXTERIOR	100
6721R	RESENE PAINTING INTERIOR	102
6745R	RESENE PROTECTIVE COATINGS - STEELWORK	104
7411MA	MARLEY RAINWATER DISPOSAL SYSTEMS	109
7431	DRAINAGE COMMON REQUIREMENTS	113
7702	ELECTRICAL STANDARD	115
8142	TIMBER POST RETAINING WALLS	127

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

Addition of 6 boatsheds(4850Wx16250L, timber retaining wall and extended concrete driveway to suit.

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.

1.5 DESIGN CONSTRUCTION SAFETY MATTERS

The project has the following unusual or atypical features, which a reasonably experienced contractor may not be aware of, that may present an unexpected hazard or risk during a typical construction process.

ITEM	COMMENT
Steep Embankment	Extreme care to be taken during excavation

Provide particular health and safety procedures and methods to mitigate these hazards or risks, and specifically include them as well as any other health and safety matters in the site Health and Safety Plan (refer to section 1260 PROJECT MANAGEMENT for Plan requirements). The Contractor is still required to undertake its own assessment, to determine if they consider there are further safety matters and provide for these in carrying out the construction of the work.

Site

1.6 SITE

The site consists of: Estuary frontage and flat area and a steep embankment starting from the front of the boathouse

As shown on drawing: A0-003 Site and Location Plan

1.7 LEGAL DESCRIPTION

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

1.8 EXISTING BUILDINGS

Existing buildings consist of: Boatshead 2A, Impliment Shed and Boatshead 2B

Refer drawing(s): A0-003 Site and Location Plan

1.9 EXISTING SERVICES

The following are the network utility services:

Electrical: Yes

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 4 of 136 - 24/10/2025 - OG

Communications:	No
Water:	Yes
Gas:	No
Stormwater:	Site
Foul water:	No

The services are also shown on the drawings.

1.10 SITE FEATURES

Forecourt is sealed. Hillside is low bush/scattered shrubs above the building

Site environment - Durability

1.11 EXPOSURE ZONE

The exposure zone is to [NZS 3604](#), Section 4 Durability, 4.2 Exposure zones and [NZBC E2/AS1](#).
The site zone is: D

Site environment - Wind

1.12 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 Extra High (refer to [NZS 3604](#), table 5.4)

Site environment - Seismic

1.13 EARTHQUAKE ZONE - NON SPECIFIC DESIGN

The zone is to [NZS 3604](#), Section 5 Bracing design, 5.3 Earthquake bracing demand.

The earthquake zone 1
is:

Archaeological discovery

1.14 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.

1222 PROJECT PERSONNEL

1 GENERAL

This general section provides a list of the parties who are involved with the project. Communications to these personnel are to be sent to them at the address as listed. Refer to the construction contract for:

- the roles that they have under the contract; and
- address details for notices being given under the contract.

Principal

1.1 PRINCIPAL (CLIENT)

Name: Kallum Brown
 Represented by: Azuma Property
 Mobile: 021 977 975
 Email: kallum@azuma.nz

Contractor

1.2 SITE FOREMAN

Person: tbc
 Mobile: tbc
 Telephone: tbc
 Email: tbc

Consultants

1.3 ARCHITECT

Practice: Bossley Architects
 Postal: Box 47748 Auckland 1144
 Street: 2/55 Mackelvie Street Ponsonby Auckland 1021
 Telephone: 09 361 2201
 Represented by: Finn Scott
 Mobile: 021 202 7849
 Email: finn@bossleyarchitects.co.nz

1.4 STRUCTURAL ENGINEER

Practice: PK Engineers
 Street: National Bank Building, Level 1/90 Kerikeri Road, Kerikeri 0230
 Telephone: 09 407 3255
 Represented by: Rahul
 Mobile: 027 350 4774
 Email: pk@pkengin.co.nz

1.5 CIVIL ENGINEER

Practice: PK Engineers
 Postal: National Bank Building, Level 1/90 Kerikeri Road, Kerikeri 0230
 Street: National Bank Building, Level 1/90 Kerikeri Road, Kerikeri 0230
 Telephone: 09 407 3255
 Represented by: Rahul
 Mobile:
 Email: pk@pkengin.co.nz

1232 INTERPRETATION & DEFINITIONS

1 GENERAL

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

Definitions

1.1 DEFINITIONS

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

1.2 PERSONNEL

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

1.3 ABBREVIATIONS

The following abbreviations are used throughout the specification:

AAMA	American Architectural Manufacturers Association
AS	Australian Standard
AS/NZS	Joint Australian/New Zealand Standard
ASTM	American Society for Testing and Materials
AWCINZ	Association of Wall and Ceiling Industries of New Zealand Inc.
BCA	Building Consent Authority
BPIR	Building Product Information Requirements
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.

1233 REFERENCED DOCUMENTS

1 GENERAL

1.1 REFERENCED DOCUMENTS

Throughout this specification, reference is made to various [New Zealand Building Code Compliance Documents](#) (NZBC E2 AM1), acceptable solutions (AS1-3) and verification methods (___ VM_) for criteria and/or methods used to establish compliance with the [New Zealand Building Code](#).

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

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

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

1.2 DOCUMENTS

Documents referred to in the GENERAL sections are:

NZBC F5/AS1	Construction and demolition hazards
AS/NZS 1170.2:2011	Structural design actions - Wind actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 3012	Electrical installations - Construction and demolition sites
NZS 3109	Concrete construction
NZS 3114	Specification for concrete surface finishes
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 4210	Masonry construction: Materials and workmanship
NZS 4781	Code of Practice for Safety in Welding and Cutting
AS/NZS 5131	Structural steelwork - Fabrication and erection
NZS 6803	Acoustics - Construction Noise
Building Act 2004	
Building Regulations 1992	
Health and Safety at Work Act 2015	
Health and Safety at Work (General Risk and Workplace Management) Regulations 2016	
Health and Safety at Work (Hazardous Substances) Regulations 2017	
Health and Safety in Employment Regulations 1995	
New Zealand Building Code	
Heritage New Zealand Pouhere Taonga Act 2014	
Resource Management Act 1991	
Smoke-free Environments Act 1990	
WorkSafe	Guidelines for the provision of facilities and general safety in the construction industry
WorkSafe	Good Practice Guidelines - Excavation Safety
WorkSafe	Scaffolding in New Zealand - Good Practice Guidelines
WorkSafe	Managing Work Site Traffic - Good Practice Guidelines

1234 DOCUMENTATION

1 GENERAL

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

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

Building Consent Authority documentation

1.1 BUILDING CONSENT

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

1.2 BUILDING CONSENT COMPLIANCE

It is an offence under the [Building Act 2004](#)

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

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

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

1.3 PROJECT PERSONNEL

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

Licensed Building Practitioner documentation

1.4 LICENSED BUILDING PRACTITIONERS

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

Include the following as applicable

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

Also provide names and contact details of the following

- Registered drainlayer

- Registered plumber
- Registered gasfitter
- Registered electrician

1.5 RECORD OF WORK

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

Compliance information

1.6 DOCUMENTATION REQUIRED FOR CODE COMPLIANCE

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

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

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

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

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

1.7 PRODUCER STATEMENTS

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

Residential building contract

1.8 CHECKLIST

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

1.9 DISCLOSURE STATEMENT

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

1.10 BUILDING CONTRACT

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

1.11 DOCUMENTATION REQUIRED ON COMPLETION

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

Information and documentation relating to:

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

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

Substitutions

1.12 ACCEPTABLE PRODUCT/MATERIAL SUPPLIERS

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

1.13 NO SUBSTITUTIONS

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

1.14 PROPOSED SUBSTITUTIONS

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

1.15 NOTIFICATION OF SUBSTITUTIONS

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

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

Plus an assessment of:

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

and if requested:

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

1.16 ACCEPTANCE OF SUBSTITUTIONS

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

Amendments to issued Building Consent

1.17 CONTRACTOR AMENDMENTS TO BUILDING CONSENT

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

The contractor must:

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

1.18 PRINCIPAL AMENDMENTS TO BUILDING CONSENT

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

The principal will:

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

Manufacturer's documents

1.19 MANUFACTURER'S AND SUPPLIER'S INSTALLATION REQUIREMENTS

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

1.20 CONTRACTOR TO OBTAIN CURRENT DOCUMENTATION

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

1.21 DOCUMENTATION PROVIDED FOR BUILDING CONSENT

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

Branded work sections**1.22 BRANDED PRODUCTS / SYSTEMS**

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

1.23 CROSS REFERENCED WORK SECTIONS

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

Care of construction documents**1.24 CONSTRUCTION ISSUE**

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

1.25 REVISIONS TO CONSTRUCTION ISSUE

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

Delete superseded documents by either:

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

1.26 RETURN DOCUMENTS ISSUED FOR CONSTRUCTION

On completion of the contract works:

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

The Contract Administrator will advise whether such documents shall be:

- delivered to the Contract Administrator/Owner; or
- disposed of by normal waste disposal methods; or
- disposed of by secure document disposal methods.

Confidentiality of documents**1.27 CONFIDENTIALITY OF DOCUMENTS**

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

Maintain confidentiality of documents.

2 SELECTIONS**Receipt of construction documents**

2.1 INITIAL ISSUE & REVISIONS - HARD COPIES

Initial issue: TBC
Revisions: TBC

2.2 DOCUMENT RECEIPT - HARD COPIES

Hard copies of plans, specifications and other documents issued for construction are to be confirmed with selected Contractor

2.3 DOCUMENT RECEIPT - ELECTRONIC DOCUMENTS

Electronic documents issued for construction shall be either:

- Obtained as an email attachment sent to an agreed address.
- Obtained from a file hosting service.

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 14 of 136 - 24/10/2025 - OG

1235 SHOP DRAWINGS

1 GENERAL

This general section relates to common requirements for the preparation, submission and review of shop drawings referred to in this specification and in separate specifications/documents relating to this project. Detailed requirements for shop drawings for particular parts of the work are included in the specific work section.

1.1 SCHEDULE SECTION

Refer to 1235S1 SCHEDULE OF SHOP DRAWINGS for work sections contained in this specification that have requirements for shop drawings.

1.2 SHOP DRAWING FORMAT

Prepare shop drawings at appropriate scales to enable good legibility. Unless otherwise specified in a work section, submit shop drawings in the format as listed in SELECTIONS.

1.3 PROGRAMME FOR SHOP DRAWINGS

Allow time in the programme for the preparation, coordination and review of shop drawings. Allow also for such resubmission and further review as may be required prior to fabrication. No extension of time will be allowed for resubmission and further review.

1.4 COMMUNICATION WITH SHOP DRAWING DETAILER

Agree and arrange for such direct contact as is appropriate between detailer, consultant and others whose input may be required in the preparation of the shop drawings. Such direct communication does not relieve the contractor of the need to carry out their own coordination and check of shop drawings.

1.5 CONTRACTOR COORDINATION OF SHOP DRAWINGS

Before submitting the shop drawings for review, carry out coordination to ensure that allowance has been made for all other parts of the work that relate to the work detailed in the shop drawings.

1.6 COORDINATION WITH SITE MEASURE

The contractor is solely responsible for coordination of shop drawing dimensions with site measurements. The reviewer's dimensional review is limited to visual/aesthetic matters only

1.7 SHOP DRAWING REVIEW

Submit shop drawings to the named reviewers for review, in due time to ensure conformance with the contract programme.

- Where no time is stated in a specific section allow 10 working days for review by the reviewer. Where a large number of drawings are involved more time will be necessary.
- Where no person is named as the reviewer, submit the shop drawings to the contract administrator.

Shop drawing review indicates only that the shop drawing interpretation of the design concept has been reviewed without the need for further modification, other than the corrections indicated by the reviewer.

The reviewer may advise that:

- The shop drawings have been reviewed and work may proceed; or
- The shop drawings have been reviewed and work may proceed subject to notes, annotations or comments provided; or
- The shop drawings have been reviewed and work may proceed subject to notes, annotations or comments provided. Resubmitted revised shop drawings shall be provided for the record, or
- Work may not proceed. Revise and resubmit shop drawings

1.8 RESPONSIBILITY

Review of shop drawings does not relieve the contractor of responsibility for the correctness of the shop drawings, site dimensions, the overall design, coordination and performance, or for ensuring the work is carried out in compliance with the contract documents. It 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. Review cannot be construed as authorising departures from the contract documents.

1.9 RESUBMISSION OF SHOP DRAWINGS

Reviewed drawings which are required to be resubmitted to correct comments or notations indicating where the shop drawings are at variance with the contract documents, are to be modified and resubmitted to the reviewer for re-review. Allow 5 working days for re-review by the reviewer.

1.10 WORK MAY PROCEED

Before proceeding with any fabrication, installation or erection, advice must be obtained from the named reviewers that work may proceed. Where no named reviewer has been nominated advice must be obtained from the contract administrator.

1.11 BIM MODEL

BIM (Building Information Model) is being used for the construction of the works. Refer to SELECTIONS for details of the BIM model and the information required to be included.

SELECTIONS

2.1 SHOP DRAWING FORMAT

Submit the shop drawings in the following format

	Format/Size
Hardcopy	Not required
Electronic copy	PDF
CAD file	As required

1235S1 SCHEDULE OF SHOP DRAWINGS

1 GENERAL

This schedule section identifies work sections in the specification that have requirements for the preparation, submission and review of shop drawings.

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- 1235 SHOP DRAWINGS
- Identified Work Sections

Shop drawings

1.2 SHOP DRAWINGS

Refer to the following sections:

4576MB Metalbilt Commercial & Industrial Doors & Grilles

1.3 SHOP DRAWINGS - ADDITIONAL ITEMS

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

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 17 of 136 - 24/10/2025 - OG

1237 WARRANTIES

1 GENERAL

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

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

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

1.1 SCHEDULE SECTION

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

Warranties

1.2 PROVIDE WARRANTIES

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

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

1.3 WARRANTIES - INSTALLER/APPLICATOR

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

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

1.4 WARRANTIES - MANUFACTURER/SUPPLIER

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

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

Submission

1.5 REVIEW BY CONTRACTOR

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

1.6 WARRANTIES - REQUIRED BY BUILDING CONSENT AUTHORITY

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

1.7 WARRANTIES - REQUIRED BY CONTRACT

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

2 SELECTIONS

Project warranties / guarantees**Guarantees - Contractor - Master Build Services Ltd**

2.1 MASTER BUILD SERVICES LTD - 10 YEAR GUARANTEE

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

Guarantee - Contractor - New Zealand Certified Builders Association**Weathertightness and watertightness warranty**

2.2 WEATHERTIGHTNESS AND WATERTIGHTNESS WARRANTY

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

Provide this warranty in favour of the principal. The terms and conditions of this warranty in no case negate the minimum remedies available under common law as if no warranty had been offered.

Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

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

1237S1 SCHEDULE OF WARRANTIES

1 GENERAL

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

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

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

Warranties

1.2 WARRANTIES

Refer to the following sections:

4231HA	James Hardie Axon™ Panel Cladding
4257M	Metalcraft Insulated Panel Systems
4422NT	Nuraply TPO Roof & Deck Membrane
4576MB	Metalbilt Commercial & Industrial Doors & Grilles
4611	Glazing Exterior
4811S	Sika Sealants
6700R	Resene Painting General
6745R	Resene Protective Coatings - Steelwork
7411MA	Marley Rainwater Disposal Systems
7702	Electrical Standard

1.3 PROJECT WARRANTIES

Refer to section 1237 WARRANTIES for project warranties.

1.4 WARRANTIES - ADDITIONAL ITEMS

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

1237WA WARRANTY AGREEMENT

1 SPECIFICS

1.1 PARTIES TO THE WARRANTY AGREEMENT

Principal: Kallum Brown
Azuma Property

Contractor: tbc
.....

Warrantor: tbc
.....

1.2 BACKGROUND

The principal has entered into a contract with the contractor for carrying out the contract works. The warranted works / materials are part of the contract works. The contractor has agreed to arrange for the provision of a warranty in respect of the warranted works / materials for the warranty period on the terms set out in this warranty. The warrantor has agreed to provide a warranty in respect of the warranted Works / materials for the warranty period on the terms set out in this warranty agreement.

1.3 LOCATION

Project name: Omarino Boatshed Extension
.....

Project address: 285 Manawaora Road
Waipiro Bay

1.4 WARRANTED WORKS

Warranted works: ~
.....

Warranty period: ~ years from the date of practical completion of the contract works.

1.5 WARRANTED MATERIALS

Warranted materials: ~
.....

Warranty period: ~ years from the date of practical completion of the contract works.

2 WARRANTY TERMS

2.1 WORKS ARE AS REQUIRED IN THE CONTRACT

The warrantor warrants to the principal that the warranted work performed /materials supplied shall be as required in the contract. If not otherwise specified the work shall be of good trade practice with materials and fittings of merchantable quality.

2.2 WARRANTY ADDITIONAL TO OTHER OBLIGATIONS

This warranty shall be in addition to and shall not derogate from any manufacturer's warranty or any warranty implied by law, or any contract defects liability obligations, attaching to any part of the warranted works.

2.3 WARRANTOR TO REMEDY DEFECTS

The warrantor agrees that if within the warranty period, the warrantor is advised by the principal in writing of any defect in the warranted works / materials for which the warrantor is liable under the terms of this warranty, the warrantor will promptly take steps to remedy the defect / replace defective materials.

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 21 of 136 - 24/10/2025 - OG

2.4 CARRYING OUT REMEDIAL WORK / REPLACEMENT OF DEFECTIVE MATERIALS

Any remedial work / replacement of defective materials which the warrantor is liable to undertake / provide under this warranty shall be carried out:

- to the standard required by the contract,
- in a prompt and timely manner,
- without unnecessary inconvenience to any occupants,
- at the warrantor's cost,
- subject to reasonable access being provided to the warrantor for the purpose of carrying out the remedial work.

2.5 WHERE COST OF REPLACEMENT IS OUT OF PROPORTION TO THE DEFECT

Where the cost of replacement of work and/or materials is out of all proportion to the consequences of the defect, or where the defect may not be reasonably capable of rectification without substantial expense which is out of all proportion to the cost of the contract works, the warrantor may:

- where the defect or defective material is reasonably rectified by repair rather than by replacement, the warrantor's obligation under this warranty shall be only to repair or otherwise make good the defect; or
- propose reasonable monetary compensation in lieu of remedying the defect; or
- propose a combination of both repair and compensation.

2.6 PRINCIPAL SHALL CONSIDER REASONABLE PROPOSALS

The principal must consider the warrantor's reasonable proposals and the parties shall endeavour in good faith to reach agreement. Where agreement cannot be reached, the dispute shall be resolved in accordance with the disputes clause in this warranty.

2.7 FAILURE BY WARRANTOR TO PERFORM REMEDIAL WORK

If the warrantor fails to promptly, adequately and satisfactorily carry out the remedial work or to propose acceptable repair/compensation, the principal may then arrange for the remedial work to be carried out by others.

If the warrantor fails to promptly, adequately and satisfactorily provide replacement materials or to propose acceptable repair/compensation, the principal may then arrange for the replacement materials to be supplied by others.

The principal shall first give the warrantor 10 working days notice, or such other reasonable time as agreed by the principal, to carry out and complete the remedial work / supply replacement materials. If the warrantor does not complete this work / supply replacement materials within the time, the principal shall then advise the warrantor in writing that the work will be carried out / materials will be supplied by others.

In such an event the warrantor is not released from obligations under this warranty, which continues in full force and effect, except in respect of the defect remedied / materials supplied by the principal or by another person contracted by the principal. The reasonable cost of the remedial work carried out by such other persons including all reasonable costs of the principal is to be paid to the principal by the warrantor on demand.

2.8 WARRANTOR NOT LIABLE FOR

The principal agrees that the warrantor is not liable for any defect or damage caused by any of the following:

- Wilful act or negligence of the principal or any person other than the warrantor.
- Fire, explosion, earthquake, war, subsidence, slips, faulty materials or workmanship other than caused by the defect in the warranted work.
- Any force of nature which the warrantor could not have reasonably foreseen.
- Any neglect or unnecessary delay by the principal in giving notice to the warrantor of a defect in the warranted works becoming apparent.
- Design faults, errors or discrepancies, unless the warrantor undertook the design of the part of the warranted works that is the subject of the defect.
- Use of the Warranted Works by the Principal or other person in any manner or for any purpose not being the intended manner of use or purpose of the Warranted Works.
- Failure by the principal or other persons to maintain the warranted works in accordance with good practice and any manufacturer's stated or recommended instructions or requirements.
- Fair wear and tear.

2.9 WARRANTY MAY BE ASSIGNED

The principal may assign the benefit of this warranty to any person.

2.10 DISPUTES

Any dispute between the principal and the warrantor arising out of this warranty is to be referred to arbitration before a sole arbitrator. If within 15 Working Days of notice of dispute, the principal and the warrantor cannot agree upon a single arbitrator, either party may request the president of the Arbitrators and Mediators Institute of New Zealand Incorporated (AMINZ) to appoint an arbitrator.

3 SIGNATORIES

3.1 SIGNED BY THE WARRANTOR

.....
Signed Date

.....
Print name of person(s) authorised to sign

.....
Signed by witness, include occupation and address Date

3.2 SIGNED BY THE PRINCIPAL

.....
Signed Date

.....
Print name of person(s) authorised to sign

.....
Signed by witness, include occupation and address Date

3.3 NOTE

The warranty shall be executed by the warrantor and the principal in the manner required for execution of a deed. In the case of a natural person, the person shall sign and their signature shall be witnessed by another person, a witness must not be a party to the deed.
Sign the warranty on behalf of a company by having 2 or more directors sign, or if there is only 1 director, by that director whose signature must be witnessed, or if the constitution of the company so provides, a director, or other person or class of person(s) whose signature(s) must be witnessed, or by 1 or more attorneys appointed by the company in accordance with section 181 of the Companies Act 1993.
Execute the warranty on behalf of a body corporate (other than a company) by affixing its seal, which shall be attested in the manner provided for in the rules of, or applicable to, the body corporate. If signing for another type of entity for example an incorporated society, trust, school board etc. follow the protocol required for the execution of a deed.

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 23 of 136 - 24/10/2025 - OG

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

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.

1.3 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.

1.4 EQUIPMENT AND APPLIANCE MANUALS AND OPERATING INSTRUCTIONS

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

1.5 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.

1.6 SELECTIONS INFORMATION - SUBSTITUTIONS

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

Documentation format

1.7 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

1.8 O&M DOCUMENTATION SUBMISSION & REVIEW

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

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

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

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

The reviewer may advise that:

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

1.9 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.

1.10 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.

1.11 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.

1.12 REVIEW OF FINAL DOCUMENTATION

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

2 SELECTIONS

O&M Documentation

2.1 FINAL DOCUMENTATION - INFORMATION FOR OPERATION AND MAINTENANCE

Provide a complete electronic copy to the contract administrator.

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

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

2.2 FINAL DOCUMENTATION - OPERATION AND MAINTENANCE MANUALS

Provide a complete electronic copy to the contract administrator.

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

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

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.

1240 ESTABLISHMENT

1 GENERAL

This general section relates to site establishment including:

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

Notices and approvals

1.1 STATUTORY OBLIGATIONS

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

1.2 BUILDING CONSENT AUTHORITY AND NETWORK UTILITY APPROVALS

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

1.3 NOTIFY NETWORK UTILITY OPERATORS

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

Inspections

1.4 CARRY OUT INSPECTIONS

Check and document existing structure for cracks and defects before commencing demolition

Site preparation

1.5 WORKING AREA

Limited to the following designated working areas on the site:
Area around and adjacent to Boathouse 2B including forecourt

1.6 SITE AND SOIL SURVEYS

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

1.7 GROUND CONDITIONS

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

Existing buildings

1.8 ALTERATIONS

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

Temporary construction

1.9 TEMPORARY BUILDINGS

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

1.10 SITE - SAFETY SIGNAGE

Provide hazard board and other safety signage as required.

1.11 SITE - PROJECT SIGN

Obtain approval to, provide and erect a timber framed sign board. Sign to be, fully painted with vinyl lettering or fully printed, and displaying:

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

First aid

1.12 FIRST AID EQUIPMENT

Provide first aid equipment.

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 28 of 136 - 24/10/2025 - OG

1270 CONSTRUCTION

1 GENERAL

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

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

Quality control and assurance

1.1 QUALITY ASSURANCE

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

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

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

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

Set-out and tolerances

1.2 SET-OUT

Set out the work to conform with the drawings.

1.3 CHECK DIMENSIONS

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

1.4 TOLERANCES

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

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

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 29 of 136 - 24/10/2025 - OG

Timber framing:	To NZS 3604 Timber-framed buildings Clause 2.2 Tolerances Table 2.1 Timber framing tolerances
-----------------	---

Refer to work sections for tolerance requirements for finishes.

Execution

1.5 EXAMINE PREVIOUS WORK

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

Qualifications

1.6 QUALIFICATIONS GENERALLY

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

1.7 QUALIFICATIONS WORKERS – RESTRICTED BUILDING WORK

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

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

1.8 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

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

1.9 QUALIFICATIONS – PRODUCER STATEMENTS

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

Products

1.10 NEW PRODUCTS

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

1.11 COMPATIBILITY OF PRODUCTS

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

1.12 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

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

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

Refer to individual work sections for any special requirements.

1.13 SUBSTRATE CONDITIONS

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

1.14 INSTALLING PRODUCTS

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

1.15 COMPLY WITH STANDARDS

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

1.16 CONDITION OF PRODUCTS

To be in perfect condition when incorporated into the work.

Cleaning during the works

1.17 PERIODIC SITE CLEANING

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

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 31 of 136 - 24/10/2025 - OG

2112 PARTIAL DEMOLITION

1 GENERAL

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

1.1 RELATED WORK

Refer to 2133 TEMPORARY SUPPORT TO EXISTING STRUCTURES for for lifting and temporary support of existing structures

Documents

1.2 DOCUMENTS REFERRED TO

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

[NZBC F5/AS1](#) Construction and demolition hazards
[NZDAA](#) Best practice guidelines for demolition in New Zealand
[Health and Safety at Work Act 2015](#)

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

Requirements

1.3 QUALIFICATIONS

Carry out demolition

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

1.4 HEALTH AND SAFETY

Comply with the [Health and Safety at Work Act 2015](#) in general, [NZBC F5/AS1](#) and NZDAA Best practice guidelines for demolition in New Zealand, Section 5 Demolition safety

1.5 HOT WORK - FIRE SAFETY

Refer to section 1270 CONSTRUCTION

1.6 FIRE SAFETY SYSTEMS

Existing fire safety systems must be maintained and appropriate parts progressively deactivated and removed as demolition advances.

1.7 DEMOLITION WORKING TIMES

Times during which demolition may be carried out is not restricted. Comply with territorial authority consent conditions and noise and nuisance controls.

1.8 DEMOLITION WASTE REMOVAL RESTRICTIONS

The removal of demolition waste material is restricted. Refer to 4. SELECTIONS for details.

2 PRODUCTS

Materials

2.1 ELEMENTS FOR SALVAGE

Carefully dismantle, remove and store on site where directed. Protect from damage and weather.

2.2 ELEMENTS FOR RE-USE

Carefully dismantle, remove and store on site where directed. Protect from damage and weather until required.

2.3 REMAINING ELEMENTS

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

2.4 MATERIAL AND ELEMENTS FOR DISPOSAL

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

3 EXECUTION

Conditions

3.1 EXISTING SERVICES

Disconnect and seal off services before work commences. Protect services adjacent to the area being demolished.
Maintain services to occupied areas of the building, particularly fire services.

3.2 SITE INSPECTION

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

3.3 ADJOINING BUILDINGS

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

3.4 PLANS AND DESCRIPTIONS

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

3.5 EXAMINE STRUCTURE

Examine roofs, walls, cantilevered structures and basements as required by the NZDAA Best practice guidelines for demolition in New Zealand and follow their requirements.

3.6 EXPOSED WALLS, ADJOINING BUILDINGS

Protect and make weathertight temporarily with 0.125mm black polythene film. Lap and tape joints to the manufacturer's requirements and nail or masonry nail to the wall face with 50mm x 25mm timber battens at 600mm centres.

3.7 PROTECTION

Erect approved temporary screens and shelter to protect from weather and damage, and to prevent dust and dirt penetrating those parts of the existing building, other buildings and the remainder of the site being retained in their present condition.

3.8 SAFETY DURING DEMOLITION

Refer to [NZBC F5/AS1](#) and NZDAA Best practice guidelines for demolition in New Zealand. Carry out the requirements laid down in Section 5 Demolition safety in respect of:

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

3.9 DEMOLITION PROCEDURES

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

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

Application

3.10 CARRY OUT DEMOLITION

Carry out all demolition to the requirements of NZDAA Best practice guidelines for demolition in New Zealand.

Completion

3.11 MAKE GOOD

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

3.12 REINSTATE

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

3.13 LEAVE

Leave work to the standard required by following procedures.

3.14 TAKE AWAY

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

SELECTIONS

4.1 ELEMENTS FOR DEMOLITION AND DISPOSAL

Element/component	Location
Refer drawings	

4.2 ELEMENTS FOR SALVAGE AND DISPOSAL BY CONTRACTOR

Salvage the following elements.

Element/component	Location	Disposal requirements
Refer drawings		

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 34 of 136 - 24/10/2025 - OG

2221 REMOVING VEGETATION

1 GENERAL

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

Related work

1.1 RELATED SECTIONS

Refer to:
2112 for Partial Demolition
1270 Construction
2110 Demolition Works

2 EXECUTION

Conditions

2.1 FIRES

Do not light rubbish fires on site.

2.2 REPORT

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

2.3 RETAINED TREES AND SHRUBS

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

2.4 PROTECT TREES AND SHRUBS

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

2.5 RETAINED FEATURES

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

Application

2.6 CUT DOWN AND REMOVE

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

Completion

2.7 LEAVE

Leave work to the standard required by following procedures.

2.8 TAKE AWAY

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

3 SELECTIONS

3.1 RETAINED TREES AND SHRUBS

tbc

3.2 RETAINED FEATURES

tbc

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 2242 BACKFILLING for the supply, placing and compaction of materials for backfill, basecourse or built-up ground.
Refer to Civil Engineers Documentation for the drainage requirements, soakage systems and sub bases to driveways, parking and paths.
Refer to Geotechnical Report for project specific excavation requirements

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 GROUND CONDITIONS

Foundation investigations and drilling have been carried out. Place your own interpretation on this information as no warranty is implied that the information is truly representative or complete. Make such extra investigations as considered necessary.

Copies of bore logs are ~.

1.5 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.

1.6 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.

1.7 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.

1.8 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.

1.9 SITE MEASUREMENT, ROCK

Where rock is shown to be part of the site condition by the bore logs, all rock removed to be solid measured and the quantity recorded and agreed to in writing as the excavation proceeds.

1.10 SITE MEASUREMENT, OTHER FORMATIONS

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

2 PRODUCTS

Materials

2.1 TOPSOIL

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

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 EXCAVATION NEAR TREES

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

3.6 KEEP FREE OF WATER

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

3.7 TERRITORIAL AUTHORITY REQUIREMENTS

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

3.8 FORM SUMPS

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

3.9 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

3.10 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.

3.11 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.

3.12 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.

3.13 OVER EXCAVATION

Make good with well compacted backfill.

Finishing

3.14 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

3.15 LEAVE

Leave work to the standard required by following procedures.

3.16 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.

3.17 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

4.1 BORE LOGS

Copies of bore logs are attached. PK Engineering Site Suitability & Development Report - Appendix A

2361 STRIP FOOTINGS

1 GENERAL

1.1 REFER TO STRUCTURAL ENGINEERS SPECIFICATION AND DOCUMENTATION

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 39 of 136 - 24/10/2025 - OG

3102 CONCRETE WORK - STANDARD

1 GENERAL

1.1 REFER TO STRUCTURAL ENGINEERS SPECIFICATION AND DOCUMENTATION

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 40 of 136 - 24/10/2025 - OG

3130 PRECAST CONCRETE

1 GENERAL

1.1 REFER TO STRUCTURAL ENGINEERS SPECIFICATION AND DOCUMENTATION

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 41 of 136 - 24/10/2025 - OG

3410 STRUCTURAL STEEL

1 GENERAL

1.1 REFER TO STRUCTURAL ENGINEERS SPECIFICATION AND DOCUMENTATION

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 42 of 136 - 24/10/2025 - OG

3813 ENGINEERED WOOD PRODUCTS

1 GENERAL

1.1 REFER TO STRUCTURAL ENGINEERS SPECIFICATION AND DOCUMENTATION

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 43 of 136 - 24/10/2025 - OG

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

BRANZ BU 673 Cavity battens

***A copy of [NZS 3604](#) Timber-framed building, must be held on site.**

1.4 DIMENSIONS

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

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 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

2.3 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.

2.4 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.

2.5 EXTERIOR CAVITY WALL BATTENS - PROPRIETARY - NON-STRUCTURAL

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

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.

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 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

3.2 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.

3.3 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

3.4 EXECUTION

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

3.5 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.

3.6 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.

3.7 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.

3.8 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.

3.9 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.

3.10 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.

3.11 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.

3.12 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.

3.13 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.

3.14 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.

3.15 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.

3.16 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.

3.17 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.

3.18 DPC TO LOSP TREATED TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.19 DPC TO TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section

4 SELECTIONS

4.1 SPECIAL FRAMING ELEMENTS

Member	Species	Grade	Treatment
All framing and top plates	Radiata pine	SG8	H3.2

4.2 CAVITY BATTENS

Cavity battens	Species	Grade	Treatment
Timber - Structural	Radiata pine	Merch	H3.2
Timber - Non Structural	Radiata pine	Merch	H3.1
Proprietary - non structural:	Manufacturer tbc	Type tbc	Reference tbc
Cavity closer:	Manufacturer tbc	Type tbc	Reference tbc

4.3 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

4.4 NAILS

Location	Type	Material	Finish
Framing members	as per drawings	Stainless Steel	

4.5 SCREWS

Location	Type	Material	Finish
Framing members	as per drawings	Stainless Steel	

4.6 BOLTS AND COACH SCREWS

Location	Type	Material	Finish
Framing members	as per drawings	Stainless Steel	

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 3821 Timber Framing
4231HA James Hardie Axon Panel Cladding

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

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
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

Requirements

1.4 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.**

Wall Underlays

2.3 BITUMINOUS HEAVY WEIGHT WALL UNDERLAY (W2)

Wall underlay tested to [NZS 2295](#).

2.4 ABSORBENT SYNTHETIC WALL UNDERLAY - POLYPROPYLENE - FIRE (W4)

Absorbent, breathable, fire retardant, non-woven, white soft spun-bonded polypropylene membrane. Designed for use as fire retardant membrane, with Flammability Index of 1, when tested to [NZS/AS 1530.2](#).

2.5 ABSORBENT SYNTHETIC WALL UNDERLAY - POLYOLEFIN - FIRE (W4)

Absorbent, breathable, fire retardant polyolefin (polyethylene) woven into sheet form with micro sized pores that allow the membrane to breathe with a fire retardant flammability index of 1, tested to [NZS/AS 1530.2](#).

2.6 ABSORBENT SYNTHETIC WALL UNDERLAY - POLYPROPYLENE (W4)

Absorbent, breathable spun bonded polypropylene type building membrane, coated with a breathable water resistant film.

2.7 NON-ABSORBENT SYNTHETIC WALL UNDERLAY - POLYOLEFIN (W3)

Non-absorbent, breathable very fine high density white polyolefin fibres bonded with heat and pressure to form a wide sheet.

Vapour Barriers

2.8 MOISTURE VAPOUR BARRIER

Moisture vapour barrier film to [AS/NZS 4200.1](#), complete with adhesive pressure-sensitive tape required by the film manufacturer, used for the prevention of moisture damage.

Accessories

2.9 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.

2.10 ADHESIVE TAPE

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

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To [NZBC E2/AS1](#) Table 23 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 BETWEEN DISSIMILAR MATERIALS

Lay DPC between dissimilar materials where required.

Application - DPM

3.6 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 - Wall Underlay

3.7 WALL UNDERLAY

Fix horizontally to outside face of substrate in true alignment, with succeeding sheets overlapping 150mm to NZBC E2/AS1, clause 9.1.7, **Wall underlay** and refer to manufacturer for requirement for fastenings. Fix to manufacturers requirements. Scribe neatly around penetrations and openings to leave no gaps. Tape all penetrations. Keep clean, undamaged and without visible weather deterioration until closed in.

Application - Vapour Barrier

3.8 FIX VAPOUR BARRIER

Fit and fix between insulation and lining with joints lapped and sealed with pressure-sensitive tape.

Completion

3.9 CLEAN UP

Clean up as the work proceeds.

3.10 LEAVE

Leave work to the standard required by following procedures.

3.11 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 DPC

Location: As per drawings
Brand / type: Thermakraft Supercourse 500 polythene DPC

4.2 DPM - CONCRETE FLOOR

Location: As per drawings
Brand / type: Thermathene Orange Damp Proof Membrane / polyethylene DPM

4.3 WALL UNDERLAY

Location: As per drawings
Brand / type: Thermakraft Covertek 403

Accessories

4.4 AIR SEAL BACKING ROD

Location: As per drawings
Brand / type: tbc
Size: As required

4.5 GUTTER AND UNDER FLASHINGS

Location: Refer to drawings
Brand / type: Thermacraft Supercourse 500 polythene DPC

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 51 of 136 - 24/10/2025 - OG

4171E ECOPLY® BARRIER RIGID AIR BARRIER SYSTEM

1 GENERAL

This section relates to the use of Carter Holt Harvey Plywood Ltd (CHH PLY) Ecoply® Barrier as a rigid wall underlay and air barrier in residential and commercial buildings.

1.1 RELATED WORK

Refer to
3821 Timber Framing
4257M Metalcraft insulated Panel Systems

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

FSC® Forest Stewardship Council®

Documents

1.3 DOCUMENTS

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

NZBC B1/AS1	Structure
NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture
AS/NZS 1604.3:2012	Preservative-treated wood-based products - Part 3:Plywood
AS/NZS 2269.0	Plywood - structural - specifications
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber Structures Standard
NZS 3604	Timber-framed buildings
BRANZ Technical Paper P21	BRANZ Technical Paper P21 (2010): A wall bracing test and evaluation procedure

1.4 MANUFACTURER DOCUMENTS

Carter Holt Harvey Plywood Limited documents relating to work in this section are:
Ecoply® Structural Rigid Air Barrier - Barrier Specification & Installation Guide
CHHPly Product Technical Statement – Ecoply® Barrier: Rigid Air Barrier
Ecoply® Barrier data sheets
CHHPly Safety Data Sheet - Ecoply® Barrier
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: chhply.co.nz
Email: info@ecoply.co.nz
Telephone: 0800 326 759

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.

Performance

Quality control and assurance

2 PRODUCTS

Materials

2.1 ECOPLY® BARRIER PLYWOOD

Ecoply® Barrier sheet, 7mm thick, 1197mm wide and 2440 and 2745mm long structural plywood. Manufactured from radiata pine to AS/NZS 2269. H3.2 CCA treated to E2/AS1 and [AS/NZS 1604.3](#) requirements. Beige polyester powder coated on front face and four edges. Sheets marked Ecoply® Barrier.

Components

2.2 NAILS

Nails to minimum durability requirements of the NZBC. Refer to [NZS 3604](#), section 4, Durability, for requirements for fixing material to be used in relation to the exposure conditions.

Fixing method:	Minimum nail type:	Zone:
Hand driven	50 x 2.8mm (flat head or round head) hot-dip galvanized or better	B & C zones
Power driven Paslode Pneumatic Cladding Coil Nailer	Paslode Impulse 50 x 2.8mm hot-dip galvanized ring round head drive B20557 or better	B & C zones
Hand driven	50 x 2.8mm (flat head or round head) annular grooved stainless steel	D Zone

2.3 PVC HORIZONTAL FLASHING

Ecoply® Horizontal Jointer (E2 Flashing Solutions, product code RDZF7, uPVC jointer).

2.4 SEALING TAPE

Ecoply® Barrier Sealing Tape, 60mm x 30m tape for vertical sheet joints, grey colour. PP fleece carrier paper, siliconized release paper.

2.5 SILL TAPE

Ecoply® Barrier Sill Tape, 150mm x 20m and 200mm x 20m, black colour. Butyl rubber (with PE film) carrier paper, siliconized foil release paper.

2.6 FRAME SEALING TAPE

Ecoply® Barrier Frame Sealing Tape, 150mm x 30m and 200mm x 30m, grey colour. PP fleece carrier paper, siliconized release paper.

2.7 BRUSH ON TREATMENT

Soudal Metalex Ready to Use or Soudal Metalex Concentrated Timber Preservative. Clear or green colour product.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

3.2 ROUTINE MATTERS

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

3.3 PRE-INSTALLATION REQUIREMENTS - TIMBER FRAMING

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

Kiln dried verified structural grade timber, minimum SG8. Framing sizes and set outs to [NZS 3604](#) (or be specially designed to [NZS 3603](#)) with studs at 600mm maximum centres, noggs at 1350mm maximum centres. Treatment to [NZBC B2/AS1](#) and [NZS 3602](#).

Ensure all Ecoply® Barrier sheet edges and joints will be fully supported by being fastened to framing. The minimum framing width for fixing Ecoply Barrier is 45mm at each Ecoply® Barrier sheet joint.

Application

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 APPLICATION - GENERAL

Apply products to Carter Holt Harvey Plywood Limited requirements, refer to Ecoply® Structural Rigid Air Barrier - Barrier Specification & Installation Guide.

3.6 TREAT CUTS

Treat cut ends with brush on timber preservative treatment.

3.7 FIXING ECOPLY® BARRIER SHEETS

Position Ecoply® Barrier sheets with the water-resistant powder coat film facing outwards with the long side of the sheet orientated vertically to framing members. Allow 2-3mm expansion gap between vertical sheet edges. Place any cut sheet ends at the top with the sealed sheet end at the bottom. Cover all other cuts and penetrations with Ecoply® Barrier Sealing tape. Sheets to overhang the bottom plate, joist or bearer by a minimum of 25mm.

3.8 FASTENERS - STANDARD NAILING PATTERN

Nail 7mm minimum from sheet edges at 150mm centres around perimeter of each sheet or part sheet, and 300mm centres within sheet body up to and including Very High wind zone, or 150mm centres within sheet body in Extra High wind zone. Finish fastener heads flush with the panel surface.

3.9 FIXING TO RESIST UPLIFT

For 4.7kN fixing of top plate to studs modify standard nailing pattern, nail sheet edge to top plate at 75mm centres, 20mm from the sheet edge and complete the remainder of the sheet fastening as per Ecoply® Barrier Specification.

3.10 LINTEL CONNECTION FOR UPLIFT

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

3.11 TAPE- GENERAL

Apply pressure to seal the Ecoply® tapes with minimal wrinkles in accordance with the Ecoply Barrier Specification and Installation Guide.

3.12 VERTICAL ECOPLY® BARRIER SHEET JOINTS - WALL PLANE

Ensure panels are clean, centre Ecoply® Barrier Sealing Tape over vertical joints in accordance with the Ecoply Barrier Specification and Installation Guide.

3.13 VERTICAL ECOPLY® BARRIER SHEET JOINTS - CORNERS

Ensure panels are clean, centre Ecoply® Barrier Sealing Tape over external and internal wall corners in accordance with the Ecoply Barrier Specification and Installation Guide.

3.14 HORIZONTAL SHEET JOINT - JOINTER

Flash horizontal joints with Ecoply® Horizontal Jointer (RDZF7) in accordance with the Ecoply Barrier Specification and Installation Guide. Provide a 15mm expansion gap.

3.15 HORIZONTAL SHEET JOINT - TAPE Z FLASHING

Flash horizontal joints with Ecoply® Barrier 150mm or 200mm Frame Sealing Tape to form a Z flashing in accordance with the Ecoply Barrier Specification and Installation Guide. Provide a 15mm expansion gap.

3.16 HORIZONTAL SHEET JOINT - FACE SEAL

Face seal horizontal joints with Ecoply® Barrier 150mm Sealing Tape in accordance with the Ecoply Barrier Specification and Installation Guide. Provide a 5mm expansion gap between plywood sheets.

3.17 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.

3.18 WINDOW & DOOR OPENINGS

Apply Ecoply® Barrier Sill Tape to cover the bottom of the opening and Ecoply® Barrier Frame Sealing Tape to the vertical trimmer stud and lintel, reinforce corners at each end of the lintel with 100m strip of Ecoply® Barrier 150m Frame Sealing Tape. Apply tapes in accordance with the Ecoply Barrier Specification and Installation Guide.

3.19 PENETRATIONS

Apply Ecoply® Barrier Sill Tape to flash to Ecoply® Barrier plywood sheet, provide 100mm minimum cover to sheet. Bandage around pipes with Ecoply® Barrier Frame Sealing Tape with 25mm minimum width of cover to pipe. Apply in accordance with the Ecoply Barrier Specification and Installation Guide.

Service penetrations may also be sealed using Pro Clima® Kaflex Cable sealing Grommets or Roflex Pipe Sealing Grommets. Ensure all Pro Clima® Installation instructions are followed.

3.20 FLASHINGS

Apply Ecoply® Barrier Frame Sealing Tape to metal flashings in accordance with the Ecoply Barrier Specification and Installation Guide.

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

4.1 ECOPLY® BARRIER PLYWOOD

Location:	Refer to drawings
Manufacturer:	Carter Holt Harvey Plywood Limited
Brand:	Ecoply® Barrier
Width:	1197mm
Length:	tbc
Thickness:	7mm
Treatment:	H3.2 CCA

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
3821 Timber Framing
6711R Resene Painting Exterior
4239JH James Hardie Soffits
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	Protection from fire
C/AS1-AS2	
NZBC	External Moisture
E2/AS1	
AS/NZS	Structural design actions - Wind actions
1170.2:2011	
AS/NZS	Cellulose-cement products-Flat sheet
2908.2	
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
AS/NZS	Method of test for heat and smoke release rates for materials and
3837	products using an oxygen consumption calorimeter
NFPA	Standard fire test method for evaluation of fire propagation
285:2019	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®
[BRANZ Appraisal 1211](#) [2022] - Axon™ Panel Cladding

Manufacturer/supplier contact details

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

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

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

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 NO SUBSTITUTIONS

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

1.7 SAFE WORKING

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

1.8 INFORMATION FOR OPERATION AND MAINTENANCE

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

Performance - Wind

1.9 PERFORMANCE - WIND

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

Performance - Fire

1.10 EXTERNAL FIRE SPREAD - CLADDING EXEMPT FROM TESTING

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

2 PRODUCTS

Materials

2.1 WALL UNDERLAY

Refer to section 4161 UNDERLAYS, FOIL AND DPC.

2.2 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.

2.3 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

2.4 FASTENER TYPE

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

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

Zone	Fixings Material
Zone D, Zone E / Microclimates (incl. Geothermal)	Grade 316 Stainless

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 57 of 136 - 24/10/2025 - OG

Refer to SELECTIONS.

2.5 NAIL - AXON™ PANEL DIRECT FIX
40mm x 2.8mm Hardie™Flex nails.

2.6 NAIL - AXENT™ TRIM
40mm brad nails.

Accessories

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

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

3 EXECUTION

Conditions

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

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

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

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

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

Application - generally

3.5 FIX WALL UNDERLAY
Refer to 4161 UNDERLAYS, FOIL AND DPC.

3.6 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

3.7 PANEL LAYOUT

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

3.8 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.

3.9 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.

3.10 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.

3.11 VERTICAL JOINT

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

3.12 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.

3.13 INTERNAL CORNER JOINT - DIRECT FIX

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

3.14 EXTERNAL CORNER JOINT - DIRECT FIX

Seal site cut Axon™ Panel edges. Position and fix Axon™ Panels and Hardie™ 9mm Aluminium External Box corner or Hardie™ Aluminium Invert External Corner continuous wall underlay, fixing in accordance with James Hardie Axon™ Panel Technical Specification details.

3.15 EXTERNAL CORNER JOINT WITH H MOULD

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

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

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

3.16 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.

3.17 FINISHING

Refer to painting section/s for protective coating system.

Completion

3.18 REPLACE

Replace all damaged or marked elements.

3.19 LEAVE

Leave work to the standard required for following procedures.

3.20 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 JAMES HARDIE AXON™ PANELS - SHEET CLADDING PANELS

Brand/type:	James Hardie Axon Panel Smooth
Thickness:	9mm
Fastener type:	tbc
Fastener finish:	316 Stainless Steel

Finishing

4.2 PAINTING

Refer to painting section/s for details.

4257M METALCRAFT INSULATED PANEL SYSTEMS

1 GENERAL

This section relates to the fabrication, supply and installation of **Metalcraft Insulated Panel Systems** pre-painted steel clad, insulating panels and cladding system for residential, commercial, industrial and all buildings where ambient controlled temperature is required to be controlled. It includes;

- **ThermoPanel EPS** insulated wall and ceiling panels
- **ThermoSpan EPS** roof and wall panels

1.1 RELATED WORK

Refer to 4821 FLASHINGS.

Documents

1.2 DOCUMENTS

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

NZBC B2/AS1	Durability
NZBC C/AS1-AS2	Protection from fire
NZBC E2	External moisture
AS/NZS ISO10005	Quality management systems
AS/NZS 1170.2:2011	Structural design actions - Wind actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS 1366.3	Rigid cellular plastic sheets for thermal insulation - Rigid cellular polystyrene - Moulded (RC/PS - M)
AS 2122.1	Combustion characteristics of plastics - Determination of flame propagation - Surface ignition of vertically oriented specimens of cellular plastics
NZS 3404.1	Steel Structures Standard
NZS 4211	Specification for performance of windows
ISO 9705	Fire tests - Full-scale room test for surface products
AS/NZS ISO 10005:2006	Quality management systems
BS EN 10326	Continuously hot-dip coated strip and sheet of structural steels. Technical delivery conditions
CodeMark GM-CM30078 (RevC) - Metalcraft Insulated Panel System	

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
 Metalcraft Insulated Panel Systems technical information on Metalcraft website including;
 Metalcraft Insulated Panel Systems Design and Installation Guide (V2, June 2020)
 Metalcraft Insulated Panel Systems Care and Maintenance (V2, June 2020)
 Metalcraft Insulated Panel Systems Specification (V2, June 2020)
 Metalcraft Insulated Panels Thermospan EPS Commercial Roofing Details (Ref: CREPS, 14 December 2018)
 Metalcraft Insulated Panels ThermoPanel EPS Controlled Environment Details (Ref: TPEPS, 14 December 2018)
 Fire Test Report: BRANZ FI 5953-TT (2016)

Manufacturer/supplier contact details

Company: **Metalcraft Insulated Panel Systems**
 Web: www.metalcraftpanels.co.nz
 Email: info@metalcraftpanels.co.nz
 Telephone: 09 262 0267

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide Metalcraft Insulated Panel Systems warranty

15 years For materials

- 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.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years For workmanship

- Provide this warranty on the installer/applicator standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of practical completion of the contract works.
- Installation to CodeMark GM-CM30078 (RevC) or to Structural design by a Chartered Professional Engineer.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS

All installation and sealing of the panels by an installer approved by Metalcraft Insulated Panel Systems.

Licensed Building Practitioners (LBP's) shall carry out the work where the work being undertaken is considered to be Restricted Building Work.

1.7 NO SUBSTITUTIONS

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

Performance - design requirements

1.8 DESIGN REQUIREMENTS - SPECIFIC DESIGN

Structural design to be supported by a Producer Statement prepared by a Chartered Professional Engineer. Refer to Metalcraft Insulated Panel Systems data for information relating to panel spans. Loading parameters to comply with the methods described in [NZS 3404.1](#), 3.3 and 3.4. Refer to SELECTIONS.

1.9 DESIGN REQUIREMENTS - DESIGNED TO CODEMARK CERTIFICATE

Design and installation to the CodeMark certificate - CodeMark GM-CM30078 (RevC).

Performance - wind / earthquake

1.10 FIXINGS, WIND

Design and use the fixings appropriate for the wind loads on various elements as given by [AS/NZS 1170.2](#) and to Metalcraft Insulated Panel - Design and Installation Guide. Refer to SELECTIONS.

1.11 FIXINGS, EARTHQUAKE

Use fixings and methods capable of sustaining the loads appropriate to the area as required by [NZS 1170.5](#).

Compliance information

1.12 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Manufacturer's / supplier's warranty
- Installer's / applicator's warranty
- Producer Statement - Construction from the applicator / installer
- Producer Statement - Construction Review from an acceptable suitably qualified person.
- Other information required by the BCA in the Building Consent Approval documents

Performance – General

1.13 FIRE SAFETY

Group Numbers in accordance with [NZBC C/AS2](#), 4.17.1 Table 4.3 Internal Surface Finishes requirements, as follows:

Corner angles, flashings and rivets	Group Number
Colorsteel folded corner angles, cover flashings fixed with blind steel or steel rivets	1s
Aluminium corner angles, cover flashings fixed with blind steel or aluminium rivets	2 (CodeMark GM-CM30078, RevC)

Note: Panel system to be installed in accordance with Metalcraft Insulated Panel Systems panel installation instructions.

If project designed to [NZBC C/AS1](#), refer to clause 4.3.

Fire Test Report: BRANZ FI 5953-TT (2016)

1.14 DURABILITY

ThermoPanel EPS and ThermoSpan EPS wall, ceiling and roof insulated panels comply with [NZBC B2/AS1](#) when maintained to recommendations in Metalcraft Insulated Panel Systems maintenance guide.

1.15 THERMAL

The panels to have a thermal transmittance (U value) of 0.34 W/m²k based on an aged thermal conductivity of 0.033 W/mK.

Metalcraft Insulated Panel Systems panel core, meet the requirements of AS 1366.3 for rigid cellular polystyrene in the form of sheets, for thermal insulation purposes.

1.16 AIR LEAKAGE

The panel's tongue and groove joints to have an air leakage of less than 0.5m³/hr/m² at 15Pa.

Quality control and assurance

1.17 QUALITY CONTROL

Metalcraft Insulated Panel Systems is required to maintain an AS/NZS ISO 10005 Quality management plan in keeping with CodeMark Scheme rules.

2 PRODUCTS**Materials**

2.1 THERMOSPAN EPS INSULATED ROOF PANELS

ThermoSpan EPS insulated roof panels manufactured from expanded polystyrene core with a bonded Colorsteel® CP skin to both faces to BS EN 10326. Panels are available in thicknesses from 50mm to 250mm Panels are closed cell, CFC free EPS, kiln-dried to remove production moisture prior to fabrication.

Refer to SELECTIONS for panel details.

Components

2.2 DOORS

Insulated doors fitted with food safe composite plastic hinges and handles or doors for residential buildings as specified by design.

2.3 WINDOWS

Aluminium section windows to [NZS 4211](#).

2.4 RIVETS

Aluminium sealed rivets as specified by Metalcraft Insulated Panel Systems.

2.5 SCREW FIXINGS

Galvanized steel self drill self tapping Tek screws with neoprene embossed washers.

2.6 FLASHINGS

All primary flashings to match exterior panel skin in material and finish. Internal flashings of aluminium angle supplied by Metalcraft Insulated Panel Systems for joining panels together.

Accessories

2.7 ACCESSORIES

Use only accessories approved and supplied by Metalcraft Insulated Panel Systems. All attachments and fasteners to be compatible with the other elements of the panel system.

2.8 SEALANTS

Neutral cure silicone with a minimum durability of 15 years.

2.9 FOAM

Polyurethane foam.

3 EXECUTION

Conditions

3.1 INSTALLATION

All work by competent and experienced installers, who are currently approved by Metalcraft Insulated Panel Systems in accordance with the stated requirements and the approved shop drawings. All panel manufacture and installation under the control and supervision of a nominated representative of Metalcraft Insulated Panel Systems.

3.2 METAL FINISHES

All metal finishes applied by applicators currently approved in writing by the coating manufacturer.

3.3 TOUCH-UP

In situ touch up of factory applied finishes is not to be permitted unless a trial repair is subsequently approved in writing. Replace all other panels with a damaged finish.

3.4 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

- Use only polystyrene or other soft packing when stacking panels.
- Do not deliver to site, any panels or elements which cannot be immediately unloaded into suitable conditions of storage
- Avoid distortion of panels or elements during transit, handling and storage. Prevent pre-finished surfaces from rubbing together. Prevent contact with mud, plaster and cement, or with dissimilar metals.
- Do not use adhesive tape, film, papers, or sprayed protective coatings, or masking tape, which might become bonded after exposure to sun or weather. Remove any temporary protection after installation. Remove any protective coating residues immediately.

3.5 RAW EDGES

Seal cut edges of panel skins using a proprietary brush on lacquer.

3.6 GALVANIC CORROSION

Avoid run-off from any copper or brass systems, or unpainted lead flashings. Electrically isolate any large areas of stainless steel from the panel surface. Where dissimilar materials might be in contact, provide a separation barrier.

Assembly

3.7 FABRICATION

Do not start fabrication until manufacturing schedule and erection drawings have been reviewed.

3.8 FACTORY PRODUCTION

Do not start factory production before drawings have been reviewed by project designer.

3.9 FABRICATE

Fabricate panels and elements in the workshop wherever possible, ready for assembly and erection on the building site.

3.10 CUTTING OF PANELS

Complete all cutting using a purpose-designed cutter to produce a slight rounding of panel edges or use a WC saw blade for profiled face. Do not use abrasive discs.

Application**3.11 INSTALL PANELS**

Install panels in accordance with the drawings, stated design parameters, reviewed and approved shop drawings and installation details. Co-ordinate with work of other sections. Consult and coordinate as necessary with installers of adjoining work. Installation of the panel system to comply with [NZBC E2/AS1](#).

3.12 PANEL JOINT

Metalcraft Insulated Panel Systems Z-Lock provides male/female joints to allow rapid and accurate panel installation. Apply neutral cure sealant to all roof panel joints < 6° to Metalcraft Insulated Panel Systems construction details.

3.13 SEALING

Do not use metal implements for applying or tooling sealant. Extrude sealant into the joint, ensuring that all air is excluded. Tool the surface and remove any excess. All sealant joints to finish flush or slightly concave.

3.14 PENETRATIONS

Form penetrations to Metalcraft Insulated Panel Systems details. Use neoprene, silicone rubber, EPDM, aluminium or soft zinc to form flashing around penetration.

3.15 DOOR INSTALLATION

Install door into formed opening to Metalcraft Insulated Panel Systems details.

Completion**3.16 PROTECTION**

Protect all surfaces and finishes from damage as long as practicable, including the retention of all or any protective coatings provided by the panel manufacturer. Remove protective coatings, using only the methods required by the panel manufacturer.

3.17 CLEAN

Clean panel surfaces with soft, clean cloths and clean water and in accordance with the panel manufacturer's stated requirements. Finish with a clean squeegee. Do not use abrasive or alkaline materials, other than a mild abrasive cream used with a soft cloth to remove minor surface marking.

Remove all drilling swarf, rivet mandrels and any other metallic debris from the roof surface daily, using a soft bristle broom and/or hosing down with clean water.

3.18 ON COMPLETION

Trade clean all panel surfaces to remove all marks, dust and dirt to enable a visual inspection of all surfaces at completion of the installation and again at contract completion.

4 SELECTIONS

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

4.1 SURFACE FIRE PROPERTIES

Corner angles, flashings and rivets	Group Number
Colorsteel folded corner angles, cover flashings fixed with blind steel or steel rivets	1s
Aluminium corner angles, cover flashings fixed with blind steel or aluminium rivets	2 (CodeMark GM-CM30078, RevC)

Note: Panel system to be installed in accordance with Metalcraft Insulated Panel Systems panel installation instructions.

Fire Test Report: BRANZ FI 5953-TT (2016)

Performance

4.2 DESIGN REQUIREMENTS
maximum design differential wind pressure of 3 kPa

4.3 FIXINGS, WIND

Element

ULS (Ultimate limit state) Up to 4.3kPa

4.4 THERMOSPAN EPS ROOF PANELS

Panel type: **ThermoSpan EPS** roof panel
 Panel insulating core: Closed cell fire retardant impregnated EPS Class S standard
 Panel thickness: 200mm
 External panel skin finish: 0.59mm BMT Colorsteel®
 External surface profile: Similar to MC1000
 Internal panel skin finish: 0.59mm BMT Colorsteel®
 Internal surface profile: Flat
 Panel colour: Exterior to match existing colour (Bondor Roofing Panels "Smokey")

Roof Pitch: 5°

4.5 SUPPORT AND JOINTING ANGLES

Wall/ceiling junction internal: 40mm x 40mm prepainted steel or aluminium angle
 Wall/ceiling junction external: 40mm x 40mm prepainted steel or aluminium angle

4.6 PANEL CLOSERS

Prepainted steel or aluminium angle channel.

4.7 FIXINGS

Type: 4.8mm aluminium rivets to underside panel joints.

4.8 FLASHINGS

Thickness: 0.59mm prepainted steel
 Finish: To match panel finish

4.9 SEALANTS

Type: Neutral cure silicone supplied by **Metalcraft Insulated Panel Systems.**

4.10 VAPOUR SEAL

Type: Mastic sealant supplied by **Metalcraft Insulated Panel Systems.**

4.11 PANEL GAP FILLER

Type: EU expanding foam supplied by **Metalcraft Insulated Panel Systems.**

4.12 PANEL END STRIP

Type: EU expanding foam supplied by **Metalcraft Insulated Panel Systems.**

4337E ECOPLY® ROOFING & DECKING

1 GENERAL

This section relates to the use of Carter Holt Harvey Plywood Ltd Ecoply® plywood sheets for:

- membrane gutters
- substrate for roofing

1.1 RELATED WORK

Refer to 4422NT NURAPLY TPO ROOF & DECK MEMBRANE

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®

Documents

1.3 DOCUMENTS

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

NZBC B1/AS1	Structure
NZBC E2/AS1	External moisture
AS/NZS 1170.2:2011	Structural design actions - Wind actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 1604.3:2012	Preservative-treated wood-based products - Part 3: Plywood
AS/NZS 2269.0	Plywood - Structural - Specifications
NZS 3604	Timber-framed buildings

1.4 MANUFACTURER'S DOCUMENTS

Carter Holt Harvey Plywood Limited documents relating to work in this section are: Ecoply® Specification and installation guide December 2023

Manufacturer/supplier contact details

Company: Carter Holt Harvey Plywood Limited

Web: chply.co.nz

Email: info@ecoply.co.nz

Telephone: 0800 326 759

Requirements

1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.6 NO SUBSTITUTIONS

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

2 PRODUCTS

Materials

2.1 ECOPLY® STRUCTURAL (SQUARE EDGE) F8/F5 GRADE

Radiata pine veneer ply manufactured to [AS/NZS 2269.0](#), face sanded, grade as scheduled and H3.2 CCA treated to [AS/NZS 1604.3](#), if required.

Components

2.2 NAILS

Galvanized flat head, annular grooved or twisted shank. Stainless steel nails annular grooved.

Refer to Ecoply® Specification and Installation Guide requirements for size and use.

7 - 9mm plywood:	40mm x 2.5mm
12 - 21mm plywood:	60mm x 2.8mm
25mm plywood:	75mm x 3.15mm

2.3 SCREWS IN TIMBER

Stainless steel, counter-sunk. Refer to Ecoply® Specification and Installation Guide requirements for size and use.

General:

7 - 9mm plywood:	No. 8 x 30mm
12 - 15mm plywood:	No. 8 x 40mm
17mm plywood:	No. 10 x 40mm
19 - 21mm plywood:	No. 10 x 45mm
25mm plywood:	No. 10 x 50mm

Under membranes:

17 - 25mm plywood:	No. 10 x 50mm (to E2/AS1, 8.5.5.1)
--------------------	------------------------------------

2.4 SCREWS IN STEEL

Self tapping, self countersinking. Refer to Ecoply® Specification and Installation Guide, Table 7, requirements for size and use.

2.5 ADHESIVE

Refer to SELECTIONS.

2.6 BRUSH ON TREATMENT

Soudal Metalex Ready to Use or Soudal Metalex Concentrated Timber Preservative. Clear or Green colour product.

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.

Ensure support framing is completed to Ecoply® Specification and Installation Guide stated requirements as a minimum. Always refer to the roofing and decking system supplier for installation, plywood selection and surface preparation requirements for specific roofing and decking products or to specific design requirement.

Ensure all Ecoply® square edge sheet edges and joints will be fully supported with framing width of minimum 45mm at each Ecoply® sheet joint.

Ensure moisture content is:

Timber:	20% maximum
---------	-------------

Application**3.4 STANDARDS AND TOLERANCES**

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.5 FIXINGS

150mm centres along edges, minimum 7mm, maximum 15mm from the edge and, 300mm maximum centres on intermediate supports, or 200mm centres under membranes

3.6 FIXING ECOPLY® PLYWOOD SHEETS

Fix sheets to Ecoply® Specification and Installation Guide (or specific design) stated requirements. Lay sheets in a staggered layout, face-grain of sheet at right-angles to support and with sheets in square, true alignment and plane with a 3mm expansion gap for square edge sheets. Nail or screw fix to Ecoply® Specification and Installation Guide requirements unless specified differently.

3.7 UNDER MEMBRANE ROOFING

To [NZBC E2/AS1](#), 8.5 Membrane roofs and decks. Screw and adhesive fix sheets with stainless steel screws for membrane type roofing to Ecoply® Specification and Installation Guide and membrane manufacturers' requirements. CD grade plywood with the C face up (or better). Provide a 5mm radius chamfer to external edges where the membrane is to be wrapped over. Fix internal corner fillets.

Provide whichever is the greater falls:

- as shown on the drawings
- to the membrane manufacturer's requirements
- minimum to [NZBC E2/AS1](#), 8.5.1, - 1:30 for roofs, 1:40 for decks and 1:100 for gutters

3.8 TREAT

Treat cuts and holes in sheets with a brush on timber preservative treatment - Soudal Metalex Ready to Use or Soudal Metalex Concentrated Timber Preservative.

Completion

3.9 COMPLETION MATTERS

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

4 SELECTIONS

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

4.1 ECOPLY® STRUCTURAL (SQUARE EDGE)

Location:	Refer to drawings
Manufacturer:	Carter Holt Harvey Plywood Ltd
Brand/grade:	Ecoply® Structural / CD
Stress grade:	F8/F5
Thickness:	19mm
Treatment:	H3.2 CCA
Fixings:	Screws stainless steel

4.2 NAILS

Type/size/material: tbc

4.3 SCREWS

Type/size/material: tbc

4.4 ADHESIVE

Type: tbc

4422NT NURAPLY TPO ROOF & DECK MEMBRANE

1 GENERAL

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

- 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 4576MB Metalcraft Insulated Panel Systems

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

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
NZBC E2/AS1	External moisture
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

[BRANZ Appraisal 1177](#) (2021) - Nuraply TPO Waterproofing Membranes - Amendment 1

Manufacturer/supplier contact details

Company: **Nuralite Waterproofing 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:

20 years For Nuraply TPO membrane

- Provide this warranty on Nuralite Waterproofing Product Warranty standard form (to be supplied)
- 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 Nuraply TPO membrane when installed by Nuralite Waterproofing Limited approved applicator.

- 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 licensed by **Nuralite Waterproofing Limited**. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

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 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 Waterproofing Limited representative
- Contractor
- Principal
- Principal's consultant(s)

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 – VERY HIGH OR EXTRA HIGH

According to the wind zone parameters of [NZS 3604](#), table 5.4 this project is rated as very high or extra high. Ensure that the installation is adequate for this standard or greater.

2 PRODUCTS

Materials - Nuraply TPO single layer system

2.1 NURAPLY TPO SMOOTH BACK MEMBRANE

Nuraply TPO, a single ply, polyester fabric reinforced TPO fully bonded roofing and waterproofing membrane, to ASTM D6878.

Components

2.2 PRIMER - SOLVENT BASED

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

- 2.3 NURAPLY TPO MEMBRANE BONDING ADHESIVE - SOLVENT BASED
Nuraply TPO Bonding Adhesive, a solvent based rubberised contact adhesive to bond the membrane.
- 2.4 NURAPLY TPO SOLVENT
Nuraply TPO Solvent is used to cut back Nuraply TPO Adhesive for use as a primer and for cleaning of equipment.
- 2.5 MECHANICAL FIXING - FASTENERS AND PLATES
Nuraply TPO fasteners and metal plates for mechanically fastening membrane.
- Accessories**
- 2.6 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.
- 2.7 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.
- 2.8 NURAPLY TPO SEALANT
Nuraply TPO Sealant is an approved sealant compatible with Nuraply TPO and other accessories.
- 2.9 NURAPLY TPO MEMBRANE CLEANER
Nuraply Membrane Cleaner is used for lap preparation and removing marks from the membrane surface.
- 2.10 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
- 2.11 NURAPLY TPO DRAIN
Nuraply TPO Drains are a selected range of clamp ring drains in varying size and configurations.
- 2.12 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.
- 2.13 NURAPLY TPO SCUPPER OVERFLOW
Nuraply Aluminium Scupper Overflow is designed to be recessed into the substrate. 200mm high x 75mm wide x 300mm long.
- 2.14 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.
- 2.15 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.
- 2.16 NURAPLY TPO POURABLE SEALER
Nuraply TPO Pourable Sealer is a two-part polyurethane sealant used as a penetration pocket filler. 4.26 litre kit.
- 2.17 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
- 2.18 NURAPLY TPO DRIP EDGE
Nuraply Aluminium Drip Edge used for the drip edge into external gutters. 50mm x 50mm x 2.5 metres long
- 2.19 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 metres long.

2.20 NURAPLY DIVERTERS

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

2.21 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.

2.22 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.

2.23 CABLE DUCT

Nuralite Goose Neck.

2.24 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.

2.25 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.

2.26 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.

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.

Take delivery of Nuraply TPO membrane in undamaged rolls, and include for site handling facilities where required. Store rolls horizontally only, and no higher than two layers, one on top of the other. Provide dry storage for all products. Stack off the ground on a level surface and with accessories.

3.2 ROUTINE MATTERS

Refer to the general section 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 Waterproofing Limited 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 Waterproofing Limited 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:

Gutters: 1:100 minimum

3.8 PLYWOOD SUBSTRATE

Ensure plywood is:

- a minimum of 17mm thick and complying with [AS/NZS 2269.0](#)
- minimum CD structural grade with the sanded C side upwards
- hazard Class H3.2 with waterborne CCA treatment to AS/NZS 1604.1, and kiln dried after treatment
- laid with tight staggered joints (brick bond) with all edges of the sheets fully supported
- Chamfer all external edges with a minimum radius of 5mm
- fixed with 10 gauge stainless steel countersunk head screws
- fixed at 150mm centres on edges and 200mm in the body of the sheets.
- sheets supported at 400mm centre rafters and nogs for roofs unless detailed otherwise

Plywood and the timber substructure to have a maximum moisture content of 18% when the membrane is adhered. Consult with plywood manufacturer's correct testing technique.

3.9 RIGID AIR BARRIER (RAB)

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

Application - laying on plywood, cross laminated timber and strandboard

3.10 PLYWOOD, CROSS LAMINATED TIMBER AND STRANDBOARD SUBSTRATE PREPARATION

Substrate to be clean and dry before application of the Nuraply TPO waterproofing membrane.

3.11 POSITION MEMBRANE

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

3.12 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).

3.13 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.

3.14 MECHANICAL FIXINGS (MECHANICALLY FIX)

Mechanically fix lap joints of loose laid Nuraply TPO membrane with fasteners and plates to Nuraply TPO installation instructions. Contact Nuralite Waterproofing Limited for wind loading information.

3.15 LAP JOINTS MECHANICAL FIX AND HOT-AIR WELD (MECHANICALLY FIX)

Allow for a minimum of 150mm lap when mechanically fixing loose laid Nuraply TPO membrane. Provide a minimum 40mm hot-air weld to outer edge.

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 up-stands, down-turns, penetrations, sumps and vents to conform with Nuralite Waterproofing Limited 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.

Testing

3.20 TEST - FLOOD - COLD ROOFS

Flood test gutters and where practical other low pitch and horizontal areas with a minimum 50mm depth of water for 24 hours. Make good any lack of water tightness when the surface is completely dry. Repeat water test process after making any necessary 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.

Nuraply TPO Membrane

4.1 NURAPLY TPO MEMBRANE - FULL ADHESIVE FIX

Location:	Refer to drawings
Substrate:	Plywood
Supplier:	Nuralite Waterproofing Limited
Membrane:	Nuraply TPO
Thickness:	tbc
Colour:	grey
Finish:	smooth
Adhesive:	Nuraply TPO Membrane Bonding Adhesive

Materials - detail membrane

4.2 NURAPLY TPO DETAIL MEMBRANE

Location: Refer to drawings
Supplier: Nuralite Waterproofing Limited
Description: Nuraply TPO Detail membrane
Size: 1.5mm thick x 1524m long x 610mm wide
Colour: grey

Accessories

4.3 NURAPLY TPO MATERIAL ACCESSORIES

Location: Refer to drawings
Supplier: Nuralite Waterproofing Limited
Type: Nuraply RWH overflow

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 76 of 136 - 24/10/2025 - OG

4576MB METALBILT COMMERCIAL & INDUSTRIAL DOORS & GRILLES

1 GENERAL

This section relates to the manufacture, supply and installation of Metalbilt Doors commercial and industrial door and grille systems.

It includes;

- roller shutters

1.1 RELATED WORK

Refer to
7702 ELECTRICAL STANDARD
3821 TIMBER FRAMING
4231HA JAMES HARDIE AXON PANEL CLADDING

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

EWS	Electric Welded Seam
IL	Importance Level

Documents

1.3 DOCUMENTS

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

NZS/BS 476.22	Fire tests on building materials and structures. Methods for determination of the fire resistance of non-bearing elements of construction
AS 1905.2	Components for the protection of openings in fire-resistant walls - Fire-resistant roller shutters
AS 1530.4:2005	Methods of fire tests on building materials, components and structures - Fire-resistance tests of elements of building construction
NZS 4223.3	Glazing in buildings - Human impact safety requirements
NZS 4520	Fire-resistant doorsets
BS EN 1634-1	Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Fire resistance test for door and shutter assemblies and openable windows
BS EN 12101-1	Smoke and heat control systems - Specification for smoke barriers

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to work in this section are:
Metalbilt Doors product brochures
Metalbilt Installation & Owners Manuals

Manufacturer/supplier contact details

Company:	ARA Group NZ Limited
Trading as:	Metalbilt
Web:	www.metalbilt.co.nz
Email:	info@aramanufacture.co.nz
Telephone:	0800 638 252

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

1 year For Metalbilt door and grille system materials

- 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 warranty:

1 year For installation workmanship

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.7 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

Workers to be approved by Metalbilt Doors. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.8 NO SUBSTITUTIONS

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

1.9 SHOP DRAWINGS

Refer to the general section 1235 SHOP DRAWINGS for the requirements for submission and review and the provision of shop drawings.

Provide shop drawings to show the general arrangement including, but not be limited to:

- Opening dimensions
- Handing of gearing
- Track or guide type
- Support and fixing
- Operating system

If requested provide the following additional information:
tbc

Submit shop drawings for review - tbc.

- ~ working days (at least) before fabrication is planned to commence, provide shop drawings for review.
- Complete shop drawing review before commencing fabrication.

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:

- Metalbilt Installation & Owners Manuals
- Maintenance schedules to satisfy warranty terms including inspection, lubrication, adjustment and cleaning
- Electrical wiring diagrams for control equipment

Provide this information prior to practical completion.

Compliance information

1.11 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

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

Performance - Wind

- 1.12 DESIGN PARAMETERS, WIND
Refer to 1220 PROJECT for wind design parameters.

Quality control and assurance**2 PRODUCTS****Roller shutters / security grilles**

- 2.1 METALBILT STEEL ROLLER SHUTTER
Metalbilt Steel Roller Shutter, constructed from roll-formed galvanized steel interlocking plain, vented and perforated slats with roll-formed galvanized steel guides. Available in galvanized and powder coated finishes with motorised, manual hand chain and spring balance operation. Refer to SELECTIONS.

3 EXECUTION**Conditions -general**

- 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS
Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.
- 3.2 ROUTINE MATTERS
Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.
Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.
- 3.3 PRE-INSTALLATION REQUIREMENTS
Check work previously carried out and confirm it is of the required standard for this part of the work.

Installation

- 3.4 STANDARDS AND TOLERANCES
Refer to the general section 1270 CONSTRUCTION for general requirements.
- 3.5 INSTALLATION
Install door, track and operating equipment, accessories and hardware in accordance with Metalbilt installation manuals and shop drawings. Lubricate bearings and sliding parts and adjust doors to operate easily, free of warp, twist or distortion.
- 3.6 COMMISSIONING
Door installer to carry out a manual verification of the operation of the door.
Electrician to provide isolator, connect power supply, set limits and commission the door operation.

Completion

- 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.metalbilt.co.nz
Substitutions are not permitted to the following selections.

Roller shutters / security grilles

- 4.1 METALBILT STEEL ROLLER SHUTTER
Door reference: Refer to drawings
Supplier: Metalbilt

Type/Brand: Metalbilt Steel Roller Shutter
Size: Refer to drawings
Operation type: LCM Motorised
Controller: tbc
Guide type: Windlock with noise suppressant strip (Noise Suppressant Strip (NSS) is a replaceable PVC guide capping to reduce metal to metal contact noise)

Mullions: Sliding
Slats: Plain
Finish: Powdercoated
Colour: To match existing (sample to be provided). Colour steel : Thundergrey

4611 GLAZING EXTERIOR

1 GENERAL

This section relates to the supply and fixing of glass products for external joinery in complex residential and commercial buildings, including:

- window

1.1 RELATED WORK

Refer to 3821 Timber Framing

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

PVB	Polyvinyl Butyral
CIP	Cast in place

Documents

1.3 DOCUMENTS

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

NZBC F4/AS1	Safety from falling
NZBC F9/AS1	Means of restricting access to residential pools
NZBC H1/AS1-AS2	Energy Efficiency
NZBC H1/VM1-VM2	Energy Efficiency
AS/NZS 1170.2: 2011	Structural design actions - Wind actions
NZS 3604	Timber-framed buildings
NZS 4211	Specification for performance of windows
NZS 4223.1	Glazing in buildings - Glass selection and glazing
NZS 4223.2	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
NZS 4223.Supp1	Glazing in buildings - Supplement 1 to NZS 4223.1:2008 and NZS 4223.4:2008
AS/NZS 2208	Safety glazing materials in buildings
AS/NZS 4666	Insulating glass units
BRANZ BU 636	Protecting Glass From Damage

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

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

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

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

Requirements

Performance

1.5 THERMAL STRESS ANALYSIS

For non heat treated glass obtain a thermal stress analysis for spandrel panels, tinted, reflective and other solar control vision glass including IGU's for review before placing final order.

1.6 ENERGY EFFICIENCY

Provide glazing to comply with H1 Energy efficiency requirements of [NZBC H1/AS1-AS2](#) and [NZBC H1/VM1-VM2](#).

2 PRODUCTS

Materials

2.1 TOUGHENED GLASS

Grade A Safety Glass to [AS/NZS 2208](#).
Heat soaked toughened glass to [NZS 4223.1](#), Appendix E required for critical areas.
Refer to SELECTIONS.

Components, general

2.2 JOINTING, PUTTY AND SEALING MATERIALS

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

Components, timber glazing

2.3 PUTTY, TIMBER FRAME

Linseed oil base glazing putty.

2.4 SPRIGS

Diamond metal pieces to retain glass in timber sashes and frames.

2.5 GLAZING TAPE

Single/double sided pressure sensitive self-adhesive low/medium/high density foam tapes/butyl tapes for bead glazing.

2.6 GASKETS

PVC or Santoprene to window manufacturers' requirements.

2.7 SETTING BLOCKS

Santoprene/Neoprene, 80-90 Shore A hardness, set at quarter points or to detail, to support the weight of glass panes. Use with bead glazing and for IGU's.

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To [NZS 4223.1](#), [NZS 4223.2](#), [NZS 4223.3](#), as modified by [NZBC B1/AS1](#), 7.3.1, 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 to have undamaged edges and surfaces.

3.4 GLASS THICKNESS

If not specifically stated in the glazing schedule determine the minimum thickness of glass for each sheet as required by [NZS 4223.1](#), [NZS 4223.3](#), [NZS 4223.4](#), and [NZS 4223.4](#) 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.

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](#) 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 [NZBC B1/AS1](#), 7.3.1, 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 - timber glazing

3.13 PREPARE REBATES

Ensure all rebates and grooves are clean, dry and unobstructed at time of priming, sealing and glazing.

3.14 PREPARE TIMBER SURROUNDS

Ensure that all rebates have been primed with a primer suitable for this purpose and applied to the requirements of the painting section/s.

3.15 PREPARE TIMBER BEADS

Before fixing ensure that timber beads are sealed and painted to match the timber surround.

3.16 LOCATE BLOCKS

Centralise the glass in the rebate opening using setting, location and spacer blocks as required in [NZS 4223.1](#), Section 4 Glazing, to prevent movement of glass in the rebate, and cushion the effect of wind loading on the sealing system.

3.17 INSTALL PUTTY FRONTING

Back putty to give a bedding of not less than 1 to 2mm between the glass and the back of the rebate when the glass has been pressed back. Strip off squeezed out putty at a positive angle. Fix glass to wooden surrounds with diamond points or sprigs at maximum 460mm centres. Fix glass to metal surrounds with spring clips or pins provided by the sash manufacturers. Apply putty to the face to form a triangular fillet stopping 1-2mm below sight line. Finish putty smooth and true to line and face and with a light brushing.

Leave all windows and doors closed until putty has set sufficiently to prevent glass displacement.

Prime putty fronting once surface has skinned - normally within 10 - 15 days of completion of glazing, but this can be reduced with special XHP putty.

3.18 BEAD GLAZING, PREFORMED STRIPS

Apply the preformed tape to the rebate upstand with securely formed (or sealed) butt joints at corners. Place setting blocks, offer the glass and press back against the tape centralised in the opening and apply the second tape. Press the beads against and compressing the tapes and fix true to line and face sufficiently rigid to prevent flexing or movement. Trim off excess strip.

If a capping bead is required clean and paint the timber surface and when dry apply sealant capping between bead and glass and tool to a smooth camber.

3.19 BEAD GLAZING, NON SETTING COMPOUNDS

Apply compound to the rebate. Push setting blocks into place with distance pieces against the rebate upstand before offering the glass to the surround on setting blocks, centralised in the opening and pushed back into the glazing compound. Fill all voids with compound and apply more compound before setting distance pieces in it opposite the distance pieces already in place. Bed the beads to the glass and rebate and fix true to line and face sufficiently rigid to prevent flexing or movement. Finish compound off at an angle both sides of the glass.

3.20 INSTALLING INSULATING GLASS UNITS

Refer to the glazing manufacturer requirements and before glazing ensure that the materials forming the opening are strong enough to accept the weight, the rebates are the correct size and prepared to receive the units to [AS/NZS 4666](#). Fit setting and location blocks and bead glaze units using a compatible sealant to [AS/NZS 4666](#) section 3 Glazing, and to the glazing manufacturer requirements.

3.21 INSTALLING REFLECTIVE AND COATED GLASS

In addition to the type of glazing specified refer to the requirements of the glass manufacturer and ensure that the rebate dimensions, clearances and edge cover are sufficient to allow for the movement created by the particular solar glass being used. Check thermal stability for the particular location and ensure any sealant or compound is compatible with the coating.

Finishing

3.22 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.

Completion

3.23 TRADE CLEAN

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

3.24 REPLACE

Replace damaged, cracked or marked glass.

3.25 LEAVE

Leave work to the standard required by following procedures.

3.26 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

Performance - wind

4.1 WIND ZONE - NON-SPECIFIC DESIGN

Building wind zone: VH (Very High wind speed 50m/s)

4.2 WIND - SPECIFIC DESIGN

The design wind pressures are to [AS/NZS 1170.2](#)

SLS ~ Pa

ULS ~ Pa

Glass by type

4.3 TOUGHENED GLASS

Location: Refer to drawings.

Brand/type: tbc. Opaque finish to match existing.

Thickness: 6mm

4811S SIKA SEALANTS

1 GENERAL

This section relates to the selection of Sika sealants/adhesives and appropriate application methods for sealants nominated in other work sections.

It includes:

- Sika sealants
- Sika fire rated sealants
- Sika adhesives
- All required associated primers, cleaners and accessories necessary for installation.

1.1 RELATED WORK

Refer to
3821 Timber Framing
4231HA James Hardie Axon Panel Cladding

1.2 ABBREVIATIONS

The following abbreviations and terms are used throughout this part of the specification:
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 E2/AS1	External moisture
AS 1530.4:2005	Methods for fire tests on building materials, components & structures. Part 4: Fire resistance test of elements of construction
ASTM C719	Standard test method for adhesion and cohesion of elastomeric joint sealants under cyclic movement
EN 1366.4	Fire resistance tests for service installations. Linear joint seals.
ISO11600	Building construction - Jointing products - Classification and requirements for sealants

1.4 MANUFACTURER'S DOCUMENTS

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

Relevant Sika Product	Technical Data Sheets
Relevant Sika Product	Safety Data Sheets
CETEC Test Certificates	For VOC content of selected Sika sealants
CSIRO Test certificates	For fire rating of various Sika sealants
EXOVA Test certificates	For fire rating of various Sika sealants
BRANZ Appraisal 311 [2024]	Sikaflex® MS (Building Sealant)
BRANZ Appraisal 613 [2024]	Sikaflex® AT - Facade Sealant

Manufacturer/supplier contact details:

Company:	Sika (NZ) Ltd
Web:	nzl.sika.com
Email:	info@nz.sika.com
Telephone:	0800 SIKA NZ, 0800 745 269

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:
10 years: For Sika sealants and adhesives

- Provide this warranty on the Sika standard form. (For materials only. Warranty excludes application)
- Commence the warranty from the date of practical completion of the contract works.
- **Sika** (NZ) Ltd will warrant that Sika sealant products will perform in accordance with the information stated in **Sika** (NZ) Ltd current Technical Data Sheets.
- Refer to **Sika** (NZ) Ltd for further information on warranty.

Refer to the general section 1237 WARRANTIES for additional requirements

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:
2 years: For installation

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.7 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

Sealant work, including preparation, to be carried out by competent and experienced sealant applicators.

1.8 SEALANT SELECTION

Refer to the **Sika** (NZ) Ltd current Technical Data Sheet before commencing sealant installation. Ensure that the correct sealant has been selected for the intended application and substrates. Check that the joint design allows for movement and or substrate thermal expansion and contraction, and is within the sealants range of service.

1.9 NO SUBSTITUTIONS

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

2 PRODUCTS

Joint Substrate Primers & Accessories

2.1 NON-POROUS SUBSTRATE CLEANER - TO IMPROVE SEALANT ADHESION

Sika Aktivator-205, a transparent, alcohol based, one component cleaner with adhesion promoters for cleaning and activating non-porous substrates prior to the application of Sika sealants. For use with Sika products only.

2.2 POROUS SUBSTRATE PRIMER - TO IMPROVE SEALANT ADHESION

Sika Primer-3N, transparent solvent based, one component, reactive epoxy resin primer for use on a wide range of porous substrates. For use with Sika products only.

2.3 BACKING ROD - TO CONTROL DEPTH OF JOINT SEALANT

Sika PEF Backing Rod is a closed cell polyethylene foam backing rod used to fill the base of a joint to control depth of applied sealant. Available in a range of diameters.

Facade sealants for concrete / masonry brickwork - non-fire rated

2.4 FACADE SEALANT - HIGHEST MOVEMENT, POLYURETHANE, PAINTABLE

SikaHyflex®-250 Facade, is a durable, low VOC, one component, solvent free, moisture curing elastic polyurethane sealant with a joint movement capacity of +100/-50% and elongation at break of 800%. Conforms to: ISO 11600 Type F, Class 25LM. Can be over-painted with a range of paints and coatings.

Facade sealants for timber / fibre cement sheets and boards

2.5 FACADE SEALANT - HIGHEST MOVEMENT, POLYURETHANE, PAINTABLE

SikaHyflex®-250 Facade is a durable, low VOC, one component, solvent free, moisture curing elastic polyurethane sealant with a joint movement capacity of +100/-50% and elongation at break of 800%. Conforms to ISO 11600, Type F, class 25LM.
Can be over-painted with a range of paints and coatings.

Concrete Floor Sealant - control joints / seismic and wide joints

2.6 CONCRETE FLOOR - CONTROL JOINTS / CRACK REPAIR

Sikaflex® PRO-3 Purform, is a one component, low VOC, moisture curing polyurethane floor joint sealant with a joint movement capacity of +/-50% to ASTM C719. Good chemical and mechanical resistance. Conforms to ISO 11600 Type F, Class 25HM.
Can be over-painted with a range of paints and coatings.

Roofing sealants

2.7 ROOFING SEALANT - METAL ROOFING PROFILES & FLASHINGS

Sikasil® Roofing and Plumbing, a one component neutral curing silicone sealant with movement joint capacity of +/-25%. Non-corrosive to metals and has excellent adhesion to many substrates including copper and zinc. Conforms to ISO 11600 Type F, class 25LM.

2.8 ROOFING SEALANT - BITUMEN ROOFING & FLASHING

Sika BlackSeal®-1 is a one component, bitumen-based sealant with 85% solids. Compatible with most bitumen roofing systems and bonds to many substrates including timber, concrete and metal.
Can be applied to damp substrates and can be used in conjunction with Sika Blackseal Elastic System, a below grade tanking system. Cartridge applied sealant.

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.

3.4 CONDITIONS FOR APPLICATION

Ensure conditions for application are clean, dry and dust free as possible. Avoid dust, dirt, water and other contamination settling on the cleaned and prepared joint substrate.

Ensure adequate ventilation is maintained during the preparation and application of sealant work and all relevant health and safety equipment is utilised.

Ensure application of Sika products occurs when the ambient and substrate temperature is in accordance with the appropriate Product Data Sheet.

3.5 JOINT DESIGN

Ensure that joints to be filled are in accordance with the current best practice such as BRANZ Bulletin 584 and in accordance to joint requirements stated in the relevant Product Data Sheet.

Unless stated otherwise in relevant Product Data Sheet, a typical joint should be configured on a 2:1 width to depth ratio. Minimum joint width should be not less than 10mm and should not exceed 50mm.

A Sika PEF backing rod should be applied to the base of all open backed joints and a generic bond breaker tape should be adhered to the base of all shallow joints to prevent 3-sided adhesion.

3.6 COMPATIBILITY

Ensure compatibility by using only Sika branded sealants with Sika branded products including cleaners, primers, sealants, adhesives, filler and backing rods. Products should not be substituted without the prior approval of the specifier.

3.7 SUBSTRATE STAINING

Note that some sealants can cause staining on porous substrates such as concrete, masonry and natural stone. If in doubt, compatibility testing should be undertaken to confirm suitability prior to application.

3.8 SEALANT PAINTABILITY

Ensure that a paintable sealant is selected when the sealant joint requires painting. The overpainting of sealant will reduce its flexibility at the coating interface. If in doubt about the sealant / over-coating compatibility, testing should be undertaken to confirm suitability prior to application.

NOTE: This excludes silicon based sealants which are not paintable.

3.9 COLOURS

Refer to SELECTIONS for colour option/s. Where colour is not specified, choose sealant colours from the **Sika** standard/special colour ranges.

3.10 LIMITATIONS

All relevant and current Sika Technical Data Sheets must be consulted prior to application, to ensure that the specified product is suitable based on the actual site / joint conditions observed. All current technical literature is available on nzl.sika.com or by phoning 0800 SIKANZ.

Installation/application

3.11 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Preparatory work

3.12 PRE-COMMENCEMENT CHECK

Ensure that joints to receive Sika sealants are suitable for the proposed application and are within the specified width to depth ratios in accordance with the relevant and current Product Data Sheet.

Ensure that surfaces are sound, dry, free from dust, dirt, scale, laitance, corrosion or other loose material, oil, grease, paint, release agents or other contaminants which may affect the bond, or the performance of the sealing material.

3.13 TEST SUBSTRATES

If in doubt about the suitability of substrate, test the affected substrate for indications of poor adhesion, staining and contamination.

If poor adhesion is evident from initial tests, consult **Sika** about the application of a suitable cleaning and preparation process and the application of a primer. Only use combinations of sealants and substrates for which favourable adhesion and compatibility have been confirmed.

3.14 SUBSTRATE CLEANING & PREPARATION

Prepare and clean joint substrates in accordance with the relevant and current Product Data Sheet. Protect adjacent surfaces from abrasion or other damage.

Typically concrete surfaces should be ground to remove concrete laitance and other surface contaminants. Non-porous surfaces such as metal to be cleaned with a Sika approved cleaner / activator to remove any contaminating films or barriers.

Apply a suitable masking tape to the adjacent surfaces along the length of joints to prevent contamination during application. Mask off any surfaces which would be difficult to clean if smeared with sealant, or where excess sealant could not be neatly trimmed off or removed.

Application - sealants / adhesives

3.15 INSTALLATION BACKING ROD

Insert a Sika PEF backing rod to the specified depth within the cleaned and prepared joint to provide a solid base for the sealant application.

The diameter of the Sika PEF backing rod should be 25% larger than the gap width and compressed evenly into the joint using a blunt instrument to avoid puncturing or damaging the rod. Do not twist the rod during application. Punctured rod may lead to 'out-gassing' which can cause the bubbling during sealant curing.

The rod should be consistently and evenly installed without any gaps. The midpoint of the installed rod should be sitting at the specified depth for each joint.

3.16 PRIMING - POROUS SUBSTRATES

Confirm the porous primer selection with the selected sealant current Product Data Sheet.

Generally, porous substrates such as concrete, masonry or unpainted timber, apply by brush a uniform, thin film of Sika Primer 3N to the substrate. The primer seals, densifies and increases the surface area of substrate to promote adhesion of the selected sealant.

Allow primer to dry for the recommended time, at least 30 minutes before the application of sealant and should be left no more than 8 hours. Do not prime more than can be sealed in one day.

Primed joints that have been left for more than specified time (or overnight) or have become contaminated will need to be cleaned and re-primed prior to sealant application.

Do not contaminate the bond breaker tape or backing rod with primer.

3.17 PRIMING - NON-POROUS SUBSTRATES

Confirm the non-porous primer selection with the selected sealant current Product Data Sheet.

Generally, non-porous substrates such as aluminium (coated / anodised), stainless steel, galvanised steel, powdercoated metals, zinc, glazed tiles and paint/epoxy coatings, should be cleaned and treated using Sika Aktivator-205.

Wipe on Sika Aktivator-205 with a clean cloth and allow to dry for minimum 15 minutes and a maximum of 6 hours prior to sealant application. Primed joints that have been left for more than 6 hours (or overnight) or have become contaminated will need to be cleaned and re-treated.

Do not allow primer to contaminate other surfaces as a slight discolouration on some finishes may occur.

For substrates not mentioned above, refer to the relevant and current Sika Sealant Product Data sheet for priming requirements.

3.18 PRIMING - FOR ACRYLIC AND BITUMEN BASED SEALANTS

Substrate cleaning and preparation to be in accordance with the relevant and current Sika Sealant Product Data sheet. No primers are required for these products.

3.19 SEALANT APPLICATION

Sika sealants are supplied ready to use, insert the cartridge / uni-pack into a sealant pressure gun.

After the necessary substrate / joint preparation and priming, extrude uniformly the selected sealant into the joint cavity.

Apply sealant to ensure full contact with the substrate on each side of the joint with no voids or pockets of entrapped air. There should be a minimum amount of overfill.

3.20 SEALANT TOOLING & FINISHING

Tool sealant as soon as practical after application and prior to the sealant surface forming a skin.

Tool sealant face firmly to compact into the joint to form a smooth, flat or concave profile, to give the desired effect when cured.

Tooling must be carried out carefully, ensuring that the sealant minimum depth profile is not compromised.

A compatible tooling agent or fresh clean water can be used sparingly to assist with the smoothing of the tooled surface. Do not use products containing solvent, alcohol or fuel, as these products will inhibit the curing of the sealant.

Remove masking immediately after tooling and remove excess sealant from adjoining surfaces before sealant surface starts to skin. Refer to the relevant and current Product Data Sheet for information on curing times. Note skinning times are temperature dependent.

Any cured sealant can only be removed mechanically and care must be taken to avoid damage of surrounding surfaces.

3.21 SURROUNDING WORK

Leave surrounding surfaces in a neat, clean condition with no evidence of spill over.

Completion

3.22 COMPLETION MATTERS

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

SELECTIONS

For further details on selections go to nzl.sika.com.

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

Facade joints - concrete, masonry & brickwork - non-fire rated Timber/fibre cement sheets

4.1 SIKA SEALANTS

Sika Sealant approval required on site.

All sealant selections to be approved by Sika on site prior to installation. Arrange for a Sika Technical Sales Representative to visit to examine the site conditions, to inspect the surfaces and joints, to discuss the installation procedures and compatibilities with materials before any sealing work proceeds.

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 90 of 136 - 24/10/2025 - OG

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

3130 PRECAST CONCRETE
4231HA JAMES HARDIE AXON PANEL CLADDING
4239JH JAMES HARDIE SOFFITS

Documents

1.2 DOCUMENTS

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

NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture
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 1: Durability Requirements of Nominated Building Elements and [NZBC E2/AS1](#) Table 20 Material selection.

1.6 COMPATIBILITY REQUIREMENTS

Each flashing material shall be selected in accordance with [NZBC E2/AS1](#) Table 20 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 21 and [NZBC E2/AS1](#) table 22.

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.

2 PRODUCTS

2.1 FLASHING MATERIALS

Acceptable materials for flashings are described in [NZBC E2/AS1](#), 4.0. 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](#), 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](#), 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.

2.4 JOINTS - SEALANTS

Neutral Curing silicone or MS polymer sealant as required, with low resistance to compression and be-able to withstand large temperature variations. MS polymer sealant to be used where the sealant is exposed and the surrounding surfaces are to be subsequently painted or coated.

2.5 JOINTS - SOLDER

Eutectic solder of 60% tin/40% lead using a suitable proprietary flux.

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.

Refer to [NZBC E2/AS1](#) Table 7 for general dimensions of flashings.

3.9 FIXINGS

Fix flashings with fasteners appropriate to the situation. For fixing flashings with proprietary brackets or clips ensure they are aligned to allow for movement and are compatible with the flashing material.

Fix screws with the shank perpendicular to the surface of the flashing with the washer fitted firmly against the flashing. Screws to be compatible with the flashing material.

Rivets 'blind' or 'pop' are to be sealed when used. Aluminium rivets are compatible with zinc or AZ coated steel. Monel and stainless steel rivets can be used to fix galvanized steel flashings.

Minimum diameter of rivet to be used is 4.0mm. Drill hole 1mm larger than the rivet size. Seal head of rivet with neutral cured silicone.

3.10 JOINTING - SEALANTS

Clean surfaces to be lapped using a solvent ensuring all traces of the solvent are removed with a clean rag. Apply sealant by gun in a continuous bead of approximately 5mm diameter. Width of sealant when compressed should not exceed 25mm. Sealant joints shall be mechanically fixed for strength. Refer to [NZMRM CoP](#) for details.

3.11 JOINTING - SOLDER

Solder joints in galvanized steel and non-ferrous metals when specified with lead/tin solder. Clean joint ensuring it is dry and free of grease immediately prior to applying a proprietary flux. Lap the flashing 25mm in the direction of the water flow and fasten the lap with rivets or screws at 50mm centres. Completely sweat the joint to avoid leaving any flux residue. Wash down the joint to remove any trace of flux.

3.12 FINAL INSPECTION

A final inspection by the installer to take place after completion of the flashing work. Any defects or subsequent damage to be made good.

Completion

3.13 PROTECT

Protect new work from damage.

3.14 REPLACE

Replace all damaged or marked elements.

3.15 LEAVE

Leave work to the standard required for following procedures.

3.16 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 FLASHINGS

Type	Material and finish/colour
General flashings:	tbc
Window/doors:	
- Head:	tbc
- Sill:	tbc
Beam caps:	tbc
Cladding:	
- External corner:	tbc
- Internal corner:	tbc
Balustrade capping:	tbc
Garage door:	tbc
Meter box:	tbc
Soffit:	tbc
Wall/roof junctions:	tbc
Barge:	tbc
Apron:	tbc
Gutter apron:	tbc

6141 GROUND, SEALED OR POLISHED CONCRETE

1 GENERAL

This section relates to the provision of a high quality concrete finish to new or existing concrete surfaces incorporating mixed design aggregates and plain concrete.

It includes:

- plain polish
- grind and seal
- grind and polish

1.1 RELATED WORK

Refer to:

3102 - Standard Concrete Standard

6133SS - Sika Clear Sealers

Refer to appropriate concrete section(s) for mix design and placement.

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following definitions apply specifically to this section:

Plain polish: The concrete is mechanically ground just enough to clean it (virtually no aggregate exposed) and clear sealed.

Grind: The concrete is mechanically ground to expose aggregate

Grind and seal: The concrete is mechanically ground and clear sealed.

Grind and polish: The concrete is mechanically ground, then hardened, then polished, then sealed and finally burnished.

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

[NZS 3114](#) Specification for concrete surface finishes

Requirements

1.4 QUALIFICATIONS

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

1.5 TECHNIQUE DISCUSSION - CONCRETE PLACEMENT

Advise the concrete placer of the areas scheduled for ground/polished finishes. Ensure the placed concrete to be ground is not overworked resulting excess sand /cement pasts at the concrete surface

1.6 TECHNIQUE DISCUSSION AND FINISH STANDARD

Before commencing work, arrange a meeting to confirm the method of carrying out the work. Select an area on site, grind and finish the selected area to achieve the agreed finish. When agreement is reached, this then becomes the finish standard for the balance of the work.

1.7 SLIP RESISTANCE - SURFACES EXEMPT FROM TESTING

Walking surfaces comply with [NZBC D1/AS1](#), Table 2 for slip resistance requirements and are exempt testing.

2 PRODUCTS

2.1 PENETRATING SEALER

Refer to SELECTIONS.

2.2 SURFACE SEALER

Refer to SELECTIONS.

- 2.3 GROUT
Cement base slurry grout.

3 EXECUTION

Conditions

3.1 CONFIRM CONCRETE SURFACE

Confirm concrete surface is of the required standard for the concrete polishing and finishing processes. Do not proceed if placed concrete is not capable of delivering the specified finish. Seek written direction as to what action is required.

3.2 PLACING THE CONCRETE

Place concrete with light vibrate only, do not over vibrate. The concrete pavement or floor must be to [NZS 3114](#), a Class U3 finish. Very light power float (1 or 2 light passes).

3.3 PROTECTION

Cover glass, anodised aluminium and other surfaces to protect from damage that is caused from cementitious dust.

Application - plain polished concrete

3.4 PLAIN POLISHED CONCRETE

Polish concrete surface using a 50 to 200 grit resin bonded diamond depending on condition of slab. Apply penetrating concrete sealer.

Application - holes and cuts

3.5 GROUT HOLES

Grout slurry the air holes left in the concrete surface. Polish to remove grout within 24 hours of application using a 120 grit diamond.

3.6 GROUTING CONCRETE CUTS

Grout construction cuts and decorative cuts. Polish to remove excess grout within 24 hours of application using a 120 grit diamond.

Completion

3.7 LEAVE

Leave work to the standard required by following procedures.

3.8 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 PLAIN POLISH AND SEAL CONCRETE

Location:	Boatshed floors
On site standard:	Required
Sealer:	Sealant to match existing boatshed floors (sample to be provided)

6700R RESENE PAINTING GENERAL

1 GENERAL

This section relates to the general matters related to **Resene** painting work.

1.1 RELATED WORK

Refer to 6721R RESENE PAINTING INTERIOR
Refer to 6711R RESENE PAINTING EXTERIOR

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:

MPNZA	Master Painters New Zealand Association Inc.
SIPDS	Surface Information & Preparation Data Sheets

Documents

1.3 DOCUMENTS

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

Health and Safety at Work Act

[AS/NZS 5131](#) Structural steelwork - Fabrication and erection

[AS/NZS ISO 9001](#) Quality management systems - Requirements

MPNZA Health and Safety Programme

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

Resene	Surface Information & Preparation Data Sheets (SIPDS) (hard copy or at www.resene.co.nz)
---------------	--

Resene	Product Data Sheets (hard copy or at www.resene.co.nz)
---------------	--

Resene	Putting your safety first
---------------	---------------------------

Copies of the above literature are available from **Resene**

Telephone: 0800 RESENE (0800 737 363)

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this work under normal conditions of use against failure referring to the **Resene** Promise of Quality in the **Resene** One-Line specifications and product data manual.

Requirements

This painting specification is written based on information available at the time of writing.

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified **Resene** coating system, or associated components and products. Do not combine paints from different manufacturers in a paint system.

If in the applicator's own expertise and judgement an amendment to this specification is required, or where a substrate preparation, or required painting system is not covered in this specification, this shall be brought to the attention of the contract administrator and any amendment agreed before work proceeds any further.

1.7 QUALIFICATIONS

Painters to be experienced competent workers, familiar with the materials and the techniques specified and with the **Resene** coating systems and be members of the Master Painters New Zealand Association Inc.

The applicator is to have the necessary skill, experience and equipment to undertake the work. The applicator remains responsible for ensuring proper completion of the work.

Painters to be selected from the **Resene** Eco Decorator programme. The **Resene** Eco Decorator programme is designed to recognise a nationwide network of environmentally responsible, quality focussed painting contractors.

Refer to www.resene.co.nz/ecodecorator.htm for a list of Eco Decorators in your area.

1.8 PRIOR TO WORK COMMENCING

Before any work commences painters should verify, with Architects or specifying authority, that their paint matches a previously supplied standard card or panel. Differently coloured paints will vary in price, opacity and durability. **Resene** normally only specify two coats of colour but with certain colours, such as yellows and oranges, three coats may be needed. Refer to SELECTIONS for location and type.

1.9 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of the following general operation and maintenance information as electronic PDF format documents:
Maintenance guide for **Resene** paint finishes www.resene.co.nz/comn/services/maintenance.htm.
Provide this information prior to practical completion.

1.10 HEALTH AND SAFETY

Refer to and comply with the requirements of the [Health and Safety at Work Act 2015](#) including the obligation to:

- Eliminate hazards and if hazards cannot be eliminated or isolated, then minimise the hazards in this work by using the proper equipment and techniques as required by the MPNZA Health and Safety Programme.
- Supply protective clothing and equipment.
- Inform the contractor as well as the employees and others on site of those hazards and put in place procedures for dealing with emergencies.

1.11 SAFETY DATA SHEETS

Obtain from **Resene** (phone 0800 RESENE, or www.resene.co.nz) the safety data sheet for each product used and comply with the required safety procedures. Keep sheets on site.

Performance

1.12 RESENE INSPECTION

Permit representatives of **Resene** to inspect the work in progress and to take samples of their products from site if requested. **Resene** will take care when inspecting the work, but does not accept any responsibility for the proper completion of the work before or after such inspection.

1.13 INSPECTION OF THE WORK

Inspection of the whole of the work at each of the stages set out in SELECTIONS may be made. Agree on 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 MATERIALS GENERALLY

Do not combine paints from different manufacturers in a paint system.

Use only **Resene** products (which are guaranteed for consistency and performance under [AS/NZS ISO 9001](#) and APAS) prepared, mixed and applied as directed in the **Resene** One-Line Specifications and Product Data Manual. This specification has been written using where practical and available both low/no VOC.

2.2 DARK COLOURS

Darker colours in areas of high sun exposure place significant stress on the coating and substrate. **Resene 'CoolColour'** technology reduces heat absorption of a wide range of colours. Contact your local **Resene** Representative or visit www.resene.co.nz for more information or visit www.resene.co.nz/coolcolour. View a list of **Resene** colours that can be made using **Resene CoolColour** technology at www.resene.co.nz/colourlibrary.

2.3 THINNERS/ADDITIVES

Use only if and when expressly directed by **Resene** for their particular product in a particular application. Always wear gloves when handling any solvents including turpentine as harmful chemicals may be absorbed into the body through the skin.

Accessories

2.4 ACCESSORIES

Contact your local **Resene ColorShop** for a full range of accessories and usage advice.

3 EXECUTION

Conditions

3.1 EXECUTION

To conform to required trade practice, which shall be deemed to include those methods, practices and techniques contained in the Master Painters New Zealand Association Inc. Specification manual.

3.2 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.

3.3 BACK PAINTING

Co-ordinate with cladding and/or lining installer as to who will do the work and timing.

Exterior

For exterior cladding and trim that require on site finishing, paint the back and exposed bottom edges at the base of the cladding (generally, bottom plate overhang and horizontal flashings) to the manufacturer's requirements, but at least to 150mm up from base. Coating to match front finish, generally apply 2 coats or 1 coat if pre-primed.

Refer to appropriate exterior paint sections SELECTION clauses for claddings to be back painted.

Interior

For lining and trim that require on site finishing and/or back painting (usually wet areas), paint the back and exposed bottom edges at the base of the lining, to the manufacturer's requirements, but at least to 150mm up from base. Coating to match front finish, generally apply 2 coats or 1 coat if pre-primed, or if no front finish, seal to manufacturer's requirements.

Refer to appropriate interior paint sections SELECTION clauses for linings to be back painted.

3.4 ANCILLARY SURFACES

The descriptions of areas 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 written instructions before proceeding.

3.5 PROTECTION

Supply, lay and fix drop sheets, coverings and masking necessary to protect adjoining, fixtures, fittings and spaces from paint drops, spots, spray and damage.

Application - preparatory work

3.6 SURFACE PREPARATION

Refer to the **Resene** Surface Information & Preparation Data Sheets (SIPDS) and product data manual for surface preparation sheets (or obtain them by phoning 0800 RESENE, or at www.resene.co.nz) listed in the materials systems schedule clauses. Carry out the preparatory work required by them for each of the substrates.

3.7 SHARP EDGES, CRACKS AND HOLES

Remove and/or repair sharp edges, cracks and holes if present, as outlined in the preamble of the **Resene** One-Line specifications and product data manual.

Elastomeric sealants, if used, should not be painted. The paint film will not match the flexibility of the sealant and may severely limit its effectiveness.

3.8 REMEDIAL WORK

If any substrate or surface, that even with the preparation work called for in this section, cannot be brought up to a standard that will allow painting or clear finishing of the required standard then do not proceed until remedial work is carried out.

3.9 GAP FILLING

Make good cracks, holes, indented and damaged surfaces. Use suitable gap fillers to match the surface being prepared. Any special priming requirements of the fillers must be satisfied. Allow to dry or set before sanding back level with the surface. Prime or seal timber before using putty.

Exterior and wet areas: Use only Portland cement base or water-insoluble organic base gap fillers.

Application - generally

3.10 PAINTING GENERALLY

Comply with the **Resene** SIPDS Surface Information & Preparation Data Sheets or **Resene** One-Line specifications and product data manual data sheets and the additional requirements of this work section.

Ensure large wall areas that require more than one container of paint per coat, have enough paint boxed (mixed) together to complete the final coat. This will not apply if a single factory batch of paint, rather than shop tinted paint, is applied.

3.11 MIXING

Although generally supplied ready to use, all paints must be thoroughly mixed to lift any settled pigment and ensure the paint is homogeneous.

3.12 ENVIRONMENT

Defer painting of exterior surfaces until weather conditions are favourable - 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. If temperatures fall outside the range of 10°C and 35°C do not paint unless paints with the necessary temperature tolerance have been specified. **Resene Hot Weather Additive** can be added to most **Resene** waterborne top coats to extend open time when application is undertaken at elevated temperatures or conditions that will cause rapid loss of water from the applied wet film. Do not apply solvent borne paint if moisture is present on the surface.

3.13 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 primers, sealers, stains, undercoats, paints and clear coatings in the sequences laid down by **Resene**.
- Allow the full drying time between coats laid down by **Resene**.
- Do not expose primers, undercoats and intermediate coats beyond **Resene** recommendations before applying the next coat.
- Finish broad areas before painting trim.
- Ensure batch numbers of tins are matched for whole areas.
- Internally, paint ceilings before walls and walls before joinery, trim and other items.

3.14 APPLICATION

Select brush, roller, or pad and apply coatings to the requirements of **Resene** to obtain a smooth, even coating of the specified thickness, uniform gloss and colour.

3.15 LIGHTLY SAND

Lightly sand primers, sealers, undercoats and intermediate coats to remove dust pick-up, protruding fibres and coarse particles. A more thorough sanding to provide a mechanical key for the new paint system may be required depending upon the condition or age of the existing paint system..

3.16 DEFECTIVE WORK

Correct defective work immediately and recoat as required, following precisely the **Resene** system being applied. The same applies to transportation damage to site of factory painted items.

3.17 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 and the proper number of coats applied.
- No blemishes such as runs, sags, crinkling, fat edges, entrained paint skins, hairs, dust, bare or starved patches, cracks, significant brush marks, ladder marks and blistering.
- Proper covering of corners, crannies, thin edges, cracks, end grain and other difficult places of application.

Completion

3.18 CLEAN

Clean adjoining surfaces, glass and fittings of any paint contamination. Clean off glass indicators at the completion of the building works. Clean glass inside and out to a shining finish. Use the **Resene Washwise** on site 'paint equipment clean-up water' reclamation system to minimise the environmental impact of cleaning paint application tools.

3.19 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.

3.20 REMOVE

Remove drop sheets, coverings and masking to leave surrounding surfaces and areas clean, tidy and undamaged. Remove debris, unused materials and elements from the site.

3.21 REPLACE

Replace hardware without damage to it or the adjoining surface and leave hardware properly fitted and in working order.

3.22 DISPOSAL OF PAINTS AND THINNERS

Note: The use and disposal of paint and thinners represents a significant environmental hazard. Ensure all paint and thinners are disposed of in the following manner:

- When requested hand over part used paint containers to client for maintenance touch ups.
- Recycle leftover paint at a **Resene ColorShop** as part of the **Resene "Paintwise programme"**. Contact your local **Resene ColorShop** for details or view information online at www.resene.co.nz/paintwise.htm.
- Donate left over paint to local community groups.
- Solvent based paints, paint thinners, turpentine, mineral spirits and solvents require special disposal procedures. Do not pour down sewer or stormwater drains, sinks or into the ground. If they cannot be recycled they must be disposed of in a refuse dump licensed to take toxic waste.

3.23 MAINTENANCE

Good maintenance of coating systems involves a routine of regular cleaning as well as regular inspections. Regular inspections of the coating systems are recommended to identify breakdown, accidental damage to or undesirable deterioration of the paint.

Wash down of exterior coatings should be undertaken on an annual basis using **Resene Paint Prep** and **Housewash** (see Data Sheet D812).

Refer the **Resene** Caring for your paint finish brochure and the **Resene** website, www.resene.co.nz/comn/services/maintenance.htm.

4 SELECTIONS

4.1 SELECTIONS

Refer to 6711R RESENE PAINTING EXTERIOR and 6721R RESENE PAINTING INTERIOR for selections.

Refer to 6711RE RESENE ENVIRONMENTAL PAINTING EXTERIOR and 6721RE RESENE ENVIRONMENTAL PAINTING INTERIOR for selections.

6711R RESENE PAINTING EXTERIOR

1 GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing exterior substrates using **Resene** architectural and decorative coating systems.

Related work

1.1 RELATED WORK

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.
 Refer to 6721R RESENE PAINTING INTERIOR for interior paint systems.
 Refer to 6721RE RESENE ENVIRONMENTAL PAINTING INTERIOR for interior paint systems.

Requirements

1.2 SAMPLES

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

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

2 PRODUCTS

Materials

2.1 PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES

Refer to 6700R RESENE PAINTING GENERAL for product clauses.

3 EXECUTION

Conditions

3.1 EXECUTION

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

4 SELECTIONS

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

4.1 INSPECTION OF WORK

Stage	Resene SIPDS number/system
~	~

4.2 BACK PAINTING SCHEDULE

Paint 2 coats (including any pre-prime) to match exposed face coating.

Cladding type	Extent of back painting
~	~

4.3 HARDWARE

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 101 of 136 - 24/10/2025 - OG

Hardware for ~
removal:

Resene exterior paint systems

Exterior cementitious - new

4.4 RESENE NEW EXTERIOR PRECAST CONCRETE PANELS - PAINT (WEATHERTIGHT)

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 1/1
1st coat:	Resene ConcreteSeal 3in1 D409, Solvent-borne primer/sealer
2nd coat:	Resene X-200 D62, Acrylic Weathertight Membrane
3rd coat:	Resene X-200 D62, Acrylic Weathertight Membrane

Exterior fibre cement cladding - new

4.5 RESENE NEW EXTERIOR FIBRE CEMENT CLADDING - PAINT (WEATHERTIGHT)

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 4/1
1st coat:	Resene Concrete Primer D405, Acrylic Concrete Primer
2nd coat:	Resene X-200 D62, Acrylic Weathertight Membrane
3rd coat:	Resene X-200 D62, Acrylic Weathertight Membrane

6721R RESENE PAINTING INTERIOR

1 GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing interior substrates using **Resene** architectural and decorative coating systems.

Related work

1.1 RELATED WORK

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

Requirements

1.2 SAMPLES

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

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

2 PRODUCTS

Materials

2.1 PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES

Refer to 6700R RESENE PAINTING GENERAL for product clauses.

3 EXECUTION

Conditions

3.1 EXECUTION

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

4 SELECTIONS

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

4.1 INSPECTION OF WORK

Stage	Resene SIPDS number/system
~	~

4.2 BACK PAINTING SCHEDULE

Paint 2 coats (including any pre-prime) usually to match exposed face coating. If there is no coating use water resistant clear finish sealer.

Lining type

~

Extent of back painting

~

4.3 HARDWARE

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 103 of 136 - 24/10/2025 - OG

Hardware for ~
removal:

Resene interior paint systems

Interior timber - new

4.4 RESENE NEW INTERIOR TIMBER WINDOW JOINERY FRAMING - PAINT

Surface Prep: Resene SIPDS No2 and Spec Sheet 2: 9/1
1st coat: Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat
2nd coat: Resene Enamacryl D309, Gloss Waterborne Enamel
3rd coat: Resene Enamacryl D309, Gloss Waterborne Enamel

4.5 RESENE NEW INTERIOR TIMBER DOORS - HIGH-USE/WEAR AREAS - 2PACK PAINT

Surface Prep: Resene SIPDS No2 and Spec Sheet 2: 9/1
1st coat: Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat
2nd coat: Resene Waterborne Uracryl 802, Semi-Gloss 2 Pack Urethane
3rd coat: Resene Waterborne Uracryl 802, Semi-Gloss 2 Pack Urethane
Note: Allow Resene Quick Dry to dry for 48 hours prior to applying Resene Uracryl 802.

4.6 RESENE NEW INTERIOR TIMBER LVL BEAMS - PAINT

Surface Prep: Resene SIPDS No2 and Spec Sheet 2: 16/1
1st coat: Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat
2nd coat: Resene Lustacryl D310, Semi-Gloss Waterborne Enamel
3rd coat: Resene Lustacryl D310, Semi-Gloss Waterborne Enamel
Note: Resene Quick Dry Primer Undercoat should be tested on the LVL timber beam to confirm full adhesion before proceeding with the full application. Please refer to Resene Surface Prep for full preparation guideline.

Interior fibre cement - new

4.7 RESENE NEW INTERIOR FIBRE CLADDING - PAINT

Surface Prep: Resene SIPDS No3 and Spec Sheet 3: 6/1
1st coat: Resene Concrete Primer D405, Acrylic Concrete Primer
2nd coat: Resene SpaceCote Low Sheen D311, Waterborne Enamel
3rd coat: Resene SpaceCote Low Sheen D311, Waterborne Enamel

Interior cementitious - new

4.8 RESENE NEW INTERIOR INSITU PRECAST CONCRETE PANELS - CLEAR COAT

Surface Prep: Resene SIPDS No3 and Spec Sheet 3: 6/1
1st coat: Resene Concrete Clear - Gloss D54a, Waterborne Clear
2nd coat: Resene Concrete Clear - Satin D54a, Waterborne Clear
3rd coat: Resene Concrete Clear - Satin D54a, Waterborne Clear
Note: Please ensure the surfaces are completely dry, as any exposure to or entrapment of moisture may cause the clear finish to develop a cloudy or milky appearance.

4.9 RESENE NEW INTERIOR CONCRETE FLOOR – CLEAR COAT TWO PACK

Surface Prep: Resene SIPDS No3 and Spec Sheet 3: 7/1
1st coat: Resene Uracryl 403 Gloss Clear – RA56 (thinned 15%), 2 Pack Urethane
2nd coat: Resene Uracryl 403 Gloss Clear – RA56, 2 Pack Urethane
3rd coat: Resene Uracryl 403 Gloss Clear – RA56, 2 Pack Urethane
Note: Please ensure the surfaces are completely dry, as any exposure to or entrapment of moisture may cause the clear finish to develop a cloudy or milky appearance.

6745R RESENE PROTECTIVE COATINGS - STEELWORK

1 GENERAL

This section relates to the preparation and painting of structural and miscellaneous steelwork items using **Resene** coating systems.

This painting specification is written based on information available at the time of writing.

This painting specification assumes that the applicator has the necessary skill, experience and equipment to undertake the work. The applicator remains responsible for ensuring proper completion of the work.

If in the applicator's own expertise and judgement an amendment to this specification is required, or where a substrate preparation or required painting system is not covered in this specification, this shall be brought to the attention of the principal and any amendment agreed before work proceeds any further.

1.1 RELATED WORK

Refer to the **Resene** painting sections for general painting.

Documents

1.2 DOCUMENTS

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

AS 1627	Metal finishing - Preparation and pre-treatment of surfaces, Parts 1-10
AS/NZS 2312.1	Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings - Part 1: Paint coatings
AS/NZS 2312.2	Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings - Part 2: Hot dip galvanizing
AS/NZS 5131	Structural Steelwork - Fabrication and Erection
AS/NZS ISO 9001	Quality management systems - requirements
MPNZA	Health and Safety Program
Health and Safety at Work Act 2015	

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Resene	Surface Information & Preparation Data Sheets (SIPDS) and product data manual (hard copy or at www.resene.co.nz)
Resene	Putting Your Safety First

Copies of the above literature are available from Resene

Telephone: 0800 RESENE (0800 737 363)

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

Materials: To 1(v) **Resene** Promise of quality - expected system life in the **Resene** Surface Information & Preparation Data Sheets (SIPDS) and product data manual

- 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:
3 years: 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.

Requirements

1.6 QUALIFICATIONS

Painters to be experienced competent workers, familiar with the materials and the techniques specified.

1.7 NO SUBSTITUTIONS

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

1.8 SAMPLES

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

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

Performance

1.9 QUALITY ASSURANCE

Maintain quality assurance programs to [AS/NZS ISO 9001](#) for both preparation and painting/coating, as necessary to assure that work is performed in accordance with this specification and the qualifying requirements of the contract documents.

1.10 GENERAL INSPECTIONS

Inspection of the work to take place at each of the stages as scheduled. Refer to SELECTIONS. Confirm a written program to facilitate these inspections, including notification when each stage of the work is ready for inspection.

1.11 MANUFACTURER'S INSPECTIONS

Permit the paint manufacturer to inspect the work in progress and to take samples of their products from site as requested.

1.12 HEALTH AND SAFETY

Refer to and comply with the requirements of the [Health and Safety at Work Act 2015](#) including the obligation to:

- Eliminate hazards and if hazards cannot be eliminated or isolated, then minimize the hazards in this work by using the proper equipment and techniques as required by the MPNZ Health and Safety Program and **Resene Putting Your Safety First** handbook.
- Supply protective clothing and equipment.
- Inform the contractor as well as the employees and others on site of those hazards and put in place procedures for dealing with emergencies.

1.13 MATERIAL SAFETY DATA SHEETS

Obtain from **Resene** (phone 0800 RESENE, or www.resene.co.nz) the material safety data sheet(MSDS) for each product used and comply with the required safety procedures. Keep sheets on site.

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 106 of 136 - 24/10/2025 - OG

2 PRODUCTS

Materials

2.1 COATING SYSTEMS

Refer to SELECTIONS. Use only **Resene** product which is guaranteed for consistency and performance under [AS/NZS ISO 9001](#) prepared, mixed and applied as directed in the **Resene Engineered Coatings Systems Manual**.

2.2 PRIMER

Refer to SELECTIONS for type.

2.3 THINNERS/ADDITIVES

Use only if and when expressly directed by **Resene** for their particular product in a particular application.

Accessories

2.4 ACCESSORIES

Contact your local **Resene ColorShop**, if required, for a full range of accessories and usage advice.

3 EXECUTION

Conditions

3.1 CONDITIONS FOR PAINTING

Coat steelwork in conditions approved for the application of the specified coatings. Carry out off-site preparation and coating application under cover, in a suitable environment, with adequate lighting and with the air temperature between 10°C and 25°C.

Ensure prepared and painted surfaces are clean and dry. Do not carry out preparation or painting when the ambient relative humidity exceeds 85%. The temperature of the substrate to be 3°C above Dew Point.

3.2 COATING APPLICATION

Apply coatings strictly in accordance with the manufacturer's stated requirements. Ensure that the manufacturer's latest product data sheets are available for reference during preparation and painting.

3.3 COMPATIBILITY

Ensure that materials are as required by their manufacturers for the particular surface and conditions of exposure, and that materials used within each painting system are compatible with each other and are from the same manufacturer.

3.4 SEQUENCE OF OPERATIONS

Complete surface preparation before commencing painting. Apply paint in the specified sequence using the specified paint. Allow full drying time between coats to the manufacturer's stated requirements. Do not expose primers, undercoats and intermediate coats beyond a few days before applying the next coat.

3.5 DRYING TIME

Before handling or applying the next coat of paint, give each coat the required drying time required by the manufacturer. Ensure that surfaces being painted are dry and that ambient conditions are such that condensation does not occur before the paint reaches surface-dry condition.

Application - surface preparation

3.6 SURFACE PREPARATION

Refer to the **Resene Surface Information & Preparation Data Sheets** (SIPDS) and product data manual for surface preparation sheets (or obtain them by phoning 0800 RESENE, or at www.resene.co.nz) listed in the materials systems schedule clauses. Carry out the preparatory work required by them for each of the substrates.

3.7 LEAD-BASED PAINT, ASBESTOS

Handle cautiously lead-based paint and asbestos, if present, as outlined in the preamble of the **Resene** SIPDS Surface Information & Preparation Data Sheet 3:4B/3 Cement and Roofing Claddings containing asbestos or SIPDS Surface Information & Preparation Data Sheet 2:1/3 Note V Lead containing paints and product data manual.

3.8 UNPAINTED SURFACES

Do not paint:

- Faying face of high strength friction grip (HSFG) bolted joints
- Areas for site welding keeping 75mm clear all round
- Surfaces for embedding in concrete.

Where steel is only partly encased, then extend priming 100mm maximum into and above the concrete encasement area.

3.9 BRUSHING AND POWER TOOL CLEANING

Remove oil and grease in accordance with AS 1627.1. Water blast to remove salt deposits. Scrape and power wire brush to a minimum class 2 finish to AS 1627.2. All sharp edges are to be removed by grinding to provide a 2mm radius edge. Clean to bright metal, but avoid producing a polished surface. Check that no burrs or sharp arrises remain which may prevent full coating thickness being attained.

3.10 ABRASIVE BLASTING

Remove oil and grease in accordance with AS 1627.1. Water blast to remove salt deposits. Abrasive blast clean to a class 2½ finish to AS 1627.4. Select grit type and equipment such that the cleaned surface profile between peaks and valleys does not exceed one third of the dry film thickness. Check that no burrs or sharp arrises remain which may prevent the full coating thickness being attained.

3.11 PREPARING HOT DIP GALVANIZED SURFACES

Remove grease, oil in accordance with AS 1627.1. Water blast to remove salt deposits. Allow to dry and proceed with the next operation immediately. Carefully whip blast (sweep blast) the surface to provide a slightly roughened surface profile using clean new non-metallic blasting media. Care must be taken to ensure a minimum amount of zinc is removed during this process (no more than 10 microns). Any areas of white corrosion must be totally removed during this process before painting.

3.12 PREPARING "IN-LINE" GALVANIZED, ZINC AND ALUMINIUM/ZINC COATINGS

Remove grease, oil and other solvent-soluble contaminants in accordance with AS 1627.1. Water blast to remove salt deposits. Any areas of white corrosion must be removed by wet and dry sanding or high pressure water blasting before application of paint coatings. Allow to dry and proceed with the next operation immediately

3.13 SHOP PRIMING

Degrease in accordance with AS 1627.1. Water blast to remove salt deposits. Allow to dry and remove all loose corrosion products by any of the following; wire brushing, power tool cleaning, or abrasive blast cleaning. Dust off and apply a coat of primer within 4 hours of completing surface preparation.

3.14 PATCH PRIMING

Clean areas of damaged priming and areas left clear for site jointing to a standard comparable with the shop cleaning specified. Wash off chemical deposits from welding fumes. Apply priming coats to same standard as shop primers, ensuring thorough coating of bolts, nuts and connection areas. Re-prime if the primer fails, or more than 4 weeks elapse before the final coating system is applied. Ensure an overlap of 20mm onto sound existing coating. Consult manufacturer if primer has been left exposed for more than 4 weeks before the final coating system is applied.

Supervision and Inspection

3.15 SUPERVISION FOR STRUCTURAL STEEL

To [AS/NZS 5131 Structural steelwork - Fabrication and Erection](#), 9.9.20. Provide an Inspection Test Plan (ITP) to [AS/NZS 5131](#) 13.9.1, prior to commencement. To be supervised by a competent person.

Application - general

3.16 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 proper number of coats applied, specified dry film thicknesses of each coat are achieved.
- Free of defects such as pin-holing, alligating, blistering, staining, overspray, peeling, runs, sags, wrinkling and imbedded dirt or dust.

3.17 PAINT FILM THICKNESS

The film thickness and dry film thicknesses quoted are the minimum to be achieved. Do not exceed these thicknesses by more than 20% of that specified. The specified film thickness for each coat / application shall be achieved prior to the application of the subsequent coat. Measurement shall be as per AS/NZS 3894.3 standard (SSPC-PA2) and agreed on before commencement of paint application.

Completion

3.18 LEAVE

Leave the whole of this work uniform in gloss, texture and colour, free from painting defects, clean and unmarked, and to the standard required by following procedures.

4 SELECTIONS

For further details on selections go to www.resene.co.nz.

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

4.1 CONTROL SAMPLES

Manufacturer: ~
Coating system: ~
Nature of sample: ~

4.2 GENERAL INSPECTIONS

Coating system: ~
Inspection: ~

4.3 PRIMER

Brand/type: ~

4.4 SHOP PRIMING

Dry film build: ~ microns

New mild steel, ferrous metals

4.5 RESENE NEW EXPOSED AND CONCEALED SHS & PFC STEEL - PUR5

System: Resene equivalent to [AS/NZS 2312.1](#) PUR5
Inorganic zinc or zinc epoxy, epoxy intermediate, acrylic polyurethane
Time to first maintenance C3 High 25+ years

Description: Gloss polyurethane finish

Surface prep: AS 1627.4 (Sa 2½)

1st coat: Resene Zincilate 11 RA21 @ 75 microns DFT or Resene ArmourZinc 120 RA22 @ 75 microns DFT

2nd coat: Resene Armourcote 510 RA40 @ 200 microns DFT

3rd coat: Resene Uracryl 403 (Gloss) RA56 @ 50 microns DFT

4th coat: Resene Uracryl 403 (Gloss) RA56 @ 50 microns DFT

4th coat finish: Gloss, Semi-Gloss or Low Sheen

4th coat colour: TBC

7411MA MARLEY RAINWATER DISPOSAL SYSTEMS

1 GENERAL

This section relates to **Marley** rainwater disposal systems. It includes;

- uPVC spouting and downpipes
- Stratus Design Series® spouting and downpipes
- associated accessories necessary to complete the installation

1.1 RELATED WORK

Refer to 4257M Metalcraft Insulated Panel Systems
3130 Precast Concrete

Documents

1.2 DOCUMENTS

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

NZBC E1/AS1	Surface water
NZBC E2/AS1	External moisture
AS/NZS 3500.3	Plumbing and Drainage - Stormwater drainage
AS/NZS 4020	Testing of products for use in contact with drinking water

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Marley Rainwater Sales Brochures
Marley Product Catalogue
Marley - Spouting and Downpipe DIY Installation Guide
Marley Stratus Design Series® Sales brochure
Marley Stratus Design Series® - Design and installation guide

Manufacturer/supplier contact details

Company: **Marley New Zealand Limited**
Web: www.marley.co.nz
Email: info@marley.co.nz
Telephone: 0800 MARLEY (0800 627 539)

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier Guarantee:

15 years: Against defects in material and manufacture

- Commence the guarantee from the date of purchase
- Refer to Marley NZ Guarantee available at www.marley.co.nz

Refer to the general section 1237 WARRANTIES for additional requirements.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

~ years: For installation

- When installed to Marley's published installation instructions at time of installation.
- Provide this warranty on the installer/applicator standard form.
- Workmanship warranty to be issued separately by the installer
- 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

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

1.7 NO SUBSTITUTIONS

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

Performance**1.8 TEST**

Test the completed Marley rainwater disposal system with water to ensure, spouting is laid to correct fall, that both spouting and downpipes are unobstructed and that no ponding occurs in spouting.

1.9 DESIGN - NZBC E1/AS1

Layout, falls and capacity of spouting to falls and the size and position of downpipes to comply with [NZBC E1/AS1](#).

1.10 DESIGN - AS/NZS 3500.3 & NZBC E1/AS2

Layout, falls and capacity of spouting to falls and the size and position of downpipes to comply with [AS/NZS 3500.3](#) as modified by [NZBC E1/AS2](#).

2 PRODUCTS**Materials****2.1 UPVC SPOUTING/DOWNPINES**

Marley uPVC spouting and downpipe systems in white and grey uPVC.

2.2 STRATUS DESIGN SERIES® SPOUTING/DOWNPINES

Marley Stratus Design Series® spouting and downpipe systems in co-extruded colour outer layer with grey uPVC internal layer.

Products**2.3 MARLEY SPOUTING**

Marley spouting system, complete with Marley fittings including jointers, brackets, expansion outlets, end caps and corners supplied by Marley. Refer to SELECTIONS for type.

2.4 MARLEY DOWNPINES

Marley downpipe system, complete with Marley fittings including bends, clips, joiners and junctions supplied by Marley. Refer to SELECTIONS for type.

Components**2.5 MARLEY MCS SOLVENT WELDING CEMENT**

Only Marley MCS® Solvent Welding Cement to be used in conjunction with the spouting and downpipe systems to manufacturer's instructions. Colour match to spouting or downpipes.

2.6 EXPANSION OUTLET/DROPPERS

Marley expansion outlet/droppers, compatible with spouting and downpipe profile.

2.7 FABRICATION

Special items can be fabricated by Marley to specific dimensions on request including but not limited to angle flats, angle rakes, outlets and adaptors.

3 EXECUTION**Conditions****3.1 HANDLING AND STORAGE**

Handle and store Marley 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. Store out of direct sunlight. Refer to Marley installation guides for further details.

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 jointing of the spouting for thermal movement in the length of the spouting by using Marley expansion joiners and/or expansion outlets. Refer to Marley expansion technical information.

3.4 ENVIRONMENTAL

Marley Spouting and Downpipe systems are suitable for most environmental conditions and will never rust, rot or corrode.

3.5 RECYCLING

All Marley manufactured spouting and downpipe systems are 100% recyclable and Marley operates recycling programs with industry suppliers where uPVC pipes can be returned from site for recycling at Marley.

Application

3.6 INSTALL MARLEY SPOUTING

Install to Marley's current published installation instructions available at www.marley.co.nz. Ensure only Marley MCS® Solvent Welding Cement to be used in conjunction with the spouting systems to manufacturer's instructions. From high points fix brackets true-to-line to give a fall of 5mm every 10 metres to outlets. Set spouting brackets at 500mm centres; reduce to 300mm spacing for high wind zones or areas subject to occasional snowfalls. Make adequate provision for thermal movement.

3.7 INSTALL MARLEY DOWNPIPES

Install to Marley's current published installation instructions available at www.marley.co.nz. Ensure that all joints are sealed properly using Marley MCS® Solvent Welding Cement. Assemble downpipes, solvent cement jointed complete, fit to outlets, fix with pipe clips every 1.2 metres, fix pipe clips with 304 stainless steel screws, plumb and discharging into the stormwater gully or pipe inlet to the Marley required practice.

Painting Marley uPVC spouting/downpipes

3.8 PAINTING

After installation use a mineral based undercoat and two coats of 100% weatherable acrylic paint. Do not paint the inside of spouting or internal brackets.

Completion

3.9 REPLACE

Replace damaged or marked elements.

3.10 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.

3.11 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

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

uPVC system - spouting

4.1 MARLEY UPVC SPOUTING - STORMCLOUD®

Manufacturer: Marley
 Profile/type: Marley Stormcloud® quarter-round
 Size: 133mm
 Cross section: 6100mm²
 Colour: To match existing
 Bracket type: To match existing

uPVC system - downpipes

4.2 MARLEY UPVC DOWNPIPES - RP65®

Manufacturer: Marley
 Profile/type: Marley RP65® 65mm Round
 Size: 65mm
 Colour: To match existing
 Bracket type: To match existing

4.3 MARLEY UPVC DOWNPIPES - RP80®

Manufacturer: Marley
 Profile/type: Marley RP80® 80mm Round
 Size: 80mm
 Colour: To match existing
 Bracket type: To match existing

Stratus Design Series®

4.4 MARLEY MISCELLANEOUS ITEMS

Manufacturer: Marley
 Item: Marley Curve Leaf Diverter
 Size: to fit downpipe
 UPVC
 to match existing downpipes

7431 DRAINAGE COMMON REQUIREMENTS

1 GENERAL

This section relates to common requirements to do with the supply and laying of gravity subsoil, surface water and foul water drains.

1.1 RELATED WORK

Refer to 7441 GROUNDWATER DRAINAGE for subsoil drainage
 Refer to 7451 SURFACE WATER DRAINAGE for storm/surface water drainage
 Refer to 7461 FOUL WATER DRAINAGE for waste/foul water drainage

Documents

1.2 DOCUMENTS

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

NZBC E1/AS1	Surface water
NZBC E1/AS2	Surface water
NZBC G13/AS2	Foul water
AS/NZS 3500.3	Plumbing and drainage - Stormwater drainage
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design

[WorkSafe](#) [Good Practice Guidelines - Excavation Safety](#)

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

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

Health and Safety at Work (Hazardous Substances) Regulations 2017

Requirements

1.3 QUALIFICATIONS

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

1.4 INFORMATION FOR OPERATION AND MAINTENANCE

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

1.5 AS BUILT DOCUMENTS

Supply as-built drawings to requirements set out in the general section 1238 AS BUILT DOCUMENTATION.

Performance

1.6 SITE MEETING

Meet with the territorial authority drainage inspector to confirm the drainage layout in relation to site conditions. Confirm changes resulting and seek written site instruction before carrying out any work.

1.7 CHECK LOCATION

Check the location of existing on and off-site, private and public services with the network utility operator. Follow their requirements for safety and protection where laying drainage.

1.8 SITE CONDITIONS

Before starting work check on site the drainage layout, dimensions, levels and invert levels and ensure that line, level, falls and cover are correct.

1.9 SAFETY

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

Carry out excavation and trenching to [WorkSafe](#), [Good Practice Guidelines - Excavation Safety](#).

Prevent material rolling into trenches.

1.10 TESTS

Using the method agreed with the territorial authority inspector, test and inspect pipelines before backfilling to ensure required acceptance levels are achieved. Test again after backfilling to confirm acceptance levels and for final acceptance of the works.
Refer to RELATED WORK sections for specific requirements.

1.11 RECORDS

Records to be kept of all tests.

2 PRODUCTS

2.1 PRODUCTS

Refer to the RELATED WORK sections for products.

3 EXECUTION

Application

3.1 EXCAVATION

Open not more than 120 metres of trench at any one time. Excavated trench to a minimum width of pipe diameter plus 300mm. Do not batter or cut the trench wider above the top of the pipe. For deep excavation, trench width to be sufficient to provide safe access and to accommodate shoring to [WorkSafe, Good Practice Guidelines - Excavation Safety](#). Width of bottom of trench up to 300mm above top of pipe to be pipe diameter plus 300mm. Maintain free of water and free of all falling material.

3.2 TRENCHING - PARALLEL TO FOUNDATIONS TO NZS 3604 OR NZS 4229

Trenches running parallel, below and close to foundations of buildings to [NZS 3604](#) or [NZS 4229](#) to be separated to:

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

3.3 TEMPORARY BRIDGES

Provide temporary bridges over trenches to prevent heavy construction traffic damaging pipes after backfilling.

3.4 CLEAN

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

Completion

3.5 REPLACE

Replace damaged or marked elements.

3.6 LEAVE

Leave work to the standard required by following procedures.

3.7 REMOVE

Remove debris, unused materials and elements from the site.

7702 ELECTRICAL STANDARD

1 GENERAL

This section relates to the wiring for complex/large residential and medium scale commercial/industrial installations, including:

- supply - national grid
- supply - electricity generation systems
- distribution & protection
- switches & sockets
- lighting circuits - residential
- light fittings
- exterior light fittings, switches, & sockets
- alarms - residential
- heating systems
- mechanical
- electrical automation system
- security system
- fire rated sealers and liners
- fire rated accessories

1.1 RELATED WORK

Refer to ~ for ~.

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

AFDD	Arc Fault Detection Device
ELV	Extra Low Voltage
GLS	General Lighting Service
IP	International (ingress) Protection classification
NUO	Network Utility Operator
PCB	Printed Circuit Board
PIR	Passive InfraRed
RCBO	Residential current operated Circuit Breaker with Over-current protection
RCCB	Residential Current operated Circuit-Breakers with integral overcurrent protection for household and similar uses
RCD	Residual Current Device
SIA	Security Integration Architecture
TCF	Telecommunications Carriers' Forum
FFL	Finished Floor Level
TPS	Tough Plastic Sheathed

Documents

1.3 DOCUMENTS

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

NZBC E2/AS1	External moisture
NZBC F6/AS1	Visibility in escape routes
NZBC F8/AS1	Signs
NZBC G4/AS1	Ventilation
NZBC G9/AS1	Electricity
AS/NZS 1125	Conductors in insulated electric cables and flexible cord
AS/NZS 1768	Lightning protection
AS/NZS 2053.2	Conduits and fittings for electrical installations - Rigid plain conduits and fittings of insulated material
AS/NZS 2201.1	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance

AS 2293.1:2005	Emergency escape lighting and exit signs for buildings - System design, installation and operation
AS 2293.3:2005	Emergency escape lighting and exit signs for buildings - Emergency escape luminaires and exit signs
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3008.1.2	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical New Zealand installation conditions
AS/NZS 3100	Approval and test specification-general requirements for electrical equipment
AS/NZS 3112	Approval and test specification - Plugs and socket-outlets
AS/NZS 3113	Approval and test specification - Ceiling roses
AS/NZS 3190	Approval and test specification - Residual current devices (current-operated earth-leakage devices)
AS/NZS 3439.1	Low voltage switchgear and controlgear assemblies - Type-tested and partially type-tested assemblies
AS/NZS 3439.3	Low-voltage switchgear and controlgear assemblies - Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards
AS 3786	Smoke alarms using scattered light, transmitted light or ionization
NZS 4219	Seismic performance of engineering systems in buildings
NZS 4514	Interconnected smoke alarms for houses
NZS 4246	Energy efficiency - installing bulk thermal insulation in residential buildings
AS/NZS 5000.2	Electric cables - Polymeric insulated - for working voltages up to and including 450/750v
AS/NZS 5139	Electrical installations - Safety of battery system for use with power conversion equipment
AS/NZS 60335.1	Household and similar electrical appliances - Safety - General requirements
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance.
AS/NZS 61439.1	Low-voltage switchgear and controlgear assemblies - Part 1: General rules.
AS/NZS 61439.3	Low-voltage switchgear and controlgear assemblies - Part 3: Distribution boards intended to be operated by ordinary persons (DBO).
IEC 61643	Low-voltage surge protective devices
Electricity (Safety) Regulations 2010 (Reprint as at 21 January 2019).	
TCF Premises Wiring Cable Installers Guidelines for Telecommunication Services	

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

Warranties

1.4 WARRANTY

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

1 year: Warranty period

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

Requirements

1.5 COMPLY

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

1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.
Carry out work under the supervision of an electrical licensed supervisor.

1.7 QUALIFICATIONS - SECURITY SYSTEM

Installation by an installer licensed under the Private Investigators and Security Guards Act.
Installation of all security equipment to comply with [AS/NZS 2201.1](#) Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance.

1.8 CONFIRM SELECTIONS

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

1.9 SAFETY OF INSTALLATION - DESIGN BY ELECTRICAL ENGINEER

Before installation work commences obtain from the electrical engineer a Certified Design. The Certified Design is to comply with the Electricity (Safety) Regulations (2010), regulation 58.

1.10 SAFETY OF INSTALLATION - DESIGN BY ELECTRICIAN

Before installation work commences provide a Certified Design. The Certified Design is to comply with the Electricity (Safety) Regulations (2010), regulations 58. It must be signed by the designer of the installation.

1.11 ELECTRICAL CERTIFICATE OF COMPLIANCE

Supply a certificate of compliance (CoC) to the owner, and if required the NUO, as required by the Electricity (Safety) Regulations (2010), prior to connection.

- Arrange for the NUO to inspect before the meter installation, listed work inspection, polarity check and supply becoming live.
- Arrange for an inspector to inspect high-risk electrical work as required by regulation 70.

1.12 ELECTRICAL SAFETY CERTIFICATE

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

1.13 PRODUCER STATEMENTS

Provide a 'producer statement - design' and 'producer statement - construction' to the satisfaction of the Building Consent Authority, for the complete electrical installation.

1.14 COMPLIANCE SCHEDULES

Provide compliance schedules for the installation to the satisfaction of the territorial authority, in accordance with the [New Zealand Building Code](#) requirements for the complete electrical installation.

Quality control and assurance

2 PRODUCTS

Supply, distribution, and protection

2.1 MAINS SUPPLY

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

2.2 CABLE LADDERS

Fabricated from galvanized steel and/or aluminium with rungs at 300mm centres and complete with ladder manufacturer standard bends, risers, curves and reducers and of sufficient strength for the envisaged cabling without deflection. Size 20% over width for designed cable loading including spaces between to avoid de-rating cables. Form fixing holes and slots before galvanizing. Allow for expansion joints where necessary.

2.3 HEAVY DUTY RIGID PVC CONDUIT

For underground wiring to [AS/NZS 2053.2](#), with corrosion proof fittings and accessories, brand matched to the conduit manufacturer requirements.

2.4 RIGID PVC CONDUIT

High impact, cold setting medium duty to [AS/NZS 2053.2](#), jointed together and to fittings with solvent cement to the conduit manufacturer requirements. Fittings and accessories brand matched to the conduit manufacturer requirements.

2.5 CABLES

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

Lighting circuits:	Domestic: 1.5mm ² on 10 amp MCBs
Lighting circuits:	Commercial: 1.5mm ² on 16 amp MCBs
Power circuits:	2.5mm ² on 16 amp MCBs for domestic and unenclosed or unfilled cavity construction
	2.5mm ² on 16 amp MCBs for domestic insulated construction, or filled cavity
	2.5mm ² on 20 amp MCBs for unenclosed or unfilled cavity construction
	2.5mm ² on 16 amp MCBs for insulated construction, or filled cavity, or lengths over 30 metres
Hot water cylinder circuits:	Single phase: 2.5mm ² on 20 amp MCBs
Range/oven/hob circuits:	Single phase: 6mm ² high temperature cable on 32 amp MCBs

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

2.6 METER BOX

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

Refer to SELECTIONS

2.7 SWITCHBOARDS - GENERAL

General arrangement, door access, and signage to comply with [AS/NZS 3000](#).

2.8 SWITCHBOARD - NON-RESIDENTIAL

To [AS/NZS 3439.1](#) or AS/NZS 61439.1 and manufactured from heavy gauge steel with baked enamel finish in approved colour. Switchboards to have 20% spare capacity for future additions and alterations.

- Main switchboard: form 3
- Distribution boards: form 1

Fault rating graded to suit maximum prospective fault from network utility operator

- minimum 22kA, 1.0 seconds for main switchboards
- minimum 20kA, 0.1 seconds for distribution switchboards.

Complete, fully wired, factory tested of sizes to suit space allocated, designed to give easy access to and removal of component parts and constructed to contain equipment to the approval of the network utility operator and/or independently qualified person.

Design the installation for full discrimination between switchboards.

For emergency lighting provide test facilities to AS 2293.1.

Refer to SELECTIONS

2.9 CIRCUIT PROTECTION

General requirements including main switch 63A or 100A minimum. Residual current protection 30mA, ensure RCD and RCCB meet Type A and comply with [AS/NZS 3190](#). MCBs to 4.5kA domestic or 6kA for commercial.

2.10 SURGE PROTECTION

Provide surge protection device(s) to [AS/NZS 3000](#), Appendix F. IEC 61643 Class II surge protection devices fitted to the switchboard. For variable electronic equipment fit IEC 61643 Class III surge protection to switched socket outlets.

2.11 DEGREES OF PROTECTION - DAMP CONDITIONS

For electrical equipment installed in classified zones (baths, showers, and other fixed water containers), provide a degree of protection to [AS/NZS 3000](#), clause 6.2.4.1.

Zone 0	IPX7
Zones 1 and 2	IPX4
Zone 3	no specific degree of protection

Switches & sockets - interior

2.12 SWITCH PANELS

To accommodate switches to separate circuits and phases and flush mounted within a metal wall box with selected colour powder coated flush plate 2.5mm thick. Switches individually secured within a mounting plate behind the flush plate. Engrave the flush plate to indicate the use of each switch. Permanently label circuit numbers on back of plate.

Light fittings - interior

2.13 LIGHT FITTINGS

Fluorescent and High Intensity Discharge fittings with low loss control or electronic gear and power factor corrected to 0.95 minimum. Control gear suitable for dimming if this is required. All fittings complete with lamps; Incandescent GLS lamps pearl, coiled-coil 240V rated, bayonet cap; Linear fluorescent triphosphor and CFL - 2700K (domestic) and 4,000K (commercial); halogen ELV 12V dichroic reflector with cover glass unless detailed otherwise; integral/non-integral LEDs, reflectors, lenses, heatsinks and drivers - 3,000K to 4,000K, CRI >80, L70.

2.14 BATTEN HOLDERS

Standard white plastic bayonet cap, with cap angled where wall mounted. Brass liners.

2.15 EMERGENCY LIGHT FITTINGS

Emergency escape lighting and exit signs for buildings to AS 2293.3 and [NZBC F8/AS1](#). Fittings may be, ceiling or wall mounted or recessed, refer to SELECTIONS.

Note: Photoluminescent exit signage requires adequate charging to [NZBC F8/AS1](#), 4.5.4, for the required time to [NZBC F6](#).

Switches & sockets - exterior

2.16 SWITCHES & SOCKETS - EXTERIOR

Using materials with superior UV protection, impact strength, and addition chemical resistance when compared with interior polycarbonate fittings. Weather protected, switches and sockets to IP56 minimum. Sockets fitted with safety shutters behind socket pins, and all products able to be padlocked off or on.

Light fittings - exterior

2.17 LIGHT FITTINGS - EXTERIOR

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

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

2.18 ELECTRICAL AUTOMATION SYSTEM

Electrical automation system designed to enable if required:

- Lighting - automated control and dimming timer control.
- Heating including heated towel rails and ventilation systems.
- Security - programmable to simulate lights and other devices to give appearance home is occupied - ability to interface with security system and smoke detectors to activate lights.
- Energy efficiency - automatically switch circuits off when not required or on during low tariff times.
- Appliances.
- Spa pools.
- Irrigation systems.

Security system

2.19 CONTROL PANEL

Control panel system with a minimum of one installer code, one master code, 6 zones minimum and 6 user codes. The installer to select codes to suit installation.

2.20 DETECTORS

There are two main types of detectors:

- Standard passive infrared sensors: Install in stable environments with no wind flow and no direct bright sunlight.
- Passive infrared/ microwave sensors: Install in area where environmental stability is an issue.

2.21 AUDIBLE DEVICES

Internal sirens can be either a 12V Piezo Siren or a Horn speaker with a sound pressure level of no less than 95dB.

External siren can be either a stainless steel design or have hardened plastic casing. Both designs to be fully weatherproof but not limited to IP66 Rating. The siren box to contain a strobe diffuser in either blue or red. The siren shall contain a horn speaker, 12v speaker or an electronic siren. The external siren box to have both a cover and rear wall tamper mechanism.

2.22 CABLING

Security alarm wiring to [AS/NZS 2201.1](#) for installation.

Security alarm wiring to NZS/AS 1125 for cables.

Security alarm wiring to be multi stranded and not single stranded, minimum 0.5mm².

2.23 PERIPHERALS

Fit anti-tamper devices to detectors, control panels and equipment housings, programmed to give a tamper indication when the system is unset and a tamper alarm when the system is set.

Standard keypad manufactured of moulded hardened plastic with either a LED or LCD screen, to match the style of the wiring accessories in diameter, colour and aesthetics.

2.24 COMMUNICATIONS

Digital dialler to be built into the PCB of all control panels, with the options for both monitoring and remote dial in windows based software. Digital dialler to comply with all the industry standard communication formats including contact I.D and SIA, and NZ Telepermit certification.

Remote software able to upload / download programming changes and or history events and change status of the security alarm with the ability to be turned off if required.

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 CONNECTIONS TO ELECTRICAL EQUIPMENT

To [AS/NZS 3000](#), Section 4.3, connections between installation wiring and electrical equipment must be as close as practicable, and protected against mechanical damage or interference.

Electrical accessories to AS/NZS 3015, [AS/NZS 3122](#), or AS/NZS 3199 are not permitted for connecting equipment wiring to installation wiring.

Installation

3.4 MAINS SUPPLY

Lay underground mains to the NUO requirements. Excavate trench, install cable and marker tape and backfill.

3.5 CIRCUIT PROTECTION

Install MCBs at switchboard to [AS/NZS 3000](#) to protect each final sub circuit.

3.6 EARTHING CONDUCTIVE STRUCTURE & MATERIALS

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

If they form part of the building, this includes:

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

3.7 EQUIPOTENTIAL BONDING

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

If they form part of the building, this includes:

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

3.8 MAIN EARTH

Provide a plastic toby box to contain and protect the earth electrode. Fix the connecting earth wiring closely and securely against wall surfaces.

3.9 ARC FAULT DETECTION DEVICE (AFDD)

To [AS/NZS 3000](#) clause 2.9, AFDD on all final sub-circuits not exceeding 20A. Install to [AS/NZS 3000](#), Appendix O.

3.10 EARTH LEAKAGE PROTECTION

Install RCD protection to [AS/NZS 3000](#).

3.11 RCD - NON-RESIDENTIAL INSTALLATIONS

Install 30mA RCD Type II protection at the switchboard to suit location and use, to [AS/NZS 3000](#).

3.12 RCD-AFDD COMBINED - NON-RESIDENTIAL INSTALLATIONS

Install a 30mA RCD-AFDD combined device (RCD Type II) at the switchboard for all final sub-circuits not exceeding 20A, to suit location and use, to [AS/NZS 3000](#), (2018, 2.6 & 2.9). Protect over 20A to 32A final sub-circuits with separate RCD and to [AS/NZS 3000](#).

3.13 RCD - SPECIFIC INSTALLATIONS

Install fixed wired RCD protected outlets (SRCD) in the following higher risk areas:

- Wet areas: bathrooms, laundries, kitchens.
- Near pools and water features.
- Where intended for use with cleaning equipment.
- Hand-held tools subject to movement in use, i.e. work-shops, garages.

3.14 SURGE PROTECTION

Install surge protection devices to manufacturer requirements and in accordance with [AS/NZS 3000](#) and AS/NZS 1768. When fitting IEC 61643 Class II protection at the switchboard, protect the device by a dedicated MCB.

3.15 SET-OUT

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

3.16 CABLING

Install wiring systems to [AS/NZS 3000](#). All cabling run concealed. No TPS cable laid directly in concrete. Locate holes in timber framing for the passage of cables at the centre line of the timber member. Install cable in conduits where required to pass through concrete or underground. In walls run cabling horizontally and vertically in straight lines. In ceilings run cabling attached to catenary wires.

3.17 CABLING CIRCUITS

Install all circuits with the appropriately rated cable and circuit protection. Install with a maximum of, 8 light switch units or 8 amps, or 4 double or single switched socket-outlets, on any circuit.

Minimum 2 lighting circuits per domestic floor. Separate circuits for all electric heating appliances.

Kitchen sockets to be on at least two different circuits. Dedicated circuits for security systems, fire panels, data panels etc.

3.18 WALL BOXES

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

Fix switch panel wall boxes to solid blocking.

3.19 SWITCHES AND SOCKET-OUTLETS

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

3.20 SWITCHES AND SOCKET-OUTLETS - PERSON WITH DISABILITIES

Fit all switch units and socket-outlets to the manufacturer requirements with heights (& mounting direction) and location to [NZBC G9/AS1](#) and SELECTIONS.

3.21 PERMANENTLY CONNECTED EQUIPMENT

Supply and set into position. Install an isolating switch of the correct current rating, weatherproof flush mounted in a metal wall box, flush plate or protected type surface mounted to suit the location, with conductors between conduit and equipment enclosed in PVC flexible conduit.

3.22 ISOLATING SWITCHES

Locate isolating switches in positions as confirmed by the owner, when not specifically shown on the drawings.

3.23 LIGHT FITTINGS

Install light fittings in locations and at heights specified and confirmed by the owner, in accordance with the fitting manufacturer requirements. Fix fittings through lining into framing.

3.24 EXTRA-LOW VOLTAGE LIGHTING

Use electronic, transformers (halogen) or drivers (LED) for ELV lamps, one transformer/driver per lamp. Locate to manufacturer requirements and as close as practicable to the lamp. Ensure transformers/drivers and rear of light fittings are adequately ventilated and appropriately clear of any building elements, to [AS/NZS 3000](#).

3.25 INSULATION & GENERAL CLEARANCES

Some electrical and mechanical services, and equipment may need to have a gap to insulation and some building elements. The gaps should be to the [NZS 4246](#) based tables below or to the equipment manufacturers requirements if they require larger gaps. Smaller gaps to manufacturers requirements can be used for equipment specifically manufactured with heat shielding or similar (excludes light fittings).

Installed gap not to be more than 50mm bigger than the required gap.

The following tables are subject to:

- The requirements of [NZS 4246](#) for insulation.
- The insulation is exposed to the source of heat or equipment etc.
- Insulation, has passed the needle flame test to [AS/NZS 60695.11.5](#) and/or is non-combustible.
- Gaps to hot surfaces may have to be increased with non-compliant insulation and plastic/polymeric type insulation (EPS, XPS, rigid Polyiso foam, etc), check with insulation manufacturer.
- Gaps to hot surfaces may be able to be reduced with non-combustible insulation, check with equipment manufacturer.
- "Secure insulation" if required means, glue, mechanical fix, or provide fixed barriers at gap edge of insulation to hold in place. Rigid or semi rigid insulation may only need a firm friction fit (secure loose pieces).

- Loose fill insulation will require fixed barriers to [NZS 4246](#) to maintain gaps.

3.26 LIGHT FITTINGS TO INSULATION

Type of fitting	Minimum insulation clearance	Comments
Recessed, marked NON-IC, or unmarked	100mm (increase if over 100W)	To NZS 4246 . NON-IC fittings and new or old unmarked & unknown fittings, and/or insulation. Insulation to be secured.
Recessed, CA 80, CA 90, or CA 135.	Abut fittings	To NZS 4246 . Do not cover the fittings.
Recessed, IC, IC-F, or IC-4.	Abut & cover fittings.	To NZS 4246 . Ensure insulation complies.
Recessed, marked Do-Not-Cover	Manufacturer clearances	To NZS 4246 . Do not cover the fittings.
Independent control gear	Place on top of insulation & 50mm from fittings	To NZS 4246 . If not on top allow 50mm clearance to insulation, do not cover. Includes, transformers, ballasts & drivers etc.
Surface fittings not exposed to insulation	Nil	To NZS 4246 . Where surface fittings are isolated from insulation by appropriate linings. Excludes high heat fittings.
Surface fittings & exposed insulation	200mm	To NZS 4246 . This is exposed insulation to any part of the exposed fitting & bulb/tube (e.g. exposed light in an unlined basement). Insulation to be secured.

3.27 RECESSED LIGHT FITTINGS TO COMBUSTIBLE BUILDING ELEMENTS

Type of recessed fitting	Minimum building element clearance**	Comments
Marked NON-IC, or unmarked, ≤100W	100mm, vertical & horizontal	To AS/NZS 3000:2018
Marked NON-IC, or unmarked, >100W	200mm, vertical & horizontal	To AS/NZS 3000:2007
CA 80, CA 90 or CA 135	100mm, vertical & horizontal	To AS/NZS 3000:2018
IC, IC-F or IC-4	100mm, horizontal NA, vertical	To AS/NZS 3000:2018 To be NA vertical, fitting must be covered by insulation. If not covered use 100mm clearance.
Marked Do-Not-Cover	100mm, vertical & horizontal	To AS/NZS 3000:2018 . Manufacturer clearances if greater than 100mm

**Combustible building elements exclude metal elements, but include timber framing or other timber based elements, and normal linings etc. Highly flammable materials & those likely to melt will need more clearance.

3.28 INBUILT RECESSED HOT APPLIANCES TO INSULATION

Appliance	Minimum insulation clearance	Comments
Electrical heaters	Manufacturer clearances	To NZS 4246 .
Electrical heaters	100mm	Manufacturer clearances not known. To NZS 4246 . Clearance may be able to be reduced with non-combustible insulation. Insulation to be secured.

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 124 of 136 - 24/10/2025 - OG

Heat producing appliances & equipment	Manufacturer clearances	To NZS 4246 .
Heat producing appliances & equipment	50mm	Manufacturers clearances not known. To NZS 4246 . Clearance may be able to be reduced with non-combustible insulation. Insulation to be secured.

Note - Appliances and equipment excludes cables, junction boxes, light switches & power sockets etc

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 125 of 136 - 24/10/2025 - OG

3.29 EXTRACTS, VENTS & ROOF UNDERLAY TO INSULATION

Appliance	Minimum insulation clearance	Comments
Ducted fan motors	50mm	To NZS 4246 . Includes ducted rangehoods, extractors etc. Applies to the motor unit and electrical enclosures (not the ducts).
Ducted fan ducts	Abut	To NZS 4246 . Excludes motor unit and electrical enclosures.
Unducted fan motors usually discharging to ceiling space	200mm	To NZS 4246 . Includes unducted, rangehoods, extractors etc, discharging into roof space. To prevent debris falling into motor. Clearance may be able to be reduced, by providing a fixed barrier around the vent.
Roofing material/underlay	25mm	To NZS 4246 . Maintain clearance from underside of roofing or flexible roofing underlay, to prevent wicking.

3.30 EMERGENCY LIGHTING

Emergency escape lighting and exit signs for buildings to AS 2293.1 and [NZBC F6/AS1](#). Fit emergency light fittings to manufacturer specifications. Refer to plans for position of fittings.

3.31 ELECTRIC HOT WATER SYSTEM

For storage heaters, wire as a separate circuit through a wall-mounted isolating switch, with the cable from switch to element encased in flexible PVC conduit, clamp fixed at each end. Hot water cylinders, thermostats and 3000 Watt element supplied and fitted under the hot and cold water system section.

3.32 SPACE HEATERS

Install to the heater manufacturer requirements, and to [AS/NZS 3000](#). Fit neatly and without damage to surrounding finishes. Ensure control switches and thermostats are fitted to appliance, or otherwise connect to a control switch located adjacent to the heater and a remote thermostat.

3.33 BATHROOM ELECTRICAL FIXTURES

Install all electrical fixtures. Connect the following bathroom and toilet electrical items:

Heated towel rails:	Install to manufacturer requirements and installed in accordance with AS/NZS 3000 .
Mirror demisters:	Locate centrally above the wash hand basin(s). Connect wiring to room lighting unless specified otherwise.
Exhaust fans:	Install exhaust fans to manufacturer requirements. Installed in accordance with AS/NZS 3000 and NZBC G4/AS1 .
Hair dryers:	Install to manufacturer requirements.
Hand dryers:	Install to manufacturer requirements.

3.34 OUTDOOR/EXTERIOR SERVICES

Install all wiring systems in accordance with [AS/NZS 3000](#) and in accordance with the manufacturer recommendations:

Provide circuits and connections for exterior installations, including ELV 12/24 Volt path lighting and electronic irrigation systems. Refer to drawings for connection points. Where underground, ensure appropriate protection, such as thickness of sheathing, conduit, depth of cabling, and proximity to other services.

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

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

Refer to SELECTIONS

3.35 ELECTRICAL AUTOMATION SYSTEM

Fit distribution cabinet in wall, cut-out to finish flush with the wall surface, or surface mounted. Configure installation to manufacturer instructions. Provide adequate user training and operating manual to the owner.

3.36 LABELLING

Include label under each controller, switch and circuit breaker on distribution boards. Include a warning notice if light dimmers are used in the installation. List the rating of each circuit.

3.37 SEISMIC RESTRAINT

Seismically restrain electrical service equipment, including recessed light fittings, switchboards, cabinets, machinery and racks to [NZS 4219](#).

Security system

3.38 SECURITY SYSTEM

Install to the system manufacturer requirements, control panel, detectors and associated equipment fitted neatly and without damage to surrounding finishes. Installation of security equipment to [AS/NZS 2201.1](#) Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance. All 230v mains power connections to the security panel are to be in accordance with [AS/NZS 3000](#). The 230V power is to be switched using a dedicated single gang Isolator switch or similar.

Fire rated sealers and liners

3.39 SEAL ALL PENETRATIONS

Seal all penetrations, including in and around conduits and sleeves, in accordance with manufacturer instructions. For fire and/or acoustic rated elements, maintain the rating with the seal systems.

3.40 PROVIDE CABLE SLEEVES

Provide PVC sleeves formed from pipe sections, unless fire and/or acoustic systems require sleeves for other building elements and/or different material for the sleeve.

Fire rated accessories

3.41 INSTALL WALL BOXES AND SWITCH UNITS - FIRE RATED

Install proprietary fire rated wall boxes and switch units in accordance with manufacturer instructions.

Completion & Commissioning

3.42 COMPLETION MATTERS

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

3.43 COMPLETION - TESTS & CERTIFICATION

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

Certificate of Compliance:	To Electricity (Safety) Regulations 2010; Verification Records to AS/NZS 3000 , clause 8.4.
Submit results to:	~

3.44 COMMISSIONING - TESTS & CERTIFICATION

Refer to 1270 CONSTRUCTION for general test and certification requirements for commissioning.

Certificate of Compliance:	To Electricity (Safety) Regulations 2010; Verification Records to AS/NZS 3000 , clause 8.4.
Submit results to:	~

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 126 of 136 - 24/10/2025 - OG

4 SELECTIONS

Materials

Switch & socket-outlets - fittings

4.1 LIGHT FITTINGS - INTERIOR

Fittings	Brand / type	Controls
Ceiling lights:	tbc	
Wall lights:	tbc	

4.2 LIGHT FITTINGS - EXTERIOR

Fitting	Brand / type / protection	Controls
Wall lights:	tbc	
Spotlights:	tbc	
Security lights:	tbc	

8142 TIMBER POST RETAINING WALLS

1 GENERAL

This section relates to the supply and erection of low level timber post retaining wall systems.

1.1 RELATED WORK

Refer to 7441 GROUNDWATER DRAINAGE for retaining wall groundwater drainage and backfilling with drainage material.

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:

FSC	Forest Stewardship Council
NZTPC	New Zealand Timber Preservation Council
PEFC	Programme for the Endorsement of Forest Certification

Documents

1.3 DOCUMENTS

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

AS 2439.1	Perforated Plastics Drainage and Effluent Pipes and Fittings - Perforated drainage pipe and associated fittings
NZS 3104	Specification for concrete production
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber structures
NZS 3605	Timber piles and poles for use in buildings
NZS 3631	New Zealand timber grading rules
NZS 3640	Chemical preservation of round and sawn timber

Requirements

1.4 QUALIFICATIONS

Retaining wall work to be carried out by competent, experienced workers, familiar with the materials and techniques specified.

2 PRODUCTS

Materials

2.1 CONCRETE

Prescribed mix to [NZS 3104](#), 20 MPa.

2.2 TIMBER ELEMENTS

Radiata pine, CCA (preservative code 01 or 02) treated to [NZS 3602](#), table 1A. To [NZS 3640](#). Graded to [NZS 3631](#).

2.3 TIMBER POSTS

Radiata pine, selected [NZS 3605](#), treated H5 CCA (preservative code 01 or 02) to [NZS 3602](#), table 1A, and complying with [NZS 3605](#) for cross-section, length, straightness and strength branding. Do not put cut ends into ground. Treat cut ends or notches with a liberal brush coat of copper naphthenate or equivalent wood preservative before sealing with a bituminous sealer.

2.4 TIMBER RAILS

Dressed rectangular section to [NZS 3603](#) and [NZS 3604](#). Treatment of timber to [NZS 3602](#), table 1A, H4 CCA (preservative code 01 or 02) and to show identification to [NZS 3605](#) clause 5.9 Branding. Timber to carry visible NZTPC identification brands.

2.5 EXCAVATION

Excavate holes for the poles to the depths and diameter as shown on the drawings.

Components

2.6 FIXINGS AND BOLTS
Hot-dip galvanized steel.

2.7 CORROSION RISKS

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).

Accessories

2.8 PRESERVATIVE, WHEN CUT
Concentrated solution of copper naphthenate or equivalent wood preservative.

EXECUTION

Conditions

3.1 STORAGE - GENERALLY

Take delivery of retaining wall elements in protected pallets, undamaged and dry. Store on level hard standings, protect from damage and keep dry until laid.

Application

3.2 TIMBER STRUCTURE
To [NZS 3603](#) Timber structure.

3.3 ERECT TIMBER POST

Set out post centres in accordance with the drawings. Use adequate batter boards and string lines to define the front face of the wall. Excavate to required depth and set timber posts to line and level, embed in concrete in accordance with the drawings and standard details. Do not put cut ends of posts in the ground. Raise the poles 75mm to allow concrete to enter the bottom of the hole. Adjust posts for alignment and batter while concrete is still fluid. Fill the hole with concrete to within 100mm of the top of the hole.

3.4 TIMBER RAILS

Lay horizontal timber rails ensuring specified minimum thickness is maintained, particularly near the base of the wall. Rails to be multi-span with the ends close fitting with joints behind the pile. Stagger joints to alternate posts. Fix 50mm rails with 100mm galvanised nails to each post, use 150mm nails for thicker rails.

Completion

3.5 ROUTINE CLEANING

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

3.6 DEFECTIVE OR DAMAGED WORK

Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures.

SELECTIONS

4.1 TIMBER RETAINING WALL POSTS
Location: Refer drawings

4.2 TIMBER RETAINING WALL RAILS
Type: Refer structural engineers drawings
Size: Refer structural engineers drawings

Treatment: Refer structural engineers drawings

FNDC - Approved Building Consent Document - EBC-2026-180-0 - Pg 130 of 136 - 24/10/2025 - OG

4257M METALCRAFT INSULATED PANEL SYSTEMS

1 GENERAL

This section relates to the fabrication, supply and installation of **Metalcraft Insulated Panel Systems** pre-painted steel clad, insulating panels and cladding system for residential, commercial, industrial and all buildings where ambient controlled temperature is required to be controlled. It includes;

- **ThermoPanel EPS** insulated wall and ceiling panels
- **ThermoSpan EPS** roof and wall panels

1.1 RELATED WORK

Refer to 4821 FLASHINGS.

Documents

1.2 DOCUMENTS

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

NZBC B2/AS1	Durability
NZBC C/AS1-AS2	Protection from fire
NZBC E2	External moisture
AS/NZS ISO10005	Quality management systems
AS/NZS 1170.2:2011	Structural design actions - Wind actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS 1366.3	Rigid cellular plastic sheets for thermal insulation - Rigid cellular polystyrene - Moulded (RC/PS - M)
AS 2122.1	Combustion characteristics of plastics - Determination of flame propagation - Surface ignition of vertically oriented specimens of cellular plastics
NZS 3404.1	Steel Structures Standard
NZS 4211	Specification for performance of windows
ISO 9705	Fire tests - Full-scale room test for surface products
AS/NZS ISO 10005:2006	Quality management systems
BS EN 10326	Continuously hot-dip coated strip and sheet of structural steels. Technical delivery conditions
CodeMark GM-CM30078 (RevC) - Metalcraft Insulated Panel System	

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
 Metalcraft Insulated Panel Systems technical information on Metalcraft website including;
 Metalcraft Insulated Panel Systems Design and Installation Guide (V2, June 2020)
 Metalcraft Insulated Panel Systems Care and Maintenance (V2, June 2020)
 Metalcraft Insulated Panel Systems Specification (V2, June 2020)
 Metalcraft Insulated Panels Thermospan EPS Commercial Roofing Details (Ref: CREPS, 14 December 2018)
 Metalcraft Insulated Panels ThermoPanel EPS Controlled Environment Details (Ref: TPEPS, 14 December 2018)
 Fire Test Report: BRANZ FI 5953-TT (2016)

Manufacturer/supplier contact details

Company: **Metalcraft Insulated Panel Systems**
 Web: www.metalcraftpanels.co.nz
 Email: info@metalcraftpanels.co.nz
 Telephone: 09 262 0267

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide Metalcraft Insulated Panel Systems warranty

15 years For materials

- 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.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years For workmanship

- Provide this warranty on the installer/applicator standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of practical completion of the contract works.
- Installation to CodeMark GM-CM30078 (RevC) or to Structural design by a Chartered Professional Engineer.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS

All installation and sealing of the panels by an installer approved by Metalcraft Insulated Panel Systems.

Licensed Building Practitioners (LBP's) shall carry out the work where the work being undertaken is considered to be Restricted Building Work.

1.7 NO SUBSTITUTIONS

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

Performance - design requirements

1.8 DESIGN REQUIREMENTS - SPECIFIC DESIGN

Structural design to be supported by a Producer Statement prepared by a Chartered Professional Engineer. Refer to Metalcraft Insulated Panel Systems data for information relating to panel spans. Loading parameters to comply with the methods described in [NZS 3404.1](#), 3.3 and 3.4. Refer to SELECTIONS.

1.9 DESIGN REQUIREMENTS - DESIGNED TO CODEMARK CERTIFICATE

Design and installation to the CodeMark certificate - CodeMark GM-CM30078 (RevC).

Performance - wind / earthquake

1.10 FIXINGS, WIND

Design and use the fixings appropriate for the wind loads on various elements as given by [AS/NZS 1170.2](#) and to Metalcraft Insulated Panel - Design and Installation Guide. Refer to SELECTIONS.

1.11 FIXINGS, EARTHQUAKE

Use fixings and methods capable of sustaining the loads appropriate to the area as required by [NZS 1170.5](#).

Compliance information

1.12 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Manufacturer's / supplier's warranty
- Installer's / applicator's warranty
- Producer Statement - Construction from the applicator / installer
- Producer Statement - Construction Review from an acceptable suitably qualified person.
- Other information required by the BCA in the Building Consent Approval documents

Performance – General

1.13 FIRE SAFETY

Group Numbers in accordance with [NZBC C/AS2](#), 4.17.1 Table 4.3 Internal Surface Finishes requirements, as follows:

Corner angles, flashings and rivets	Group Number
Colorsteel folded corner angles, cover flashings fixed with blind steel or steel rivets	1s
Aluminium corner angles, cover flashings fixed with blind steel or aluminium rivets	2 (CodeMark GM-CM30078, RevC)

Note: Panel system to be installed in accordance with Metalcraft Insulated Panel Systems panel installation instructions.

If project designed to [NZBC C/AS1](#), refer to clause 4.3.

Fire Test Report: BRANZ FI 5953-TT (2016)

1.14 DURABILITY

ThermoPanel EPS and ThermoSpan EPS wall, ceiling and roof insulated panels comply with [NZBC B2/AS1](#) when maintained to recommendations in Metalcraft Insulated Panel Systems maintenance guide.

1.15 THERMAL

The panels to have a thermal transmittance (U value) of 0.34 W/m²k based on an aged thermal conductivity of 0.033 W/mK.

Metalcraft Insulated Panel Systems panel core, meet the requirements of AS 1366.3 for rigid cellular polystyrene in the form of sheets, for thermal insulation purposes.

1.16 AIR LEAKAGE

The panel's tongue and groove joints to have an air leakage of less than 0.5m³/hr/m² at 15Pa.

Quality control and assurance

1.17 QUALITY CONTROL

Metalcraft Insulated Panel Systems is required to maintain an AS/NZS ISO 10005 Quality management plan in keeping with CodeMark Scheme rules.

2 PRODUCTS

Materials

2.1 THERMOSPAN EPS INSULATED ROOF PANELS

ThermoSpan EPS insulated roof panels manufactured from expanded polystyrene core with a bonded Colorsteel® CP skin to both faces to BS EN 10326. Panels are available in thicknesses from 50mm to 250mm Panels are closed cell, CFC free EPS, kiln-dried to remove production moisture prior to fabrication.

Refer to SELECTIONS for panel details.

Components

2.2 DOORS

Insulated doors fitted with food safe composite plastic hinges and handles or doors for residential buildings as specified by design.

2.3 WINDOWS

Aluminium section windows to [NZS 4211](#).

2.4 RIVETS

Aluminium sealed rivets as specified by Metalcraft Insulated Panel Systems.

2.5 SCREW FIXINGS

Galvanized steel self drill self tapping Tek screws with neoprene embossed washers.

2.6 FLASHINGS

All primary flashings to match exterior panel skin in material and finish. Internal flashings of aluminium angle supplied by Metalcraft Insulated Panel Systems for joining panels together.

Accessories

2.7 ACCESSORIES

Use only accessories approved and supplied by Metalcraft Insulated Panel Systems. All attachments and fasteners to be compatible with the other elements of the panel system.

2.8 SEALANTS

Neutral cure silicone with a minimum durability of 15 years.

2.9 FOAM

Polyurethane foam.

3 EXECUTION

Conditions

3.1 INSTALLATION

All work by competent and experienced installers, who are currently approved by Metalcraft Insulated Panel Systems in accordance with the stated requirements and the approved shop drawings. All panel manufacture and installation under the control and supervision of a nominated representative of Metalcraft Insulated Panel Systems.

3.2 METAL FINISHES

All metal finishes applied by applicators currently approved in writing by the coating manufacturer.

3.3 TOUCH-UP

In situ touch up of factory applied finishes is not to be permitted unless a trial repair is subsequently approved in writing. Replace all other panels with a damaged finish.

3.4 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

- Use only polystyrene or other soft packing when stacking panels.
- Do not deliver to site, any panels or elements which cannot be immediately unloaded into suitable conditions of storage
- Avoid distortion of panels or elements during transit, handling and storage. Prevent pre-finished surfaces from rubbing together. Prevent contact with mud, plaster and cement, or with dissimilar metals.
- Do not use adhesive tape, film, papers, or sprayed protective coatings, or masking tape, which might become bonded after exposure to sun or weather. Remove any temporary protection after installation. Remove any protective coating residues immediately.

3.5 RAW EDGES

Seal cut edges of panel skins using a proprietary brush on lacquer.

3.6 GALVANIC CORROSION

Avoid run-off from any copper or brass systems, or unpainted lead flashings. Electrically isolate any large areas of stainless steel from the panel surface. Where dissimilar materials might be in contact, provide a separation barrier.

Assembly

3.7 FABRICATION

Do not start fabrication until manufacturing schedule and erection drawings have been reviewed.

3.8 FACTORY PRODUCTION

Do not start factory production before drawings have been reviewed by project designer.

3.9 FABRICATE

Fabricate panels and elements in the workshop wherever possible, ready for assembly and erection on the building site.

3.10 CUTTING OF PANELS

Complete all cutting using a purpose-designed cutter to produce a slight rounding of panel edges or use a WC saw blade for profiled face. Do not use abrasive discs.

Application**3.11 INSTALL PANELS**

Install panels in accordance with the drawings, stated design parameters, reviewed and approved shop drawings and installation details. Co-ordinate with work of other sections. Consult and coordinate as necessary with installers of adjoining work. Installation of the panel system to comply with [NZBC E2/AS1](#).

3.12 PANEL JOINT

Metalcraft Insulated Panel Systems Z-Lock provides male/female joints to allow rapid and accurate panel installation. Apply neutral cure sealant to all roof panel joints < 6° to Metalcraft Insulated Panel Systems construction details.

3.13 SEALING

Do not use metal implements for applying or tooling sealant. Extrude sealant into the joint, ensuring that all air is excluded. Tool the surface and remove any excess. All sealant joints to finish flush or slightly concave.

3.14 PENETRATIONS

Form penetrations to Metalcraft Insulated Panel Systems details. Use neoprene, silicone rubber, EPDM, aluminium or soft zinc to form flashing around penetration.

3.15 DOOR INSTALLATION

Install door into formed opening to Metalcraft Insulated Panel Systems details.

Completion**3.16 PROTECTION**

Protect all surfaces and finishes from damage as long as practicable, including the retention of all or any protective coatings provided by the panel manufacturer. Remove protective coatings, using only the methods required by the panel manufacturer.

3.17 CLEAN

Clean panel surfaces with soft, clean cloths and clean water and in accordance with the panel manufacturer's stated requirements. Finish with a clean squeegee. Do not use abrasive or alkaline materials, other than a mild abrasive cream used with a soft cloth to remove minor surface marking.

Remove all drilling swarf, rivet mandrels and any other metallic debris from the roof surface daily, using a soft bristle broom and/or hosing down with clean water.

3.18 ON COMPLETION

Trade clean all panel surfaces to remove all marks, dust and dirt to enable a visual inspection of all surfaces at completion of the installation and again at contract completion.

4 SELECTIONS

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

4.1 SURFACE FIRE PROPERTIES

Corner angles, flashings and rivets	Group Number
Colorsteel folded corner angles, cover flashings fixed with blind steel or steel rivets	1s
Aluminium corner angles, cover flashings fixed with blind steel or aluminium rivets	2 (CodeMark GM-CM30078, RevC)

Note: Panel system to be installed in accordance with Metalcraft Insulated Panel Systems panel installation instructions.

Fire Test Report: BRANZ FI 5953-TT (2016)

Performance

4.2 DESIGN REQUIREMENTS
maximum design differential wind pressure of 3 kPa

4.3 FIXINGS, WIND

Element

ULS (Ultimate limit state) Up to 4.3kPa

4.4 THERMOSPAN EPS ROOF PANELS

Panel type: **ThermoSpan EPS** roof panel
 Panel insulating core: Closed cell fire retardant impregnated EPS Class S standard
 Panel thickness: 200mm
 External panel skin finish: **0.59mm BMT Colorsteel® Maxam**
 External surface profile: Similar to MC1000
 Internal panel skin finish: 0.59mm BMT Colorsteel®
 Internal surface profile: Flat
 Panel colour: Exterior to match existing colour (Bondor Roofing Panels "Smokey")

Roof Pitch: 5°

4.5 SUPPORT AND JOINTING ANGLES

Wall/ceiling junction internal: 40mm x 40mm prepainted steel or aluminium angle
 Wall/ceiling junction external: 40mm x 40mm prepainted steel or aluminium angle

4.6 PANEL CLOSERS

Prepainted steel or aluminium angle channel.

4.7 FIXINGS

Type: 4.8mm aluminium rivets to underside panel joints.

4.8 FLASHINGS

Thickness: 0.59mm prepainted steel
 Finish: To match panel finish

4.9 SEALANTS

Type: Neutral cure silicone supplied by **Metalcraft Insulated Panel Systems.**

4.10 VAPOUR SEAL

Type: Mastic sealant supplied by **Metalcraft Insulated Panel Systems.**

4.11 PANEL GAP FILLER

Type: EU expanding foam supplied by **Metalcraft Insulated Panel Systems.**

4.12 PANEL END STRIP

Type: EU expanding foam supplied by **Metalcraft Insulated Panel Systems.**