

## SPECIFICATION

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

# Mahana

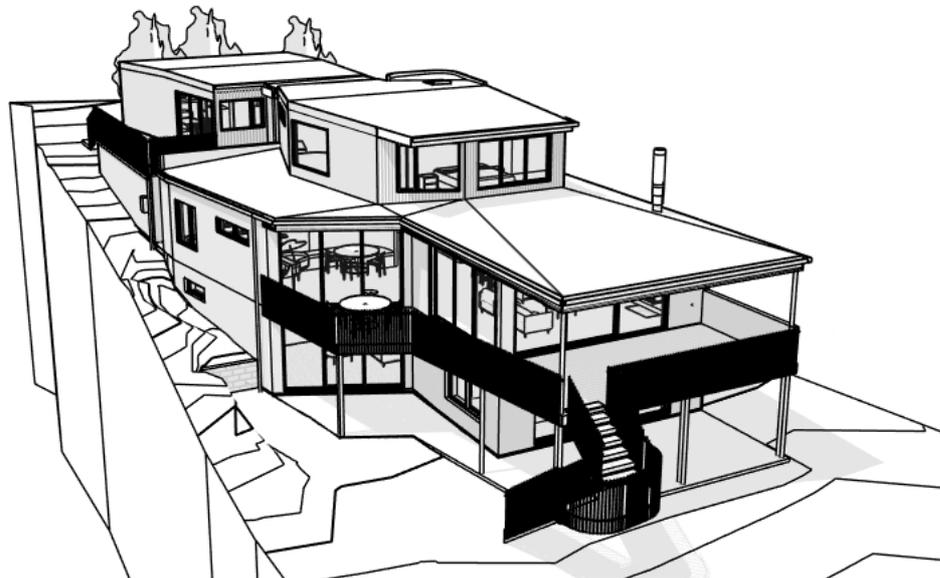
## Project Specification

30 De Luen Ave, Tindalls Beach, Auckland , New Zealand

Project Ref:

Printed: 05 December 2025

FOR BUILDING CONSENT



**masterspec**

Specification built using Masterspec software  
Project ID: 340679 - 428364

# TABLE OF CONTENTS

1220	PROJECT	5
1222	PROJECT PERSONNEL	7
1232	INTERPRETATION & DEFINITIONS	9
1232S1	EXPLANATION OF SCHEDULE SECTIONS	11
1233	REFERENCED DOCUMENTS	12
1234	DOCUMENTATION	13
1235	SHOP DRAWINGS	18
1235S1	SCHEDULE OF SHOP DRAWINGS	20
1237	WARRANTIES	21
1237S1	SCHEDULE OF WARRANTIES	24
1238	AS BUILT DOCUMENTATION	26
1238S1	SCHEDULE OF AS BUILT DOCUMENTATION	27
1239	OPERATION & MAINTENANCE	28
1239S1	SCHEDULE OF OPERATION & MAINTENANCE INFO	31
1240	ESTABLISHMENT	32
1250	TEMPORARY WORKS & SERVICES	34
1256	WASTE MANAGEMENT	37
1270	CONSTRUCTION	40
1270S1	SCHEDULE OF SAMPLES & PROTOTYPES	49
1270S2	SCHEDULE OF SPARES & MAINTENANCE PRODUCTS	50
2241	EXCAVATION- REFER TO STRUCTURAL ENGINEERS DOCS	51
2242	BACKFILLING- REFER TO STRUCTURAL ENGINEERS DOCS	52
2361	STRIP FOOTINGS- REFER TO STRUCTURAL ENGINEERS DOCS	53
2362	FOUNDATION WALLS-REFER STRUCTURAL ENGINEERS DOCS	54
3102	CONCRETE WORK -REFER TO STRUCTURAL ENGINEERS DOCS	55
3114E	EXPOL UNDERSLAB INSULATION	56
3123A	AQURON 1000 PENETRATING CONCRETE FLOOR SEALER	59
3320	CONCRETE MASONRY- REFER STRUCTURAL ENGINEERS DOCS	62
3322	ICF INSULATING BLOCKWORK- REFER STRUCT ENG DOCS	63
3410	STRUCTURAL STEEL- REFER STRUCTURAL ENGINEERS DOCS	64
3813	ENGINEERED WOOD PRODUCTS- REFER STRUCTURAL ENG DOC	65
3821	TIMBER FRAMING	66
4131M	MAPEI MAPELASTIC SMART WATERPROOFING	71



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4131N	NURALITE NURAPLY 3P COVERED TANKING SYSTEMS	72
4161T	KINGSPAN THERMAKRAFT UNDERLAYS, FOILS, DPC, DPM, & TAPES	78
4171GR	GIB WEATHERLINE RIGID AIR BARRIER	84
4221HV	HERMPAC VERTICAL WEATHERBOARD CLADDING SYSTEM	90
4224	TIMBER EXTERIOR TRIM	98
4231HA	JAMES HARDIE AXON PANEL CLADDING	101
4239JH	JAMES HARDIE SOFFITS	106
4261	BRICK VENEER CLADDING	110
4337E	ECOPLY ROOFING & DECKING	117
4381NJ	NURAJACK DECK SUPPORT SYSTEM	121
4383	TIMBER DECKING	127
4421N	NURAPLY 3PM MEMBRANE ROOFING & DECKING	129
4521PT	ALTUS THERMAL ALUMINIUM WINDOWS & DOORS	137
4553PD	PARKWOOD DURAMAX EXTERIOR DOOR	146
4554VS	VELUX OPENING SKYLIGHT	150
4555	GARAGE DOORS	155
4610MR	METRO PERFORMANCE GLASS - RESIDENTIAL GLAZING	157
4711AG	AUTEX GREENSTUF® THERMAL INSULATION	163
4721AG	AUTEX GREENSTUF ACOUSTIC INSULATION	169
4811S	SIKA SEALANTS	174
4821	FLASHINGS	181
4851	EXTERIOR HANDRAILS & TIMBER BALUSTRADES	184
4911	STEEL METALWORK	186
5111H	JAMES HARDIE FIBRE CEMENT SHEET LININGS	192
5113G	GIB® PLASTERBOARD LININGS	196
5122PL	PLYTECH PANELS RESIDENTIAL LININGS	201
5151	INTERNAL TRIM	205
5171G	GIB PLASTERBOARD FIRE & SOUND LININGS	207
5175KP	KINGSPAN KOOLTHERM INSULATED PLASTERBOARD	212
5231	INTERIOR DOORS	217
5231C	CS FOR DOORS	221
5313GS	GIB RONDO METAL CEILING BATTEN SYSTEMS FOR GIB PLASTERBOAR...	225
5433E	ECOPLY FLOORING	230

5511	JOINERY & CABINETS FIXTURES	233
5521	HARDWARE	238
5571	LAMINATED PLYWOOD STAIRS	240
5574	INTERIOR HANDRAILS & TIMBER BALUSTRADES	242
6133SS	SIKA CLEAR SEALERS	244
6192	FLOORING SUBSTRATE PREPARATION	249
6211AW	ARDEX WALL TILING	251
6221A	ARDEX FLOOR TILING SOLUTIONS	257
6412FM	FORBO MARMOLEUM FLOORING	263
6511	CARPETING	267
6700R	RESENE PAINTING GENERAL	270
6711R	RESENE PAINTING EXTERIOR	276
6721R	RESENE PAINTING INTERIOR	277
6734D	DRYDEN WOOD OIL MIGRATING NON-FILMING TIMBER PROTECTOR	279
6743FB	ZONE FIREZONE VANGUARD TIMBER FIRE TREATMENT	285
6745R	RESENE PROTECTIVE COATINGS-REFER STRUCTURAL ENG	289
6781	HOT DIP GALVANIZING-REFER STRUCTURAL ENGINEERS DOC	290
6812W	WARMUP WATERPROOFED SHOWER SYSTEM	291
7123	HOT & COLD WATER SYSTEM	297
7150	SANITARY FIXTURES, TAPWARE & ACCESSORIES	304
7352	TYPE 1 DOMESTIC SMOKE ALARM SYSTEMS	308
7411M	METALCRAFT ROOFING RAINWATER SPOUTING SYSTEMS	312
7421	SANITARY SYSTEMS	316
7431	DRAINAGE COMMON REQUIREMENTS	321
7451AE	ALLPROOF EXTERIOR SURFACE DRAINAGE SOLUTIONS	323
7461	FOUL WATER DRAINAGE	327
7556E	ESCEA WOOD FIRES	330
7612	RESIDENTIAL EXTRACT SYSTEMS	334
7673	SPLIT UNIT HEAT PUMP SYSTEMS	337
7702	ELECTRICAL STANDARD	342



# 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

Construction of new residential 3 level dwelling- refer to documentation and details

### 1.3 RESTRICTED BUILDING WORK

This project includes Restricted Building Work.

#### **Design Construction Safety**

### 1.4 DESIGN CONSTRUCTION SAFETY

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

#### **Principal's Health & Safety Matters**

### 1.5 PRINCIPAL'S KNOWN SITE HAZARDS

Site hazards known to the principal are:  
principal to advise

### 1.6 PRINCIPAL'S SITE HEALTH AND SAFETY PLAN

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

#### **Site**

### 1.7 SITE

The site consists of: 30 De Luens Ave Tindalls Beach  
As shown on drawing: A0-003 Site Plan

### 1.8 LEGAL DESCRIPTION

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

### 1.9 EXISTING SERVICES

The following are the network utility services:

Electrical:	refer to drawings
Communications:	principal to confirm
Water:	Refer to Civil drawings
Stormwater:	Refer to Civil drawings
Foul water:	Refer to Civil drawings

The services are also shown on the drawings.

### 1.10 SITE FEATURES

refer to relevant information on the drawings.

#### **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 ZONE**

HIGH Wind zone to NZS 3604:2011

**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 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

Name: Rebekah Button and Michael Barnes  
 Postal: 30 De Luen Ave Tindalls Beach  
 Street: 30 De Luen Ave Tindalls Beach  
 Mobile: 027 7100369 (Michael Barnes)  
 Email: michael.barnes@achconsulting.co.nz

#### Contractor

##### 1.2 COMPANY

Name: TBC  
 Postal: TBC  
 Street: TBC  
 Represented by: TBC  
 Mobile: TBC  
 Email: TBC

##### 1.3 CONTRACT MANAGER

Person: TBC  
 Mobile: TBC  
 Telephone: TBC  
 Email: TBC

##### 1.4 SITE FOREMAN

Person: TBC  
 Mobile: TBC  
 Telephone: TBC  
 Email: TBC

#### Consultants

##### 1.5 ARCHITECT

Practice: Bossley Architects  
 Postal: PO Box 47748 Ponsonby Auckland 1144  
 Street: 2/55 Mackelvie St  
 Telephone: 09 361 2201  
 Represented by: Dhruvi Rathod  
 Email: dhruvi@bossleyarchitects.co.nz

##### 1.6 LICENSED CADASTRAL SURVEYOR

Practice: Hall Surveying Ltd  
 Postal: 1 Painton Rd Silverdale  
 Street: 1 Painton Rd Silverdale  
 Represented by: TBC  
 Phone: 09 428 1359  
 Email: admin@hallsurveying.co.nz

##### 1.7 STRUCTURAL ENGINEER

Practice: ACH Consulting Engineers  
 Postal: PO Box 84-287  
 Street: 3 Kawakawa Place Westgate 0814  
 Telephone: 09 839 7050  
 Represented by: Michael Barnes  
 Mobile: 027 7100369  
 Email: michael.barnes@achconsulting.co.nz

#### 1.8 GEOTECHNICAL ENGINEER

Practice: KGA Geotechnical  
 Postal: PO Box 302 361 North Harbour Auckland 0751  
 Street: 7A William Pickering Drive Albany Auckland  
 Telephone: 09 478 6655  
 Represented by: Chris Thurlow  
 Mobile: TBC  
 Email: chris@kga.co.nz

#### 1.9 CIVIL ENGINEER

Practice: ACH Consulting Engineers  
 Postal: PO Box 84-287  
 Street: 3 Kawakawa Place Westgate 0814  
 Telephone: 09 839 7050  
 Represented by: TBC  
 Mobile: TBC  
 Email: TBC

#### 1.10 FIRE ENGINEER

Practice: Origin Fire Consultants  
 Postal: PO Box 128 295 Auckland 1541  
 Street: Level 1, 18 Normanby Rd, Mount Eden, Auckland 1024  
 Telephone: 021 115 8276  
 Represented by: Sarath Samarasekara  
 Mobile: 021 115 8276  
 Email: sarath.s@originfire.co.nz

### **Territorial Authority**

#### 1.11 BUILDING CONSENT AUTHORITY

Name: Auckland Council  
 Postal: Private Bag 92300  
 Street: Victoria Street West  
 Telephone: 09 301 0101  
 contact on line: aucklandcouncil.govt.nz

#### 1.12 BUILDING CERTIFIER

Name: TBC  
 Postal: TBC  
 Street: TBC  
 Telephone: TBC  
 Represented by: TBC  
 Mobile: TBC  
 E-mail: TBC

# 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 <a href="#">New Zealand Building Code</a> 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 <a href="#">Health and Safety at Work Act 2015</a> ).

#### 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
BPIS	Building Product Information Sheet

BPS	Building Product Specifications
BRANZ	Building Research Association of New Zealand
BS	British Standard
COP	Code of practice
CSIRO	Commonwealth Scientific and Industrial Research Organisation
HERA	Heavy Engineering Research Association
LBP	Licensed Building Practitioner
MBIE	Ministry of Business, Innovation and Employment
MPNZA	Master Painters New Zealand Association Inc
NZBC	<a href="#">New Zealand Building Code</a>
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 <a href="#">Health and Safety at Work Act 2015</a> )
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.

# 1232S1 EXPLANATION OF SCHEDULE SECTIONS

## 1 GENERAL

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

### 1.1 EXPLANATION OF SCHEDULE SECTIONS

A schedule section identifies work sections that contain common requirements, as identified in the title of the schedule section. For example 1235S1 SCHEDULE OF SHOP DRAWINGS identifies work sections that have requirements for shop drawings. Details of the requirements are contained in the identified work sections with additional requirements contained in the general section 1235 SHOP DRAWINGS.

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

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

### 1.2 SCHEDULE SECTIONS

The following Schedule sections are contained within the specification:

1235S1	Schedule of Shop Drawings
1237S1	Schedule of Warranties
1238S1	Schedule of As Built Documentation
1239S1	Schedule of Operation & Maintenance Info
1270S1	Schedule of Samples & Prototypes
1270S2	Schedule of Spares & Maintenance Products

## 1233 REFERENCED DOCUMENTS

### 1 GENERAL

#### 1.1 REFERENCED DOCUMENTS

Throughout this specification, reference is made to various [New Zealand Building Code](#) Compliance Documents (NZBC \_\_\_), acceptable solutions (\_\_\_ AS\_) and verification methods (\_\_\_ VM\_) for criteria and/or methods used to establish compliance with the [New Zealand Building Code](#).

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

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

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

#### 1.2 DOCUMENTS

Documents referred to in the GENERAL sections are:

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

# 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 4 Membrane roofer
- Roofing 5 Torch on membrane roofer

Also provide names and contact details of the following

- Registered drainlayer
- Registered plumber
- 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:               1 at full size, 1 at reduced size  
Revisions:                   1 at full size, 1 at reduced size

#### 2.2 DOCUMENT RECEIPT - ELECTRONIC DOCUMENTS

Electronic documents issued for construction shall be obtained from a file hosting service

# 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.

## 2 SELECTIONS

### 2.1 SHOP DRAWING FORMAT

Submit the shop drawings in the following format

	<b>Format/Size</b>
Hardcopy	A3 min
Electronic copy	PDF
CAD file	dwg

### 2.2 BIM (BUILDING INFORMATION MODEL) FORMAT

dwg

# 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:

4521PT	Altus Thermal Aluminium Windows & Doors
4610MR	Metro Performance Glass - Residential Glazing
4911	Steel Metalwork
5231	Interior Doors
5571	Laminated Plywood Stairs
7673	Split Unit Heat Pump Systems

### 1.3 SHOP DRAWINGS - ADDITIONAL ITEMS

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

# 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 - CONTRACT TO BE CONFIRMED**

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

**1.8 WARRANTIES - SUBMISSION NZIA SCC CONTRACT**

Refer to the contract conditions for any requirement relating to the time for submission for warranties and guarantees. Submit all warranties to the architect no later than the date of the contractor's advice of achieving practical completion.

**1.9 WARRANTIES - SUBMISSION NZS 3902 CONTRACT**

Refer to [NZS 3902](#) Housing, alterations and small buildings contract. Submit warranties to the owner no later than the time the builder gives Notice of final completion to the owner.

**1.10 WARRANTIES - SUBMISSION NZS 3910 CONTRACT**

Refer to [NZS 3910](#) Conditions of Contract for building and civil engineering construction, for requirements relating to the time for submission of warranties and guarantees. Submit all warranties/guarantees to the Contract Administrator no later than the date that the contractor notifies that it believes the contract works qualify for practical completion or any other time stated in the Specific Conditions of Contract.

**1.11 GUARANTEES - SUBMISSION NZS 3915 CONTRACT**

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

**1.12 WARRANTIES/GUARANTEES - SUBMISSION NZS 3916 CONTRACT**

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

**2 SELECTIONS****Project warranties / guarantees****Guarantees - Contractor - Master Build Services Ltd****2.1 MASTER BUILD SERVICES LTD - 10 YEAR 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****2.2 HALO 10-YEAR RESIDENTIAL GUARANTEE**

Complete the Halo 10-year residential guarantee insurance application process and pay the premium. Instruct the owner to return the Completion Certificate to Halo Guarantees Limited on practical completion.

**Weathertightness and watertightness warranty****2.3 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:

3114E	Expol Underslab Insulation
3123A	AQURON 1000 Penetrating Concrete Floor Sealer
4131N	Nuralite Nuraply 3P Covered Tanking Systems
4161T	Kingspan Thermakraft Underlays, Foils, DPC, DPM, & Tapes
4171GR	GIB Weatherline Rigid Air Barrier
4221HV	Hempac Vertical Weatherboard Cladding System
4231HA	James Hardie Axon Panel Cladding
4239JH	James Hardie Soffits
4261	Brick Veneer Cladding
4381NJ	Nurajack Deck Support System
4421N	Nuraply 3PM Membrane Roofing & Decking
4521PT	Altus Thermal Aluminium Windows & Doors
4553PD	Parkwood Duramax Exterior Door
4554VS	Velux Opening Skylight
4610MR	Metro Performance Glass - Residential Glazing
4711AG	Autex Greenstuf Thermal Insulation
4721AG	Autex GreenStuf Acoustic Insulation
4811S	Sika Sealants
5111H	James Hardie Fibre Cement Sheet Linings
5122PL	Plytech Panels Residential Linings
5175KP	Kingspan Kooltherm Insulated Plasterboard
5231C	CS For Doors
5313GS	GIB Rondo Metal Ceiling Batten Systems For GIB Plasterboards
5511	Joinery & Cabinetry Fixtures
6133SS	Sika Clear Sealers
6211AW	Ardex Wall Tiling
6221A	ARDEX Floor Tiling Solutions
6412FM	Forbo Marmoleum Flooring
6511	Carpeting
6700R	Resene Painting General
6743FB	Zone FireZone Vanguard Timber Fire Treatment
6812W	Warmup Waterproofed Shower System
7123	Hot & Cold Water System
7150	Sanitary Fixtures, Tapware & Accessories.
7352	Type 1 Domestic Smoke Alarm Systems
7411M	Metalcraft Roofing Rainwater Spouting Systems
7451AE	Allproof Exterior Surface Drainage Solutions
7556E	Escea Wood Fires
7612	Residential Extract Systems
7673	Split Unit Heat Pump 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.

# 1238 AS BUILT DOCUMENTATION

## 1 GENERAL

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

### 1.1 SCHEDULE SECTION

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

### 1.2 AS BUILT DOCUMENT REQUIREMENTS

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

As built drawings recording:

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

Records of:

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

### 1.3 PROVISIONAL AS BUILT DOCUMENTS

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

### 1.4 AS BUILT DOCUMENT REVIEW

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

Where no time is stated in a specific section, allow 10 working days for review by the reviewer.

Where a large amount of documentation is involved more time will be necessary.

### 1.5 COMPLETE AS BUILT DOCUMENTS

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

### 1.6 AS BUILT DOCUMENTS - ELECTRONIC COPY

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

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

# 1238S1 SCHEDULE OF AS BUILT DOCUMENTATION

## 1 GENERAL

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

### 1.1 ASSOCIATED SECTIONS

Read in conjunction with:

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

#### **As built documents**

### 1.2 AS BUILT DOCUMENTS

Refer to the following sections:

7431 Drainage Common Requirements

### 1.3 AS BUILT DOCUMENTS - ADDITIONAL ITEMS

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

## 1239 OPERATION & MAINTENANCE

### 1 GENERAL

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

#### 1.1 SCHEDULE SECTION

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

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

#### **Operation and maintenance documents**

#### 1.2 OPERATION AND MAINTENANCE INFORMATION - BUILDING ACT

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

#### 1.3 OPERATION AND MAINTENANCE INFORMATION

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

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

#### 1.4 MAINTENANCE REQUIREMENTS

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

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

#### 1.5 APPLIANCE MANUALS AND OPERATING INSTRUCTIONS

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

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

#### 1.6 SELECTIONS INFORMATION

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

- Tapware type and supplier details.
- Sanitary ware including accessories type and supplier details.

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

Include brochures and other information included with the items supplied.

## 1.7 SELECTIONS INFORMATION - SUBSTITUTIONS

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

### **Documentation format**

## 1.8 O&M DOCUMENTATION FORMAT

Unless otherwise specified in a work section,

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

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

### **Submission and review**

## 1.9 O&M DOCUMENTATION SUBMISSION & REVIEW

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

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

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

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

The reviewer may advise that:

- The O&M documentation has been reviewed and has been accepted without the need for further modification. The information can be included in the final documentation; or
- The O&M documentation has been reviewed and the information can be included in the final documentation subject to revision required by notes, annotations or comments provided; or
- The O&M documentation has been reviewed and is not acceptable, refer to notes, annotations or comments provided. Resubmit corrected/altered documentation for review.

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

### **Final documentation**

## 1.10 SUBMISSION OF FINAL DOCUMENTATION

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

## 1.11 FINAL O&M DOCUMENTATION - HARDCOPY

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

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

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

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

#### 1.12 FINAL O&M INFORMATION - ELECTRONIC COPY

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

#### 1.13 REVIEW OF FINAL DOCUMENTATION

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

## 2 SELECTIONS

### O&M Documentation

#### 2.1 FINAL DOCUMENTATION - INFORMATION FOR OPERATION AND MAINTENANCE

Provide a complete electronic copy to the contract administrator.

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

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

#### 2.2 FINAL DOCUMENTATION - OPERATION AND MAINTENANCE MANUALS

Provide a complete electronic copy to the contract administrator.

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.

# 1239S1 SCHEDULE OF OPERATION & MAINTENANCE INFO

## 1 GENERAL

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

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

### 1.1 ASSOCIATED SECTIONS

Read in conjunction with:

- 1232S1 EXPLANATION OF SCHEDULE SECTIONS
- 1239 OPERATION & MAINTENANCE
- Identified Work Sections

#### Information for operation and maintenance

### 1.2 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the following sections:

3123A	AQURON 1000 Penetrating Concrete Floor Sealer
4231HA	James Hardie Axon Panel Cladding
4239JH	James Hardie Soffits
4521PT	Altus Thermal Aluminium Windows & Doors
4555	Garage Doors
5122PL	Plytech Panels Residential Linings
6133SS	Sika Clear Sealers
6211AW	Ardex Wall Tiling
6221A	ARDEX Floor Tiling Solutions
6700R	Resene Painting General
6734D	Dryden WoodOil Migrating Non-Filming Timber Protector
6743FB	Zone FireZone Vanguard Timber Fire Treatment
7123	Hot & Cold Water System
7150	Sanitary Fixtures, Tapware & Accessories.
7352	Type 1 Domestic Smoke Alarm Systems
7411M	Metalcraft Roofing Rainwater Spouting Systems
7431	Drainage Common Requirements
7556E	Escea Wood Fires
7612	Residential Extract Systems
7673	Split Unit Heat Pump Systems

#### Operation and maintenance manuals

### 1.3 OPERATION AND MAINTENANCE MANUALS

Refer to the following sections:

7421	Sanitary Systems
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#### Maintenance contract proposals

### 1.4 MAINTENANCE CONTRACT PROPOSALS

Refer to the following sections:

4811S	Sika Sealants
7673	Split Unit Heat Pump Systems

#### Additional Items

### 1.5 ADDITIONAL ITEMS

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

## 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

TBC

#### Site preparation

#### 1.5 SITE ACCESS

Access to the site is limited to: TBC

#### 1.6 WORKING AREA

Limited to the following designated working areas on the site:  
TBC

#### 1.7 SITE AND SOIL SURVEYS

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

#### 1.8 GROUND CONDITIONS

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

#### 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 TEMPORARY SITE FENCING

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

#### 1.11 SITE - SAFETY SIGNAGE

Provide hazard board and other safety signage as required.

#### First aid

1.12 FIRST AID EQUIPMENT  
Provide first aid equipment.

## 1250 TEMPORARY WORKS & SERVICES

### 1 GENERAL

This general section relates to temporary works and services required for the construction of the contract works. It includes

- Temporary works and services including temporary fencing and hoardings
- Scaffolding
- General care and protection
- Rubbish removal

#### Temporary works

#### 1.1 COSTS RELATING TO TEMPORARY WORKS

Pay all rates/fees in respect of temporary works.

#### 1.2 MAINTENANCE OF TEMPORARY WORKS

Maintain alter, adapt and move temporary works and services as necessary. Clear away when no longer required and make good.

#### 1.3 SAFEGUARD THE SITE, THE WORKS AND MATERIALS

Take reasonable precautions to prevent unauthorised access, including access outside working hours, to the site, the works and adjoining property. Safeguard the site, the works, materials and plant from damage and theft.

#### 1.4 SITE FENCING

Provide and maintain a site fence, 2 metres high from ground level on the side accessible to the public. Construct to comply with [NZBC F5/AS1](#) Construction and demolition hazards. Construct as required for public areas and as shown on the drawings.

Construct the fence with:

- galvanized chain link netting with a 50mm x 50mm maximum grid size
- posts at 2.5 metre centres maximum
- gap at the bottom of the fence no greater than 100mm

#### 1.5 SITE FENCING - NON-PUBLIC AREAS

Provide and maintain a 1 metre high site fence to non-public areas. Construct using:

- warratah stakes at 1.5 metre centres fitted with safety caps
- plastic safety mesh

#### 1.6 GANTRIES, PLANKED FOOTWAYS, GUARD RAILS

Provide temporary gantries, planked footways and guard rails as necessary to protect the public and others, for the proper execution of the works and to meet the requirements of territorial or other authority.

#### 1.7 PROVIDE SEDIMENT AND SILT RUN OFF PROTECTION

Provide appropriate measures to prevent or minimise sediment generation and silt run off. Comply with territorial and other authority requirements relating to carrying out earthworks.

Prevent silt run off by:

- exposing only as much ground as required at any time
- providing run off channels, contour drains or earth bunds to divert clean water away from the site on to stable sealed or grassed ground
- capture silt by the use of silt fences, vegetation buffer strips, sediment ponds or earth bunds.

Provide sediment control by:

- earth bunds constructed across the slope to control and detain run off
- silt fences constructed using filter fabric stretched between posts at a maximum of 1 metre spacing.

Pump water from trenches and other areas of the site using methods to prevent sediment entering any drain or watercourse. Filter dirty water before discharging into drainage system.

#### 1.8 PROVIDE CONCRETE WASHWATER RUN OFF PROTECTION

Provide appropriate measures to prevent cement/concrete washwater or slurry run off to; drains or waterways, landscaped areas new or remaining and adjoining public or private properties. Comply with territorial and other authority requirements relating to cement/concrete washwater.

Control run off from:

- Cement/concrete based material production, placing and finishing.
- Hosing down and cleaning of, tools and equipment, fresh material, and spilt or surplus material, pumps and mixers etc.
- Wet cutting or grinding.
- Slab watering etc.
- Water cleaning of new concrete elements, fresh used formwork etc.

Small project with relatively large exposed ground areas - prevent run off by:

- directing small amounts of washwater onto the area of ground closest to the work.
- for larger amounts provide run off channels, and small soak pits
- very small amounts of washwater with no aggregate and only a small amount of sand may be spread over existing lawns.

Large project and those without suitable ground area - prevent run off by:

- plan and implement washwater control measures based on the expected volumes, allow for the timely removal and safe disposal of liquids and solids.
- Limit the volume of water used for washing down to the extent required.
- Control the flow of washwater so that it is directed to proper catchments.
- providing watertight bunds, pits or tanks, filtered washwater is not to be discharged to drains.

Spilt or surplus material:

- if possible allow to set and either use or dispose of as hardfill.
- pre-made concrete items, either use or dispose of as hardfill.

Pump washwater away from drains, waterways and adjoining property.

## 1.9 EXCAVATION SAFETY

To the [Health and Safety at Work Act 2015](#).

Carry out excavation to [WorkSafe, Good Practice Guidelines - Excavation Safety](#). This may include deep excavation, trenching, and areas behind unfilled retaining walls.

Carry out excavation using plant and equipment suitable for the purpose.

### **Scaffolding**

## 1.10 SCAFFOLDING

Provide scaffolding for the efficient execution of the works.

Comply with:

- [Health and Safety at Work Act 2015](#)
- [Health and Safety in Employment Regulations 1995](#)
- Health and Safety at Work (General Risk and Workplace Management) Regulations 2016
- [Worksafe - Scaffolding in New Zealand - Good Practice Guidelines](#)

### **Temporary services**

## 1.11 WATER

Provide clean, fresh water for the works and make arrangements for distributing about the site.

## 1.12 ELECTRICITY

To AS/NZS 3012.

Nominate the person to install and be responsible for the complete temporary electrical installation.

The name and designation of the person responsible is to be displayed prominently and close to the main switch or circuit breaker.

Inspect and overhaul the installation at such intervals as are prescribed by the network utility operator but not more than three monthly intervals.

## 1.13 TELEPHONE

Provide on-site temporary telephone facilities.

## 1.14 COMPUTER FACILITIES

Provide on-site temporary computer facilities complete with an email and internet connection capable of sending, receiving and printing site communications.

#### 1.15 PRINTER

Provide on-site temporary printing facilities capable of printing A4 and A3 colour prints.

#### 1.16 IMAGING

Keep available devices able to take and send quality printable digital photographs.

### **Care and protection - Site**

#### 1.17 LOCATE AND PROTECT SURVEY MARKS

Review information provided relating to survey marks. Physically locate and protect survey marks. Where required use a licensed cadastral surveyor to reinstate survey marks disturbed during construction.

#### 1.18 LOCATE EXISTING SERVICES

Review information provided relating to underground and above ground services. Physically locate the position of all such services. Arrange with the network utility operator for all necessary exploratory work, location, protection, isolation, off-setting, reinstatement or alterations required. Record any alterations made to such utilities.

#### 1.19 PROTECT EXISTING SERVICES

Protect existing services and parts of service systems, whether indicated or not, that are to remain in place during the execution of the works. Provide temporary caps or covers to prevent the ingress of dust and other contaminants into the systems, ducts, pipes etc. Reinstate where required and repair any damage resulting from carrying out the contract works.

#### 1.20 PROTECT EXISTING LANDSCAPE ELEMENTS

Protect existing trees, fences, gates, walls, gardens and other designated landscape features which are to remain in position during the execution of the works. Construct a temporary fence at the outer edge of the drip line of trees to be protected. Comply with territorial authority requirements.

#### 1.21 MAKE GOOD - SITE

Make good all damage to existing roads, footpaths, grounds, services, landscape elements and site features caused in carrying out the contract works.

### **Care and protection - Project**

#### 1.22 TEMPORARY PROTECTION

Provide and maintain temporary protection as required to protect products during transport, storage and handling. Provide temporary protection as required to protect the work in progress and the finished work. Refer to 1270 CONSTRUCTION for removal of protection.

#### 1.23 SPECIAL PROTECTION GENERAL

Refer to individual work sections for any special protection requirements.

### **Care and protection - miscellaneous**

#### 1.24 CONSTRUCTION KEYING AND SECURITY

Provide locksets with temporary keying, or install with the cylinders removed.

#### 1.25 TEMPORARY STORAGE

Provide temporary storage areas and protective covers and screens to meet the requirements of the products to be stored.

### **Rubbish removal**

#### 1.26 PERIODIC RUBBISH REMOVAL

Maintain on site appropriate means for the storage and removal of construction waste material. Where required or appropriate provide for the separate storage of recyclable waste and other materials requiring special disposal.

# 1256 WASTE MANAGEMENT

## 1 GENERAL

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

- **Part REBRI requirements**

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

REBRI                                      Resource Efficiency in the Building and Related Industries

### 1.2 DOCUMENTS

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

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

REBRI contact details

Organisation:                      REBRI  
 Web:                                      [www.branz.co.nz/REBRI](http://www.branz.co.nz/REBRI)  
 Email:                                      branz@branz.co.nz

### Special requirements

### 1.3 SPECIAL REQUIREMENTS - GENERALLY

Clauses in this section are additional to or modify clauses in other standard sections, particularly those covering demolition. This section should be read in conjunction with the rest of this specification with regard to all waste management for the project. Refer to the clause RELATED WORK above for the main sections that are affected by this section.

### Requirements - part REBRI

### 1.4 SITE COORDINATOR

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

### 1.5 WASTE MANAGEMENT PLAN

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

The submitted plan to include the following factors:

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

### 1.6 REPORTING

Contractor provide a report to the site meeting based on the Waste Management Plan and similar to the Waste Transfer Form, of waste materials, recycled, reused and disposed of by the project. If requested, submit to the Contract Administrator documentation confirming that all materials have been received at the required locations.

### Requirements - General

### 1.7 ENSURE

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

## 2 PRODUCTS

### Equipment

#### 2.1 CONTAINERS

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

## 3 EXECUTION

### Conditions

#### 3.1 STORAGE

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

#### 3.2 PLANNING

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

### Statutory requirements

#### 3.3 HAZARDOUS WASTE

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

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

## 4 APPLICATION

#### 4.1 SITE CLEARING

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

#### 4.2 CONCRETE

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

#### 4.3 WOOD

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

#### 4.4 PLASTERBOARD

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

#### 4.5 PLUMBING

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

- Separate and recycle plastics.

#### 4.6 ELECTRICAL

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

#### 4.7 MECHANICAL

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

### **Completion**

#### 4.8 CLEANING

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

# 1270 CONSTRUCTION

## 1 GENERAL

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

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

### 1.1 SCHEDULE SECTION

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

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

#### **Quality control and assurance**

### 1.2 QUALITY ASSURANCE

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

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

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

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

### 1.3 NOTICE

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

### 1.4 NOTIFIABLE WORK

Lodge notice of the intention to commence any notifiable work and any work that will at any time include any notifiable work, in accordance with [Health and Safety in Employment Regulations 1995](#). Notifiable work includes:

- Construction work with a risk of falling 5 metres or more (exclusions apply).
- Erecting or dismantling scaffolding with a risk of falling 5 metres or more.
- Use of a lifting appliance where the appliance has to lift a mass of 500 kilograms or more a vertical distance of 5 metres or more (exclusions apply).
- Work in any pit, shaft, trench, or other excavation in which any person is required to work in a space more than 1.5 metres deep and having a depth greater than the horizontal width at the top.
- Work in any drive, excavation, or heading in which any person is required to work with a ground cover overhead.
- Work involving the use of explosives, or storage of explosives for use.

- Work in which a person breathes compressed air, or respiratory medium other than air.
- Removal of asbestos.
- Tree felling undertaken for commercial purposes.

## Noise and nuisance

### 1.5 LIMIT CONSTRUCTION NOISE

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

Clause 11 asks that employees not be exposed to noise above a level of 85dB(A) normalised to an 8 hour day, or a peak of 140dB.

### 1.6 ACCEPTABLE NOISE LEVELS

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

### 1.7 PROVIDE INFORMATION TO NEIGHBOURS

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

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

### 1.8 ROADWAY AND FOOTPATH

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

### 1.9 VEHICLE CROSSING

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

### 1.10 TRAFFIC SAFETY

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

### 1.11 DIRT AND DROPPINGS

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

### 1.12 DAMAGE AND NUISANCE

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

### 1.13 SMOKE FREE REQUIREMENTS

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

### 1.14 RESTRICTIONS

Do not:

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

## Set-out and tolerances

### 1.15 SURVEY INFORMATION

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

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

### 1.16 DATUM

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

### 1.17 SET-OUT

Set out the work to conform with the drawings.

### 1.18 SET-OUT BY LICENSED CADASTRAL SURVEYOR

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

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

### 1.19 CONFIRM HEIGHT IN RELATION TO BOUNDARY

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

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

### 1.20 USE OF SET-OUT INSTRUMENTS

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

### 1.21 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.

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

Refer to work sections for tolerance requirements for finishes.

## Execution

**1.23 EXAMINE PREVIOUS WORK**

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

**1.24 REPORT DEFECTIVE PREVIOUS WORK**

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

**1.25 EXECUTION GENERALLY**

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

**1.26 EXECUTION - NO DETAIL IS PROVIDED**

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

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

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

**1.27 EXECUTION - ACCEPTABLE SOLUTION IS REFERRED TO**

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

**1.28 MINIMISE DELAYS DUE TO WEATHER**

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

**Defective or damaged work****1.29 DEFECTIVE OR DAMAGED WORK**

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

**Hot work - fire safety****1.30 HOT WORK**

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

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

**1.31 COMBUSTIBLE MATERIAL**

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

**1.32 HOT WORK PERMIT**

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

**1.33 FIRE SYSTEMS**

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

**1.34 DURING SUSPENDED WORK**

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

For hot works in confined spaces, prevent potential ignition of flammable gases, to [NZS 4781](#) clause 6.5.

## Qualifications

### 1.35 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.

### 1.36 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.

### 1.37 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.

### 1.38 QUALIFICATIONS WORKERS – LICENSED UNDER STATUTE

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

### 1.39 QUALIFICATIONS WORKERS – INDUSTRY QUALIFICATION REQUIREMENTS

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

### 1.40 QUALIFICATIONS – PRODUCER STATEMENTS

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

### 1.41 REPLACEMENT OF PERSON

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

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

## Products

### 1.42 NEW PRODUCTS

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

### 1.43 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.

### 1.44 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.

#### 1.45 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.

#### 1.46 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.

#### 1.47 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.

#### 1.48 CONDITION OF PRODUCTS

To be in perfect condition when incorporated into the work.

#### 1.49 INCOMPATIBLE PRODUCTS

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

### **Samples**

#### 1.50 SAMPLES FOR REVIEW

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

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

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

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

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

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

Refer to SAMPLES clauses in work sections for further detail.

#### 1.51 CONTROL SAMPLES

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

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

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

### **Spares & maintenance products**

#### 1.52 SPARES & MAINTENANCE PRODUCTS

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

If no instruction is given within a work section for the location of spares and maintenance products, then deliver to the owner ~.

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

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

### **Cleaning during the works**

#### 1.53 PERIODIC SITE CLEANING

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

#### 1.54 TRADE CLEANING

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

### **Remove protection**

#### 1.55 REMOVE PROTECTION

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

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

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

Refer to individual work sections for any special removal requirements.

### **Completion**

#### 1.56 SPECIAL REQUIREMENTS

Refer to individual work sections for any special completion requirements.

#### 1.57 LEAVE WORK

Leave work to the standard required for the following procedures.

#### 1.58 COMPLETION - TESTS & CERTIFICATION

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

#### 1.59 REMOVE CONSTRUCTION WASTE

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

#### 1.60 COMPLETE ALL SERVICES

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

## 1.61 CLEANING BY CONTRACTOR

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

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

### **Commissioning**

## 1.62 SPECIAL REQUIREMENTS

Refer to individual work sections for any special commissioning requirements.

## 1.63 MOVING PARTS

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

## 1.64 COMMISSIONING - TESTS & CERTIFICATION

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

## 1.65 INSTRUCTION AND DEMONSTRATION

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

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

## 1.66 SECURITY AT COMPLETION

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

### **Practical completion submission**

## 1.67 ADDITIONAL PRACTICAL COMPLETION INFORMATION

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

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

## 1.68 ADDITIONAL PRACTICAL COMPLETION REQUIREMENTS

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

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

- ~

**Defects period submissions**

## 1.69 DEFECTS REMEDIATION - SUBMISSIONS

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

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

**Completion submissions**

## 1.70 FINAL COMPLETION - SUBMISSIONS

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

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

# 1270S1 SCHEDULE OF SAMPLES & PROTOTYPES

## 1 GENERAL

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

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

### 1.1 ASSOCIATED SECTIONS

Read in conjunction with:

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

#### **Samples**

### 1.2 SAMPLES

Refer to the following sections:

6745R Resene Protective Coatings-refer Structural Eng

### 1.3 SAMPLES - ADDITIONAL ITEMS

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

#### **Prototypes**

### 1.4 PROTOTYPES - REVIEW

There are no work section requirements.

### 1.5 PROTOTYPES - TESTING

There are no work section requirements.

### 1.6 PROTOTYPES - ADDITIONAL ITEMS

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

# 1270S2 SCHEDULE OF SPARES & MAINTENANCE PRODUCTS

## 1 GENERAL

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

### 1.1 ASSOCIATED SECTIONS

Read in conjunction with:

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

### **Spares & maintenance products**

### 1.2 SPARES & MAINTENANCE PRODUCTS

Refer to the following sections:

6211AW     Ardex Wall Tiling  
6221A     ARDEX Floor Tiling Solutions

### 1.3 SPARES & MAINTENANCE PRODUCTS - ADDITIONAL ITEMS

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

## **2241 EXCAVATION- REFER TO STRUCTURAL ENGINEERS DOCS**

### **1 GENERAL**

REFER TO STRUCTURAL ENGINEERS DOCUMENTATION AND SPECIFICATION

## **2242 BACKFILLING- REFER TO STRUCTURAL ENGINEERS DOCS**

### **1 GENERAL**

REFER TO STRUCTURAL ENGINEERS DOCUMENTATION AND SPECIFICATION

## **2361 STRIP FOOTINGS- REFER TO STRUCTURAL ENGINEERS DOCS**

### **1 GENERAL**

REFER TO STRUCTURAL ENGINEERS DOCUMENTATION AND SPECIFICATION

# **2362 FOUNDATION WALLS-REFER STRUCTURAL ENGINEERS DOCS**

## **1 GENERAL**

REFER TO STRUCTURAL ENGINEERS DOCUMENTATION AND SPECIFICATION

## **3102 CONCRETE WORK -REFER TO STRUCTURAL ENGINEERS DOCS**

### **1 GENERAL**

REFER TO STRUCTURAL ENGINEERS DOCUMENTATION AND SPECIFICATION

# 3114E EXPOL UNDERSLAB INSULATION

## 1 GENERAL

This section relates to the supply and installation of Expol insulation foam boards for concrete slabs on ground.

It includes:

- EPS and XPS under slab insulation foam boards

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

DPM	Damp proof membrane
EPS	Expanded polystyrene
XPS	Extruded polystyrene

### Documents

### 1.2 DOCUMENTS

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

<a href="#">NZBC H1/AS1-AS2</a>	Energy efficiency
AS 1366.3	Rigid cellular plastic sheets for thermal insulation - Rigid cellular polystyrene - Moulded (RC/PS - M)
<a href="#">NZS 4246</a>	Energy efficiency - Installing bulk thermal insulation in residential buildings
AS/ <a href="#">NZS 4859.1</a>	Thermal insulation materials for buildings - General criteria and technical provisions

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Expol under slab / slab edge insulation brochures  
 Expol technical product guide  
 Expol technical data sheets  
 Expol BPIR

Company	Expol Ltd
Web:	<a href="http://www.expol.co.nz">www.expol.co.nz</a>
Email:	tech@expol.co.nz
Telephone:	09 634 3449 / 0800 863373
Facsimile:	09 634 0756

### Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:  
 20 years For EPS insulation products  
 15 years For XPS insulation products

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

Refer to the general section 1237 WARRANTIES for additional requirements.

### 1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:  
 1 year For installation

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

## Requirements

### 1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

### 1.7 NO SUBSTITUTIONS

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

## 2 PRODUCTS

### Materials - under slab insulation

#### 2.1 EXPOL SLABX200

Expol SlabX200, a 200kPa rated EPS under slab insulation sheets to AS 1366.3 and [AS/NZS 4859.1](#). Available in 2400mm x 1200mm and in a range of thicknesses. Refer to SELECTIONS.

## 3 EXECUTION

### Conditions

#### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

#### 3.2 ROUTINE MATTERS

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

#### 3.3 PROTECT

Do not subject the polystyrene to prolonged saturation or exposure to sunlight. Do not allow the polystyrene to come into contact with solvents.

#### 3.4 PRE-INSTALLATION REQUIREMENTS

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

### Installation/application

#### 3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

#### 3.6 INSTALLATION - GENERAL

Install under slab insulation to [NZBC H1/AS1-AS2](#) and Expol Ltd installation requirements. Also install to [NZS 4246](#) for all housing and buildings up to 300m<sup>2</sup>.

#### 3.7 INSTALL UNDERSLAB INSULATION

Install the polystyrene sheets once the polythene DPM has been laid. Place the polystyrene sheets on top of the polythene DPM and butt together. Do not place the polystyrene under any footings or slab thickenings. Cut holes in the polystyrene with a sharp knife to accommodate any services. Lay reinforcing steel mesh over the polystyrene on mesh chairs

### Completion

#### 3.8 COMPLETION MATTERS

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

## 4 SELECTIONS

For further details on selections go to [www.expol.co.nz](http://www.expol.co.nz).  
Substitutions are not permitted to the following, unless stated otherwise.

### **Materials - under slab insulation**

#### 4.1 100MM EXPOL SLABX200

Location:	Under concrete slab
Brand:	Expol SlabX200
Size:	2400mm x 1200mm
Thickness:	100mm
Compressive resistance at 10%:	200kPa
R value:	3.0

# 3123A AQURON 1000 PENETRATING CONCRETE FLOOR SEALER

## 1 GENERAL

This section relates to the supply and application of AQURON 1000, for curing, sealing and protecting new commercial concrete floors.

It includes:

- AQURON 1000 penetrating sealer

### 1.1 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:

Colloidal silica                      Suspension of fine amorphous, non-porous silica particles in liquid medium.

### Documents

#### 1.2 DOCUMENTS

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

NZBC D1/AS1                      Access routes  
AS 3799                              Liquid membrane-forming curing compounds for concrete  
(Reconfirmed 2018)

#### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:  
AQURON 1000 Technical Data Sheet

Manufacturer/supplier contact details

Company:                              Markham Global Ltd  
Web:                                    [www.markhamglobal.com](http://www.markhamglobal.com)  
Email:                                  [christine.melville@markhamglobal.com](mailto:christine.melville@markhamglobal.com)  
Telephone:                            0800 693 694  
    021 725 974

### Warranties

#### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:  
15 years                                For AQURON 1000 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:  
15 years                                For AQURON 1000 performance

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

Refer to the general section 1237 WARRANTIES for additional requirements.

### Requirements

#### 1.6 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

Installers to be trained and approved by Markham Global Ltd. If requested, provide evidence of qualification/experience prior to commencing work. Contact Markham Global Ltd for a list of trained installers. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

#### 1.7 NO SUBSTITUTIONS

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

#### 1.8 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of the maintenance instructions in the Cretepolish Max Technical Data Sheet, as electronic PDF format.

Provide this information prior to practical completion.

### **Compliance information**

#### 1.9 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

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

## **2 PRODUCTS**

### **Materials**

#### 2.1 AQURON 1000 PENETRATING SEALER

Aquron 1000 spray applied, clear, non-toxic, VOC-free, isocyanate-free, waterborne colloidal silica hydrogel concrete hardener and sealer, conforms to moisture retention requirements of AS 3799.

## **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-APPLICATION REQUIREMENTS

Check work previously carried out and confirm it is of the required standard for this part of the work.  
Concrete surface must absorbent, free of contamination and be damp, but free of standing water.  
Proceed only when substrate temperature is above freezing and no freeze is expected during subsequent 12 hours.

### **Application - generally**

#### 3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

#### 3.5 APPLICATION - GENERALLY

Apply in accordance with manufacturer instructions within product Technical Data Sheets.

### **Application**

#### 3.6 SPRAY APPLY AQURON 1000

When concrete surface is firm enough to walk on and within 24 hours of concrete pour, evenly spray apply Aquaron 1000 to the concrete surface using a walk-behind sprayer at a rate proportionate to the absorbency of the concrete, minimum 1 litre per 7m<sup>2</sup> in accordance with manufacturer's instructions. Three or more light passes may be required to achieve coverage. Begin additional passes when treated concrete has lost surface sheen and while still damp.

### **Completion & Commissioning**

#### **3.7 COMPLETION MATTERS**

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

### **4 SELECTIONS**

For further details on selections go to [www.markhamglobal.com](http://www.markhamglobal.com).

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

#### **Materials**

##### **4.1 AQURON 1000 PENETRATING CONCRETE FLOOR SEALER**

Location:	Garage Floor
Supplier:	Markham Global Ltd
Brand/type:	AQURON 1000

## **3320 CONCRETE MASONRY- REFER STRUCTURAL ENGINEERS DOCS**

### **1 GENERAL**

REFER TO STRUCTURAL ENGINEERS DOCUMENTATION AND SPECIFICATION

## **3322 ICF INSULATING BLOCKWORK- REFER STRUCT ENG DOCS**

### **1 GENERAL**

REFER TO STRUCTURAL ENGINEERS DOCUMENTATION AND SPECIFICATION

## **3410 STRUCTURAL STEEL- REFER STRUCTURAL ENGINEERS DOCS**

### **1 GENERAL**

REFER TO STRUCTURAL ENGINEERS DOCUMENTATION AND SPECIFICATION

## **3813 ENGINEERED WOOD PRODUCTS- REFER STRUCTURAL ENG DOC**

### **1 GENERAL**

REFER TO STRUCTURAL ENGINEERS DOCUMENTATION AND SPECIFICATION

## 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 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

#### 1.2 DOCUMENTS

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

<a href="#">NZBC B2/AS1</a>	Durability
<a href="#">AS/NZS 2904</a>	Damp-proof courses and flashings
<a href="#">NZS 3602</a>	Timber and wood-based products for use in building
<a href="#">NZS 3603</a>	Timber structures standard
<a href="#">NZS 3604</a>	Timber-framed buildings
<a href="#">NZS 3622</a>	Verification of timber properties
<a href="#">NZS 3631</a>	New Zealand timber grading rules
<a href="#">NZS 3640</a>	Chemical preservation of round and sawn timber
<a href="#">WorkSafe</a>	<a href="#">Guidelines for the provision of facilities and general safety in the construction industry.</a>

BRANZ BU 673 Cavity battens

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

#### 1.3 DIMENSIONS

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

#### Requirements

#### 1.4 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

## 2 PRODUCTS

#### Materials

#### 2.1 TIMBER FRAMING, TREATED

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

#### 2.2 TIMBER FRAMING, CHEMICAL FREE

Species, grade and moisture content in service as set out in [NZS 3602](#), [NZBC B2/AS1](#).

#### 2.3 APPEARANCE TIMBERS

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

#### 2.4 STRAPPING

Treated to [NZBC B2/AS1](#), [NZS 3602](#), table 1 and to [NZS 3640](#), clause 6.3.1.

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

## 2.5 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.

## 2.6 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 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

## 3.2 ROUTINE MATTERS

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

### 3.3 PRE-INSTALLATION REQUIREMENTS

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

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

Moisture content:

At erection	24% EMC maximum
At enclosure	20% EMC maximum
At lining	16% EMC maximum

### 3.4 PROTECT TIMBER

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

#### **Installation/application**

### 3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Timber framing tolerances shall be in accordance with [NZS 3604](#) Table 2.1 Timber framing tolerances.

### 3.6 SEPARATION

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

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

### 3.7 EXECUTION

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

### 3.8 SET-OUT

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

### 3.9 SET TIMBERS

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

### 3.10 TIMBER CUTTING

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

### 3.11 STRAIGHTENING STUDS

Cutting for straightening to comply with [NZS 3604](#), 8.5.3, Straightening studs.

### 3.12 TIMBER PLATES AND FURRING

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

### 3.13 HOLES AND NOTCHES

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

### 3.14 EXPOSED TIMBER CONNECTORS AND FIXINGS

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

**3.15 POWDER-ACTUATED FASTENING TOOLS**

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

**3.16 ADDITIONAL FRAMING**

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

**3.17 FORM NAILED JOINTS**

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

**3.18 FORM BOLTED JOINTS**

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

**3.19 FIT CONNECTORS AND FIXINGS**

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

**3.20 FIT CAVITY BATTENS**

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

**3.21 FIT 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.

**3.22 DPC TO LOSP TREATED TIMBER**

Refer to 4161 UNDERLAYS, FOIL AND DPC section

**3.23 DPC TO TIMBER**

Refer to 4161 UNDERLAYS, FOIL AND DPC section

**Completion****3.24 COMPLETION MATTERS**

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

**4 SELECTIONS****4.1 FLOOR FRAMING - RADIATA PINE**

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

**4.2 EXTERIOR WALL FRAMING - RADIATA PINE**

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

Jamb battens	Radiata pine	Merch	H3.1
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## 4.3 ROOF FRAMING - RADIATA PINE

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

## 4.4 INTERIOR WALL FRAMING - RADIATA PINE

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

## 4.5 EXTERIOR EXPOSED TIMBER

Member	Species	Grade	Treatment
Posts:	Radiata pine	SG8	H3.2 CCA
Joists:	Radiata pine	SG8	H3.2 CCA
Exterior stairs and steps:	Radiata pine	SG8	H3.2 CCA
Pergola:	Radiata pine	SG8	H3.2 CCA
Ground contact members	Radiata pine	SG8	H5 CCA

Note: All CCA preservative code 01 or 02

## 4.6 CAVITY BATTENS

Cavity battens	Species	Grade	Treatment
Timber - Non Structural	Radiata pine	Merch	H3.1
Cavity closer:	Refer to 4221HV		

**REFER TO 4221HV HERMPAC**

## 4.7 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

## 4.8 NAILS

Location	Type	Material	Finish
All structural fixings sheltered and exposed	Type 304 Stainless Steel		

## 4.9 SCREWS

Location	Type	Material	Finish
All structural fixings sheltered and exposed	Type 304 Stainless Steel		

## 4.10 BOLTS AND COACH SCREWS

Location	Type	Material	Finish
All structural fixings sheltered and exposed	Type 304 Stainless Steel		

## 4.11 NAIL PLATES

Location	Type	Material	Finish
All structural fixings sheltered and exposed	Type 304 Stainless Steel		

## 4.12 CONNECTORS

Location	Type	Material	Finish
All structural fixings sheltered and exposed	Type 304 Stainless Steel		

# 4131M MAPEI MAPELASTIC SMART WATERPROOFING

## 1 GENERAL

REFER TO CUSTOM MAPEI MAPELASTIC SMART SPECIFICATION INCLUDED IN MANUFACTURERS DOCUMENTATION

## 2 SELECTIONS

For further details on selections go to [www.mbpltd.co.nz](http://www.mbpltd.co.nz).  
Substitutions are not permitted to the following, unless stated otherwise.

### Materials

#### 2.1 MAPEI MAPELASTIC SMART WATERPROOFING

# 4131N NURALITE NURAPLY 3P COVERED TANKING SYSTEMS

## 1 GENERAL

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

It includes:

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

### Documents

#### 1.1 DOCUMENTS

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

[NZS 3604](#) Timber-framed buildings  
CodeMark [CM70033](#) - The Nuraply 3P Waterproof Tanking Membrane system

#### 1.2 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:  
NURALITE NURAPLY 3P Technical Data Sheets  
NURAPLY 3P Covered Membrane Installation Manual 2024  
NURAPLY 3P Covered Check Sheets and Maintenance Programme  
NURALITE Waterproofing Limited: CAD Tanking drawings®

Manufacturer/supplier contact details

Company: **Nuralite Waterproofing Limited**  
Web: [www.nuralite.co.nz](http://www.nuralite.co.nz)  
Email: [info@nuralite.co.nz](mailto:info@nuralite.co.nz)  
Telephone: 09 579 2046 Auckland  
0800 Nuralite (0800 687 254)

### Warranties

#### 1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

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

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

Refer to the general section 1237 WARRANTIES for additional requirements.

#### 1.4 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

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

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

Refer to the general section 1237 WARRANTIES for additional requirements.

### Requirements

#### 1.5 NO SUBSTITUTIONS

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

## 1.6 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

Workers to be licensed by NURALITE Waterproofing Limited. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

### Conditions

## 1.7 EXCAVATION CONDITIONS FOR DAMP-PROOFING

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

## 1.8 EXCAVATION CONDITIONS FOR WATERPROOFING

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

### Performance

## 1.9 COMPLIANCE CODEMARK CERTIFICATE - NURAPLY 3P

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

## 2 PRODUCTS

### Waterproofing

## 2.1 NURALITE UNDERGROUND WATERPROOFING MEMBRANE

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

## 2.2 NURALITE UNDERSLAB AND FOOTINGS WATERPROOFING MEMBRANE

NURAPLY 3PTM reinforced fibre asphalt with a mineral chip face to key into slab. A flexible, tough, waterproofing system applied and joined by traditional NURALITE techniques. Thickness not less than 3mm.

### Components

## 2.3 PRIMER

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

## 2.4 TOP EDGE ANCHOR STRIP

Aluminium or stainless steel anchor strip.

## 2.5 NURADRAIN POLYETHYLENE PROTECTION SHEET

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

## 2.6 NURALITE GREENDRAIN

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

### Accessories

## 2.7 ALUMINIUM TAPE

3M 150mm and 48mm wide aluminium tape.

## 2.8 BITUMEN FILLET

NURALITE triangular fillet.

## 2.9 LEVELLING COMPOUND

NURAFLEX levelling compound.

- 2.10 EXPANDING FOAM  
Holdplast Gorilla Nailpower fire rated expanding foam.
- 2.11 SEALANTS  
IKO Stickall Bitumen or Millennium LPS.
- 2.12 TERMINATION BAR  
NURALITE pre-formed termination bar.
- 2.13 FIXINGS  
NURALITE self-adhesive mechanical fixing.
- 2.14 PENETRATION SEAL  
Lockin Pocket.

### 3 EXECUTION

#### Conditions

- 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS  
Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.
- Store NURALITE waterproofing systems rolls and accessory materials under conditions that ensure no deterioration or damage.
- Store in shade or cover in hot sun. Protect liquid components from freezing.
- 3.2 ROUTINE MATTERS  
Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements. Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.
- 3.3 COMPLY  
Comply with the NURALITE Waterproofing LIMITED requirements and instructions.
- 3.4 STORE  
Store NURALITE waterproofing systems rolls and accessory materials under conditions that ensure no deterioration or damage. Store in shade or cover in hot sun. Protect liquid components from freezing.
- 3.5 WEATHER CONDITIONS  
Apply NURALITE waterproofing systems tanking systems only in fair weather with air temperature above 5°C. Apply adhesives and make site joints only in weather conditions compatible with perfect jointing.
- 3.6 DE-WATERING  
Maintain water level at not less than 300mm below the level of the base concrete during the progress of the tanking work and until protective loading coats and walls are complete and fully set.
- 3.7 DRAINAGE  
Install approved drainage system to remove water from foundations. Ensure drain is protected with geotextile cloth to prevent it clogging with fines, and that it is correctly located, 150mm from the membrane and below the footing.
- 3.8 CHECK SUBSTRATE  
Check that the substrate will allow work of the required standard with adequate safe working space for applicators. Complete any remedial work identified and allow to cure before commencing tanking application.
- 3.9 CURING OF NEW CONCRETE  
Allow concrete and masonry to dry to the NURALITE Waterproofing LIMITED requirements before applying tanking. Minimum curing of new concrete: 28 days. This is not applicable for blockwork or site lean concrete.

#### Application - Preparation

### 3.10 ENSURE SUBSTRATE

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

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

### 3.11 PREPARE SUBSTRATE

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

### 3.12 TURN UPS

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

### 3.13 TURN DOWNS

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

### 3.14 CLEAN SURFACES

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

### 3.15 DRESS OFF HARDFILL SURFACE

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

### 3.16 REMOVE OTHER FORMWORK

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

### 3.17 PRIMING

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

### 3.18 ALLOW PRIMER TO DRY

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

## **Waterproofing application - loose Lay for underslab**

### 3.19 LOOSE LAY NURAPLY 3PTM

Loose lay NURAPLY 3PTM as a damp-proof membrane under a concrete slab and/or footings. The membrane to be laid with mineral chips face up. Ensure the maximum non specific design of hardfill is up to 600mm in depth. Ensure granular fill, sand blinding and compaction to comply with the requirements of [NZS 3604](#).

Take care when placing reinforcing steel to avoid puncture or damage to the NURAPLY 3PTM membrane.

Fully heat weld all sheet joints by gas torch. Ensure all joints are well sealed with a minimum lap of 80mm for sides and 150mm for sheet ends. This is indicated by the presence of a thin bead of melted bitumen at all sheet joints after torching. Ensure excess membrane is provided to fold up beyond the footings.

The tilt slabs or pre-cast concrete must be left to cure for a minimum 4 day period before lifting takes place, to enable the chemical bond between the surface of the membrane and concrete to occur and allow correct curing of concrete. This is critical to the success of the waterproofing membrane.

### 3.20 NURAPLY FLOOR TO WALL JUNCTION

Protrude the under slab NURAPLY 3PTM membrane minimum of 150mm beyond the perimeter of the footing. When wall is struck, bring this portion of membrane up and torch to wall base. Install the wall membrane down over the top to form a sound seal. Ensure the 150mm flap is adequately protected from damage during construction of the walls and that foreign matter is not able to contaminate the critical lap area.

### **Waterproofing application - walls**

#### 3.21 3PT APPLICATION METHOD - WATERPROOFING

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

#### 3.22 WELD NURAPLY 3PT JOINTS

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

### **Application - general**

#### 3.23 ADDITIONAL THICKNESS

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

#### 3.24 SEALING EDGES WITH ANCHOR STRIPS

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

#### 3.25 SECTIONAL COMPLETION

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

#### 3.26 PROTECT VERTICAL SURFACES

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

#### 3.27 PROTECT HORIZONTAL SURFACES

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

#### 3.28 INSTALL NURADRAIN PROTECTION SHEETS

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

#### 3.29 SUPERVISION OF BACKFILLING

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

### **Completion**

#### 3.30 COMPLETION MATTERS

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

#### 3.31 CLEAN UP

Clean up as the work proceeds.

## **4 SELECTIONS**

For further details on selections go to [www.nuralite.co.nz](http://www.nuralite.co.nz). Substitutions are not permitted to the following, unless stated otherwise.

#### 4.1 PRESSURE RATING FOR WATERPROOFING

Designated water pressure head: TBC BY GEOTECHNICAL ENGINEER FOR THIS PROJECT  
For waterproofing systems only (not for damp-proofing systems).

### **Waterproofing - Underslab**

4.2 NURAPLY 3PTM TANKING SYSTEM - UNDERSLAB AND FOOTINGS

Location: Under GF concrete slab- House  
Supplier: NURALITE Waterproofing LIMITED  
Brand: NURAPLY 3PTM

**Waterproofing - underground walls**

4.3 NURAPLY 3PT -SA TANKING SYSTEM - UNDERGROUND WALLS

Location: ICF walls -House  
Supplier: NURALITE Waterproofing LIMITED  
Brand: NURAPLY 3PT

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

## 1 GENERAL

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

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

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

The following definitions apply specifically to this section:

Wall underlay	The same meaning as defined in <a href="#">NZBC E2/AS1</a> , covering kraft based and synthetic wall underlays, sometimes called wall wraps, building wraps or building papers.
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### Documents

### 1.2 DOCUMENTS

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

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

CodeMark [CMNZ30069](#) (Rev I) - Thermakraft Covertex 403 Roof and Wall Underlay

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Thermakraft's Product Data Sheets

Thermakraft's Installation Guides

[BRANZ Appraisal 329](#) (2022) - Supercourse 500 Damp-Proof Course and Concealed Flashing - Amendment 29.08.2023

[BRANZ Appraisal 878](#) (2025) - Thermakraft Aluband Window Flashing Tape

[BRANZ Appraisal 917](#) (2025) - Thermakraft Covertex 403 Roof and Wall Underlay

[BRANZ Appraisal 942](#) (2022) - OneSeal Multi-fit Pipe and Cable Penetration Seals - Amendment 04.06.2024

[BRANZ Appraisal 1000](#) (2023) - Thermakraft Thermabar 397 Light Diffusing Reflective Underlay - Amended 01.07.2025

[BRANZ Appraisal 1104](#) (2020) - Thermathene Orange Concrete Underlay - Amendment 06.09.2024

[BRANZ Appraisal 1122](#) (2020) - Thermaflash Flashing Tape - Amendment 02.09.2024

Manufacturer/supplier contact details

Company: Kingspan Insulation NZ Ltd

Web: [www.thermakraft.co.nz](http://www.thermakraft.co.nz)

Email: [technical@kingspaninsulation.co.nz](mailto:technical@kingspaninsulation.co.nz)

Telephone: 0800 806 595

### Warranties

#### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:  
15 years For Kingspan Thermakraft product range.

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

Refer to the general section 1237 WARRANTIES for additional requirements.

#### Requirements

#### 1.5 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.

#### Compliance information - CodeMark certified

#### 1.7 CODEMARK CERTIFICATE - THERMAKRAFT COVERTEK 403

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

#### Compliance information - BRANZ appraised

#### 1.8 BRANZ APPRAISED - THERMAKRAFT SUPERCOURSE 500

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

#### 1.9 BRANZ APPRAISED - THERMAKRAFT ALUBAND

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

#### 1.10 BRANZ APPRAISED - THERMAKRAFT COVERTEK 403

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

#### 1.11 BRANZ APPRAISED - THERMAKRAFT ONESEAL

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

#### 1.12 BRANZ APPRAISED - THERMAKRAFT THERMATHENE ORANGE

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

## 2 PRODUCTS

### DPC

#### 2.1 THERMAKRAFT SUPERCOURSE 500

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

### DPM

#### 2.2 THERMAKRAFT THERMATHENE ORANGE

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

**Synthetic underlays - fire retardant**

## 2.3 THERMAKRAFT COVERTEK 403

CodeMark certified and BRANZ appraised synthetic roof and wall underlay, white with green logo print, composed of a water resistant vapour permeable film laminated to two layers of non-woven, spun bonded polyolefin sheet. Fire retardant, tested to AS 1530.2 and assigned a Flammability Index of  $\leq 12$ . Available in 1350mm width. Refer to SELECTIONS.

**Components - sealing**

## 2.4 THERMAKRAFT PREMIUM JOINING TAPE

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

## 2.5 THERMAKRAFT ONESEAL

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

## 2.6 THERMAKRAFT CORNER MOULDS

Orange, flexible inert polythene moulded window corner flashing. Refer to SELECTIONS.

## 2.7 THERMAKRAFT ALUBAND

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

**Components - secure strapping/netting**

## 2.8 THERMAKRAFT THERMASTRAP

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

**Fixings**

## 2.9 FIXINGS - TO TIMBER

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

## 2.10 FIXINGS - TO STEEL

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

**3 EXECUTION****Conditions**

## 3.1 DELIVERY, STORAGE &amp; HANDLING OF PRODUCTS

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

## 3.2 ROUTINE MATTERS

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

## 3.3 PRE-INSTALLATION REQUIREMENTS

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

**Installation/application - generally**

## 3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

**Installation - DPC**

## 3.5 INSTALL DPC

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

### **Installation - DPM**

#### **3.6 INSTALL DPM - CONCRETE FLOOR**

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

#### **3.7 APPLY TAPE TO LAPPED DPM JOINTS**

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

### **Installation - wall underlay**

#### **3.8 INSTALL WALL UNDERLAY**

Install wall underlay to the Installation Guide horizontally and in true alignment over exterior face of wall framing including openings. Start by placing first sheet overlapping bearer or bottom plate by 35mm, draw taut and fix at maximum 300mm centres to wall framing members. Install additional sheets in row repeating the process for the first sheet with sheet end laps to be of at least 150mm and occurring over wall framing. Install sheets up to the top of the top plate repeating the installation process for the first row and overlapping higher over lower sheets by at least 150mm.

#### **3.9 INSTALL WALL PENETRATION SEALS**

Ensure wall underlay is free of dust and contaminates, where required clean with a dry cloth. Install penetration seal to the Installation Guide over pipe/conduit with a tight fit. Slide seal over pipe/conduit and place on underlay in a diamond shape. Remove backing release film and push firmly down to fix in place.

### **Installation - secure netting/strapping**

#### **3.10 INSTALL SECURE STRAPPING**

Place straps on underlay, draw taut and fix to framing to the Installation Guide.

### **Preparation of wall underlay for window/door placement**

#### **3.11 FORM OPENINGS**

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

#### **3.12 INSTALL CORNER MOULDS**

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

#### **3.13 FLASHING TAPE APPLICATION - GENERALLY**

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

#### **3.14 APPLY FLASHING TAPE TO SILL**

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

#### **3.15 APPLY FLASHING TAPE TO HEADER**

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

#### **3.16 APPLY FLASHING TAPE ACROSS HEAD/JAMB CORNERS**

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

### Completion

#### 3.17 COMPLETION MATTERS

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

## 4 SELECTIONS

For further details on selections go to [www.thermakraft.co.nz](http://www.thermakraft.co.nz).

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

### DPC

#### 4.1 DPC - THERMAKRAFT SUPERCOURSE 500

Location:	Refer to Drawings
Manufacturer:	Thermakraft
Brand:	Supercourse 500
Type:	Damp proof course
Width:	to suit

### DPM

#### 4.2 DPM - THERMAKRAFT THERMATHENE ORANGE

Location:	Refer to Drawings
Manufacturer:	Thermakraft
Brand:	Thermathene Orange
Type:	Damp proof membrane
Width:	4000mm
Joint tape:	Premium Joining Tape
Maximum UV exposure:	30 days

### Synthetic underlays - fire retardant

#### 4.3 WALL UNDERLAY - THERMAKRAFT COVERTEK 403

Location:	Refer to Drawings
Manufacturer:	Thermakraft
Brand:	Covertek 403
Type:	Synthetic roof and wall underlay
Width:	1350mm
Fixings:	Galvanized Little Grippers or Galvanized 6mm-8mm staples
Maximum UV exposure:	Walls - 42 days Roofs - 7 days

### Components for sealing wall underlay penetrations

#### 4.4 PENETRATION SEAL - THERMAKRAFT ONESEAL

Location:	Refer to Drawings
Manufacturer:	Thermakraft
Brand:	OneSeal
Type:	Pipe and service penetration seal
Size:	to suit

#### 4.5 WINDOW CORNER FLASHING - THERMAKRAFT CORNER MOULDS

Location:	Refer to Drawings
Manufacturer:	Thermakraft
Brand:	Corner Moulds
Type:	Window corner flashing

Fixings: To timber: Staples, Clouts

4.6 200MM FLASHING TAPE - THERMAKRAFT ALUBAND

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

**Components for securing underlays**

4.7 SECURE STRAPPING - THERMAKRAFT THERMASTRAP

Location: Refer to Drawings  
Manufacturer: Thermakraft  
Brand: Thermastrap  
Type: Secure strapping  
Width: 19mm  
Fixings: To timber: min. 8mm staples

# 4171GR GIB WEATHERLINE RIGID AIR BARRIER

## 1 GENERAL

This section relates to the supply and fixing of GIB Weatherline® Rigid Air Barrier to residential and commercial buildings.

It includes;

- GIB Weatherline® Rigid Air Barrier bracing systems
- GIB Weatherline® Rigid Air Barrier fire rated systems

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

AWCINZ                      Association of Wall and Ceiling Industries New Zealand

### Documents

### 1.2 DOCUMENTS

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

NZBC B1/AS1	Structure
NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 3603	Timber structures standard
NZS 3604	Timber-framed buildings
BS EN 13501-1	Fire classification of construction products and building elements - Classification using test data from reaction to fire tests
BRANZ Technical Paper P21	BRANZ Technical Paper P21: A wall bracing test and evaluation procedure (2010)

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

GIB® Site Guide (April 2024)  
 GIB® Noise Control Systems (September 2017)  
 GIB® Fire Rated Systems (September 2024)  
 GIB Ezybrace® Systems (August 2016)  
 GIB Ezybrace® Bracing Design Software  
 GIB Ezybrace® Bracing Supplement Document (December 2016)  
 GIB Weatherline® Rigid Air Barrier Systems Design and Construction Manual (March 2021)  
 GIB Weatherline® Rigid Air Barrier Systems Supplement (November 2021)  
[BRANZ Appraisal 1048](#) (2025)- GIB Weatherline® Rigid Air Barrier Systems

Manufacturer/supplier contact details

Company:                      Winstone Wallboards

Web:                              [www.gib.co.nz](http://www.gib.co.nz)

Telephone:                      0800 100 442

### Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years                      For GIB® products and/or systems for a minimum of 10 years from the date of purchase

- 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:  
TBC years For TBC

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

Refer to the general section 1237 WARRANTIES for additional requirements.

### Requirements

## 1.6 QUALIFICATIONS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

## 1.7 NO SUBSTITUTIONS

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

### Compliance information

## 1.8 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

- Applicators approval certificate from the manufacturer / importer / distributor
- 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 - Fire

## 1.9 EXTERNAL FIRE SPREAD - NON-COMBUSTIBLE MATERIAL

GIB Weatherline® classifieds as A1 in accordance with BS EN 13501-1.

### Performance - General

## 1.10 BRACING SYSTEM

The GIB Weatherline® Rigid Air Barrier bracing system provides bracing resistance for walls for light timber framed buildings under wind and earthquake loading to [NZBC B1](#) Structure, and to [NZS 3603](#) Timber Structures Standard. Refer to table for summary of P21 Ratings for 2.4m or 2.7m high wall elements.

Provide braced wall systems using the GIB Weatherline® Rigid Air Barrier bracing system to meet the requirements of [NZS 3604](#) when tested to BRANZ Technical Paper P21. Refer to drawings for location and type.

Structural Bracing Systems:

Bracing unit ratings for elements that incorporate GIB Weatherline®

Spec	Minimum length	Lining requirements	Other requirements	BU/m	
				W	EQ
GSW-N	0.4m	Internal lining: Any 10mm or 13mm GIB® plasterboard Exterior sheathing: 10mm or 13mm GIB Weatherline®	None	85	75
GSW-N	1.2m	Internal lining: Any 10mm or 13mm GIB® plasterboard Exterior sheathing: 10mm or 13mm GIB Weatherline®	None	95	85

GSW-H	0.4m	Internal lining: Any 10mm or 13mm GIB® plasterboard Exterior sheathing: 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	90	85
GSW-H	1.2m	Internal lining: Any 10mm or 13mm GIB® plasterboard Exterior sheathing: 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	130 timber floors	110
W-H	0.4m	Internal lining: None Exterior sheathing: 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	105	100
W-H	1.2m	Internal lining: None Exterior sheathing: 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	125 timber floors	105
BLW-H	0.4m	Internal lining: 10mm or 13mm GIB® Braceline® GIB Noiseline® Exterior sheathing: 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	105	115
BLW-H	1.2m	Internal lining: 10mm or 13mm GIB® Braceline® GIB Noiseline® Exterior sheathing: 10mm or 13mm GIB Weatherline®	Panel hold-down fixings	150 timber floors	145 timber floors

### 1.11 BRACING REQUIREMENTS

Braced wall systems to [NZS 3604](#) when tested to BRANZ Technical Paper P21, using:

- GIB Ezybrace® Systems and/or GIB Ezybrace® Bracing Software

Refer to drawings for location and type.

### 1.12 FIRE RATED SYSTEM

Provide GIB Weatherline® Rigid Air Barrier fire rated system. Refer to SELECTIONS for system/FRR.

Fire Rated Systems:

#### One-way FRR - Timber or steel frame

Specification	LB/NLB	Insulation	FRR	Lining requirements
GWUW 30	LB	optional	30/30/30	2 x 10mm GIB Weatherline® one side
GWUW 60	LB	optional	60/60/60	2 x 13mm GIB Weatherline® one side

#### Two-way FRR - Timber frame

Specification	LB/NLB	Insulation	FRR	Lining requirements
GWTLE 30	LB	optional	30/30/30	Internal: 10mm GIB Fyrelime® Exterior: 10mm GIB Weatherline®
GWTLE 60a	LB	optional	60/60/60	Internal: 13mm GIB Fyrelime® Exterior: 13mm GIB Weatherline®
GWTLE 60b	LB	optional	60/60/60	Internal: 10mm GIB Fyrelime® Exterior: 2/10mm GIB Weatherline®
GWTLP 30	LB	optional	30/30/30	10mm GIB Weatherline® both sides
GWTLP 60	LB	optional	60/60/60	13mm GIB Weatherline® both sides
GWTE120	NLB	optional	-/120/120	Internal: 2 x 13mm GIB Fyrelime® Exterior: 2 x 13mm GIB Weatherline®

#### Two-way FRR - Steel frame

Specification	LB/NLB	Insulation	FRR	Lining requirements
GWSE 60	NLB	optional	-/60/60	Internal: 13mm GIB Fyrelime® Exterior: 13mm GIB Weatherline®
GWSP 60	NLB	optional	-/60/60	13mm GIB Weatherline® both sides
GWSE120	NLB	optional	-/120/120	Internal: 2 x 13mm GIB Fyrelime® Exterior: 2 x 13mm GIB Weatherline®

#### Two-way FRR - Steel frame external wall with thermal break

Specification	LB/NLB	Insulation	FRR	Lining requirements
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GWSET 60	NLB	optional	-/60/60	Internal: 13mm GIB Fyreline® Exterior: 13mm GIB Weatherline®
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### Fire-rated protection of Columns and Beams

Specification	FRR	Strapping Type	Lining Requirements; steel, timber & concrete columns & beams
GWCBT15	15/-/-	Timber cradle	1 x 13mm GIB Weatherline®
GWCBT30	30/-/-	Timber cradle	2 x 10mm GIB Weatherline®
GWCBT60	60/-/-	Timber cradle	2 x 13mm GIB Weatherline®
GWCBS15	15/-/-	Steel clip & channel	1 x 13mm GIB Weatherline®
GWCBS30	30/-/-	Steel clip & channel	2 x 10mm GIB Weatherline®
GWCBS60	60/-/-	Steel clip & channel	2 x 13mm GIB Weatherline®

## 2 PRODUCTS

### Materials

#### 2.1 GIB WEATHERLINE® RIGID AIR BARRIER

Exterior grade, glass-fibre fleece wrapped modified gypsum core sheet.

Meets NZBC requirements for Rigid Air Barriers as an Alternative Solution Proprietary System as per [NZBC E2/AS1.9.1.4](#), and [9.1.7.2](#) and Table 23.

Complies with [NZBC B2/AS1](#) Durability.

Sizes;

Standard lengths:	2750mm and 3000mm (2450 available but in 10mm thickness only)
Width:	1200mm
Thicknesses:	10mm and 13mm
Colour:	Purple

### Components

#### 2.2 SCREWS

GIB® Grabber® 41mm x 6g Ceramic Coated High Thread Screws.

GIB® Grabber® 63mm x 8g Ceramic Coated High Thread Screws.

GIB® Grabber® 32mm x 8g Ceramic Coated Drill Point Screws.

GIB® Grabber® 47mm x 8g Ceramic Coated Drill Point Screws.

Refer to GIB® requirements for appropriate details.

#### 2.3 GIB WEATHERLINE® FLASHING TAPE

Flashing tape available in 30mm, 60mm, 100mm, 150mm and 200mm widths x 30m roll length.

#### 2.4 GIB WEATHERLINE® SILL TAPE

Sill tapes available in 150mm and 200mm widths x 20m roll length.

#### 2.5 BRACING HOLD-DOWN CONNECTORS

GIB HandiBrac® hold-down brackets manufactured by Mitek™ NZ complete with mechanical fastener with a minimum 15kN uplift capacity for concrete floors and 150 x 12mm dia galvanized coach screw for timber floors.

#### 2.6 FIRE/ACOUSTIC SEALANT

GIB Fire Soundseal® ultra low VOC, multi use fire and acoustic sealant that resists passage of smoke and fire.

#### 2.7 GAP FILLER

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

## 3 EXECUTION

### Conditions

### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

### 3.2 ROUTINE MATTERS

Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.

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

### 3.3 PRE-INSTALLATION REQUIREMENTS - TIMBER FRAMING

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

Framing substrates shall be in accordance to AS/NZS 2589 and Weatherline® Rigid Air Barrier Systems requirements. Refer to GIB® Site Guide.

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

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

### 3.4 PRE-INSTALLATION REQUIREMENTS - STEEL FRAMING

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

Framing substrates shall be in accordance to AS/NZS 2589 and Weatherline® Rigid Air Barrier Systems requirements. Refer to GIB® Site Guide.

## Installation

### 3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

### 3.6 SCREW AND TAPE INSTALLATION

Fix GIB Weatherline® Rigid Air Barrier System in accordance with GIB Weatherline® Rigid Air Barrier Systems Specification and Installation Manual.

### 3.7 BOARD ORIENTATION

Minimise joints by careful sheet layout using the largest sheet sizes possible. Sheets may be installed vertically or horizontally, however horizontal fixing is not acceptable when Structural Bracing or Fire Rated Systems are specified. Refer to GIB Weatherline® Rigid Air Barrier Systems Specification and Installation Manual.

### 3.8 INSTALL FLASHING AND SILL TAPE

Install flashing and sill tape in accordance with GIB Weatherline® Rigid Air Barrier Systems Specification and Installation Manual.

### 3.9 LINING WALLS AND CEILINGS GENERALLY

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

### 3.10 FORM BRACING SYSTEMS

Form bracing systems in accordance with GIB Weatherline® Rigid Air Barrier Systems Design and Construction Manual and GIB Ezybrace® Systems.

### 3.11 BRACING SYSTEM HOLD DOWN

Use GIB HandiBrac® hold-down connections at each end of bracing element. Refer to the installation instructions supplied with connectors for correct bolt types to be used for either concrete or timber floors. Within the length the bracing element, bottom plates are fixed to the requirements of [NZS 3604](#).

### 3.12 FORM FIRE RATED SYSTEMS

Form fire rated systems in accordance with GIB Weatherline® Rigid Air Barrier Systems Design & Construction Manual and GIB Weatherline® Rigid Air Barrier Systems Supplement.

## Finishing

## 3.13 FINISHING GENERALLY

To GIB® Site Guide (September 2018) and [AS/NZS 2589](#).

**Completion & Commissioning**

## 3.14 COMPLETION MATTERS

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

## 3.15 COMPLETION - TESTS &amp; CERTIFICATION

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

**4 SELECTIONS****GIB Weatherline® Rigid Air Barrier**

## 4.1 SCREW &amp; TAPE NZS 3604 - GIB WEATHERLINE RAB

Location: refer drawings  
 Product Weatherline® Rigid Air Barrier  
 Sheet length: 3000mm  
 Sheet width: 1200mm  
 Thickness: 10mm

## 4.2 GIB WEATHERLINE RAB BRACING SYSTEM- REFER STRUCTURAL ENG

## 4.3 GIB WEATHERLINE RAB 2-WAY FIRE RATED SYSTEM GWTL 30 (10MM FYRELINE INT, 10MM WEATHERLINE EXT)

Specification Number	LB/NLB	Insulation	FRR	Lining Requirements
GWTL 30	LB	optional	30/30/30	Internal lining: 1 x 10mm GIB Fyrelite®. Exterior Sheathing: 1 x 10mm GIB Weatherline®

## 4.4 GIB WEATHERLINE -FIRE RATED SOFFIT SYSTEM GWUC 30 (13MM WEATHERLINE)

Specification Number	LB/NLB	Insulation	FRR	Lining Requirements
GWUC 30	LB	refer details	30/30/30	1 x 13mm GIB Weatherline®

**Components**

## 4.5 GIB WEATHERLINE FLASHING TAPE

Brand/type: GIB Weatherline® flashing tape  
 Width: to suit

## 4.6 GIB WEATHERLINE SILL TAPE

Brand/type: GIB Weatherline® sill tape  
 Width: to suit

# 4221HV HERMPAC VERTICAL WEATHERBOARD CLADDING SYSTEM

## 1 GENERAL

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

- Vertical Shiplap weatherboards
- Fascia
- Mouldings
- Proprietary flashing systems
- Vertical Shiplap 'Vertibat' cavity batten systems

### 1.1 RELATED WORK

Refer to 4383H Hermpac Decking  
Refer to 6743FB Zone FireZone Vanguard Timber Fire Treatment

### 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:

[PEFC](#) Programme for the Endorsement of Forest Certification

### Documents

### 1.3 DOCUMENTS

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

[NZBC E2/AS1](#) External moisture  
[NZS 3602](#) Timber and wood-based products for use in building  
[NZS 3604](#) Timber-framed buildings  
[NZS 3617](#) Profiles of weatherboards, fascia boards and flooring  
JAS-ANZ CodeMark Certification [CMNZ30036](#) - Hermpac VertiLine Vertical Shiplap Weatherboard Cavity System

### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

#### [Hermpac Construction Drawings](#)

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

#### [Hermpac Standard and Custom profiles](#)

[Hermpac Profile Portfolio](#)

[Hermpac Grade descriptions](#)

[Hermpac Nail/Screw fixings](#)

[Hermpac Legal and / or Sustainable Certification](#)

[Machinecoat - Flood Coat Inundation versus Spray Application](#)

Maintenance of selected Wood Oil/Oil Based Stain Finishes

[Hermpac WRC Information Sheet – cuts and characteristics](#)

[BRANZ Appraisal 650](#) - Hermpac VertiLine Vertical Shiplap Weatherboard Cavity System

Manufacturer/supplier contact details:

Company: **Hermpac Ltd**

Contacts: Kyle Deans - 021 771 857, [kyle.deans@hermpac.co.nz](mailto:kyle.deans@hermpac.co.nz)  
Carmen Hansen - 027 809 4588, [carmen@hermpac.co.nz](mailto:carmen@hermpac.co.nz)

Web: [www.hermpac.co.nz](http://www.hermpac.co.nz)

Email: [technical@hermpac.co.nz](mailto:technical@hermpac.co.nz)

Telephone: 09 421 9840 Auckland  
04 586 9674 Wellington  
03 341 2163 Christchurch

## Warranties

### 1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years

For installation of Hermpac vertical weatherboard cladding systems

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

Refer to the general section 1237 WARRANTIES for additional requirements.

## Requirements

### 1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

## Compliance information

### 1.7 CODEMARK CERTIFICATE

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

### 1.8 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

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

## Performance

### 1.9 FIXINGS, WIND

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

### 1.10 PERFORMANCE

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

## 2 PRODUCTS

### Materials

#### 2.1 WESTERN RED CEDAR

Hermpac Canadian Western Red Cedar (*Thuja plicata*) supplied from sustainably managed forests of British Columbia, Canada and available with [PEFC](#) certification.

#### 2.2 VERTICAL SHIPLAP

Weatherboards to Hermpac profiles, Lap and Rebate details to BRANZ BU 411 and general design to the [NZS 3617](#), species and grading to [NZS 3602](#), table 2, reference 2A.1, Requirements for wood-based building components to achieve a 15-year durability performance. Weatherboards in lengths relevant to profile selection and application, with all unsound and open split knots excluded by cross cut removal prior to fixing into position.

Acceptable Solution is limited to the following types of weatherboards and their derivatives:

- Vertical Standard Shiplap and Hermpac Custom Profiles

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

#### 2.3 COVER BOARDS, SMART CORNERS, MOULDINGS AND SCRIBERS

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

## 2.4 FASCIA BOARDS

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

## 2.5 WALL UNDERLAYS

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

## 2.6 VERTIBAT WRC EXTERIOR CAVITY WALL BATTENS - NON STRUCTURALLY FIXED

Vertibat Western Red Cedar 18mm deep x 45mm wide castellated and double bevelled cavity battens.

## 2.7 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

Aluminium, PVC or stainless steel cavity closure strip, punched with 3mm-5mm holes or slots to provide a minimum ventilation opening area of 1000mm<sup>2</sup> per lineal metre of wall. Length and width to suit cavity. To [NZBC E2/AS1](#): clause 9.1.8.3 and figure 66.

### Components

## 2.8 NAILS, STAINLESS STEEL OR 2.10

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

## 2.9 SCREWS, STAINLESS STEEL

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

## 2.10 CLINCH NAILS, STAINLESS STEEL

Hermpac proprietary 40 x 2.0mm, 50 x 2.0mm and 27 x 2.0mm Clinch Nail, Annular Grooved Grade 316 Stainless Steel.

## 2.11 FLASHINGS GENERALLY

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

## 2.12 SEALANT

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

### Finishes

## 2.13 FACTORY PRE-FINISHING - MACHINECOAT (NZ) - PENETRATING WOOD OIL

Flood Coat Inundation: Factory application of selected oil-based stain finishes by flood inundation and enhanced penetration of timber surface by roller pressure and fibre saturation.

Refer to: [www.hermpac.co.nz/our-products/coatings](http://www.hermpac.co.nz/our-products/coatings)

Dryden Wood Oil: Penetrating wood oil, standard and custom colour range.

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

## 2.14 SITE APPLICATION OF WOOD OIL

All Hermpac weatherboard cladding systems will arrive on site with a minimum of one coat factory finish. Additional coat/s will be required to achieve the desired look. Ensure site coating applications are to coating manufacturers specifications. All Hermpac weatherboards and mouldings must be coated with a specified coating system on all bare surfaces and ends must be minimum double sealed prior to installation. Refer to SELECTIONS.

## 3 EXECUTION

## Conditions

### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

### 3.2 ROUTINE MATTERS

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

### 3.3 PRE-INSTALLATION REQUIREMENTS - TIMBER FRAMING

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

#### Application - generally

### 3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

### 3.5 APPLICATION GENERALLY

Application in accordance with Hermpac Installation Specifications.

#### Application - preparation

### 3.6 SITE STAINING - WOOD OIL

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

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

#### Application - vertical cladding over cavity battens

### 3.7 VERTIBAT V8/V9 WRC DRAINED CAVITY / NON STRUCTURALLY FIXED

Install 18mm minimum thickness drained cavity. Fit Vertibat V8/V9 WRC cavity battens horizontally over wall underlay to wall framing, centred over nogs at 400mm - 480mm vertical centres with top edge sloping away from wall underlay and nail tack in place.

### 3.8 CAVITY CLOSER / VERMIN PROOFING

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

### 3.9 PENETRATIONS

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

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

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

### 3.10 SET-OUT

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

#### **Application - fixing**

### 3.11 FIXING - OIL / STAIN FINISH

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

### 3.12 FIXING/FINISH - WIND ZONE

Hermpac Western Red Cedar fixed with Stainless Steel Hermpac Crown, Rose and Flat Head nails or Hermpac Starcap screws are limited to use in [NZS 3604 Wind Zones](#) up to and including Extra High when dwangs or structurally fixed Vertibat cavity battens are at maximum 480mm centres.

Refer to [Hermpac Construction Drawings](#) for fixing details and to SELECTIONS for fixing sizes.

### 3.13 FIXING VERTICAL SHIPLAP WEATHERBOARDS

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

Using a Hermpac specialty clinch nail, prior to the next row of Vertical Shiplap boards being fixed alongside (nogs or dwangs at maximum 480mm centres) and at a position hard up against but not into the hidden lap board edge at every fixing point, restrain the hidden lap tongue by driving the clinch nail into the cavity batten so that the clinch head settles flush into the weatherboard's surface.

The clinch nail head must not sit proud of the timber surface nor prevent the correct separation of each adjacent row of boards. Do not pin laps or weatherboard faces.

Refer to [Hermpac Construction Drawings](#) and Installation Specification for suitable face fixings (options include Hermpac Grade 316 Stainless Steel nails or Starcap screws. Correct placement of fixings, size, length and minimum penetration requirements, and for external and internal corner construction and fixing details.

### 3.14 INSTALL FLASHINGS

Install flashings, covers and soakers as detailed on the drawings and to [NZBC E2/AS1](#).

### 3.15 SEALANT

Coated weatherboards laid over Mill Finish Grade 316 Stainless Steel:

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

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

### 3.16 COMPLETE

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

#### **Completion & Commissioning**

### 3.17 COMPLETION MATTERS

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

## 4 SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise. Contact [technical@hermpac.co.nz](mailto:technical@hermpac.co.nz) for assistance or more information.

### 4.1 HERMPAC WESTERN RED CEDAR

Product: Hermpac Western Red Cedar products  
 Timber Species: Western Red Cedar  
 Origin : British Columbia Canada  
 Chain of Custody: PEFC certified

### 4.2 HERMPAC - VERTICAL SHIPLAP

Location: L2  
 Species: Western Red Cedar  
 Grade: HERMPAC Premium Clears No.1 (PC1)  
 Profile Number/Series: CP1739  
 Profile type: Vertical Shiplap  
 Cover dimensions: 115mm  
 Thickness: 18.5 mm  
 Cavity Fixing system: Drained 18mm -WRC Cavity batten  
 Surface finish: Band Sawn Face (BSF)  
 Moisture content: ≤18 % at fixing

### 4.3 HERMPAC - VERTICAL SHIPLAP- FIRE RATED

Location: L2- refer to drawings  
 Species: Western Red Cedar  
 Grade: HERMPAC Premium Clears No.1 (PC1)  
 Profile Number/Series: CP1739  
 Profile type: Vertical Shiplap  
 Cover dimensions: 115mm  
 Thickness: 18.5 mm  
 Cavity Fixing system: Drained 18mm -with FireZone Vanguard FP to achieve Type A fire rated cladding-WRC Cavity batten  
 Surface finish: Band Sawn Face (BSF) with FireZone Vanguard FP Type A fire rating system- timber machined, then fire rated, then coated via Machinecoat Ltd  
 Moisture content: ≤18 % at fixing

### 4.4 HERMPAC SMART CORNERS & SCRIBERS

Location: L2 - refer drawings  
 Species: Western Red Cedar  
 Grade: HERMPAC Premium Clears No.1 (PC1)  
 External Corner Mould: TBA  
 Internal Corner Mould: TBA  
 Scriber: HP11 - HP18 - TBA  
 Surface finish: Band Sawn Face (BSF)  
 Moisture content: ≤18% at fixing

### 4.5 HERMPAC SMART CORNERS & SCRIBERS- FIRE RATED

Location: L2 - refer drawings  
 Species: Western Red Cedar  
 Grade: HERMPAC Premium Clears No.1 (PC1)  
 External Corner Mould: TBA  
 Internal Corner Mould: TBA  
 Scriber: HP11 - HP18 - TBA  
 Surface finish: Band Sawn Face (BSF)  
 Moisture content: ≤18% at fixing

### 4.6 WEATHERBOARD FASTENINGS - STAINLESS STEEL NAILS - WOOD OIL FINISH

Nails: Rose Head  
 Type: Grade 316 stainless steel  
 Size: 75mm x 3.25mm or length to achieve 30mm min. penetration into nog (refer HC-SHIP-410)

#### 4.7 WEATHERBOARD FASTENINGS - STAINLESS STEEL SCREWS - WOOD OIL FINISH

Screws: Hermpac Starcap  
 Type: Grade 316 stainless steel  
 Size: 65mm x 4.5mm or length to achieve 21mm min. penetration into nog (refer HC-SHIP-410S)

#### 4.8 LAP FASTENINGS - CLINCH NAILS

Nails: Clinch nails  
 Type: Grade 316 stainless steel  
 Size: 40mm x 2.0mm or 27mm x 2.0mm if RAB system being used

#### 4.9 VERTIBAT V8/V9 WRC CAVITY BATTENS

Product: Vertibat V8/V9 WRC  
 Timber species: Western Red Cedar (FJ)  
 Size: 45mm wide x 18mm thick x 2700mm long  
 Fixings: As per Hermpac installation specification

#### 4.10 VERTIBAT V8/V9 WRC CAVITY BATTENS - FIRE RATED

Product: Vertibat V8/V9 WRC  
 Timber species: Western Red Cedar (FJ)  
 Size: 45mm wide x 18mm thick x 2700mm long  
 Fixings: Stainless steel 50mm or 60mm x 2.8mm finishing brads

#### 4.11 HERMPAC CAVITY CLOSER

Brand/type: Sigma cavity closure  
 Material: Aluminium

#### 4.12 HERMPAC CAVITY CLOSER- FIRE RATED AREA

Brand/type: Sigma cavity closure  
 Material: Stainless

#### 4.13 HERMPAC INTERNAL AND EXTERNAL CORNER BACK FLASHINGS

Material: Aluminium  
 Size: To suit external and internal corner details  
 Length: 2.4 or 3.0m available  
 Type: Unhemmed or Hemmed - must use hemmed in EH wind zones  
 External Options: New extruded aluminium corners, HPX-16, 17 and 18, supplied raw. Can be powder coated - responsibility of the contractor

#### 4.14 HERMPAC INTERNAL AND EXTERNAL CORNER BACK FLASHINGS- FIRE RATED

Material: Stainless Steel  
 Size: To suit external and internal corner details  
 Length: 2.4 and 3.0m available  
 Type: Unhemmed or Hemmed - must use hemmed in EH wind zones  
 External Options: New extruded aluminium corners, HPX-16, 17 and 18, supplied raw. MUST BE powder coated - responsibility of the contractor

#### 4.15 SEALANT

Primer: Options as per Hermpac Installation Specification  
 Sealant: Options as per Hermpac Installation Specification

#### 4.16 FACTORY FINISH - WOOD OIL - FLOOD COAT INUNDATION

Brand: Machinecoat (NZ) Ltd  
 Product: Dryden Wood Oil  
 Coating process: Machinecoat (NZ) Ltd. Flood Coat Inundation  
 Colour: TBA

Factory coats: One  
 Process: Timber to be profiled and then coated via Machinecoat. Cut ends and exposed end grain coated during installation and one further coat applied on-site post installation, at the appropriate time - refer Dryden datasheet and maintenance guide.

#### 4.17 FACTORY FINISH - WOOD OIL - FLOOD COAT INUNDATION - FIRE RATED TIMBER

Brand: Machinecoat (NZ) Ltd  
 Product: Dryden Wood Oil  
 Coating process: Machinecoat (NZ) Ltd. Flood Coat Inundation  
 Colour: TBA  
 Factory coats: One  
 Process: Timber to be profiled and then delivered to Zone Architectural for fire-treatment. Timber then delivered back to Machinecoat for coating. Cut ends and exposed end grain coated during installation and one further coat applied on-site post installation, at the appropriate time - refer Dryden datasheet and maintenance guide.

**IMPORTANT NOTE:** Please ensure Hermpac is made aware of the timber weatherboards and cavity battens that need to be fire-rated. Separate orders will be required for non-fire rated and fire rated timber.

#### 4.18 SITE FINISH - PENETRATING WOOD OIL

Brand: Drydens wood oil  
 Colour: TBA  
 On site manual coats: Refer Manufacturers specifications

## 4224 TIMBER EXTERIOR TRIM

### 1 GENERAL

This section relates to lengths of timber fixed on site, either associated with timber cladding, or used as isolated trim with other wall cladding or soffit materials:

- trim
- fascia boards
- cover boards

#### Related work

#### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

<a href="#">FSC</a>	Forest Stewardship Council
<a href="#">PEFC</a>	Programme for the Endorsement of Forest Certification

#### Documents

#### 1.2 DOCUMENTS

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

<a href="#">NZS 3602</a>	Timber and wood-based products for use in building
<a href="#">NZS 3604</a>	Timber-framed buildings

### 2 PRODUCTS

#### Materials

#### 2.1 TIMBER TRIM

To [NZS 3602](#), treated H3.1 unless durable heart wood, to profiles detailed/scheduled.

#### 2.2 PROPRIETARY TIMBER TRIM

To [NZS 3602](#), treated H3.1.

#### Components

#### 2.3 NAILS, GALVANIZED

60mm x 2.8mm galvanized steel wire jolt/flat/raised head generally. Use other sizes to suit profiles being fixed.

#### 2.4 NAILS, STAINLESS STEEL

60mm x 2.8mm stainless steel wire jolt/flat/raised head generally. Use other sizes to suit profiles being fixed.

#### Finishes

#### 2.5 PRIMER

Water borne acrylic or solvent borne oil-alkyd primer to suit the timber and proposed painting system.

#### 2.6 SEMI-TRANSPARENT STAIN

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

### 3 EXECUTION

#### Conditions

### 3.1 STORAGE

Take delivery of trims undamaged and unmarked and store on site flat and true, under cover, and clear of areas where work is in progress, to ensure materials are of the required standard when fixed in place.

### 3.2 SUBSTRATE

Ensure that the substrate to trims will allow work of the required standard. If it does not, do not proceed until the substrate has been rectified.

#### **Application - preparation**

### 3.3 PRIMING AND SEALING

If not pre-finished before delivery, coat all faces and edges immediately. Then fillet stack trim until fixed. Keep dry and undamaged. Coat to suit the paint system specified in painting section/s. Allow to re-coat if exposed for more than one month before the final coating is applied.

#### **Application**

### 3.4 EXECUTION

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

### 3.5 TIMBER TRIM

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

### 3.6 NAILING, PAINT FINISH

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

### 3.7 NAILING, CLEAR FINISH

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

#### **Completion**

### 3.8 LEAVE

Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following procedures.

### 3.9 PROTECTION

Protect the completed work and make good before any surface finish is applied.

### 3.10 REPLACE

Replace all damaged or marked elements.

### 3.11 REMOVE

Remove debris, unused materials and elements from the site.

## **4 SELECTIONS**

### 4.1 TIMBER TRIM

Manufacturer:	TBC
Species/grade:	Radiata Pine
Treatment:	H3.1
Finish:	Paint

### 4.2 PROPRIETARY TIMBER TRIM: FASCIA

Location:	L1 roof - refer to drawings
Reference:	Ex 200 x 25 - 2 off
Species/grade:	Radiata Pine
Treatment:	H3.1

4.3 Finish: Paint  
PRIMER  
Brand/type: Refer to Resene Paint Specification

# 4231HA JAMES HARDIE AXON PANEL CLADDING

## 1 GENERAL

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

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

LRV: Light Reflectance Value

CLD: Ceramic Low Density

### Documents

### 1.2 DOCUMENTS

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

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

CodeMark Certificate [CMNZ30165](#) - Axon™ Panel Cladding by James Hardie

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Axon™ Panel Timber Cavity Batten Technical Specification March 2024

Axon™ Panel Fixed to Hardie™ CLD™ Structural Cavity Batten Technical Specification March 2024

Axon™ Panel Direct Fixed Technical Specification March 2024

Hardie™ Flex Sheet technical specification

Fire and Acoustic Design Manual by James Hardie, May 2025

[BRANZ Appraisal 1211](#) [2022] - Axon™ Panel Cladding

[BRANZ Appraisal 1285](#) (2025) - James Hardie Fire And Acoustic Wall Systems

Manufacturer/supplier contact details

Company: James Hardie New Zealand Limited

Web: [www.jameshardie.co.nz](http://www.jameshardie.co.nz)

Email: [info@jameshardie.co.nz](mailto:info@jameshardie.co.nz)

Telephone: Ask James Hardie™ on 0800 808 868.

### Warranties

### 1.4 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

- 1.5 NO SUBSTITUTIONS  
Substitutions are not permitted to any specified system, or associated components and products.
- 1.6 SAFE WORKING  
To James Hardie requirements for safe working practices with James Hardie products, particularly with regards to cutting and drilling.
- 1.7 INFORMATION FOR OPERATION AND MAINTENANCE  
Provide relevant James Hardie maintenance requirements at completion of the work.

## Performance - Wind

- 1.8 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

- 1.9 EXTERNAL FIRE SPREAD - CLADDING EXEMPT FROM TESTING  
To [NZBC C/AS1, 5.3 External cladding systems](#) or [NZBC C/AS2, 5.8 External Cladding Systems](#), where external walls are located at a distance greater than or equal to 1.0m from a relevant boundary and a building height less than 10m.

## 2 PRODUCTS

### Materials

- 2.1 WALL UNDERLAY  
Refer to section 4161 UNDERLAYS, FOIL AND DPC.
- 2.2 EXTERIOR CAVITY WALL BATTENS  
Radiata pine battens, minimum 45mm wide and 70mm wide x 18mm thick, H3.1 treated, height to match timber framing studs. To [NZS 3602](#), Table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.
- 2.3 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING  
Perforated uPVC, with upstands.
- 2.4 AXON™ PANEL  
James Hardie Axon™ Panel, face primed shiplap jointed panels, 9.0mm thick, manufactured from cellulose fibre reinforced cement to [AS/NZS 2908.2](#). Refer to SELECTIONS.

### Components

- 2.5 FASTENER TYPE  
Fasteners to minimum durability requirements of the NZBC. Refer to [NZS 3604](#), section 4, **Durability**, for requirements for fixing's material to be used in relation to the exposure conditions.  
Refer to [NZBC E2/AS1](#), Table 20, **Material selection** for fixing material, and [NZBC E2/AS1](#), Table 21, **Compatibility of materials in contact**, for selection of suitable fixing materials and their compatibility with other materials.

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

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

Refer to SELECTIONS.

- 2.6 NAIL - AXON™ PANEL FIXING TO TIMBER CAVITY BATTEN  
65mm x 2.8mm Hardie™ Flex nails

Over flexible wall underlay:  
Refer to SELECTIONS.

### Accessories

#### 2.7 FLASHING TAPES - TIMBER CAVITY BATTEN

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

#### 2.8 ALUMINIUM ACCESSORIES

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

#### 2.9 SEALANT

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

## 3 EXECUTION

### Conditions

#### 3.1 STORAGE

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

#### 3.2 HANDLING

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

#### 3.3 SUBSTRATE

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

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

#### 3.4 SEAL EDGES

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

### Application - generally

#### 3.5 FIX WALL UNDERLAY

Refer to 4161 UNDERLAYS, FOIL AND DPC.

#### 3.6 TIMBER CAVITY BATTENS

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

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

#### 3.7 PENETRATIONS AND FLASHINGS

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

- Wall underlay appropriately incorporated with penetration and junction flashings.
- Materials lapped in a way that water tracks down to the exterior face of the wall underlay.
- Wall underlay to openings finished and dressed off ready for the installation of window and door frames and other penetrations

- Required holes in cladding accurately formed and cut to James Hardie requirements, ensure (if required) services penetration grommets/sleeves/seals/tapes are in place prior to cladding installation.
- Claddings neatly finished off to all sides of openings
- Installation of flashings (those required to be installed prior to installation of penetrating elements).

### **Install Axon™ Panel cladding**

#### 3.8 PANEL LAYOUT

Refer to drawings

#### 3.9 FASTENER - SIZE AND LAYOUT

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

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

#### 3.10 FIXING - TIMBER CAVITY CONSTRUCTION, FLEXIBLE UNDERLAY

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

#### 3.11 GUN NAILING

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

#### 3.12 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 FINISHING

Refer to painting section/s for protective coating system.

### **Completion**

#### 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**

For further details on selections go to [www.jameshardie.co.nz](http://www.jameshardie.co.nz). Substitutions are not permitted to the following, unless stated otherwise.

#### 4.1 TIMBER CAVITY BATTENS

Timber species:	Radiata pine
Treatment:	H3.1
Size:	45mm wide x 18mm thick minimum, height to match framing studs
Batten spacing:	refer to drawings
Fastener type:	40mm x 2.8mm Hardie™ Flex nails
Fastener finish:	316 stainless steel
Fixing centres:	800mm

#### 4.2 JAMES HARDIE AXON PANELS - SHEET CLADDING PANELS

Brand/type: James Hardie Axon Panel Smooth

Thickness: 9mm  
Fastener type: 65mm x 2.8mm Hardie™Flex nail over wall underlay  
Fastener finish: 316 Stainless Steel

**Finishing**

4.3 PAINTING

Refer to painting section/s for details.

# 4239JH JAMES HARDIE SOFFITS

## 1 GENERAL

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

- James Hardie Villaboard™ Soffit Lining

### Documents

#### 1.1 ABBREVIATIONS AND DEFINITIONS

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

#### 1.2 DOCUMENTS

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

<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">AS/NZS 1170.2:2011</a>	Structural design actions - Wind actions
<a href="#">AS/NZS 2908.2</a>	Cellulose-cement products - Flat sheet
<a href="#">NZS 3604</a>	Timber-framed buildings

#### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Eaves and Soffits Installation Manual by James Hardie® (Feb 2025)

Fire and Acoustic Design Manual by James Hardie, May 2025

James Hardie® Villaboard™ Lining Product Technical Statement

James Hardie® Eaves and Soffit Care and Maintenance

[BRANZ Appraisal 1285](#) (2025) - James Hardie Fire And Acoustic Wall Systems

Manufacturer/supplier contact details

Company: James Hardie New Zealand Limited

Web: [www.jameshardie.co.nz](http://www.jameshardie.co.nz)

Email: [info@jameshardie.co.nz](mailto:info@jameshardie.co.nz)

Telephone: 0800 808 868

### Warranties

#### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years: For lining product and accessories

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

Refer to the general section 1237 WARRANTIES for additional requirements.

### Requirements

#### 1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

#### 1.6 NO SUBSTITUTIONS

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

#### 1.7 INFORMATION FOR OPERATION AND MAINTENANCE

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

James Hardie® Eaves and Soffit Care and Maintenance

## Performance

### 1.8 PERFORMANCE - SPECIFIC DESIGN - WIND

The design wind pressures are to [AS/NZS 1170.2](#), for specific design wind zone (beyond Extra High Wind Zone). Only specifically designed or approved details included in the Contract Documents can be used.

## 2 PRODUCTS

### Materials

#### 2.1 VILLABOARD™ SOFFIT LINING

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

### Components

#### 2.2 FASTENER TYPE

Fasteners to minimum durability requirements of the NZBC. Refer to [NZBC E2/AS1](#), Table 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.

Exposure	Fixing	Fixing Material	Zone
Sheltered	Screw	Stainless steel	B, C, D, E

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

### Components - Villaboard™ Soffit Lining

#### 2.3 INSEAL TAPE

Inseal® 3259, 1.5mm thick x 48mm wide black compressible medium density closed cell foam tape.

#### 2.4 POLYPROPYLENE TAPE

Polypropylene tape, 30mm minimum width.

#### 2.5 CONTROL JOINT

Refer to SELECTIONS.

#### 2.6 HARDIE™ DRIVE SCREW

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

#### 2.7 SEALER

Multiplast resin by Plaster systems

#### 2.8 BASE COMPOUND

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

#### 2.9 JOINT REINFORCING TAPE

52mm wide perforated paper tape.

#### 2.10 BEDDING COMPOUND

Hardie™ Base Coat compound powder.

#### 2.11 FINISHING COMPOUND

Hardie™ Top Coat topping compound premixed.

### Components - General

#### 2.12 FLEXIBLE JOINT SEALANT

Refer to SELECTIONS.

## 3 EXECUTION

## Conditions

### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

### 3.2 ROUTINE MATTERS

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

### 3.3 PRE-INSTALLATION REQUIREMENTS

Check work previously carried out and confirm it is of the required standard for this part of the work.  
Moisture content timber framing: 18% maximum

## Installation/application

### 3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

### 3.5 FIRE RESISTANCE RATING

Install fire rated soffit as part of a James Hardie® FRR exterior system. Refer to project drawings for FRR system construction details and Fire and Acoustic Design Manual by James Hardie® for further information.

## Application - general

### 3.6 SHEET LAYOUT

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

### 3.7 CUTTING SOFFIT CLADDING

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

### 3.8 CIRCULAR HOLE FORMING

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

### 3.9 IRREGULAR HOLE FORMING

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

### 3.10 INSTALL VILLABOARD™ SOFFIT LINING

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

### 3.11 SEAL EDGES

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

### 3.12 CONTROL JOINT

Install control joint to James Hardie® installation manual requirements.

### 3.13 FASTENER - SIZE AND LAYOUT

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

### 3.14 SEALANTS

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

### 3.15 FINISHING OVER DRIVEN FASTENERS

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

### 3.16 VILLABOARD™ JOINT FINISHING - LEVEL 4 FINISH

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

### 3.17 PAINTING

Refer to painting section/s for protective coating system.

#### **Completion**

### 3.18 COMPLETION MATTERS

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

## **4 SELECTIONS**

For further details on selections go to [www.jameshardie.co.nz](http://www.jameshardie.co.nz)  
Substitutions are not permitted to the following, unless stated otherwise.

#### **Materials**

### 4.1 6MM VILLABOARD SOFFIT LINING

Location:	Refer to drawings
Brand/type:	James Hardie® Villaboard™ Soffit Lining
Edge:	Square edge
Thickness/size:	6mm
Joint:	Expressed joint - with Inseal® 3259 sealing strip, up to 10mm max gap between sheets, requires 70mm min. width framing at joint location.
Fixing method:	Screw and adhesive
Fixing Type:	Hardie™ Drive Screw, 316 stainless steel, 30mm x 7g
Adhesive:	Sikaflex-11FC by Sika
Level of Finish:	Level 4

#### **Painting**

### 4.2 PAINTING

Refer to painting section/s for details.

## 4261 BRICK VENEER CLADDING

### 1 GENERAL

This section relates to clay brickwork as a veneer cladding.  
It includes:

- Standard brick veneer cladding
- Proprietary two storey brick veneer system

#### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

CB&PMA                      New Zealand Clay Brick & Paver Manufacturer's Association

The following definitions apply specifically to this section:

Proprietary Two Storey Brick Veneer System      Proprietary system for two storey clay brick veneer construction as contained in [BRANZ Appraisal 690](#) - Two Storey Brick Veneer System.

Proprietary Stack Bonded Brick Veneer System      Proprietary system for stack bonded clay brick veneer construction as contained in [BRANZ Appraisal 1045](#) - Stack Bonded Brick Veneer System.

#### Documents

#### 1.2 DOCUMENTS

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

<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">NZBC B1/AS3</a>	Structure
<a href="#">NZS 1170.5</a>	Structural design actions - Earthquake actions - New Zealand
<a href="#">AS/NZS 2699.1</a>	Built-in components for masonry construction - Wall ties
<a href="#">AS/NZS 2699.3</a>	Built-in components for masonry construction - Lintels and shelf angles (durability requirements)
<a href="#">AS/NZS 2918:2001</a>	Domestic solid fuel burning appliances - Installation
<a href="#">NZS 3103</a>	Sands for mortars and plasters
<a href="#">NZS 3604</a>	Timber-framed buildings
<a href="#">NZS 4210</a>	Masonry construction: materials and workmanship
<a href="#">SNZ HB 4236</a>	Masonry veneer wall cladding
<a href="#">AS/NZS 4455.1</a>	Masonry units, pavers, flags and segmental retaining wall units - Masonry units
BRANZ	Good practice guide: Masonry veneer
CB&PMA TB1	Design Note TB1 Two Storey Clay Brick Veneer Construction - Made Easy
CB&PMA TB2	Design Note TB2 Specification For The Stack Bond Brick Veneer System
<a href="#">ASTM D6134</a>	<a href="#">ASTM D6134</a> / D6134M-07(2019)e1, Standard Specification for Vulcanized Rubber Sheets Used in Waterproofing Systems

#### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

[BRANZ Appraisal 690](#) Two Storey Brick Veneer System - Amended 30 September 2024 (2022)

[BRANZ Appraisal 1045](#) (2019)      Stack Bonded Brick Veneer System - Amended 30 September 2024

Manufacturer/supplier contact details

Company                      TBC

Web:                              TBC

Email:                            TBC

Telephone: TBC

## Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty for:

TBC years: For TBC

Provide the warranty on the manufacturer/supplier's standard form.

Commence the warranty from the date of practical completion of the contract works.

Refer to the general section WARRANTIES for additional requirements.

### 1.5 WARRANTY - INSTALLER

Provide an installer warranty for:

TBC years: For TBC

Provide the warranty on the installer's standard form.

Commence the warranty from the date of practical completion of the contract works.

Refer to the general section WARRANTIES for additional requirements.

## Requirements

### 1.6 QUALIFICATIONS – INDUSTRY QUALIFICATION REQUIREMENTS

Work to be carried out or under supervision of a Licensed Building Practitioner (LBP) with the relevant license class. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

### 1.7 NO SUBSTITUTIONS

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

## Compliance information

### 1.8 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Producer Statement - Construction from the installer of proprietary brick veneer systems.
- Other information required by the BCA in the Building Consent Approval documents.

## Performance

### 1.9 DESIGN PARAMETERS - NON SPECIFIC DESIGN - EARTHQUAKE

Design the installation to the seismic parameters of [NZS 4210](#) Masonry construction: materials and workmanship.

Refer to SELECTIONS for details.

### 1.10 COMPLIANCE - TWO STOREY BRICK VENEER SYSTEM

Brickwork to comply with [BRANZ Appraisal 690](#) - Two Storey Brick Veneer System

## 2 PRODUCTS

### Materials

#### 2.1 CLAY BRICKS

To [AS/NZS 4455.1](#).

#### 2.2 VERMIN PROOFING

Either:

- Proprietary plastic weephole vents built into open perpend.
- Galvanized hexagon 10 mm mesh of 1 mm diameter steel wire 100 mm wide, complete with galvanized steel staples. Fix across base of cavity if gaps in veneer exceed 13 mm.

**2.3 FLASHING - HEAD & SILL**

To [NZBC E2/AS1](#) either:

- 2 ply asphaltic pliable waterproofing membrane to [AS/NZS 2904](#).
- 1.5 mm butyl rubber to [ASTM D6134](#).
- 0.5 mm pliable polyethylene to [AS/NZS 2904](#).
- Proprietary self-adhesive flexible flashing tape to [AS/NZS 2904](#).

**2.4 FLASHING - JAMB**

To [NZBC E2/AS1](#) either:

- 2 ply asphaltic pliable waterproofing membrane to [AS/NZS 2904](#).
- 0.5 mm pliable polyethylene to [AS/NZS 2904](#).
- Proprietary self-adhesive flexible flashing tape to [AS/NZS 2904](#).

**2.5 DAMP-PROOF COURSE (DPC)**

To [NZBC E2/AS1](#) either:

- 2 coats bitumen-based paint to [AS/NZS 2904](#).
- 1.0 mm min. bituminous sheet or heavy kraft strip laminate (saturated and coated with bitumen) to [AS/NZS 2904](#).
- 1.0 mm min. butyl rubber to [ASTM D6134](#).

**2.6 DAMP-PROOF MEMBRANE (DPM)**

0.25 mm min. polythene or polyethylene sheet to [AS/NZS 2904](#).

**Components - general****Components - two storey brick veneer system****2.7 LINTELS**

Steel lintel angles over openings to [AS/NZS 2699.3](#), [BRANZ Appraisal 690](#) and CB&PMA TB1.

**2.8 TIMBER SUPPORT PLATE**

To [BRANZ Appraisal 690](#) Two Storey Brick Veneer System clauses 8.16 - 8.18, H3.2 treated.

**2.9 SHELF ANGLES**

Steel shelf angles at base of veneer or above lower roofs to [AS/NZS 2699.3](#).

**2.10 WALL TIES**

Type EM (Medium Duty Earthquake) to [AS/NZS 2699.1](#). Metal ties screw fixed to framing.

**2.11 REINFORCEMENT**

Galvanized wire joint reinforcement.

**Accessories****2.12 SAND FOR MORTAR**

To [NZS 3103](#). Chloride levels not to exceed 0.04% by dry weight of sand.

**2.13 MORTAR**

Composed of Portland cement, sand and water with an admixture to the provisions of [NZS 4210](#): 2.2 Mortar. Obtain written approval of admixture being used. Obtain written approval if intending to use hydrated lime in the mortar.

**2.14 MORTAR COLOUR**

Add mineral oxide pigment conforming to requirements of [NZS 4210](#), clause 2.2.2.2(f).

**2.15 ADMIXTURES**

To [NZS 4210](#).

**2.16 WATER**

Clean, fresh and free from excess alkali, salt, silt and organic materials.

**3 EXECUTION**

## Conditions

### 3.1 DELIVERY, STORAGE AND HANDLING

To [NZS 4210](#) for aggregates, cement, bricks and reinforcement.  
Take delivery of materials and goods and store on site and protect from weather or damage.  
Protect finished surfaces, edges and corners from damage.  
Move/handle goods in accordance with manufacturer's requirements.  
Reject and replace goods that are damaged or will not provide the required finish.

### 3.2 PRE-INSTALLATION / APPLICATION REQUIREMENTS - CONCRETE BASE

Check vertical and horizontal alignment. Any discrepancies exceeding the permitted tolerances shall be corrected before units are laid.

### 3.3 TIMBER FRAMING - TWO STOREY BRICK VENEER SYSTEM

Check timber framing is minimum 90 mm x 45 mm at 400 mm centres.  
For Two Storey Brick Veneer System gable end trusses are not to be used.

### 3.4 PENETRATIONS

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

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

### 3.5 MEASURE MATERIALS

Measure materials for mortar accurately by weight or volume using suitably calibrated equipment.

### 3.6 WET WEATHER

Keep bricks dry at all times prior to laying. Protect the top row of uncompleted brick walls. Protect freshly laid brickwork during interruption through rain and at completion of each day's work. Protect brickwork for a minimum of 6 hours.

### 3.7 COLD WEATHER CONSTRUCTION

When air temperature is below 5°C take the precautions required by [NZS 4210: 2.18](#) Cold weather construction.

### 3.8 HOT WEATHER CONSTRUCTION

When air temperature is above 25°C or there is a drying wind, or lower temperatures, take the precautions required by [NZS 4210: 2.19](#) Hot weather construction.

### 3.9 KEEP FACE WORK CLEAN

Keep clean during erection and until completion of the contract works. Turn back scaffold boards at night and during heavy rain. Do not rub face work to remove stains.

## Installation - general

### 3.10 STANDARDS AND TOLERANCES

To [NZS 4210](#), table 2.2 Maximum tolerances.  
Refer to the general section CONSTRUCTION for general requirements.

### 3.11 COLOUR MIXING

Check all bricks delivered to site for colour variation, prior to commencing work. Ensure bricks are thoroughly blended from several pallets to ensure an even colour spread throughout the work.

### 3.12 UNIFORMITY

Carry up work with no portion more than 1500 mm above another at any time, raking back between levels.

### 3.13 BONDING

Lay bricks to the required bonding in the various locations. Refer to SELECTIONS/drawings.

### 3.14 PROVIDE WEEPHOLES

Provide weepholes at the bottom of cavities and cells to [SNZ HB 4236](#) and [NZBC E2/AS1, 9.2.6, Cavities](#), and as necessary to drain moisture to the outside air. Provide vent gap at the top of the veneer.

### 3.15 INSTALL VERMIN PROOFING

Either:

- Proprietary plastic weephole vents built into open perpend.
- Fold and staple one edge of the mesh to the substrate, with the mesh sloping down towards the veneer. Set the other edge into the mortar joint by half the thickness of the veneer or 50 mm, whichever is less.

### 3.16 CAVITY VENTILATION

Ventilate to outside air with top and bottom openings to the requirements of [SNZ HB 4236](#) and [NZBC E2/AS1, 9.2.6, Cavities](#). Seal cavity off from roof space.

### 3.17 CAVITY BRICKWORK BELOW GROUND

Fill all cavities below finished grade with concrete. Place a continuous damp-proof course within the first three mortar joints above ground. Seal the face of all brickwork below ground.

### 3.18 FORM OPENINGS

Unless detailed otherwise form openings to typical details from BRANZ Masonry veneer - Good practice guide.

### 3.19 SEPARATION JOINTS

Provide for wall movements of veneer with control joints to [NZS 4210: 2.10 Methods of controlling wall movements](#). Weatherproof as necessary.

### 3.20 FORM REVEALS

Form lintels, jambs and sills as detailed complete with flashings and all ready for following work.

### 3.21 HEAD FLASHINGS

Provide a flexible flashing extending 200 mm beyond ends of the opening and sloping to weepholes over all openings in cavity walls, in accordance with E2/AS1, 9.2.4, **Flashings**.

### 3.22 JAMB FLASHINGS

Provide a flexible flashing to jambs of openings in cavity walls, fully lapped with horizontal damp-proof courses at head and sill, in accordance with E2/AS1, 9.2.4, **Flashings**.

### 3.23 SILL FLASHINGS

Provide a flexible flashing under jointed sills, turned up at back and ends, in accordance with E2/AS1, 9.2.4, **Flashings**.

### 3.24 REBATE DAMP PROOFING

Provide damp-proof course to stepped rebates supporting brick veneer in accordance with E2/AS1, 9.2.5, **Foundation support and damp-proofing**.

## **Installation - two storey brick veneer system**

### 3.25 INSTALL LINTELS

Install lintels for window and door openings in accordance with [BRANZ Appraisal 690 - Two Storey Brick Veneer System](#) and as follows:

- Traditional Steel Angle method - refer to section Steel Lintel Angles clause 8.15.
- Fixing Lintel Angles to the Supporting Frame method refer to section Supporting Bricks Above Roof Lines clause 8.12.
- Timber Lintel method, refer to section Steel-less Openings clauses 8.16, 8.17 and 8.18.
- Precast Reinforced Clay Lintels, refer to manufacturers details.

### 3.26 VENEER ON ANGLES OVER ROOF

Install shelf angles in accordance with [BRANZ Appraisal 690 - Two Storey Brick Veneer System](#), refer to section Supporting Bricks Above Roof Lines clause 8.12.

### 3.27 VENEER ON ROOF FRAMING

Install shelf angles in accordance with [BRANZ Appraisal 690 - Two Storey Brick Veneer System](#), refer to section Supporting Bricks Above Roof Lines clause 8.12.

**3.28 CAVITY WIDTH**

No cavity width less than 40 mm or more than 60 mm.

**3.29 PLACE WALL TIES**

Place wall ties as follows:

Veneers up to 140 kg/m<sup>2</sup> (70 mm thick veneers):

- Horizontally - 400 mm crs into studs
- Vertically - 400 mm crs maximum
- Opening - Within 200 mm of the edge of the all openings
- Shelf Angles - First row within 200 mm of the shelf angle
- Foundation - First row within 400 mm of the rebate

Veneers between 140 kg/m<sup>2</sup> and 180 kg/m<sup>2</sup> (over 70 mm thick veneers):

If using EH (heavy duty) ties, then as above.

If EM ties then as follows:

- Horizontally - 400 mm crs into studs
- Vertically - 400 mm crs into studs up to 3.0 m from foundations, then 300 mm crs max.

Note: If the positioning of ties is beyond the scope of [BRANZ Appraisal 690](#) - Two Storey Brick Veneer System, then the placing of ties should be in accordance with [NZS 4210](#).

**Installation - ancillary work****3.30 BUILD IN FIXINGS**

Build in necessary fixing bricks or blocks for trims.

**3.31 BUILD IN ELEMENTS**

Build in sills, copings, lintels, steps and other elements using mortar similar to that in adjacent walls.

**3.32 BUILD IN DOORS AND WINDOWS**

Build in door and window frames as the work proceeds and bed in mortar similar to that in adjacent work.

**Completion****3.33 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.

**3.34 EFFLORESCENCE, WATER CLEANING**

To remove deposits, brush with a stiff-bristle broom and take away brushings from the locality. Remove remaining deposit with a damp sponge. Wash wall thoroughly with a plentiful supply of clean water. Repeat this process every 4 weeks from appearance through to the completion of the contract works.

**3.35 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.

**3.36 PROTECTION**

Provide the following temporary protection of the finished work:  
TBC

**4 SELECTIONS**

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

**Performance - seismic****4.1 DESIGN PARAMETERS - NON SPECIFIC DESIGN - EARTHQUAKE**

Building seismic zone: 1 (refer to [NZS 4210](#))

**Materials - general****4.2 VERMIN PROOFING**

Location: refer to drawings  
 Brand / type: Contractor to select  
 Size: to suit  
 Finish: 316 stainless steel

#### 4.3 FLASHING - HEAD & SILL

Location: refer to drawings  
 Brand / type: polyethylene membrane  
 Width: refer to drawings  
 Thickness: 0.5 mm

#### 4.4 FLASHING - JAMB

Location: refer to drawings  
 Brand / type: polyethylene membrane  
 Width: refer to drawings  
 Thickness: 0.5 mm

#### 4.5 DAMP-PROOF COURSE (DPC)

Refer to 4161T Thermakraft

### **Materials - two storey brick veneer system**

#### 4.6 CLAY BRICKS FOR TWO STOREY BRICK VENEER SYSTEM

Brand: TBC  
 Size: TBC  
 Laying pattern: stretcher bond  
 Pointing: recessed

#### 4.7 CLAY BRICK SLIPS

Brand: TBC  
 Size: TBC  
 Laying pattern: stretcher bond  
 Pointing: recessed

### **Components - general**

#### 4.8 COLOURING PIGMENTS

Colour: TBC

### **Components - two storey brick veneer system**

#### 4.9 LINTELS

Material / type: Stainless steel  
 Size: refer to drawings

#### 4.10 WALL TIES

Brand / type: Contractor to select/ Type EM (Medium Duty Earthquake)  
 Material: Stainless steel

#### 4.11 REINFORCEMENT

Brand / type: Refer to structural engineer  
 Material: Stainless steel

# 4337E ECOPLY ROOFING & DECKING

## 1 GENERAL

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

- membrane roofs
- membrane decks
- membrane gutters
- substrate for roofing
- substrate for flashing

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

**FSC®** Forest Stewardship Council®

### Documents

### 1.2 DOCUMENTS

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

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

### 1.3 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](http://chply.co.nz)

Email: [info@ecoply.co.nz](mailto:info@ecoply.co.nz)

Telephone: 0800 326 759

### Requirements

### 1.4 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

### 1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any 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.

### 2.2 ECOPLY® FLOORING (T&G) F11/F8 (F8/F5 AS APPLICABLE) GRADE

Radiata pine veneer ply manufactured to [AS/NZS 2269.0](#), face sanded, CD grade with tongue and grooved long edges and H3.2 CCA treated to [AS/NZS 1604.3](#), if required.

## Components

### 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)
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### 2.4 ADHESIVE

Refer to SELECTIONS.

### 2.5 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
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### 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 [chply.co.nz](http://chply.co.nz)

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

#### 4.1 17MM ECOPLY STRUCTURAL ROOFING

Location:	Refer to Drawings
Manufacturer:	Carter Holt Harvey Plywood Ltd
Brand/grade:	Ecoply® Structural / CD
Stress grade:	F8/F5
Thickness:	17mm
Treatment:	H3.2 CCA
Fixings:	Screws Stainless steel

#### 4.2 21MM ECOPLY STRUCTURAL DECKING

Location:	Refer to Drawings
Manufacturer:	Carter Holt Harvey Plywood Ltd
Brand/grade:	Ecoply® Structural / CD
Stress grade:	F8/F5
Thickness:	21mm for decking
Treatment:	H3.2 CCA
Fixings:	Screws Stainless steel

#### 4.3 12MM ECOPLY SUBSTRATE

Location:	Refer to Drawings
Manufacturer:	Carter Holt Harvey Plywood Ltd
Brand/grade:	Ecoply® Structural / CD
Stress grade:	F8/F5
Thickness:	12mm for substrate
Treatment:	H3.2 CCA
Fixings:	Screws Stainless steel

#### 4.4 17MM ECOPLY FLOORING (T&G)

Location:	Refer to Drawings
Manufacturer:	Carter Holt Harvey Plywood Ltd
Brand/grade:	Ecoply® Flooring (T&G) / CD
Stress grade:	Refer to structural engineer
Thickness:	17mm
Treatment:	H3.2 CCA
Fixing:	Screw, stainless steel

4.5 SCREWS

Type/size/material: 10g x 50mm stainless steel screws required by [NZBC E2/AS1](#) for membrane installations.

4.6 ADHESIVE

Type: Refer to Ecoply® Specification and Installation Guide and/or membrane supplier for recommended adhesives.

# 4381NJ NURAJACK DECK SUPPORT SYSTEM

## 1 GENERAL

This section relates to the supply and installation of Nuralite Group Limited NURAJACK height adjustable support systems for floating timber and tile / stone paved decks.

It includes:

- support systems for self-supporting natural stone/concrete pavers
- support systems for self-supporting tiles
- support systems for timber plank and composite decking systems

### Related work

#### 1.1 RELATED SECTIONS

Refer to 4421N NURAPLY 3PM MEMBRANE ROOFING & DECKING for deck membrane specification and details.

#### 1.2 ABBREVIATIONS AND DEFINITIONS

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

The following definition applies specifically to this section:

Self-supporting: Self-supporting tiles/stone/pavers are those individually structurally suitable to span between the deck supports. Sometimes referred to as "structural".

### Documents

#### 1.3 DOCUMENTS

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

NZBC B2/AS1 Durability  
 NZBC E2/AS1 External moisture

#### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

- NURALITE ACCESSORIES NURAJACKS & NURAPADS – Technical Brochure
- NURALITE CAD details
- NURAJACK Placement Graph
- NURAJACK Quantity Calculator
- NURALITE NURAJACK – Installation Video

Manufacturer/supplier contact details

Company: Nuralite Group Limited  
 Web: [www.nurajack.co.nz](http://www.nurajack.co.nz)  
 Email: [info@nuralite.co.nz](mailto:info@nuralite.co.nz)  
 Telephone: 09 579 2046

### Warranties

#### 1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

20 years For Nurajack deck pedestal support materials. Warranty applies only when installed over a Nuralite membrane system.

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

#### 1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:  
2 years For installation

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

## Requirements

### 1.7 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

### 1.8 NO SUBSTITUTIONS

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

## Compliance information

### 1.9 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

- Manufacturer's, importer's or distributors warranty
- Installer's warranty

## 2 PRODUCTS

### Deck support system

#### 2.1 DECK SUPPORT SYSTEM

NURAJACK components comprised of high-density UV resistant polypropylene injection moulding, complying with [NZBC B2/AS1](#) Durability requirements. Complete with all required accessories to complete installation. Refer to SELECTIONS.

### Components - for tiled deck

#### 2.2 NURAJACK SE PEDESTAL

NURAJACK SE, a height adjustable, self-levelling decking pedestal with heads that pivot up to 4.5°. Available in a range of sizes from 28-38mm to 365-550m. Additional height options are available. Refer to SELECTIONS for options.

#### 2.3 NURAJACK PEDESTAL EXTENSION

NURAJACK Pedestal Extension, used to create a greater height in the Nurajack. Fits into size SE3, SE4 and SE5 Nurajack. Refer to SELECTIONS for options.

#### 2.4 NURAJACK STAR.T

NURAJACK Star.T, a small Nurajack adjustable to height 8-15mm. Shims available (1, 2 or 3mm) if levelling required.

#### 2.5 NURAJACK TIMBER JOIST HEAD

NURAJACK Timber Joist Head, located on top of screw adjustable Nurajack SE Pedestal; designed to accept joists to create a timber deck.

#### 2.6 NURAJACK STAR.B

NURAJACK Star.B, a 5mm base installed under NURAJACK Star.T. Can be stacked up to 3 high giving a combined adjustable height of between 8mm and 30mm.

#### 2.7 NURAGRID

500mm x 500mm x 40mm plastic grid designed to support pavers, tiles or turf. Grid features dovetail joints to join units together, and receivers for the Nurajack tile head.

### Accessories - for tiled deck

#### 2.8 NURAJACK SE PEDESTAL

NURAJACK SE, a height adjustable, self-levelling decking pedestal with heads that pivot up to 4.5°. Available in a range of sizes from 28-38mm to 365-550m. Additional height options available. Refer to SELECTIONS for options.

#### 2.9 NURAJACK PEDESTAL EXTENSION

NURAJACK Pedestal Extension, used to create a greater height in the Nurajack. Fits into size SE3, SE4 and SE5 Nurajack. Refer to SELECTIONS for options.

#### 2.10 NURAPAD SHIM

NURAPAD Shim, in sizes 1, 2 or 3mm high. Used to accommodate any variance in thickness in tiles or structural pavers.

#### 2.11 TILE CLADDING SPACER

Tile cladding spacer, a self-adhesive rubber bumper available in sizes 5mm, 10mm and 14mm. Used to maintain a space between tiles and wall, cladding, joinery or balustrade.

#### 2.12 ADJUSTMENT KEY

Adjustment Key, used to adjust Nurajacks without the tiles being lifted. Suitable for minor adjustments.

#### 2.13 NURAJACK VERTICAL CLIP

NURAJACK Vertical Clip, used to hold 20mm tiles in place vertically under a leading edge of a Nurajack. Required where the edge of the deck is exposed or the underside of the deck can be seen through a glass balustrade.

#### 2.14 NURAJACK HEAD LOCKER

NURAJACK Head Locker, designed to clip into place and lock Nurajacks self-levelling head, where smaller cut tiles are installed adjacent to full tiles.

#### 2.15 GORILLA 696 SURFACE ACTIVATOR

Gorilla 696 Surface Activator, a cleaner, degreaser and primer, used to prepare Nuragrid surface before adhering pavers/tiles.

#### 2.16 PU ADHESIVE SEALANT

Polyurethane-based adhesive and sealant, used to adhere structural tiles to the Nuragrid for containment.

#### 2.17 STONE ADHESIVE

Rapid-set stone glue designed for high adhesion and strength applications, is used to adhere non-structural tiles/pavers to the Nuragrid.

### **Components - for timber deck**

#### 2.18 NURAPAD - LOW PROFILE

NURAPAD, a 12mm low profile deck pedestal.

### **Accessories - for timber deck**

#### 2.19 NURAJACK ACOUSTIC SEPARATION PAD

NURAJACK SE Acoustic Pad, a self-adhesive disc adhered to the base of a Nurajack to reduce footfall noise; provides up to a total of 25dB (IIC 25) noise reduction. Can also be used as a separation layer between a Nurajack and membrane when the membrane supplier stipulates.

### **Accessories**

#### 2.20 INSTALLATION - ADHERED NON-STRUCTURAL TILES & PAVERS

Ensure Nuragrid is flat, firm and stable. Check surface with 1.8m straight edge. Apply methylated spirit over the entire Nuragrid surface using a 20mm nap roller or rag and allow to dry. Mark-out paver/tile layout on Nuragrid using a chalk line or laser. Ensure that full pavers/tiles (not cuts) are over any outlets. Back-butter Laticrete 254R stone adhesive to the paver/tile and install using levelling clip system. Allow to cure as specified by the glue manufacturer.

#### 2.21 INSTALLATION - ADHERED STRUCTURAL TILES & PAVERS

Ensure Nuragrid is flat, firm and stable. Check surface with 1.8m straight edge. Apply Soudal 696 Surface Activator over the entire Nuragrid surface using a 20mm nap roller or rag and allow to dry.

Mark-out paver/tile layout on Nuragrid using a chalk line or laser. Ensure that full pavers/tiles (not cuts) are over any outlets. Apply 8mm bead of Soudal 940FC PU adhesive to area for each paver/tile, ensuring the perimeter, diagonals and centre of the pavers/tiles have sufficient adhesion.

Install Nurajack 3mm shims in areas that do not have adhesive, to ensure adhesive is compressed to 3mm. Install paver/tile and press firm. Use Nuragrid Tile Spacer or Nurajack Mini Spacer to corners of pavers/tiles to space them evenly. Install Nurajack Tile Cladding Clips around perimeter as required. Allow to cure for 7 working days at 22 °C. For outlets and other areas that need access, loose-lay the paver/tile over the Nuragrid with additional 3mm shims for support.

## 2.22 INSTALLATION - STRUCTURAL TILES & PAVERS

Ensure Nuragrid is flat, firm and stable. Check surface with 1.8m straight edge. Mark-out paver/tile layout on Nuragrid using a chalk line or laser. Install Nuragrid Tile Spacer or 2mm Nurajack Shim and Nurajack Mini Spacer in the corner of each paver/tile. Install Nurajack Tile Cladding Clip or Tile Cladding Spacer around the perimeter of the deck to restrain pavers/tiles from movement. For areas with no containment, install Nurajack Tile Edge Trim with 10G x 30mm stainless steel wood screws to perimeter. Install vertical pavers/tiles.

## 2.23 SET OUT NURAGRIG

Start installation in one corner of deck. Install first four Nurajack deck pedestals, and intermediate pedestal if required, at the centre cross of set-out. Sit the first Nuragrid module in place and adjust the height of each pedestal so that it aligns with datum in both directions. Add additional Nuragrids, interlocking each with the dovetails. Ensure full grids are over outlets and other accessible areas as required.

### Installation - with Nuragrid

## 2.24 NURAPAD SHIM

NURAPAD Shim, in sizes 1, 2 or 3mm high. Used to accommodate a variance in the timber thickness when using Nurapads.

# 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 - GENERAL

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

## 3.4 PEDESTAL LAYOUT

Before commencing work confirm the proposed setting out of pedestals. Confirm maximum load of pedestal to determine whether intermediate pedestals are required. Ensure pedestal configurations will not impede critical water flows. For tiling/paving consider pattern of tiles, location of cut tiles and other visual considerations of the finished work. Confirm with Nuralite Waterproofing Ltd the minimum cut tile size that can be supported.

### Conditions - over waterproof membrane substrate

## 3.5 PRE-INSTALLATION REQUIREMENT - OVER WATERPROOF MEMBRANES

Before commencing work obtain confirmation from contractor administrator that the installation of the waterproof membrane complies with [NZBC E2/AS1](#). Ensure that the deck support system is not attached to or penetrates the waterproof membrane substrate below.

### Installation - general

## 3.6 INSTALL DECK SUPPORT SYSTEM

Install deck support system and associated decking/paving/tiling in accordance with Nuralite Waterproofing Ltd installation instructions.

### 3.7 PRIOR TO INSTALLATION

Sweep clean waterproof membrane and ensure it is clear of any foreign objects before commencing installation.

### 3.8 NURAJACK PLACEMENT GRAPH FOR TIMBER DECKS

Set out Nurajacks / Nurapads in accordance with Nurajack Placement Graph.

### 3.9 NURAJACKS - QUANTITIES

To determine the number of Nurajacks required refer to Nurajack Quantity Calculator at [www.nurajack.co.nz](http://www.nurajack.co.nz). The number required is a function of the deck dimensions and the size and structure of the tile / timber decking.

## Installation - for tiling and paving systems

### 3.10 SET OUT

Set out for tiling using centre lines in both directions. Commence installation from the centre cross. Confirm whether intermediate pedestals are required.

### 3.11 INSTALL NURAJACK DECK PEDESTAL & TILES

Install first four deck pedestals, and intermediate pedestal if required, at the centre cross of set out. Sit the first tile module in place and adjust the height of each pedestal so that it aligns with datum in both directions. Add the next tile modules by seating one end on the previously laid pedestal and adding new pedestals to opposite end and adjusting height, continue for remainder of tiles until perimeter.

### 3.12 INSTALL PERIMETER TILES

Perimeter pedestals may require the spacer/lug to be cut or ground off prior to placing tiles. Maintaining Nuralite Waterproofing Ltd's required perimeter edge gap, cut the perimeter tiles and install.

### 3.13 FIT TILE CLADDING SPACERS

Fit tile cladding spacers to support and space tiles or pavers at wall perimeter where required, in accordance with Nuralite requirements. Tile Cladding Spacers must be compressed between the tile and vertical surface.

### 3.14 FINAL ADJUSTMENT

Once installation is completed, if further levelling is required, adjust pedestals from above by way of Adjustment Key supplied by Nuralite Waterproofing Ltd.

## Installation - with timber decking

### 3.15 SET OUT

Place pedestals on the substrate; the distance apart will depend on the supporting bearer/joist span, maximum load of pedestal and decking loading capacity. A Nurajack is required at 600mm centres along a 90mm x 45mm joist. If joist is ripped to a thinner profile, more Nurajacks may be required, as per Nurajack Placement Graph.

### 3.16 FIX JOISTS

Fix joist to top of pedestals with self-drilling stainless screws through the plastic upstand of the joist head. Adjust the heights of the pedestals so that the joists are completely level.

### 3.17 INSTALL TIMBER DECKING

Fix timber decking to the joists using stainless steel screws or clips in accordance with manufacturer's requirements. Leave 12mm gap to edge of cladding in accordance with [NZBC E2/AS1: 7.1.1 Slatted decks](#).

### 3.18 SMALLER DECK INSTALLATION

Use Nurajack system to support a ripped joist. Locate Nurapads at intervals in accordance with the Nurajack Placement Graph.

### 3.19 CLEAN OUT MANHOLES / HATCHES

Provide removable screw-fixed access panels at appropriate locations on the deck for cleaning out of sumps and other similar outlets that require servicing.

### Completion

#### 3.20 COMPLETION MATTERS

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

## 4 SELECTIONS

For further details on selections go to [www.nurajack.co.nz](http://www.nurajack.co.nz).  
Substitutions are not permitted to the following, unless stated otherwise.

### Deck support systems - for tiled decks

#### 4.1 NURAJACK DECK PEDESTAL SUPPORT SYSTEM FOR TILES / PAVERS / NATURAL STONE

Location:	Refer to Drawings
Manufacturer:	Nuralite Waterproofing Ltd
Overlay type:	TBC -tiles, pavers or natural stone
Components:	<b>Note: All jack sizes to be verified on site</b>
Accessories:	as required

### Deck support systems - for timber decks

#### 4.2 NURAJACK DECK SUPPORT SYSTEMS FOR TIMBER DECKING

Location:	Refer to Drawings
Manufacturer:	Nuralite Waterproofing Ltd
Components:	<b>Note: All jack sizes to be verified on site</b>
Accessories:	Nurapad Shim (in sizes 1, 2 or 3mm)

### Tiling and paving systems

#### 4.3 TILES / PAVERS / STONE

Refer to tiling and paving sections for specification of self-supporting tiling and paving.

### Timber decking

#### 4.4 TIMBER DECKING

Refer to timber decking sections for specification of timber decking.

## 4383 TIMBER DECKING

### 1 GENERAL

This section relates to the fabrication and installation of exterior timber

- spaced boarding to decks
- steps and landings

#### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

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

#### Documents

#### 1.2 DOCUMENTS

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

NZBC D1/AS1	Access routes
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
BRANZ BU 497	Stair construction

### 2 PRODUCTS

#### Materials

#### 2.1 SOLID TIMBER COMPONENTS

Selection to [NZS 3602](#).

#### 2.2 HARDWOOD SPACED BOARDING FOR EXTERIOR DECKS

Plantation-grown hardwood. Watershed decking.

### 3 EXECUTION

#### Conditions

#### 3.1 GENERALLY

Execution to include those methods, practices and processes contained in the current syllabus for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

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

#### Application

#### 3.2 FABRICATE AND INSTALL TIMBER STEPS

Fabricate and install steps and landings to comply with [NZBC D1/AS1:4.0 Stairways](#), and unless detailed otherwise to BRANZ BU 497.

#### 3.3 LAYING TIMBER SPACED BOARDING - ENCLOSED DECKS

Avoid excessively short or long lengths, drill for all fixings, stagger end joints. Space boards a Minimum of 5mm apart in general conditions. Leave a 12mm minimum gap between the exterior wall and the adjacent decking board.

NOTE: LAY ACCORDING TO MANUFACTURER OF WATERSHED BOARDS SPECIFICATION AND INSTALLATION REQUIREMENTS

**3.4 SCREW FIXING**

Pre-drill for all fixings, where the screws allow, use a proprietary deck pre-drilling and countersinking tool.

Use decking screws and power drive into the deck surface to just slightly below the board surface (approx. 0.5mm). Take care to not overdrive the screw as this may result in the screw heads or the boards being damaged. Refer to SELECTIONS.

**3.5 CORROSION RISKS**

For exterior timber, timber in damp areas and timber subject to occasional wetting, use only stainless steel or silicon bronze, fixings and connectors, if decking or framing 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).

**Completion****3.6 LEAVE**

Leave work to the standard required by following procedures.

**3.7 REMOVE**

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

**4 SELECTIONS****4.1 EXTERIOR HARDWOOD DECKING**

Species:	Vitex
Size:	140mm x 21mm
Type	Watershed decking
Finish:	Dressed

**4.2 STEPS AND STAIRS**

Strings:	Refer to Section 3821 Timber Framing
Treads:	Hardwood Boarding

**4.3 SCREW FIXING**

Location:	refer to drawings
Screw type:	Stainless steel decking screw- Hex Drive screws
Screw size:	65 x 12g

# 4421N NURAPLY 3PM MEMBRANE ROOFING & DECKING

## 1 GENERAL

This section relates to the application of **Nuralite Waterproofing Limited** Nuraply 3PM as a double layer, fully adhered bituminous membrane system with associated components & accessories. It includes:

- Nurathem insulated roof system with Nuraply 3PM membrane over Nuratherm insulation installed over concrete, plywood, strandboard (for roofs only), cross laminated timber or metal tray deck substrates.
- Nuraply 3PM membrane installed directly over concrete, plywood, strandboard (for roofs only) or cross laminated timber substrates.

### 1.1 RELATED WORK

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

### 1.2 DOCUMENTS

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

NZBC B2/AS1	Durability
AS 2122.1	Combustion characteristics of plastics - Determination of flame propagation - Surface ignition of vertically orientated specimens of cellular plastics
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
BRANZ Good practice guide	Membrane roofing
CodeMark <a href="#">CMNZ70032</a> Rev 3 – Nuraply 3PM Torch-on Membrane for Roofs, Decks, Gutters and Parapets	

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Nuralite Waterproofing Limited: CAD drawings  
 Nuraply 3PM Roofing Membrane Installation Manual  
 Nuralite Waterproofing Limited: Substrate Readiness Checklist  
[BRANZ Appraisal 547](#) - Nuraply Roof and Deck Membranes  
[BRANZ Appraisal 732](#) - Nuraply Nuratherm Insulating Roof System

Manufacturer/supplier contact details

Company: **Nuralite Waterproofing Limited**  
 Web: [www.nuralite.co.nz](http://www.nuralite.co.nz)  
 Email: [info@nuralite.co.nz](mailto:info@nuralite.co.nz)  
 Telephone: 09 579 2046 Auckland  
 0800 Nuralite (0800 687 254)

### Warranties

#### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

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

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

Refer to the general section 1237 WARRANTIES for additional requirements.

#### 1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years:

Nuraply applicator to warrant this work under normal environmental and use conditions against failure of materials, waterproofing and execution.

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

Refer to the general section 1237 WARRANTIES for additional requirements.

### Requirements

#### 1.6 NO SUBSTITUTIONS

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

#### 1.7 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

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

#### 1.8 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

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

### Performance - general

#### 1.9 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed Nuraply roofing system, including all penetrations through the roof 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:

- Nuraply roofing applicator
- Nuralite Waterproofing Limited representative
- Contractor
- Principal
- Principal's consultant(s)

#### 1.10 AS APPROVED

"As approved" means that the materials are compatible with Nuraply 3PM roofing and are part of the system required by the roofing supplier for each specific location.

#### 1.11 COMPLIANCE CODEMARK CERTIFICATE - NURAPLY 3PM

Nuraply 3PM Roofing Membrane System meets the requirements of the CodeMark® certificate CodeMark [CMNZ70032](#) when used within the conditions and limitations of its Certificate of Conformity.

### Performance - Wind

#### 1.12 WIND ZONE DESIGN PARAMETERS – LOW TO HIGH

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

### Performance - Nuratherm Insulated roof system

#### 1.13 DURABILITY

Nuratherm insulated roof system complies with [NZBC B2/AS1](#) when maintained to Nuralite Waterproofing Limited requirements.

#### 1.14 ENERGY EFFICIENCY

IKO Nuratherm ALU insulation board has an aged thermal resistance (R Value) of the following:  
40mm R1.80

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

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

## 1.15 FIRE SAFETY

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

## 2 PRODUCTS

### Materials - Nuraply 3PM two layer system

#### 2.1 NURAPLY WATERPROOFING MEMBRANE, FULLY BONDED BASE LAYER

Nuraply 3PB-SA provides a 3mm thick first layer in two layer applications on plywood, timber or Strandboard. Supplied in 1m wide x 10m long rolls.

#### 2.2 NURAPLY WATERPROOFING MEMBRANE, VENTILATED BASE LAYER

Nuraply 3PV-SA single layer, 4mm thick reinforced fibre asphalt waterproofing membrane with film surface for overlaying with Nuraply 3PM. Preferred product for the base sheet waterproofing of new concrete deck areas. Supplied in 1m wide x 10m long rolls.

#### 2.3 NURAPLY WATERPROOFING MEMBRANE, MINERAL FACE TOP LAYER

Nuraply 3PM single layer, 4mm thick reinforced fibre asphalt waterproofing membrane with textured mineral aggregate finish. Top layer over Nuraply 3PB-SA or Nuraply 3PV-SA basesheet. Supplied in 1m x 7.5m long rolls.

### Materials - Nuratherm insulated roof system

#### 2.4 INSULATION BOARD

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

#### 2.5 TAPERED INSULATION BOARDS

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

#### 2.6 VAPOUR BARRIER

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

#### 2.7 NURAPLY WATERPROOFING MEMBRANE, PRESSURE DIFFUSER BASE LAYER

Nuraply 3PV-SA single layer, 3mm thick self-adhesive reinforced fibre asphalt waterproofing membrane with built in vapour pressure diffuser based on a diamond pattern. Used as a base layer for Nuratherm insulated roof system. Supplied in 1m wide x 10m long rolls.

#### 2.8 NURAPLY WATERPROOFING MEMBRANE, MINERAL FACE TOP LAYER

Nuraply 3PM single layer, 4mm thick reinforced fibre asphalt waterproofing membrane with textured mineral aggregate finish. Top layer over Nuraply 3PV-SA basesheet. Supplied in 1m x 7.5m long rolls.

### Components - general

#### 2.9 MS DETAIL

Liquid waterproofing to provide additional waterproofing protection.

#### 2.10 NURADECK BANDAGE SYSTEM

Liquid applied elastomeric, fibre reinforced waterproofing system.

### Components - Nuratherm insulated roof system

#### 2.11 FASTENERS AND WASHERS

Nuratherm IKO Fix Screws and Flange system.

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

### Accessories

#### 2.12 NURATHERM ADHESIVE

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

#### 2.13 ADHESIVES

Nuraflux No. 10, water-based adhesive for bonding NURAPLY roofing systems to plywood substrates, to Nuralite Waterproofing Limited specification.

#### 2.14 PRIMER

Nuraflux QD or Nuraflux WB primer for substrate preparation prior to bonding Nuraply roofing systems to concrete and plywood, to Nuralite Waterproofing Limited specification.

#### 2.15 SEALANT

IKO Stickall Bitumen - high performance bitumen mastic sealant.  
Soudal Gorilla MS - single component elastomeric MS UV stable sealant.

#### 2.16 EXPANDING FOAM

Soudal Gorilla Nailpower fire rated expanding foam.

#### 2.17 DECK SUPPORT SYSTEMS - NURAJACKS & NURAPADS

Refer to 4381NJ NURAJACK DECK SUPPORT SYSTEM for specification.

#### 2.18 ALUMINIUM TAPE

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

#### 2.19 BITUMEN FILLET

Nuralite Triangular.

#### 2.20 PENETRATION SEAL

Lockin Pocket.

#### 2.21 NURALITE FIXING PLATE

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

#### 2.22 OUTLETS

As detailed and rebated into surfaces as required by Nuralite Waterproofing Limited. Refer to SELECTIONS for details.

#### 2.23 NURAPLY DIVERTERS

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

#### 2.24 EDGE TRIM

To Nuralite Waterproofing Limited details and to suit the specific location. Nuratrim aluminium verge trim where detailed.

#### 2.25 GUTTER LIP TRIM

0.55 folded sheet to provide a protected face to insulation board at gutter lip.

#### 2.26 DRIP EDGE

"L" profile 50mm x 50mm

#### 2.27 NURAPLY TERMINATION BARS

Nuraply Aluminium Termination Bars are used to terminate the membrane 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.

- 2.28 CABLE DUCT  
Nuralite Goose Neck
- 2.29 ELECTRONIC LEAK DETECTION - CONDUCTIVE TAPE  
Nuralite Electronic Leak Test Tape, 50mm wide self-adhesive conductive tape.
- 2.30 ELECTRONIC LEAK DETECTION - EARTHING PLATE  
Nuralite Electronic Leak Test Earthing Plate with earthing cable.

### 3 EXECUTION

#### Conditions

#### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

Take delivery of rolls undamaged and include for site handling facilities where required. Stack on end, off the ground on a level surface and with accessories. Store in shade or cover in hot sun. Protect liquid components from freezing.

#### 3.2 ROUTINE MATTERS

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

#### 3.3 GENERALLY

Work and materials to Nuraply 3PM Installation Manual, BRANZ Good practice guide - Membrane roofing, and to Nuralite Waterproofing Limited installation instructions.

#### 3.4 LAYOUT

Refer to drawings for details. Supplement with Nuralite generic details if situation is not covered on drawings. If not detailed on the drawings, confirm the layout to suit site conditions and for the performance of the Nuraply 3PM system. Stagger junctions of Nuraply 3PM rolls to avoid 4 layer membrane build-up at corner lap joints.

#### 3.5 INSTALLATION SEQUENCE

Install Nuraply 3PM 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 3PM membrane on the same day they are laid or ensure that the base is kept covered and dry until Nuraply 3PM membrane is laid. Seal exposed Nuraply 3PM 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 outlets rebated to levels, is complete and properly constructed to enable the system to work as intended. This work and the substrate to be smooth, clean and dry.

#### 3.7 ACCEPTANCE OF SUBSTRATE

Confirm that the substrate, including fillets, sumps, rebated outlets and projections, will ensure Nuraply work of the required standard. Ensure the substrate is smooth, clean and dry. Complete "Substrate Readiness Checklist" provided by Nuralite Waterproofing Limited. Refer to MANUFACTURER/SUPPLIER DOCUMENTS.

Confirm the moisture content of substrates:

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

#### 3.8 PLYWOOD SUBSTRATE

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

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

### 3.9 CONCRETE SUBSTRATE

Ensure wood float concrete substrate has been allowed to cure for at least 28 days before commencing application. Prepare surface, including vacuum cleaning and patching as necessary to leave smooth, clean, dry and free of debris.

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

#### **Installation - general**

### 3.10 WELD JOINTS

Heat fuse joints minimum width 80mm side and 100mm end laps using Nuralite Waterproofing Limited self-checking lap welding techniques.

### 3.11 PENETRATIONS

Form mould, weld and flash all upstands, downturns and penetrations to Nuralite Waterproofing Limited details including raised, anti-ponding water deflectors on the upside of penetrations.

### 3.12 MOVEMENT JOINTS

Form and weatherproof movement joints as designed to Nuralite Waterproofing Limited details.

### 3.13 JUNCTIONS

Check that adjoining walls and parapets are prepared ready for the installation of NURAPLY roofing. Confirm that openings have been prepared ready for the installation of skylights and other penetrations through the roof.

Required work includes the following:

- Roofing installation neatly finished to all sides of openings and to all wall and parapet junctions.
- Installation of flashings (those required to be installed prior to installation of penetrating elements and/or wall linings).

#### **Installation - Nuraply 3PM two layer system**

### 3.14 FIRST LAYER ON PLYWOOD, CROSS LAMINATED TIMBER AND STRANDBOARD

Lay the first Nuraply 3PB-SA layer into Nuraflux NO.10, Nuraflux WB or Nuraflux QD primer to Nuralite Waterproofing Limited requirements, with joints to be welded lapped a minimum of 80mm down the roll edges and 100mm across the roll ends. Lay in order from low points, sumps, through gutters, valleys, eaves, verges main roof and upstands to cover flashings.

### 3.15 FIRST LAYER ON CONCRETE

Lay the first Nuraply 3PV-SA layer into the Nuraflux QD primed substrate to Nuralite Waterproofing Limited requirements, with joints to be welded a minimum of 80mm down the roll edges and 100mm across the roll ends. Lay in order from low points, sumps, through gutters, valleys, eaves, verges main roof and upstands to cover flashings.

### 3.16 LAYING AND JOINTING SECOND LAYER - MINERAL FACE

Lay the second Nuraply 3PM layer by heat fusing over the cleaned repaired and Nuraflux QD primed (if necessary) surface of the first layer in the same sequence. Joints in the second layer must not correspond with joints in the first layer. Second layer joints to be welded lap-joints, minimum 80mm wide down roll edges and minimum 100mm wide across roll ends, to the Nuraply 3PM supplier's requirements. Roll junctions must be staggered to avoid 4-layer lap-weld build-up of Nuraply 3PM at corners. Ensure unobstructed drainage flow at outlets.

#### **Installation - Nuratherm insulated roof system**

### 3.17 LAY VAPOUR BARRIER

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

### 3.18 LAY NURATHERM INSULATION

When using tapered boards to create the fall, layout needs to be carefully considered before commencing so that there is positive drainage to all outlets. Ensure that sheets have been stretcher bond laid to falls, are rigid, with joints flush upstands filleted, no lumps or hollows, smooth, clean, dry and free of debris.

For double layered systems, use one fixing to hold the first layer of sheets and then fix down the second sheet using IKOfix thermal break flanges at the prescribed amount. If fixing down with Nurabond Low Foaming PU Adhesive between boards, consult Nuralite for guidance.

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

Secure the sheets to the substrate with Nuratherm fasteners at a rate based in the Installation checklist or consult with Nuralite representatives. On concrete Nurabond Hi-Foaming PU adhesive can be used as an alternative.

### 3.19 APPLY ELECTRONIC LEAK DETECTION SYSTEM

Apply 50mm wide strips of Nuralite Electronic Leak Test Tape centred over every Nuratherm insulation board join. Install Nuralite Electronic Leak Test Earthing Plates to the surface of Nuratherm insulation boards at a rate of 1 per 500m<sup>2</sup> roof area. Run and connect earthing cable through a dedicated Goose Neck cable duct in accordance with Nuralite installation details.

### 3.20 INSTALL BASE LAYER

Install Nuraply 3PV-SA self-adhesive base layer in accordance with Nuralite Waterproofing Ltd requirements.

### 3.21 INSTALL NURAPLY WATERPROOFING MEMBRANE - MINERAL FACE TOP LAYER

Lay the second Nuraply 3PM layer by heat fusing over the cleaned repaired and Nuraflux QD primed (if necessary) surface of the first layer in the same sequence. Joints in the second layer must not correspond with joints in the first layer. Second layer joints to be welded lap-joints, minimum 80mm wide down roll edges and minimum 150mm wide across roll ends, to the Nuraply 3PM supplier's requirements. Roll junctions must be staggered to avoid 4-layer lap-weld build-up of Nuraply 3PM at corners. Ensure unobstructed drainage flow at outlets.

## **Installation - Nurajack and Nurapad deck support system**

### 3.22 NURAJACK & NURAPAD INSTALLATION

Refer to 4381NJ NURAJACK DECK SUPPORT SYSTEM for details.

## **Testing**

### 3.23 TEST - ELECTRONIC LEAK DETECTION - WARM ROOFS

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

## **Conditions - completion**

### 3.24 ACCESS BOARDS

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

### 3.25 FOOT TRAFFIC

Do not allow construction foot traffic on the Nuraply 3PM installation after laying to avoid dirt and damage to the surface.

### 3.26 ACCEPTANCE

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

### 3.27 SUBSEQUENT WORK

Make good any covering 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**

### 3.28 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](http://www.nuralite.co.nz).

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

### Nuraply 3PM two layer system

#### 4.1 NURAPLY 3PM TWO LAYER SYSTEM ON PLYWOOD

Location:	Refer to drawings
Supplier:	Nuralite Waterproofing Limited
Substrate:	Plywood
Substrate adhesion:	Nuraflux 10, Nuraflux QD or Nuraflux WB
First layer:	Nuraply 3PB-SA
Second layer:	Nuraply 3PM
Colour:	Slate

#### 4.2 NURAPLY 3PM TWO LAYER SYSTEM ON NEW CONCRETE

Location:	Refer to drawings
Supplier:	Nuralite Waterproofing Limited
Substrate:	Concrete
Substrate adhesion:	Nuraflux QD
First layer:	Nuraply 3PV-SA
Second layer:	Nuraply 3PM
Colour:	Slate

### Nuratherm insulated roof system

#### 4.3 NURATHERM INSULATED ROOF SYSTEM WITH 100MM PIR ON PLYWOOD

Location:	Refer to drawings
Supplier:	Nuralite Waterproofing Limited
Substrate:	17mm plywood
Substrate adhesion:	Nuraflux QD
Vapour barrier:	Nuraply ALU
Insulation layer:	IKO Nuratherm ALU insulation board
Insulation thickness:	100mm
R-value:	R4.6
Fixings:	IKO Fix fasteners - fixing pattern to suit wind loading (for fixing insulation board to substrate)
Base layer:	Nuraply 3PV-SA
Top layer:	Nuraply 3PM
Colour:	TBC

### Accessories

#### 4.4 NURAJACK & NURAPAD DECK SUPPORT SYSTEM

Refer to 4381NJ NURAJACK DECK SUPPORT SYSTEM for details.

#### 4.5 NURAPLY ACCESSORIES

Location:	Refer to drawings
Supplier:	Nuralite Waterproofing Ltd
Type:	refer to details

# 4521PT ALTUS THERMAL ALUMINIUM WINDOWS & DOORS

## 1 GENERAL

This section relates to fabrication, supply and installation of Altus aluminium thermal window and door systems and componentry.

### 1.1 RELATED WORK

Refer to glazing section(s) for glass types

### 1.2 ABBREVIATIONS AND TERMS

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

The following abbreviations apply specifically to this section:

AAMA	American Architectural Manufacturer's Association
PQAS	Powder Coating Quality Assurance System
WGANZ	Window & Glass Association NZ

### Documents

### 1.3 DOCUMENTS

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

NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture
NZBC E2/VM1	External moisture
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 1580.108.1	Methods of test for paints and related materials - Determination of dry film thickness on metallic substrates - Non destructive methods
AS/NZS 1664.1	Aluminium structures - Limit state design
AS/NZS 1664.2	Aluminium structures - Allowable stress design
AS/NZS 1734	Aluminium and aluminium alloys - Flat sheet, coiled sheet and plate
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications
NZS 4211	Specification for performance of windows
BS EN 673	Glass in building - Determination of thermal transmittance (U-value) - Calculation method
AAMA 2603	Performance requirements and test procedures for pigmented organic coating on aluminium extrusions and panels
ISO 10077-1	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - General
ISO 10077-2	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Numerical method for frames
TT-S-001543A	Sealing compound, silicone rubber base (for caulking, sealing and glazing in buildings and other structures)
TT-S-00230C	Sealing compound, elastomeric type, single component (for caulking, sealing and glazing in buildings and other structures)
BRANZ BU 636	Protecting glass from damage
WGANZ	Window Installation Guide

### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

Altus product literature  
Altus Windows & Doors Specifier's Guide

Manufacturer/supplier contact details:  
 Company: Altus Limited  
 Web: [www.altus.co.nz](http://www.altus.co.nz)  
 Email: [technical@altus.co.nz](mailto:technical@altus.co.nz)  
 Telephone: 0800 397 263

## Warranties

### 1.5 WARRANTY

Provide warranty for:

25/15 years: For Dulux® Duratec® Intensity® powder coat finish for 25 years for durability and 15 years for chalk and colour fade  
 15 years: For Dulux® Duralloy® +PLUS powder coat finish for durability and chalk and colour fade  
 15 years: For Dulux® Protecture® powder coat finish for durability and chalk and colour fade

- 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 - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

5 years: For Altus aluminium windows, doors and hardware

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

Refer to the general section 1237 WARRANTIES for additional requirements.

### 1.7 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

2 years: For installation

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

Refer to the general section 1237 WARRANTIES for additional requirements.

## Requirements

### 1.8 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

### 1.9 NO SUBSTITUTIONS

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

### 1.10 SHOP DRAWINGS

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

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

Fully dimensioned elevations of all elements (minimum scale 1:20)

Construction details (minimum scale 1:5) showing the interface between joinery elements and the building structure including:

- Jointing details and method of fixing between individual elements and between this installation and adjacent work
- Interaction between cladding and lining

- Flashing details
- Sealants and air seals
- Non-standard fixing details including bracketing
- Vertical and horizontal support members

If requested provide the following additional information:

- Rebate sizes
- Dimensions of all typical elements and of any special sizes and shapes
- Provision for the exclusion and/or drainage of moisture
- Provision for adjustment of fixings to ensure true alignment of windows and doors
- Sealant types and full size sections of all sealants and backing rods
- Sequence of installation
- Provision for thermal movement
- Provision for seismic movement and movement under wind loads
- Glazing specification and details
- Producer Statement – Design (PS1) and design calculations
- Information of Professional Indemnity Insurance held by the person providing the calculations and shop drawings

Submit shop drawings for review to Architect

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

#### 1.11 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of the following general operation and maintenance information as electronic PDF format documents:  
Care and Maintenance Guide - Anodised & Powder Coated Joinery  
Care and Maintenance Guide - Aluminium Windows & Doors

Provide this information prior to practical completion.

### **Compliance information**

#### 1.12 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Manufacturer / supplier warranty
- Installer / applicator 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

#### 1.13 POWDER COATING CERTIFICATION

Certify on request, powder coating compliance with this specification and support with control and sampling records. Test for film thickness to [AS/NZS 1580.108.1](#).

### **Performance - windows and doors**

#### 1.14 PERFORMANCE - GENERAL

Deflection, operation, air permeability, lateral displacement, water penetration, ultimate and torsional strength performance and testing and labelling of windows and doors to comply with [NZS 4211](#).

#### 1.15 PERFORMANCE - THERMAL, HOUSING ONLY

Thermal performance of windows & doors to [NZBC H1/AS1](#). The construction R-Value of windows & doors determined by Appendix E, Table E1.1.1 Construction R-values (R window) of selected generic windows and doors. Refer to SELECTIONS for construction R-values.

#### 1.16 PERFORMANCE - THERMAL

Thermal performance of windows & doors to [NZBC H1/AS1-AS2](#) & [NZBC H1/VM1-VM2](#). The construction R-value of windows & doors determined in accordance with Appendix E, E1 Vertical windows and doors:

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

Refer to SELECTIONS for construction R-values.

## 1.17 DESIGN PARAMETERS - WIND

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

## 2 PRODUCTS

### Materials - aluminium

#### 2.1 ALUMINIUM EXTRUSIONS

Designation, chemical composition, mechanical testing and manufacturing tolerances to [AS/NZS 1866](#) for aluminium and aluminium alloy used for extruded rod, bar, solid and hollow shapes.

#### 2.2 ALUMINIUM SHEETS & PLATES

Designation, chemical composition, mechanical testing and manufacturing tolerances to [AS/NZS 1734](#) for aluminium and aluminium alloy used for flat sheets, coiled sheets and plates.

#### 2.3 ALUMINIUM STRUCTURES

Aluminium structures limited state design to [AS/NZS 1664.1](#), allowable stress design to [AS/NZS 1664.2](#).

### Window/door systems

#### 2.4 ALTUS ALUMINIUM WINDOW/DOOR SYSTEMS

Prefabricated and pre-finished window/door units made of aluminium frames with glazing, hardware/furniture and reveals readily installed and configured as per detailed shop and design drawings. Altus window and door systems can accommodate almost any combination of window and door types, such as fixed, awning, casement, sliding and bifold. Refer to SELECTIONS.

### Components - window/door system

#### 2.5 WINDOW/DOOR FRAMES

Aluminium window/door frames are powder coated or anodised to colour/texture of choice and come in various profiles with thermally broken and seismic frame options available (system dependent). Refer to SELECTIONS.

#### 2.6 MULLIONS

Aluminium flat faced, external fin, internal box or split mullions. Refer to SELECTIONS.

#### 2.7 HARDWARE AND FURNITURE

Stainless steel or aluminium window/door hardware and furniture such as hinges, catches, fasteners, latches, locks, operating gear, safety stays etc. Refer to SELECTIONS.

### Components - reveal

#### 2.8 TIMBER REVEALS

Pre-primed H3.1 Radiata Pine timber reveals, grooved for wall linings or flush finished for architraves, available in 19mm, 25mm and 30mm thickness. Refer to SELECTIONS.

#### 2.9 ALUMINIUM REVEALS

Aluminium reveals fitted to frame via thermal break, anodised or powder coated to match joinery.

#### 2.10 PVC REVEALS

19mm thick thermoplastic polyvinyl chloride (PVC) reveals grooved for wall linings.

### Components - sill

#### 2.11 SILL SUPPORT BAR

Extruded aluminium angled or flat sill support bar with punched drainage and fixing holes complying with BRANZ Evaluation Method EM6, [NZBC E2/VM1](#) tests and [NZBC B2/AS1](#). Size suited to project specific cladding and to detailed drawings.

#### 2.12 LOCATOR BLOCKS

85x60mm moulded polypropylene locator blocks.

### Components - flashing

#### 2.13 FLASHINGS

Extruded aluminium window, head and sill flashing to [NZBC E2/AS1](#), Flashings and suited to project specific application. Head flashing comes powder coated to match window/door joinery colour. Moulded polypropylene head and sill flashing end cap supplied for cavity installation.

### Components - sealant

#### 2.14 STRUCTURAL SEALANT

Single component silicone rubber base joint sealing compound formulated and tested or approved equivalent with not less than a  $\pm 40\%$  movement factor to US Federal Specification TT-S-001543A.

#### 2.15 WEATHERING/INSTALLATION SEALANT

Single component, cold applied silicone rubber base joint sealing compound to US Federal Specification TT-S-001543A, or single component elastomeric type joint sealing compound of medium modulus ( $\pm 25\%$  movement) to US Federal Specification [TT-S-00230C](#).

#### 2.16 BACKING PEF ROD

Compressible, cylindrical closed cell polyethylene foam rod. Size to suit application.

#### 2.17 SELF-EXPANDING FOAM

Self-expanding aerosol polyurethane gun foam.

#### 2.18 FOAM TAPE

Closed cell PVC foam tape. Hardness, grade, compression, UV weathering to [NZBC E2/AS1](#), Closed Cell Foam Tape.

### Components - fixings

#### 2.19 FIXINGS - WINDOW/DOOR FRAME

Minimum fixing size and type to [NZBC E2/AS1](#), Windows and Doors.

To timber:	75 x 3.15mm galvanized jolt head nails, or 8g x 65mm stainless steel screws
To steel:	8g x 65mm stainless steel screws
To concrete:	8g x 65mm stainless steel screws driven into nylon plugs or similar

#### 2.20 FIXINGS - SILL SUPPORT

Minimum fixing size and type:

To timber/steel:	10g x 50mm stainless steel screws
To concrete:	10g x 50mm stainless steel screws driven into nylon plugs or similar

#### 2.21 BRACKETS

Designed by window/door manufacturer to specific design.

### Finishes - powder coating

#### 2.22 COLOURSCAPE POWDER COAT FINISH

Thermosetting polyester powder in accordance with AS 3715, [WGANZ](#) and [PQAS](#), formulated to meet AAMA 2603. Available in a range of colours with the option of a matt, gloss or satin finish. 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, and:

- Confirm all window/door keys are accounted for and delivered separately to the site manager

- Store windows and doors on site in a clean and dry environment in such a manner as to prevent damage to pre-finished surfaces
- Stack the units in a vertical position resting on their sills, with layers interleaved between to prevent rubbing

### 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 PROTECTIVE COVERING - WINDOWS/DOORS

Prevent marking of surfaces visible on completion and protect aluminium joinery from following trades with protective covering/coating, keep in place during fixing process, remove on completion. Refer to BRANZ BU 636.

#### **Conditions - fabrication**

### 3.4 FABRICATION - GENERAL

Confirm site measurements of openings prior to window/door fabrication. Fabricate and finish window/door units and components, and install glazing, hardware and furniture, operating gear, safety stays and reveals to detailed shop and design drawings, the specification and as scheduled. Punch drainage and fixing holes to sill supports complying with EM6, [NZBC E2/VM1](#) tests and [NZBC B2/AS1](#).

### 3.5 SAFETY STAYS - WINDOWS

Factory fit non-releasable safety stays to limit window openings as per [NZBC F4/AS1](#), Opening Windows.

### 3.6 SAFETY STAYS - DOORS

Factory fit self-closing or self-latching device to doors where required by and to [NZBC F9/AS1](#).

### 3.7 PROPRIETARY FRAME BLOCKS

Factory fit proprietary frame blocks as required for direct fixed wall cladding to block up windows/door off sill tray flashings.

### 3.8 FLASHINGS

Window, head and sill flashing material, profile and dimensions to [NZBC E2/AS1](#), Flashings and suited to project specific cladding, framing and floor, and compatible with window frame materials and fixings.

#### **Conditions - on site**

### 3.9 PRE-INSTALLATION REQUIREMENTS

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

- Openings are prepared for window/door installation and have wall underlay dressed into opening, corner soakers installed and flashing tape applied
- Waterproof sealant is applied to concrete/masonry window and door sills, and for door sills a membrane is installed over sealant
- Window/door units have glazing, hardware and furniture, operating gear, safety stays/restrictors and reveals installed to and are finished as per detailed shop and design drawings and the specification

#### **Installation/application - general**

### 3.10 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

### 3.11 INSTALLATION/APPLICATION REQUIREMENTS

Ensure that all installers/applicators are familiar with the required substrate conditions and the manufacturer's or supplier's specified preparation, fixing and finishing techniques. Install/apply products in accordance with manufacturer's or supplier's technical literature, detailed shop and design drawings and to [NZBC E2/AS1](#) and [WGANZ Window Installation Guide](#).

### 3.12 CORROSION PROTECTION

Install/apply barriers of bituminous coatings, stops or underlays between dissimilar metals in contact and where aluminium is in contact with concrete/masonry.

### 3.13 SEALING REQUIREMENTS

To sealant manufacturer's requirements and instructions:

- Ensure joints are dry and remove loose material, dust and grease
- Prepare joints as required with solvents and primers recommended
- Mask off adjoining surfaces
- Apply back-up materials to depth no less than the minimum required
- Tool off sealant to form a smooth fillet with required profile and dimensions
- Remove excess sealant using cleaning materials recommended

#### **Preparation for fixing to concrete/masonry**

### 3.14 INSTALL NYLON PLUGS

Drill fixing holes in concrete/masonry to suit nylon plug size and location of sill support and reveal fixings. Fill fixing holes with silicone sealant and install plugs into hole until flush with concrete surface.

#### **Installation - sill supports (cavity construction)**

### 3.15 INSTALL ANGLED SILL SUPPORT BAR

Prior to installing support bar place a locator block at each end of bar. Install bar on exterior wall face centred below opening sill with locator blocks seated on sill trimmer. The upper edge of the bar to be minimum 5mm above sill trimmer. Confirm the bar is level and in true alignment, fix to framing/concrete/masonry.

### 3.16 INSTALL FLAT SILL SUPPORT BAR

Install sill support bar centred to opening sill onto floor surface as per design drawings. Confirm the bar is level and in true alignment and fix vertically to floor.

#### **Installation - window/door units**

### 3.17 PLACE WINDOW/DOOR UNIT

Prior to placing window/door unit in opening, drill two rows of pilot holes along window/door reveal, place holes 150mm from reveal ends and at maximum 450mm intervals as per [NZBC E2/AS1](#), or to window/door manufacturer's specific requirements. Place window/door unit in opening complying with [NZBC E2/AS1](#) and suited to project specific cladding, detailed shop and design drawings.

Confirm correct exterior cladding cover, interior lining finish and placement of unit on sill support.

### 3.18 FIX WINDOW/DOOR UNIT

Insert flat packers between opening frame and reveal around fixing points. Confirm window/door unit is level and of true alignment and fix through reveal (not packers) to opening framing and floor.

Remove packers from head.

For bifold windows/doors additionally fix at head with supplied brackets as per window/door manufacturer's instructions.

### 3.19 COMPLETE AIR SEAL

To comply with [NZBC E2/AS1](#), Air Seals. Insert continuous backing PEF rod between opening frame and reveal at 10-20mm depth, apply self-expanding foam to manufacturer's instructions over PEF rod to fully fill gap. For windows/doors fixed directly to floor (no reveal) or seated in floor rebated apply sealant as per window/door manufacturer recommendations and detailed drawings.

### 3.20 INSTALL HEAD FLASHING

Cut head flashing to required length and install, fix and seal to wall framing above window/door head as per detailed design drawings, [NZBC E2/AS1](#) and suited to project specific cladding and wind zones.

#### **Post-cladding weather sealing of windows/doors**

### 3.21 WEATHER SEALING

Seal exterior window/door frame and flashings to cladding weathertight complying with [NZBC E2/AS1](#) and suited to project specific cladding and detailed design drawings. Install/apply sealing products in accordance with manufacturer's or supplier's technical literature.

## Completion

### 3.22 COMPLETION MATTERS

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

### 3.23 COMPLETION - TESTS & CERTIFICATION

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

### 3.24 TRADE CLEAN

Trade clean window frames, operable windows and doors, glass and other related surfaces inside and out to remove marks, dust and dirt and to enable a visual inspection of all surfaces.

## 4 SELECTIONS

For further details on selections go to [www.altus.co.nz](http://www.altus.co.nz).

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

### Performance

#### 4.1 THERMAL PERFORMANCE - VERTICAL WINDOWS & DOORS

Window /Door Number:	Construction R-value:
All- refer to window and door schedule	R0.46

### Fabrication/supply/installation

#### 4.2 NOMINATED MANUFACTURER

Nominated manufacturer(s):

Company: radnam's®, nulook®, fISHer®, Nebulite®, Rylock®, vistalite®  
Contact Altus or refer to website for full list of manufacturers in the project area.

#### 4.3 SUPPLY AND INSTALLATION

Supply and installation of window/door systems and componentry by one of the following options:

Supply: By manufacturer  
Installation: TBC

### Window/door units - powder coated

#### 4.4 ALTUS SOUTHERN41 THERMAL SYSTEM

Location: Refer to drawings  
Brand: Altus Southern41 Thermal  
Type: Thermal system  
Frame: Flat face  
Mullion: Flat face  
Finish: ColourScape® Powder Coating  
Powder coat: Duratec TBC  
Colour: TBC  
DFT: Average of 80 microns with a minimum of 50 microns  
Reveal: as detailed

### Components - window/door unit

#### 4.5 FIXED SASH

Unit No: Refer to window schedule  
Location: Refer to drawings  
Sash: Refer to details  
Glazing: Double  
Refer to glazing section(s) for glass types

#### 4.6 AWNING SASH

Unit No: Refer to window schedule

Location: Refer to drawings  
 Sash: Refer to details  
 Glazing: Double  
 Refer to glazing section(s) for glass types

#### 4.7 CASEMENT SASH

Unit No: Refer to window schedule  
 Location: Refer to drawings  
 Sash: Refer to details  
 Glazing: Double  
 Refer to glazing section(s) for glass types

#### 4.8 SLIDING PANEL

Unit No: Refer to window schedule  
 Location: Refer to drawings  
 Glazing: Double  
 Refer to glazing section(s) for glass types

#### 4.9 HINGED DOOR PANEL

Unit No: Refer to door schedule  
 Location: Refer to drawings  
 Glazing: Double  
 Refer to glazing section(s) for glass types

### Components - hardware/furniture

#### 4.10 HARDWARE AND FURNITURE

Item	Location:
Handle:	Refer to door and window Schedule
Locking:	Refer to door and window Schedule
Safety stay:	Refer to door and window Schedule
Restrictor:	Refer to door and window Schedule
Stopper:	Refer to door and window Schedule

# 4553PD PARKWOOD DURAMAX EXTERIOR DOOR

## 1 GENERAL

This section relates to the supply and manufacture of Parkwood Products Ltd exterior entrance doors and frames.

It includes:

- Door
- Components and accessories to complete the installation

### Documents

#### 1.1 DOCUMENTS

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

<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">NZBC H1/AS1-AS2</a>	Energy efficiency
<a href="#">NZBC H1/VM1-VM2</a>	Energy efficiency
<a href="#">AS/NZS 1866</a>	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
<a href="#">NZS 3602</a>	Timber and wood-based products for use in building
<a href="#">NZS 3604</a>	Timber-framed buildings
<a href="#">NZS 3610</a>	Specification for profiles of mouldings and joinery
<a href="#">AS 3715</a>	Metal finishing - Thermoset powder coatings for architectural applications
<a href="#">NZS 4214</a>	Methods for determining the total thermal resistance of parts of buildings
<a href="#">NZS 4223.3</a>	Glazing in buildings - Human impact safety requirements
<a href="#">BS EN 673</a>	Glass in building - Determination of thermal transmittance (U-value) - Calculation method
<a href="#">ISO 10077-1</a>	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - General
<a href="#">ISO 10077-2</a>	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Numerical method for frames

Window & Glass Association NZ ([WGANZ](#)) documents:

[PQAS](#) Powder Coating Quality Assurance System

#### 1.2 MANUFACTURER/SUPPLIER DOCUMENTS

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

- Parkwood Doors The Home Collection - Catalogue
- Parkwood Door Furniture - Brochure

Manufacturer/supplier contact details

Web: [www.parkwooddoors.co.nz](http://www.parkwooddoors.co.nz)  
 Email: [sales@parkwooddoors.co.nz](mailto:sales@parkwooddoors.co.nz)  
 Telephone: 0800 101028

### Warranties

#### 1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years: For Duramax fibreglass doors

- Provide this standard warranty on the manufacturer/supplier standard form (if not available 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.

Parkwood warranties are void if the 'Guarantee of Quality' requirements are not followed (refer to the tag on all doors or the Parkwood website).

### Requirements

#### 1.4 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

#### 1.5 NO SUBSTITUTIONS

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

#### **Performance - thermal**

#### 1.6 PERFORMANCE - THERMAL

Thermal performance of glazed doors to [NZBC H1/AS1](#). The construction R-Value of doors to be determined by Appendix E, Table E1.1.1 Construction R-values of selected doors.

#### 1.7 PERFORMANCE - THERMAL, OPAQUE DOORS

Thermal performance of opaque doors and door panels to [NZBC H1/AS1](#). The construction R-Value of opaque doors and door panels to be determined by [NZS 4214](#). Refer to SELECTIONS for details.

#### **Finishes**

#### 1.8 IN-SITU TOUCH-UP

In-situ touch-up of coating is only permitted after receiving written direction from the Contract Administrator. Replace damaged material not able to be restored to as-new condition.

## 2 PRODUCTS

#### **Composite (fibreglass) exterior doors**

#### 2.1 COMPOSITE DOOR LEAF - DURAMAX

Parkwood Duramax high-impact fibreglass doors with resin-reinforced edges, and a foam-filled core. LVL stiles and rails within resin for stability and hardware fixing points. Available in a range of styles, colours, and sizes, with optional glazed vision panels. Refer to SELECTIONS.

#### 2.2 PAINT - COMPOSITE DURAMAX DOORS

Refer to PAINTING sections.

#### **Frames**

#### **Components**

#### 2.3 DOOR HARDWARE - GENERAL

Refer to 5521 HARDWARE section.

#### 2.4 METAL FASTENINGS

Stainless steel or non-corrodible metal.

#### 2.5 SCREWS

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

#### 2.6 NAILS

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

#### 2.7 HINGES

Size and gauge appropriate to carry door size and weight. Refer to SELECTIONS.

#### **Finish - Fibreglass Composite**

#### 2.8 PAINT - FIBREGLASS DURAMAX DOORS

Refer to PAINTING sections.

### 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 CHECK ALL OPENINGS

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

#### Assembly

#### 3.4 FABRICATION GENERALLY

Manufacture and fabricate Parkwood frames and doors as detailed. Install hinges and running gear as scheduled.

#### 3.5 HINGES

Fit hinges to Parkwood doors appropriate to support the door size and weight - minimum of;  
4 hinges                      Doors 2.2 - 2.6 metres

#### 3.6 FACTORY FINISHING

Before delivery to site:

- Prime all rebates, and concealed faces with a suitable material-compatible primer.
- Brace square and provide protection to assemblies during delivery to site. Where factory glazed, indicate the presence of transparent glass with whiting, tape or signs compatible with the glass type.

#### 3.7 ON SITE FINISHING

Before installation:

- Prime assemblies scheduled for paint finish not already primed with a material appropriate primer.
- Prime all rebates and concealed faces of beads of assemblies scheduled for clear finish with a material appropriate primer.
- Re-prime/seal any subsequently cut edge.
- Refer to PAINTING sections for finishing.

#### Installation - doors

#### 3.8 INSTALL HARDWARE

Install latches, locks and door hardware in accordance with manufacturers requirements.

#### 3.9 CHECK

Check the operation of all Parkwood doors and hardware before completion of installation and adjust if required.

#### Completion

#### 3.10 COMPLETION MATTERS

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

#### 3.11 COMPLETION - TESTS & CERTIFICATION

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

### 4 SELECTIONS

For further details on selections go to [www.parkwooddoors.co.nz](http://www.parkwooddoors.co.nz)

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

### Performance - thermal

#### 4.1 THERMAL PERFORMANCE - DOORS

Door Number:	Construction R-value:
W1-08	R0.95

### Door frames

#### 4.2 EXTERIOR DOORS - EXISTING FRAME

Location: L1 refer to floor plan  
 Frame type: Aluminium  
 Finish: Primed and painted

### Composite exterior doors

#### 4.3 PARKWOOD COMPOSITE DOORS

Location: L1 refer to floor plan  
 Door style: Duramax Plus  
 Door code: FSFL00  
 Door leaf: 2350mm x 1060mm  
 Door material: Composite  
 Finish: Smooth skin finish (suitable for painting)  
 Thickness: 41mm  
 Colour: TBC

### Hardware and accessories

#### 4.4 HINGES

Location: As required  
 Type: Squared edge  
 Size: 100mm  
 Pin: As required for inward opening door  
 Material: Stainless steel

#### 4.5 HARDWARE

Supplier: TBC  
 Brand: TBC  
 Code: TBC

# 4554VS VELUX OPENING SKYLIGHT

## 1 GENERAL

This section relates to the manufacture, supply, and installation of VELUX opening and fixed skylights and roof windows:

It includes;

- operating systems
- accessories
- proprietary flashings

### 1.1 RELATED WORK

Refer to 4421N Nurlalite 3PM Membrane Roofing

#### Documents

### 1.2 DOCUMENTS

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

<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">NZBC H1/AS1-AS2</a>	Energy efficiency
<a href="#">NZBC H1/VM1-VM2</a>	Energy efficiency
<a href="#">AS/NZS 2208</a>	Safety glazing materials in buildings
<a href="#">NZS 3604</a>	Timber-framed buildings
<a href="#">NZS 4223.4</a>	Code of practice for glazing in buildings - Wind, dead, snow and live actions
BS EN 673	Glass in building - Determination of thermal transmittance (U-value) - Calculation method
ISO 10077-1	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - General
ISO 10077-2	Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Numerical method for frames
AAMA 2605	Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix)
CodeMark™ <a href="#">CMNZ10008</a> ver02	Velux Skylights
CodeMark™ <a href="#">CMNZ10009</a> ver02	Velux Roof Windows

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:  
Current Sales Brochure and product datasheets

Installation instructions for VCS curb mounted Skylight  
Velux Skylights H1 Compliance Table  
Velux Verified R-values for New Zealand  
(Technical Manual - Velux Skylights and the Technical Manual - Velux Roof Windows.)  
[BRANZ Appraisal 968 \(2023\) - Velux Skylights](#)  
[BRANZ Appraisal 969 \(2023\) - Velux Roof Windows](#)

Manufacturer/supplier contact details  
Company: **VELUX New Zealand Limited**  
Web: [www.velux.co.nz](http://www.velux.co.nz)  
Email: [info@velux.co.nz](mailto:info@velux.co.nz)  
Telephone: 0800 650 445

#### Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:  
10 years:

1 year: For VELUX Skylights, Roof Windows, insulated glazing units and flashings  
For VELUX accessories (motorised units, controls, rods, blinds, insect screens)

- 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:

TBC years: For installation of VELUX Skylights

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

Refer to the general section 1237 WARRANTIES for additional requirements.

### Requirements

## 1.6 QUALIFICATIONS

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

## 1.7 NO SUBSTITUTIONS

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

### Compliance

## 1.8 COMPLIANCE - CODEMARK CERTIFICATE CMNZ10008

Velux Skylights meets the requirements of the NZBC when used within the conditions and limitations of their CodeMark Certificate of Conformity [CMNZ10008](#).

## 1.9 COMPLIANCE - CODEMARK CERTIFICATE CMNZ10009

Velux Roof Windows meet the requirements of the NZBC when used within the conditions and limitations of their CodeMark Certificate of Conformity [CMNZ10009](#).

## 1.10 COMPLIANCE - BRANZ APPRAISAL 968

Velux Skylights have been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of their [BRANZ Appraisal 968](#).

## 1.11 COMPLIANCE - BRANZ APPRAISAL 969

Velux Roof Windows have been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of their [BRANZ Appraisal 969](#).

### Performance

## 1.12 PERFORMANCE - THERMAL, SKYLIGHTS

Thermal performance of skylights to [NZBC H1/AS1-AS2](#) & [NZBC H1/VM1-VM2](#). The construction R-value of skylight to be determined by Appendix E, E2 Skylights:

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

Refer to SELECTIONS for Construction R-values.

## 1.13 PERFORMANCE, WIND, DEAD, SNOW, AND LIVE ACTIONS

The design wind pressures and snow loads to [NZS 3604](#). Live loads and glazing design, for glass or equivalent plastics, to [NZS 4223.4](#).

## 2 PRODUCTS

## Skylights

### 2.1 LOW PITCH SKYLIGHTS

VELUX Low Pitch Skylights; to CodeMark™ [CMNZ10008](#), either top hinged with INTEGRA motorised control solar opening VCS, or manual opening VCM, or fixed FCM skylight. For roof pitches between 0° to 15° (and can be installed in roofs up to 60° pitch). Manufactured from white uPVC internal frame and sash with extruded gaskets. External cappings manufactured from aluminium profile with Kynar 500 PVDF coating to AAMA 2605. Refer to SELECTIONS for type, finish and accessories.

### Components

#### 2.2 FIXINGS

VELUX proprietary fixings and brackets compatible with the skylight/roof window.

#### 2.3 GLAZING - ALL SKYLIGHTS

VELUX proprietary insulated double-glazing unit, factory fitted. Unit comprises an inner pane of laminated glass, and outer pane of toughened safety glass with NEAT™ photo-catalytic coating to exterior face. Inside face of outer pane coated with Low-E<sup>3</sup> coating. Cavity filled with Argon gas.

#### 2.4 GLAZING - ROOF WINDOWS - DOUBLE GLAZED

VELUX proprietary insulated double-glazing unit, factory fitted. Unit comprises an inner pane of laminated glass, and outer pane of toughened safety glass with NEAT™ photo-catalytic coating to exterior face. Inside face of outer pane coated with Low-E<sup>3</sup> coating. Cavity filled with Argon gas.

#### 2.5 HARDWARE

Fasteners, stays, locks, vents and other hardware as supplied with the unit.

#### 2.6 MOTORISED OPENING DEVICES - INTEGRA MODELS VSS/VSE/VCS

Units have integrated motorised control unit, transformer, rain sensor (for automatic closing of skylight) and radio frequency wireless remote control keypad. INTEGRA model VSE has electric mains power, models VSS and VCS have solar panel and battery for solar powered operation.

#### 2.7 FLASHINGS FOR MODELS FCM/VCM/VCS

For flat / low roof pitches between 0° to 15° (and up to 60°). Custom flashings are required in accordance with [NZBC E2/AS1](#). Refer to section 4821 FLASHINGS for details.

#### 2.8 FLASHINGS FOR MEMBRANE AND METAL TROUGH SECTION ROOFS

Custom flashings in accordance with [NZBC E2/AS1](#) are required when skylights or roof windows are installed in membrane or concealed fixed metal roofing, Refer to section 4821 FLASHINGS for details.

### Finishes

#### 2.9 FINISH

VELUX proprietary finishes.

## 3 EXECUTION

### Conditions

#### 3.1 DELIVERY, STORAGE AND HANDLING

Avoid distortion of elements during transit, handling and storage. Deliver in original containers, dry, undamaged with seals and labels intact. Prevent pre-finished surfaces from rubbing together. Prevent contact with mud, plaster and cement. Do not deliver to site any elements which cannot be immediately unloaded into suitable conditions of storage.

#### 3.2 PRE-INSTALLATION REQUIREMENTS

Site measure during roof framing stage to ensure the VELUX proprietary Skylight / Roof Window and flashings can be installed correctly and in accordance with the installation instructions. Where a unit is installed adjacent to another unit confirm the set out distance between units in accordance with the installation instructions.

Refer to VELUX at [www.velux.co.nz](http://www.velux.co.nz) for installation details.

### 3.3 EXECUTION GENERALLY

Check that the preparation of the opening is to [NZBC E2/AS1](#), 8.4.17, Roof penetrations.

### 3.4 HARDWARE GENERALLY

Factory fit all required and scheduled hardware.

### 3.5 RETAIN PROTECTIVE COVERINGS

Retain protective coverings and coatings in place during fixing wherever possible. Provide additional protection to prevent marking of surfaces visible in the completed work. Remove protection on completion.

## Installation

### 3.6 GENERALLY

Check that the trimmed openings are formed and constructed to suit the required units. Do not proceed until roof and structural openings are properly formed.

### 3.7 INSTALL UNITS

Install and fix the Skylight or Roof Window strictly in accordance with the manufacturer's installation instructions, CodeMark™ [CMNZ10008](#) with the Technical Manual - Velux Skylights and CodeMark™ [CMNZ10009](#) with the Technical Manual - Velux Roof Windows.

Repack any thermal insulation around rough openings where disturbed by the installation to maintain continuity of thermal barriers.

When using VELUX flashings (EDW, EDL, EKW) with VELUX Skylights and Roof Windows, install as detailed by VELUX to make the installation completely weatherproof. Refer to VELUX at [www.velux.co.nz](http://www.velux.co.nz) for installation instructions.

If using custom flashings, ensure curb/upstand height and flashing meet [NZBC E2/AS1](#) upstand height and flashing requirements. Contact VELUX for additional information.

### 3.8 ACCESSORIES AND OPERATING SYSTEMS

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

## Completion

### 3.9 CLEAN FRAMES AND GLAZING

On completion clean down both sides of unit frames, using the methods required by the manufacturer. Remove any manufacturer's stickers and clean glass. Ensure all installed units are adequately protected from damage and adverse weather during construction.

### 3.10 CONFIRM

Confirm the proper operation of hardware and operating systems on completion of the installation and again at completion of the contract works.

## 4 SELECTIONS

For further details on selections go to [www.velux.co.nz](http://www.velux.co.nz)

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

### Performance

#### 4.1 THERMAL PERFORMANCE - SKYLIGHT

Skylight Number:	Construction R-value at pitch:
refer to drawings	R0.46

### Low pitch skylights

#### 4.2 VELUX VCS INTEGRA LOW PITCH SKYLIGHT - MOTORISED OPENING, SOLAR

Location: refer to drawings  
 Brand: VELUX  
 Model: VCS INTEGRA Low Pitch Opening (Solar)

Type/size:	refer to drawings
Glazing:	Double glazed
Colour:	White ABS interior
Roof type/pitch:	Refer to drawings
Flashing:	Custom flashing
Controls:	Fully integrated INTEGRA solar motor and rain sensor, with radio frequency remote control

### Components

#### 4.3 VELUX HARDWARE - MOTORISED OPENING DEVICE - MODELS VSS/VSE/VCS

Motorised control for integrated powered opening system, supplied complete with:

Component:	Description:
VELUX ACTIVE starter kit - KLA 300	Sensor-based ventilation monitoring temperature, humidity and CO2
VELUX ACTIVE indoor climate sensor - KIX 300	Additional climate sensor to extend the VELUX Active Starter Kit.
VELUX Interface Unit - KLF 200	Interface Unit (for connection with other Home Smart Systems)

#### 4.4 CUSTOM FLASHINGS

Type: Custom flashings to meet the requirements of [NZBC E2/AS1](#). Refer to Section 4821 FLASHINGS for details. Contact VELUX for additional trim-out information.

## 4555 GARAGE DOORS

### 1 GENERAL

This section relates to the manufacture, supply and installation of garage door systems including required opening/operating systems.

#### Documents

#### 1.1 DOCUMENTS REFERRED TO

Documents referred to in this section are:

<a href="#">AS/NZS 1170</a>	Structural design actions
<a href="#">AS/NZS 1170.2: 2011</a>	Structural design actions - Wind actions
<a href="#">NZS 1170.5</a>	Structural design actions - Earthquake actions - New Zealand
<a href="#">NZS 3604</a>	Timber-framed buildings
<a href="#">AS/NZS 4505</a>	Garage doors and other large access doors

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

#### 1.2 MANUFACTURER'S DOCUMENTS

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

Copies of the above literature are available from Dominator NZ  
Web: [www.dominator.co.nz](http://www.dominator.co.nz)

#### Requirements

#### 1.3 INFORMATION FOR OPERATION AND MAINTENANCE

Provide operating instructions for the garage doors and associated opening equipment. Provide a list of all components requiring regular maintenance.

#### Performance

#### 1.4 DESIGN PARAMETERS WIND

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

#### 1.5 LOADS - NON - SPECIFIC DESIGN - DOORS UP TO 3.0M HIGH

Garage doors complete with hinges, roller assemblies and fasteners to comply with wind performance requirements to [NZS 3604](#).

#### 1.6 RESPONSIBILITY FOR PERFORMANCE

Accept responsibility for the structural and weathertight performance of the completed garage door installation.

### 2 PRODUCTS

#### 2.1 GARAGE DOOR

Manufacture to [AS/NZS 4505](#) complete with a compliance label.

#### 2.2 MOTORISED DOOR OPENER

### 3 EXECUTION

#### 3.1 PREPARATION FOR INSTALLATION

Check that the trimmed and lined openings are formed and constructed to suit the required door units. Do not proceed until openings are properly formed.

#### 3.2 MANUFACTURER'S REQUIREMENT FOR INSTALLATION

Install door, track and operating equipment complete with all specified and necessary accessories and hardware to the manufacturer's requirements.

### 3.3 START UP

Carry out start up procedures and verify proper performance of the doors.

### 3.4 ADJUSTMENT

Lubricate bearings and sliding parts and adjust doors to operate easily, free of warp, twist or distortion with a weathertight fit round the entire perimeter.

### 3.5 DEMONSTRATION

Carry out start up procedures and verify proper performance of the door. Demonstrate the operation of the door to the principal/principal's representative. Set security features to principal's requirements. Reset security features at practical completion of the contract works.

## Completion

### 3.6 ENSURE

Ensure all elements are free of marks or blemishes, with all moving parts working fully and freely.

### 3.7 REPLACE

Replace damaged, cracked or marked elements.

### 3.8 LEAVE

Leave work to the standard required by following procedures.

### 3.9 REMOVE

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

## 4 SELECTIONS

### 4.1 GARAGE DOOR - SECTIONAL OVERHEAD DOOR

Location: refer to drawings  
 Brand: Dominator  
 Type: sectional  
 Face panels: pre-painted steel  
 Finish: smooth  
 Model number: TBC

### 4.2 GARAGE DOOR FITTINGS AND HARDWARE

Lock and handle: as supplied with door

### 4.3 GARAGE DOOR CONTROLLERS

Brand:	Dominator
Model number:	TBC
Number of remotes:	2
Location of internal control buttons:	refer to drawings
Number of internal control buttons:	refer to drawings
Accessories:	TBC

# 4610MR METRO PERFORMANCE GLASS - RESIDENTIAL GLAZING

## 1 GENERAL

This section relates to the supply and fixing of Metro Performance Glass Limited glazing for residential external and internal applications.

It includes:

- window and door glazing
- frameless shower and bath screen glass
- glass splashbacks
- balustrade and pool fence glass
- mirrors

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

PVB	Polyvinyl Butyral
EVA	Ethylene Vinyl Acetate
HSO	Heat Soaked Glass
HST	Heat Strengthened Glass
IGU	Insulating Glass Unit
LSG	Laminated Safety Glass
TSG	Toughened Safety Glass
TLSG	Toughened Laminated Safety Glass
MFG	Metro Frameless Glass

### Documents

### 1.2 DOCUMENTS

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

<a href="#">NZBC F4/AS1</a>	Safety from falling
<a href="#">NZBC F9/AS1</a>	Means of restricting access to residential pools
<a href="#">NZBC H1/AS1-AS2</a>	Energy Efficiency
<a href="#">NZBC H1/VM1-VM2</a>	Energy Efficiency
<a href="#">AS/NZS 2208</a>	Safety glazing materials in buildings
<a href="#">NZS 4223.1</a>	Glazing in buildings - Glass selection and glazing
<a href="#">NZS 4223. Supp1</a>	Glazing in buildings - Supplement 1 to <a href="#">NZS 4223.1:2008</a> and <a href="#">NZS 4223.4:2008</a>
<a href="#">NZS 4223.2</a>	Glazing in buildings - Insulating glass units
<a href="#">NZS 4223.3</a>	Glazing in buildings - Human impact safety requirements
<a href="#">NZS 4223.4</a>	Glazing in buildings - Wind, dead, snow and live action
<a href="#">AS/NZS 4666</a>	Insulating glass units
<a href="#">BRANZ BU 636</a>	Protecting Glass From Damage

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Metro brochures  
 Metro BPIR documentation  
 Metro Installation Instructions  
 Metro Care & Maintenance Guide

Manufacturer/supplier contact details

Company: Metro Performance Glass Limited  
 Trading as: Metro Performance Glass (Metro or MPG)  
 Web: [www.metroglass.co.nz](http://www.metroglass.co.nz)  
 Email: [technical@metroglass.co.nz](mailto:technical@metroglass.co.nz)  
 Telephone: 0800 545 800

## Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years:	for GlassTech Insulating Glass Units (IGU)
10 years:	for SafeLite Laminated Safety Glass (LSG)
10 years:	for TempaFloat Toughened Safety Glass (TSG)
10 years:	for TempaScreen, TempaClad and TempaPrint digital printed glass
10 years:	for Heat Soaked Glass (HSO)
10 years:	for Heat Strengthened Glass (HST)
2 years:	for mirror glass

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of completion of this part of the contract work.

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 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

### 1.6 NO SUBSTITUTIONS

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

### 1.7 SHOP DRAWINGS

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

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

If requested provide the following additional information:  
as requested

Submit shop drawings for review to Architect

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

## Performance – Wind (design by contractor)

### 1.8 DESIGN PARAMETERS WIND - DESIGN BY CONTRACTOR

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

## Performance - General

### 1.9 ENERGY EFFICIENCY

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

## Quality control and assurance

## 2 PRODUCTS

### Glass types

#### 2.1 CLEAR FLOAT GLASS

Clear ordinary annealed transparent float glass for general window glazing. Thickness to [NZS 4223.1](#) and [NZS 4223](#), Parts 1, 2, 3 and 4. Refer to SELECTIONS.

## 2.2 TOUGHENED SAFETY GLASS (TSG)

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

## 2.3 TEXTURED, PATTERNED, OBSCURED & PRINTED GLASS

Textured glass, screen printed glass, digitally printed glass, sand blasted glass, acid embossed glass, acid stippled glass, and glass with applied films. Refer to SELECTIONS.

## 2.4 SOLAR CONTROL GLASS

Low E coated float glass, available in clear, tinted and reflective ranges for solar and thermal control. Refer to SELECTIONS.

### **Insulating Glass Units (IGU's)**

## 2.5 LOW E DOUBLE GLAZED INSULATING GLASS UNITS (IGU'S)

Low E, argon filled, double glazed insulated glass units with thermal spacer to [AS/NZS 4666](#), [NZS 4223.2](#) and [AS/NZS 2208](#), available in 4 ranges with clear float, laminated, tinted and obscured glass. Refer to SELECTIONS.

### **Mirrors**

## 2.6 MIRROR GLASS

Clear annealed mirrored float glass, including silver, activation, passivation and two protective coats.  
Refer to SELECTIONS.

## 2.7 MIRROR MOUNTING CHANNELS

Refer to SELECTIONS.

### **Bath and shower screens**

## 2.8 GLASS SHOWER & BATH SCREENS BATH

TempaFloat TSG proprietary shower and bath screens, and doors with MFG hardware. Refer to SELECTIONS.

### **Components, general**

## 2.9 JOINTING, PUTTY AND SEALING MATERIALS

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

### **Components, aluminium and uPVC glazing**

## 2.10 GLAZING TAPE AND GASKETS

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

### **Components**

## 2.11 MIRROR ADHESIVE

Adhesive mirror-mastic and double-sided adhesive tape.

## **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, STORAGE & HANDLING OF PRODUCTS

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

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, and [AS/NZS 4666](#) for IGUs.

### 3.3 ROUTINE MATTERS

Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.

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

### 3.4 GLASS CONDITION

All glass to have undamaged edges and surfaces in accordance with [AS/NZS 4667](#).

### 3.5 GLASS THICKNESS

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

Determine the final glass thickness based on specific wind loading, human impact and any other considerations that govern.

### 3.6 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**

### 3.7 SAFETY GLAZING, GENERAL REQUIREMENTS

Glazing of doors, side panels, low level and window seat glazing, bathrooms, stairwell landings and similar locations, to [NZS 4223.3](#) as modified by [NZBC B1/AS1](#), 7.3.1, for thickness and maximum areas of panel Safety Glass.

### 3.8 SAFETY GLAZING GLASS

Use only safety glazing glass 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 glass is permanently marked to [NZS 4223.3](#), 2.8 Identification.

### 3.9 CONTAINMENT

Edge cover to comply with [NZS 4223.1](#), Section 4 Glazing, table 5. Otherwise to [NZS 4223.3](#), 2.3 Edge cover. IGUs to comply with [AS/NZS 4666](#).

#### **Assembly**

### 3.10 WORKING OF GLASS

All working of glass as required in [NZS 4223.1](#).

### 3.11 EDGE WORK AND BEVELLING

All edges shall be clean cut unless specified in SELECTIONS or as shown on drawings.

### 3.12 SURFACE TREATMENT

Refer to SELECTIONS/drawings for finish.

### 3.13 SURFACE CUTTING

Refer to SELECTIONS/drawings for finish.

#### **Application - aluminium**

### 3.14 INSTALL GLASS TO ALUMINIUM FRAMES

Install glass to [NZS 4223.1](#).

- Bead glaze to Section 4 Glazing.
- Channel glaze to Section 4 Glazing, and Section 5 for Framed, Unframed, Partly Framed Glass Assemblies.

#### **Application - mirrors**

### 3.15 MIRRORS, ADHESIVE FIXED

Fix with adhesive mirror-mastic and double-sided adhesive tape. Adhesive area 0.2 m<sup>2</sup> per 1 m<sup>2</sup> of glass to [NZS 4223.3](#).

### Application miscellaneous

#### 3.16 INSTALL GLASS BATH & SHOWER SCREENS

Install shower and bath screens and doors to manufacturer's requirements.

### Finishing

#### 3.17 SAFETY

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

### Completion

#### 3.18 COMPLETION MATTERS

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

#### 3.19 TRADE CLEAN

Remove safety indicators and trade clean at completion of the building as required by the contract documents.

#### 3.20 REPLACE

Replace damaged, cracked or marked glass that occurs during glazing.

#### 3.21 REMOVE

Remove debris, unused materials and elements from the site.

## 4 SELECTIONS

For further details on selections go to [www.metroglass.co.nz](http://www.metroglass.co.nz). Substitutions are not permitted to the following, unless stated otherwise.

### Insulating Glass Units (IGU's)

#### 4.1 METRO PERFORMANCE GLASS - LOW E DOUBLE GLAZED INSULATING GLASS UNITS (IGU)

Location:	refer to window and door schedule
Supplier:	Metro Performance Glass
Brand/type:	Metro Low E Xcel Clear- <b>TO BE CONFIRMED WITH CLIENT</b>
U-value:	1.1
Outer pane thickness/type:	Fabricator to confirm
Inner pane thickness/type:	Fabricator to confirm
IGU width:	Fabricator to confirm
Spacer gas	Argon

### Mirrors

#### 4.2 METRO PERFORMANCE GLASS - MIRROR

Location:	refer to drawings
Brand/type:	Standard
Dimensions:	refer to Component drawings
Thickness:	TBC
Fixing method:	Adhesive
Edgework:	flat polish

### Glass screens / balustrades and pool fences

#### 4.3 METRO PERFORMANCE GLASS - GLASS BALUSTRADE

Location:	refer to drawings
-----------	-------------------

Brand/type: Metro Glass / Laminated Safety Glass  
Glass name: STF Laminate (SentryGlas)  
Thickness: Based on application requirement  
Hardware: MFG type-TBC

**Glass shower & bath screens**

4.4 METRO PERFORMANCE GLASS - FRAMELESS SHOWER SCREENS AND DOORS

Location: refer to drawings  
Brand/type: Metro Glass  
Glass: TempaFloat  
Thickness: Based on application requirement  
Hardware: MFG type- TBC

# 4711AG AUTEX GREENSTUF® THERMAL INSULATION

## 1 GENERAL

This section relates to Autex Industries Limited GreenStuf® polyester fibre insulation installed, laid, hung or fitted as thermal insulation.

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

BIB	Building Insulation Blanket
GSM	Grams per square metre

### Documents

### 1.2 DOCUMENTS

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

<a href="#">NZBC C/AS2</a>	Protection from fire
<a href="#">NZBC C/VM2</a>	Protection from fire
<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">NZBC H1/AS1-AS2</a>	Energy efficiency
<a href="#">NZBC H1/VM1-VM2</a>	Energy efficiency
<a href="#">AS/NZS 3000</a>	Electrical installations (Known as the Australian/New Zealand Wiring Rules)
<a href="#">NZS 4246</a>	Energy efficiency - Installing bulk thermal insulation in residential buildings
<a href="#">AS/NZS 4534</a>	Zinc and zinc/aluminium-alloy coatings on steel wire
<a href="#">AS/NZS 4859.1</a>	Thermal insulation materials for buildings - General criteria and technical provisions
<a href="#">AS/NZS 60695.11.5</a>	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance
<a href="#">AS/NZS ISO 9001</a>	Quality management systems - requirements
<a href="#">ISO 9705</a>	Fire Tests: Full scale room test for surface products

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Data Sheet	GreenStuf® Thermal Wall Insulation
Data Sheet	GreenStuf® Thermal Underfloor
Installation Instructions	GreenStuf® Thermal Ceiling and Wall Insulation
Installation Instructions	GreenStuf® Thermal Underfloor

GreenStuf® BPIR

GreenStuf® Material Safety Data Sheet

GreenStuf® Insulation Residential Guide

GreenStuf® Certificate of Warranty

[BRANZ Appraisal 380](#) - GreenStuf® Insulation

[BRANZ Appraisal 734](#) (2021) - GreenStuf® Underfloor Insulation - Amended 19 August 2024

BRANZ Fire Assessment Report FAR 4045 - Assessment Report on Autex GreenStuf® with Variations to Tested Product

Buy NZ Made Campaign Ltd - Certificate of [Licence No. 705337](#)

Manufacturer/supplier contact details

Company: Autex Industries Limited

Web: [www.greenstuf.co.nz](http://www.greenstuf.co.nz)

Email: [enquiries@greenstuf.co.nz](mailto:enquiries@greenstuf.co.nz)

Telephone: 0800 428 839

### Warranties

**1.4 WARRANTY - MANUFACTURER/SUPPLIER**

Provide a material manufacturer/supplier warranty:  
50 years For polyester thermal insulation material

- 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:  
1 year For installation

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

**Requirements****1.6 QUALIFICATIONS GENERAL**

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

**1.7 NO SUBSTITUTIONS**

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

**Performance****1.8 FIRE GROUP NUMBERS**

The Group Number Classification to [NZBC C/AS2](#), table 4.3, has been determined in accordance with [NZBC C/VM2 Appendix A](#), following testing and data reduction to ISO 9705.

Product	Group number
GreenStuf®, all variations up to 4,800GSM Refer to BRANZ Fire Assessment Report FAR 4045	1-S

**2 PRODUCTS****Materials****2.1 GREENSTUF® THERMAL INSULATION**

100% polyester fibres thermally bonded in pad, roll and blanket forms to [AS/NZS 4859.1](#). Manufactured in NZ under [AS/NZS ISO 9001](#) and ISO 14001 quality and environmental management systems. Compliant with [AS/NZS 60695.11.5](#), the insulation can safely abut downlights classified CA 80, CA 90, CA 135 and can safely cover downlights classified IC, IC-4 and IC-F. Refer to SELECTIONS.

**Components****2.2 WIRE NETTING**

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

**2.3 PLASTIC STRAPPING TAPES**

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

**2.4 STAPLES**

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

**3 EXECUTION****Conditions**

### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

### 3.2 ROUTINE MATTERS

Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.

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

### 3.3 PRE-INSTALLATION REQUIREMENTS

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

Check that the location and framing are free from moisture, cavities are not interconnected and required wire netting, underlays and vapour barriers are in place.

Check all wall and roof underlays are dry, clean, bright, undamaged and free of debris.

Check foils are dry, clean, bright, undamaged and free of debris.

Check vapour barriers form a homogeneous sheet.

#### **Waste Management - Takeback Programme**

### 3.4 TAKEBACK PROGRAMME - GREENSTUF® RECYCLING

Clean working area prior to commencing installation of GreenStuf® insulation. Place clean GreenStuf® insulation off-cuts and clean GreenStuf® bale bags in separate large clean GreenStuf® bale bags. Store full bags separate from general construction waste.

Return full bags of GreenStuf® insulation off-cuts and bale bags for recycling to:

- 22 - 24 Miami Parade, Onehunga, Auckland 1061
- Report to office upstairs on arrival
- Contact number: 021 820 247

#### **Installation/application**

### 3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

### 3.6 LAY WIRE NETTING - UNDER JOISTS / PURLINS

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

### 3.7 LAY PLASTIC STRAPPING TAPE

Lay at right angles across the framing at a minimum of 300mm centres, staple tape to each framing member with stainless steel staples to prevent insulation bulge into vented cavity when fit where stud spaces are greater than 450mm.

### 3.8 CUTTING INSULATION TO SIZE

Tear insulation by hand or cut with an insulation saw/knife, sharp scissors, or with sharp wide-blade knife after compressing the insulation under a timber off-cut. Cut slightly oversized for snug friction fit.

### 3.9 INSTALL INSULATION - GENERAL

Lay, install, fit and fix insulation without gaps, tucks, folds and over compaction to [NZBC H1/AS1](#) or AS2 and insulation manufacturer's requirements. For all housing and buildings up to 300m<sup>2</sup>, install in accordance to [NZS 4246](#) sections 5 Walls, 6 Ceilings & Roofs, 7 Underfloor - Suspended Framed Floors and 10 Concrete Slab-on-Ground Insulation, for residential light timber or steel framed buildings. Allow insulation to re-loft/relax prior to installation. Maintain full insulation thickness throughout installation. Do not cover vents and cut around metal flues to the safety requirement of the fireplace manufacturer. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

### 3.10 FIT THERMAL INSULATION

Friction fit GreenStuf® insulation between framing member (i.e. wall studs, rafters/trusses or midfloor joists) to completely fill the whole of the cavities. Tear or cut to smaller pieces for smaller spaces and around penetrations. Fix in place with plastic strapping tape to hold the insulation until the wall and/or ceiling linings are in place.

Refer to GreenStuf® Thermal Ceiling and Wall installation instructions.

### 3.11 RECESSED LIGHT FITTINGS - RESIDENTIAL

Residential recessed light fittings to [AS/NZS 3000](#), 4.5.2.3.5;

- Existing fittings or retrofit situations, fittings maybe unmarked
- New fittings can only be labelled - CA 80, CA 90, CA 135, IC, IC-F & IC-4

Refer to clause INSULATION CLEARANCES GENERALLY for clearances.

### 3.12 INSULATION CLEARANCES GENERALLY

Insulation may need to have a gap to some mechanical and electrical services and equipment, including ducts and chimneys. 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](#).
- 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, PIR, 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.

#### LIGHT FITTINGS

Type of fitting	Minimum insulation clearance	Comments
Recessed, marked NON-IC, or unmarked	100mm (increase if over 100W)	NON-IC fittings and new or old unmarked & unknown fittings, and/or insulation. Secure insulation.
Recessed, CA 80, CA 90 or CA 135	Abut fittings	Do NOT cover the fittings
Recessed, IC, IC-F or IC-4	Abut & cover fittings	Ensure insulation complies
Recessed, marked Do-Not-Cover	Manufacturers clearances	Do not cover the fittings
Independent control gear	Place on top of insulation & 50mm from fitting	If not on top allow 50mm clearance to insulation, do not cover. Includes, transformers, ballasts & drivers etc.
Surface fittings not exposed to insulation	Nil	Where surface fittings are isolated from insulation by appropriate linings. Excludes high heat fittings.
Surface fittings & exposed insulation	200mm	This is exposed insulation to any part of the exposed fitting & bulb/tube (e.g. exposed light in an unlined basement). Secure insulation.

#### INBUILT RECESSED HOT APPLIANCES

Appliance	Minimum insulation clearance	Comments

Electrical heaters	100mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Gas appliance exposed flame	200mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Excludes uncommon appliances, refer <a href="#">NZS 4246</a> .
Gas appliance flues	75mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation. Excludes uncommon appliances refer <a href="#">NZS 4246</a> .
Oil-fired appliances and flues	230mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Open fireplace opening	200mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Brick masonry chimneys	50mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Metal chimneys & flues	75mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Solid fuel appliance	600mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Solid fuel appliance flue	600mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.

#### EXTRACTS, VENTS, PIPES & ROOF UNDERLAY

Application	Minimum insulation clearance	Comments
Ducted fan motors	50mm	Includes ducted rangehoods, extractors etc. Applies to the motor unit and electrical enclosures (not the ducts)
Ducted fan ducts	Abut	Excludes motor unit and electrical enclosures.
Unducted fan motors usually discharging to ceiling space	200mm	Includes unducted, rangehoods, extractors etc, discharging into roof space. To prevent debris falling into motor. Clearance may be able to be reduced, by providing a fixed barrier around the vent.
Passive vents (still in use)	200mm	To prevent debris falling through. Clearance may be able to be reduced, with more cohesive insulation, like some of the rigid plastic types or providing a fixed barrier around the vent.
Plumbing penetrations through floors	100mm	Keep gap between pipe penetration and floor insulation in case of leaks.
Roofing material/underlay	25mm	From underside of roofing or flexible roofing underlay, to prevent wicking

#### Completion

#### 3.13 COMPLETION MATTERS

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

#### 4 SELECTIONS

For further details on selections go to [www.greenstuf.co.nz](http://www.greenstuf.co.nz)  
Substitutions are not permitted to the following, unless stated otherwise.

#### 4.1 GREENSTUF THERMAL WALL INSULATION

Location: Wall insulation - refer to drawings

Supplier: Autex Industries Ltd  
Brand: GreenStuf® Thermal Insulation  
Material: Polyester Fibre  
R-Value: R3.2  
Thickness: 140m  
Product weight: 2,250gsm  
Density: 16.1kg/m<sup>3</sup>  
Format: 360mm wide pads  
560mm wide pads

#### 4.2 GREENSTUF THERMAL MIDFLOOR CAVITY INSULATION

Location: Midfloor Minor dwelling  
Supplier: Autex Industries Ltd  
Brand: GreenStuf® Thermal Insulation  
Material: Polyester Fibre  
R-Value: R2.9  
Thickness: 140mm  
Product weight: 1,850gsm  
Density: 13.2kg/m<sup>3</sup>  
Format: 580mm wide roll

# 4721AG AUTEX GREENSTUF ACOUSTIC INSULATION

## 1 GENERAL

This section relates to Autex Industries Limited GreenStuf® polyester fibre insulation installed, laid, hung or fitted as acoustic insulation.

### 1.1 RELATED WORK

Refer to 4711AG AUTEX GREENSTUF® THERMAL INSULATION for thermal insulation.

### 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:

STC	Sound Transmission Class
NRC	Noise Reduction Coefficient
IIC	Impact Insulation Class
Rw	Weighted sound reduction index
CAC	Ceiling Attenuation Class
GSM	Grams per Square Metre

### Documents

### 1.3 DOCUMENTS

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

<a href="#">NZBC C/AS2</a>	Protection from fire
<a href="#">NZBC C/VM2</a>	Protection from fire
<a href="#">NZBC G6/VM1</a>	Airborne and impact sound
<a href="#">AS/NZS 3000</a>	Electrical installations (Known as the Australian/New Zealand Wiring Rules)
<a href="#">AS/NZS 60695.11.5</a>	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance
<a href="#">AS/NZS ISO 9001</a>	Quality management systems - requirements
<a href="#">ISO 9705</a>	Fire tests - Full-scale room test for surface products

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

### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

Data sheet	GreenStuf® Sound Solution® Classic & Sound Solution® Plus (ASB)
Data sheet	GreenStuf® Acoustic Absorption Blanket (AAB)
Data sheet	GreenStuf® GIB® Noise Control Systems
Installation Instructions	GreenStuf® Acoustic Absorption Blanket (AAB)
GreenStuf® BPIR	
GreenStuf® Material Safety Data Sheet	
GreenStuf® Certificate of Warranty	
BRANZ Fire Assessment Report FAR 4045 - Assessment Report on Autex GreenStuf® with Variations to Tested Product.	
Buy NZ Made Campaign Ltd - Certificate of <a href="#">Licence No. 705337</a>	

Manufacturer/supplier contact details

Company:	Autex Industries Limited
Web:	<a href="http://www.greenstuf.co.nz">www.greenstuf.co.nz</a>
Email:	<a href="mailto:enquiries@greenstuf.co.nz">enquiries@greenstuf.co.nz</a>
Telephone:	0800 428 839

### Warranties

**1.5 WARRANTY - MANUFACTURER/SUPPLIER**

Provide a material manufacturer/supplier warranty:

50 years For polyester insulation material

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

Refer to the general section 1237 WARRANTIES for additional requirements.

**1.6 WARRANTY - INSTALLER/APPLICATOR**

Provide an installer/applicator warranty:

1 year For installation

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

Refer to the general section 1237 WARRANTIES for additional requirements.

**Requirements****1.7 QUALIFICATIONS GENERAL**

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

**1.8 NO SUBSTITUTIONS**

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

**Performance****1.9 FIRE GROUP NUMBERS**

The Group Number Classification to [NZBC C/AS2](#), table 4.3, has been determined in accordance with [NZBC C/VM2 Appendix A](#), following testing and data reduction to ISO 9705.

Product	Group number
GreenStuf®, all variations up to 4,800GSM Refer to BRANZ Fire Assessment Report FAR 4045	1-S

**2 PRODUCTS****Materials****2.1 GREENSTUF® SOUND SOLUTION® INSULATION**

100% polyester fibres thermally bonded in pad, roll and blanket forms to [AS/NZS 4859.1](#). Sound Solution® Classic, Sound Solution® Classic (Reclaimed) and Sound Solution® Plus manufactured in NZ under [AS/NZS ISO 9001](#) and ISO 14001 quality and environmental management systems. Compliant with [AS/NZS 60695.11.5](#), the insulation can safely abut downlights classified CA 80, CA 90, CA 135 and can safely cover downlights classified IC, IC-4 and IC-F. Refer to SELECTIONS.

**Components****2.2 WIRE NETTING**

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

**2.3 PLASTIC STRAPPING TAPES**

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

**3 EXECUTION****Conditions****3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS**

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

**3.2 ROUTINE MATTERS**

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

### 3.3 PRE-INSTALLATION REQUIREMENTS

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

Check that the location and framing are free from moisture, cavities are not interconnected and required wire netting, underlays and vapour barriers are in place.

Check all wall and roof underlays are dry, clean, bright, undamaged and free of debris.

Check foils are dry, clean, bright, undamaged and free of debris.

Check vapour barriers form a homogeneous sheet.

#### **Waste Management - Takeback Programme**

### 3.4 TAKEBACK PROGRAMME - GREENSTUF® RECYCLING

Clean working area prior to commencing installation of GreenStuf® insulation. Place clean GreenStuf® insulation off-cuts and clean GreenStuf® bale bags in separate large clean GreenStuf® bale bags. Store full bags separate from general construction waste.

Return full bags of GreenStuf® insulation off-cuts and bale bags for recycling to:

- 22 - 24 Miami Parade, Onehunga, Auckland 1061
- Report to office upstairs on arrival
- Contact number: 021 820 247

#### **Installation/application**

### 3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

### 3.6 LAY WIRE NETTING - UNDER JOISTS / PURLINS

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

### 3.7 LAY PLASTIC STRAPPING TAPE

Lay at right angles across the framing at a minimum of 300mm centres, staple tape to each framing member with stainless steel staples to prevent insulation bulge into vented cavity when fit where stud spaces are greater than 450mm.

### 3.8 CUTTING INSULATION TO SIZE

Tear insulation by hand or cut with an insulation saw/knife, sharp scissors, or with sharp wide-blade knife after compressing the insulation under a timber off-cut. Cut slightly oversized for snug friction fit.

### 3.9 INSTALL INSULATION GENERALLY

Lay, install, fit and fix to manufacturer's requirements. Maintain full insulation thickness throughout installation. Do not cover vents. Allow a clear gap around metal flues as recommended by the fireplace manufacturer. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

### 3.10 FIT SOUND SOLUTION®

Friction fit GreenStuf® Sound Solution® Classic, Sound Solution® Classic (Reclaimed) and Sound Solution® Plus (ASB) between framing members (i.e. wall studs, rafters/trusses or midfloor joists) to completely fill the whole of the cavities. Tear or cut to smaller pieces for smaller spaces and around penetrations. Fix in place with plaster strapping tape to hold the insulation until the wall and/or ceiling linings are in place.

### 3.11 RECESSED LIGHT FITTINGS - RESIDENTIAL

Residential recessed light fittings to [AS/NZS 3000](#), 4.5.2.3.5;

- Existing fittings or retrofit situations, fittings maybe unmarked
- New fittings can only be labelled - CA 80, CA 90, CA 135, IC, IC-F & IC-4

Refer to clause INSULATION CLEARANCES GENERALLY for clearances.

### 3.12 INSULATION CLEARANCES GENERALLY

Insulation may need to have a gap to some mechanical and electrical services and equipment, including ducts and chimneys. 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](#) 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, PIR, 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.

#### LIGHT FITTINGS

Type of fitting	Minimum insulation clearance	Comments
Recessed, marked NON-IC, or unmarked	100mm (increase if over 100W)	NON-IC fittings and new or old unmarked & unknown fittings, and/or insulation. Secure insulation.
Recessed, CA 80, CA 90 or CA 135	Abut fittings	Do NOT cover the fittings
Recessed, IC, IC-F or IC-4	Abut & cover fittings	Ensure insulation complies
Recessed, marked Do-Not-Cover	Manufacturers clearances	
Independent control gear	Place on top of insulation & 50mm from fitting	If not on top allow 50mm clearance to insulation, do not cover. Includes, transformers, ballasts & drivers etc.
Surface fittings not exposed to insulation	Nil	Where surface fittings are isolated from insulation by appropriate linings. Excludes high heat fittings.
Surface fittings & exposed insulation	200mm	This is exposed insulation to any part of the exposed fitting & bulb/tube (e.g. exposed light in an unlined basement). Secure insulation.

#### EXTRACTS, VENTS, PIPES & ROOF UNDERLAY

Application	Minimum insulation clearance	Comments
Ducted fan motors	50mm	Includes ducted rangehoods, extractors etc. Applies to the motor unit and electrical enclosures (not the ducts)
Ducted fan ducts	Abut	Excludes motor unit and electrical enclosures.
Unducted fan motors usually discharging to ceiling space	200mm	Includes unducted, rangehoods, extractors etc, discharging into roof space. To prevent debris falling into motor. Clearance may be able to be reduced, by providing a fixed barrier around the vent.
Passive vents (still in use)	200mm	To prevent debris falling through. Clearance may be able to be reduced, with more cohesive insulation, like some of the rigid plastic types or providing a fixed barrier around the vent.

Plumbing penetrations through floors	100mm	Keep gap between pipe penetration and floor insulation in case of leaks.
Roofing material/underlay	25mm	From underside of roofing or flexible roofing underlay, to prevent wicking

## Completion

### 3.13 COMPLETION MATTERS

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

## 4 SELECTIONS

For further details on selections go to [www.greenstuf.co.nz](http://www.greenstuf.co.nz).

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

### 4.1 GREENSTUF ACOUSTIC WALL INSULATION

Location:	refer to drawings
Supplier:	Autex Industries Ltd
Brand:	GreenStuf Sound Solution
Product:	Classic
Material:	Polyester Fibre
R-Value:	NA
Thickness:	90mm
Product weight:	1,100gsm
Density:	12.2kg/m <sup>3</sup>
Format:	to suit
Minimum STC:	TBC

### 4.2 GREENSTUF ACOUSTIC WALL INSULATION -IT WALLS

Location:	Fire and Sound rated + acoustic wall system GBTLA 30
Supplier:	Autex Industries Ltd
Brand:	GreenStuf Sound Solution Plus 90
Product:	Polyester Infill
Material:	Polyester Fibre
R-Value:	NA
Thickness:	90mm
Product weight:	1,325gsm
Density:	14.7kg/m <sup>3</sup>
Format:	560mm wide roll
Minimum STC:	58

# 4811S SIKA SEALANTS

## 1 GENERAL

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

It includes:

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

### 1.1 ABBREVIATIONS

The following abbreviations and terms are used throughout this part of the specification:  
VOC Volatile Organic Compound

#### Documents

### 1.2 DOCUMENTS

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

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

### 1.3 MANUFACTURER'S DOCUMENTS

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

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

Manufacturer/supplier contact details:

Company:	Sika (NZ) Ltd
Web:	<a href="http://nzl.sika.com">nzl.sika.com</a>
Email:	<a href="mailto:info@nz.sika.com">info@nz.sika.com</a>
Telephone:	0800 SIKA NZ, 0800 745 269

#### Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

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

- Provide this warranty on the Sika standard form. (For materials only. Warranty excludes application)

- Commence the warranty from the date of practical completion of the contract works.
- **Sika** (NZ) Ltd will warrant that Sika sealant products will perform in accordance with the information stated in **Sika** (NZ) Ltd current Technical Data Sheets.
- Refer to **Sika** (NZ) Ltd for further information on warranty.

Refer to the general section 1237 WARRANTIES for additional requirements

#### 1.5 WARRANTY - INSTALLER/APPLICATOR

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

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

Refer to the general section 1237 WARRANTIES for additional requirements.

### Requirements

#### 1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

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

#### 1.7 SEALANT SELECTION

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

#### 1.8 NO SUBSTITUTIONS

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

#### 1.9 MAINTENANCE CONTRACT PROPOSAL

Provide a priced proposed maintenance contract for annual inspection, cleaning and repairing of sealant joints.

## 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.

#### 2.4 BOND BREAKER TAPE

A pressure sensitive self-adhesive polyethylene or PVC bond breaker tape. Masking tape is not permitted.

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

#### 2.5 FACADE SEALANT - 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.

#### 2.6 FACADE SEALANT - HIGH MOVEMENT, SILICONE, NON-PAINTABLE

Sikasil WS 605 S is a durable, low VOC, one component, neutral curing silicone sealant with a joint movement capacity of +/-50%. Suitable waterproofing and sealing application where durability in severe conditions is required. Conforms to ISO 11600 Type F & G, class 25LM.

#### 2.7 FACADE SEALANT - MEDIUM MOVEMENT, HYBRID, PAINTABLE

Sikaflex® AT-Facade, is a one component hybrid (silane terminated polymers), low VOC, moisture curing sealant with good weathering and a joint movement capacity +/-25%. Conforms to ISO 11600 Type F, Class 25LM and has a [BRANZ Appraisal 613](#).  
Can be over-painted with a range of paints and coatings.

#### 2.8 FACADE SEALANT / AIR SEAL - MEDIUM MOVEMENT, MS, PAINTABLE

Sikaflex® MS is a one component MS (silane modified polymer), low VOC, moisture curing sealant with good weathering and a joint movement capacity +/-25%. Conforms to ISO 11600 Type F, Class 25LM and has a [BRANZ Appraisal 311](#). Complies with [NZBC E2/AS1](#), 9.1.6 for use as an air seal around exterior windows and doors.  
Can be over-painted with a range of paints and coatings.

### **Facade sealants for concrete / masonry brickwork - fire rated**

#### 2.9 FACADE SEALANT - PU, FOR FIRE RATED JOINTS, UP TO 4 HOURS

Sikaflex®-400 Fire is a one component, fire rated, polyurethane, moisture curing, paintable, elastic joint sealant with a movement capacity of +/-35%. For internal and external applications. Up to 4 hour fire resistance (depending on tested joint configuration) in accordance with AS 1530.4 and EN1366.4.

### **Facade sealants for timber / fibre cement sheets and boards**

#### 2.10 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.

#### 2.11 FACADE SEALANT - MEDIUM MOVEMENT, HYBRID, PAINTABLE

Sikaflex® AT-Facade is a one component hybrid (silane terminating polymer), low VOC, moisture curing sealant with good weathering and a joint movement capacity +/-25%. Conforms to ISO 11600 Type F, class 25LM and has a [BRANZ Appraisal 613](#).  
Can be over-painted with a range of paints and coatings.

#### 2.12 FACADE SEALANT - MEDIUM MOVEMENT, MS, PAINTABLE

Sikaflex® MS is a one component MS (silane modified polymer), low VOC, moisture curing sealant with good weathering and a joint movement capacity +/-25%. Conforms to ISO 11600 Type F, Class 25LM and has a [BRANZ Appraisal 311](#). Complies with [NZBC E2/AS1](#), 9.1.6 for use as an air seal around exterior windows and doors.  
Can be over-painted with a range of paints and coatings.

### **Window and door sealants - aluminium / timber / PVC**

#### 2.13 WINDOW & DOOR 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.

#### 2.14 WINDOW & DOOR SEALANT - HIGH MOVEMENT, SILICONE, NON-PAINTABLE

Sikasil WS 605S is a durable, low VOC, one component, neutral curing silicone sealant with a joint movement capacity of +/-50%. Suitable waterproofing and sealing application where durability in severe conditions is required. Conforms to ISO 11600 Type F & G, class 25LM.

#### 2.15 WINDOW & DOOR SEALANT - MEDIUM MOVEMENT, HYBRID, PAINTABLE

Sikaflex® AT-Facade, is a one component hybrid (silane terminating polymer), low VOC, moisture curing sealant with good weathering and a joint movement capacity +/-25%. Conforms to ISO 11600 Type F, class 25LM and has a [BRANZ Appraisal 613](#).  
Can be over-painted with a range of paints and coatings.

#### 2.16 WINDOW/DOOR SEALANT - MEDIUM MOVEMENT, MS, PAINTABLE

Sikaflex® MS is a one component MS (silane modified polymer), low VOC, moisture curing sealant with good weathering and a joint movement capacity +/-25%. Conforms to ISO 11600 Type F, Class 25LM and has a [BRANZ Appraisal 311](#). Complies with [NZBC E2/AS1](#), 9.1.6 for use as an air seal around exterior windows and doors.  
Can be over-painted with a range of paints and coatings.

### Concrete Floor Sealant - control joints / seismic and wide joints

#### 2.17 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.

### Interior sealants / adhesives

#### 2.18 BATHROOM ADHESIVE - ACRYLIC SHOWER LINERS & BATHWARE

Sika Showerbond, a one component solvent based, fast grab, gun grade adhesive, specifically formulated for bonding plastic shower linings to unpainted gypsum plasterboard or fibre cement wall linings.

#### 2.19 BATHROOM SEALANT - ACRYLIC BATHWARE

Sikasil® NG, a one component, neutral curing silicone sealant formulated for use with acrylic, ASB and polycarbonate bathware.

#### 2.20 INTERIOR GENERAL SEALANT - WALL PANELS, MOULDINGS ETC

Sikasil® Wet Areas is a one component, neutral curing wet area silicone sealant with joint movement capacity of +/-25%. Good durability and adhesion to a wide range of substrates including standard wet area substrates. Conforms to ISO 11600 Type F & G, class 25LM.

#### 2.21 INTERIOR SOLVENT BASED ADHESIVE - BONDING WALL PANELS

Sika® Nailbond® SB is a one component, solvent based, general purpose, rubber adhesive for bonding internal lining panels including wet area internal lining panels such as seratone or hardglaze to substrates. Can use on LOSP or CCA treated timber.

#### 2.22 INTERIOR LOW VOC ADHESIVE - BONDING WALL PANELS

Sikaflex 123MS Bond is a one component, polyurethane / MS hybrid flexible sealant /adhesive based on silane terminated polymers. Excellent adhesion to many porous and non-porous substrates including wet area internal lining panels such as seratone or hardglaze.

#### 2.23 INTERIOR GENERAL SEALANT - CERAMIC TILING TO FLOORS & WALLS

Sikasil® Color is a one component, acetic cure, silicone sealant with joint movement capacity of +/-25%. Good durability and adhesion to tiles and glass. Available in a range of colours which match Sika Ceram grout colours.

## 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.

### 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](http://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 INSTALLATION BOND BREAKER TAPE

Adhere a suitable bond breaker tape to the base of the cleaned and prepared joint. The width of the tape needs to be slightly narrower than the width of the joint and must be adhered in a manner that avoids adhesion to either side of the joint.

### 3.17 PRIMING - POROUS SUBSTRATES

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

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

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

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

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

### 3.18 PRIMING - NON-POROUS SUBSTRATES

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

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

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

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

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

### 3.19 PRIMING - FOR ACRYLIC AND BITUMEN BASED SEALANTS

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

### 3.20 SEALANT APPLICATION

Sika sealants are supplied ready to use, insert the cartridge / uni-pack into a sealant pressure gun. After the necessary substrate / joint preparation and priming, extrude uniformly the selected sealant into the joint cavity.

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

### 3.21 SEALANT TOOLING & FINISHING

Tool sealant as soon as practical after application and prior to the sealant surface forming a skin. Tool sealant face firmly to compact into the joint to form a smooth, flat or concave profile, to give the desired effect when cured.

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

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

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

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

### 3.22 ADHESIVE APPLICATION

Apply selected Sika adhesive for bonding shower liners and wall panels such as seratone and hardiglaze in accordance with Sika NZ Ltd instruction and the relevant and current Product Data Sheets.

### 3.23 SURROUNDING WORK

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

## Completion

### 3.24 COMPLETION MATTERS

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

## 4 SELECTIONS

For further details on selections go to [nzl.sika.com](http://nzl.sika.com). Substitutions are not permitted to the following, unless stated otherwise.

### 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**

## 4821 FLASHINGS

### 1 GENERAL

This section relates to the fabrication and installation of flashing systems not forming part of a proprietary system.

#### Documents

#### 1.1 DOCUMENTS

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

<a href="#">NZBC B2/AS1</a>	Durability
<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">AS/NZS 2728</a>	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
<a href="#">NZS 3604</a>	Timber-framed buildings
<a href="#">NZMRM CoP</a>	NZ Metal Roof and Wall Cladding Code of Practice

#### Requirements

#### 1.2 QUALIFICATIONS

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

#### 1.3 VERIFY DIMENSIONS

Verify dimensions against site measurements prior to fabrication.

#### Standards of performance

#### 1.4 DURABILITY REQUIREMENTS

Design and install the flashings appropriate for the durability applications in accordance with [NZBC B2/AS1](#). The Building Code B2, 3.2 requires that all hidden elements have at least the same durability as that of the element that covers it. Refer to [NZBC B2/AS1](#) Table 1: Durability Requirements of Nominated Building Elements and [NZBC E2/AS1](#) Table 20 Material selection.

#### 1.5 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.

### 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:	Aluminium
Window/doors:	
- Head:	0.7mm aluminium powder coated to match window
- Sill:	0.7mm aluminium powder coated to match window
-Brick veneer-windows	refer to section 4261 Brick veneer cladding
Cladding:	
- External corner:	TBC aluminium refer to details
- Internal corner:	TBC aluminium refer to details
Balustrade capping:	TBC aluminium refer to details
Garage door:	TBC aluminium refer to details
Meter box:	TBC
Chimney flue:	refer to details
Soffit:	Aluminium refer to details
Wall/roof junctions:	
Barge:	Refer to details
Apron:	Refer to details
Parapet capping:	Refer to details
Saddle:	Refer to details
Change of pitch:	Refer to details
Curved:	Refer to details
Roof penetrations:	Refer to details

# 4851 EXTERIOR HANDRAILS & TIMBER BALUSTRADES

## 1 GENERAL

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

### Related work

### Documents

#### 1.1 DOCUMENTS REFERRED TO

Documents referred to in this section are:

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

## 2 PRODUCTS

#### 2.1 NON-TIMBER HANDRAIL

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

#### 2.2 HARDWARE

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

## 3 EXECUTION

### Conditions

#### 3.1 GENERALLY

Execution to include those methods, practices and processes contained in the current syllabus for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

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

### Application

#### 3.2 HANDRAILS

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

### Completion

#### 3.3 LEAVE

Leave work to the standard required by following procedures.

#### 3.4 REMOVE

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

## 4 SELECTIONS

#### 4.1 STEEL BALUSTRADE & HANDRAIL

Description:	Steel
Finish:	refer 6745R Resene Protective coatings

#### 4.2 ACCESSORIES

Brackets: Steel  
Finish: refer 6745R Resene Protective coatings

# 4911 STEEL METALWORK

## 1 GENERAL

This section relates to the fabrication and installation of steel items, including:

- support frames
- fabricated brackets
- stairs
- custom steel balustrade

### Documents

#### 1.1 DOCUMENTS REFERRED TO

Documents referred to in this section are:

<a href="#">AS/NZS 1163</a>	Cold-formed structural steel hollow sections
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
<a href="#">AS/NZS 1554.1</a>	Structural steel welding - Welding of steel structures
AS/NZS 1594	Hot-rolled steel flat products
AS 1627.4	Metal finishing - Preparation and pretreatment of surfaces - Method selection guide - Abrasive blast cleaning
AS 1627.9	Metal finishing - Preparation and pretreatment of surfaces - Method selection guide - Pictorial surface preparation standards for painting steel surfaces
<a href="#">AS/NZS 2312:2002</a>	Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings
<a href="#">AS/NZS 3679.1</a>	Structural steel - Hot rolled bars and sections
<a href="#">AS/NZS 4680</a>	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
<a href="#">AS/NZS 4792</a>	Hot-dip galvanized (zinc) coatings on ferrous hollow sections, applied by a continuous or special process
<a href="#">NZS/BS 1387</a>	Screwed and socketed steel tubes and tubulars and for plain end steel tubes suitable for welding or for screwing to BS 21 pipe threads
BS 2630	Resistance projection welding of uncoated low carbon steel sheet and strip using embossed projections
<a href="#">BS 6497</a>	Powder organic coatings for application and stoving to hot-dip galvanized hot-rolled steel sections and pre-formed steel sheet
BRANZ BU 567	E2/AS1 Flashing Requirements
<a href="#">GANZ</a>	Galvanizing Association of New Zealand - After-Fabrication Hot Dip Galvanizing. A practical reference for designers, specifiers, engineers, consultants, manufacturers and users

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

#### 1.2 QUALIFICATIONS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications. Metalworkers to be qualified as welders and experienced in working with steel and the techniques specified.

#### 1.3 HOT WORK - FIRE SAFETY

Refer to section 1270 CONSTRUCTION

#### 1.4 SHOP DRAWINGS

Provide shop drawings for review before manufacture showing:

- plans, elevations and sections
- methods of fixing
- methods of joint forming
- methods of fabrication and site assembly of large units.
- Refer to the general section 1235 SHOP DRAWINGS for the requirements for submission and

review and the provision of final shop drawings.

## 2 PRODUCTS

### Materials

#### 2.1 STEEL SECTIONS

Hot-rolled steel bars and sections to [AS/NZS 3679.1](#).

#### 2.2 HOLLOW STEEL SECTIONS

Cold formed to [AS/NZS 1163](#), or hot-rolled as required.

#### 2.3 STEEL TUBES AND TUBULARS

To [NZS/BS 1387](#).

#### 2.4 STEEL FLAT

Hot-rolled sheet and/or strip to AS/NZS 1594.

#### 2.5 HOT-DIP ALUMINIUM AND ZINC ALLOY COATED STEEL, UNPAINTED

Hot-dip aluminium and zinc alloy coated steel coil to AS 1397.

Coating class: AZ 150

### Components

#### 2.6 SCREWS

Self-tapping metal with similar composition and mechanical properties to the parent metal and with the type of head, length, gauge and thread to suit the work and its location.

#### 2.7 SCREWS

Hexagonal head, self-drilling, with similar composition and mechanical properties to the parent metal. Select type of head, length, gauge and thread to suit the work and its location.

#### 2.8 BOLTS

Similar composition and mechanical properties to the parent metal, selecting type and size to suit the work and its location.

#### 2.9 THREADED STUDS

Mild steel with similar composition and mechanical properties to the parent metal. Select stud and nut threads to suit the base material and the nut being used.

### Finishes

#### 2.10 PRIMER

Alkyd oil zinc chromate priming paint.

#### 2.11 EXTERNAL ORGANIC COATINGS

Polyester exterior grade coatings to [BS 6497](#).

## 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 AVOID DISTORTION

Avoid distortion of elements during transit, storage and handling.

**3.4 PREVENT SURFACE DAMAGE**

Prevent pre-finished surfaces rubbing together, and any contact with mud, plaster or cement. Keep protective coverings dry.

**3.5 PREPARATION**

Ensure location and substrate is ready to receive the elements and will allow work of the required standard.

**3.6 FLASHINGS**

Select and use sheet metals suited to the element, process or finish specified, jointing them as necessary to allow full development of their expected durability with a minimising of corrosion and to BRANZ BU 567.

**Assembly****3.7 PROTECTION**

During fabrication protect all surfaces which will be visible in completed work.

**3.8 COLD FORMING**

Cold formed work to be free from warping, buckling and fractures. Form bends with a brake press or by cold rolling.

**3.9 CORNERS**

Unless specified otherwise, mitre junctions of identical sections.

**3.10 HOLES**

Form without distortion of surrounding metal.

**3.11 MOVING PARTS**

When assembled, all moving parts must move freely and without binding.

**3.12 CLEANING**

Remove all burrs and sharp arrises which would be visible after fixing, or a hazard to the user.

**3.13 RIVETED JOINTS**

Draw riveted joints tightly together, with rivets closed to completely fill holes.

**3.14 MECHANICAL JOINTS**

Ensure mechanical joints are tight with no visible gaps.

**3.15 MECHANICAL JOINTS, ELEMENTS**

Bed in mastic all mechanical joints of elements which will be located externally, including all mating surfaces, cleats and other fixings.

**3.16 MECHANICAL JOINTS, CLEATS**

Unless specified otherwise connect cleats to frames with countersunk screws where they will be visible after the component has been fixed and where raised heads would interfere with any moving part.

**Assembly - Welding****3.17 PREPARATION**

Remove grease, dirt, moisture and oxide from edges being welded. Remove scale and residue from arc and power cutting by machining or hand grinding.

**3.18 ACCURACY**

Ensure accurate fit using clamps and jigs where practical. Use tack welds for temporary attachment where jiggling is not practical.

**3.19 TACK WELDING**

Use only for temporary attachment unless otherwise specified.

**3.20 WELDS**

Make joints with parent and weld metal fully fused throughout with no inclusions, holes, porosity or cracks.

### 3.21 SPATTER

Prevent weld spatter falling on surfaces of materials which will be self finished and/or visible in completed work.

### 3.22 RESIDUES

Ensure complete removal of flux residues and slag.

### 3.23 BUTT WELDS

Finish butt welds which will be visible in completed work smooth and flush with adjacent surfaces.

### 3.24 WELDING OF STEEL

Use one of the following methods for welding steel:

- gas welding
- metal-arc welding to [AS/NZS 1554.1](#) for mild steel
- projection welding to BS 2630
- other methods subject to approval.

### 3.25 WELDING GALVANIZED OR THERMAL SPRAYED STEEL

When welding already Galvanized steel or Zinc Thermal Sprayed steel either:

- remove coating locally and carry out a standard weld
- leave coating and adjust welding technique to those recommended in [GANZ](#) After-Fabrication Hot Dip Galvanizing document. (Among other things, this will generally mean a slower welding speed.)

Final weld shall meet all the standards and requirements of a standard weld.

#### **Application**

### 3.26 INSTALLATION

Locate plugs accurately and use in accordance with the manufacturer's requirements. Fix plumb, level and true to line. Comply with the specified standards, the reviewed shop drawings and installation details, including brackets, bolts, fixings, grout, bedding compounds and sealants.

### 3.27 LOADING

Elements must not carry any structural load unless designed to do so. Do not use as strutting or support when in place.

#### **Application - sheet steel**

### 3.28 FABRICATE

Fabricate and assemble in a workshop wherever practicable.

### 3.29 MARK OUT

Mark out the work accurately, square and true to line allowing for correct radius folds and laps to give the dimensions required for neat, close fits when in place. Use marking methods that do not damage, deface or cause future corrosive attack to the sheet metal being worked. Do not use carbon-based pencils with aluminium/zinc alloy coated metals.

### 3.30 CUT SHEETS

Cut sheets by mechanical methods leaving edges true to line, square, smooth and free from all burrs. Do not use abrasive cutting blades with aluminium/zinc alloy coated metals.

### 3.31 FORMING

Use mechanical methods wherever possible and form and fold sheets square and true to line and face free of all deformation and defects. Minimise cold-working and stress build-up and their effects by limiting the amount of working and avoiding sharp radius bends (minimum 1 x sheet thickness).

### 3.32 PRE-ASSEMBLE

Pre-assemble in the workshop and match mark items for assembly or erection on site. Do not strain, twist, bend or open such items to force them into the correct position while assembling or erecting.

### 3.33 SEPARATION

Isolate dissimilar materials (metal and non-metal) in close proximity as necessary by painting the surfaces or fitting separator strips. Place isolators between metals and treated timber and cement-based materials. Do not use unpainted lead sheet in contact with or allow water run-off onto zinc-coated and aluminium/zinc alloy coated metals. Refer also to BRANZ BU 567.

### 3.34 JOINING ALUMINIUM AND ZINC ALLOY COATED STEEL

Use self-secured seams, pop rivets, sealant strip, or a combination as best suits the form and location of the work.

### 3.35 INSTALLATION

Locate fixings accurately and use in accordance with the manufacturer's requirements. Fix plumb, level and true to line. Comply with the installation details and complete with bedding compounds and sealants.

### 3.36 LOADING

Ensure elements are fully supported unless designed to be self-supporting.

## Finishing

### 3.37 PREPARATION FOR COATINGS

Before applying coatings remove all welding slag, weld spatter, anti-splatter compounds, paints, grease, flux, rust, burrs and sharp arrises. Make good all defects which would show after application of coating. Finish surfaces smooth.

### 3.38 GALVANIZING

After fabrication clean surface and hot-dip galvanize to [AS/NZS 4680](#) and [AS/NZS 4792](#).

### 3.39 THERMAL METAL SPRAY

After fabrication abrasive blast clean to AS 1627.4, Class 2.5, grind off all burrs and sharp arrises, and hot-wire zinc spray to [AS/NZS 2312:2002](#) followed with a sealer coat or primer/sealer. Spray coat must be sealed within 4 hours of spraying.

### 3.40 BRUSHING AND POWER TOOL CLEANING

Remove oil and grease by the use of solvents. Scrape and power wire brush to a minimum Class 2 finish to AS 1627.9. 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.

### 3.41 ABRASIVE BLASTING

Remove oil and grease by the use of solvents. Abrasive blast clean to a Class 2.5 finish to AS 1627.4. Clean to bright metal, but avoid producing a polished surface. 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.

### 3.42 PRIMING

After fabrication completely remove all surface contaminants and coat with a 2 pot anti-corrosion etch primer.

Reprime if the primer fails or more than 4 weeks elapses before the final coating system is applied.

### 3.43 APPLY COATINGS

Prepare surfaces and apply the coating system strictly in accordance with the coating manufacturer's technical information.

### 3.44 REPAIR DAMAGED GALVANIZING OR THERMAL SPRAY

Where Galvanizing steel or Thermal Spray on steel is damaged refer to sections 6781 HOT DIP GALVANIZING or 6782 METAL SPRAY CORROSION PROTECTION for repair requirements.

### 3.45 EARTHING OR EQUIPOTENTIAL BONDING METALWORK

If it is a project electrical requirement, ensure that any electrically at-risk metalwork, is earthed or equipotential bonded (or at least conductor cable attached) before enclosure.

## Completion

### 3.46 COMPLETION MATTERS

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

## 4 SELECTIONS

### Fabricated steel items

- 4.1 STEEL METALWORK STAIR FRAMING  
Refer to details and refer 6745R Resene Protective coatings
- 4.2 STEEL METALWORK BALUSTRADING  
Refer to details and refer 6745R Resene Protective coatings
- 4.3 STEEL METALWORK HANDRAILS  
Refer to details and refer 6745R Resene Protective coatings
- 4.4 STEEL METALWORK FABRICATED ELEMENTS  
Refer to details and refer 6745R Resene Protective coatings
- 4.5 STEEL METALWORK HARDWARE  
Refer to details and refer 6745R Resene Protective coatings

### Sheet steel items

- 4.6 HOT-DIP ALUMINIUM AND ZINC ALLOY COATED STEEL, UNPAINTED  
BMT: Structural engineer to confirm

### Coatings

- 4.7 PRIMER  
Brand/type: Structural engineer to confirm
- 4.8 EXTERNAL ORGANIC COATINGS  
Location: refer 6745R Resene Protective coatings  
Brand: Resene  
Colour: TBC  
Gloss level: TBC %  
Thickness: TBC microns

# 5111H JAMES HARDIE FIBRE CEMENT SHEET LININGS

## 1 GENERAL

This section relates to the supply and installation of **James Hardie®** Villaboard™ Lining and Hardie™ Groove Lining for:

- internal wall linings

### Documents

#### 1.1 DOCUMENTS

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

<a href="#">NZBC C/AS2</a>	Protection from fire
<a href="#">AS/NZS 2589</a>	Gypsum linings - Application and finishing
<a href="#">AS/NZS 2908.2</a>	Cellulose-cement products - Flat sheet
<a href="#">NZS 3602</a>	Timber and wood-based products for use in buildings

#### 1.2 MANUFACTURER/SUPPLIER DOCUMENTS

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

Villaboard™ Lining

Hardie™ Groove Lining

Fire and Acoustic Design Manual by James Hardie, May 2025

[BRANZ Appraisal 1285](#) (2025) - James Hardie Fire And Acoustic Wall Systems

Manufacturer/supplier contact details

Company: James Hardie New Zealand Limited

Web: [www.jameshardie.co.nz](http://www.jameshardie.co.nz)

Email: [info@jameshardie.co.nz](mailto:info@jameshardie.co.nz)

Telephone: Ask James Hardie™ on 0800 808 868

### Warranties

#### 1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years: For James Hardie®  
(refer to James Hardie® product warranty)

15 years: 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

#### 1.4 NO SUBSTITUTIONS

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

#### 1.5 SAFE WORKING

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

#### 1.6 COMPLIANCE

Fibre cement sheets to [AS/NZS 2908.2](#).

## 2 PRODUCTS

### Materials

## 2.1 PLAIN FIBRE CEMENT SHEET LININGS

James Hardie® Villaboard™ Lining manufactured from treated cellulose fibre, portland cement, sand and water. Cured by high pressure autoclaving and manufactured to [AS/NZS 2908.2](#). Sealed on the face.

### Components

## 2.2 BATTENS, TIMBER

Minimum 45mm wide, 35mm deep timber with depth suitable for length of fasteners used.

## 2.3 PACKERS

3 - 4mm timber packers.

## 2.4 NAILS

6mm and 9mm linings:	40mm x 2.8mm galvanized flathead Hardie™ Flex nails
Over Gypsum plasterboard:	50mm x 2.8mm galvanized flathead Hardie™ Flex nails

## 2.5 SCREWS FOR POWER SCREW GUN DRIVING

Timber framing

6mm and 9mm linings:	Villadrive 6 gauge x 30mm self embedding screws or Hardie™ Drive self embedding stainless steel screws
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Steel framing:	Steel 8 gauge x 32mm self embedding screws
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## 2.6 WALL BOARD ADHESIVE

Polyurethane wallboard adhesive. Refer to James Hardie® product installation manual.

### Accessories

## 2.7 CONTROL JOINTS SECTION

45mm x 10mm shaped PVC control joint or Rondo P35 jointer.

## 2.8 EXTERNAL CORNER SECTIONS

30mm x 30mm x 1.2mm PVC angle.

## 2.9 POLYETHYLENE TAPE

Self adhesive polyethylene for behind expressed joints and expressed control joints.

## 2.10 JOINT REINFORCING TAPE

52mm wide perforated paper tape.

## 2.11 BEDDING COMPOUND

Hardie™ Base Coat compound powder.

## 2.12 FINISHING COMPOUND

Hardie™ Top Coat premixed.

## 2.13 SEALANT

Silicone or polyurethane sealant. Refer to the James Hardie® installation manual.

# 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 MOISTURE CONTENT

Maximum moisture content of timber framing to [NZS 3602](#).

#### 3.4 PROTECT

Protect joinery, fittings and finishes already in place from water staining or damage from lining installation.

#### 3.5 BUILDING

Ensure building is weatherproof before lining work commences.

#### 3.6 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.

#### 3.7 HANDLING

Avoid distortion and contact with potentially damaging surfaces. Carry sheets vertically. Do not drag sheets across each other, or across other materials. Protect edges, corners and surface finish from damage.

#### 3.8 SUBSTRATE

Do not commence work until the substrate is of the standard required by the relevant manufacturer's technical literature for the specified finish; plumb, level and in true alignment. Maximum moisture content of timber framing to [NZS 3602](#).

### Application

#### 3.9 FIXING IN CERAMIC TILED AREAS

Prepare and fix sheets, horizontally or vertically and stagger joints where possible, to James Hardie® installation manual.

#### 3.10 PROVIDE VERTICAL CONTROL JOINTS

Provide vertical control joints at 7.2 metre centres maximum for general application and 4.2 metres centres maximum for tiled applications. Provide acoustic sealant in walls having an acoustic rating.

#### 3.11 PROVIDE HORIZONTAL CONTROL JOINTS

Provide horizontal control joints at 7.2 metres centres maximum for general application and 4.2 metre centres maximum for tiled applications.

#### 3.12 PROVIDE EXTERNAL CORNER ANGLE

Provide perforated PVC external corner angle or paper faced rigid spine corner mould to external corners.

#### 3.13 INTERNAL CORNERS

When used in tiling applications provide a Lumberlock Stud saver to framed internal corner prior to fixing of Villaboard™ Lining.  
Provide perforated PVC corner mould, or paper faced rigid spine corner mould or solid blocking to internal corners.

#### 3.14 FORMING HOLES

Required holes accurately formed and cut to James Hardie® requirements.

#### 3.15 SILICONE JOINTS

Provide polyethylene tape behind joints finished with flexible sealant.

### Levels of Finish

Refer to [AS/NZS 2589](#).

Refer to SELECTIONS/drawings for required levels of finish.

#### 3.16 LEVEL 0, 1 and 2 FINISHES

Refer to James Hardie® installation manual.

#### 3.17 LEVEL 3 FINISH

Application: For use in areas which are to receive heavy or medium texture (spray or hand applied) finishes or where heavy paper wall coverings are to be applied as the final decoration.

Jointing/setting: Joints and corner joints will be set with Hardie™ Base Coat reinforced with perforated paper tape and Hardie™ Top Coat.  
 Finish: This level of finish must be sufficiently smooth to accept vinyl, tiles or textured coatings without blemishes.

**Joint Finishing**

3.18 JOINT FINISHING FOR TILED AREAS

Joints and corner joints set with Hardie™ Base Coat reinforced with perforated paper tape to achieve a level 3 finish.

**Completion & Commissioning**

3.19 COMPLETION MATTERS

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

**4 SELECTIONS**

**Linings**

4.1 9MM JH VILLABOARD LINING

Location: Refer to drawings- tiled walls  
 Type: James Hardie® Villaboard™ Lining  
 Thickness: 9mm  
 Fixing method: screw

4.2 FIXING CERAMIC TILED AREAS

Location: Refer to drawings  
 Fasteners: TBC

4.3 LEVELS OF FINISH

To conform to the following levels of finish:

Location	Finish level
refer to drawings	L3 for tiled surfaces

# 5113G GIB® PLASTERBOARD LININGS

## 1 GENERAL

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

- standard systems
- superior finish quality systems
- bracing systems
- wet area systems
- GIBFix® Framing systems

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

AWCINZ                      Association of Wall and Ceiling Industries New Zealand

#### Documents

### 1.2 DOCUMENTS

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

<a href="#">NZBC C/AS2</a>	Protection from fire
<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">AS/NZS 2588</a>	Gypsum plasterboard
<a href="#">AS/NZS 2589</a>	Gypsum linings - Application and finishing
<a href="#">NZS 3604</a>	Timber-framed buildings
ISO 5660.1	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method)
ISO 5660.2	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 2: Smoke production rate (dynamic measurement)
BRANZ Technical Paper P21	BRANZ Technical Paper P21: A wall bracing test and evaluation procedure (2010)

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

GIB® Site Guide (April 2024)  
 GIB® Noise Control Systems (September 2017)  
 GIB® Wet Area Systems (February 2021)  
 GIB Ezybrace® Systems (August 2016)  
 GIB Ezybrace® Bracing Design Software  
 GIB Ezybrace® Bracing Supplement Document (December 2016)  
 GIBFix® Framing System (August 2016)  
 GIB Rondo® Metal Batten System (September 2024)  
 GIB-Cove®  
 GIB RocTape®  
 GIB® Goldline™ Platinum Tape-on Trims  
 GIB® UltraFlex high impact corner mould  
[BRANZ Appraisal 394](#) (2025) GIB® Noise Control Systems  
[BRANZ Appraisal 427](#) (2021) GIB® Wet Area Systems  
[BRANZ Appraisal 928](#) (2021) GIB EzyBrace® Systems

Manufacturer/supplier contact details  
 Company:                      Winstone Wallboards  
 Web:                              [www.gib.co.nz](http://www.gib.co.nz)  
 Telephone:                      0800 100 442

#### Requirements

### 1.4 NO SUBSTITUTIONS

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

## 1.5 QUALIFICATIONS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

## 1.6 INSPECTIONS AND ACCEPTANCE

Allow for inspection of the finished plasterboard surface:

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

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

### Compliance

## 1.7 COMPLIANCE - BRANZ APPRAISAL 427

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

## 1.8 COMPLIANCE - BRANZ APPRAISAL 928

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

### Performance

## 1.9 BRACING REQUIREMENTS

Braced wall systems to [NZS 3604](#) when tested to BRANZ Technical Paper P21, using:

- GIB Ezybrace® Systems and/or GIB Ezybrace® Bracing Design Software
- GIB Ezybrace® Bracing Supplement Document

Refer to drawings for location and type.

## 2 PRODUCTS

### Materials

## 2.1 GIB® PLASTERBOARD

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

GIB® Standard plasterboard

GIB Wideline® plasterboard

GIB Ultraline® high quality surface plasterboard

GIB Braceline® & GIB® Noiseline® dual purpose wall bracing & noise control plasterboard

GIB Aqualine® wet area plasterboard

### Components

## 2.2 GIBFIX® ANGLES

GIBFix® Angles, 45mm x 45mm angles, 2.4m or 2.7m long.

## 2.3 SCREWS

GIB® Grabber® drywall type screws as follows:

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

Refer to GIB® requirements for appropriate details.

## 2.4 TAPE ON TRIMS AND EDGES

GIB® Goldline™ tape-on trims  
 GIB® UltraFlex® high impact corner mould  
 GIB® Levelline® Tape on Trim

## 2.5 METAL ANGLE TRIMS

GIB® galvanized steel slim angle trims.

## 2.6 CONTROL JOINTS

GIB® Rondo® P35 control joints.  
 GIB® Goldline™ tape-on trims  
 GIB® plastic W-profile control joints.

### Accessories

## 2.7 ADHESIVE

Timber frame and/or steel frame:  
 GIBFix® One ultra low VOC water based wallboard adhesive  
 GIBFix® All-Bond solvent based wallboard adhesive

## 2.8 JOINTING COMPOUND

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

## 2.9 JOINTING TAPE

GIB® jointing tape.

## 2.10 GAP FILLER

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

# 3 EXECUTION

### Conditions

## 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

## 3.2 ROUTINE MATTERS

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

## 3.3 LEVELS OF PLASTERBOARD FINISH

Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in [AS/NZS 2589](#).

## 3.4 PRE-INSTALLATION REQUIREMENTS - TIMBER FRAMING

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

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

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

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

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

### 3.5 CONFIRM LEVELS OF PLASTERBOARD FINISH ACCEPTANCE

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

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

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

### 3.6 PROTECTION

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

#### **Application**

### 3.7 INSTALL GIBFIX® ANGLES

Install GIBFix® Angles to the wall and ceiling junctions to the GIBFix® Framing System requirements. Install GIBFix® Angles before installation of GIB® plasterboard linings. Run GIBFix® Angles as continuous lengths between framing members. If joints are necessary for the GIBFix® Angles, overlap the angles by a minimum of 300mm and fix as per manufacturers requirements. When jointing GIBFix® Angles, locate the shorter section at the top of the stud.

### 3.8 LINING WALLS AND CEILINGS GENERALLY

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

### 3.9 BOARD ORIENTATION

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

### 3.10 BOARD INSTALLATION FOR GIBFIX® SYSTEM

Fix the GIB® plasterboard to the GIBFix® Angle side over the stud first and then fix the GIB® plasterboard to the GIBFix® Angle only side (not over the stud). If the GIBFix® Angle only side must be fastened off first, provide additional fixings for the GIBFix® Angle to the stud, to the manufacturers requirements.

### 3.11 FORM WET AREA SYSTEMS

Form to GIB Aqualine® Wet Area Systems requirements.

### 3.12 FORM BRACING SYSTEMS

Form bracing systems to:

- GIB Ezybrace® Systems

### 3.13 FORM CONTROL JOINTS

Form control joints to GIB® Site Guide requirements.

### 3.14 INSTALL TAPE-ON TRIMS

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

#### **Finishing**

### 3.15 FINISHING GENERALLY

To GIB® Site Guide and [AS/NZS 2589](#).

#### **Completion & Commissioning**

## 3.16 COMPLETION MATTERS

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

## 4 SELECTIONS

**Plasterboard**

## 4.1 10MM GIB STANDARD SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
refer to drawings	GIB® Standard plasterboard	10mm	L4

## 4.2 10MM GIB WATER RESISTANT SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Bathrooms, ensuite and laundry	GIB Aqualine® plasterboard	10mm	L4

## 4.3 13MM GIB STANDARD SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Refer to drawings	GIB® Standard plasterboard	13mm	L4

## 4.4 13MM GIB WATER RESISTANT SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Bathrooms, ensuite and laundry	GIB Aqualine® plasterboard	13mm	L4

## 4.5 GIB BRACING SYSTEMS

Refer to:

- GIB Ezybrace® Systems

For bracing element location refer to drawn documentation.

**Accessories**

## 4.6 GIBFIX FRAMING SYSTEM COMPONENTS

Brand/type: GIBFix® Angles

Fixings: GIB® Grabber® Dual Head Screws

## 4.7 GIB TAPE ON EDGE OR CORNER TRIMS

Brand/type: refer to details

## 4.8 GIB EDGE PROFILES

Brand/type: refer to details

# 5122PL PLYTECH PANELS RESIDENTIAL LININGS

## 1 GENERAL

This section relates to the supply and fixing of Plytech Panels plywood and non-plywood sheets used for interior linings and for specialist panelling. Plywood panels are also installed as bracing (as lining or under lining).

It includes:

- Pre-finished plywood
- Un-finished plywood

### 1.1 RELATED WORK

Refer to 5511PT PLYTECH PANELS CABINETSRY & JOINERY for panels in cabinetry & joinery.

### 1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

FSC	Forest Stewardship Council
MDF	Medium Density Fibreboard
PEFC	Programme for the Endorsement of Forest Certification

### Documents

### 1.3 DOCUMENTS

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

NZBC B1/AS1	Structure
NZBC C/AS2	Protection from fire
NZBC C/VM2	Protection from fire
NZBC E2/AS1	External moisture
AS/NZS 1170.2: 2011	Structural design actions - Wind actions
AS/NZS 2269.0	Plywood - Structural - Specifications
AS/NZS 2270	Plywood and block-board for interior use
NZS 3604	Timber-framed buildings
ISO 5660.1	Reaction to Fire Tests - Heat Release Smoke Production and Mass Loss Rate Part 1: Heat Release Rate (Cone Calorimeter Method)
BS EN 635	Plywood. Classification by surface appearance.
BS EN 636	Plywood. Specifications

### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

Handling & Cleaning Recommendations  
 Product Datasheet  
 Fire Testing Certificate

Manufacturer/supplier contact details

Company: Big River Group Ltd.  
 Trading as: Plytech Panels  
 Web: [www.plytech.co.nz](http://www.plytech.co.nz)  
 Email: [sales@plytech.co.nz](mailto:sales@plytech.co.nz)  
 Telephone: 0800 900 905 (09 573 5016)

### 1.5 WARRANTY - MANUFACTURER/SUPPLIER

Refer to Plytech Panels Terms & Conditions of Trade for material warranty details and conditions.

- Provide this warranty on Plytech Panels standard form.
- Commence the warranty from the date of Practical Completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

**1.6 WARRANTY - INSTALLER/APPLICATOR**

Provide an installer warranty:

2 years For installation

- Provide this warranty on the installer standard form.
- Commence the warranty from the date of Practical Completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

**Requirements****1.7 QUALIFICATIONS GENERALLY**

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

**1.8 NO SUBSTITUTIONS**

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

**1.9 INFORMATION FOR OPERATION AND MAINTENANCE**

Provide maintenance documentation in accordance with Plytech Handling & Cleaning Recommendations as necessary for the Principal to maintain the works. Provide documentation no later than the date of Practical Completion or the date on which the Principal takes occupation of the works.

**Quality control and assurance****1.10 INSPECTIONS**

Give sufficient notice so that inspection may be made of the following, before installation;

- Pre-assembled fittings/cabinetry fabricated and ready to be delivered to site.
- Site-assembled fittings/cabinetry on site ready for installation.
- Areas of the building prepared to receive fittings/cabinetry.

**2 PRODUCTS****Materials - unfinished plywood****2.1 PLYTECH PANELS BIRCH ELITE A-GRADE**

A decorative panel constructed using 'A'-grade Finnish Birch veneer to ensure a consistent finish, manufactured to BS EN 636.2. The multi-ply edge detail can be accentuated with a clear finish.

Supplied as 2440mm x 1220mm x 12mm (9 ply) & 18mm (13 ply) thick and 2700mm x 1220mm x 12mm (9 ply, A-Grade face and kraft-paperback) available in unfinished and pre-finished in the ultra-matt only, as well as 18mm (13 ply, AA-Grade 2 sides) thick. Refer to SELECTIONS.

**Components****Accessories****2.2 PANEL JOINTERS**

Run to profiles as detailed. Treated H1.2.

**2.3 ADHESIVES - GENERALLY**

Use only multi-purpose water or solvent based wallboard adhesives as required by the panel manufacturer.

**2.4 ADHESIVES - SOUDAL PRODUCTS**

Refer to 4811SG SOUDAL GORILLA SEALANTS & ADHESIVES for fixing options for wall linings.

**Finishes - timber veneer panels****2.5 LIGHT DUTY COATING SYSTEM**

Single pack, clear or pigmented nitro-cellulose or pre-catalysed lacquer.

**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 FRAMING AND/OR SUBSTRATE

To [NZS 3604](#) and the plywood manufacturer's requirements  
Maximum moisture content to be confirmed by Plytech for this application.

## Application - general

### 3.4 SUPPORT

Fully support all edges and joints, except where tongue and groove is used.

### 3.5 SITE MEASURE

Site check and confirm dimensions before wall linings are cut and fixed. Verify positions of electric power outlets, wiring to light fittings included in joinery fixtures, water supplies and waste pipe locations.

### 3.6 SHRINKAGE & EXPANSION

Arrange jointing and fixing so that shrinkage in any part and direction does not impair the strength or appearance of the finished work or damage the adjoining work.

Allow a 2-3mm gap at edges of linings for sheet expansion and 2-3mm at each sheet joint. In areas with an expected high level of internal moisture, allow a gap of 4 - 6mm every 1.2 metres.

### 3.7 UNFINISHED PANEL PREPARATION

Plytech recommend applying one coat minimum of the selected coating system before installation.

This will slightly raise the grain of certain plywood species and then require a light sand. When fixing using panel pins, this first coat will also help when filler is applied into the panel pin holes, creating a barrier for the filler to sit on.

When lining ceiling or hard to access areas, it is recommended that more than first coat be applied before installation. Once installed the final coat can be applied.

## Application - linings

### 3.8 FIXING GENERALLY

A combination of panel pins, gluing and nailing or screwing.

### 3.9 FIT AND FIX PLYWOOD SHEETS

Fit and fix as detailed to the plywood manufacturer's requirements with sheets and trim in plumb, true alignment, face and grain.

### 3.10 APPLY ADHESIVES - SOUDAL PRODUCTS

Refer to 4811SG SOUDAL GORILLA SEALANTS & ADHESIVES for fixing options for wall linings.

## Completion

### 3.11 COMPLETION MATTERS

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

## 4 SELECTIONS

For further details on selections go to [www.plytech.co.nz](http://www.plytech.co.nz).

Substitutions are not permitted to the following, unless stated otherwise

### 4.1 PLYTECH PANELS CERTIFIED SUSTAINABLE TIMBER

Product: Plytech Panels plywood products

Certification type: TBC  
 Timber species: TBC  
 Origin: TBC  
 Claim: TBC

### **Materials - unfinished plywood**

#### 4.2 PLYTECH PANELS BIRCH ELITE A-GRADE

Location: Living room - refer to plans  
 Supplier: Plytech Panels  
 Brand: Birch Elite A-Grade  
 Sheet thickness: refer to details  
 Sheet size: refer to details

### **Finishing - timber veneer panels**

#### 4.3 COATING SYSTEM

Manufacturer: TBC  
 Brand/code: TBC  
 Duty: Medium  
 Colour: Clear finish

### **Components**

#### 4.4 FIXINGS

Lining: refer to details  
 Fixing type/finish: refer to details  
 Centres: refer to details

### **Accessories**

#### 4.5 PANEL JOINTERS

Location/type: refer to details  
 Timber species: refer to details  
 Timber grade: refer to details

#### 4.6 ADHESIVE

Manufacturer: TBC  
 Product name: TBC  
 Type: TBC

# 5151 INTERNAL TRIM

## 1 GENERAL

This section relates to simple lengths of trim fixed on site as of isolated internal members, with simple end joints.

It includes:

- timber
- MDF
- metal

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

[FSC](#) Forest Stewardship Council  
[PEFC](#) Programme for the Endorsement of Forest Certification

### Documents

### 1.2 DOCUMENTS

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

[NZBC C/AS1, C/AS2](#) Protection from fire  
[NZS 3602](#) Timber and wood-based products for use in building  
[NZS 3604](#) Timber-framed buildings  
[NZS 3610](#) Specification for profiles of mouldings and joinery

## 2 PRODUCTS

### Materials

### 2.1 TIMBER TRIM

To [NZS 3610](#) and to profiles detailed on the drawings. Timber species, grade and treatment to [NZS 3602](#).

### Components

### 2.2 NAILS

Bright steel to dimension requirements of [NZS 3604](#). Use galvanized where prone to dampness.

### 2.3 BRADS

Bright steel of a length three times the thickness of the member being fixed. Use cadmium plated where prone to dampness.

### 2.4 SCREWS, STEEL

Bright steel of a length to penetrate the substrate up to the shank. Use stainless steel in wet areas.

### 2.5 SCREWS, CHROME PLATED

Chrome plated of a length to penetrate the substrate up to the shank.

## 3 EXECUTION

### Conditions

### 3.1 GENERALLY

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

### 3.2 STORAGE

Take delivery of trims undamaged and unmarked and store on site under cover, away from moisture, heat and direct sunlight in adequately ventilated area and clear of areas where work is in progress, to ensure materials are of the required standard when fixed in place.

### 3.3 ACCLIMATISE MATERIALS

Remove materials from packaging, separate and allow to acclimatise in the proposed installation area for 48 hours minimum prior to installation.

### 3.4 ENSURE

Ensure that the substrate to trims will allow work of the required standard. If it does not, do not proceed until the substrate has been remedied.

#### **Application - Generally**

### 3.5 INSTALL TIMBER TRIM

Use full lengths. Fit with scribed internal joints, mitred external joints and, mitred and returned at stop ends. Fix plumb, level and true to line and face using nails or brads to suit. Leave secure and with no movement possible.

#### **Finishing**

### 3.6 PUNCH

Punch all nail heads below the face of trim ready to receive stopping, as specified under painting preparation.

### 3.7 COUNTERSINK

Countersink screw heads not less than 2mm below the faces of trim to be painted. Stop and finish off flush with the face, as specified under painting preparation.

### 3.8 PELLETING

Countersink screw head 6mm below the faces of trim which is to be clear finished. Glue in grain-matched pellets not less than 6mm thick and cut from matching timber. Finish off flush with the face.

#### **Completion**

### 3.9 LEAVE

Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following procedures.

### 3.10 PROTECTION

Protect the completed work and make good before any surface finish is applied.

### 3.11 REPLACE

Replace damaged or marked elements.

### 3.12 REMOVE

Remove debris, unused materials and elements from the site.

## **4 SELECTIONS**

### 4.1 INTERNAL TIMBER TRIM

Manufacturer: TBC  
Species/grade: Radiata Pine clears  
Finish: Paint

Member	Reference	Code reference
Skirting	60 x 10 refer to details	

# 5171G GIB PLASTERBOARD FIRE & SOUND LININGS

## 1 GENERAL

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

- fire rated systems including lift shafts and ducting
- sound rated systems

### 1.1 RELATED WORK

Refer to 5113G GIB® PLASTERBOARD LININGS for standard linings

Refer to 5173G GIB® PLASTERBOARD RADIATION PROTECTION LININGS for radiation resisting linings

### 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:

FRR	Fire resistance rating
IIC	Impact insulation class
STC	Sound transmission class
AWCI NZ	Association of Wall and Ceiling Industries New Zealand

### Documents

### 1.3 DOCUMENTS

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

<a href="#">NZBC C/AS2</a>	Protection from fire
<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">AS/NZS 2588</a>	Gypsum plasterboard
<a href="#">AS/NZS 2589</a>	Gypsum linings - Application and finishing
ISO 5660.1	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method)
ISO 5660.2	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 2: Smoke production rate (dynamic measurement)

### 1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

GIB® Site Guide (April 2024)

GIB® Noise Control Systems (September 2017)

GIB® Fire Rated Systems (September 2024)

GIB® Wet Area Systems (February 2021)

GIB Rondo® Metal Batten System (September 2024)

GIB-Cove®

GIB RocTape®

GIB® Goldline™ Platinum Tape-on Trims

[BRANZ Appraisal 289](#) (2024) - GIB® Fire Rated Systems

[BRANZ Appraisal 394](#) (2025) - GIB® Noise Control Systems

Manufacturer/supplier contact details

Company: Winstone Wallboards

Web: [www.gib.co.nz](http://www.gib.co.nz)

Telephone: 0800 100 442

### Requirements

### 1.5 NO SUBSTITUTIONS

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

### 1.6 QUALIFICATIONS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

## 1.7 INSPECTIONS AND ACCEPTANCE

Allow for inspection of the finished plasterboard surface:

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

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

## 1.8 FIRE RATING REQUIREMENTS

Provide the GIB® fire rated systems. Refer to SELECTIONS for system/FRR.

## 1.9 SOUND INSULATION REQUIREMENTS

Provide the GIB® Noise Control Systems. Refer to SELECTIONS for system/STC. Include for forming and treating of perimeters of openings and penetrations in the elements to ensure the specified performance. Ensure absence of adjoining flanking paths.

### Compliance

#### 1.10 COMPLIANCE - BRANZ APPRAISAL 289

GIB® Fire Rated Systems has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its [BRANZ Appraisal 289](#).

#### 1.11 COMPLIANCE - BRANZ APPRAISAL 394

GIB® Noise Control Systems has been appraised as meeting provisions of the NZBC when used within the Conditions and Limitations of its [BRANZ Appraisal 394](#).

## 2 PRODUCTS

### Materials

#### 2.1 GIB® PLASTERBOARD

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

GIB® Standard plasterboard

GIB Ultraline® high quality surface plasterboard

GIB Fyreline® fire resistant plasterboard

GIB Braceline® GIB Noiseline® dual purpose high density sound control plasterboard

GIB Aqualine® wet area plasterboard

### Components

#### 2.2 SCREWS

GIB® Grabber® High tread drywall screws.

GIB® Grabber® Self tapping drywall screws.

GIB® Grabber® Drill Point Fine Thread Screws.

GIB® Grabber® Laminator screws.

#### 2.3 CEILING BATTENS

GIB® Rondo® metal ceiling battens, batten joiners, perimeter channel and clips.

#### 2.4 GIB QUIET TIE

GIB® Quiet Tie® is designed to provide a structural connection between frames of double stud, GIB Noise Control Systems.

#### 2.5 CONTROL JOINTS

GIB® Rondo® P35 control joints.

GIB® Goldline™ tape-on trims.

#### 2.6 TAPE ON TRIMS AND EDGES

GIB® Goldline™ tape-on trims and edges or GIB® UltraFlex® high impact corner mould or GIB® Levelline® Tape on trim.

#### 2.7 METAL ANGLE TRIMS

GIB® galvanized steel slim angle trims.

## Accessories

### 2.8 ADHESIVE

Timber frame and/or steel frame:  
 GIBFix® One ultra low VOC water based wallboard adhesive.  
 GIBFix® All-Bond solvent based wallboard adhesive.

### 2.9 JOINTING COMPOUND

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

### 2.10 JOINTING TAPE

GIB® Paper Joint Tape  
 GIB® RocTape®

### 2.11 ACOUSTIC/FIRE SEALANT

GIB Fire Soundseal™ low VOC highly flexible multi use acoustic sealant.

### 2.12 GAP FILLER

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

## 3 EXECUTION

### Conditions

#### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

#### 3.2 ROUTINE MATTERS

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

#### 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.

Framing substrates shall be in accordance to [AS/NZS 2589](#), GIB® Site Guide and GIB Fire Rated System and/or GIB Noise Control System literature.

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

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

#### 3.4 LEVELS OF PLASTERBOARD FINISH

Provide the selected plasterboard surfaces to the pre decorative Levels of Finish specified in [AS/NZS 2589](#).

#### 3.5 CONFIRM LEVELS OF PLASTERBOARD FINISH ACCEPTANCE

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

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

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

### 3.6 PROTECTION

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

#### Application

### 3.7 INSTALL CEILING BATTENS

Install to GIB® Rondo® Ceiling Batten Systems.

### 3.8 LINING WALLS AND CEILINGS GENERALLY

Form to GIB® Site Guide and in accordance to relevant GIB Fire Rated or Noise Control System. Sheet joints are touch fitted and shall occur over framing where required by system requirements. Ensure bulk insulation thickness shall not exceed that of the wall framing.

### 3.9 BOARD ORIENTATION

Minimise joints by careful sheet layout using the largest sheet sizes possible. Ensure plasterboard orientation is in accordance to the relevant GIB Fire Rated or Noise Control System. Where a double layer of GIB plasterboard is required, ensure the outer sheets are offset from the inner layer in accordance with system requirements.

### 3.10 FORM SOUND INSULATION SYSTEMS

Form to GIB® Noise Control Systems.

### 3.11 FORM FIRE RATED SYSTEMS

Form to GIB® Fire Rated Systems and Penetrations in GIB® Fire Rated Systems.

### 3.12 FORM CONTROL JOINTS

Form control joints to [AS/NZS 2589](#) and GIB® Site Guide (September 2018).

### 3.13 INSTALL TAPE-ON TRIMS

Install to GIB® Goldline™ Tape-on trims literature and/or GIB® Ultraflex® high impact corner mould literature and/or GIB® Levelline® to GIB® Site Guide (September 2018).

#### Finishing

### 3.14 FINISHING GENERALLY

To GIB® Site Guide and [AS/NZS 2589](#).

#### Completion

### 3.15 COMPLETION MATTERS

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

## 4 SELECTIONS

For further details on selections go to [www.gib.co.nz](http://www.gib.co.nz). Substitutions are not permitted to the following, unless stated otherwise.

#### Noise control intertenancy wall systems

### 4.1 GIB NOISE CONTROL SYSTEM GBTLA 30A (DOUBLE TIMBER FRAMING, 2 X 10MM STANDARD BOTH SIDES)

Location:	refer to drawings
System:	GBTLA 30a
Acoustics:	58 STC / 57Rw
FRR:	30/30/30
Framing:	Double timber studs
Insulation:	Greenstuf Sound Solution Plus 90

Lining: 2 x 10mm Gib Standard Plasterboard  
 Finish level: L4

### **Fire rated wall systems**

#### 4.2

#### **GIB FIRE RATED WALL SYSTEM GBTL30 2S (2 SIDED EXPOSURE, 13MM FYRELINE EACH SIDE)**

Location: L1 Refer to drawings  
 System: GBTL30 2S (load bearing)  
 FRR: 30/-/ 36 STC  
 Framing: Timber - min 90x45mm  
 Lining: 1 x 13mm GIB Fyrelite® each side  
 Finish level: L4

### **Fire rated floor/ceiling systems**

#### 4.3

#### **GIB FIRE RATED CEILING SYSTEM GBUC30 (16MM FYRELINE)**

Location: Refer to RCP Drawings  
 System: GBUC30  
 FRR: 30/30/30  
 Lining: 1 x 16mm GIB Fyrelite® one side  
 Finish level: L4

### **Accessories**

#### 4.4

#### **GIB RONDO CEILING BATTENS**

Refer to 5313GS

#### 4.5

#### **GIB TAPE ON EDGE AND CORNER TRIMS**

Brand/type: Refer to 5313GS

#### 4.6

#### **GIB EDGE PROFILES**

Brand/type: Refer to 5313GS

# 5175KP KINGSPAN KOOLTHERM INSULATED PLASTERBOARD

## 1 GENERAL

This section relates to the supply, fixing and finishing of Kingspan Kooltherm® Insulated Plasterboard providing thermal insulation for concrete and masonry block walls, timber and steel framed walls and ceilings.

It includes:

- Kooltherm® K17 Insulated Plasterboard
- and associated componentry and accessories necessary to complete the installation.

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

#### Documents

### 1.2 DOCUMENTS

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

<a href="#">NZBC H1/AS1-AS2</a>	Energy efficiency
<a href="#">NZBC H1/VM1-VM2</a>	Energy efficiency
<a href="#">AS 1397</a>	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
<a href="#">AS/NZS 2589</a>	Gypsum linings - Application and finishing
<a href="#">AS/NZS 3008.1.2</a>	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical New Zealand conditions
<a href="#">AS/NZS 4600:2005</a>	Cold-formed steel structures
<a href="#">AS/NZS 4859.1</a>	Thermal insulation materials for buildings - General criteria and technical provisions
<a href="#">BS EN ISO 9001:2008</a>	Quality management systems - Requirements
<a href="#">AS ISO 9705:2003</a>	Fire tests - Full-scale room test for surface products
CodeMark <a href="#">CM20314</a>	- Kooltherm K17 Insulated Plasterboard

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:  
 Kooltherm® K17 Insulated Plasterboard Product Data Sheet  
 Kooltherm® K17 Insulated Plasterboard Installation Guide  
 BRANZ Group Number Classification FI16647-01-1-C1

Manufacturer/supplier contact details

Company: **Kingspan Insulation NZ Ltd**  
 Web: [www.kingspaninsulation.co.nz](http://www.kingspaninsulation.co.nz)  
 Email: [technical@kingspaninsulation.co.nz](mailto:technical@kingspaninsulation.co.nz)  
 Telephone: 0800 806 595

#### Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:  
 10 years For Kingspan Kooltherm® K17 Insulated Plasterboard

- 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:

2 years

For Kingspan Kooltherm® K17 Insulated Plasterboard installation

- 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 GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

#### 1.7 NO SUBSTITUTIONS

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

### Compliance information

#### 1.8 CODEMARK CERTIFICATE

Kingspan Kooltherm® K17 Insulated Plasterboard meets the requirements of the NZBC when used within the Conditions and Limitations of CodeMark Certificate [CM20314](#).

### Performance

#### 1.9 ENERGY EFFICIENCY

Maintain the energy efficiency requirements to [NZBC H1/AS1-AS2](#) & [NZBC H1/VM1-VM2](#): Energy efficiency, 2.0 Building thermal envelope. Install to the Kingspan Kooltherm® K17 Insulated Plasterboard technical requirements.

## 2 PRODUCTS

### Materials

#### 2.1 INSULATED PLASTERBOARD

Kingspan Kooltherm® K17 Insulated Plasterboard, 2400mm x 1200mm board comprised of fibre-free rigid thermoset phenolic insulation core to [AS/NZS 4859.1](#), sandwiched between a front facing of 10mm thick tapered edge gypsum based plasterboard and a reverse tissue based facing autohesively bonded to the insulation core. Manufactured under quality control systems approved to BS EN [ISO 9001](#). Available in a range of thicknesses and R-values. Refer to SELECTIONS.

### Components

#### 2.2 ADHESIVE - ADHESIVE BONDING

Non solvent based construction adhesive applied to the wall or back of the board.

#### 2.3 SECTIONS AND TRIM MATERIAL

Form from galvanized steel of a coating class not less than ZM275 to AS 1397 and fix with 30mm x 2.5mm galvanized clouts.

#### 2.4 EXTERNAL ANGLE

Perforated.

#### 2.5 INTERNAL REINFORCING ANGLE

Perforated.

#### 2.6 TAPE ON EDGE TRIMS

Tape-on paper tape and galvanized steel trims and edges.

#### 2.7 EDGE PROFILES

Pre-formed aluminium profiles, with perforated edge trims.

### Accessories

#### 2.8 JOINTING COMPOUNDS

System match bedding compound and finishing compound. Refer to the board manufacturer's literature and follow their requirements on which compounds to use with which accessory and in which location, to achieve the required level of finish.

## 2.9 JOINTING TAPE

System match reinforcing tape.

## 3 EXECUTION

### Conditions

#### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

Take delivery of Kingspan Kooltherm® K17 Insulated Plasterboards and accessories; store on site and protect from damage in dry conditions stored indoors out of direct sunlight in neat flat stacks on either an impervious plastic sheet or clear of the floor with no sagging and avoiding damage to ends, edges and surfaces. Reject damaged or wet material.

#### 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 SUBSTRATE

Do not commence work until the substrate is dry, plumb, level and to the standard required by the board manufacturer's requirements.

#### 3.5 LEVELS OF PLASTERBOARD FINISH

Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in [AS/NZS 2589](#).

### Application - general

#### 3.6 PREPARATION

Ensure ceiling lining in position before wall lining commences.

Wall mounted fittings such as electrical sockets to be fitted to take into account the additional wall thickness. Heavy surface mounted fittings require provision for the fixing load to be applied direct to the supporting wall and not to the Kingspan Kooltherm® K17 Insulated Plasterboard in isolation.

#### 3.7 SERVICES

Recess the back of the insulation to accommodate electrical and plumbing services where required, without removing excess insulation. To ensure an appropriate rate of heat dissipation from cables, the current-carrying capacity of any electrical services partially surrounded by thermal insulation should be determined in accordance with [AS/NZS 3008.1.2](#).

#### 3.8 CUTTING

Cutting to be carried out by using either a fine toothed saw, or by scoring with a sharp knife to cut through the insulation and paper backing of the plasterboard, then snapping the board face down over a straight edge and cutting the paper facing of the plasterboard on the other side. Ensure accurate trimming to achieve close butting joints and continuity of insulation.

### Installation - Kooltherm® K17 Insulated Plasterboard

#### 3.9 INSTALL INSULATION - ADHESIVE BONDING

Fix Kooltherm® K17 Insulated Plasterboard to brick, block or concrete masonry cavity walls to [AS/NZS 2589](#), Kooltherm® K17 installation instructions, and as follows:

- Ensure wall surface is free from oil, grease, paint, release agent, or any contaminate that may affect bond.
- Gun apply a continuous blob of non solvent based constructive adhesive around perimeter wall and ceiling junctions, and around any openings such as windows and doors, in order to

provide a seal.

- Gun apply blobs of construction adhesive to the wall or back of the board approximately 25mm in diameter (single squeeze) at 300mm centres in both directions or to specific adhesive manufacturer's instructions. Ensure the blobs adjacent to a board joint are approximately 25mm in from the edge to avoid bridging the gap.
- Tap the board back firmly using a straight edge, ensuring that the vertical edge is plumb and boards are tight to the ceiling/joist.
- Continue plasterboard lining in the same manner.
- Mechanical fixings are required to compliment the adhesive and hold the board in position.
- Apply mechanical fixings at a rate of 7 per board positioned 15mm in from the board edge and at mid height with 15mm minimum embedment into the solid wall.
- Drive fixings straight and embed heads just below the surface of the board without over-driving.

### **Application - finishing sections and trim**

#### 3.10 EXTERNAL CORNERS

Fix full length to external corners with cornice adhesive each side staggered to the board manufacturer's details and requirements.

#### 3.11 FIX INTERNAL REINFORCING ANGLE

Fix full length to internal corners with clouts at 100mm centres each side staggered to the board manufacturer's details and requirements.

#### 3.12 FORM SQUARE STOPPED CORNERS

Form taped reinforced square stopped ceiling-to-wall angles to the board manufacturer's requirements.

#### 3.13 INSTALL TAPE-ON TRIMS

Install in accordance with the trim manufacturer's requirements.

### **Finishing - stopping**

#### 3.14 FORM JOINTS

Fill recess with bedding compound, centre the reinforcing tape, and apply a second coat of bedding compound followed by a coat of finishing compound. Allow to dry and lightly sand off, to the board manufacturer's details and requirements.

#### 3.15 STOPPING FIXINGS

Apply two successive coats of bedding compound and a coat of finishing compound to the board manufacturer's requirements.

#### 3.16 EXTERNAL ANGLES

Apply two coats of bedding compound followed by a coat of finishing compound to the board manufacturer's requirements.

#### 3.17 END BUTT JOINTS

Fill, tape and coat as for tapered edge joints except that each stage is doubled in width.

### **Completion**

#### 3.18 COMPLETION MATTERS

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

## **4 SELECTIONS**

For further details on selections go to [www.kingspaninsulation.co.nz](http://www.kingspaninsulation.co.nz). Substitutions are not permitted to the following, unless stated otherwise.

### **Materials**

#### 4.1 KINGSPAN KOOLTHERM K17 INSULATED PLASTERBOARD

Location: LG Plant room ceiling  
 Manufacturer: Kingspan Insulation NZ Ltd

Brand/type: Kingspan Kooltherm® K17 Insulated Plasterboard  
Board size: 2400mm x 1200mm  
Fixing method: Adhesive  
Construction type: Concrete  
Board thickness: 60mm (including 10mm plasterboard)  
Board R-value: R2.35

#### 4.2 KINGSPAN KOOLTHERM INSULATED PLASTERBOARD FINISH

System: ceiling  
Finish: Level 4

#### **Components**

#### 4.3 CONSTRUCTION JOINT TRIM

Location: GIB Plastic Smooth Control Joint (10mm wide joint)

## 5231 INTERIOR DOORS

### 1 GENERAL

This section relates to the supply and installation of interior:

- doorsets

#### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

<a href="#">FSC</a>	Forest Stewardship Council
<a href="#">PEFC</a>	Programme for the Endorsement of Forest Certification

#### Documents

#### 1.2 DOCUMENTS

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

<a href="#">AS/NZS 1170.1</a>	Structural design actions - Permanent, imposed and other actions
<a href="#">NZS 3602</a>	Timber and wood-based products for use in building
<a href="#">NZS 3604</a>	Timber-framed buildings
<a href="#">NZS 3610</a>	Specification for profiles of mouldings and joinery
<a href="#">NZS 4223.3</a>	Glazing in buildings - Human impact safety requirements

Window & Glass Association NZ ([WGANZ](#)) documents:

<a href="#">PQAS</a>	Powder Coating Quality Assurance System
<a href="#">SFA 3503-03</a>	Anodic Oxide coatings on wrought aluminium for external architectural application (2005)

#### Requirements

#### 1.3 SHOP DRAWINGS

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

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

The general section 1235 SHOP DRAWINGS

Submit shop drawings for review to architect. 5 working days (at least) before fabrication is planned to commence.

Complete shop drawing review before commencing fabrication.

#### Performance - doorsets

#### 1.4 PERFORMANCE REQUIREMENTS

Refer to 5241NZ PACIFIC DOORS INTERIOR FIRE DOORS AND WINDOWS for fire and acoustic performance details.

### 2 PRODUCTS

#### Materials - door and window frames general

#### 2.1 TIMBER DOORS

To [NZS 3602](#). Moisture content 10-14%. To [NZS 3610](#).

#### Materials - doors general

#### 2.2 TIMBER

To [NZS 3602](#). Moisture content 10-14%. To [NZS 3610](#). Solid or hollow core.

**Materials - doorsets****2.3 STANDARD DOORSETS, SIDE HUNG DOOR**

Frames to profile as detailed and dimensioned, fitted with solid or hollow core door. Refer to SELECTIONS.

**Components****2.4 WINDOW AND DOOR FURNITURE**

Refer to 5521 HARDWARE for type and finish.

**2.5 SCREWS**

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

**2.6 NAILS**

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

**2.7 DOOR HINGES**

Size and gauge to carry door size and weight. 3 hinges per door.

Type:	Loose pin
Size:	89mm
Material:	Zinc-plated steel
Pin:	Loose-pin zinc-plated steel

**2.8 DOOR SKIN (FACINGS)**

Doors skins as detailed and dimensioned.

**Finish****2.9 TIMBER - PAINT FINISH**

Factory applied coating system.

**3 EXECUTION****Conditions****3.1 GENERALLY**

Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

**3.2 DO NOT DELIVER**

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

**3.3 HANDLE**

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

**3.4 PROTECT**

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

**3.5 FABRICATE DOORSETS**

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

**3.6 FABRICATE DOORS**

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

**3.7 CHECK ALL OPENINGS**

To [NZS 3604](#). Check all openings on site for size and standard of execution before installing window or door frames. Installation tolerances of windows subject to earthquake design to comply with [AS/NZS 1170.1](#).

### **Assembly**

#### 3.8 FABRICATION GENERALLY

Manufacture and fabricate frames and doors as detailed. Install hinges and running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.

### **Application - generally**

#### 3.9 FIXING FRAMES

Fix and assemble frames rigidly in place, plumb, level and true to line and face without distortion and with all opening sashes fully and easily operating. Fit architraves.

#### 3.10 DISTORTION

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

#### 3.11 FIXINGS

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

### **Application - doorsets**

#### 3.12 PROPRIETARY ELEMENTS

Fix in accordance with the door manufacturer's requirements.

#### 3.13 INSTALLATION GENERALLY

Wedge frames into opening and fix through into the wall framing. Locate all wedges and fixing at hinge positions and opposite, with one fixing in the vicinity of the lock. Fixings concealed behind planted stops.

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

#### 3.14 TIMBER STUD WALLS - TIMBER FRAMES

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

#### 3.15 BOTTOM CLEARANCE

Provide for specified floor coverings plus 5mm clearance at any point of swing. When floor covering is not specified, allow 25mm total.

For ventilated and/or air conditioned spaces allow 20mm clearance above finished floor coverings for supply/return air.

#### 3.16 REMOVE DOORS

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

#### 3.17 INSTALL PANELS

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

#### 3.18 INSTALL FURNITURE

Install latches, locks and door furniture as scheduled.

#### 3.19 CHECK

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

### **Application - windows**

**Completion**

- 3.20 PROTECTION  
Protect all finishes against damage from adjacent and following work.
- 3.21 REPLACE  
Replace damaged, cracked or marked elements.
- 3.22 TRADE CLEAN  
Clean off or remove safety indicators at completion of the building.
- 3.23 LEAVE  
Leave work to the standard required for following procedures.
- 3.24 REMOVE  
Remove safety indicators and protective coverings, and wipe down all doorsets thoroughly to leave them perfectly clean. Remove all debris, unused materials and elements from the site.

**4 SELECTIONS****Doors**

## 4.1 STANDARD DOORSETS, SIDE HUNG DOOR

Manufacturer: TBC  
 Door type: Polycore  
 Material: mdf  
 Door leaf size: refer to interior door schedule  
 Edge clashing: 4 sides  
 Door finish: Paint  
 Frame: timber  
 Frame finish: paint  
 Hinge type/finish: TBC

**Finish**

## 4.2 PAINT FINISH

Brand: Resene  
 System name: Refer to 6721R Resene Painting Interior  
 Finish/colours: TBC

**Hardware**

## 4.3 HARDWARE SCHEDULE

Location	Type of hardware	Number off
TBC	TBC	TBC

## 4.4 HARDWARE

Refer to 5521 HARDWARE section.

# 5231C CS FOR DOORS

## 1 GENERAL

This section relates to the supply and installation of **CS FOR DOORS®** product range. It includes;

- cavity sliders
- wardrobe sliders
- track systems
- door leaves
- CaviLock® handle hardware

### 1.1 RELATED WORK

Refer to glazing section/s for glazing for timber doors.

#### Documents

### 1.2 DOCUMENTS

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

<a href="#">AS/NZS 1170.1</a>	Structural design actions - Permanent, imposed and other actions
<a href="#">NZS 1170.5</a>	Structural design actions - Earthquake actions - New Zealand
<a href="#">NZS 3602</a>	Timber and wood-based products for use in building
<a href="#">NZS 4223.3</a>	Glazing in buildings - Human impact safety requirements

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

**CS FOR DOORS®** Specifiers Guide  
 BIA Accreditation #93/006A.  
[BRANZ Appraisal 900](#) - CS Cavity Sliders

Manufacturer/supplier contact details

Company: CS FOR DOORS®  
 Web: [www.csfordoors.co.nz](http://www.csfordoors.co.nz)  
 Email: [info@csfordoors.co.nz](mailto:info@csfordoors.co.nz)  
 Telephone: 0800 754 337  
 09 276 0800 Auckland  
 07 928 0800 Waikato/Bay of Plenty  
 03 348 6158 South Island

#### Warranties

### 1.4 WARRANTY

Provide the following CS FOR DOORS® warranties

10 Years on the following product categories:  
 Cavity Sliders, Wardrobe Sliders, Pre- Hung Jambs, Track Systems.

5 Years on the following product categories:  
 CS manufactured Door Leaves, Automatic Units

2 Years on the following product categories:  
 CaviLock® Handle Hardware

12 Months on the following product categories:  
 Electrical components and parts

Provide this warranty on the manufacturer's standard form.

Refer to the general section 1237 WARRANTIES for additional requirements. Refer to [www.csfordoors.co.nz](http://www.csfordoors.co.nz) for guarantee terms and conditions.

#### Requirements

1.5 NO SUBSTITUTIONS  
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.6 QUALIFICATIONS GENERALLY  
Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

## 2 PRODUCTS

### Materials - general

2.1 TIMBER  
Solid timber to [NZS 3602](#) to profiles detailed. Moisture content approximately 16% ex factory.

2.2 INTERIOR TIMBER  
To [NZS 3602](#). Moisture content approximately 10-14%.

### Materials - Cavity Slider units

2.3 CAVITY SLIDER UNITS  
CS For Doors® cavity slider units to profile as scheduled, detailed and dimensioned. Refer to SELECTIONS.

### Materials - Wardrobe Slider Units

2.4 WARDROBE SLIDER UNITS  
CS For Doors® wardrobe slider units to profile as scheduled, detailed and dimensioned. Refer to SELECTIONS.

### Components

2.5 DOOR FURNITURE  
**CS CaviLock®** architectural handles and locks as scheduled.  
Note: Client to confirm selection

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

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

2.8 SLIDING DOOR GEAR  
**CS CavitySliders®** track to suit door size, weight and application. Stainless steel carriages and mount plates are available for the CS240 kg and CS500 kg systems.

### Finish

2.9 FINISH  
Paint finish

## 3 EXECUTION

### Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS  
Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.

3.2 ROUTINE MATTERS  
Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.

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

### 3.3 GENERALLY

Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

### 3.4 FABRICATE DOORSETS

Fabricate doorsets in the **CS FOR DOORS®** factory with doors hung, provision for furniture made, finishes applied and fully operable.

### 3.5 FABRICATE DOORS

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

### 3.6 CHECK ALL OPENINGS

Check all openings on site for size and standard of execution before installing window or door frames. Installation tolerances of windows subject to earthquake design to comply with [AS/NZS 1170.1](#) or [NZS 1170.5](#).

#### **Assembly**

### 3.7 FABRICATION GENERALLY

Manufacture and fabricate frames and doors as detailed. Install running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.

#### **Application - generally**

### 3.8 FIXING FRAMES

Fit to frame as required. Fix and assemble frames rigidly in place, plumb, level and true to line and face without distortion. Fit facings, scribes, draught-stopping and sealants.

### 3.9 DISTORTION

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

### 3.10 FIXINGS

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

#### **Application - doorsets**

### 3.11 PROPRIETARY ELEMENTS

Fix in accordance with **CS FOR DOORS®** requirements.

### 3.12 INSTALLATION GENERALLY

Frames finished to match the width of lined walls. Wedge frames into opening and nail through into the studs making sure you have one fixing in the vicinity of the lock.

Hang doors on sliding gear as specified and to operate freely. Fit all hardware and door furniture to **CS FOR DOORS®** instructions.

### 3.13 TIMBER STUD WALLS - TIMBER FRAMES

Fix direct to opening and pack, with one fixing in the vicinity of the lock.

### 3.14 BOTTOM CLEARANCE

Provide for specified floor coverings plus a minimum of 5mm clearance at any point of slide. When floor covering is not specified, allow 25mm total.

For ventilated and/or air conditioned spaces allow 20mm clearance above finished floor coverings for supply/return air.

### 3.15 REMOVE DOORS

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

### 3.16 INSTALL PANELS

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

### 3.17 INSTALL FURNITURE

Install latches, locks and door furniture as scheduled.

### 3.18 CHECK

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

## Completion & Commissioning

### 3.19 COMPLETION MATTERS

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

## 4 SELECTIONS

For further details on selections go to [www.csfordoors.co.nz](http://www.csfordoors.co.nz). Substitutions are not permitted to the following, unless stated otherwise.

### CS Cavity Sliders Standard Range

#### 4.1 CS CAVITYSLIDERS SPACEMAKER

Location:	Refer to interior door schedule
Leaf dimensions:	Refer to interior door schedule
Door type:	38mm
Door finish:	Paint
Closing action:	standard
Single or Biparting:	single soft close
Jamb type/finish:	timber grooved - refer to details
Framing/size:	90mm
Lining thickness:	10mm
Handle type:	Refer to CaviLock specialised hardware

### Wardrobe sliders

#### 4.2 CS TOPFIX 2T-90

Location:	refer to plans
Leaf dimensions:	refer to interior door schedule
Door type:	36mm
Door finish:	Paint
Closing action:	standard
Number of doors:	2
Framing/size:	90mm
Handle type:	Refer to CaviLock® specialised hardware

### Hardware

#### 4.3 CAVILOCK SLIDING-DOOR HANDLE HARDWARE

Provide the following CS CaviLock® specialised handle hardware:

All to suit location- client to confirm selection
---

# 5313GS GIB RONDO METAL CEILING BATTEN SYSTEMS FOR GIB PLASTERBOARDS

## 1 GENERAL

This section relates to the supply and installation of GIB Rondo metal ceiling batten systems.

It includes:

- Direct fix ceiling batten system
- Clip fix ceiling batten systems
- Suspended ceiling batten systems

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

BMT	Base metal thickness
TCR	Top cross rail

The following definitions apply specifically to this section:

Single span	Spans between two supports only
Multi span	Continuous span across more than two supports

### Documents

### 1.2 DOCUMENTS

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

AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
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### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

GIB Rondo Metal Batten Systems - Brochure  
 GIB Rondo Metal Batten Systems - Specification and installation manual (Sep 2024)  
 GIB Rondo Metal Batten Selector Chart  
 GIB Site Guide - For residential and commercial installations (Apr 2024)  
 GIB Rondo BPIR documentation

Manufacturer/supplier contact details

Company: Winstone Wallboards Ltd  
 Web: [www.gib.co.nz](http://www.gib.co.nz)  
 Telephone: 0800 100 442

### Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 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.

### 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.

### Compliance information

## 1.7 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Manufacturer / supplier 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.

## 2 PRODUCTS

### Materials - GIB Rondo direct fix ceiling batten system

#### 2.1 GIB RONDO DIRECT FIX 310 METAL CEILING BATTEN SYSTEM

GIB Rondo 310 metal ceiling batten system comprising G2 Z275 hot-dip galvanized steel components to AS 1397 including 35mm x 40mm furring battens with 55mm x 21mm batten jointers. Refer to SELECTIONS.

### Materials - GIB Rondo clip fix ceiling batten systems

#### 2.2 GIB RONDO CLIP FIX 310 METAL CEILING BATTEN SYSTEM

GIB Rondo 310 metal ceiling batten system comprising G2 Z275 hot-dip galvanized steel components to AS 1397 including 35mm x 40mm furring battens with 55mm x 21mm batten jointers and fixing clips. Clips available in a range of profiles and sizes. Refer to SELECTIONS.

#### 2.3 GIB RONDO CLIP FIX 308 METAL CEILING BATTEN SYSTEM

GIB Rondo 308 metal ceiling batten system comprising G2 Z275 hot-dip galvanized steel components to AS 1397 including 16mm x 38mm furring battens with 91mm x 51mm batten jointers and fixing clips. Clips available in a range of profiles and sizes. Refer to SELECTIONS.

### Materials - GIB Rondo suspended ceiling batten systems

#### 2.4 GIB RONDO SUSPENDED 308 METAL CEILING BATTEN SYSTEM

GIB Rondo 308 suspended metal ceiling batten system, comprising hot-dip galvanized steel components including 16mm x 38mm furring battens with 91mm x 51mm batten jointers, fixing clips, 5mm suspension rods and TCR. Clips available in a range of profiles and sizes. Refer to SELECTIONS.

### Components

#### 2.5 METAL CEILING BATTENS

G2 Z275 hot-dipped galvanized furring battens to AS 1397. Available in a range of sizes.

#### 2.6 BATTEN JOINTERS

G2 Z275 hot-dipped galvanized batten jointers to AS 1397. Available in a range of sizes.

#### 2.7 PERIMETER CHANNELS

G2 Z275 hot-dipped galvanized perimeter channels to AS 1397. Available in a range of sizes. Refer to SELECTIONS.

#### 2.8 FIXING/MOUNTING CLIPS

G2 Z275 hot-dipped galvanized fixing/mounting clips to AS 1397. Available in a range of sizes.

#### 2.9 SUSPENSION RODS

5mm hot-dipped galvanized suspension steel rods. Available in 3.6m lengths.

#### 2.10 TOP CROSS RAILS

G2 Z275 hot-dipped galvanized TCR to AS 1397. Available in a range of sizes.

#### 2.11 FIXINGS

Fixing type, size and material to suit application.

## 2.12 GIB PLASTERBOARD

Refer to relevant GIB plasterboard lining section.

# 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 CO-ORDINATE SERVICES

Co-ordinate and co-operate with electrical and mechanical work to avoid conflict between suspension members and luminaires, diffusers, pipework and ducting. Confirm the provision of extra hangers and fixings.

### 3.4 SITE CONDITIONS

Do not begin installation until the building is closed in, fully glazed, the roof watertight, and mechanical and electrical duct work above the ceiling completed.

### 3.5 PRE-INSTALLATION REQUIREMENTS

Check work previously carried out and confirm it is of the required standard for this part of the work. Coordinate with relevant framing sections to provide additional framing where required to support ceiling perimeter channels/angles and control joints.

Timber framing moisture content:

18% maximum  
8-12% for air conditioned and/or centrally heated buildings

## Installation - generally

### 3.6 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

### 3.7 INSTALLATION - GENERALLY

Install GIB Rondo metal ceiling batten system in accordance with GIB Rondo Metal Batten Systems Specification and Installation Manual.

### 3.8 SETOUT

Plan setout so all battens run in the same direction with maximum spacings of 450mm for 10mm thick GIB plasterboard or 600mm for 13mm thick GIB plasterboard. Maximum batten span between direct fixing points or clips to be 900mm for single spans and/or 1200mm for multi spans.

### 3.9 INSTALL PERIMETER CHANNELS

Establish a datum line for the ceiling and fix perimeter channels to the walls with 32mm x 8g GIB Grabber wafer head screws or 32mm x 7g GIB Grabber dual thread screws at the required level.

### 3.10 INSTALL CLIPS TO FRAMING

Place a string line on the datum line running along the truss or joist closest to the centre of the room. Install GIB Rondo clips to suit batten span and spacing using the stringline to establish the correct level.

### 3.11 INSTALL SUSPENSION GRID

Cut suspension rod to length and attach top mount clip to one end and TCR clip to the other. Fix the rod assembly to framing/structure above at maximum 1200mm centres both ways to form a 1200mm grid with the first row of hangers to be a maximum of 400mm from the walls. Adjust all hangers to correct drop using a string line or laser. Attach TCR to the TCR clips on hangers and click batten clips into the TCR.

**3.12 JOINTING TOP CROSS RAIL**

Cut a 200mm long piece of the TCR 127 and clip over the top of the TCR. Stagger joints between adjacent TCR.

**3.13 INSTALL BATTENS TO FRAMING**

Set out and mark batten centres on framing above. Cut battens as required to leave a 5mm gap to the perimeter framing using tin snips, a hacksaw or grinder disk. Set battens in marked position with ends near perimeter walls inserted into perimeter channel/angle and fasten without distortion.

**3.14 INSTALL BATTENS TO CLIPS**

Cut battens as required to leave a 5mm gap to the perimeter framing using tin snips, a hacksaw or grinder disk. Insert batten ends near perimeter walls into perimeter channel/angle and click into the clips.

**3.15 FIX BATTENS TO PERIMETER CHANNELS/ANGLES**

Fix batten to perimeter channels/angles with 13mm x 7g GIB Grabber Pancake Head Drill Tip Screws or 3mm diameter steel rivets.

**3.16 JOINTING BATTENS**

Join GIB Rondo metal ceiling battens with proprietary batten jointers and fixings to suit batten type. Stagger joints between adjacent battens.

**Completion & Commissioning****3.17 COMPLETION MATTERS**

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

**4 SELECTIONS**

For further details on selections go to [www.gib.co.nz](http://www.gib.co.nz)

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

**Materials - GIB Rondo direct fix ceiling batten system****4.1 GIB RONDO 310 DIRECT FIX METAL CEILING BATTEN SYSTEM**

Location: refer to Ceiling plan  
 System: GIB RONDO 310 DIRECT FIX (DF) SYSTEM  
 Coding: GR310-DF  
 Batten type: 310  
 Batten size: 35mm x 40mm  
 Batten fixing: GIB® Grabber® Wafer Head to suit substrate -32mm x 8g GIB® Grabber® Wafer Head or Drill tip screws (for fixing to concrete)  
 Batten spacing: 600mm  
 Batten jointer type: 312  
 Batten jointer size: 55mm x 21mm

**Materials - GIB Rondo clip fix ceiling batten systems****4.2 GIB RONDO 310 CLIP FIX METAL CEILING BATTEN SYSTEM**

Location: refer to Ceiling plan  
 System: GIB RONDO 310 CLIP FIX (CF) SYSTEM  
 Coding: GR310-CF-311D  
 Batten type: GIB Rondo 310 metal batten  
 Batten size: 35mm x 40mm  
 Batten jointer type: 312  
 Batten jointer size: 55mm x 21mm  
 Batten clip fixing: 32mm x 8g GIB® Grabber® Wafer Head  
 Drop height: refer to drawings  
 Batten clip spacing: 600mm

**4.3 GIB RONDO 308 CLIP FIX METAL CEILING BATTEN SYSTEM**

Location: refer to Ceiling plan

System:	GIB RONDO 308 CLIP FIX (CF) SYSTEM
Coding:	GR308-CF-226
Batten type:	308
Batten size:	16mm x 38mm
Batten jointer type:	138
Batten jointer size:	91mm x 51mm
Batten clip fixing:	32mm x 8g GIB® Grabber® Wafer Head
Drop height:	refer to drawings
Batten clip spacing:	600mm (for 13mm thick GIB board)

### Materials - GIB Rondo suspended ceiling batten systems

#### 4.4 GIB RONDO 308 SUSPENDED METAL CEILING BATTEN SYSTEM

Location:	refer to drawings
System:	GIB RONDO 308 SUSPENDED CEILING (SC) SYSTEM
Coding:	GR308-SC
Top mount clip:	534 clip (horizontal fixing)
Top mount clip fixing:	38mm x 12g Hex Head Screw
Suspension rod:	121
Rod to TCR clip:	167 clip
TCR type:	TCR 127
TCR size:	25mm x 21mm
Batten type:	308
Batten size:	16mm x 38mm
Batten jointer type:	138
Batten jointer size:	91mm x 51mm
Batten clip type:	139 clip
Drop height:	refer to drawings
Batten clip spacing:	600mm

### Components

#### 4.5 GIB RONDO 340 PERIMETER CHANNEL

Location:	refer to drawings
Type/Brand:	GIB Rondo 340 perimeter channel
Channel size:	35mm x 24mm x 36mm
Channel to wall fixing:	32mm x 8g GIB Grabber Wafer Head
Batten to channel fixing:	13mm x 7g GIB Grabber Pancake Head Drill Tip Screw

#### 4.6 GIB RONDO 142 PERIMETER CHANNEL

Location:	refer to drawings
Type/Brand:	GIB Rondo 142 perimeter channel
Channel size:	16mm x 13mm x 28mm
Channel to wall fixing:	32mm x 8g GIB Grabber Wafer Head
Batten to channel fixing:	13mm x 7g GIB Grabber Pancake Head Drill Tip Screw

## 5433E ECOPLY FLOORING

### 1 GENERAL

This section relates to the use of Carter Holt Harvey Plywood Ltd (CHH PLY) Ecoply® plywood sheets for floors.

#### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

[FSC®](#) Forest Stewardship Council®

#### Documents

#### 1.2 DOCUMENTS

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

<a href="#">NZBC C/AS2</a>	Protection from fire
<a href="#">NZBC C/VM2</a>	Protection from fire
<a href="#">NZS 1170.5</a>	Structural design actions - Earthquake actions - New Zealand
<a href="#">AS/NZS 1604.3:2012</a>	Preservative-treated wood-based products - Part 3: Plywood
<a href="#">AS/NZS 2269.0</a>	Plywood - structural - specifications
<a href="#">NZS 3604</a>	Timber-framed buildings

#### 1.3 MANUFACTURER DOCUMENTS

Carter Holt Harvey Plywood Ltd documents relating to work in this section are:  
Ecoply® Specification and installation guide December 2023  
Ecoply® Plywood Products: Flooring, Product Technical Statement and BPIR.

Manufacturer/supplier contact details

Company	Carter Holt Harvey Plywood Limited
Web:	<a href="http://chhply.co.nz">chhply.co.nz</a>
Email:	<a href="mailto:info@ecoply.co.nz">info@ecoply.co.nz</a>
Telephone:	0800 326 759

#### Requirements

#### 1.4 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

#### 1.5 NO SUBSTITUTIONS

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

#### Performance

## 2 PRODUCTS

#### Materials

#### 2.1 ECOPLY® FLOORING (PT)

Radiata pine veneer ply manufactured to [AS/NZS 2269.0](#). F11/F8 stress grade to 19mm thick longspan sheets and F8/F5 stress grade to 21mm & 25mm sheets. CD surface grade, face sanded veneer, machine grooves to long edges with polypropylene plastic tongue in one edge for a tongue-and-groove joint. Veneers bonded together with synthetic phenolic (PF) resin forming a Type A bond. H3.2 CCA treated to [AS/NZS 1604.3](#), when used as a wet area substrate.

#### Components

**2.2 NAILS - STAINLESS STEEL**

Stainless steel flat head, annular grooved nails to Carter Holt Harvey Plywood Ltd requirements for size and use.

17 - 21 mm plywood: 60mm x 2.8mm

**2.3 SCREWS IN TIMBER**

Stainless steel, counter-sunk to Carter Holt Harvey Plywood Ltd requirements for size and use.

17mm plywood: 10g x 40mm

19 - 21 mm plywood: 10g x 45mm

**2.4 ADHESIVE**

Refer to SELECTIONS.

**2.5 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 Carter Holt Harvey Plywood Ltd stated requirements for laying plywood sheets.

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: 18% maximum for framing

**Application****3.4 STANDARDS AND TOLERANCES**

Refer to the general section 1270 CONSTRUCTION for general requirements.

**3.5 TREAT**

Treat cuts and holes in sheets with a brush-on timber preservative treatment.

**3.6 SHEET LAYOUT**

Lay 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. Provide a 2 to 3mm expansion gap between square edges of sheets and a 5mm expansion gap at the perimeter of the floor, unless otherwise specified. Lay sheets continuous over at least two spans. Refer to SELECTIONS for fixing requirements.

**3.7 ADHESIVE FIXING**

Apply a bead or daubs of adhesive to adhesive manufacturers and Carter Holt Harvey Plywood Ltd requirements and fastener pattern, work from the middle of the sheet outwards to develop glueline pressure.

**3.8 MECHANICAL FIXINGS**

Fixings at least 3 fastener diameters or 7 mm from square edges and 15mm from tongue and groove edges. Fasten edges and ends of sheets at 150 mm centres, and within the panel at no more than 300 mm centres.

### 3.9 WET AREAS

Ensure plywood is structural grade treated to H3 or H3.2 (CCA treated). Plywood substrates must have moisture content not more than 18% before installing membrane. With primed/sealed face and edges.

NOTE: Treated plywood must be allowed to breath for a minimum of 7 days before installation of membrane. Fixing must be to manufacturer specifications. LOSP treated plywood must not be used.

Requirements if used for:

Flooring: Stress grade F8/F5, minimum thickness 18mm with framing at minimum 400mm centres both ways, or min 21mm with framing at 600mm centres both ways. Fixing, glue and stainless steel screws.

### Completion & Commissioning

### 3.10 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](http://chhply.co.nz)

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

### Materials

#### 4.1 19MM ECOPLY FLOORING T&G

Location:	refer to plans
Manufacturer:	Carter Holt Harvey Plywood Ltd
Brand/grade:	Ecoply Flooring (pt) / CD
Thickness / Stress grade:	19mm
Sheet width:	1200mm
Sheet length:	2700
Treatment:	Untreated or H3.2 CCA (For damp/wet areas specify H3.2 treatment. Refer to <a href="#">NZS 3602.</a> )
Fixing:	glued and screwed , use ss screws under waterproofing membrane

### Components

#### 4.2 ADHESIVE

Type:	Soudal Gorilla Grip
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# 5511 JOINERY & CABINETRY FIXTURES

## 1 GENERAL

This section relates to custom joinery fittings and cabinetwork, purpose made in a factory and fitted on site.

### 1.1 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:

<b>FSC</b>	Forest Stewardship Council
<b>PEFC</b>	Programme for the Endorsement of Forest Certification

### Documents

### 1.2 DOCUMENTS REFERRED TO

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

<a href="#">AS/NZS 1859.2</a>	Reconstituted wood based panels - Specifications - Dry processed fibreboard
<a href="#">AS/NZS 1859.3</a>	Reconstituted wood based panels - Specifications - decorative overlaid wood panels
<a href="#">AS/NZS 4386.1</a>	Domestic kitchen assemblies - Kitchen units
<a href="#">AS/NZS 4386.2</a>	Domestic kitchen assemblies - Installation

### 1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

7 years	For wood veneer over MDF / plywood substrate
10 years	solid polymer, printed laminate or melamine veneer over MDF substrate

- 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.

### 1.4 WARRANTY - INSTALLER/APPLICATOR

Provide an installed/applicator warranty:

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

Refer to the general section 1237 WARRANTIES for additional requirements.

## 2 PRODUCTS

### Materials

### 2.1 MEDIUM DENSITY FIBRE BOARD

Urea-formaldehyde resin bonded wood fibre sheet to [AS/NZS 1859.2](#).

### 2.2 MEDIUM DENSITY FIBRE BOARD - PRINTED

Urea-formaldehyde resin bonded wood fibre sheet to [AS/NZS 1859.2](#) with a dry stamping foil of polyester film with barrier and adhesive layers impregnated with a decorated photogravure print.

### 2.3 MEDIUM DENSITY FIBRE BOARD - MELAMINE VENEER

Urea-formaldehyde resin bonded wood fibre sheet to [AS/NZS 1859.2](#) and [AS/NZS 1859.3](#) veneered both sides with melamine sheet.

**2.4 MEDIUM DENSITY FIBRE BOARD - WOOD VENEER**

Urea-formaldehyde resin bonded wood fibre sheet to [AS/NZS 1859.2](#) and [AS/NZS 1859.3](#) veneered with selected wood veneer.

**Components****2.5 BENCHTOPS**

As detailed on the drawings and as required for specified fittings and appliances.

**2.6 CARCASE CONNECTORS**

One-piece steel, straight deep-cut thread, fibre board screws with press fit plastic trim cap.

**2.7 CARCASE FASTENERS**

Knock down type centric sphere zinc alloy connectors with connecting bolts, sleeves and dowels, to suit each particular fastening location.

**2.8 BUTT HINGES**

Butt, broad butt, flush butt or overlay steel or brass, to suit the location, or as detailed.

**2.9 CONCEALED HINGES**

All-metal zinc alloy with automatic spring and screw-fixed. Door stops of plastic foam with self adhesive backs, or plastic buttons clear or coloured to match unit.

**2.10 DRAWER RUNNERS**

Under mounted type, precision running ball-mounted full extension, bright steel finish system.

**Accessories****2.11 ADHESIVES**

As approved by the manufacturer for the timber product or pre-finished timber product joint being used.

**Finishes****2.12 LIGHT DUTY COATING SYSTEM**

Single pack, clear or pigmented nitro-cellulose or pre-catalysed lacquer.

**2.13 MEDIUM DUTY COATING SYSTEM**

Two pack, clear or pigmented acid catalysed coating.

**3 EXECUTION****Conditions****3.1 JOINERY FIXTURES GENERALLY**

Execution to include those methods, practices and processes contained in the current syllabus for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs). Take responsibility for the completed joinery fixtures including fittings included within fixtures and the on site installation.

**3.2 DOMESTIC KITCHEN ASSEMBLIES**

Unless otherwise specified / detailed, domestic kitchens to be constructed to [AS/NZS 4386.1](#) and installed to [AS/NZS 4386.2](#)

**3.3 SITE MEASURE**

Site check and confirm dimensions after wall linings have been fixed. Verify positions of electric power outlets, wiring to light fittings included in joinery fixtures, water supplies and waste pipe locations.

**3.4 SHRINKAGE**

Arrange jointing and fixing so that shrinkage in any part and direction does not impair the strength or appearance of the finished work or damage the adjoining work.

**3.5 TOLERANCES**

Provide reasonable tolerances at connections between the joinery fittings and the building fabric so that any irregularities are adequately compensated for in the site fixing.

### 3.6 PRE-FINISH WOOD VENEER

Select veneer board for match or uniformity, or symmetry of colour or grain of adjacent pieces. Finish to same standard on all faces. Clash exposed edges with solid matching timber strips.

### 3.7 PRE-FINISH MELAMINE VENEER

Select and match all adjacent pieces. Clash exposed edges of wood grains with solid matching timber strips and with selected PVC strips to other patterns.

## Conditions - site

### 3.8 TRANSIT

Load, transport and unload fittings without distortion or damage and keep covered to protect from the weather.

### 3.9 DELIVERY

Deliver fittings to the site only when floor, wall and ceiling surfaces are in place and the fittings can be immediately placed in their final location.

## Assembly

### 3.10 MACHINING

Carry out machining within the practices required for the particular timber, wood product or pre-finished wood product being used. Machine drill holes, cut recesses and form joints ready for assembly to the componentry manufacturer's requirements. Ensure work is accurate, square and true to line.

### 3.11 MAKE CUT OUTS FOR APPLIANCES AND FITTINGS

Obtain fitting templates from the appliances and other fittings to be installed within joinery fixtures and bench tops. Ensure appliances and fittings can be installed with the required tolerances and clearances. Where bench tops are being provided under other work sections, provide templates and confirm dimensions to others.

### 3.12 ASSEMBLY

Carry out gluing, dowelling, and other operations necessary for the proper assembly of the fittings as detailed with fixings concealed unless detailed otherwise. Scribe fit adjustable shelves with 4 shelf pins to each and with force fit pin holes at 50mm maximum centres in solid cheeks. Construct drawers and using groove mounting runners, fit them with 3mm clearance into drawer space. Hang doors on concealed hinges with 115 degree openings except where detailed for 170 degrees.

### 3.13 GLUE JOINTS

Use glue joints where provision for shrinkage is not required. Cross-tongue or otherwise reinforce. Surfaces in contact to have an even sawn or planed finish and be free of contamination. Mix, apply and set to the glue manufacturer's requirements with adequate pressure applied to ensure intimate contact that will be maintained while the glue sets.

### 3.14 CONNECTOR JOINTS

Locate and drive connectors to the board manufacturer's requirements. Fit plastic trim cap where detailed. Conceal or hide from sight other connector heads.

### 3.15 FASTENER JOINTS

Locate and drive connecting bolts to the board manufacturer's requirements. Form joint and fit and rotate centric sphere connector to finish it rigid and tightly fitting over the whole length of the joint.

## Application

### 3.16 FIXING ON SITE

- Scribe fit and conceal fix rigidly in place square, level, plumb and true to line and face as detailed and to the required standard.
- Assemble fittings on-site if brought in sections.
- Fit counter and bench tops and upstands.
- Complete with moveable parts in place and freely moving in their proper range.

## Finishing

### 3.17 COATING SYSTEM - PREPARATION

- Fill timber defects with proprietary wood filler. (e.g. cracks, holes, etc)
- Sand timber to a smooth even finish using 180 grit paper.
- Remove all sanding dust using air guns and tack rags.
- Ensure substrate is free from dust, grease, dirt and other contaminants.
- Ensure moisture content of the timber is less than 15% immediately before commencing coating operations.

### 3.18 COATING SYSTEM - APPLICATION

To coating manufacturer's requirements.

### 3.19 PROTECT

Protect finished surfaces from damage, particularly benchtops.

## Completion

### 3.20 REPLACE

Replace damaged or marked elements.

### 3.21 LEAVE

Leave work complete, clean and without blemish and to the standard required by following procedures.

### 3.22 REMOVE

Remove debris, unused materials and elements from the site.

## 4 SELECTIONS

### 4.1 MEDIUM DENSITY FIBRE BOARD

Manufacturer: TBC  
 Product name: TBC  
 Thickness: TBC

### 4.2 MEDIUM DENSITY FIBRE BOARD - MELAMINE VENEER

Manufacturer: TBC  
 Product name: TBC  
 Thickness: TBC  
 Pattern/colour: TBC  
 Clashing: TBC

### 4.3 MEDIUM DENSITY FIBRE BOARD - WOOD VENEER

Manufacturer: TBC  
 Product name: TBC  
 Species/cut: TBC  
 Thickness: TBC  
 Clashing: MTBC

### 4.4 BENCH TOP

Location: TBC  
 Type: TBC  
 Finish: TBC  
 Edge thickness: TBC  
 Edge profile: TBC  
 Edge detail: TBC

### 4.5 CARCASE CONNECTORS

Manufacturer: TBC  
 Finish: TBC  
 Cap colour: TBC

- 4.6 CARCASE FASTENERS
  - Manufacturer: TBC
  - Product name: TBC
- 4.7 CONCEALED HINGES
  - Manufacturer: TBC
  - Product name: TBC
- 4.8 DRAWER RUNNERS
  - Manufacturer: TBC
  - Product name: TBC
- 4.9 COATING SYSTEM
  - Manufacturer: TBC
  - Brand/code: TBC
  - Duty: TBC
  - Colour: TBC

## 5521 HARDWARE

### 1 GENERAL

This section covers the supply and installation of door and window hardware and furniture.

#### Documents

#### 1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS.

#### Requirements

#### 1.2 SUPPLIER

A specialist in the supply of hardware, employing an experienced architectural hardware representative available to assist during the course of the hardware installation.

#### 1.3 SUBMIT A SUPPLIER'S SCHEDULE

Submit a hardware schedule from the selected TBC supply company.

### 2 PRODUCTS

#### 2.1 DOOR HARDWARE

Refer to SELECTIONS for product selection.

#### Components

#### 2.2 FIXINGS

Provide matching fixings, including screws, clips, bolts and brackets for hardware supplied.

### 3 EXECUTION

#### Conditions

#### 3.1 RETAIN

Retain hardware in the manufacturer's original packaging. Ensure that units are complete with fixings and installation instructions. Label each unit separately with its hardware number and door/window number to match the submitted and approved schedule.

#### 3.2 PACKAGE

Package required hardware units in clear plastic and label each package with its hardware and door/window number and location to match the drawings and the submitted and approved schedule. Place packages in cartons selected for "level", "location", and/or "sector" and label the packages and the cartons similarly.

#### 3.3 STORE

Store hardware packages in a shelved, dry and securely locked area. Provide supervision when the secure area is unlocked and packages and cartons are being distributed; signing off each package from the schedule as released.

#### Installation

#### 3.4 INSPECTION

Before starting the hardware installation, check frames, doors, sashes and adjacent finishes are ready for the proper installation of the hardware.

#### 3.5 LOCATE

Locate hardware units at heights and/or locations shown on the drawings, or as required to comply with relevant Codes and Standards. Before proceeding, confirm any dimension not shown or known.

#### 3.6 CUTTING AND FITTING

Carry out cutting and fitting of the substrate necessary for installing any hardware unit before painting or finishing of that surface. Remove hardware when required for painting, placing it in the packaging or carton originally supplied and returning it to the secure store until ready for re-installation.

### 3.7 INSTALL HARDWARE

Install each hardware unit in accordance with the hardware manufacturer's requirements using templates and tools supplied or recommended by them. Set units level, plumb and true to line and required location, with all moving parts and actions freely and easily operating. Do not make any modifications to supplied units.

#### **Completion**

### 3.8 ADJUST

Adjust and check each operating hardware unit for correct and smooth functioning. Replace those units that cannot be adjusted if they do not function correctly. Clean units and adjoining surfaces upon completing their installation. Only use lubricant if and when recommended by the hardware manufacturer/supplier.

### 3.9 REPLACE

Replace damaged or marked elements.

### 3.10 LEAVE

Leave work with parts fully and freely working and to the standard required by following procedures.

### 3.11 REMOVE

Remove debris, unused materials and elements from the site.

### 3.12 PROTECT

Protect hardware units from damage or marking.

### 3.13 FINAL ADJUSTMENT

Where hardware is installed more than a month prior to project completion, return and make a final check and adjustment of hardware units to ensure they are operating correctly, fitted properly and are undamaged.

## **4 SELECTIONS**

### 4.1 DOOR HARDWARE

	<b>Make</b>	<b>Type/model number</b>	<b>Material finish</b>
Hinges complete with matching screws	TBC		
Hinge bolts	TBC		
Latch and locksets	TBC		
Deadlocks	TBC		
Digital locks	TBC		
Lock and latch furniture	TBC		
Door closers	TBC		
Sliding door gear	TBC		
Security bolts	TBC		
Door stops - wall mounted	TBC		
Door stops - floor mounted	TBC		
Cabin hooks/latch backs	TBC		

# 5571 LAMINATED PLYWOOD STAIRS

## 1 GENERAL

This section relates to the fabrication and installation of interior timber stairs and landings.  
REFER TO ARCHITECTURAL DRAWINGS AND STRUCTURAL ENGINEERS DETAILS

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

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

### Documents

### 1.2 DOCUMENTS

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

NZBC D1/AS1	Access routes
BRANZ BU 497	Stair construction

### 1.3 SHOP DRAWINGS

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

Provide shop drawings to show the general arrangement including, but not be limited to:  
Fully dimensioned elevations of all elements (minimum scale 1:20)

Submit shop drawings for review to Architect

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

## 2 PRODUCTS

### Materials

### 2.1 LAMINATED PLYWOOD COMPONENTS

Refer to SELECTIONS/DRAWINGS.

## 3 EXECUTION

### Conditions

### 3.1 GENERALLY

Execution to include those methods, practices and processes contained in the current syllabus for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

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

### Application

### 3.2 FABRICATE AND INSTALL TIMBER STAIRS

Fabricate and install stair flights and landings to comply with NZBC acceptable solution D1/AS1:4.0 Stairways, and unless detailed otherwise to BRANZ BU 497.

**REFER TO ARCHITECTURAL DRAWINGS AND STRUCTURAL ENGINEERS DETAILS**

Form nosing overhangs of 25mm by splaying risers forward to finish flush with the front of the treads- refer to details

**Completion**

3.3 LEAVE

Leave work to the standard required by following procedures.

3.4 REMOVE

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

**4 SELECTIONS**

4.1 LAMINATED PLYWOOD STAIRS

Strings:	refer to Architectural drawings and Structural Engineers details
Treads:	refer to Architectural drawings and Structural Engineers details
Risers:	refer to Architectural drawings and Structural Engineers details
Finish:	refer to Architectural drawings and Structural Engineers details

# 5574 INTERIOR HANDRAILS & TIMBER BALUSTRADES

## 1 GENERAL

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

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

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

### Documents

### 1.2 DOCUMENTS REFERRED TO

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

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

## 2 PRODUCTS

### 2.1 SOLID TIMBER COMPONENTS

Timber species, grade, installation moisture and treatment to [NZS 3602](#), table 2, and [NZBC B2/AS1](#). Refer to SELECTIONS/DRAWINGS.

### 2.2 HARDWARE

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

REFER TO ARCHITECTURAL DRAWINGS AND STRUCTURAL ENGINEERS DETAILS

## 3 EXECUTION

### Conditions

### 3.1 GENERALLY

Execution to include those methods, practices and processes contained in the current syllabus for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

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

### Application

### 3.2 HANDRAILS

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

### Completion

### 3.3 LEAVE

Leave work to the standard required by following procedures.

### 3.4 REMOVE

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

## **4 SELECTIONS**

### **4.1 TIMBER HANDRAIL**

Location: refer to Architectural drawings and Structural Engineers details  
Timber: Solid timber species TBC  
Finish: Clear finish

### **4.2 ACCESSORIES**

Brackets: TBC  
Finish: TBC

# 6133SS SIKA CLEAR SEALERS

## 1 GENERAL

This section deals with the supply and placing of selected **Sika** flooring systems to concrete substrates.

### Documents

#### 1.1 DOCUMENTS

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

<a href="#">NZBC C/AS2</a>	Protection from Fire
<a href="#">NZBC C/VM2</a>	Protection from Fire
<a href="#">NZBC D1/AS1</a>	Access routes
<a href="#">NZS 3114</a>	Specification for concrete surface finishes
<a href="#">WorkSafe</a>	<a href="#">Guidelines for the provision of facilities and general safety in the construction industry</a>

#### 1.2 MANUFACTURER DOCUMENTS

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

Sika Product Data Sheets:

- Sikafloor® Duraseal W
- SikaGlaze® PU - Gloss & Matt Versions
- Sika Purigo® -5S
- Sikafloor® -CureHard-24
- Sikafloor®-156
- Sikafloor®-169
- Sikafloor®-94
- Sikaflex®-11 FC
- Sikadur®-51
- Sika® Aggregates

Sika Technical Data Sheet - Cleaning and Maintenance Recommendations for Sika Floor Installations

Copies of the above literature are available from

Company: **Sika (NZ) Ltd**  
 Web: [www.sika.co.nz](http://www.sika.co.nz)  
 Email: [tombleson.max@nz.sika.com](mailto:tombleson.max@nz.sika.com)  
 Telephone: 0800 745 269

### Warranties

#### 1.3 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this system under normal environmental and use conditions against failure.

2 years: materials -roller applied coatings  
 5 years: materials - resin screeds and toppings

Provide this warranty in the Sika (NZ) Ltd standard form.

### Requirements

#### 1.4 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Sika (NZ) Ltd flooring system.

#### 1.5 QUALIFICATIONS

Use only applicators approved by Sika (NZ) Ltd to apply the flooring system.  
 Sika quality assurance forms are to be completed by the approved applicator.

#### 1.6 INFORMATION FOR OPERATION AND MAINTENANCE

Provide Sika (NZ) Ltd Technical Data Sheet:

## Cleaning and Maintenance Recommendations for Sika Floor Installations

Provide data sheets before practical completion of the contract for issuing to the building owner.

### 1.7 HEALTH AND SAFETY

Obtain from Sika (NZ) Ltd the material safety data sheet for each product. Keep sheets on site and comply with the required safety, transport, handling, storage and disposal procedures. Supply protective clothing and personal protective equipment. Inform employees and others on site of the hazards and put into place procedures for dealing with emergencies. Comply with relevant health and safety legislation and [WorkSafe Guidelines for the provision of facilities and general safety in the construction industry](#).

## 2 PRODUCTS

### Clear Sealers - Light to Medium Duty

#### 2.1 SIKAFLOOR® DURASEAL W

Clear, 2 component, water dispersed, epoxy resin sealer for light to medium duty use. Refer to SELECTIONS for details.

#### 2.2 SIKAGLAZE ® PU - GLOSS OR MATT FINISH

Clear, 1 component, non-yellowing, polyurethane coating for medium duty use. Refer to SELECTIONS for details.

#### 2.3 PURIGO®-5S

Clear, mineral based, curing, sealing and hardening compound for concrete. Medium duty use. Refer to SELECTIONS for details.

#### 2.4 SIKAFLOOR® -CUREHARD-24

Clear, mineral based, curing, sealing, and hardening compound for concrete. Medium duty use. Refer to SELECTIONS for details.

#### 2.5 SIKAFLOOR®-156

Clear 100% reactive, 2 component, epoxy resin sealer for medium duty use. Refer to SELECTIONS for details.

#### 2.6 SIKAFLOOR®-169

Clear, low yellowing, 100% reactive, 2 component, epoxy resin primer for medium duty use. Refer to SELECTIONS for details.

#### 2.7 SIKAFLOOR®-94

Clear 100% reactive, 2 component, epoxy resin primer and sealer for medium duty use. Refer to SELECTIONS for details.

### Floor Control Joint Sealants

#### 2.8 SIKAFLEX®-11 FC

Flexible, polyurethane based sealant for floor control joints. Refer to SELECTIONS for details.

### Components

#### 2.9 SIKA® AGGREGATES

Coloured and graded aggregates used in conjunction with Sika flooring systems. Sika Aggregates are selected for filling or giving coloured effects, texture/slip resistant properties. Refer to SELECTIONS for details.

#### 2.10 SIKA® PEF ROD

Closed cell polyethylene rod used as a sealant joint backing material.

## 3 EXECUTION

### Conditions

#### 3.1 COMPLY

Comply with the requirements and instructions of Sika (NZ) Ltd for the selected Sika flooring system.

### 3.2 DELIVER AND STORE

Deliver and store materials for in situ work without damage to original packaging and in a secure, clean, dry location clear of other work in progress. Incompatible materials are to be separated. Hazardous or dangerous goods are to be stored correctly in compliance with material safety data sheets, the territorial authority bylaws and [WorkSafe](#) requirements.

### 3.3 APPLICATION CONDITIONS

Apply Sika flooring system only when substrate temperature, air temperature and humidity and any other requirements are within the tolerances as stated on the Sika Technical Data Sheet.

### 3.4 CHECK SUBSTRATE

Check the substrate meets the requirements as stated on the Sika Product Data Sheet. Surfaces are to be compliant with surface tolerances specified in [NZS 3114](#), U3 finish or better. Complete any remedial work identified before commencing work.

### 3.5 TEST SUBSTRATE

Apply product to selected area of substrate, to test substrate quality meets Sika Product Data Sheet requirements.

### 3.6 CURING OF NEW CONCRETE

Concrete curing agents must not be used without checking suitability / compatibility with Sika (NZ) Ltd. Ensure all surfaces are cured, clean and dry (refer to individual Product Data Sheet for tolerances).

#### **Application - preparation**

### 3.7 PREPARE SUBSTRATE

Concrete substrates must be sound and stable, prepare mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and achieve an open textured surface. High spots can be removed by grinding.

Weak concrete must be removed and surface defects such as blowholes and voids must be fully exposed. Repairs to the substrate, filling of blowholes/voids and surface levelling must be carried out using appropriate products from the Sikafloor®, SikaDur® and Sikagard® range of materials.

The concrete or screed substrate has to be primed or levelled in order to achieve an even surface. Ensure surface finish is suitable for the proposed finish and to [NZS 3114](#), U3 finish or better. Relevel using suitable Sika levelling compounds as required.

All dust, loose and friable material must be completely removed from all surfaces by brush and vacuum, before application of the product.

Unstable floor cracks are to be treated as control joints. Stable floor cracks to be fibreglass bandaged.

Ensure all surfaces are, clean and dry. Alternatively use Sikafloor®-81 EpoCem or Sikagard-720 EpoCem.

#### **Application - general**

### 3.8 PREPARATION FOR SIKA FLOORING SYSTEM

Ensure that work by others is complete and that the substrate to receive the Sika flooring system is of the required standard.

### 3.9 CONTROL JOINTS AND DIVIDER STRIPS

Sika flooring systems do not require specific control or relief joints. All structural, expansion or control joints in the substrate are to be continued through the new Sikafloor finish.

Control joints and penetrations are to be filled and positively sealed. Refer to SELECTIONS for floor control joint sealant / systems.

Joint width and depth are to be designed to accommodate anticipated joint movement taking into account the movement capability of the flexible sealant used.

Set metal or other divider strips (as required to separate sections of the Sika flooring work) and anchor into place to eliminate movement.

### 3.10 VENTILATION / MOISTURE PROTECTION

Ensure good ventilation during application of Sika flooring system. Protect from damp, condensation and water for the duration stated in the technical data sheets.

### 3.11 WAITING TIME / OVERCOATING

Observe Sika requirements for waiting times prior to overcoating. Protect from damp, condensation and water.

## **Application - Clear Sealers**

### 3.12 SIKAFLOOR® DURASEAL W APPLICATION

Mix compounds as per Sika (NZ) Ltd Technical Data Sheet. Apply Sikafloor Duraseal W by brush, roller or spray at the recommended consumption rates. Recoat within the recommended period.

### 3.13 SIKAGLAZE PU - GLOSS OR MATT FINISH APPLICATION

Mix compounds as per Sika (NZ) Ltd Technical Data Sheet. Apply SikaGlaze PU by brush or roller at the recommended consumption rates. Recoat within the recommended period.

### 3.14 PURIGO®-5S APPLICATION

Mix compounds to Sika (NZ) Ltd technical Data Sheets. Apply Purigo 5S by low pressure spray or watering can at the recommended consumption rates over the surface to ensure maximum even penetration is achieved. Do not allow puddles to form on the surface or depressions in the floor, to avoid white staining occurring. Recoat within the recommended period. Allow 24 hours after the final treatment before washing the floor with clean water.

### 3.15 SIKAFLOOR® CUREHARD-24 APPLICATION

Apply Sikafloor CureHard-24 by low pressure spray at the recommended consumption rates. Keep Sikafloor CureHard-24 wet for the required period of time. Rinse with clean water to remove excess material using a squeegee, wet mop, or vacuum. Apply a second coat if required. Finish by scrubbing and burnishing if a high level of finish is specified. Recoat within the recommended period.

### 3.16 SIKAFLOOR®-156 APPLICATION

Mix compounds as per Sika (NZ) Ltd Technical Data Sheet. Apply Sikafloor-156 by brush, roller or squeegee at the recommended consumption rates. While wet broadcast Sika Aggregate over the surface to full refusal if required. Recoat within the recommended period.

### 3.17 SIKAFLOOR®-169 APPLICATION

Mix compounds as per Sika (NZ) Ltd Technical Data Sheet. Apply Sikafloor-169 by brush, roller or squeegee at the recommended consumption rates. While wet broadcast Sika Aggregate over the surface to full refusal if required. Recoat within the recommended period.

### 3.18 SIKAFLOOR®-94 APPLICATION

Mix compounds as per Sika (NZ) Ltd Technical Data Sheet. Apply Sikafloor®-94 by brush, squeegee or roller at the recommended consumption rates. While wet broadcast Sika Aggregate over the surface to full refusal if required. Recoat within the recommended period.

## **Application - Floor Control Joint Sealants**

### 3.19 SIKAFLEX®-11 FC APPLICATION

Apply approved primer to joint edges by brush. Install PEF backing rod or bond breaker to the back of joint. Extrude Sikaflex-11 FC sealant into joint and tool off smooth. Observe recommended consumption rates.

## **Application - Components**

### 3.20 SIKA® AGGREGATES APPLICATION

Uniformly blend, mix or evenly distribute Sika Aggregate onto or into the selected Sika flooring system. Observe recommended consumption rates.

### 3.21 SIKA® PEF ROD APPLICATION

Install PEF rod with a blunt instrument to achieve a uniform and even, predetermined depth without any twists, bumps, gaps or excessive longitudinal stretching of the rod.

### 3.22 BOND BREAKER TAPE APPLICATION

Install bond breaker tape to the back surface of the joint to prevent back adhesion of the sealant

#### **Completion**

### 3.23 CLEANING

Remove debris and unused materials from the site. Clean soiled or marked work. Replace damaged, cracked or marked elements.

### 3.24 PROTECTION

Protect the finished Sika flooring system work until completion of the contract works.

## **4 SELECTIONS**

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

### **Clear Sealers - Light to Medium Duty**

#### 4.1 SIKA PURIGO-5S - CLEAR FLOOR SEALER

1st coat:	Sika Purigo®-5S
2nd coat:	Sika Purigo®-5S
Colour:	Clear
Finish:	Natural concrete.

# 6192 FLOORING SUBSTRATE PREPARATION

## 1 GENERAL

This section relates to the preparation of a flooring substrate for floor coverings over existing and new floors.

It includes:

- preparation of new and existing floors
- sheet underlays/overlays
- levelling screeds

### Documents

#### 1.1 DOCUMENTS

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

<a href="#">AS/NZS 1859.2</a>	Reconstituted wood-based panels - Specifications - Dry processed fibreboard
<a href="#">AS/NZS 1859.4</a>	Reconstituted wood-based panels - Specifications - Wet processed fibreboard
<a href="#">NZS/AS 1884</a>	Floor coverings - Resilient sheet and tiles - Installation practices
<a href="#">AS/NZS 2269.0</a>	Plywood - Structural - Specifications
<a href="#">AS/NZS 2908.2</a>	Cellulose-cement products - Flat sheet

### Requirements - moisture in concrete slabs

#### 1.2 MOISTURE CONTENT OF CONCRETE SLAB

Check moisture content to [NZS/AS 1884](#), Appendix A and do not commence laying of floor covering until readings for the whole area show 75% relative humidity or less, for textile, resilient sheet and tile floor finishes and 60-70% for timber overlay floor finishes. If non-complying, the slab is to be sealed in accordance with this specification, refer to 4. SELECTIONS.

#### 1.3 SEAL CONCRETE SLABS

Seal concrete slab to control moisture content.

## 2 PRODUCTS

### Materials

#### 2.1 FLOOR LEVELLING COMPOUND

Proprietary floor levelling compound. Refer to SELECTIONS for type.

#### 2.2 CONCRETE SEALER

Penetrating sealer or moisture cured polyurethane. Refer to SELECTIONS for type.

## 3 EXECUTION

### Conditions

#### 3.1 DO NOT START

Do not start work before the building is enclosed, all wet work is complete, doors are hung and lockable, finishes and trim complete and good lighting is available.

#### 3.2 INSPECT

Inspect the substrate to ensure it is a suitable finish. Do not start work if it will not allow work of the required standard.

### Application - substrate preparation

#### 3.3 PREPARING NEW CONCRETE FLOOR

To be level, smooth, clean, cured and dried. Check moisture content to [NZS/AS 1884](#), Appendix A. Add cure and seal catalytic agent to concrete or seal as required. Remove loose material and dust.

**Application - laying****3.4 FLOOR LEVELLING APPLICATION**

Ensure good ventilation during application of levelling system. Apply systems to Manufacturers requirements and instructions, including mixing, applying, finishing and curing. Protect from damp, condensation and water for at least 24 hours once application is completed.

**Completion****3.5 REPLACE**

Replace damaged or marked elements.

**3.6 REMOVE**

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

**3.7 PROTECT**

Protect completed work from damage for the period between completion of the preparation work and completion of flooring.

**4 SELECTIONS**

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

**4.1 FLOOR LEVELLING COMPOUND**

Brand: Refer to Ardex 6221A Ardex Floor tiling solutions  
Type: Ardex

**4.2 CONCRETE SEALER**

Brand: Refer to manufacturers documentation for laying of Marmoleum and carpet underlay  
Type: TBC

# 6211AW ARDEX WALL TILING

## 1 GENERAL

This section relates to the supply and installation of ARDEX New Zealand Ltd internal and external wall tiling systems.

It includes:

- Primers
- Waterproofing systems
- Adhesives
- Sealants
- Grouts

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

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

### Documents

### 1.2 DOCUMENTS

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

AS 3958.1	Ceramic tiles - Guide to the installation of ceramic tiles
ISO 13007.1	Ceramic tiles - Grouts and adhesives - Terms, definitions and specifications for adhesives
ISO 13007.3	Ceramic tiles - Grouts and adhesives - Terms, definitions and specifications for grouts
WMAI CoP	Code of Practice for Internal Wet Area Membrane Systems

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

ARDEX Tiling and Substrate Preparation Systems (October 2023)

ARDEX Product Technical Data Sheets

ARDEX Technical Tiling Systems Bulletins

ARDEX Product Building Product Information Sheets

ARDEX Tiling General Care information sheet

[BRANZ Appraisal 472](#) (2022) - ARDEX Undertile Internal Liquid Waterproofing Membranes - Amended 24 May 2024

[BRANZ Appraisal 727](#) (2023) - ARDEX Undertile Sheet Membrane (WPM 750 and WPM 1000)

Manufacturer/supplier contact details

Company: ARDEX New Zealand Ltd

Web: [www.ardex.co.nz](http://www.ardex.co.nz)

Email: [info@ardexnz.com](mailto:info@ardexnz.com)

Telephone: 0800 227339

### Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years For materials - liquid membrane

Note:

Contact ARDEX New Zealand for project specific warranty periods for the selected products and/or systems.

20 years For materials - sheet membrane

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

Refer to the general section 1237 WARRANTIES for additional requirements.

#### 1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:  
5 years For installation

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

Refer to the general section 1237 WARRANTIES for additional requirements.

### Requirements

#### 1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

#### 1.7 QUALIFICATIONS WORKERS - MANUFACTURER / SUPPLIER REQUIREMENTS

Waterproofing applicators to be approved by ARDEX New Zealand. Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

#### 1.8 NO SUBSTITUTIONS

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

#### 1.9 INFORMATION FOR OPERATION AND MAINTENANCE

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

Provide this information prior to practical completion.

### Compliance information

#### 1.10 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

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

## 2 PRODUCTS

### Materials - substrate preparation

#### 2.1 ARDEX MULTIPRIME

One part, water-based primer for porous substrates.

#### 2.2 ARDEX P 9

One part, water-based primer for non-porous substrates.

### Materials - waterproofing

#### 2.3 ARDEX WPM 750

Fleece-lined, synthetic rubber sheet membrane, 0.75mm thick, 1.4m wide x 20m long rolls.

#### 2.4 ARDEX SUPERFLEX WPM 002

ARDEX WPM 002 (Superflex Bathroom and Balcony Two Part) is a tough, fast drying two component waterproofing membrane specifically designed for use under tiles. The product has been uniquely formulated with synthetic microfibres to increase its strength and eliminate the need for a separate reinforcement mat. ARDEX WPM 002 is based on the most advanced acrylic polymer technology, and is totally resistant to re-emulsification.

### Materials - adhesives

#### 2.5 ARDEX X 18

ARDEX X18 is a superior polymer fortified cement-based wall and floor tile adhesive that has been specially formulated with mastic type properties, available in both white and grey. It contains specially developed fibres that add strength to the tiled area. ARDEX X18 has an extended open time, is non-slump and flexible. Mix with water to achieve a mortar suitable for internal and external use in residential and commercial applications, including swimming pools. ARDEX X18 meets the Green Building Council of Australia Green Star requirements for Ceramic Tile Adhesives.

### Materials - grout

#### 2.6 ARDEX EG 15

Three part stain and chemical resistant epoxy grout for joints 1.5mm to 15mm wide. Classified RG to ISO 13007.3.

#### 2.7 ARDEX FG 8

integrity, ARDEX FG8 can be used for tile joints 1mm to 8mm wide, on walls and floors. It contains ARDEX Grout Shield to combat mould growth. Improved workability helps ensure flush joints, which is most noticeable with rectified edged tiles. ARDEX FG8 is available in a range of designer colours, and is suitable for grouting indoors and out.

### Materials - additives

#### 2.8 ARDEX GROUT BOOSTER

ARDEX grout booster is a specially formulated, water based, synthetic polymer grout additive. When mixed with ARDEX cement based grouts, ARDEX Grout Booster improves adhesion, flexibility to reduce cracking and abrasion strength to avoid powdery grout.

### Components

#### 2.9 ARDEX CA 750 CONTACT ADHESIVE

Water-based contact adhesive.

#### 2.10 ARDEX CA 20 P PLUS CONSTRUCTION ADHESIVE

One part, flexible, silane modified polymer adhesive.

#### 2.11 TRIMS

Tile trims and edge strips. Available in aluminium, brass and stainless steel. Refer to SELECTIONS.

## 3 EXECUTION

### Conditions

#### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

#### 3.2 ROUTINE MATTERS

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

#### 3.3 PRE-INSTALLATION REQUIREMENTS

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

75% maximum relative humidity, minimum 28 day cured
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Moisture content concrete:	
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### Installation/application

#### 3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

#### 3.5 APPLICATION GENERALLY

To AS 3958.1, ARDEX New Zealand Ltd instructions, and to WMAI CoP recommendations. Surfaces to be clean, sound and free of dust, oil, grease, curing compounds or release agents.

### Installation - substrate preparation

#### 3.6 APPLY PRIMER

Sponge, brush or roll primer liberally over entire substrate.

### Installation - waterproofing

#### 3.7 APPLY ARDEX SHEET WPM

Lay sheet membrane allowing for 50mm overlap with adjacent sheet. Working in rows lengthwise, fold back half of the width of the membrane sheet. Brush ARDEX contact adhesive to substrate and underside of membrane, avoiding the 50mm overlap. Unfold the membrane and press onto the substrate. Heat weld the 50mm overlapped membranes together.

### Installation - adhesive

#### 3.8 TILE SETTING OUT

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

#### 3.9 MOVEMENT JOINTS GENERAL

Provide movement joints to AS 3958.1:

Depth: Movement joints to go right through the tile and bed to the background.

Width: 6mm

Locations: At junctions with floors, columns, nibs, and similar.  
Around sanitary fixtures.

Around fixtures interrupting the tile surface (e.g. at junctions with joinery fixtures, window/door frames, and built in cupboards).

At changes in substrate.

Large areas: Provide vertical joints at not less than 3.5 metres spacing along the length of a wall.

Provide horizontal joints at each storey rise in the height of a wall.

Provide joints over existing joints in the substrate.

#### 3.10 ADHESIVE APPLICATION GENERAL

For general wall tiling, use a 6mm x 6mm x 6mm notched trowel.

For mosaics, use a 4.5mm x 4.5mm x 4.5mm notched trowel.

Remove a tile periodically during installation to check for correct adhesive coverage. Do not fix tiles over skinned adhesive.

#### 3.11 APPLY ADHESIVE

Mix adhesive to ARDEX instructions. Spread adhesive over prepared substrate with a notched trowel to ARDEX recommended bed thickness.

#### 3.12 INSTALL TRIM

Press trim into wet adhesive.

#### 3.13 INSTALL MOVEMENT JOINT ANGLE

Press angle into wet adhesive.

#### 3.14 LAY TILES

Firmly press tiles into the adhesive bed for full contact between tile and adhesive with no voids.

Butter the back of tiles with ribbed or keyed underside before laying into adhesive bed by spreading a thin layer of adhesive on the back of the tile. Remove surplus adhesive from tile surfaces before adhesive sets.

### Installation - grout

#### 3.15 APPLY GROUT

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

### Completion & Commissioning

#### 3.16 COMPLETION MATTERS

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

## 4 SELECTIONS

NOTE:

**ARDEX TO CONFIRM PRIOR TO INSTALLATION ALL ARDEX PRODUCTS AS SPECIFIED IN SELECTIONS ARE SUITABLE FOR THE APPLICATIONS**

For further details on selections go to [www.ardex.co.nz](http://www.ardex.co.nz)

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

#### 4.1 TILES

Location: refer drawings  
 Supplier: TBC  
 Type: Ceramic or porcelain - standard sizing to 600mm x 600mm  
 Bond pattern: TBC

### ARDEX Tiled Internal Walls

#### 4.2 ARDEX INTERNAL WALL TILING SYSTEM OVER PLASTERBOARD

Location: refer to drawings  
 Substrate: Plasterboard  
 Adhesive: ARDEX X 18  
 Grout: ARDEX EG 15, Option FG 8 + grout booster  
 Silicone: ARDEX SE & ST

#### 4.3 ARDEX INTERNAL WALL TILING SYSTEM OVER FIBRE CEMENT SHEET

Location: refer to drawings  
 Substrate: Fibre cement sheet  
 Adhesive: ARDEX X 18  
 Grout: ARDEX EG 15, Option FG 8 + grout booster  
 Silicone: ARDEX SE & ST

#### 4.4 ARDEX INTERNAL WET AREA WALL WATERPROOFING

Membrane: ARDEX WPM 750 - sheet membrane  
 Option: ARDEX Superflex WPM 002 - liquid membrane  
 Primer: ARDEX Multiprime (liquid membrane only)

### Components

#### 4.5 TRIMS

Location: refer to drawings  
 Supplier: TBC  
 Type: Edge strip  
 Material: Aluminium powder coated

### Spares & maintenance products

#### 4.6 SPARES & MAINTENANCE PRODUCTS

Refer to the general section 1270 CONSTRUCTION for details of how spares and maintenance products will be handled. Provide the following spares and maintenance products:

Item: as required by client

Quantity: as required by client

Location: Refer to 1270 CONSTRUCTION

# 6221A ARDEX FLOOR TILING SOLUTIONS

## 1 GENERAL

This section relates to the supply and installation of ARDEX New Zealand internal and external floor tiling systems.

It includes:

- Levelling screeds
- Primers
- Waterproofing systems
- Adhesives
- Sealants
- Grouts

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

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

### Documents

### 1.2 DOCUMENTS

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

<a href="#">NZBC D1/AS1</a>	Access routes
<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">NZBC E3/AS1</a>	Internal moisture
<a href="#">NZBC G3/AS1</a>	Food preparation and prevention of contamination
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
AS 3958.1	Ceramic tiles - Guide to the installation of ceramic tiles
ISO 13007.1	Ceramic tiles - Grouts and adhesives - Terms, definitions and specifications for adhesives
ISO 13007.3	Ceramic tiles - Grouts and adhesives - Terms, definitions and specifications for grouts
NZS 4121	Design for access and mobility - Buildings and associated facilities
WMAI CoP	Code of Practice for Internal Wet Area Membrane Systems

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

ARDEX Tiling and Substrate Preparation Systems (October 2023)

ARDEX Product Technical Data Sheets

ARDEX Technical Tiling Systems Bulletins

ARDEX Product Building Product Information Sheets

ARDEX Tiling General Care information sheet

[BRANZ Appraisal 472](#) (2022) - ARDEX Undertile Internal Liquid Waterproofing Membranes - Amended 24 May 2024

[BRANZ Appraisal 727](#) (2023) - ARDEX Undertile Sheet Membrane (WPM 750 and WPM 1000)

Manufacturer/supplier contact details

Company: ARDEX New Zealand Ltd

Web: [www.ardex.co.nz](http://www.ardex.co.nz)

Email: [info@ardexnz.com](mailto:info@ardexnz.com)

Telephone: 0800 227339

### Warranties

**1.4 WARRANTY - MANUFACTURER/SUPPLIER**

Provide a material manufacturer/supplier warranty:

15 years	For materials - Liquid membrane
20 years	For materials - Sheet membrane

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

Refer to the general section 1237 WARRANTIES for additional requirements.

**1.5 WARRANTY - INSTALLER/APPLICATOR**

Provide an installer/applicator warranty:

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

Refer to the general section 1237 WARRANTIES for additional requirements.

**Requirements****1.6 QUALIFICATIONS WORKERS**

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

**1.7 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS**

Waterproofing applicators to be approved by ARDEX New Zealand. Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

**1.8 NO SUBSTITUTIONS**

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

**1.9 INFORMATION FOR OPERATION AND MAINTENANCE**

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

- ARDEX Tiling General Care

Provide this information prior to practical completion.

**Compliance information****1.10 INFORMATION REQUIRED FOR CODE COMPLIANCE**

Provide the following compliance documentation:

- Applicator approval certificate from the manufacturer / importer / distributor
- Producer Statement - Construction from the applicator / installer
- Other information required by the BCA in the Building Consent Approval documents

**2 PRODUCTS****Materials - levelling & screeds****2.1 ARDEX LQ 92**

Cement-based, polymer modified, self-smoothing levelling compound.

**2.2 ARDEX A 48 SCREED**

Premixed, rapid-set, cement and aggregate screed.

**2.3 ARDEX A 30**

ARDEX A 30 is a slump free feather edge patching compound that is designed for internal filling of cavities, holes, unevenness and patching work in wall and floor areas. When mixed with water the result is a smooth slump free mortar with a pot life of approximately 15 minutes. ARDEX A 30 is rapid drying through hydration to a virtually tension free compound.

## 2.4 ARDEX K 65

ARDEX K 65 is an advanced fibre reinforced smoothing and levelling compound for internal use, featuring MICROTEC technology that is designed to rapidly smooth and level new and existing substrates prior to applying a floor finish. ARDEX K 65 can be applied to timber substrates and can normally be walked on after approximately 2 hours at 23°C.

**Materials - substrate preparation**

## 2.5 ARDEX MULTIPRIME

One part, water-based primer for porous substrates.

## 2.6 ARDEX P 51

One part water-based, primer, pre-coat, and bonding agent for porous substrates.

## 2.7 ARDEX P 9

ARDEX P9 Single Part Primer is a water-based primer used for improving the adhesion of selected ARDEX products to smooth, dense and various non porous substrates. It is easy to apply with a brush or roller with applications of subsequent products able to take place with minimal downtime. ARDEX P9 Single Part Primer is suitable for internal and external wall or floor applications.

## 2.8 ARDEX WPM 300 MOISTURE BARRIER

Two-component, water-based, epoxy polyamide membrane/barrier hydrostatic pressure resistant coating.

**Materials - waterproofing**

## 2.9 ARDEX WPM 750

Fleece-lined, synthetic rubber sheet membrane, 0.75mm thick, 1.4m wide x 20m long rolls.

**Materials - adhesives**

## 2.10 ARDEX WPM 002

ARDEX WPM 002 (Superflex Bathroom and Balcony Two Part) is a tough, fast drying two component waterproofing membrane specifically designed for use under tiles. The product has been uniquely formulated with synthetic microfibres to increase its strength and eliminate the need for a separate reinforcement mat. ARDEX WPM 002 is based on the most advanced acrylic polymer technology, and is totally resistant to re-emulsification.

## 2.11 ARDEX X 18

ARDEX X18 is a superior polymer fortified cement-based wall and floor tile adhesive that has been specially formulated with mastic type properties, available in both white and grey. It contains specially developed fibres that add strength to the tiled area. ARDEX X18 has an extended open time, is non-slump and flexible. Mix with water to achieve a mortar suitable for internal and external use in residential and commercial applications, including swimming pools. ARDEX X18 meets the Green Building Council of Australia Green Star requirements for Ceramic Tile Adhesives.

**Materials - grouts**

## 2.12 ARDEX EG 15

Three part stain and chemical resistant epoxy grout for joints 1.5mm to 15mm wide. Classified RG to ISO 13007.3.

## 2.13 ARDEX FG 8

A smooth, flexible cement-based grout with improved colour integrity, ARDEX FG8 can be used for tile joints 1mm to 8mm wide, on walls and floors. It contains ARDEX Grout Shield to combat mould growth. Improved workability helps ensure flush joints, which is most noticeable with rectified edged tiles. ARDEX FG8 is available in a range of designer colours, and is suitable for grouting indoors and out.

**Materials - additives**

## 2.14 ARDEX GROUT BOOSTER

Water-based, synthetic polymer grout additive for use with cement-based grouts to improve adhesion strength, flexibility and abrasion resistance.

- 2.15 **ARDEX E 90**  
ARDEX E 90 is a special synthetic dispersion for use in conjunction with ARDEX cement-based adhesives, such as ARDEX X 10, ARDEX X18, ARDEX 68 and many others. The addition of ARDEX E 90 admix produces a mortar that is elastic, has high adhesion and water repellent properties (refer to adhesive packaging for information on when to use ARDEX E 90). ARDEX E 90 mixed with cement-based adhesives extends the use of the adhesive to situations where movement is anticipated e.g. external tiling, over fibre cement sheets/plasterboard, when tiling over heated subfloors. The ARDEX E 90 mortar can be used in both internal and external tiling applications.
- 2.16 **ARDEX ST TAPE**  
Uncured, self-adhesive butyl tape, fleece lined one side.
- 2.17 **ARDEX CA 750 CONTACT ADHESIVE**  
Water-based contact adhesive.
- 2.18 **TRIMS**  
Tile trim, edge strips, floor finish divider strips and weather bars. Available in aluminium, brass and stainless steel. Refer to SELECTIONS.
- 2.19 **MOVEMENT JOINT - SEALANT**  
One part, flexible acetic or neutral cure silicone sealant. Refer to SELECTIONS.
- 2.20 **MOVEMENT JOINT - BACKING ROD**  
Polyethylene foam (PEF) backing rod. Refer to SELECTIONS.

### **3 EXECUTION**

#### **Conditions**

- 3.1 **DELIVERY, STORAGE & HANDLING OF PRODUCTS**  
Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.
- 3.2 **ROUTINE MATTERS**  
Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.  
Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.
- 3.3 **PRE-INSTALLATION REQUIREMENTS**  
Check work previously carried out and confirm it is of the required standard for this part of the work.  
Moisture content concrete: 75% maximum relative humidity, minimum 28 day cured  
Moisture content plywood: 18% maximum  
Moisture content particleboard: 16% maximum

#### **Installation/application**

- 3.4 **STANDARDS AND TOLERANCES**  
Refer to the general section 1270 CONSTRUCTION for general requirements.
- 3.5 **APPLICATION GENERALLY**  
To AS 3958.1, ARDEX New Zealand Ltd instructions, and to WMAI CoP recommendations.  
Surfaces to be clean, sound and free of dust, oil, grease, curing compounds or release agents.
- 3.6 **APPLY LEVELLING SCREED**  
Mix levelling screed to ARDEX instructions. Trowel onto prepared substrate to required thickness and fall, where required:
- |              |                                      |
|--------------|--------------------------------------|
| 1:40 minimum | deck acting as a roof to NZBC E2/AS1 |
| 1:40 minimum | accessible showers to NZBC G1/AS1    |
| 1:50 minimum | shower bases to NZBC E3/AS1          |
- 3.7 **APPLY ARDEX WPM 300 MOISTURE BARRIER**  
Spray fine mist of water over substrate. Spread barrier evenly over entire substrate with a stiff nylon broom. Apply second coat with a long nap roller.

**3.8 APPLY PRIMER**

Sponge, brush or roll primer liberally over entire substrate.

**3.9 APPLY ARDEX LIQUID WPM**

Reinforce corners and penetrations with ARDEX ST TAPE. Mix waterproofing components to ARDEX instructions. Brush or roll on liquid waterproofing membrane over prepared substrate. Apply two coats to achieve required minimum total dry film thickness to ARDEX product technical data sheet.

**3.10 APPLY ARDEX SHEET WPM**

Lay sheet membrane allowing for 50mm overlap with adjacent sheet. Working in rows lengthwise, fold back half of the width of the membrane sheet. Brush ARDEX contact adhesive to substrate and underside of membrane, avoiding the 50mm overlap. Unfold the membrane and press onto the substrate. Heat weld the 50mm overlapped membranes together.

**3.11 SETTING OUT**

Confirm tile layout and bond pattern. Cut tiles to tile manufacturer's recommendations. Lay tiles level, maintaining falls to drainage where required (e.g. floor wastes). Provide joint widths to the tile manufacturer's recommendations.

**3.12 MOVEMENT JOINTS GENERAL**

Provide movement joints to AS 3958.1:

Depth: Movement joints to go right through the tile and bed to the background.

Width: 6mm

Locations: At walls, columns, nibs, hobs and similar.  
Around sanitary fixtures.

Around fixtures interrupting the tile surface (e.g. at junctions with joinery fixtures, window/door frames, and built in cupboards).

At changes in substrate.

Large areas: Provide joints at not less than 4.5 metres spacing in both directions for internal floors.

Provide joints at not less than 3.5 metres spacing in both directions for external floors.

Provide joints over existing joints in the substrate.

**3.13 ADHESIVE APPLICATION GENERAL**

For general floor tiling, use a 10mm x 10mm x 10mm notched trowel.

For large format tiles, use a 12mm x 12mm x 12mm notched trowel.

For mosaics, use a 4.5mm x 4.5mm x 4.5mm notched trowel.

Remove a tile periodically during installation to check for correct adhesive coverage. Do not fix tiles over skinned adhesive.

**3.14 APPLY ADHESIVE**

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

**3.15 INSTALL TRIM**

Press trim into wet adhesive.

**3.16 LAY TILES**

Firmly press tiles into the adhesive bed for full contact between tile and adhesive with no voids.

Butter the back of tiles with ribbed or keyed underside before laying into adhesive bed by spreading a thin layer of adhesive on the back of the tile. Remove surplus adhesive from tile surfaces before adhesive sets.

**3.17 APPLY GROUT**

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

**3.18 INSTALL MOVEMENT JOINT BACKING ROD**

Place PEF backing rod into movement gaps. Apply a continuous bead of silicone sealant over PEF backing rod.

## Completion & Commissioning

### 3.19 COMPLETION MATTERS

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

## 4 SELECTIONS

### NOTE: ARDEX TO CONFIRM PRIOR TO INSTALLATION ALL ARDEX PRODUCTS AS SPECIFIED IN SELECTIONS ARE SUITABLE FOR THE APPLICATIONS

For further details on selections, go to [www.ardex.co.nz](http://www.ardex.co.nz)

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

#### 4.1 TILES

Location: TBC  
 Supplier: TBC  
 Type: Ceramic or porcelain - standard sizing to 600mm x 600mm  
 Class: 2  
 Bond pattern: TBC

#### 4.2 ARDEX MOISTURE BARRIER

Location: Refer drawings  
 Substrate: Concrete  
 Type: ARDEX WPM 300

### ARDEX Tiled Internal Floors

#### 4.3 ARDEX INTERNAL TILING SYSTEM OVER CONCRETE FLOOR

Location: Refer to drawings  
 Substrate: Concrete  
 Levelling: ARDEX LQ 92  
 Screed: ARDEX A 30 - 0mm to 20mm, A 48 - 15mm to 50mm + increments  
 Adhesive: ARDEX X 18  
 Grout: ARDEX EG 15, Option FG 8 + grout booster  
 Silicone: ARDEX SE & ST

#### 4.4 ARDEX INTERNAL TILING SYSTEM OVER SHEET TIMBER FLOOR

Location: Refer to drawings  
 Substrate: Structural ply  
 Primer: ARDEX P 9  
 Levelling: ARDEX K 65  
 Screed: ARDEX A 30 - 0mm to 20mm, A 48 - 15mm to 50mm + increments  
 Adhesive: ARDEX X 18 + E 90  
 Grout: ARDEX EG 15, Option FG 8 + grout booster  
 Silicone: ARDEX SE & ST

#### 4.5 ARDEX WATERPROOFING

Location: Refer to drawings  
 Membrane: ARDEX WPM 750 - sheet membrane  
 Option: ARDEX Superflex WPM 002 - liquid membrane  
 Primer: ARDEX Multiprime (liquid membrane only)

### Spares & Maintenance

#### 4.6 SPARES & MAINTENANCE PRODUCTS

Refer to the general section 1270 CONSTRUCTION for details of how spares and maintenance products will be handled. Provide the following spares and maintenance products:

Item: Tiles  
 Quantity: TBC  
 Location: Refer to 1270 CONSTRUCTION

# 6412FM FORBO MARMOLEUM FLOORING

## 1 GENERAL

This section relates to the supply and installation of **Forbo® Marmoleum®** linoleum sheet and **Forbo® Modular Marmoleum®** linoleum tiles.

This includes:

- linoleum sheet

Marmoleum® flooring is not suitable for use in wet areas where sustainable slip resistance is required. Refer to Forbo Safestep and Surestep for specialist slip resistant vinyls.

### Documents

#### 1.1 DOCUMENTS

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

<a href="#">NZBC C/AS2</a>	Protection from fire
<a href="#">NZBC D1/AS1</a>	Access Routes
<a href="#">NZS/AS 1884</a>	Floor coverings - Resilient sheet and tiles - Installation practices
EN ISO 9239-1:2010	Reaction to fire tests for floorings - Determination of the burning behaviour using a radiant heat source
Manual of practices and conditions for the NZ flooring industry: Resilient flooring	

#### 1.2 MANUFACTURER DOCUMENTS

Manufacturer's documents relating to this part of the work:  
Marmoleum® and Forbo® floor covering installation guide

Manufacturer contact details

Company:	<b>Forbo Floorcoverings Pty Ltd</b>
Web:	<a href="http://www.inzide.co.nz">www.inzide.co.nz</a>
Email:	<a href="mailto:sales@inzide.co.nz">sales@inzide.co.nz</a>
Telephone:	09 441 9850, 0800 800 656

### Warranties

#### 1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer warranty:

15 years: For failure under normal environmental and use conditions.

- Provide this warranty on the Forbo and INZIDE commercial warranty form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

#### 1.4 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

1 year: For failure under normal environmental and use conditions.

- Provide the warranty in the standard form in the general section 1237WA WARRANTY AGREEMENT
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

### Requirements

#### 1.5 NO SUBSTITUTIONS

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

#### 1.6 QUALIFICATIONS

Marmoleum® installation to be carried out by competent, experienced layers familiar with the materials and techniques specified.

## 2 PRODUCTS

### Materials - flooring

#### 2.1 LINOLEUM SHEET

Marmoleum® sheet flooring consists of a 2m wide roll and contains; linseed oil, natural resins, woodflour, limestone and natural pigments, backed with jute. Refer to SELECTIONS for colours available.

### Accessories

#### 2.2 PRIMER

To the adhesive manufacturer's requirements for the particular substrate.

#### 2.3 ADHESIVE - MARMOLEUM SHEET

Uzin KE 2000S or Ardex AF2365 low VOC Acrylic linoleum adhesive, to suit material and substrate and to the Marmoleum® manufacturer's requirements.

#### 2.4 THERMOWELDING

Manufacturer supplied colour matched welding rod.

#### 2.5 TRIM

Separate proprietary trim.

## 3 EXECUTION

### Conditions

#### 3.1 GENERALLY

To manufacturer's requirements and [NZS/AS 1884](#).

#### 3.2 STORAGE

Accept rolls of sheet Marmoleum® and accessories undamaged and dry. Store rolls upright with other material on level surfaces in non-traffic, non-work areas that are enclosed, clean and dry.

#### 3.3 HANDLING

Avoid distortion, stretching, marking and damage to edges while shifting, unrolling and handling Marmoleum® sheet and accessories. Do not use damaged material.

#### 3.4 PREPARATION

Check that each colour supplied is from the same batch. Follow the Marmoleum® manufacturer's requirements for preparatory conditioning of rolls and working temperatures and conditions before, during and after laying the selected Marmoleum® and accessories. Protect work from solar heat gain and switch off under-floor heating during and for 48 hours either side of the work period.

#### 3.5 DO NOT START

Do not start work before the building is enclosed, wet work is complete, doors are hung and lockable, finishes and trim complete and good lighting is available.

#### 3.6 INSPECT

Inspect the substrate to ensure it is a suitable finish. Do not start work if it will not allow work of the required standard.

#### 3.7 PROTECTION

Protect adjoining work surfaces and finishes during the Marmoleum® installation.

#### 3.8 LAYING GENERALLY

Carry out the whole of this work to [NZS/AS 1884](#), the Manual of practices and conditions for the NZ flooring industry: Resilient flooring and the flooring manufacturer's requirements.

#### 3.9 TECHNIQUE

Before beginning the installation confirm the proposed layout of material, location of seams and other visual considerations of the finished work.

### **Application - substrate preparation**

#### 3.10 PREPARATION, NEW PLYWOOD OR PARTICLEBOARD

Clear substrate of debris, clean off surface contamination and carry out surface repairs to particleboard using a propriety levelling compound. Carefully feather out at all perimeters of repaired areas. Grind or sand smooth, then vacuum to remove dust. Check for moisture content to [NZS/AS 1884](#), Appendix A, and do not commence final sanding or laying until readings for the whole area show a moisture content of:

8 - 12% for air conditioned buildings

10 - 14% for intermittently heated buildings

12 - 16% for unheated buildings

Prime substrate prior to application of adhesive if required.

### **Application - laying**

#### 3.11 APPLICATION OF ADHESIVE

Apply approved adhesive by trowel as required by the Marmoleum® manufacturer and without trowel marks after setting. Follow requirements for open time, taking note of substrate porosity, ambient temperature and relative humidity. Remove excess adhesive as the work proceeds using required techniques.

#### 3.12 LAYING LINOLEUM SHEET

Roll out, cut, leave to condition on site and install sheet linoleum to the Marmoleum® requirements. Ensure there are no air bubbles or twisting, and that seams are kept clear of adhesive. Form seams to leave a tight butt join. Immediately the sheet is adhered, roll with a 68 kg roller.

### **Thermoweld seams**

#### 3.13 WELDING FLOORS

After grooving, thermoweld seams and all joints including coving mitres forming a 3.5mm wide weld. Trim and glaze the weld to leave a smooth flush surface with the sheet.

### **Completion**

#### 3.14 REPLACE

Replace damaged or marked elements.

#### 3.15 CLEAN LINOLEUM FLOORING

Clean Marmoleum® flooring surfaces of adhesive, dirt and debris. Vacuum off, damp mop with a low-foam neutral detergent, allow to dry and finally buff with a rotary machine using suitable pads at 300 rpm. Do not use polymer polishes unless approved by Forbo Floorcoverings Pty Ltd.

#### 3.16 REMOVE

Remove debris, unused materials and elements from the site.

#### 3.17 PROTECT

Protect completed work from damage for the period between completion of laying and completion of the contract works.

#### 3.18 LEAVE

Leave work to the standard required by following procedures.

## **4 SELECTIONS**

For further details on selections go to [www.inzide.co.nz](http://www.inzide.co.nz).

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

### **Flooring**

#### 4.1 FORBO MARMOLEUM SHEET

Location: Refer to drawings

Manufacturer: Forbo Floorcoverings Pty Ltd

Distributor: Inzide Commercial  
Brand: Forbo®  
Type: Marmoleum  
Thickness: 2.5mm  
Seams: Butt jointed, Thermoweld joints as required by Marmoleum installer  
Colour: TBC

**Accessories**

4.2 FLOOR LEVELLING COMPOUND

Brand/type: Mapei to suit application

## 6511 CARPETING

### 1 GENERAL

This section relates to the supply and installation of carpet laid conventionally (stretched), direct stuck or double bonded (double direct stuck).

It includes:

- carpet underlay
- woven sheet carpet

#### Documents

#### 1.1 DOCUMENTS

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

<a href="#">NZBC C/AS2</a>	Protection from fire
<a href="#">AS/NZS 2270</a>	Plywood and blockboard for interior use
<a href="#">AS/NZS 2455.1</a>	Textile floor coverings - Installation practice - General

#### Warranties

#### 1.2 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

1 year: For materials

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

Refer to the general section 1237 WARRANTIES for additional requirements.

#### 1.3 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/appliator warranty:

1 year: For execution

- Provide this warranty on the installer/appliator 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

#### 1.4 QUALIFICATIONS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

#### 1.5 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.

#### 1.6 NO SUBSTITUTIONS

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

## 2 PRODUCTS

#### Materials

#### 2.1 UNDERLAY

To [AS/NZS 2455.1](#) Soft underlay and underlays manufacturer's requirements.  
Refer to SELECTIONS for product selection.

#### 2.2 CARPET

To [AS/NZS 2455.1](#) Textile floor coverings.  
Refer to SELECTIONS for product selection.

## Components

### 2.3 EDGE GRIPPER

Timber/plywood to [AS/NZS 2270](#) with steel grippers to carpet manufacturer's requirements, constructed of sufficient pins and nails so as to withstand a minimum stretching force of 6580N over a 1220 mm length.

## Accessories

### 2.4 TAPE

To carpet manufacturer's requirements.

### 2.5 FLOOR LEVELLING COMPOUND

Refer to SELECTIONS.

## 3 EXECUTION

### Conditions

#### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

Handle carpet on flat dollies using carpet cradles, with probes on fork- lifts and without sharp bending or folding. Store carpet in flat bins with a maximum height of three rows. Keep dry. Protect from damage.

#### 3.2 ROUTINE MATTERS

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

#### 3.3 PRE-INSTALLATION REQUIREMENTS

Check work previously carried out and confirm it is of the required standard for this part of the work. Ensure all fittings and fixtures around which the carpet is to be scribed are in place. Carry out such additional preparatory work as required in bringing the substrate to suitable condition.

Confirm moisture content of substrate in accordance with [AS/NZS 2455.1](#). Appendix B Do not commence laying carpet until readings for the whole area are within acceptable levels as follows:

Moisture Content:	Timber substrate
	- 8 -12% for air conditioned buildings
	- 10 -14% for intermittently heated buildings
	- 12 -16% for unheated buildings
	Concrete substrate 75%RH

#### 3.4 BEFORE COMMENCING WORK

Ensure that the building is enclosed, wet work complete, doors hung and lockable, finishes and trim complete, and good lighting available, before starting work.

#### 3.5 TEMPERATURE

Acclimatise carpet to a room temperature above 15°C through the whole of the installation.

#### 3.6 PROTECTION

Protect adjoining work surfaces and finishes during the carpet installation.

#### 3.7 TAPE

Tape for binding and seaming using type and width required by the carpet manufacturer to suit the specified carpet and the standard of performance required.

#### 3.8 LAYING GENERALLY

Carry out the whole of the work to [AS/NZS 2455.1](#) and to the flooring manufacturer's requirements.

### 3.9 LAYOUT

Plan the general layout so that:

- seams run lengthways
- traffic runs along the seam
- light from windows is not across the seam
- pile faces away from the light source.

#### **Application - general / substrate preparation**

### 3.10 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

### 3.11 PREPARING NEW CONCRETE FLOOR

To be level, smooth, clean, cured and dry. Remove loose material and dust.

### 3.12 PREPARING NEW WOOD PRODUCT FLOOR

To be level, sanded smooth and dry with loose material and dust removed.

#### **Application - carpet laying**

### 3.13 INSTALLATION, UNDERLAY

Installation to underlay manufacturer's requirements. Lay at right angles to the carpet direction.

### 3.14 INSTALLATION, CONVENTIONAL SYSTEM

Tape carpet joints, fix grippers to floor and install underlay and carpet to [AS/NZS 2455.1](#), section 3. Stretch carpet tight in both width and length evenly without bowing, square with walls.

### 3.15 FIXING TRIMS

Fix binder bars, carpet to carpet bars, and trims to all junctions with other materials and to carpet edges, to the carpet manufacturer's requirements. Ensure that junctions with other materials are neatly formed, with bars and trim securely fastened to the substrate, 20mm from each end and at a maximum of 100mm centres.

#### **Completion**

### 3.16 PROTECTION

Provide the following temporary protection of the finished work:  
Protect from dust and damage

### 3.17 SPECIAL PROTECTION

Self Adhesive carpet protective film:

### 3.18 COMPLETION MATTERS

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

## 4 SELECTIONS

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

#### **Materials**

### 4.1 UNDERLAY

Location	Brand	Type/thickness/weight
Refer to drawings	TBC	TBC

### 4.2 CARPET

Location	Brand/type/weight/code	Installation method
Refer to drawings	TBC	TBC

# 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:

<b>Resene</b>	Surface Information & Preparation Data Sheets (SIPDS) (hard copy or at <a href="http://www.resene.co.nz">www.resene.co.nz</a> )
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<b>Resene</b>	Product Data Sheets (hard copy or at <a href="http://www.resene.co.nz">www.resene.co.nz</a> )
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<b>Resene</b>	Putting your safety first
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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](http://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](http://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](http://www.resene.co.nz)) the safety data sheet for each product used and comply with the required safety procedures. Keep sheets on site.

# 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](http://www.resene.co.nz) for more information or visit [www.resene.co.nz/coolcolour](http://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](http://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 CORROSION PROTECTION SUPERVISION FOR STRUCTURAL STEEL REFER TO STRUCTURAL ENGINEERS SPECIFICATION

#### 3.3 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.

#### 3.4 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.

#### 3.5 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.

#### 3.6 HARDWARE

Do not paint hinges or hardware that cannot be removed. Before commencing work carefully remove hardware, fixtures and fittings, set aside where they cannot be damaged or misplaced and replace on completion. Refer to SELECTIONS for hardware, fixtures and fittings for removal.

#### 3.7 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

#### 3.8 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](http://www.resene.co.nz)) listed in the materials systems schedule clauses. Carry out the preparatory work required by them for each of the substrates.

#### 3.9 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.

#### 3.10 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.

### 3.11 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.

### 3.12 OFF-SITE WORK

Carry out this work under cover in a suitable environment with suitable lighting. Store items, both before and after coating, in a clean, dry area protected from the weather and mechanical damage, properly stacked and spaced to allow air circulation and to prevent sticking. Specific instructions for transport to site to avoid damage to the factory applied paint system may be required particularly for metallic top coat paints.

### 3.13 PRIMING JOINERY

Pre-treat any cut surfaces of preservative treated timber before priming. Ensure L.O.S.P treated joinery has dried sufficiently to lose solvent odour. Pre-treat bare timber with **Resene TimberLock** (see Data Sheet D48) to improve the durability of subsequent coats.

Liberal coat end grain, allow to soak in and then recoat.

### 3.14 CONCEALED JOINERY SURFACES

Where off-site coatings are specified they must be applied to surfaces including those concealed when incorporated into the building.

### 3.15 CONCEALED METAL SURFACES

Apply primer to suit the coating system to surfaces which will be concealed when incorporated into the building.

### 3.16 EXTERNAL DOORS

Prime or seal and paint bottom edges before hanging.

### 3.17 PUTTY FRONTING - LINSEED GLAZING PUTTIES

According to the putty manufacturer's instructions allow putty to set, then prime with **Resene Wood Primer** (see Data Sheet D40) or **Resene Enamel Undercoat** (see Data Sheet D44). Fully protect the putty by completing the **Resene** coating system as soon as it is sufficiently firm. Glazing putties not based on linseed oil to be over coated according to the putty manufacturer's instruction.

## Application - generally

### 3.18 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.

### 3.19 MIXING

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

### 3.20 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.

### 3.21 SEQUENCE OF OPERATIONS

Painting work to generally follow the following sequences:

- Back painting and pre-installation painting, then post-installation exposed-face painting
- Complete surface preparation before commencing painting.
- Apply 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.

### 3.22 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.

### 3.23 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..

### 3.24 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.

### 3.25 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

### 3.26 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.

### 3.27 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.

### 3.28 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.

### 3.29 REPLACE

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

### 3.30 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](http://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.

### 3.31 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](http://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.

# 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 Paints Ltd architectural and decorative coating systems.

### Related work

#### 1.1 RELATED WORK

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.

## 2 PRODUCTS

### Materials

#### 2.1 PRODUCTS

Refer to 6700R RESENE PAINTING GENERAL for product clauses.

## 3 EXECUTION

### Conditions

#### 3.1 EXECUTION

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

## 4 SELECTIONS

For further details on selections go to [www.resene.co.nz](http://www.resene.co.nz)

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

### Resene exterior paint systems

#### Exterior timber - new

#### 4.1 RESENE NEW EXTERIOR TIMBER, PLYWOOD - UNPRIMED

Surface Prep:	Resene SIPDS No2 and Spec Sheet 2: 1/1
1st coat:	Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat
2nd coat:	Resene Sonyx 101 D30, Semi-Gloss Acrylic
3rd coat:	Resene Sonyx 101 D30, Semi-Gloss Acrylic

#### Exterior fibre cement cladding - new

#### 4.2 RESENE NEW EXTERIOR FIBRE CEMENT CLADDING

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

#### 4.3 RESENE NEW EXTERIOR FIBRE CEMENT SOFFITS

Surface Prep:	Resene SIPDS No3 and Spec Sheet 3: 4/1
1st coat:	Resene Concrete Primer D405, Acrylic Concrete Primer
2nd coat:	Resene Sonyx 101 D30, Semi-Gloss Acrylic
3rd coat:	Resene Sonyx 101 D30, Semi-Gloss Acrylic

# 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 Paints Ltd architectural and decorative coating systems.

### Related work

#### 1.1 RELATED WORK

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.

## 2 PRODUCTS

### Materials

#### 2.1 PRODUCTS

Refer to 6700R RESENE PAINTING GENERAL for product clauses.

## 3 EXECUTION

### Conditions

#### 3.1 EXECUTION

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

## 4 SELECTIONS

For further details on selections go to [www.resene.co.nz](http://www.resene.co.nz)

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

### Resene interior paint systems

#### Plasterboard - new

#### 4.1 RESENE NEW INTERIOR PLASTERBOARD, WALLS - DRY AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating:	Group 1-S. Test Report FH4967
1st coat	Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen Acrylic
3rd coat:	Resene Zylone Sheen D302, Waterborne Low Sheen Acrylic

#### 4.2 RESENE NEW INTERIOR PLASTERBOARD, WALLS - WET AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1A: 1/1
Fire rating:	Group 1-S. Test Report 7-593235-CO
1st coat:	Resene Waterborne Sureseal D42a, Waterborne Pigmented Sealer
2nd coat:	Resene SpaceCote Low Sheen Kitchen & Bathroom D311K Waterborne Enamel
3rd coat:	Resene SpaceCote Low Sheen Kitchen & Bathroom D311K Waterborne Enamel

#### 4.3 RESENE NEW INTERIOR PLASTERBOARD, CEILINGS - DRY AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating:	Group 1-S, Test Report FH4967
1st coat:	Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat:	Resene Ceiling Paint D305, Waterborne Flat Acrylic
3rd coat:	Resene Ceiling Paint D305, Waterborne Flat Acrylic

#### 4.4 RESENE NEW INTERIOR PLASTERBOARD, CEILINGS - WET AREAS

Surface Prep:	Resene SIPDS No1 and Spec Sheet 1A: 1/1
Fire rating:	Group 1-S, Test Report 7-593235-CO

1st coat: Resene Waterborne Sureseal D42a, Waterborne Pigmented Sealer  
2nd coat: Resene SpaceCote Flat Kitchen & Bathroom D314K, Waterborne Enamel  
3rd coat: Resene SpaceCote Flat Kitchen & Bathroom D314K, Waterborne Enamel

**Interior timber - new**

4.5 RESENE NEW INTERIOR TIMBER DOORS, JOINERY, SKIRTING

Surface Prep: Resene SIPDS No2 and Spec Sheet 2: 9/1  
1st coat: Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat  
2nd coat: Resene Lustacryl D310, Semi-Gloss Waterborne Enamel  
3rd coat: Resene Lustacryl D310, Semi-Gloss Waterborne Enamel

# 6734D DRYDEN WOODOIL MIGRATING NON-FILMING TIMBER PROTECTOR

## 1 GENERAL

This section relates to the protection of unpainted timber and various timber product surfaces with the application of **Dryden WoodOil** timber protector. REFER ALSO TO SECTION 4221HV HERMPAC VERTICAL WEATHERBOARD CLADDING SYSTEM

It includes;

- **Dryden WoodOil** exterior timber coating

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

LOSP Light Organic Solvent Preservative  
MPNZA Master Painters New Zealand Association Inc.

### 1.2 DOCUMENTS

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

[AS/NZS 2311](#) Guide to the painting of buildings  
[Health and Safety at Work Act 2015](#)  
[WorkSafe](#) Guidelines for the provision of facilities and general safety in the construction industry  
[WorkSafe](#) Guidelines for the management of lead-based paint  
MPNZA Health and Safety Programme  
MPNZA Specification manual

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

[Dryden WoodOil Data Sheet](#)  
[Dryden WoodOil Cleaning and Maintenance Guide](#)  
[Dryden WoodOil SDS Sheet](#)  
[Dryden ColourTone SDS Sheet](#)

Manufacturer/supplier contact details

Company: **Dryden**  
Web: [www.dryden.co.nz](http://www.dryden.co.nz)  
Email: [info@dryden.co.nz](mailto:info@dryden.co.nz)  
Telephone: 0800 379 336

### Requirements

### 1.4 QUALIFICATIONS

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

### 1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Dryden WoodOil timber protector, components and associated products listed in this section.

### 1.6 HEALTH AND SAFETY

Refer to the requirements of the [Health and Safety at Work Act 2015](#) and [WorkSafe: Guidelines for the provision of facilities and general safety in the construction industry](#). If the elimination or isolation of potential hazards is not possible then minimise hazards in this work on site by using the proper equipment and techniques as required in the MPNZA Health and Safety Programme. Supply protective clothing and equipment. Inform the employees and others on site of the hazards and put in place procedures for dealing with emergencies.

Refer to [WorkSafe: Guidelines for the management of lead-based paint](#) for the required procedures and precautions when:

- treating/removing lead-based paint
- burning off paint
- sanding off paint
- using solvent based paint removers.

### 1.7 SAFETY DATA SHEET (SDS)

Obtain from **Dryden** a product material Safety Data Sheet for each product used. Keep sheets on site and comply with the required safety procedures.

### 1.8 INFORMATION FOR OPERATION AND MAINTENANCE

Provide two copies of all relevant Dryden WoodOil maintenance information on completion of the work.

### 1.9 HARVESTING RAINWATER

Rainwater that comes into contact with timber coated with Dryden WoodOil is not suitable for drinking.

## Performance

### 1.10 INSPECTION OF WORK

Inspection of the whole of the work at each of the stages scheduled may be made. Agree a programme that will facilitate such inspection or reporting, who and how inspections or reporting will be done, including reporting or notification when each part and stage of the work is ready for inspection.

This programme and /or inspection must include documentation showing Dryden WoodOil coating methods, application rates and coating dates.

## 2 PRODUCTS

### Materials

### 2.1 TIMBER COATING

**Dryden WoodOil** is a water-repellent, non-filming, timber protector. It is a true migrating oil with added water repellents and a fungicide to assist in keeping the timber dimensionally stable. Dryden WoodOil's water-repelling properties prevent the absorption of water deep into the timber, reducing excessive warping, cupping, and splitting of timber, thus extending the service life of those timbers.

### 2.2 COLOUR TONING

Dryden WoodOil with Dryden ColourTone added is a water-repellent, non-filming, timber protector with added colour.

## 3 EXECUTION

### Conditions

### 3.1 DELIVERY, STORAGE AND HANDLING

Protect materials during transit. Check materials on delivery for condition. Reject and replace damaged materials. Refer to project specification for correct Dryden ColourTone. Check colour and mix prior to works being carried out.

### 3.2 CONDITIONS FOR WORK

Factory and building site pre-coating application should be completed in a suitable environment, with adequate lighting, ventilation and with the air temperatures between 12°C and 25°C, humidity <75%.

Check surfaces are clean and dry. Do not carry out coatings when the substrate moisture content exceeds 18%. Fillet stack timber on the back face in a well vented, cool and dry area free from sub-trade contamination. Dryden WoodOil strongly recommends that timber products be factory oiled prior to delivery.

### 3.3 EXECUTION

To conform to the best trade practice which shall be deemed to include those methods, practices and techniques to [AS/NZS 2311](#), MPNZA Health and Safety Programme and the [WorkSafe](#) publication: "[Guidelines for the provision of facilities and general safety in the construction industry.](#)" Comply with Dryden WoodOil requirements and any additional requirements in this specification.

### 3.4 PREPARE

Prepare surfaces as per [Dryden WoodOil Data Sheet](#) and [Dryden WoodOil Cleaning and Maintenance Guide](#).

### 3.5 PRE-STAINED SURFACES

Degraded stains and polyurethane surfaces must be stripped back to bare timber prior to application of Dryden WoodOil. Refer to stripper manufacturer's Technical Data Sheets

### 3.6 RESTORATION & REFURBISHMENT OF TIMBER SURFACES

Restore timber prior to coating Dryden WoodOil. Clean with Dryden SurfaceCleaner or cosmetic clean with Dryden LiquidTimberClean, as per [Dryden WoodOil Cleaning and Maintenance Guide](#) (strong wash) requirements.

### 3.7 GENERAL MAINTENANCE RE-COATING

Check surfaces previously coated with Dryden WoodOil are cleaned back as per the [Dryden WoodOil Cleaning and Maintenance Guide](#) (soft wash) before re-coating.

### 3.8 BRUSH DOWN

Brush down surfaces immediately before application, to remove dust, dirt and loose material.

### 3.9 COMPATIBILITY

Check that materials are as required by Dryden WoodOil for the particular surface and conditions of exposure, and that they are compatible with each other. Refer to E2/AS1, Tables 20 to 22 for compatibility of materials and material run-off. Refer to the manufacturer's Technical Data Sheets.

### 3.10 TREATED SURFACES

Check that surfaces that have been treated with preservatives or fire retardants are compatible with the coating material. Refer to the manufacturer's Technical Data Sheets before proceeding.

Chemically Treated Timber:

LOSP treated timber must NOT be coated until the chemicals & solvents in the treatment process have evaporated from the timber, refer supplied LOSP timber manufacturer's Data Sheet.

H1-H6 Hazard treatment coded timbers are Dryden WoodOil compatible as long as they do not offer water repellence. Refer to the timber manufacturer's Data Sheet.

### 3.11 PRE-COATING TIMBER

Prior to fixing, a first coat must be applied to all faces and cut ends, to provide an envelope seal. Note: All exterior timber cut ends must be coated prior to fixing with the same product and colour that was used to pre-coat the timber.

### 3.12 HARDWARE

Do not coat hinges or hardware that cannot be removed. Carefully remove hardware, fixtures and fittings before commencing work. Should product accidentally come in contact with hardware clean off immediately. Refer to SELECTIONS for hardware, fixtures and fittings for removal. Refer to manufacturer's Data Sheet.

### 3.13 PROTECTION

Use drop sheets, coverings and masking necessary to protect adjoining surfaces, fixtures and fittings from Dryden WoodOil damage.

### 3.14 COLOUR

Prior to starting, check Dryden ColourTone colour supplied against specification documents and colour samples.

## **Application - preparatory work**

### 3.15 SEQUENCE OF OPERATIONS

Coating work to generally follow the sequence below:

- Protect timbers on site away from contaminants and environmental grime.
- Complete all surface preparation before commencing coating including sanding dressed timber.
- For projects that require more than one pail of the same colour, box all pails together to ensure a consistent colour is achieved.
- On site first coat; pre-coated timber must be racked or laid out on back face, off ground in a clean well-vented location for 24 hours at 12°C - 25°C, humidity <75%, to allow Dryden

WoodOil to migrate in, free from sub-trade contamination.

- Coat boards full length linearly (do not stop mid-section) and complete individual walls or boards at one time, using good coating practices.
- Coat all cut ends prior to fixing.
- When timber has been factory-coated or site pre-coated, ensure all cut ends are coated during fixing.
- Apply primers, sealers and clear coatings in the sequences specified by Dryden and applied as per manufacturer's Technical Data Sheets.
- New build second coat; 30-90 days once fixed, allow applicable coverage rates and wet look should be gone by next day (Restoration 2nd coat; 3-6 months).
- Clean up over-spray or accidental spillage on unwanted surfaces.
- Protect new work from damage from contaminant-type sitework not complete.

### 3.16 MOISTURE CONTENT

Do not apply to exposed timber if rain is expected within 6-8 hours of application. Dryden WoodOil should only be applied to dry timbers (ideal conditions is dry weather).

- Timber moisture content must not exceed 18%.

Chemically Treated Timber:

LOSP treated timber must NOT be coated until the chemicals & solvents in the treatment process have evaporated from the timber, refer supplied LOSP timber manufacturer's Data Sheet.

H1-H6 Hazard treatment coded timbers are compatible with Dryden WoodOil as long as they do not offer water repellence. Refer to the timber manufacturer's Data Sheet.

### 3.17 PREPARING BANDSAWN TIMBER

Thoroughly brush along the direction of the grain to remove dust, loose timber fibres and debris. After brushing, turn over timber and knock several times to ensure all loose fibres fall off.

### 3.18 SUBSTRATE STANDARD

If any substrate or surface cannot be brought up to the standard that will allow the coating to perform as specified, then do not proceed until remedial work has been carried out.

### 3.19 SEALANTS AND ADHESIVES

Dryden recommend allowing a minimum migration period of 7 days before applying any adhesives or sealants. This ensures that Dryden WoodOil has migrated well into the timber. Ensure the timber is clean and free of dust or dirt and use an appropriate primer as recommended by the manufacturer.

Refer to sealant & adhesive manufacturer data sheets for technical requirements and warranty information.

### **Application - generally**

### 3.20 TOOLS / APPLICATION

Dryden recommend using a Speedbrush (Commercial size) for an even distribution of Dryden WoodOil. Apply Dryden WoodOil at the recommended coverage rates. Use a trade quality 50mm paint brush for trimming into negative joints and dressed rebates.

### 3.21 INITIAL COATS - FACTORY PRE-COATED

First coat of Dryden WoodOil applied as a factory pre-coat spray application to seal timber profiles prior to delivery.

Ensure any gloss or wet look is gone prior to handling and fixing the timber.

Protect timbers from environmental conditions while not fixed.

Check cut ends are coated prior to fixing.

Apply a second coat of Dryden WoodOil between 30-90 days after fixing timbers.

### 3.22 SECOND COAT - NEW BUILD

Apply second coat of Dryden WoodOil between 30-90 days after fixing timbers.

### 3.23 COVERAGE RATES

In most situations, when applied at the correct coverage rate, Dryden WoodOil will lose its gloss/wet look from the face of timber within 24 hours of application.

Dryden WoodOil coverage rates and coating times may vary due to seasonal temperature, timber porosity, moisture content, timber type and from previous coats applied.

Dryden recommend to apply at the following rates:

Bandsawn Timber      8-10m<sup>2</sup> (low density) per litre

Dressed Timber	10-12m <sup>2</sup> (low density) per litre
Hardwood Timber	12-14m <sup>2</sup> (high density) per litre
Bandsawn Plywood	6-8m <sup>2</sup> per litre
Restored Timbers	6-8m <sup>2</sup> (low density) per litre

Dryden WoodOil coverage rates are approximate only and may need to be adjusted at times, to match the timber and the timbers ability to accept migration of Dryden WoodOil.

### 3.24 RUBBER AND BUTYL SURFACES

Dryden WoodOil can affect rubber adhesives and butyl surfaces if not washed/wiped off soon after contact. Dryden WoodOil applied to wooden shingles does not usually affect the butyl underlay. It is accepted that most of the industry now use non-rubber based glues. To verify, enquiries should be made with the manufacturer. If coating around butyl surfaces, ensure all surrounding surfaces are kept protected and clean during and after application of Dryden WoodOil.

### 3.25 PREVENTING CROSS DIFFUSION

When absorbent materials need to be attached to timber coated with Dryden WoodOil, 'stripe' the mating surfaces or edges with recommended coats of a compatible primer as recommended by the manufacturer, to prevent cross diffusion into the porous substrate.

Dryden recommend, regardless of manufacturer's system being used, that all data sheets are read and followed, for their technical requirements and warranties.

## Completion

### 3.26 UNIFORM COLOUR APPLICATION

As Dryden WoodOil with a Dryden ColourTone added migrates into the timber away from the surface, fullness of the colour chosen will develop highlighting the timbers natural colour and grains. The final finished colour will also be influenced by the timber type, colour, grain and product application.

Leave the whole of this work uniform in colour, applied to the correct coverage rates, free from defects, clean and unmarked and to the standard required by following procedures.

### 3.27 CLEAN UP

Clean up with mineral turpentine or hot water and detergent for spray equipment, brushes and clothes. These also help with over-spray or accidental spillage on unwanted surfaces such as windows.

Use a wiping rag on smooth surfaces and a brush on rough surfaces.

### 3.28 REMOVE

Remove drop sheets, coverings and masking to leave surrounding surfaces and areas clean, tidy and undamaged.

Dispose of all materials safely. Do not pour unused Dryden WoodOil down drains. Unwanted Dryden WoodOil should be brushed out on newspaper or absorbed with sawdust, then disposed of via waste collection. Disposal of empty paint containers via domestic recycling programs may differ between local authorities. Comply with local council disposal methods.

For more information on responsible disposal of paint and packaging visit [painttakeback.co.nz](http://painttakeback.co.nz).

### 3.29 REPLACE HARDWARE

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

### 3.30 PROTECT

Protect new work from damage. Take all relevant precautions to protect timbers from site work, dust, dirt, aggregate concrete wash, concrete cutting, metal grinding, water blasting, paint splatter, etc.

## 4 SELECTIONS

For further details on selections go to [www.dryden.co.nz](http://www.dryden.co.nz).

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

### New exterior timber

#### 4.1 DRYDEN WOODOIL - EXTERIOR TIMBER COATING

Brand/product: **Dryden WoodOil**

ColourTone:	TBC
Timber type:	Western Red Cedar
Number of coats:	2 coat system
First coat:	Factory coated
Second coat:	30-90 days, once timber is fixed

# 6743FB ZONE FIREZONE VANGUARD TIMBER FIRE TREATMENT

## 1 GENERAL

This section relates to the factory application of Zone Architectural Products FireZone™ Vanguard fire retardant systems for timber substrates in interior and exterior applications.

It includes:

- Fire retardant systems providing Group 1-S classification for plywood and solid timber linings.
- Fire retardant system providing a Type A classification for solid western red cedar and thermally modified nordic pine timber claddings

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

MPNZA	Master Painters New Zealand Association Inc
TMT	Thermally Modified Timber
VOC	Volatile Organic Compounds

### Documents

### 1.2 DOCUMENTS

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

<a href="#">NZBC C/AS1</a>	Protection from fire
<a href="#">NZBC C/AS2</a>	Protection from fire
<a href="#">NZBC C/VM2</a>	Framework for Fire Safety Design
<a href="#">AS/NZS ISO 9001</a>	Quality Management Systems - Requirements
ASTM D2898	Standard practice for accelerated weathering of fire-retardant-treated wood for fire testing
EN 927	Paints and varnishes - coating materials and coating systems for exterior wood: Performance specification
EN 13501-1	Fire classification of construction products and building elements
EN 16755	Durability of reaction to fire performance. Classes of fire-retardant treated wood products in interior and exterior end use applications
ISO 5660.1	Reaction to Fire Tests: Heat release, smoke production and mass loss rate
<a href="#">WorkSafe</a>	<a href="#">Guidelines for the provision of facilities and general safety in the construction industry</a>
MPNZA	Health and Safety Programme
<a href="#">Health and Safety at Work Act 2015</a>	

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

- FireZone™ Vanguard FP Safety Data Sheet
- FireZone™ Vanguard SP Safety Data Sheet
- FireZone™ Vanguard FP Technical Data Sheet
- FireZone™ Vanguard SP Technical Data Sheet
- BC Materials, Assessment of European classification of the NZBC requirements, dated 03 December 2023
- BC Materials, Letter, Comparison between ASTM 2898-10 and EN 16755, dated 09 November, 2022
- BRANZ Fire Test Reports - various

Manufacturer/supplier contact details

Company:	Arahuri Ltd
Trading as:	Zone Architectural Products
Web:	<a href="http://www.zone.net.nz">www.zone.net.nz</a>
Email:	<a href="mailto:specification@zone.net.nz">specification@zone.net.nz</a>
Telephone:	09 623 1699 Auckland

Freephone 0800 508 800

## Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

5 years For the supply and application of FireZone™ fire treatment for timber substrates

- Provide this warranty on the Zone Architectural Products standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of application of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

## Requirements

### 1.5 QUALIFICATIONS WORKERS - MANUFACTURER / SUPPLIER REQUIREMENTS

Application of FireZone™ Vanguard products by Zone Architectural Products only. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

### 1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified FireZone™ products listed in this section.

### 1.7 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of operation and maintenance information as electronic PDF format documents. Information to include the expected life of the system & maintenance requirements.

Provide this information prior to practical completion.

## Compliance information

### 1.8 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Manufacturer / supplier warranty
- Supply Certificate - from Zone Architectural Products
- Other information required by the BCA in the Building Consent Approval documents.

## Performance - FireZone™ Vanguard FP

### 1.9 EXTERNAL FIRE SPREAD - CLADDING MATERIALS

FireZone™ Vanguard FP when used on minimum 16mm, western red cedar and thermally modified Nordic Pine has been tested to ISO 5660.1 to specific requirements of [NZBC C/AS1](#), E5.1.2 or [NZBC C/AS2](#), C7.1.2 and to requirements of EN 16755 with accelerated weathering in accordance to EN 927 achieving:

Type A classification (peak heat release rate  $\leq 100$  kW/m<sup>2</sup>, total heat release rate  $\leq 25$  MJ/m<sup>2</sup>).

Classification is supported by BC Materials Report dated 03 December 2023.

## Quality control and assurance

### 1.10 HEALTH AND SAFETY

Refer to the requirements of the [Health and Safety at Work Act 2015](#) and [WorkSafe: Guidelines for the provision of facilities and general safety in the construction industry](#). If the elimination or isolation of potential hazards is not possible then minimise hazards in this work on site by using the proper equipment and techniques as set out in the MPNZA Health and Safety Programme. Supply protective clothing and equipment. Inform employees and others on site of the hazards and put in place procedures for dealing with emergencies.

### 1.11 QUALITY ASSURANCE RECORD

Zone Architectural Products maintain a quality assurance programme for the factory application of FireZone™ Vanguard FP and FireZone™ Vanguard SP. Zone Architectural Products to provide a project specific Supply Certificate with each batch of timber treated. The Supply Certificate records the following:

- Substrate type including species and profile
- Quantity
- Coating type
- Fire treatment Group Number classification Group 1-S
- Fire treatment Exterior cladding classification Type A
- Moisture content records at time of dispatch - storage and handling guidance must be strictly followed

## 2 PRODUCTS

### Materials - Fire treatment

#### 2.1 FIREZONE™ VANGUARD FP

FireZone™ Vanguard FP is a non toxic, VOC free, factory applied fire retardant system. Suitable for interior and exterior applications.

For plywood and solid timber internal lining substrates providing a Group 1-S classification to [NZBC C/AS2, Table 4.3](#).

For Western Red Cedar and Thermally Modified Nordic Pine external claddings providing a Type A Classification to [NZBC C/AS1, 5.3 & C/AS2, 5.8](#) for external claddings.

## 3 EXECUTION

### Conditions

#### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

Plywood & solid timber substrates requiring FireZone™ treatment to be supplied direct to Zone Architectural Products for factory-only processing. After processing, the finished timber products to be stored on site under cover protected from weather including direct UV light.

#### 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. Finishing of surfaces to the required standard be completed by the timber supplier prior to delivery to Zone Architectural Products.

Ensure moisture content is:

Timber                                      between 10-20%

### Application

#### 3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

#### 3.5 PREPARATION

Ensure that substrate surfaces are clean and dry prior to delivery to Zone Architectural Products.

#### 3.6 APPLICATION - FIREZONE™ VANGUARD FP

Carry out factory-only application of FireZone™ Vanguard FP in accordance with manufacturer's requirements.

#### 3.7 APPLICATION - OIL OR PAINT FINISH OVER FIREZONE™ VANGUARD FP - BY OTHERS

For external cladding applications, timber treated with FireZone™ Vanguard FP must be over-coated with a factory applied oil or paint finish to all four sides, to timber suppliers and Zone Architectural Products requirements. All cut edges to be touched up on site with the same oil or paint finish prior to installation. Co-ordinate with timber supplier.

### Completion & Commissioning

#### 3.8 COMPLETION MATTERS

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

## 4 SELECTIONS

For further details on selections go to [www.zone.net.nz](http://www.zone.net.nz).

Substitutions are not permitted to the following Zone Architectural Products systems, unless stated otherwise.

### FireZone™ Vanguard FP

#### 4.1 FIREZONE™ VANGUARD FP - EXTERNAL CLADDING SOLID TIMBER SUBSTRATE

Location:	Refer to drawings
System:	FireZone™ Vanguard FP
Classification:	Type A
Substrate:	Solid Timber Cladding. Refer to 4221HV Hermpac Vertical Weatherboard Cladding system for details
Species:	Western Red Cedar
Thickness:	18.5mm
Profile:	CP1739
Finish:	Wood Oil - Dyrdens or Wood X TBC Finish must be factory applied to all sides. Cut ends to be touched up with the same oil onsite, prior to installation. Contact Zone Architectural Products for compatible finishing systems.
Fixings:	Stainless Steel

# 6745R RESENE PROTECTIVE COATINGS-REFER STRUCTURAL ENG

## 1 GENERAL

REFER TO STRUCTURAL ENGINEERS DOCUMENTATION AND SPECIFICATION

# **6781 HOT DIP GALVANIZING-REFER STRUCTURAL ENGINEERS DOC**

## **1 GENERAL**

REFER TO STRUCTURAL ENGINEERS DOCUMENTATION AND SPECIFICATION

# 6812W WARMUP WATERPROOFED SHOWER SYSTEM

## 1 GENERAL

This section relates to the supply and installation of Warmup™ waterproofed shower system comprised of interior tiled shower and wet areas supplied and installed by Warmup New Zealand Ltd or Warmup authorized distributor.

It includes:

- underlay
- waterproofing membrane
- tiled wet areas and showers including proprietary shower tray, wastes, drains and accessories

### 1.1 RELATED WORK

Refer to 6221A ARDEX TILING SOLUTIONS for the supply and installation of ceramic and stone tiles.

#### Documents

### 1.2 DOCUMENTS

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

<a href="#">NZBC E3/AS1</a>	Internal moisture
<a href="#">NZBC G9/VM1</a>	Electricity
<a href="#">AS/NZS 1860.1</a>	Particleboard flooring - Specifications
<a href="#">AS/NZS 2269.0</a>	Plywood - Structural - Specifications
<a href="#">AS/NZS 2588</a>	Gypsum plasterboard
AS 3740	Waterproofing of wet areas within residential buildings
<a href="#">NZS 4223.3</a>	Glazing in buildings - Human impact safety requirements
<a href="#">AS/NZS 4858</a>	Wet area membranes
<a href="#">AS/NZS 60335.2.96</a>	Household and similar electrical appliances - Safety - Particular requirements for flexible sheet heating elements for room heating.
NZS 6110	Electrical installations - floor and ceiling heating systems
ASTM C630/C630M-96a	Water-resistant gypsum backing board
BRANZ	Good practice guide: Tiling
<a href="#">Electricity (Safety) Regulations 2010</a>	(Reprint as at 21 January 2019)
New Zealand Electrical Codes of Practice	

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Warmup New Zealand Ltd documents relating to this part of the work:

Warmup™ product technical data sheets

Warmup™ Waterproofed Shower System technical literature

[BRANZ Appraisal 644](#) - Warmup Undertile Heating

[BRANZ Appraisal 677](#) - Strandfloor H3.1 Flooring

[BRANZ Appraisal 774](#) - Warmup Waterproofed Shower System

[BRANZ Appraisal 895](#) - Marmox Building Products

Manufacturer/supplier contact details

Company: Warmup New Zealand Ltd

Web: [www.warmup.co.nz](http://www.warmup.co.nz)

Email: [info@warmup.co.nz](mailto:info@warmup.co.nz)

Telephone: 09 820 2500

#### Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a Warmup™ manufacturer/supplier warranty:

15 years: For Marmox Insulation Board

15 years: For Warmup™ WPM750 Undertile Membrane

15 years: For Warmup™ Shower drain clamp waste

15 years: For Warmup™ Square drains and channel (strip) drains

- Provide this warranty on the Warmup™ New Zealand Ltd 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 a Warmup™ installer/applicator warranty:

15 years: For Warmup™ Waterproofed Shower System

- Provide this warranty on the Warmup™ New Zealand Ltd 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 - MANUFACTURER / SUPPLIER REQUIREMENTS

Workers to be certified by Warmup New Zealand Ltd. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

#### 1.7 WORK BY WARMUP

Supply and installation of Warmup™ Waterproofed Shower System to be carried out by Warmup New Zealand Ltd, or Warmup™ authorized distributor, except for the following:

- installation of shower drain clamp waste
- installation of square drains and channel (strip) drains
- supply and installation of tiles

#### 1.8 NO SUBSTITUTIONS

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

### Compliance information

#### 1.9 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

- Manufacturer's warranty
- Manufacturer's, importers or distributors warranty
- Installer's / applicator's warranty
- Producer Statement - Construction from the applicator / installer
- Other information required by the BCA in the Building Consent Approval documents.

### Performance

#### 1.10 QUALITY ASSURANCE

Maintain quality necessary to assure that work is performed in accordance with this specification and qualifying requirements of Warmup New Zealand Ltd.

#### 1.11 INTERNAL / EXTERNAL MOISTURE

Wet area membranes under tiled areas to AS 3740, [NZBC E3/AS1](#) and to BRANZ Good Tiling Practice.

## 2 PRODUCTS

### Materials - substrate linings

#### 2.1 CONSTRUCTION PLYWOOD

Rotary cut radiata pine veneer ply, face sanded, treated H3 for wet areas and to [AS/NZS 2269.0](#).

### Tiles

#### 2.2 TILING

Refer to 6221A ARDEX TILING SOLUTIONS for tiles, adhesives and installation of tiles.

### **Floor levelling compound**

#### 2.3 FLOOR LEVELLING COMPOUND

Warmup™ Thermal Screed, if required.

### **Primer**

#### 2.4 PRIMER

Warmup™ proprietary primer.

### **Tile underlay**

#### 2.5 TILE UNDERLAY / SHOWER TRAY AND UPSTAND HOB THRESHOLD

Marmox Insulation Board, a cement reinforced waterproof underlay, available in sheets 1250mm x 600mm x 6mm or 10mm thick and Marmox shower trays which have a high density topping, sized to suit the application, with an in-built preformed fall to waste of 1:50 for point drains and 1:100 for channel drains. Marmox fillets to increase shower tray sizes and shower hob upstands are also available. Refer to SELECTIONS for details.

### **Waterproofing membrane**

#### 2.6 SHEET WATERPROOFING MEMBRANE

Warmup™ WPM750 Undertile membrane, a single ply sheet membrane, to [AS/NZS 4858](#), available in rolls 1.4m wide x 20m long x 0.5mm thick.

### **Adhesives**

#### 2.7 ADHESIVE

Warmup™ proprietary adhesive.

#### 2.8 CATALYST

Warmup™ proprietary catalyst.

### **Sealants**

#### 2.9 PROPRIETARY SEALANT

Warmup™ proprietary sealant.

### **Accessories - Warmup™ Waterproof Shower System**

#### 2.10 CLAMP WASTE

Warmup™ Clamp Flange, moulded PVC-U, supplied 80mm standard diameter (overall flange diameter 180mm).

#### 2.11 SHOWER DRAINS

Warmup™ 316 stainless steel drain range, available in standard drain range - square and channel drains. Refer to SELECTIONS for style and size options.

#### 2.12 MARMOX SHOWER NICHES

Marmox Shower and Foot Niches, available in various sizes, refer to SELECTIONS for range.

## **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 INSTALLATION - GENERALLY

Installation must be in accordance with requirements of Warmup™ New Zealand Ltd, the Warmup™ Waterproofed Shower Systems technical literature, installation details and [BRANZ Appraisal 774](#).

#### Conditions - substrate

### 3.4 CHECK SUBSTRATE

Ensure that substrate is level, not subject to movement, deflection and is structurally sound. Ensure all surfaces are clean dry and free from dust and dirt, oil and grease with no projection of sharp materials. Complete all remedial work before commencing installation.

### 3.5 SURFACE PREPARATION

Ensure surface to receive Marmox insulation board is clean, dry and free of any foreign matter that may adversely affect the adhesion of the membrane. Do not use the products in the following situations:

- areas subject to negative hydrostatic pressure or rising damp
- when the substrate is wet
- where the substrate temperature is below 10°C or above 35°C.

### 3.6 SUBSTRATE - CONCRETE

Ensure slab is level, smooth, clean, cured for a minimum of 28 days, and dried to a relative humidity not exceeding 65% or until the moisture content does not exceed 5.5%. Add cure and seal catalytic agent to concrete or seal as required. Remove loose material and dust.

### 3.7 SUBSTRATE - PLYWOOD

Ensure plywood is structural grade treated to H3 or H3.2 (CCA treated). Plywood substrates must have moisture content not more than 18% before installing membrane. With primed/sealed face and edges.

NOTE: Treated plywood must be allowed to breath for a minimum of 7 days before installation of membrane. Fixing must be to manufacturer's specifications. LOSP treated plywood must not be used.

Requirements if used for:

Flooring:	Stress grade F8, minimum thickness 18mm with framing at minimum 400mm centres both ways, or min 21mm with framing at 600mm centres both ways. Fixing, glue and stainless steel screws.
Wall lining:	Stress grade F8, minimum thickness 12mm with framing at minimum 600mm centres
Floor Overlay:	Stress grade 8, minimum thickness 12mm

### 3.8 FALLS FLOOR

All floors, other than Marmox shower tray areas, must have adequate falls either built into the substrate or achieved with a sand/cement screed prior to the installation of the membrane. Unless stated otherwise falls to be provided in accordance with requirements of [BRANZ Appraisal 774](#).

#### Installation - tiles

### 3.9 INSTALL TILES

Refer to 6221A ARDEX TILING SOLUTIONS tiling section for installation of tiles, adhesives, grouting, movement joints, sealants and accessories.

#### Installation - Warmup™ Waterproofed Shower System

### 3.10 INSTALL WARMUP WATERPROOFED SHOWER SYSTEM

Install Warmup™ waterproofed shower system in accordance with Warmup™ installator instructions. Application includes:

- Level entry (set down) shower on concrete or timber
- Threshold shower on concrete or timber.

**3.11 INSTALL WASTE OUTLET**

Install Warmup™ Shower Drain Clamp waste outlet and set top surface flush with the surface receiving the Warmup™ WPM750 Undertile Sheet Membrane application. Complete with shower gully trap and selected Warmup™ shower drain.

**3.12 INSTALL UNDERLAY**

Lay Marmox insulation board in accordance with Marmox installation instructions and [BRANZ Appraisal 895](#). Marmox Insulation Board to be glued and screwed on timber floor or adhesive fixed with proprietary flexible tile adhesive.

**3.13 INSTALL SHOWER TRAY**

Position Marmox shower tray using a proprietary flexible adhesive. Lay tray level with falls to waste (1:100 for channel drain, 1:50 for centre or off-centre waste). Seal all joints between substrate and waterproofing using Warmup™ proprietary sealant.

**3.14 INSTALL WATERPROOFING MEMBRANE**

Roll out Warmup™ WPM750 Undertile Sheet Membrane and cut to measured length. Install membrane under the pre-formed shower tray. Smooth the membrane on contact to minimize air entrapment beneath the membrane. Apply adhesive between the clamp waste and membrane prior to clamping.

Extend membrane up wall at least 150mm. Ensure membrane is laid tightly into corners. Overlap wall sheets to the 150mm upstand. Weld seams and laps with the Leister Triac S hot air gun. Roll with rubber roller to ensure seams and laps are secure.

**3.15 INSTALL WATERPROOFING MEMBRANE - SHOWER**

Apply the membrane 1800mm up the walls or to a height of 300mm above the shower rose if higher. For unenclosed showers the membrane must extend a minimum of 1500mm out from the shower rose.

**Completion****3.16 COMPLETION MATTERS**

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

**3.17 PROTECTION**

Provide temporary protection of the finished work:  
Warmup™ Waterproofed Shower Systems are unsuitable as a trafficable surface.

**4 SELECTIONS**

For further details on selections go to [www.warmup.co.nz](http://www.warmup.co.nz). Substitutions are not permitted to the following, unless stated otherwise.

**Materials****4.1 TILES**

Refer to 6221A ARDEX TILING SOLUTIONS tiling section.

**Undertile heating****4.2 WARMUP HEATING ELEMENTS**

Location:	Refer to drawings
Brand:	Warmup™
Area:	Refer to drawings
Coverage:	Refer to drawings

**Warmup™ Waterproofed Shower System****4.3 WARMUP WATERPROOFED SHOWER SYSTEM**

Location:	Refer to drawings
Brand:	Warmup™
Substrate:	Plywood H3.2 CCA, concrete

Tile underlay:	Floor - Marmox Shower base with channel drain to suit
Waterproofing:	Warmup™ WPM750 Undertile Sheet Membrane
Sealant:	Warmup™ proprietary sealant
Clamp waste:	Warmup™ Shower Drain clamp waste
Shower drains:	Warmup™ Stainless Steel Chanel drains to suit 65mm dia outlet
Niches:	Refer to drawings

# 7123 HOT & COLD WATER SYSTEM

## 1 GENERAL

This section relates to piped potable water supply systems from the network utility supply authority water main to designated points and appliances, the installation of hot water heating appliances, distributing piped hot water to other appliances, and the installation of valves.

### 1.1 RELATED WORK

Refer to 7150 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures and tapware selections.

#### Documents

### 1.2 DOCUMENTS

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

NZBC G4/AS1	Ventilation
NZBC G12/AS1	Water supplies
NZBC G12/AS3	Water supplies
NZBC H1/AS1-AS2	Energy Efficiency
AS/NZS 1477	PVC pipes and fittings for pressure applications
AS/NZS 2032	Installation of PVC pipe systems
AS/NZS 2033	Installation of polyethylene pipe systems
AS/NZS 2492	Cross Linked Polyethylene (PE-X) pipe for pressure applications
AS/NZS 2537.1	Mechanical jointing fittings for use with cross-linked polyethylene (PE-X) for pressure applications. Plastic piping systems for hot and cold water installations - Cross linked polyethylene (PE-X) General
AS/NZS 2537.2	Mechanical joining fittings for use with crosslinked Polyethylene (PE-X) for pressure applications - Plastics piping systems for hot and cold water installations - Crosslinked Polyethylene (PE-X) - Fittings
AS/NZS 2537.3	Mechanical jointing fittings for use with cross-linked polyethylene (PE-X) for pressure applications. Plastic piping systems for hot and cold water installations - Cross linked polyethylene (PE-X) fitness for purpose of system
AS/NZS 2537.4	Mechanical jointing fittings for use with cross-linked polyethylene (PE-X) for pressure applications. Plastic piping systems for hot and cold water installations - Cross linked polyethylene (PE-X) Guidance for the assessment of conformity
AS/NZS 2642.1	Polybutylene pipe systems - Polybutylene (PB) pipe extrusion compounds
AS/NZS 2642.2	Polybutylene pipe systems - Polybutylene (PB) pipe for hot and cold water applications
AS/NZS 2642.3	Polybutylene pipe fittings - Mechanical jointing fittings for use with polybutylene (PB) pipes for hot and cold water applications
AS/NZS 2845.1	Water supply - Backflow prevention devices - Materials, design and performance requirements
AS 2845.3	Water supply - Backflow prevention devices - Field testing and maintenance
AS/NZS 3500.1	Plumbing and drainage - Water services
AS/NZS 3500.4	Plumbing and drainage - Heated water services
AS 3688	Water supply and gas systems - metallic fittings and end connectors
AS/NZS 3879	Solvent cements and priming fluids for PVC (PVC-U and PVC-M) and ABS and ASA pipes and fittings
AS 4032.2	Water supply - Valves for the control of heated water supply temperatures - Tempering valves and end-of-line temperature actuated devices
AS/NZS 4129	Fittings for polyethylene (PE) pipes for pressure applications.
AS/NZS 4130	Polyethylene (PE) pipes for pressure applications

NZS 4305	Energy efficiency domestic type hot water systems
NZS 4606.1	Storage water heaters. General requirements
NZS 4606.2	Storage water heaters. Specific requirements for water heaters with single shells.
NZS 4606.3	Storage water heaters. Specific requirements for water heaters with composite shells.
NZS 4607	Installation of thermal storage electric water heaters: valve vented Systems
NZS 4617	Tempering (3-port mixing) valves
AS 5200 part 053	Plumbing and drainage products, Stainless steel pipes and tubes for pressure applications.
AS/NZS 60335.2.35	Household and similar electrical appliances. Safety - Pat 2.35 Particular requirements for instantaneous water heaters

### Plumbers, Gasfitters and Drainlayers Act 2006

NZ Backflow Testing Standard: NZ Backflow Testing Standard 2019, Field testing of backflow prevention devices and verification of air gaps

## Warranties

### 1.3 WARRANTY

Provide warranty for:

2 years: For the supply and installation of the plumbing system and fixtures

- Provide the warranty in the standard form in the general section 1237WA WARRANTY AGREEMENT.
- Commence the warranty from the date of practical completion of the contract works.

## Requirements

### 1.4 QUALIFICATIONS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a certifying plumber under the [Plumbers, Gasfitters and Drainlayers Act 2006](#).

### 1.5 INFORMATION FOR OPERATION AND MAINTENANCE

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

### 1.6 HOT WATER TEMPERATURES

To [NZBC G12/AS1](#), 6.14

Storage water heaters to store water at not less than 60°C.

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

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

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

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

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

This clause excludes boiling units.

## Performance

## 1.7 TESTING - TO NZBC G12/AS1

Test to [NZBC G12/AS1](#), 7.6, Watertightness, for hot and cold water.

- Test to a pressure of 1500 kpa for period not less than 15 minutes.

Confirm the timing before carrying out any tests. Supply potable water and the apparatus needed. Slowly fill service pipes with water to exclude air. Test and ensure there is no measurable loss of pressure for the minimum period. Slowly fill distribution pipes with water to exclude air. Ensure that with draw-off taps closed the system must remain water-tight.

## 2 PRODUCTS

### Materials

#### 2.1 COPPER PIPE

To [NZBC G12/AS1](#), 2 Materials. Copper pipe to [NZS 3501](#), AS 1432 (type A, B & C) and AS 3688 for fittings

#### 2.2 PVC-U PIPE

To [NZBC G12/AS1](#), 2 Materials. PVC-U pipes and fittings to [AS/NZS 1477](#) and PVC-U solvent cements and primers to [AS/NZS 3879](#). Protect from sunlight. For cold water applications only.

#### 2.3 POLYBUTYLENE PIPE

To [NZBC G12/AS1](#), 2 Materials. Polybutylene tubing to [AS/NZS 2642.1](#), [AS/NZS 2642.2](#) and [AS/NZS 2642.3](#) complete with fittings and accessories brand-matched. Protect from sunlight.

#### 2.4 POLYETHYLENE PIPE

To [NZBC G12/AS1](#), 2 Materials. Polyethylene pipes to [AS/NZS 4130](#) and fittings to [AS/NZS 4129](#). Except for solid black PE, protect from sunlight. For cold water applications only.

#### 2.5 CROSS LINKED POLYETHYLENE PIPE

To [NZBC G12/AS1](#), 2 Materials. Cross Linked Polyethylene Pipe to [AS/NZS 2492](#) and fittings to AS/NZS 2537.1, [AS/NZS 2537.2](#), AS/NZS 2537.3 and AS/NZS 2537.4. Except for solid black PE-X, protect from sunlight.

#### 2.6 WATER METER

To the requirements of the network utility operator.

#### 2.7 VALVES

Pressure reducing or limiting valve, filter, non-return valve, cold water expansion valve, pressure relief or temperature valve, pressure relief valve and isolating valves to [NZBC G12/AS1](#).

#### 2.8 BACKFLOW PREVENTION DEVICES

Provide backflow prevention devices to [AS/NZS 2845.1](#) where it is possible for water or contaminants to backflow into the potable water supply. Refer to [NZBC G12/AS1](#) 3.4 Backflow protection, 3.5 Containment Backflow protection, table 2, Selection of Backflow Protection and table 2A Containment Backflow Protection.

#### 2.9 TEMPERING VALVE

Tempering valve to [NZS 4617](#) or AS 4032.2 to [NZBC G12/AS1](#).

#### 2.10 HEADER TANKS

Pre-formed black polyethylene or stainless steel tank, complete with access opening and lid and overflow tray.

### Materials - Hot water heating appliances

#### 2.11 HEAT PUMP WATER HEATER - SPLIT SYSTEM

Heat pump water heating system, with insulated storage cylinder and separate compressor/condenser/evaporator, complete with required fittings. With flow and return pipe work for water between cylinder and heat pump. Insulated exposed flow and return pipe work.

### Components

#### 2.12 INSULATION

Pre-formed pipe sections complete with bends and fittings, with fixing tape to the manufacturer's requirements and to [NZBC H1/AS1-AS2](#) and [AS/NZS 3500.4](#).

### 2.13 PROTECTIVE TAPE

Plasticised PVC tape system with primer, mastic fixing and outer coating.

#### **Fire resistant accessories**

### 2.14 FIRE STOPPING SYSTEMS

Refer to 7382 FIRE STOPPING SYSTEMS for fire stopping systems of pipe penetrations through fire walls and floors.

## **3 EXECUTION**

### 3.1 EXECUTION GENERALLY

Generally carry out the whole of this work and tests to [NZBC G12/AS1](#) or [AS/NZS 3500.1](#) and [AS/NZS 3500.4](#) as modified by [NZBC G12/AS3](#).

### 3.2 HANDLE AND STORE

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

Store tapware in a shelved, dry and securely locked area. Retain tapware in the manufacturer's original packaging, complete with all fixings and installation instructions. Label each unit separately with its space/fixture number to match.

### 3.3 CORE HOLES AND SLEEVES

Review location and fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Strip core holes and make good after installation of pipework.

### 3.4 CONCEAL

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

### 3.5 CORROSION

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

### 3.6 THERMAL MOVEMENT

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

### 3.7 PIPE SIZE

Flow rates to each outlet to be no less than those given in [AS/NZS 3500.1](#) and [AS/NZS 3500.4](#) as modified by [NZBC G12/AS3](#) or [NZBC G12/AS1](#), table 3, Acceptable flow rates to sanitary fixtures. Pipe size as determined in [NZBC G12/AS1](#), table 4, Tempering valve and nominal pipe diameters.

### 3.8 ELECTROLYTIC ACTION

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

### 3.9 EXCAVATE

Excavate for the water main to a firm, even trench base in straight runs. Allow to backfill.

#### **Application - Jointing**

### 3.10 JOINTING COPPER PIPE

Braze pipe, fit alloy compression fittings, cross type joints and seal ring compression joints to [NZBC G12/AS1](#) and AS 4809.

### 3.11 JOINTING PVC-U PIPE

Solvent welded joints using spigots and sockets, flanged joints and seal ring compression joints to [NZBC G12/AS1](#) and [AS/NZS 2032](#).

### 3.12 JOINTING POLYBUTYLENE PIPE

Aluminium clamped, seal ring compression or push fit "O" ring seal jointing to pipe system manufacturer's requirements.

### 3.13 JOINTING POLYETHYLENE PIPE

Seal ring compression joints and electrofusion to [NZBC G12/AS1](#) and [AS/NZS 2033](#).

#### **Application - Pipework installation**

### 3.14 WATER SUPPLY CONNECTION

Arrange with the network utility operator for a connection to the water main and from there through a water meter and gate valve. Provide back flow prevention to [NZBC G12/AS1](#).

### 3.15 POTABLE WATER SUPPLY PIPEWORK INSTALLATION

From connection point, run pipes complete with all fittings, support and fixing, joints and install to manufacturers specifications. Size the pipes and branches in straight runs to deliver the acceptable flow rate to [AS/NZS 3500.1](#) and [AS/NZS 3500.4](#) as modified by [NZBC G12/AS3](#) or [NZBC G12/AS1](#), table 3, Acceptable flow rates to sanitary fixtures at each outlet. Allow for the expected concurrent use of adjoining fixtures and size the piping layout to eliminate loss of pressure at any point by simultaneous draw-off. Pipework support spacing to be firmly fixed and buffered to eliminate noise and hammer, with preformed tee-connection take-offs and branches, with machine made 3 diameter bends, complete with necessary valves and fittings. Conceal pipework and pressure test before the wall linings are fixed.

### 3.16 HOT WATER PIPEWORK

Use a take-off spigot to give separate branches to each fitting, lay out pipes with support spacing to [AS/NZS 3500.4](#) as modified by [NZBC G12/AS3](#) or [NZBC G12/AS1](#), table 9 Water supply pipework support spacing. Fix firmly and buffer to eliminate noise and hammer, with preformed tee-connection take-offs and branches, and preformed 3 diameter bends, complete with all necessary valves and fittings.

Lag all pipes with rigid insulation to the manufacturer's requirements and [AS/NZS 3500.4](#) as modified by [NZBC G12/AS3](#) or [NZBC G12/AS1](#).

### 3.17 EQUIPOTENTIAL BONDING METALLIC WATER SUPPLY PIPES

If it is an electrical requirement, before enclosing, ensure metallic water supply pipes and metallic sanitary fixtures are equipotential bonded (or at least conductor cable attached) to [NZBC G12/AS1](#), 9.0.

### 3.18 IN-LINE FILTER

Install an in-line filter immediately adjacent to the main isolating valve at the point of entry to the building, in an accessible position to allow for easy cleaning.

### 3.19 PENETRATIONS

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

#### **Application - Hot water systems**

### 3.20 HOT WATER CYLINDER INSTALLATION GENERALLY

Install hot water cylinders complete to the manufacturer's requirements and to [NZBC G12/AS1](#), 6.11, Water heater installation or NZS 4606 for Valve-vented systems.

### 3.21 SEISMIC RESTRAINTS - NON-GAS WATER HEATING APPLIANCES

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

### 3.22 INSTALLING HOT WATER PIPE INSULATION

Insulate all hot water pipes to [NZBC H1/AS1-AS2](#) Energy Efficiency, [AS/NZS 3500.4](#), 8.2 Thermal Insulation, and to the insulation manufacturer's instructions. Cut insulation sections tight between timber framing and tight between the webs of steel studs.

### 3.23 INSTALL HEAT PUMP WATER HEATER - SPLIT SYSTEM

Install complete with the necessary fittings and pipe work, to the manufacturer's installation instructions.

3.24 **INSTALL STORAGE HOT WATER CYLINDER OVERFLOW TRAY**  
Install drained overflow tray to storage hot water cylinder to [NZBC G12/AS1](#).

3.25 **INSTALL TEMPERING VALVE**  
Install 1 metre minimum from outlet of hot water cylinder and to manufacturer's instructions. Install copper pipework for 1 metre minimum downstream of tempering valve prior to connection of non-metallic pipework.

#### **Application - Fire resistant work**

3.26 **FIRE STOPPING SYSTEMS**  
Refer to 7382 FIRE STOPPING SYSTEMS for fire stopping devices for pipe penetrations through fire walls and floors.

#### **Installation - valves**

3.27 **INSTALLING BELOW GROUND ISOLATING VALVE**  
Install all below ground items such as main isolating valves and water meters in preformed concrete pits or approved equivalent.

3.28 **INSTALLING APPLIANCE ISOLATING VALVES - CONCEALED**  
Install isolating valves for appliances in accessible positions. Locate in adjacent cupboards and position to allow for easy connection and operation.

3.29 **INSTALLING BACKFLOW PREVENTION DEVICE**  
Provide and install backflow prevention device as near as practicable to the potential source of contamination, and in an accessible position for maintenance and testing to AS 2845.3 or [NZ Backflow Testing Standard](#).

#### **Completion**

3.30 **LABEL**  
Label all pipework with permanent adhesive markers at 3 metre minimum intervals.

3.31 **CLEAN IN-LINE FILTER**  
Clean all in-line filters on completion of works.

3.32 **REPLACE**  
Replace damaged or marked elements.

3.33 **LEAVE**  
Leave work to the standard required by following procedures.

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

## **4 SELECTIONS**

#### **Water main**

4.1 **POLYETHYLENE WATER MAIN**  
Size: 25mm outside diameter (i.e. DN 25 in [AS/NZS 4130](#))

#### **Pipework**

4.2 **COPPER PIPE**  
Manufacturer: TBC  
Brand: TBC  
Nominal bore: TBC  
Wall thickness: TBC

4.3 **PVC-U PIPE**  
Manufacturer: TBC

Brand: TBC

#### 4.4 POLYBUTYLENE PIPE

Manufacturer: TBC

Brand: TBC

#### 4.5 POLYETHYLENE PIPE

Manufacturer: TBC

Brand: TBC

Size: TBC Nominal Bore / OD Size (mm)

#### 4.6 CROSS LINKED POLYETHYLENE PIPE

Manufacturer: TBC

Brand: TBC

Size: TBC Nominal Bore / OD Size (mm)

#### 4.7 PIPEWORK INSULATION

Brand: TBC

Material: TBC

### **Hot water systems**

#### 4.8 HEAT PUMP WATER HEATER - SPLIT SYSTEM

Brand: TBC- Client to confirm if Heat Pump system to be used

Model: TBC

Location cylinder: TBC

Location heat pump: TBC

### **Valves and accessories**

#### 4.9 MAIN ISOLATING VALVE

Location: TBC

#### 4.10 FLOOR/ZONE ISOLATING VALVES

Location: TBC

#### 4.11 APPLIANCE ISOLATING VALVES - CONCEALED

Appliance: TBC

Brand/type: TBC

#### 4.12 APPLIANCE ISOLATING VALVES - EXPOSED

Appliance: Washing machine

Brand/type: Refer to tapware selections

#### 4.13 TEMPERING VALVE

Location: TBC

Brand/type: TBC

#### 4.14 BACKFLOW PREVENTION DEVICE

Location: TBC

Brand/type: TBC

#### 4.15 IN-LINE FILTER

Location: TBC

Brand/type: TBC

### **Fire resistant work**

#### 4.16 FIRE STOPPING SYSTEMS

Refer to 7382 FIRE STOPPING SYSTEMS for fire stopping devices for pipe penetrations through fire walls and floors.

# 7150 SANITARY FIXTURES, TAPWARE & ACCESSORIES

## 1 GENERAL

This section relates to the supply and installation of sanitary fixtures, tapware and sanitary accessories.

### 1.1 RELATED WORK

Refer to 7120 or 7123 HOT AND COLD WATER SYSTEM for hot water cylinders.  
Refer to 7420 or 7421 SANITARY SYSTEMS for the supply and fitting of waste disposal pipework  
Refer to the electrical section/s for electrical connection of accessories.

#### Documents

### 1.2 DOCUMENTS

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

<a href="#">NZBC E3/AS1</a>	Internal moisture
<a href="#">NZBC G1/AS1</a>	Personal hygiene
<a href="#">NZBC G12/AS1</a>	Water supplies
<a href="#">NZBC G12/AS3</a>	Water supplies
<a href="#">NZBC G13/AS1</a>	Foul water
<a href="#">NZBC G13/AS3</a>	Plumbing and drainage
<a href="#">AS/NZS 3000</a>	Electrical installations (known as the Australian/New Zealand Wiring Rules)
<a href="#">AS/NZS 3500.1</a>	Plumbing and drainage - water services
<a href="#">AS/NZS 3500.2</a>	Plumbing and drainage - sanitary plumbing and drainage
<a href="#">AS/NZS 3500.4</a>	Plumbing and drainage - Heated water services
<a href="#">NZS 4223.3</a>	Glazing in buildings - Human impact safety requirements
<a href="#">Plumbers, Gasfitters and Drainlayers Act 2006</a>	

#### Warranties

### 1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:  
TBC years For sanitary fixtures tapware and accessories

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

Refer to the general section 1237 WARRANTIES for additional requirements.

### 1.4 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:  
2 years For installation

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

Refer to the general section 1237 WARRANTIES for additional requirements.

#### Requirements

### 1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

### 1.6 QUALIFICATIONS WORKERS – INDUSTRY QUALIFICATION REQUIREMENTS

Workers or supervisors of work are required to be a Certifying Plumber under the [Plumbers, Gasfitters and Drainlayers Act 2006](#). Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

**1.7 ACCEPTABLE PRODUCT/MATERIAL SUPPLIERS**

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

**1.8 NO SUBSTITUTIONS**

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

**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:

Provide this information prior to practical completion

**2 PRODUCTS****2.1 SANITARY FIXTURES**

Refer to SELECTIONS for product selection.

**2.2 TAPWARE**

Refer to SELECTIONS for product selection.

**2.3 SANITARY APPLIANCES**

Refer to SELECTIONS for product selection.

**2.4 SANITARY ACCESSORIES**

Refer to SELECTIONS for product selection.

**2.5 ELECTRICAL SANITARY ACCESSORIES**

Refer to SELECTIONS for product selection.

**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 water supply and drainage pipework match the requirements of selected fixtures without force or distortion.

**Installation/application****3.4 STANDARDS AND TOLERANCES**

Refer to the general section 1270 CONSTRUCTION for general requirements.

**3.5 INSTALLATION REQUIREMENTS INCLUDING NZBC G13/AS1**

Install to [NZBC G1/AS1](#), [AS/NZS 3500.1](#) and [AS/NZS 3500.4](#) as modified by [NZBC G12/AS3](#), [NZBC G12/AS1](#), [NZBC G13/AS1](#), [NZBC E3/AS1](#) and to the fixture manufacturer's installation requirements for each component.

**3.6 INSTALLATION SANITARY FIXTURES**

Carry out preparatory and assembly work, including connections to supply and drainage services and the application of all required slurries/bedding and sealants in sequence.

Fit the sanitary fixture in position, plumb, level, flush and rigid without stressing the attachment points of the component. Fixings to be corrosive resistant.

Seal between all sanitary fixtures and floors, wall linings, fixtures and the tops they are in, the tops and wall linings, to [NZBC E3/AS1](#), 3.2. Fixtures include toilets, urinals, baths, basins, tubs, sinks. Tops include, vanities, bath surrounds, sink benches, etc, and their upstands. Form joint or seal between shower bases or urinals and impervious wall linings to [NZBC E3/AS1](#), 3.3.

### 3.7 INSTALLING URINALS - WATERLESS

Ensure discharge will not go through metal pipework/drains. Install the cartridge in each unit, charge with fluid and test for proper operation.

### 3.8 INSTALLING SPA BATHS

Connect up interconnected discharge jets to supply, connect waste and overflow to drainage services. Fit electric motor and pump so as to prevent vibration and noise.

### 3.9 INSTALLING SHOWER OR BATH DOOR AND SCREEN

To [NZS 4223.3](#) and to the product manufacturer's requirements. Set units level, plumb and true to line and required location, with moving parts and actions freely and easily operating.

### 3.10 INSTALLATION TAPWARE

In accordance with the manufacturer's requirements. Maintain safe water temperatures to comply with [NZBC G12/AS1](#), 6.14 Safe water temperatures.

### 3.11 SEAL SHOWER TAPWARE

Seal shower wall lining penetrations such as shower head, shower hose, mixer, taps etc to [NZBC E3/AS1](#), Fig. 6.

### 3.12 SANITARY APPLIANCES

Install and provide all required connections to sanitary appliances in accordance with manufacturers requirements.

### 3.13 EARTHING OR EQUIPOTENTIAL BONDING METALLIC FIXTURES

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

## Application - sanitary accessories

### 3.14 INSTALLING ACCESSORIES

Fit specified fittings firmly in place, all plumb and level.

Locate at heights and/or locations shown on the drawings, or as required to comply with [NZBC G1/AS1](#). For any dimension not shown or known, request direction before proceeding

### 3.15 CUTTING AND FITTING

Where cutting and fitting of the substrate is necessary for installing any unit, carry out this work before the painting or finishing of that surface. Remove any hardware when required for painting, placing it in the packaging or carton originally supplied and returning it to the secure store until ready for re-installation.

### 3.16 INSTALLING UNITS

Install each unit in accordance with the proprietary fixture manufacturer's requirements, using the templates and tools supplied or recommended by them. Set units level, plumb and true to line and required location, with moving parts and actions freely and easily operating. Do not make any modifications to supplied units.

## Completion & Commissioning

### 3.17 COMPLETION MATTERS

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

## 4 SELECTIONS

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

4.1 SANITARY FITTING SCHEDULE

Supplier: TBC

Refer to: Sanitary fittings schedule to be prepared by Supplier for this project

# 7352 TYPE 1 DOMESTIC SMOKE ALARM SYSTEMS

## 1 GENERAL

This section relates to the installation and commissioning of Type 1 domestic smoke alarm systems. REFER TO FIRE REPORT BY ORIGIN FIRE CONSULTANTS SECTION 3.2.1

It includes:

- Power supply
- Associated components to complete the installation

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

dB(A)	A-weighted decibel
VAC	Volts alternating current
VDC	Volts direct current

The following definitions apply specifically to this section:

Heat alarm	Integral device containing heat detector and alarm sounding feature.
Hush-button	Feature that temporarily silences audible alarm signals triggered by conditions resembling a fire i.e. steam or dust but not generated by sources of fire (nuisance alarm).
Smoke alarm	Integral device containing smoke detector and alarm sounding feature.
Type 1	To <a href="#">NZBC C/AS1</a> Type 1 is a single smoke alarm or multiple interconnected smoke alarm devices each containing smoke detector and alarm sounding feature.

### Documents

#### 1.2 DOCUMENTS

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

<a href="#">NZBC C/AS1</a>	Protection from fire
<a href="#">AS/NZS 1125</a>	Conductors in insulated electric cables and flexible cords
AS 1603.17	Automatic fire detection and alarm systems - Warning equipment for people with hearing impairment
<a href="#">AS/NZS 2201.1</a>	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
<a href="#">AS/NZS 3000</a>	Electrical Installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3808	Insulating and sheathing materials for electric cables
<a href="#">NZS 4512</a>	Fire detection and alarm systems in buildings
<a href="#">NZS 4514</a>	Interconnected smoke alarms for houses
<a href="#">AS/NZS 5000.2</a>	Electric cables - Polymeric insulated - For working voltages up to and including 450/750 V
BS 5446.3	Detection and alarm devices for dwellings, specification for fire alarm and carbon monoxide alarm systems for deaf and hard of hearing people
Electricity (Safety) Regulations 2010	

### Warranties

#### 1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:  
TBC years For TBC

- Provide this warranty on the manufacturer/supplier standard form (if not available then use the

standard form in the general section 1237WA WARRANTY AGREEMENT)

Refer to the general section 1237 WARRANTIES for additional requirements.

## Requirements

### 1.4 QUALIFICATIONS - ELECTRICAL WORK

Electrical work to be carried out by workers appropriately qualified to Electricity (Safety) Regulations 2010 requirements, and to be inspected, tested and certified by a licensed electrical worker. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

### 1.5 TYPE 1 DOMESTIC SMOKE ALARM SYSTEM

Comply with [NZBC C/AS1](#) providing Type 1 domestic smoke alarm system to [NZS 4514](#).

### 1.6 NO SUBSTITUTION

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

### 1.7 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of manufacturer's operation and maintenance information as electronic PDF format documents. Documents to include maintenance, checks, tests and replacement requirements to [NZS 4514](#), Maintenance.

Provide this information prior to practical completion.

## 2 PRODUCTS

### Alarm devices

#### 2.1 MULTI-SENSOR SMOKE ALARM

Multi-sensor smoke alarm to [NZS 4514](#) comprising two or more detection technologies i.e. ionisation and photoelectric smoke sensor or photoelectric smoke and heat sensor. Completed with alarm sounding feature and hush-button. Available wireless with long-life (minimum 10 years), non-removable, sealed battery or hard wired with back-up battery power supply. Refer to SELECTIONS.

#### 2.2 PHOTOELECTRIC SMOKE ALARM

Photoelectric smoke alarm to [NZS 4514](#) comprising photoelectric smoke detecting technology. Completed with alarm sounding feature and hush-button. Available wireless with long-life (minimum 10 years), non-removable, sealed battery or hard wired with back-up battery power supply. Refer to SELECTIONS.

#### 2.3 HEAT ALARM

Heat alarm to [NZS 4514](#) comprising heat detecting technology. Completed with alarm sounding feature and hush-button. Available wireless with long-life (minimum 10 years), non-removable, sealed battery or hard wired with back-up battery power supply. Refer to SELECTIONS.

### Components

#### 2.4 ACCESSIBLE HUSH-BUTTON

Hush-button to manufacturer's requirements located at readily accessible location, i.e. a hallway. Refer to SELECTIONS.

#### 2.5 CABLES

Tough plastic sheathed copper wire cable to [AS/NZS 5000.2](#), AS/NZS 3808 and [AS/NZS 1125](#). Minimum 1mm<sup>2</sup> solid cable for 230VAC mains powered alarm devices and minimum 0.5mm<sup>2</sup> stranded cable for extra-low voltage (less than 32VAC or 50VDC) powered alarm devices to [NZS 4514](#).

#### 2.6 INTERNAL BATTERY - HARD WIRED ALARMS

To [NZS 4514](#), Power Supplies. Batteries contained within alarm device to be of type nominated by the smoke alarm manufacturer and if inaccessible to be rechargeable.

#### 2.7 EXTERNAL BATTERY - HARD WIRED ALARMS

To [NZS 4514](#), Power Supplies. Batteries external to alarm device to comply with [NZS 4512](#) or [AS/NZS 2201.1](#) where alarm devices are integrated in intruder alarm systems.

### 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.

#### 3.4 COMPATIBILITY

Confirm all interconnected devices are compatible.

#### Installation - generally

#### 3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

#### 3.6 LOCATION & SPACING

Install smoke alarms away from:

- Dead air spaces to [NZS 4514](#), Figure 2.1
- Light fittings (at least 300mm)
- Air supply openings (at least 400mm)
- A cooktop (minimum 1m, if possible allow for at least 3m clearance)
- Any object that may prevent smoke from entering the alarms sensing chamber

Do not install smoke alarms:

- In roof spaces
- In places where extremes of temperature, dust and high airflow may occur
- On surfaces normally warmer or colder than the rest of the room
- In, next to, or directly above heaters, air conditioning vents, opening windows or wall vents that can change the direction of airflow

#### 3.7 AUDIBLE ALARM

Install smoke alarms so that audible alarm sound pressure level when measured at 1.8m height is between 75dB(A) and 110dB(A) to [NZS 4514](#), Alarm Signals.

#### 3.8 POWER SUPPLY

Connect hard wired alarms to either permanently energised 230VAC mains fed from permanently energised (unswitched) circuit i.e. lighting or to external direct current (DC) power supply maintained from 230VAC mains to [NZS 4514](#), Power Supplies.

#### Installation - smoke alarm system

#### 3.9 INSTALL CABLES

Install smoke alarm system's hard wiring to [AS/NZS 3000](#), [NZS 4514](#) and manufacturer's instructions.

#### 3.10 INSTALL BATTERIES

Install primary and secondary batteries to [NZS 4514](#) and manufacturer's instructions. Indelibly mark batteries with the date of installation.

#### 3.11 INSTALL ALARMS

Install alarm devices to manufacturer's instructions fitted neatly and without damage to the surrounding finish using brackets and mounts supplied or recommended by the manufacturer.

#### 3.12 INSTALL ACCESSIBLE HUSH-BUTTON

Install accessible hush-button to manufacturer's instructions fitted neatly and without damage to the surrounding finish using brackets and mounts supplied or recommended by the manufacturer.

### 3.13 INTERCONNECT

Interconnect devices so that when one activates all alarms sound.

## Completion & Commissioning

### 3.14 COMPLETION MATTERS

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

### 3.15 COMPLETION - TESTS & CERTIFICATION

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

Completed smoke alarm system to be inspected, tested and where required for electrical installations certified to [NZS 4514](#), including (but not limited to):

- Correct location of alarm devices
- Correct sound pressure level of audible alarm signals
- Correct installation to manufacturer's installation instructions
- Correct and fault free operation of the smoke alarm system and interconnected devices

## 4 SELECTIONS

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

### Alarm devices

#### 4.1 MULTI-SENSOR SMOKE ALARM

Location:	Refer to drawings
Brand:	Client to confirm
Type:	Multi-sensor smoke alarm
Sensor:	TBC
System:	TBC
Compliance:	TBC

#### 4.2 PHOTOELECTRIC SMOKE ALARM

Location:	refer to drawings
Brand:	Client to confirm
Type:	Smoke alarm
Sensor:	Photoelectric smoke sensor
System:	TBC
Compliance:	TBC

#### 4.3 HEAT ALARM

Location:	refer to drawings
Brand:	Client to confirm
Type:	Heat alarm
Sensor:	TBC
System:	TBC

### Components

#### 4.4 ACCESSIBLE HUSH-BUTTON

Location:	TBC
Brand:	Client to confirm
Type:	TBC
Model:	TBC

# 7411M METALCRAFT ROOFING RAINWATER SPOUTING SYSTEMS

## 1 GENERAL

This section relates to **Metalcraft Roofing** rainwater disposal systems including gutters fascias and downpipes.

### 1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
Gutter	In this section includes spouting

### 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
AS 1273	Unplasticised PVC (uPVC) downpipe and fittings for rainwater
AS/NZS 3500.3	Plumbing and drainage - Stormwater drainage
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:  
Are available on the website or by contacting Metalcraft Roofing.

For technical assistance contact **Metalcraft Roofing**

Web: [www.metalcraftroofing.co.nz](http://www.metalcraftroofing.co.nz)

### Warranties

### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years:	Failure of coating adhesion (manufacturer's standard warranty)
10 years:	Weatherproofing failure caused by material penetration as a result of corrosion (manufacturer's standard warranty)

- 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 workmanship
---------	-----------------

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

Refer to the general section 1237 WARRANTIES for additional requirements.

### Requirements

### 1.6 NO SUBSTITUTIONS

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

## 1.7 QUALIFICATIONS

Installers to be experienced competent gutter installers, familiar with the **MetalcraftRoofing** materials and the techniques specified.

## 1.8 INFORMATION FOR OPERATION AND MAINTENANCE

Provide one copy of all relevant **Metalcraft Roofing** maintenance information on completion of the roofing work.

### Performance

## 1.9 TEST - NZBC E1/AS1

Test the completed rainwater disposal system with water to ensure gutters are laid to correct falls, that both spouting and downpipes are unobstructed and that no ponding occurs in gutters. Comply with [NZBC E1/AS1](#).

## 1.10 TEST - AS/NZS 3500.3 & NZBC E1/AS2

Test the completed rainwater disposal system with water to ensure gutters are laid to correct falls, that both spouting and downpipes are unobstructed and that no ponding occurs in gutters. Comply with [AS/NZS 3500.3](#) as modified by [NZBC E1/AS2](#).

# 2 PRODUCTS

### Materials

## 2.1 GUTTERS

Complete with matching brackets with fixing screws to suit the gutter / fascia. Refer to SELECTIONS for type.

## 2.2 DOWNPIPES - METAL

Metalcraft metal downpipes, circular or rectangular. Refer to SELECTIONS.

### Components

## 2.3 DROPPERS

Steel or plastic droppers, sized to fit inside the downpipe.

## 2.4 DOMES

Wire mesh in round form with legs to clip inside the outlet opening to the downpipe.

## 2.5 GUTTER MESH

Flexible plastic mesh fitted into the gutter to the mesh manufacturer's requirements.

## 2.6 MUNSON DP RINGS

Down pipe brackets to manufacturer's requirements.

# 3 EXECUTION

### Conditions

## 3.1 HANDLE AND STORE

Handle and store downpipes, spouting and accessories to avoid damage. Store on site under cover, on a clean level area, stacked to eliminate movement and away from work in progress. Avoid exposure to sunlight if strippable film is still on the product.

## 3.2 SUBSTRATE

Check that fascia, barges or cladding are level and true to line and face and will allow work of the required standard without distortion to the product alignment. Do not proceed until they are up to standard.

## 3.3 THERMAL MOVEMENT

Make adequate provision in the fixing and jointing of the spouting for thermal movement in the length of the spouting. Provide an expansion joint in spouting over 12 metres in length for steel gutter.

### 3.4 CORROSION

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

Check compatibility of metals used for rainwater goods, against the materials being used for roofing and flashings.

#### **Application - metal**

### 3.5 INSTALL METAL GUTTER AND FASCIA

Establish minimum falls necessary (minimum 1:500) to outlets to prevent ponding and screw fix brackets true-to-line at 900mm centres maximum. In areas where snow fall is possible and or high wind areas, the centres should be reduced to 600mm. Lap spouting joints in direction of flow, a minimum of 40mm to seal between and over the top of joint and seal with silicone sealant and fix with rivets. Ensure the joint is fixed over its full girth. Cut out neatly for and fit the pre-formed downpipe dropper and rivet and seal around the joint. All installation to Metalcraft Roofing details and [NZMRM CoP](#) recommendations.

### 3.6 INSTALL METAL DOWNPIPES

Form downpipes complete with offsets and shoes as needed with all joints lapped and sealed as required. Screw fix with matching pipe clips to rigidly stand plumb to the wall, and discharging into the stormwater gully or pipe inlet. All installation to Metalcraft Roofing details and [NZMRM CoP](#) recommendations, section 5.7, Outlets & Downpipes.

### 3.7 INSTALL RAINWATER HEADS

Install using rivets where required to detail as shown on drawings. Ensure colour matched blind aluminium rivets are used when joining metal surfaces.

### 3.8 INSTALL OVERFLOWS

Install as close as practical to downpipe locations, at a height allowing water to discharge to the outside and not into the building.

### 3.9 INSTALL PROTECTION

Fit wire mesh domes to downpipe outlets and plastic mesh to spouting to the spouting manufacturer's requirements.

#### **Completion**

### 3.10 REPLACE

Replace damaged or marked elements.

### 3.11 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.

### 3.12 REMOVE

Remove debris, unused materials and elements from the site.

## **4 SELECTIONS**

For further details on selections go to [www.metalcraftroofing.co.nz](http://www.metalcraftroofing.co.nz)  
Substitutions are not permitted to the following, unless stated otherwise.

### 4.1 METALCRAFT ROOFING GUTTER SYSTEMS

Profile:	Box Gutter 125
Base material:	steel
BMT:	0.55mm
Coating system:	COLORSTEEL® Maxam™
Colour:	TBC

### 4.2 METALCRAFT METAL DOWNPIPES

Profile:	Round
Size:	100mm
Material:	Steel
BMT:	0.55mm
Coating system:	COLORSTEEL® Maxam™
Colour:	TBC

#### 4.3 MUNSON DOWNPIPE RINGS

Profile:	Round
Size:	TBC
Material:	TBC
BMT:	TBC
Coating system:	TBC
Colour:	TBC

#### 4.4 PROTECTION

Type/brand	TBC
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## 7421 SANITARY SYSTEMS

### 1 GENERAL

This section relates to above ground gravity flow sanitary systems;

- for foul water
- from sanitary fixtures to first underground drain connection
- including system wastes, floor wastes, floor waste gullies, traps, vents and valves
- with associated components and accessories to make the system work

#### 1.1 RELATED SECTIONS

Refer to 7150 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures.  
Refer to 7123 HOT AND COLD WATER SYSTEM for potable water systems.  
Refer to 7431 DRAINAGE COMMON REQUIREMENTS for underground drains.

#### Documents

#### 1.2 DOCUMENTS

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

<a href="#">NZBC G1/AS1</a>	Personal hygiene
<a href="#">NZBC G12/AS1</a>	Water supplies
<a href="#">NZBC G13/AS1</a>	Foul water - Sanitary plumbing
<a href="#">NZBC G13/AS3</a>	Foul water - Sanitary plumbing and drainage
AS 1589	Copper and copper alloy waste fittings
AS 2887	Plastic waste fittings
<a href="#">AS/NZS 1260</a>	PVC-U pipes and fittings for drain, waste and vent applications
<a href="#">AS/NZS 2032</a>	Installation of PVC pipe systems
<a href="#">AS/NZS 3500.2</a>	Plumbing and drainage - Sanitary plumbing and drainage
<a href="#">AS/NZS 4401</a>	Plastic piping systems for soil and waste discharge (low and high temperature) inside buildings - polyethylene (PE)
AS/NZS 7671	Plastic piping systems for soil and waste discharge (low and high temperature) inside buildings - Polypropylene (PP)
BS EN 1124 .1	Pipes and fitting of longitudinally welded stainless steel pipes with spigot and socket for waste water systems. Requirements, testing, quality control.
BS EN 1124 .2	Pipes and fitting of longitudinally welded stainless steel pipes with spigot and socket for waste water systems. System S, forms and dimensions.

[Plumbers, Gasfitters and Drainlayers Act 2006](#)

#### Requirements

#### 1.3 QUALIFICATIONS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a certifying plumber under the [Plumbers, Gasfitters and Drainlayers Act 2006](#).

#### 1.4 PIPEWORK LAYOUTS

Refer to drawings

#### 1.5 OPERATION AND MAINTENANCE MANUALS

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

#### Performance

#### 1.6 TESTING

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

## 2 PRODUCTS

### Materials

#### 2.1 COPPER PIPES AND TRAPS

To [NZS 3501](#) for pipes and AS1589 for fittings.

Pipes complete with copper-alloy compression fittings and/or cross type joints and seal ring compression joints. Traps complete with screwed access ports. Exposed traps and wastes, complete with matching ferrules at penetration location, satin chrome plated.

#### 2.2 PVC-U WASTE PIPES AND TRAPS

To [AS/NZS 1260](#), complete with fittings and accessories to the pipe manufacturer's requirements, all brand matched.

#### 2.3 PVC-U VENT PIPE

To [AS/NZS 1260](#), complete with fittings and accessories to the pipe manufacturer's requirements and all brand matched.

#### 2.4 POLYETHYLENE PIPES & FITTINGS

Polyethylene PE pipes and associated fittings to [AS/NZS 4401](#).

#### 2.5 POLYPROPYLENE PIPES & FITTINGS

Polypropylene pipe and associated fittings to AS/NZS 7671.

#### 2.6 FLOOR WASTES

Floor wastes and floor waste gullies to [AS/NZS 3500.2](#), complete with chrome grates to suit flooring.

### Components

#### 2.7 PROTECTIVE TAPE

Plasticised PVC tape system with primer, mastic fixing and outer coating.

### Accessories

#### 2.8 FIRE RESISTANT SEALER

Gunnable inorganic or silicone elastomer sealant packed to maintain the specified fire resistance rating of the floor or wall.

#### 2.9 FIRE RESISTANT FOAM SEALER

Two-part silicone foam elastomer sealant packed to maintain the specified fire resistance rating of the floor or wall.

#### 2.10 FIRE RESISTANT STRIP

Intumescent material mounted on a flexible retardant strip used in conjunction with the selected sealer.

#### 2.11 FIRE RESISTANT COLLARS

Corrosion resistant collar or canister with intumescent packing to maintain the specified fire resistant rating of the floor or wall.

## 3 EXECUTION

### Conditions

#### 3.1 EXECUTION GENERALLY - NZBC G13/AS1

Carry out this work to [NZBC G13/AS1](#) and [NZBC G1/AS1](#) and complete all tests to G13/AS1, 7.1 Test Methods.

#### 3.2 ELECTROLYTIC ACTION

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

### 3.3 EQUIPOTENTIAL BONDING METALLIC WASTE PIPES

If it is an electrical requirement, before enclosing, ensure metallic waste pipes connected to metallic drains and attached metallic sanitary fixtures are equipotential bonded (or at least conductor cable attached) similar to [NZBC G12/AS1](#), 9.0.

### 3.4 HANDLE AND STORE

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

### 3.5 SETTING OUT

Set out location of all stacks, discharge pipes, fittings and vent pipes and the completeness of their discharge into the drainage system.

### 3.6 CORE HOLES AND SLEEVES

Fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Sleeve diameter to be 25mm larger than outside diameter of pipe accommodated. Strip core holes and make good after installation of pipework.

### 3.7 PIPE ACCESS

Fit and fix stacks, wastes and pipes in ducts independent of all other services so they are easily replaceable for their full length. Wrap or tape pipes buried in concrete.

### 3.8 FITTINGS ACCESS

Fit and fix traps and wastes to enable access for cleaning and for maintaining the total system.

### 3.9 CONFIRM LOCATIONS

Unless the location and height are clearly delineated on the drawings, confirm installation height and plan locations of sanitary fittings before commencing the piping installation.

### 3.10 TRAPS AND WASTES

Conceal traps and wastes in the fabric of the building unless detailed otherwise. Fit and fix satin chrome plated exposed pipes, traps and wastes unless detailed otherwise. Refer to 7150 SANITARY FIXTURES, TAPWARE & ACCESSORIES for locations and types of traps.

### 3.11 CORROSION

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

#### **Application - jointing**

### 3.12 JOINTING COPPER PIPE - NZBC G13/AS1

Braze pipe, fit alloy compression fittings, crox type joints and seal ring compression joints to [NZBC G13/AS1](#).

### 3.13 JOINTING PVC-U PIPE

Prime and solvent weld joints using spigots and sockets, flanged joints and seal ring compression joints to [AS/NZS 2032](#).

#### **Application - fixing**

### 3.14 THERMAL MOVEMENT

Accommodate longitudinal movement in pipes resulting from temperature changes. Incorporate expansion joints in copper and PVC-U pipes. Install PVC pipes to [AS/NZS 2032](#). Take particular care to allow for movement at horizontal take-off locations from stacks.

### 3.15 TRAPS AND FIXTURE DISCHARGE PIPES - NZBC G13/AS1

Size traps and pipes as required for each fixture or appliance. Establish the developed length of waste pipes. Vent and allow access for cleaning as required. Follow the most direct line with the least number of bends to [NZBC G13/AS1](#): Foul water sanitary plumbing, table 4, Discharge unit loading for stacks and graded discharge pipes and [NZBC G13/AS1](#), table 7, Distance between supports.

**3.16 DISCHARGE STACKS AND VENTS - NZBC G13/AS1**

Size stacks and vents to [NZBC G13/AS1](#), table 2, Fixture discharge pipe sizes and discharge units and [NZBC G13/AS1](#), table 6, Vent pipe sizes. Extend up past the highest branch to form a discharge stack vent terminating to [NZBC G13/AS1](#), figure 12 and finishing at the base with a 45 degree bend. Support system to [NZBC G13/AS1](#), table 7, Distances between supports.

**3.17 FLASH ROOF PENETRATIONS**

Flash or arrange for roofer to flash all penetrations to [NZBC E2/AS1](#). For profiled metal roofs, fit proprietary EPDM pipe collar flashings to [NZBC E2/AS1](#), 8.4.17 Roof Penetrations, and manufacturer's requirements.

**Application - fire resistant penetrations****3.18 FIRE RESISTANT SEALER**

Thoroughly clean the penetration of the floor or wall. Pack if necessary to support sealant. Implant sealant to the sealant manufacturer's requirements to ensure full penetration and to obtain the fire resistance rating required. Tool surface flush and smooth and allow to cure. Inspect for and make good if adhesion and seal are not complete.

**3.19 FIRE RESISTANT FOAM SEALER**

Thoroughly clean opening and box each side with fibreboard to contain the sealer. Mix sealer and inject into opening to the volume and time limits in the sealer manufacturer requirements to obtain the fire resistance rating required. Allow to cure, remove boxing and make good voids with sealer.

**3.20 FIRE RESISTANT STRIP**

Wrap around the pipe and tape in place in the hole, caulking each side with fire resistant sealer. Tool the surface flush and smooth and allow to cure. Inspect for and make good if adhesion and seal are not complete.

**3.21 FIRE RESISTANT COLLARS**

Insert circular type collars into holes provided in the concrete. Supply canister type collars. Locate and fix to the boxing before concrete is placed. Comply with the collar manufacturer's requirements for use of these elements, complete with accessories, tapes and sealants required for each particular situation.

**Completion****3.22 REPLACE**

Replace damaged or marked elements.

**3.23 LEAVE**

Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following procedures.

**3.24 REMOVE**

Remove debris, unused materials and elements from site.

**4 SELECTIONS****4.1 SANITARY SYSTEMS - COPPER PIPES AND TRAPS**

Location: Refer to drawings

**4.2 SANITARY SYSTEMS - PVC-U WASTE PIPES AND TRAPS**

Location: Refer to drawings

**4.3 SANITARY SYSTEMS - PVC-U VENT PIPE**

Manufacturer: TBC

**4.4 SANITARY SYSTEMS - POLYETHYLENE PIPES & FITTINGS**

Location: Refer to drawings

**4.5 SANITARY SYSTEMS - POLYPROPYLENE PIPES & FITTINGS**

Location: Refer to drawings

## 4.6 SANITARY SYSTEMS - FLOOR WASTES

Manufacturer: TBC  
Brand/type: TBC  
Grate/finish: TBC

## 4.7 SANITARY SYSTEMS - PROTECTIVE TAPE

Brand: TBC  
Width: TBC

**Fire stopping**

## 4.8 FIRE RESISTANT SEALER

Manufacturer: TBC  
Type/number: TBC

## 4.9 FIRE RESISTANT FOAM SEALER

Manufacturer: TBC  
Type/number: TBC

## 4.10 FIRE RESISTANT STRIP

Manufacturer: TBC  
Type/number: TBC

## 4.11 FIRE RESISTANT COLLARS

Manufacturer: TBC  
Type/number: TBC

# 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.

### Documents

#### 1.1 DOCUMENTS

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

<a href="#">NZBC E1/AS1</a>	Surface water
<a href="#">NZBC E1/AS2</a>	Surface water
<a href="#">NZBC G13/AS2</a>	Foul water
<a href="#">AS/NZS 3500.3</a>	Plumbing and drainage - Stormwater drainage
<a href="#">NZS 3604</a>	Timber-framed buildings
<a href="#">NZS 4229</a>	Concrete masonry buildings not requiring specific engineering design
<a href="#">WorkSafe</a>	<a href="#">Good Practice Guidelines - Excavation Safety</a>
<a href="#">Plumbers, Gasfitters and Drainlayers Act 2006</a>	
<a href="#">Health and Safety at Work Act 2015</a>	
Health and Safety at Work (Hazardous Substances) Regulations 2017	

### Requirements

#### 1.2 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](#).

#### 1.3 INFORMATION FOR OPERATION AND MAINTENANCE

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

#### 1.4 AS BUILT DOCUMENTS

Supply as-built drawings to requirements set out in the general section 1238 AS BUILT DOCUMENTATION.

### Performance

#### 1.5 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.

#### 1.6 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.

#### 1.7 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.

#### 1.8 ADJOINING PROPERTIES

Take precautions to protect adjoining property from damage or risk of damage arising from excavation and drainage work.

#### 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 EXPLOSIVES

Do not use explosives except with the written approval of the territorial authority / [WorkSafe](#).

Comply with their safety requirements and use construction blasters holding a current, appropriate Approved Handler Certificate and Controlled Substance Licence issued by [WorkSafe](#), to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

## 1.11 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.

## 1.12 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.

# 7451AE ALLPROOF EXTERIOR SURFACE DRAINAGE SOLUTIONS

## 1 GENERAL

This section relates to **Allproof Industries** exterior surface drainage systems.

It comprises of a range of heavy duty commercial and domestic exterior drainage systems including connection to the network utility operator's system.

It includes:

- Allproof Recycled Plastic Domestic channel drainage system with a range of domestic grade grates
- Allproof Recycled Plastic Drainage Pits

### Documents

#### 1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

[NZBC E1/AS1](#) Surface water  
[Plumbers, Gasfitters and Drainlayers Act 2006](#)

#### 1.2 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:

Allproof Industries Exterior Surface Drainage Solutions Brochure  
 Allproof Industries Exterior Surface Drainage Solutions Technical Details  
 Allproof Industries Exterior Surface Drainage Solutions Installation Details

Manufacturer/supplier contact details

Company: **Allproof Industries**

Web: [www.allproof.co.nz](http://www.allproof.co.nz)

Email: [info@allproof.co.nz](mailto:info@allproof.co.nz)

Telephone: 09 481 8020

### Warranties

#### 1.3 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

5 - 25 years For Allproof Industries Exterior Surface Drainage System components.

For warranty conditions and details refer to Allproof Industries

- Provide this warranty on Allproof Industries Ltd standard form.
- Commence the warranty from the date of purchase.

Refer to the general section 1237 WARRANTIES for additional requirements.

### Requirements

#### 1.4 QUALIFICATIONS

Drainlayers / contractors to be experienced, competent and familiar with the materials and techniques specified. Carry out all work under the direct supervision of a certifying drainlayer under the [Plumbers, Gasfitters and Drainlayers Act 2006](#).

#### 1.5 SITE CONFIRMATION

Meet with the territorial authority drainage inspector to confirm the drainage layout in relation to site conditions. Confirm changes resulting and seek written site instruction before carrying out any work.

#### 1.6 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.

#### 1.7 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified Allproof Industries systems, components and associated products listed in this section.

## Performance

### 1.8 TECHNICAL APPLICATION

Refer to Allproof Industries for technical support on grate performance and engage a hydraulics engineer for hydraulic performance, run layout and scheduling, ponding analysis and information on the chemical resistance of the trench and grate materials.

## Compliance information

### 1.9 COMPLIANCE WITH NZ BUILDING CODE

All work to comply with [NZBC E1/AS1](#): Surface water, 3.0 Drainage system materials and construction.

## 2 PRODUCTS

### Components - Allproof recycled plastic domestic drainage channel system

#### 2.1 ALLPROOF RECYCLED PLASTIC DOMESTIC DRAINAGE CHANNEL SYSTEM

Plastic domestic channel drainage system comprised of the following:

- Constructed from UV stabilised recycled Polypropylene Plastic
- 75mm and 125mm black/grey clip-together channels incorporating clip-in joiners for 75-125mm depth conversion, clip-in end caps and clip-in inline sumps
- 6 types of grates - Black Plastic, Grey Plastic, Galvanized Steel, Laser Perforated Stainless Steel (304 stainless steel), Wedge Wire (316 Stainless Steel) and SS Slot. Available in standard length 1000mm.
- Finishes dependent on grate selection; available finishes - Black Plastic, Grey Plastic, Stainless Steel, electro polished stainless steel (on request), Galvanized Steel
- Loading rated from load class A.

Refer to SELECTIONS for options.

### Components - Allproof drainage pits and drains

#### 2.2 ALLPROOF RECYCLED PLASTIC DRAINAGE PIT - SQUARE

Recycled Plastic Drainage Pit comprised of the following:

- Constructed from UV Stabilised recycled Polypropylene Plastic
- Sizes available in 250mm wide x 300mm deep, 350mm wide x 325mm deep, and 350mm wide x 600mm deep
- 5 types of grates - Heelproof Cast Iron, Plastic, Aluminium, Wedge Wire (316 Stainless Steel), Laser Perforated Stainless Steel (304 stainless steel) and Hot-dipped Galvanized Steel
- Hinged Cast Iron, Plastic and Aluminium grates available on 350mm x 350mm pits
- 100mm pipe outlet pre-marked on 350mm x 350mm pits
- Rubber gasket seal for 100mm diameter pipe on 350mm x 350mm pits
- 12-45 litre volume
- Loading rated from load class A to C.

Refer to SELECTIONS for options.

## 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 GROUND CONDITIONS

Specific ground conditions or contaminated ground may require an increase in the concrete surround dimensions or the addition of reinforcement.

### 3.4 TEMPORARY INSTALLATION

Allproof Industries exterior surface drainage channels are not trafficable until fully installed. During site work and after the trench run is laid, route site traffic away from the trench. If temporary crossings are required lay base course of minimum 1 metre wide either side of the trench for protection and install temporary protective cover or timber infill for support.

#### **Installation**

### 3.5 GENERAL

All work to comply with [NZBC E1/AS1: Surface water, 3.0 Drainage system materials and construction](#) and Allproof Industries Installation Details.

#### **Installation - Allproof plastic domestic drainage channel system**

### 3.6 INSTALL ALLPROOF PLASTIC DOMESTIC DRAINAGE CHANNEL SYSTEM

Install Plastic Domestic Drainage Channel System in accordance with Allproof Industries Exterior Surface Drainage Installation Details, and as follows:

- Install sump first
- Connect and seal outlet plumbing
- Working away from the outlet, haunch channel into position in trench with site concrete prior to pouring primary concrete to reduce movement. Ensure correct lines using a string line or similar
- Support channel from the weight of the setting concrete by having either the original grates or appropriate bracing in place
- Protect grates from chemical and concrete contamination during installation by wrapping in plastic or tape
- Ensure concrete is poured evenly to avoid shifting the channels during installation

Cutting plastic channel and grate:

- Use tee joints to form corners, junctions and irregular lengths
- Cut channels with an appropriate saw and tidy cut with craft knife
- Cut pipe holes using an appropriately sized hole saw
- Seal joints with a flexible sealant

#### **Installation - Allproof drainage pits and drains**

### 3.7 INSTALL ALLPROOF PLASTIC DRAINAGE PIT

Install Plastic Drainage Pit in accordance with Allproof Industries Exterior Surface Drainage Installation Details.

#### **Installation - connection**

### 3.8 CONNECT TO SURFACE WATER DRAIN

Connect Allproof exterior surface drainage system to stormwater drain to the requirements and satisfaction of the network utility operator.

### 3.9 CLEAN

Clean and flush out the whole installation and remove all silt and debris before handing over.

#### **Completion**

### 3.10 COMPLETION MATTERS

Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements.

### 3.11 REPLACE

Replace damaged or marked elements.

### 3.12 LEAVE

Leave the whole of this work discharging completely and freely into the storm water system and free of all debris. Leave work to the standard required by following procedures.

**3.13 REMOVE**

Remove debris, unused materials and elements from the site.

**4 SELECTIONS**

For further details on selections go to [www.allproof.co.nz](http://www.allproof.co.nz).

Substitutions are not permitted to the following, unless stated otherwise.

**Components - Allproof plastic domestic drainage channel system****4.1 ALLPROOF DOMESTIC DRAINAGE CHANNEL**

Location:	Exterior garage door
Manufacturer:	Allproof Industries
Channel type/size:	125mm Black/Grey Channel
Grate type:	TBC
Grate length:	Check on site for drain length to suit
Grate finish:	TBC
Product code:	TBC
Load rating:	B

**Components - Allproof drainage pits and drains****4.2 ALLPROOF DRAINAGE PIT**

Location:	Refer to Civil drawings
Manufacturer:	Allproof Industries
Drainage pit size:	350mm diameter x 700mm deep
Drainage pit riser:	TBC
Grate type:	Heelproof Cast Iron
Product code:	tBC
Load rating:	B

# 7461 FOUL WATER DRAINAGE

## 1 GENERAL

This section relates to below ground, non-pressure foul water pipework complete with all maintenance access and fittings and connected to network utility operator sewers

### Documents

#### 1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

<a href="#">NZBC G13/AS2</a>	Foul water - Drainage
<a href="#">NZBC G13/AS3</a>	Foul water - Sanitary plumbing and drainage
<a href="#">AS/NZS 1260</a>	PVC-U pipes and fittings for drain, waste and vent applications
<a href="#">AS/NZS 2032</a>	Installation of PVC pipe systems
<a href="#">AS/NZS 2033</a>	Installation of Polyethylene pipe systems
<a href="#">AS/NZS 2566.1</a>	Buried Flexible Pipelines - Structural Design
<a href="#">AS/NZS 2566.2</a>	Buried Flexible Pipelines - Installation
<a href="#">NZS 3104</a>	Specification for concrete production
<a href="#">AS/NZS 3500.2</a>	Plumbing and drainage - Sanitary plumbing and drainage
<a href="#">AS/NZS 4058</a>	Precast concrete pipe (pressure & non pressure)
<a href="#">NZS 4229</a>	Concrete masonry buildings not requiring specific engineering design
<a href="#">AS/NZS 4671</a>	Steel reinforcing materials
<a href="#">AS/NZS 5065</a>	Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications
BS EN 1124 .1	Pipes and fitting of longitudinally welded stainless steel pipes with spigot and socket for waste water systems. Requirements, testing, quality control.
BS EN 1124 .2	Pipes and fitting of longitudinally welded stainless steel pipes with spigot and socket for waste water systems. System S, forms and dimensions.

### Performance

#### 1.2 TESTING

Confirm timing before carrying out any tests. Supply potable water and apparatus needed. Test to [NZBC G13/AS2,6.1](#) Testing or [AS/NZS 3500.2](#), section 15 Testing of Sanitary Plumbing and Sanitary Drainage Installations, as required. Carry out and record a visual inspection that each joint showed no evidence of leaks.

## 2 PRODUCTS

### Materials

#### 2.1 REINFORCING STEEL

Plain round and/or deformed steel bars, Grade 300 to [AS/NZS 4671](#).

#### 2.2 CONCRETE PIPES

Precast concrete to [AS/NZS 4058](#).

#### 2.3 PVC-U PIPES AND FITTINGS

Unplasticised PVC pipe and fittings to [AS/NZS 1260](#), buried pipes classified as follows:

Classification	Use
SN4 - SN6	Domestic & light load areas
SN8 - SN10	Commercial & Industrial medium load areas
SN16	Public roads & high load areas

**2.4 POLYETHYLENE PIPES AND FITTINGS**

Polyethylene pipe and fittings to [AS/NZS 5065](#).

**2.5 GULLY TRAPS - NZBC G13/AS2**

Gully traps complete with grating to [NZBC G13/AS2](#), 3.3 Gully traps.

**2.6 INSPECTION CHAMBERS - NZBC G13/AS2**

Circular precast concrete or plastic to [NZBC G13/AS2](#), 5.7 Access points, complete with cast iron lid and frame. All joints watertight (base/pipes, base/riser, riser/riser, riser/lid, lid throat and throat/frame). Use epoxy mortar joints in concrete chambers. Use ring seals in plastic chambers.

**Accessories****2.7 TRENCH BACKFILLING MATERIAL - NZBC G13/AS2**

Bedding and backfilling material to [NZBC G13/AS2](#), 2.0 Materials, or methods shown in [NZBC G13/AS2](#), figure 7, Bedding and backfilling.

**2.8 TRENCH BACKFILLING MATERIAL - AS/NZS 3500.2**

Bedding and backfilling material to [AS/NZS 3500.2](#), 5.4, Bedding of drains, and for concrete, if required, [AS/NZS 3500.2](#), 5.3 Concrete Support.

**2.9 CONCRETE**

To [NZS 3104](#).

Prescribed mix 17.5 For in situ bases, anchors and pipe surrounds.

MPa:

Prescribed mix 14 For bedding only.

MPa:

**3 EXECUTION****Conditions****3.1 EXECUTION GENERALLY - NZBC G13/AS2**

Carry out this work to [NZBC G13/AS2](#) and [NZBC G1/AS1](#) and complete all tests to G13/AS2, 6.1 Testing.

**Bedding, backfilling and encasement****3.2 TRENCH BACKFILLING GENERALLY - FOUL & SURFACE WATER**

Granular bedding and selected fill shall be placed in layers no greater than 100 mm loose thickness and compacted. Base bedding (beneath the pipe) shall be placed and compacted before pipes are laid. Up to 300mm above the pipe, compaction shall be by tamping by hand tool over the entire surface of each layer to produce a compact layer without obvious voids, without disturbing or distorting the drain. Run marker tape along line of the pipe on top of the bedding.

More than 300 mm above the pipe, compaction shall be by at least four passes of a mechanical tamping foot compactor (whacker type) with a minimum weight of 75 kg. For plastic based pipes, ensure care taken to avoid impact loading of the pipe.

**3.3 FOUL WATER TRENCH BACKFILLING - NZBC G13/AS2**

Carry out foul water trench backfilling to [NZBC G13/AS2](#), 5.3 to 5.5 and fig 7.

UPVC pipe to [AS/NZS 2032](#) and polyethylene pipes to [AS/NZS 2033](#).

**3.4 FOUL WATER TRENCH BACKFILLING - AS/NZS 3500.2**

Carry out foul water trench backfilling to [AS/NZS 3500.2](#), 5.1, 5.2 and 5.5 as modified by [NZBC G13/AS3](#).

UPVC pipe to [AS/NZS 2032](#) and polyethylene pipes to [AS/NZS 2033](#).

**3.5 CONCRETE ENCASEMENT**

Concrete encase shallow drains and drains under driveways, on a 100mm deep 17.5 MPa concrete bed reinforced with three 10mm mild steel bars. Surround pipes with a polythene membrane to allow movement and encase in 100mm 17.5 MPa concrete.

**Application**

### 3.6 SETTING OUT

Use string line, boning rod or laser equipment methods. Use surveying and levelling equipment to accurately set out design invert levels.

### 3.7 LAYING AND JOINTING

Lay in straight lines between changes of line or grade from the lower end of the drain with sockets pointing uphill. Set each pipe true to line and grade and each joint completed before the next pipe is laid. Install PVC-U pipes to [AS/NZS 2032](#) or [AS/NZS 2566.1](#) and [AS/NZS 2566.2](#). Install polyethylene Pipes to [AS/NZS 2033](#). Cap ends of uncompleted runs each day to prevent entry of foreign matter. Test drains and backfill progressively to minimise site disruption. Concrete cap trenches to drains with less than 375mm cover.

### 3.8 LAYING FOUL WATER DRAINS

Lay the drainage system from soil stacks and gully traps, including access chambers, inspection chambers, bends, junction inspections, and vents (fresh air inlets). Discharge into the network utility operator foul water system to their requirements.

### 3.9 DIFFERENTIAL SETTLEMENT

Provide flexible jointing, bedding and surrounding of pipes at junctions with manholes, foundation walls and other points where differential settlement may occur.

#### **Application - fittings**

#### 3.10 CONSTRUCT GULLY TRAPS - NZBC G13/AS2

Set in a minimum 75mm thick concrete with top surround 25mm above paving and 100mm above other surfaces, to [NZBC G13/AS2](#), 3.3 Gully traps.

#### 3.11 CONSTRUCT INSPECTION CHAMBERS - NZBC G13/AS2

Construct as detailed on a poured concrete footing to [NZBC G13/AS2](#), 5.7 Access points. Provide all necessary haunching to channels.

#### **Application - connections**

#### 3.12 CONNECTION TO FOUL WATER - PUBLIC MAINS

Locate, excavate and expose the existing drain, connect new pipework to existing drain to the requirements of the network utility operator.

#### 3.13 CONNECTION TO FOUL WATER - PUBLIC MAINS ACCESS CHAMBER

Locate, excavate and break into the existing chamber, modify as necessary and connect new pipes to the requirements of the network utility operator.

## 4 SELECTIONS

### 4.1 GULLY TRAPS

Manufacturer: TBC  
Material: TBC  
Type: TBC

### 4.2 INSPECTION CHAMBERS - NZBC G13/AS2

Diameter: TBC  
Type: TBC

# 7556E ESCEA WOOD FIRES

## 1 GENERAL

This section relates to the supply and installation of Escea wood fires.  
It includes;

- Indoor Escea wood fires

### 1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

AAC	Autoclaved Aerated Concrete
NES	<a href="#">Resource Management (National Environmental Standards for Air Quality) Regulations 2004</a>
ECAN	Environment Canterbury
GRC	Glass Reinforced Concrete
LEB	Low Emission Burner(to <a href="#">AS/NZS 4012</a> & <a href="#">AS/NZS 4013</a> , emissions ≤ 1.5 g/kg, efficiency ≥ 65%)
CM1	<a href="#">ECAN</a> Canterbury Method 1 for testing of ultra-low emission wood burners
NCC	Nelson City Council
SFAIT	Solid Fuel Appliance Installation Technician

### Documents

### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

<a href="#">NZBC B2/AS1</a>	Durability
<a href="#">AS/NZS 2918</a>	Domestic solid fuel burning appliances-Installation
<a href="#">AS/NZS 4012</a>	Domestic solid fuel burning appliances - Method for determination of power output and efficiency
<a href="#">AS/NZS 4013</a>	Domestic solid fuel burning appliances - Method for determination of flue gas emission
<a href="#">Resource Management (National Environmental Standards for Air Quality) Regulations 2004</a> (NES)	
<a href="#">ECAN</a> Canterbury Method 1 for testing of ultra-low emission wood burners (CM1)	

### 1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:

- Escea TFS650-1000 Installation Manual

Manufacturer/supplier contact details

Company:	Escea Ltd
Web:	<a href="http://www.escea.com/nz">www.escea.com/nz</a> <a href="http://www.sparthermfires.co.nz">www.sparthermfires.co.nz</a>
Telephone:	0800 173 000 / 03 478 8220

### Warranties

### 1.4 WARRANTY - INSTALLER

Provide an installer/applicator warranty:  
2 year: TBC for installation

- Provide this warranty on the installer 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 - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:  
5 year: Escea Firebox Warranty

1 year: Escea Total Warranty

Refer to the general section 1237 WARRANTIES for additional requirements.

- Provide the warranty in the manufacturer's standard form
- Commence the warranty from date of purchase

## Requirements

### 1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Escea or Spartherm products, or associated products, components or accessories listed in this section.

### 1.7 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

Workers to be approved by supplier. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

### 1.8 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of the following general operation and maintenance information as electronic PDF format documents:

Provide this information prior to practical completion.

## Performance

### 1.9 COMPLIANCE WITH STANDARDS

Solid fuel-burning appliances installed to [AS/NZS 2918](#). Where required by the regulatory authority, the appliance to comply with the requirements of [AS/NZS 4012](#) and [AS/NZS 4013](#) or CM1, and be fitted with a compliance plate marked 'Tested to [AS/NZS 4012](#) and [AS/NZS 4013](#)' or 'Tested to CM1'.

### 1.10 DURABILITY

Solid fuel-burning appliances to be installed to comply with [NZBC B2/AS1](#) Table 1 Durability requirements of nominated building elements.

### 1.11 FINAL INSPECTION AND TEST

Undertake final tests to show the installation complies with [AS/NZS 2918](#) and [AS/NZS 4013](#), and has been tested for leakage and proved to be fully operational.

Carry out testing at the time of completion of installation. Test and demonstrate the system according to manufacturer's specification.

### 1.12 INSPECTIONS

TBC

### 1.13 PRODUCER STATEMENT - INSTALLATION

Provide a producer statement by the installer in the form as required by the Building Consent Authority. The Producer Statement must verify that the design complies with [AS/NZS 2918](#)

Domestic solid fuel burning appliances - Installation, naming the installer and the person responsible for verification of the installation and for the post installation tests.

## 2 PRODUCTS

### Indoor wood fire

#### 2.1 ESCEA INDOOR WOOD FREESTANDING FIRE

Indoor, freestanding, glass fronted wood fire with direct vent flue system. Combustion air is directed to the firebox through double lined flue system from outside the building. Refer to SELECTIONS.

### Components

#### 2.2 ESCEA INDOOR WOOD FREESTANDING FLUE KIT CLASSIC

Freestanding twin skin flue kit, minimum length of 4.5m from fireplace to flue exit. A 250mm Ø liner extends from 100mm above the roofline to the flue cowl. Exterior face of flue kit finished in black.

#### 2.3 ESCEA INDOOR WOOD DESIGNER FLUE SHROUD

Cylindrical perforated designer flue shroud. Refer to SELECTIONS.

- 2.4 ESCEA INDOOR WOOD FLUE EXTENSION  
Flue extension, available in 1.2m lengths as double skin or triple skin variants. Refer to SELECTIONS.
- 2.5 ESCEA INDOOR WOOD FLUE OFFSET  
45° flue offset, available as double skin or triple skin variants. Refer to SELECTIONS.
- 2.6 ESCEA INDOOR WOOD FIRE FREESTANDING BASE / PLINTH  
Freestanding base plinth available in GRC or sheet metal. Refer to SELECTIONS.

### 3 EXECUTION

#### Conditions

- 3.1 GENERALLY  
Carry out the whole of this work to the requirements of [AS/NZS 2918](#).
- 3.2 CO-ORDINATE SERVICES  
Co-ordinate and co-operate with other sub-trades to avoid any conflict with the installation.

#### Application

- 3.3 HANDLE AND STORE  
Handle and store units, fittings and accessories to avoid damage. Store on site, under cover on a clean level area, stacked to eliminate movement and away from work in progress. Store according to manufacturer's instructions.
- 3.4 CORROSION  
Separate all metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips. Provide regular maintenance of outdoor products to prevent corrosion.

#### Installation

- 3.5 SEISMIC RESTRAINT - ESCEA  
Escea Wood Fires are to be securely restrained through the base of the appliance into a structural floor or base component using mechanical fixings. Fire to be installed onto a continuous base. Refer to the requisite Escea Installation Manual.
- 3.6 INSTALL INDOOR FREESTANDING WOOD FIRE – ESCEA  
Install indoor freestanding fireplace and non-combustible floor protector with fixings in accordance with Escea installation instructions.
- 3.7 INSTALL SURROUNDS / FASCIAS  
Install surrounds and fascias complete with necessary fittings to manufacturer's installation requirements. Refer to Escea for installation instructions.
- 3.8 INSTALL ESCEA INDOOR WOOD FLUE  
Install indoor wood flue system with fixings and flashings in accordance with Escea installation instructions and [AS/NZS 2918](#).

#### Completion & Commissioning

- 3.9 COMPLETION MATTERS  
Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements.

### 4 SELECTIONS

For further details on selections go to [www.escea.com/nz](http://www.escea.com/nz) or [www.sparthermfires.co.nz](http://www.sparthermfires.co.nz)  
Substitutions are not permitted to the following, unless stated otherwise.

#### Indoor wood burners

## 4.1 ESCEA INDOOR WOOD BURNER – TFS650 FREESTANDING (LEB)

Location/type:	Freestanding
Manufacturer:	Escea
Model:	TFS650
Appliance size:	606mm height x 650mm width x 506mm depth
Viewable glass area:	408mm height x 600mm width
Colour:	Black
Output (avg.):	8kW
Emissions (tested):	0.89g/kg
ECAN number:	CRC242513
Weight:	162kg
Aeration:	Variable
Door type:	Swing door with heat-resistant handle
Flue system:	Triple skinned flue - 150mm/200mm/250mm Ø SS Flue (quantity 2) and GAL liners (quantity 1)
Flue kit:	Escea freestanding wood fire classic flue kit
Designer flue shroud:	required
Plinth or base:	Not required
Hearth dimensions:	refer to drawings
Hearth material:	Selected non-combustible material at recommended hearth height -refer to drawings

**Components**

## 4.2 ESCEA INDOOR WOOD FIRE FREESTANDING FLUE KIT

Location/type:	Roof or chimney cap
Manufacturer:	Escea
Model:	Freestanding wood fire classic flue kit
Exhaust flue:	1200mm length x 150mm Ø stainless steel
Intake flue:	1200mm length x 200mm Ø black
Flue casing:	1200mm length x 250mm Ø galvanized steel
Cowl:	325mm Ø stainless steel anti-downdraught cowl
Casing cover:	915mm length x 150-325mm Ø stainless steel tapered casing cover
Flue kit length:	4.5m
Flue offsets:	not required

## 4.3 ESCEA INDOOR WOOD DESIGNER FLUE SHROUD

Location/type:	Roof or chimney cap
Manufacturer:	Escea
Model:	Wood fire designer flue shroud
Upper shroud:	1365mm length x 325mm Ø
Lower shroud:	1200mm length x 325mm Ø
Flue shroud finish:	Black

## 4.4 CHIMNEY FLUE FLASHING

Size:	To suit flue material
Material:	refer to details

**Accessories**

## 4.5 ESCEA INDOOR WOOD FIRE DOUBLE SKIN FLUE EXTENSION

Location/quantity:	refer to drawings, verify on site
Manufacturer:	Escea
Model:	Double skin flue extension 1.2m
Colour:	Stainless steel/galvanized steel
Size:	1200mm length x 150mm Ø stainless steel flue 1200mm length x 200mm Ø black liner

# 7612 RESIDENTIAL EXTRACT SYSTEMS

## 1 GENERAL

This section relates to the supply and installation of extract systems for residential applications. It includes:

- Kitchen extract systems
- Bathroom and laundry extract systems

### Documents

#### 1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">NZBC E3/AS1</a>	Internal moisture
<a href="#">NZBC G4/AS1</a>	Ventilation
<a href="#">AS/NZS 3000</a>	Electrical installations (known as the Australian/New Zealand Wiring Rules)
<a href="#">AS/NZS 60335.1</a>	Household and similar electrical appliances - Safety - General requirements

Electricity (Safety) Regulations 2010 (Reprint as at 21 January 2019).

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

#### 1.2 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:  
TBC years                      For TBC

- 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.

#### 1.3 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:  
TBC years                      For TBC

- 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

#### 1.4 CO-ORDINATE WORK

Co-ordinate all items with the main contractor, in particular cutting of penetrations and waterproofing. Exterior penetrations to [NZBC E2/AS1](#) as consistent with the project requirements.

#### 1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

#### 1.6 ELECTRICAL QUALIFICATION

Registered electrician to carry out work to Electricity (Safety) Regulations 2010.

#### 1.7 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

#### 1.8 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1234 DOCUMENTATION for provision of the following general operation and maintenance information as electronic PDF format documents:

Provide this information prior to practical completion.

## 1.9 EXTRACT FLOW RATES

To [NZBC G4/AS1](#).

Extract fans (including associated ducts) to have a minimum flow rate of:

- 50 L/s for showers and baths
- 100 L/s for cooktops
- Refer to drawings

### Compliance information

## 1.10 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Manufacturer, importers or distributors warranty
- Installer warranty
- Other information required by the BCA in the Building Consent Approval documents.

## 2 PRODUCTS

### Kitchen extract systems

#### 2.1 KITCHEN RANGEHOOD EXTRACT - TO EXTERIOR WALL / SOFFIT

Mechanical rangehood extract system comprised of rangehood canopy, extract fan, filters, lighting, controls, metal ducting, solid duct wall sleeve, exterior grille and weatherproof cowl. Refer to SELECTIONS for options.

### Bathroom and laundry extract systems

#### 2.2 WALL MOUNTED FAN, DUCTED TO EXTERIOR WALL / SOFFIT

Mechanical fan ducted system comprised of wall fan, solid duct sleeve sloped to remove condensation, exterior weatherproof grille and flashing. Refer to SELECTIONS for options.

#### 2.3 LAUNDRY DRYER VENT, DUCTED TO EXTERIOR WALL

Laundry dryer vent comprised of, filter, metal ducting, exterior weatherproof grille and flashing. Refer to SELECTIONS for options.

### Component

#### 2.4 ELECTRICAL FAN SWITCH

Independent switch connected to socket outlet located near fan / unit. Refer to SELECTIONS for run on timer requirements.

## 3 EXECUTION

### Conditions

#### 3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.

#### 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.

### Installation - mechanical ventilation

#### 3.3 INSTALL KITCHEN RANGEHOOD

Install rangehood to [AS/NZS 3000](#), [AS/NZS 60335.1](#) and manufacturer installation instructions. Connect unit with ducting to exit either through roof or exterior wall / soffit. Plug into electrical socket.

- 3.4 **INSTALL BATHROOM / TOILET / LAUNDRY EXTRACT FANS**  
Install exterior ducted fans to manufacturer requirements to [AS/NZS 3000](#) and [NZBC G4/AS1](#). Duct through to roof or exterior wall / soffit. Plug into electrical socket.
- 3.5 **INSTALL LAUNDRY DRYER VENT, DUCTED TO EXTERIOR WALL**  
Install exterior ducted fans to manufacturer requirements.
- 3.6 **INSULATION CLEARANCE**  
Provide 50mm clearance between insulation and motor unit / electrical enclosure. Insulation can abut ducts.
- 3.7 **ELECTRICAL INSTALLATION**  
Install switch and socket outlets to [AS/NZS 3000](#) and [AS/NZS 60335.1](#). Refer to electrical section(s) for requirements.

### **Completion & commissioning**

- 3.8 **COMPLETION MATTERS**  
Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements.
- 3.9 **COMPLETION - TESTS & CERTIFICATION**  
Refer to 1270 CONSTRUCTION for general test and certification requirements at completion.

## **4 SELECTIONS**

### **Kitchen extract systems**

- 4.1 **KITCHEN RANGEHOOD EXTRACT - TO EXTERIOR WALL / SOFFIT**
- |                        |                   |
|------------------------|-------------------|
| Location:              | Refer to drawings |
| Manufacturer:          | TBC               |
| Product/model:         | TBC               |
| Duct type/size:        | TBC               |
| Cladding:              | Brick veneer      |
| Wall grille type/size: | TBC               |

### **Bathroom and laundry extract systems**

- 4.2 **WALL MOUNTED FAN, DUCTED TO EXTERIOR WALL / SOFFIT**
- |                   |                                       |
|-------------------|---------------------------------------|
| Location:         | Refer to drawings                     |
| Manufacturer:     | TBC                                   |
| Product/model:    | TBC                                   |
| Fan type/size:    | TBC                                   |
| Switch type:      | TBC                                   |
| Duct type/size:   | TBC                                   |
| Grille type/size: | TBC                                   |
| Cladding:         | Cedar vertical board and brick veneer |
- 4.3 **LAUNDRY DRYER VENT, DUCTED TO EXTERIOR WALL**
- |                   |                            |
|-------------------|----------------------------|
| Location:         | Refer to drawings          |
| Manufacturer:     | TBC                        |
| Product/model:    | TBC                        |
| Duct type/size:   | TBC                        |
| Grille type/size: | TBC                        |
| Cladding:         | Brick veneer               |
| Flashing:         | To suit specified cladding |

## 7673 SPLIT UNIT HEAT PUMP SYSTEMS

### 1 GENERAL

This section relates to heat pump air conditioning systems.

#### 1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

L10 :	Centile Level, sound level that is equalled or exceeded for 10% of the time.
HFC:	Hydro-fluorocarbon
mm Hg:	mm mercury - unit of pressure
NIWA	National Institute of Water and Atmospheric Research
ASHRAE	American Society of Heating and Air Conditioning Engineers
IRHACE	Institute of Refrigeration, Heating and Air Conditioning Engineers

#### Documents

#### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

<a href="#">NZBC E2/AS1</a>	External Moisture
<a href="#">NZBC G4/AS1</a>	Ventilation
AS 1324.2	Air filters for use in general ventilation and air conditioning - methods of test
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS/NZS 1571	Copper - seamless tubes for air conditioning and refrigeration
<a href="#">AS/NZS 2107</a>	Acoustics - Recommended design sound levels and reverberation times for building interiors
<a href="#">AS/NZS 3666.1</a>	Air handling and water systems of buildings - Microbial control - Design, installation and commissioning
AS/NZS 3823.1.1	Performance of electrical appliances - Airconditioners and heat pumps - Part 1.1: Non-ducted airconditioners and heat pumps - Testing and rating for performance
AS/NZS 3823.1.2	Performance of electrical appliances - Airconditioners and heat pumps - Part 1.2: Ducted airconditioners and air-to-air heat pumps - Testing and rating for performance
AS/NZS 3823.2	Performance of electrical appliances - Air conditioners and heat pumps - Energy labelling and minimum energy performance standard (MEPS) requirements
AS 4254.1	Ductwork for air handling systems in buildings - Flexible duct
<a href="#">NZS 4303</a>	Ventilation for acceptable indoor air quality
AIRAH DA9, ASHRAE or Carrier	Manual calculation methods
ACADS-BSG Camel, Carrier E20	Electronic calculation methods

#### Warranties

#### 1.3 WARRANTY - INSTALLER/APPLICATOR

Installer's warranty for the system under normal environmental and use conditions against failure.

TBC years                      Execution warranty

Provide this warranty on the installer's standard form.

#### 1.4 WARRANTY - MANUFACTURER/SUPPLIER

Manufacturer's warranty for the system under normal environmental and use conditions against failure.

TBC years:                      Warranty

Provide this warranty on the manufacturer's standard form.

## Requirements

### 1.5 CO-ORDINATE WORK

Co-ordinate all items with the main contractor, in particular cutting of penetrations and waterproofing. Exterior penetrations to [NZBC E2/AS1](#) as consistent with the project requirements.

### 1.6 DRAWINGS AND BROCHURES

Submit, on request for review drawings and brochures of units, grilles and any other elements that affect the interior finishes.

### 1.7 QUALIFICATIONS

Work to be carried out by approved trades people, qualified, experienced, competent and familiar with the equipment, systems, materials and techniques specified.

Handling or recovering refrigerant to be carried out by the appropriate Approved Filler and/or Handler, with a test certificate under the HNSO Act.

### 1.8 AIR CONDITIONING LOAD CALCULATIONS

General: Calculate the cooling and heating loads using one of the following:

- Manual methods: AIRAH DA9, ASHRAE or Carrier.
- Electronic methods: ACADS-BSG Camel, or Carrier E20

### 1.9 AIR CONDITIONING DESIGN BASIS

#### General

Outside design conditions: Use outdoor design conditions listed in publications from NIWA, ASHRAE, IRHACE or other reliable sources for weather data, for the location geographically closest and most relevant to the site.

#### Inside design conditions

Summer: 22°C dry bulb, 50% relative humidity.

Winter: 21°C dry bulb.

Limit the temperature difference in air conditioned spaces served by the same zone or system to  $\pm 1.5^\circ\text{C}$  when measured:

- Between any 2 points in the space from floor level to 1500mm above floor level, > 2000mm from cooking equipment and > 1000mm from any other appliance.
- When outside conditions are in the range specified above.
- After the plant has been operating for one hour.
- In the same 5 minute period.

Divide the systems into temperature controlled zones to meet the specified permissible temperature variation and documented system divisions.

Where ventilation requirements are not met by natural means and do not comply with [NZBC G4/AS1](#), supply fresh air to spaces with air conditioning systems via the air handling system, or separate mechanical ventilation system in accordance with [NZS 4303](#).

#### Heating

Reverse cycle.

#### Building Enclosure

Refer to drawings for construction of windows, walls, floors, roofs and insulation.

External window            Type: refer to drawings  
shading:

Internal window            Type: refer to drawings  
shading:

#### Noise

Indoor noise emitted - to [AS/NZS 2107](#), depending on space served, occupancy and activity.

Noise received in all habitable rooms shall not exceed that permitted by the applicable Territorial Authority for the time of day or day of the week for the zoning of the site. Not more than L10: 35dbA between 2300 and 0700 hours. This shall apply to both the property in question and the neighbouring properties.

#### 1.10 SHOP DRAWINGS

Refer to the general section 1235 SHOP DRAWINGS for the requirements for submission and review and the provision of final shop drawings.

Provide shop drawings to show the general arrangement including, but not be limited to:

- general location and layout drawings, and installation details of units, pipes, ducts and grilles

Submit shop drawings for review to client

- 5 working days (at least) before fabrication is planned to commence, provide shop drawings for review.
- Complete shop drawing review before commencing fabrication.

#### 1.11 INFORMATION FOR OPERATION AND MAINTENANCE

Provide the following general operation and maintenance information as electronic PDF format documents:

All units, filters, controls, pumps, traps, drain trays, refrigerant

#### 1.12 MAINTENANCE CONTRACT PROPOSAL

Provide a proposed contract for the ongoing servicing of the heat pump system. Refer to SELECTIONS.

## 2 PRODUCTS

### Material

#### 2.1 REVERSE CYCLE UNITS

Split system heat pumps shall meet the requirements of AS/NZS 3823.1.1 and AS/NZS 3823.1.2 with minimum energy performance standards (MEPS) in accordance with AS/NZS 3823.2. Provide effective outdoor coil defrost facility that prevents room temperature dropping more than 2°C during defrost.

#### 2.2 CABINETS

Aluminium, powder coated steel or moulded acrylonitrile-butadiene-styrene (ABS) plastic with zinc - coated steel or stainless steel fasteners. Insulate and vapour seal cabinet and drain trays to prevent external condensation under all operating conditions.

#### 2.3 DRAIN TRAYS

Aluminium, stainless steel or plastic to collect all moisture inside indoor and outdoor units.

#### 2.4 FILTERS

Washable panel type.( 85% of arrestance when tested to AS 1324.2, Test Dust No.4 or Class EU2 rated.

#### 2.5 COILS

Copper tube with aluminium plate fins.

#### 2.6 CONTROLS

Provide as a minimum the following functions:

- Temperature control for each zone located to accurately sense zone temperature.
- Fan speed selection for multi and variable speed fans.
- Day/night zone changeover if scheduled.
- Time switch for each system with ( 6 temperature programs per day, separate programs for each day of the week, manual set point over ride and 'Vacation' or 'Holiday' temperature set back.

#### 2.7 DUCTS

Metallic-coated sheet steel to AS 1397, coating class G2/Z275.

Flexible ducting shall be metallized fabric clamped on formed metal helix with polyester insulation blanket wrapped around duct and covered with an outer vapour barrier.

- 2.8 REFRIGERATION PIPEWORK KIT  
Split system manufacturer's standard pre-charged piping kit.
- 2.9 REFRIGERATION PIPEWORK CUSTOM  
Copper tubing, de-oxidised seamless refrigeration quality, either half hard or soft drawn. Jointing shall be brazed or flared connections to equipment.
- 2.10 REFRIGERANT  
Refrigerant HFC type with no phase out date, such as R410a or R407a, unless approved otherwise.

### 3 EXECUTION

#### Conditions

- 3.1 DELIVERY  
Keep materials and equipment dry in transit. Take delivery of materials and equipment in an undamaged condition. Reject all damaged materials.
- 3.2 STORAGE  
Store materials and accessories on a level, firm base, in dry conditions, out of direct sunlight and completely protected from weather and damage. Ensure storage areas are away from current work areas. Cover to keep dry until installed.
- 3.3 CONFIRM LAYOUT  
Before commencing work confirm the proposed location of pipes, ducts and controls.
- 3.4 CONCEALED PIPING  
All refrigeration and condensate piping shall be concealed within the building structure unless stated otherwise.
- 3.5 CO-ORDINATE SERVICES  
Co-ordinate and co-operate with other sub-trades to avoid any conflict with the installation of the system with other subcontractors work.
- 3.6 PROTECT SURFACES  
Protect surfaces, equipment and finishes already in place from the possibility of damage during the installation process.

#### Application

- 3.7 INSTALLATION DUCTWORK  
Install flexible duct as straight as possible with minimum number of bends. Maximise bend radius. Check for and rectify any crushed flexible duct. Install and support to AS 4254.1,2,5, limit sag to < 40mm/m.  
  
Insulate ducts to reduce heat gain and prevent condensation. Provide continuous vapour barrier around ducts carrying conditioned air. Insulate flexible connections on ducts carrying air below ambient temperature.  
  
Clean interior of ductwork progressively during installation.
- 3.8 INSTALLATION PIPE WORK  
Install general pipe work to AS/NZS 1571  
  
Purge the system at all times with dry nitrogen when brazing or heating pipework.  
  
Pipes to be installed to manufacturer's requirements, adequately supported, also arranged and sized to prevent excessive pressure drop and ensure correct circulation of refrigerant and oil.  
  
All refrigeration pipework test to 1800 kPa.  
  
Insulate all refrigerant and drain piping that may sweat with chemically blown closed cell elastomeric insulation. Suction lines are to be insulated over the entire length between connections to indoor and outdoor units. Protect insulation from sunlight and mechanical damage.  
Insulation thickness: 13mm for pipes < DN 20, 19mm otherwise.

Provide trapped ( DN 20 condensate drains to [AS/NZS 3666.1](#) from each indoor coil and safety tray, to an approved drain point. Provide drains from each reverse cycle outdoor coil unless casing freely drains to a roof or other location where condensate will not cause damage or pond.

### 3.9 INSTALLATION UNIT

Provide clearance around outdoor units for condenser air flow and maintenance access, to manufacturer's requirements. Ensure discharge air does not short-circuit to condenser intake. For equipment at ground level, ensure they are mounted on 100mm level concrete plinth or equivalent impervious material.

Provide internal or external flexible duct connections at indoor unit.

For vibration isolation of suspended units, provide ( 4 metal spring or rubber-in - shear isolation mountings with ( 25mm static deflection and 98% isolation efficiency. For floor mounted units, provide neoprene waffle pads. Bolt in place.

If leaks or condensation from equipment could cause nuisance or damage to the building or its contents provide a galvanized steel safety tray under the equipment.

### 3.10 INSTALLATION REFRIGERANT

The completed system including all pipework, to be evacuated to 0.2mm Hg or better with a vacuum pump and maintained at this pressure for 2 hours, then broken with refrigerant.

#### **Completion**

### 3.11 COMMISSIONING

Commission the systems to manufacturer's recommendations using instruments calibrated in the last 12 months. Submit signed commissioning check list on completion.

### 3.12 CLEANING

Clean filters, outdoor coils, grilles and diffusers.

Remove debris, unused materials and elements from the site. Clean soiled or marked work.

Replace damaged, cracked or marked elements. Leave the whole of this work to the standard required by following procedures.

### 3.13 PROTECT

Protect new work from damage.

## **4 SELECTIONS**

### 4.1 SPLIT UNIT HEAT PUMP MANUFACTURER / MODEL

Manufacturer:	TBC
Indoor Unit Model:	For locations listed below refer to drawings LG: located in laundry bulkhead ducted to Media room L1: Cassette 4 way located between kitchen and living L2: Cassette in ceiling rafter space in Main Bedrm 1 Minor Dwelling: Cassette in ceiling rafter space in Living / Dining
Outdoor Unit Model:	TBC for location refer to drawings

### 4.2 MAINTENANCE CONTRACT PROPOSAL

Contract to commence from:	TBC
Contract period:	1 year

### 4.3 SPLIT UNIT HEAT PUMP SUPPLY DIFFUSERS

Type:	TBC
Material:	TBC
Finish and colour:	TBC

### 4.4 SPLIT UNIT HEAT PUMP RETURN AIR GRILLE

Type:	TBC
Material:	TBC
Finish and colour:	TBC

## 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
- 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 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

#### 1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">NZBC F6/AS1</a>	Visibility in escape routes
<a href="#">NZBC F8/AS1</a>	Signs
<a href="#">NZBC G4/AS1</a>	Ventilation
<a href="#">NZBC G9/AS1</a>	Electricity
<a href="#">AS/NZS 1125</a>	Conductors in insulated electric cables and flexible cord
<a href="#">AS/NZS 1768</a>	Lightning protection
<a href="#">AS/NZS 2053.2</a>	Conduits and fittings for electrical installations - Rigid plain conduits and fittings of insulated material
<a href="#">AS/NZS 2201.1</a>	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
<a href="#">AS 2293.1:2005</a>	Emergency escape lighting and exit signs for buildings - System design, installation and operation
<a href="#">AS 2293.3:2005</a>	Emergency escape lighting and exit signs for buildings - Emergency escape luminaires and exit signs

<a href="#">AS/NZS 3000</a>	Electrical installations (known as the Australian/New Zealand Wiring Rules)
<a href="#">AS/NZS 3008.1.2</a>	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical New Zealand installation conditions
<a href="#">AS/NZS 3100</a>	Approval and test specification-general requirements for electrical equipment
<a href="#">AS/NZS 3112</a>	Approval and test specification - Plugs and socket-outlets
<a href="#">AS/NZS 3113</a>	Approval and test specification - Ceiling roses
<a href="#">AS/NZS 3190</a>	Approval and test specification - Residual current devices (current-operated earth-leakage devices)
<a href="#">AS/NZS 3439.1</a>	Low voltage switchgear and controlgear assemblies - Type-tested and partially type-tested assemblies
<a href="#">AS/NZS 3439.3</a>	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
<a href="#">AS 3786</a>	Smoke alarms using scattered light, transmitted light or ionization
<a href="#">NZS 4219</a>	Seismic performance of engineering systems in buildings
<a href="#">NZS 4514</a>	Interconnected smoke alarms for houses
<a href="#">NZS 4246</a>	Energy efficiency - installing bulk thermal insulation in residential buildings
<a href="#">AS/NZS 5000.2</a>	Electric cables - Polymeric insulated - for working voltages up to and including 450/750v
<a href="#">AS/NZS 5139</a>	Electrical installations - Safety of battery system for use with power conversion equipment
<a href="#">AS/NZS 60335.1</a>	Household and similar electrical appliances - Safety - General requirements
<a href="#">AS/NZS 60695.11.5</a>	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance.
<a href="#">AS/NZS 61439.1</a>	Low-voltage switchgear and controlgear assemblies - Part 1: General rules.
<a href="#">AS/NZS 61439.3</a>	Low-voltage switchgear and controlgear assemblies - Part 3: Distribution boards intended to be operated by ordinary persons (DBO).
<a href="#">IEC 61643</a>	Low-voltage surge protective devices
Electricity (Safety) Regulations 2010 (Reprint as at 21 January 2019).	
<a href="#">TCF Premises Wiring Cable Installers Guidelines for Telecommunication Services</a>	

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

### 1.3 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

### 1.4 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.

### 1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications. Carry out work under the supervision of an electrical licensed supervisor.

**1.6 CONFIRM SELECTIONS**

Confirm selections of all outlet fittings and hardware with the owner in writing before ordering.

**1.7 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.

**1.8 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.

**1.9 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.

**1.10 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.

**1.11 PRODUCER STATEMENTS**

Provide a 'producer statement - design' and 'producer statement - construction' to the satisfaction of the Building Consent Authority, for the complete electrical installation.

**1.12 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****1.13 INSPECTIONS**

Coordinate with COMPLETION - TESTS & CERTIFICATION and/or COMMISSIONING - TESTS & CERTIFICATION	
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**2 PRODUCTS****Supply, distribution, and protection****2.1 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.

**2.2 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.

**2.3 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.

**2.4 CABLES**

Tough plastic sheathed copper conductors to [AS/NZS 5000.2](#), stranded above 1.0mm<sup>2</sup>, 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 <sup>2</sup> on 10 amp MCBs
Lighting circuits:	Commercial: 1.5mm <sup>2</sup> on 16 amp MCBs
Power circuits:	2.5mm <sup>2</sup> on 16 amp MCBs for domestic and unenclosed or unfilled cavity construction
	2.5mm <sup>2</sup> on 16 amp MCBs for domestic insulated construction, or filled cavity
	2.5mm <sup>2</sup> on 20 amp MCBs for unenclosed or unfilled cavity construction
	2.5mm <sup>2</sup> on 16 amp MCBs for insulated construction, or filled cavity, or lengths over 30 metres
Hot water cylinder circuits:	Single phase: 2.5mm <sup>2</sup> on 20 amp MCBs
Range/oven/hob circuits:	Single phase: 6mm <sup>2</sup> 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).

## 2.5 SWITCHBOARD - RESIDENTIAL

Manufactured to [AS/NZS 3439.3](#) or AS/NZS 61439.3 and installed in accordance with [AS/NZS 3000](#). Manufactured from engineering grade resin with a glow wire rating of 850°C, complete with neutral and earth busbars, and insulated comb phase bar. Switchboards to have 20% spare capacity for future additions and alterations.  
Refer to SELECTIONS

## 2.6 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.

### Switches & sockets - interior

## 2.7 WALL BOXES

Standard grid size or equivalent to be manufactured from plastic or metal, with 2 or more gang size to be metal with steel inserts for accessory securing screws. Screw fixed.

## 2.8 SWITCH UNITS

Single pole switches to be 16 amp minimum rated, double pole or intermediate to be 16 amp minimum rated. All switches to be 230 Volt a.c. polycarbonate flushplate units. Label all switch units that control electrical equipment or special lighting circuits by proprietary engraved switch mechanisms where applicable.  
Refer to drawings/schedules for number of switches per unit, dimmer units, neon (indicator or toggle) units and 2 way units.  
Refer to SELECTIONS.

## 2.9 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.

## 2.10 SWITCHED SOCKET-OUTLETS - RESIDENTIAL

10 amp minimum, 230 Volt a.c., flat 3 pin socket outlets fitted with safety shutters to [AS/NZS 3112](#) clause 3.12. Socket-outlet manufactured, tested, and approved to [AS/NZS 3112](#), and [AS/NZS 3100](#). Single or multi-gang as detailed.  
For mounting height and orientation, refer to SELECTIONS.

### Lighting subcircuits

## 2.11 LIGHTING SUBCIRCUITS - RESIDENTIAL

Combination fan, light and heater unit, smoke alarms, exhaust and ceiling sweep fans, are included in residential lighting subcircuits with additional protection by RCD to [AS/NZS 3000](#), clause 2.6.3.3.1.

### Light fittings - interior

## 2.12 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.

## 2.13 CEILING ROSES

White plastic mounting base with screwed cover, manufactured to [AS/NZS 3113](#). Terminal type. Suspended fittings to have sheathed round flexible cord to [AS/NZS 3008.1.2](#). Refer to SELECTIONS.

## 2.14 BATTEN HOLDERS

Standard white plastic bayonet cap, with cap angled where wall mounted. Brass liners.

## 2.15 RECESSED LIGHT FITTINGS - RESIDENTIAL

Residential recessed light fittings to [AS/NZS 3000](#), 4.5.2.3.5:

- Existing fittings or retrofit situations, fittings maybe unmarked.
- New fittings can only be labelled - CA 80, CA 90, CA 135, IC, IC-F, & IC-4.

Refer to clause INSULATION & GENERAL CLEARANCES for clearances from insulation and other elements.

### Alarms - residential

## 2.16 FIRE & SMOKE ALARM SYSTEM

Refer to SELECTIONS.

## 2.17 DOOR BELL SYSTEM - RESIDENTIAL

Complete with transformer for mounting on distribution board.

# 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.

## 3.4 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

## 3.5 SWITCHBOARD

Location and installation to [AS/NZS 3000](#) and board manufacturer requirements. Recess into wall, surface or floor mount plumb and level, with seismic restraints to [NZS 4219](#). Ensure fire containment properties of the enclosure are maintained.

## 3.6 CIRCUIT PROTECTION

Install MCBs at switchboard to [AS/NZS 3000](#) to protect each final sub circuit.

## 3.7 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

### 3.8 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.

### 3.9 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.

### 3.10 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.

### 3.11 EARTH LEAKAGE PROTECTION

Install RCD protection to [AS/NZS 3000](#).

### 3.12 RCD - RESIDENTIAL INSTALLATIONS

Install 30mA, Type A, RCD protection at the switchboard for all final sub circuits to control outlets and lighting except for fixed or stationary cooking equipment, to [AS/NZS 3000](#).

### 3.13 RCD-AFDD COMBINED - RESIDENTIAL INSTALLATIONS

Install a 30mA RCD-AFDD combined device (RCD Type II) at the switchboard for all final sub circuits not exceeding 20A, to control and protect outlets and lighting 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](#).

### 3.14 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.

### 3.15 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 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.

### 3.21 ISOLATING SWITCHES

Locate isolating switches in positions as confirmed by the owner, when not specifically shown on the drawings.

### 3.22 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.

### 3.23 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](#).

### 3.24 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.

### 3.25 LIGHT FITTINGS TO INSULATION

Type of fitting	Minimum insulation clearance	Comments
Recessed, marked NON-IC, or unmarked	100mm (increase if over 100W)	To <a href="#">NZS 4246</a> . 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 <a href="#">NZS 4246</a> . Do not cover the fittings.
Recessed, IC, IC-F, or IC-4.	Abut & cover fittings.	To <a href="#">NZS 4246</a> . Ensure insulation complies.
Recessed, marked Do-Not-Cover	Manufacturer clearances	To <a href="#">NZS 4246</a> . Do not cover the fittings.
Independent control gear	Place on top of insulation & 50mm from fittings	To <a href="#">NZS 4246</a> . 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 <a href="#">NZS 4246</a> . Where surface fittings are isolated from insulation by appropriate linings. Excludes high heat fittings.
Surface fittings & exposed insulation	200mm	To <a href="#">NZS 4246</a> . 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.

### 3.26 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 <a href="#">AS/NZS 3000:2018</a>
Marked NON-IC, or unmarked, >100W	200mm, vertical & horizontal	To <a href="#">AS/NZS 3000:2007</a>
CA 80, CA 90 or CA 135	100mm, vertical & horizontal	To <a href="#">AS/NZS 3000:2018</a>
IC, IC-F or IC-4	100mm, horizontal NA, vertical	To <a href="#">AS/NZS 3000:2018</a> To be NA vertical, fitting must be covered by insulation. If not covered use 100mm clearance.
Marked Do-Not-Cover	100mm, vertical & horizontal	To <a href="#">AS/NZS 3000:2018</a> . 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.

### 3.27 ELECTRIC POWERED FITTINGS AND EQUIPMENT

Install and wire fittings and equipment to individual fittings and equipment manufacturer requirements. Refer to the drawings for required layouts and locations for equipment. Refer to SELECTIONS for schedules of fittings.

### 3.28 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.

### 3.29 SEISMIC RESTRAINT

Seismically restrain electrical service equipment, including recessed light fittings, switchboards, cabinets, machinery and racks to [NZS 4219](#).

## Completion & Commissioning

### 3.30 COMPLETION MATTERS

Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements

### 3.31 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 <a href="#">AS/NZS 3000</a> , clause 8.4.
Submit results to:	TBC

### 3.32 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 <a href="#">AS/NZS 3000</a> , clause 8.4.
Submit results to:	TBC

## 4 SELECTIONS

### Materials

#### 4.1 SWITCHBOARD

Location:	Refer to drawings
Brand / type:	TBC
MCB:	TBC
RCCB:	TBC
RCBO:	TBC
RCD	TBC
RCD-AFDD	TBC
AFDD	TBC
Surge protectors:	TBC
Modular contactors:	TBC
Main switch:	TBC
Timers:	TBC
Enclosure type:	TBC

#### 4.2 FIRE & SMOKE ALARM SYSTEM

Refer to appropriate fire and smoke alarm section:

7352 TYPE 1 DOMESTIC SMOKE ALARM SYSTEMS for Type 1 interconnected smoke alarm system for domestic buildings.

### Switch & socket-outlets - fittings

#### 4.3 SWITCHES & SOCKET-OUTLETS - INTERIOR

Item	Height to centre of unit	Orientation	Location
Switch	1000mm above FFL	vertical	Refer to drawings
Switch narrow	1000mm above FFL	vertical	Refer to drawings
Socket outlet	400mm above FFL	horizontal	Refer to drawings
Socket outlet	150mm above bench top	horizontal	Refer to drawings

Item	Brand / type
Switch / socket outlets:	TBC
Coverplate colour:	TBC
Switch module colour:	TBC

Item	Brand / type
Light dimmers:	TBC
Symbol switch:	TBC
PIR sensor switch:	TBC
Toggle switch:	TBC

Item - RCD	Brand / type
Socket outlet:	TBC
Shaver outlet:	TBC

Safety switch:	TBC
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#### 4.4 LIGHT FITTINGS - INTERIOR

All fittings to be selected and confirmed by clients

#### 4.5 MISCELLANEOUS ITEMS

Item	Brand / type
Door bell system:	TBC
Extractor fan:	TBC
Air supply:	TBC
Hand dryer:	TBC
Water heating	TBC

#### 4.6 APPLIANCES

Item	Brand / type
Range:	TBC
Wall oven:	TBC
Cooker top/hob:	TBC
Waste disposal unit:	TBC
Range hood:	TBC

#### 4.7 OWNER SUPPLY ITEMS

Item	Brand / type
TBC	TBC