SPECIFICATION

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

Residence at 49 Dalefield Road

(project name)

49 Dalefield Road, Dalefield, Queenstown, New Zealand

(project address)

(client)

Project Ref:

Date: 16 February 2026

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1220 PROJECT

1 GENERAL

This general section describes the project including:

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

1.1 READ ALL SECTIONS TOGETHER

Read all general sections together with all other sections.

1.2 DESCRIPTION OF THE WORK

Relocation of existing house and construction of new garage.

1.3 RESTRICTED BUILDING WORK

This project includes Restricted Building Work.

Design Construction Safety

1.4 DESIGN CONSTRUCTION SAFETY MATTERS

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

ITEM	COMMENT
Cliff to Centre of Site to the north of the platform.	Risk of fall. Safety precautions to be put into place.

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

Principal's Health & Safety Matters

1.5 PRINCIPAL'S KNOWN SITE HAZARDS

Site hazards known to the principal are:
~

1.6 PRINCIPAL'S SITE HEALTH AND SAFETY PLAN

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

Site

1.7 SITE

The site consists of: A rural site accessed of Dalefield Road.
As shown on drawing: 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 SITE FEATURES

Existing Landscaping trees and Planting including planting to the east protected by a covenant and planting to existing mounding to the south to be protected.
Existing cliff and gilly in the centre of the site to the north of the building platform which is a health and safety risk.

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Site environment - Durability

1.10 EXPOSURE ZONE

The exposure zone is to NZS 3604, Section 4 Durability, 4.2 Exposure zones and NZBC E2/AS1.
The site zone is: Zones are B (Low)

Site environment - Wind

1.11 WIND DESIGN PARAMETERS - NON SPECIFIC DESIGN

The design wind pressures are to NZS 3604, Table 5.4 Determination of wind zone, up to and including Extra High Wind Zone.
Building wind zone Very High/1.55kPa (refer to NZS 3604, table 5.4)

Site environment - Seismic

1.12 EARTHQUAKE ZONE - NON SPECIFIC DESIGN

The zone is to NZS 3604, Section 5 Bracing design, 5.3 Earthquake bracing demand.
The earthquake zone is: Zone 3

Archaeological discovery

1.13 REPORT FINDING ANY ANTIQUITIES AND ITEMS OF VALUE

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

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

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

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1231 CONTRACT

1 GENERAL

This GENERAL section refers to contract related matters.

1.1 EXCEPTIONS TO CONTRACTORS OBLIGATION TO SUPPLY

The Principal is supplying the following for inclusion in the contract works:
Existing villa.

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1232 INTERPRETATION & DEFINITIONS

1 GENERAL

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

Definitions

1.1 DEFINITIONS

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

1.2 PERSONNEL

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

1.3 ABBREVIATIONS

The following abbreviations are used throughout the specification:

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

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

1.4 DEFINED WORDS

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

1.5 WORDS IMPORTING PLURAL AND SINGULAR

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

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:

1237S1 Schedule of Warranties
1238S1 Schedule of As Built Documentation

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.

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1.6 WARRANTIES - REQUIRED BY BUILDING CONSENT AUTHORITY

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

1.7 WARRANTIES - REQUIRED BY CONTRACT

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

1.8 WARRANTIES - SUBMISSION 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.

2 SELECTIONS

Project warranties / guarantees

Weathertightness and watertightness warranty

2.1 WEATHERTIGHTNESS AND WATERTIGHTNESS WARRANTY

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

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

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

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1237S1 SCHEDULE OF WARRANTIES

1 GENERAL

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

1.1 ASSOCIATED SECTIONS

Read in conjunction with:

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

Warranties

1.2 WARRANTIES

Refer to the following sections:

4131VP	Viking Peel & Stick Tanking Membrane
4161T	Kingspan Thermakraft Underlays, Foils, DPC, DPM, & Tapes
4161TH	DriSpace Underlays, DPC & Airtight Systems
4165DV	Drispace Roof Ventilation & Wall Vented Cavity Batten
4239JH	James Hardie® Soffits
4311RI	Roofing Industries Profiled Metal Roofing
6700	Painting General
6711	Painting Exterior
6721	Painting Interior
7112	Water Storage Tanks
7411	Rainwater Spouting Systems
7556E	Escea Wood Fires
7701	Electrical Basic

1.3 PROJECT WARRANTIES

Refer to section 1237 WARRANTIES for project warranties.

1.4 WARRANTIES - ADDITIONAL ITEMS

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

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1237WA WARRANTY AGREEMENT

1 SPECIFICS

1.1 PARTIES TO THE WARRANTY AGREEMENT

Principal: ~
.....

Contractor: ~
.....

Warrantor: ~
.....

1.2 BACKGROUND

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

1.3 LOCATION

Project name: ~
.....

Project address: ~
.....

1.4 WARRANTED WORKS

Warranted works: ~
.....

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

1.5 WARRANTED MATERIALS

Warranted materials: ~
.....

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

2 WARRANTY TERMS

2.1 WORKS ARE AS REQUIRED IN THE CONTRACT

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

2.2 WARRANTY ADDITIONAL TO OTHER OBLIGATIONS

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

2.3 WARRANTOR TO REMEDY DEFECTS

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

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2.4 CARRYING OUT REMEDIAL WORK / REPLACEMENT OF DEFECTIVE MATERIALS

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

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

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

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

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

2.6 PRINCIPAL SHALL CONSIDER REASONABLE PROPOSALS

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

2.7 FAILURE BY WARRANTOR TO PERFORM REMEDIAL WORK

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

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

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

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

2.8 WARRANTOR NOT LIABLE FOR

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

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

2.9 WARRANTY MAY BE ASSIGNED

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

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2.10 DISPUTES

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

3 SIGNATORIES

3.1 SIGNED BY THE WARRANTOR

....
Signed Date

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

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

3.2 SIGNED BY THE PRINCIPAL

....
Signed Date

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

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

3.3 NOTE

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

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1238 AS BUILT DOCUMENTATION

1 GENERAL

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

1.1 SCHEDULE SECTION

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

1.2 AS BUILT DOCUMENT REQUIREMENTS

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

As built drawings recording:

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

Records of:

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

1.3 PROVISIONAL AS BUILT DOCUMENTS

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

1.4 AS BUILT DOCUMENT REVIEW

As built document review indicates only that the reviewer is satisfied that the documents are legible. The review is not a check of the accuracy or completeness of the documents, however the reviewer may comment on any aspect of the documentation and require the documents to be revised and resubmitted. Review of as built documents does not relieve the contractor of responsibility for their correctness.
Where no time is stated in a specific section, allow 10 working days for review by the reviewer. Where a large amount of documentation is involved more time will be necessary.

1.5 COMPLETE AS BUILT DOCUMENTS

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

1.6 AS BUILT DOCUMENTS - ELECTRONIC COPY

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

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

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:

7430 Drainage

1.3 AS BUILT DOCUMENTS - ADDITIONAL ITEMS

Refer to separate documentation for as built documentation 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

~

Site preparation

1.5 SITE ACCESS

Access to the site is limited to: ~

1.6 WORKING AREA

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

1.7 SITE AND SOIL SURVEYS

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

1.8 GROUND CONDITIONS

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

Existing buildings

1.9 ALTERATIONS

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

1.10 TEMPORARY ACCESS

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

Temporary construction

1.11 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.

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1.12 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.

1.13 SITE - SAFETY SIGNAGE

Provide hazard board and other safety signage as required.

1.14 SITE - PROJECT SIGN

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

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

First aid

1.15 FIRST AID EQUIPMENT

Provide first aid equipment.

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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 works - Existing Buildings

1.11 PARTITIONS

Provide and maintain full height temporary partitions, dust sealed and with appropriate access doors, as shown on the drawings ~.

Construct the partitions from;

- timber or steel stud framing to suit the height
- 17mm CD plywood screw fixed to occupied side of wall only
- paint plywood white, occupied side only

1.12 SCREENS

Provide and maintain 2.0m high temporary screens with appropriate access doors, as shown on the drawings ~.

Construct the screens from;

- timber or steel stud framing
- 17mm CD plywood screw fixed to occupied side of wall only

- paint plywood white, occupied side only

1.13 DUST SCREENS

Provide and maintain full height temporary dust screens as shown on the drawings ~.

Construct the screens from;

- dust proof flexible membrane with taped joints
- timber battens for fixing membrane to edges of building fabric

Temporary services

1.14 WATER

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

1.15 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.

1.16 TELEPHONE

Provide on-site temporary telephone facilities.

1.17 COMPUTER FACILITIES

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

1.18 PRINTER

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

1.19 IMAGING

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

Care and protection - existing buildings

1.20 PROTECT EXISTING BUILDINGS

Protect existing buildings and other designated features which are to remain in position during the execution of the works.

1.21 PROTECT ACCESS ROUTES

Protect access routes through the building and areas adjacent to the work area that are to remain in place. These include lifts and stairs. Comply with all fire egress requirements at all times.

1.22 EXISTING FIRE SYSTEMS

Maintain the integrity of the systems at all times. If work requires de-activation of a system, give notice to the relevant Fire and Emergency NZ service. Follow their instructions and reinstate the system to their requirements.

1.23 MAKE GOOD - EXISTING BUILDINGS

Make good all damage to existing buildings caused in carrying out the contract works.

Care and protection - Site

1.24 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.

1.25 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.

1.26 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.

1.27 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.

1.28 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

1.29 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.

1.30 SPECIAL PROTECTION GENERAL

Refer to individual work sections for any special protection requirements.

1.31 SPECIAL PROTECTION PROJECT

~

Care and protection - miscellaneous

1.32 CONSTRUCTION KEYING AND SECURITY

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

1.33 TEMPORARY STORAGE

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

Rubbish removal

1.34 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.

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2210 PREPARATION & GROUNDWORK

1 GENERAL

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

- footings and floor slabs
- backfilling behind basement retaining walls

Documents

1.1 DOCUMENTS

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

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

1.2 SITE SAFETY

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

1.3 ARCHAEOLOGICAL DISCOVERY

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

2 PRODUCTS

2.1 EXCAVATED CLEAN FILL

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

2.2 VOLCANIC TUFF FILL

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

2.3 ROCK FILL

Hard material comprising rock, broken stone, hard brick, concrete, run of pit scoria, or other comparable inert material capable of being placed and compacted as specified.

2.4 SAND FILL

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

2.5 HARD FILL

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

2.6 GRANULAR FILL

Approved screened crushed gravel or scoria, graded in size from 20mm to 7mm, clean. When tested with a standard sieve of 4.75 opening no material is to pass.

2.7 DRESSING COURSE

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

2.8 FREE-DRAINING AGGREGATE

Scoria or crushed gravel graded 50 to 14 clean.

3 EXECUTION

3.1 WASHOUT BAY FOR TRUCK

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

3.2 EXCAVATION GENERALLY

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

3.3 BURNING OF MATERIALS

Burning of materials is not permitted on site.

3.4 PROTECT EXISTING WORK

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

3.5 PROTECT EXISTING TREES, PLANTING, OR LANDSCAPE FEATURES

Protect from damage trees, shrubs, natural site features and existing landscaped areas nominated on the drawings as being retained. Ensure existing levels are undisturbed beneath the dripline of retained trees.

3.6 EROSION CONTROL

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

3.7 SURFACE PREPARATION

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

3.8 STOCKPILE TOPSOIL

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

3.9 GENERAL EXCAVATION

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

3.10 ROCK EXCAVATION

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

3.11 FOUNDATION EXCAVATION

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

3.12 INADEQUATE BEARING

If localised bearing is not to NZS 3604, 3.1.2 **Foundations** and 3.1.3 **Determination of good ground**, then excavate further and backfill with material as follows:

- Below slabs on grade: Hardfill compacted in 150mm layers
- Below footings: 10 MPa concrete

If excavation exceeds the required depths, backfill and compact to the correct level with material as listed.
Confirm any changes with the territorial authority.
For inadequate bearing or over excavation of service trenches, use hardfill compacted in 150mm layers.

3.13 STANDARD OF COMPACTION

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

3.14 GENERAL BACKFILLING

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

3.15 RETAINING WALLS

Backfill behind retaining walls with free draining granular material and compact in 200mm layers. Ensure any tanking membranes, protection sheets, drain coil and damp-proofing are not damaged.

3.16 SURPLUS MATERIAL

Remove surplus and excavated material from the site.

3322 ICF INSULATING BLOCKWORK

1 GENERAL

This section relates to the supply, erection, reinforcement and concrete filling of hollow ICF (expanded polystyrene) blockwork.

1.1 RELATED WORK

Refer to ~ for ~.

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following definitions apply specifically to this section:

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

1.3 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZS 3104	Specification for concrete production
NZS 3109	Concrete construction
AS/NZS 4671	Steel reinforcing materials

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

1.4 MANUFACTURER'S DOCUMENTS

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

Copies of the above literature are available from ~

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

Requirements

1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.6 CONCRETE TESTS

Retain mix design information for plant mixed concrete for inspection. Keep an accurate record of the in-place location of all batches. Carry out tests in accordance with NZS 3104, section 2.15 Control tests and their evaluation.

1.7 STEEL REINFORCING COMPLIANCE

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

2 PRODUCTS

Materials

2.1 MANUFACTURER

Refer to SELECTIONS/drawings for manufacturer.

2.2 BLOCKS

Blocks injection moulded from fire retardant polystyrene beads. Final density between 23 and 26 kg per cubic metre.

Metal bridges of galvanized steel, bonded into each external skin of polystyrene.

2.3 REINFORCEMENT

Deformed and plain steel bars to AS/NZS 4671.

2.4 CONCRETE INFILL

Normal concrete infill with a minimum compressive strength of 20 MPa at 28 days, to NZS 3104 and a slump of between 100 and 120mm. Maximum aggregate size 14mm. Supply concrete from a ready mix concrete plant with Certificate of Audit.

Equipment

2.5 PROP SYSTEM

As recommended and supplied by the manufacturer, for use during erection and the subsequent filling of block cores.

3 EXECUTION

Conditions

3.1 ALL WORK

All work by a firm approved by the manufacturers and/or distributors of the ICF blocks.

3.2 EXECUTION

Carry out all work using persons skilled in the methods and recommendations laid down by the ICF block manufacturer and in accordance with the manufacturer's technical information on the use of equipment and construction techniques.

Keep a current copy of the ICF block manufacturer's technical manual on site and bring to the attention of all workers during the construction process.

3.3 STORAGE

ICF blocks are vulnerable to damage. Take care to protect blocks during delivery, storage and installation, with particular attention taken to preventing damage to corners and rebates.

3.4 SOLVENTS

Do not allow solvent products to come into contact with ICF blocks.

3.5 CUTTING

Carefully follow the recommendations and requirements set out in the manufacturer's technical manual. Generally cut blocks using a small panel saw or sharp Stanley knife, with a keyhole saw used for reveals and cut outs.

3.6 ACCURACY

All walls true to line, level and plumb and within the following tolerances:
Deviation from plan location: 20mm
Deviation from vertical within a storey: 10mm per 3 metres
Relative displacement between load bearing walls in adjacent stories intended to be in vertical alignment:: 5mm
Deviation from line to plan

- Any length up to 10 metres: 5mm
- Any length over 10 metres: 10m

Deviation from horizontal

- Any length up to 10 metres: 5mm
- Any length over 10 metres: 10mm

Application

3.7 PROPPING

Install a propping system to hold the blocks in place during filling. Bolt props to the floor prior to laying of blocks, and install at all wall corners, and every 2 metres along each wall. Adjust for straightness and plumb. Install soft iron wire ties every fourth course, through the polystyrene, around the metal bridge and back out around the prop.

3.8 ALL BLOCKS

Accurately bed all blocks into the blocks below and to butt accurately against each other, ensuring true wall dimensions are achieved. Do not place webs of blocks over the vertical flue of the block below.

Horizontal joints may be glued with polystyrene contact adhesive on each face, when required to assist stability against wind or construction loads.

Stay all walls against wind and construction loads.

3.9 PLACE REINFORCING

Place and tie reinforcing as detailed and in accordance with NZS 3109. Cut, bend and place reinforcement as shown on the drawings, with cover maintained by the use of plastic or concrete spaces.

Bars lapped only where detailed, with lapping kept to a minimum and staggered wherever practicable.

3.10 BUILT IN ITEMS

Build in all bolts, straps and fixings as detailed and as required. Construct chases, holes, cut-outs and recesses only as and where detailed. Any cast in fixings to have the surrounding polystyrene removed to provide a minimum of 30mm concrete cover around the fixing.

3.11 CONSTRUCTION JOINTS

Locate construction joints in accordance with NZS 3109. Immediately before placing concrete, wet the construction joint area and apply a 10mm thick layer of cement slurry to the joint; slurry being either a cement/water paste, or a 1:1 mix of cement and sand. Work the slurry well into the construction joint before placing the concrete.

3.12 INSPECTION

Provide notification that the work is ready for inspection prior to grouting. Do not proceed with grouting until written approval has been received that walls have been constructed and reinforced in accordance with the design documentation.

3.13 CONCRETING

To NZS 3109. Ensure that all cells are clear and clean and all reinforcement is in place. Consolidate infill concrete by rodding with a 16mm square end reinforcing rod, or by using a small poker vibrator. Height and extent of lifts and sectional lifts to be strictly in accordance with the ICF block manufacturer's technical manual.

Finishing

Completion

3.14 WIRE TIES AND PROPS

Once the concrete infill has cured, cut off all wire ties level with the polystyrene surface. Carefully dismantle and remove the prop system.

3.15 CLEANING

Both during laying and on completion, clean down all exposed block surfaces to remove adhesive or concrete splashes.

3.16 MAKE GOOD

Make good any damaged corners or faces using acrylic cement plaster.

3.17 LEAVE

Leave work to the standard required by following procedures.

3.18 REMOVE

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

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4 SELECTIONS

4.1 ICF BLOCKS - NUDURA ONE SERIES

Manufacturer:	Nudura
Series:	One Series
Concrete Core	168mm thick reinforced concrete core

4.2 TANKING AND WATERPROOFING

Viking Peel & Stick Tanking Mambrane as 4131VP

4131VP VIKING PEEL & STICK TANKING MEMBRANE

1 GENERAL

This section relates to the application of Viking Peel & Stick Tanking installed as a single or double layer system on below ground retaining walls with Viking Under-slab membrane installed under the slab complete with Drainage & Protection Board, all components and accessories to complete installation.

1.1 RELATED WORK

Refer to ~ for ~.

Documents

1.2 DOCUMENTS

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

1.3 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
Viking Roofspec technical literature
Viking checklist: Below Ground Tanking Site and Substrate
Viking checklist: Below Ground Tanking Installation
Viking Below Ground Tanking Methodology
BRANZ Appraisal 826 (2024) - Viking Peel & Stick Membrane - Amended 16 April 2025

Manufacturer/supplier contact details

Company:	Viking Roofspec Ltd.
Web:	www.vikingroofspec.co.nz
Email:	info@vikingroofspec.co.nz
Telephone:	0800 729 799
Facsimile:	0800 729 788

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

20 years	For Viking **Peel & Stick** Tanking System including Viking Under-slab membrane

- Provide this warranty on the Viking Roofspec standard form.
- Commence the warranty from the date of completed installation.

Refer to the general section 1237 WARRANTIES for additional requirements.

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years	For Viking **Peel & Stick** Tanking system installation when installed by Viking Approved Applicator

- Provide this warranty on the Certificate of Workmanship form in support of a Viking Roofspec Product Warranty.
- Commence the warranty from the date of completion of installation.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 NO SUBSTITUTIONS

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

1.7 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

Installers to be Viking Approved Applicators, experienced in the installation of the Viking Peel & Stick tanking systems.

Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.8 PRE INSTALLATION

Convene a meeting between the applicator, contractor, all associated consultants and Viking Roofspec to ensure all parties know what is required for effective performance of the system, prior to tanking installation.

1.9 SPECIFIC DETAILS

All detailing to be in accordance with Viking Roofspec standard details. Any specific details not in accordance with the Viking Roofspec standard details or methodologies must be review and approved by Viking Roofspec.

1.10 INSPECTION AND CHECKLIST

Complete Viking checklist for Below Ground Tanking Site and Substrate (by Main Contractor) and Below Ground Tanking Installation (by Installer). Checklist to be signed by applicator and main contractor and provided to Viking Roofspec for product warranty requirements.

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:
Viking Peel & Stick Tanking maintenance requirements.

Provide this information prior to practical completion.

Compliance information

1.12 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

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

Performance

1.13 PRESSURE RATING

Viking Peel & Stick Tanking is limited to 5 meters depth with the use of drainage coil at the base of the slab or footing being a requirement. Refer to SELECTIONS for the designated water pressure head.

1.14 VAPOUR FLOW RESISTANCE

The membrane system is to have a vapour flow resistance of not less than 90 MN s/g.

2 PRODUCTS

Materials

2.1 TANKING MEMBRANE - WALL

Viking Peel & Stick Tanking, a 1.5mm thick, self-adhering membrane of composite materials consisting of a specially formulated rubberized asphalt laminated to a high impact resistant HDPE film with a removable release sheet to the adhesive side. Also used to create 300mm wide under-flashings and detailing around penetrations. Available in 0.914m wide x 20.4m long rolls.

2.2 TANKING MEMBRANE - UNDER SLAB

Viking Under-slab membrane, 4mm thick reinforced-polyester and fibreglass SBS (Styrene butadiene styrene) modified-bitumen. Also used to create gussets. Available in 1m wide x 10m long rolls.

2.3 TANKING MEMBRANE - ABOVE GROUND CAP SHEET

Viking Torch-on Phoenix Super Ceramic Chip Cap Sheet, 4mm APAO (Amorphous Poly alpha olefins) modified bitumen, reinforced, ceramic chip top surface, torch-on cap sheet. Colour: Black or Grey. Available in 1m wide x 10m long rolls.

Components

2.4 WALL TANKING ADHESIVE - FOR EPS / XPS / POLYSTYRENE BLOCK SUBSTRATES

Viking Easy Paste Bituminous, a thick water-based bituminous cold applied adhesive.

2.5 DRAINAGE & PROTECTION BOARD

Viking Drainage and Protection Board, composite of nonwoven filter fabric bonded to the dimples of a high impact moulded polystyrene core. Enhances waterproofing by channelling water away, relieving hydrostatic pressure and protecting the waterproofing system.

2.6 BITUMEN FILLET

IMT603 Bituminous Angle Fillet 25mm x 25mm x 1.2m long, used at the junction of wall and concrete footing heel.

2.7 TANKING MASTIC - WALL

SES014 Tanking Mastic (P&S) - Carlisle CCW-704, solvent-based, rubberized bitumen mastic.

Accessories

2.8 TERMINATION BAR / FLASHING

IMT708 Aluminium termination flashing, mill finish, 140mm high x 1.6mm thick x 2.4m long complete with IMT 710 External corner & IMT711 Internal corners. Designed to terminate the Viking Peel & Stick Tanking and Viking Drainage and Protection Sheet 150mm above the finished soil height.

2.9 PRESSURE BAR

IMT709 aluminium pressure bar, mill finish, 65mm high x 1.6mm thick x 2.4m long.

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 membrane in rolls undamaged, include for site handling facilities where required. Provide dry storage off the ground on a level surface for all products. Viking Peel & Stick Tanking membrane may be stored horizontally in cartons, do not crush. Viking Under-slab or Torch-On membrane rolls store vertically only. Do not stack pallets.

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.

Inspect substrate in its entirety, verify all details, penetrations and conditions. Comply with Viking Roofspec requirements prior to membrane installation. Installation of membrane indicates acceptance of substrate by installer.

Ensure substrate meets requirements of Viking Checklist- Below Ground Tanking Site & Substrate to be completed by the Main Contractor and Viking Checklist- Below Ground Tanking Installation by the tanking installer. Refer to www.vikingroofspec.co.nz for checklists.

3.4 SUBSTRATE - PEEL & STICK

To be smooth, clean, dry and stable. Free of contaminants, voids or protrusions. Concrete & concrete masonry substrates to have a relative humidity of 75% or less. Do not work on a wet substrate.

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3.5 SUBSTRATE - UNDER-SLAB

Ensure the tidy slab of site concrete for the Under-slab tanking is a minimum of 45mm thick, for any site with springs or below the water table. For sites with no springs or above the water table, compacted minimum 25mm sand or fines such as gap 7 is acceptable.

3.6 COMPLY - PEEL & STICK

Comply with current Viking Roofspectechnical literature. For concrete and concrete masonry substrates comply with and BRANZ Appraisal 826 as required.

3.7 COMPLY - UNDER-SLAB TORCH-ON

Comply with current Viking Roofspec technical literature, including relevant information contained in BRANZ Appraisal 864.

3.8 PLAN LAYOUT

Plan installation so that joints are minimised and occur in suitable locations.

3.9 COORDINATE

Coordinate all work with other trades to prevent damage to membrane. Plan work to minimise membrane exposure to sunlight or UV radiation and to comply with Viking Roofspec requirements for exposure. Viking Under-slab membrane to under slab locations must not be exposed for more than 30 days before structural concrete is placed and Viking Peel & Stick tanking membrane must not be exposed for more than 30 days before backfilling.

3.10 WEATHER CONDITIONS

Install membrane in fair weather, with substrate temperature no less than 4.5°C.

3.11 DE-WATERING

Water level to remain a minimum of 300 mm below membrane works, until installation completed. Dig a trench and fill with scoria. Dig holes to place buckets with holes for a sump pump. This will remove any excess water. Refer to Viking Below Ground Tanking Methodology, for further details.

Application - preparation

3.12 FILLETS AND CHAMFERS

Apply Bitumen Filler IMT603 (or 25mm mortar fillet), to support membrane at internal corners and slab/wall junctions.

Chamfer external edges to minimum 10 mm width sloping edge to accommodate membrane return.

3.13 REMOVE OTHER FORMWORK

Ensure formwork is not removed before the Under-Slab membrane is sealed to the footing (minimum 4 days from footing pour) or secured to the footing by mechanical fastening with a batten, which can later be removed once walls are in place and wall tanking can been installed.

Take care when removing formwork not to damage membrane or to remove membrane from poured slab.

Application - Under slab membrane

3.14 INSTALL UNDER-SLAB MEMBRANE

Install Viking Under-slab membrane in accordance with Viking Roofspec requirements. Unroll the Viking Under-Slab membrane onto the tidy slab or compacted sand fines. At perimeter, allow adequate length of Viking Under-slab membrane to return around footing once poured, lay onto the formwork and secure.

Lap each sheet a minimum of 80 mm for side laps, and 150 mm for end laps. Torch sheet laps, ensuring 3mm-5mm consistent bitumen bleed is visible from the membrane edge at the laps.

3.15 APPLY GUSSETS - UNDER-SLAB

Once Under-slab membrane is placed, install 140mm gussets to all internal and external corners.

Application - Vertical Concrete Filled EPS Blocks / EPS or XPS Insulated Substrates

3.16 INSTALLATION GENERALLY - PEEL & STICK

Install Viking Peel & Stick Tanking membrane in accordance with Viking Roofspec requirements and Viking Checklist - Below Ground Tanking Installation. Refer to www.vikingroofspec.co.nz for checklist.

3.17 APPLY ADHESIVE EASY PASTE - PEEL & STICK

Apply Easy Paste water-based adhesive by medium nap roller or brush in an even film to EPS or XPS substrate at recommended coverage rate. Allow minimum 2 hours drying before re-applying a second coat of Easy Paste adhesive. Allow 2nd coat of adhesive to fully dry before applying the Viking Peel & Stick Tanking. Lower temperatures will extend drying time before additional coats of Easy Paste or membrane installed over. Apply only to surfaces where membrane will be applied in the same day.

3.18 LAP - PEEL & STICK

Membrane sheet laps should be staggered. Side laps to be a minimum 75mm. End laps ("head laps") overlap by minimum 150mm.

3.19
APPLY DOUBLE LAYER MEMBRANE - VERTICAL SURFACES UP TO 3.4M DEPTH - PEEL & STICK

Commence membrane application by removing the release paper. Apply the Viking Peel & Stick Tanking, beginning at the low point and working toward the high point, ensuring laps will shed water.

Viking Peel & Stick Tanking membrane must extend 150mm minimum above finished ground level and lap minimum 100mm onto the Under-Slab membrane below basement floor level and terminate per Viking Standard Details.

Viking Peel & Stick Tanking membrane should be firmly rolled in place immediately after its placement to ensure full adhesion to the primed substrate.

Mechanically fix the first layer of Viking Peel & Stick Tanking membrane using Pressure Bar IMT709 at 1.7m high intervals through the EPS/XPS insulation or EPS block into the concrete.

Ensure the first layer of tanking membrane is clean and dry before applying the second layer. Position the second layer of Viking Peel & Stick Tanking membrane in the same direction as the first sheet with the centre of the second sheet over the lap join of the first. Install as per the first layer ensuring coverage of the fixing bars by 150mm minimum.

Viking Peel & Stick Tanking membrane must extend 150mm minimum above finished ground level and lap minimum 100mm onto the Under-Slab membrane beyond basement floor level and terminate per Viking Standard Details.

Viking Peel & Stick Tanking membrane should be firmly rolled in place immediately after its placement to ensure full adhesion to the primed substrate.

It is recommended that the lower 1.7metres of both layers (including Drainage and Protection Board) are installed before backfilling up to 1.5m from the base. This will allow a safe and solid platform to install the remainder of vertical surface up to 3.4m maximum height.

3.20 PENETRATIONS - PEEL & STICK

All penetrations to receive a Viking Peek & Stick Tanking over-flashing to form a double layer with minimum 120mm overlap around penetration. Complete with a trowelled bead of SES014 Tanking Mastic (P&S) and secure with a Stainless Steel hose clamp.

3.21 APPLY TANKING MASTIC - PEEL & STICK

All terminations, detail and edges of sheet laps to receive a trowelled bead of SES014 Tanking Mastic (P&S).

Application - Protection

3.22 INSTALL DRAINAGE & PROTECTION BOARD

Neatly scribe and fit Drainage & Protection Board to Viking Roofspec requirements. Boards to be installed down to the level of the coil drain. Mechanically secure the top of the Drainage & Protection Board to 150mm above finished ground level with IMT708 Termination flashing.

Application - Cap Sheet Membrane for UV exposed locations

3.23 POSITION CAP SHEET MEMBRANE

Unroll the Viking Torch-on Ceramic Chip cap sheet membrane and align in position with 80mm side laps and 150mm head to tail laps. Position the cap sheet in the same direction as the tanking membrane with the centre of the cap sheet covering the lap join of the tanking membrane sheet. Ensure the overlapping Cap Sheet is positioned over the lower sheet ends by 150mm. Commence at the lower end of wall ensuring that the polyethylene burn-off film is face down.

3.24 INSTALL CAP SHEET MEMBRANE - TORCH-ON

Only lightly torch the HDPE film of the Viking Peel & Stick tanking membrane.

Evenly torch off the underside film surface of the cap sheet membrane using a sweeping motion to maintain even heat across the roll. Allow a bead of bitumen to flow from between the lap edge 2mm to 4mm from the membrane edge. The bleed line must be consistent and uninterrupted. To repair laps that have not been fully bonded insert a hot trowel between affected laps and lightly torch.

Backfilling

3.25 SUPERVISION OF BACKFILLING

Backfilling to take place under supervision of the membrane installer and main contractor.

Application - Terminations / Flashings

3.26 TERMINATIONS/FLASHINGS

Use a Viking Standard Tanking detail to mechanically fasten and terminate the top edge of the membrane using IMT708 Termination Flashing or IMT709 Pressure Bar.

Completion

3.27 COMPLETION MATTERS

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

4 SELECTIONS

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

Performance

4.1 PRESSURE RATING

Designated water pressure head: 2-metres

Tanking membrane - Wall

4.2 VIKING PEEL & STICK TANKING - FOR EPS/XPS SUBSTRATES UP TO 3.4M DEPTH

Location:	Garage Retaining
Substrate:	Nudura One Series EPS ICF Blocks
Primer:	2 coats of SES302 Easy Paste - water based
Tanking:	Double layer of Viking Peel & Stick Tanking
Colour:	Black
Fixings:	IMT709 Pressure Bar at 1.7m high intervals to first layer of tanking
Tanking sealant:	SES014 Tanking Mastic (P&S) - Carlisle CCW-704

4.3 VIKING TORCH ON CAP SHEET - FOR UV EXPOSED LOCATIONS

Location:	To Garage Peel & Stick Tanking
Cap sheet:	Viking Torch-on Phoenix Super Ceramic Chip Cap Sheet APAO, 4mm thick
Colour:	SEM 148 grey

Tanking membrane - Under slab

4.4 VIKING UNDER-SLAB TANKING MEMBRANE

Location:	Garage

Substrate:	min 25mm compacted sand fines with a 100mm minimum thickness of reinforced concrete placed over
Brand/type:	Viking Under-slab Tanking
Colour:	Black

Drainage & Protection sheet

4.5 VIKING DRAINAGE & PROTECTION BOARD

Location:	Garage Tanking
Brand/type:	Viking Drainage & Protection Board

Termination bar / flashing

4.6 TERMINATION BAR

Location:	Garage Tanking
Type:	IMT708 Termination flashing complete with IMT710 External corner & IMT711 Internal corners - to terminate tanking in visible locations or IMT709 Pressure Bar - to terminate tanking where not visible to view

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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 NZBC E2/AS1, covering kraft based and synthetic wall underlays, sometimes called wall wraps, building wraps or building papers.

Documents

1.2 DOCUMENTS

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

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

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

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:
Thermakraft's Product Data Sheets
Thermakraft's Installation Guides
BRANZ Appraisal 329 (2022) - Supercourse 500 Damp-Proof Course and Concealed Flashing - Amendment 29.08.2023
BRANZ Appraisal 651 (2024) - Thermakraft Covertek 407 Roof and Wall Underlay - Amended 01.07.2025
BRANZ Appraisal 695 (2023) - Watergate Plus Wall Underlay - Amended 01.07.2025
BRANZ Appraisal 743(2025) - Thermakraft Covertek 405 Roof and Wall Underlay
BRANZ Appraisal 878 (2025) - Thermakraft Aluband Window Flashing Tape
BRANZ Appraisal 912 (2021) - Thermakraft 220 Synthetic Wall Underlay - Amended 01.07.2025
BRANZ Appraisal 917(2025) - Thermakraft Covertek 403 Roof and Wall Underlay
BRANZ Appraisal 942 (2022) - OneSeal Multi-fit Pipe and Cable Penetration Seals - Amendment 04.06.2024
BRANZ Appraisal 943 (2021) - Thermakraft Covertek 401 Roof and Wall Underlay - Amended 01.07.2025
BRANZ Appraisal 1000 (2023) - Thermakraft Thermabar 397 Light Diffusing Reflective Underlay - Amended 01.07.2025
BRANZ Appraisal 1029 (2023) - Thermakraft Ausnet Hexagonal Wire Mesh
BRANZ Appraisal 1104 (2020) - Thermathene Orange Concrete Underlay - Amendment 06.09.2024
BRANZ Appraisal 1122 (2020) - Thermaflash Flashing Tape - Amendment 02.09.2024

BRANZ Appraisal 1229 (2023) - Thermakraft Covertek 215 Roof Underlay - Amended 19.06.2025
BRANZ Appraisal 1277 (2025) - Thermakraft RainArmor Self Adhesive Roof Underlay and Wall Underlay

Manufacturer/supplier contact details

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

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years	For Kingspan Thermakraft product range.

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 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 - BRANZ appraised

1.7 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

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 BLACK

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

Components - sealing

2.3 THERMAKRAFT WHITE GENERAL PURPOSE TAPE

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

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

3.2 ROUTINE MATTERS

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

3.3 PRE-INSTALLATION REQUIREMENTS

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

Installation/application - generally

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Installation - DPC

3.5 INSTALL DPC

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

Installation - DPM

3.6 INSTALL DPM - CONCRETE FLOOR

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

3.7 INSTALL DPM - SUSPENDED TIMBER FLOOR

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

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

3.8 APPLY TAPE TO LAPPED DPM JOINTS

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

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

DPC

4.1 DPC - THERMAKRAFT SUPERCOURSE 500

Location:	Below Framing
Manufacturer:	Thermakraft
Brand:	Supercourse 500
Type:	Damp proof course
Width:	50mm, 75mm, 90mm, 100mm, 150mm, 200mm, 250mm, 300mm, 500mm

DPM

4.2 DPM - THERMAKRAFT THERMATHENE BLACK

Location:	Below Garage Floor Slab
Manufacturer:	Thermakraft
Brand:	Thermathene Black
Type:	Damp proof membrane
Width:	4000mm
Joint tape:	White General Purpose Tape

4161TH DRISPACE UNDERLAYS, DPC & AIRTIGHT SYSTEMS

1 GENERAL

This section relates to the application of DriSpace (a division of TCL Hunt) products, comprising:

- DriStud Wall Wrap
- DriStud EcoWall Wrap
- DriStud Cool Window flashing tape
- DriStud Repel fire retardant vapour permeable water resistant flexible air barrier

- DriStud EcoDri FR - 181 gsm fire retardant synthetic self-support roof underlay
- DriStud FRU 38 - 220 gsm fire retardant synthetic self-support roof underlay
- DriStud FRU 36 - 155 gsm fire retardant synthetic self-support roof underlay
- DriStud RU 24 - 170 gsm synthetic self-support roof underlay
- DriStud RU 22 - 140 gsm synthetic self-support roof underlay

- DriStud W8 - synthetic fire retardant medium weight white faced foil
- DriStud W11 - synthetic fire retardant heavy weight premium white faced foil

- ProctorPassive Wraptite SA - self-adhering fire retardant, vapour permeable, airtight wall and roof underlay
- ProctorPassive Wraptite UV-SA - self-adhering, high UV, fire retardant, vapour permeable, airtight wall underlay. Suitable for Open Joint Cladding applications
- ProctorPassive Rainscreen RS-IT - high UV, fire retardant vapour permeable wall underlay
- ProctorPassive SmartVap - vapour control layer for airtight ceiling and wall
- ProctorPassive GeoVap - vapour control layer for airtight ceiling and wall for high humid environments
- ProctorPassive Driflash Window Flashing Tape
- ProctorPassive Youbyute Flexi Tape

1.1 RELATED WORK

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

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following definitions apply specifically to this section:

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

Documents

1.3 DOCUMENTS

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

NZBC B2	Durability
NZBC C/AS2	Protection from fire
NZBC C3	Fire affecting areas beyond the fire source
NZBC E2/AS1	External moisture
NZBC F2	Hazardous building materials
AS/NZS 2904	Damp proof courses and flashings
AS 1530.2	Methods for fire tests on building materials, components and structures – test for flammability of materials
NZS 3604	Timber-framed buildings
AS/NZS 4200.1	Pliable building membranes and underlays - Materials
AS/NZS 4201.4	Pliable building membranes and underlays - Methods of test - Resistance to water penetration
AS/NZS 4389	Roof Safety mesh
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire

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AAMA 711-13	Voluntary Specification for Self-Adhering Flashing Used for Installation of Exterior Wall Fenestration Product
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice
CodeMark™ CMNZ70019 v2	DriStud EcoWall Wrap and DriStud Wall Wrap Wall Underlays
CodeMark™ CMNZ70021 v4	DriStud EcoDri FR, DriStud RU22, DriStud RU24, DriStud FRU36 and Dristud FRU38 Roof and Wall Underlays
CodeMark™ CMNZ70022 v2	DriStud Cool Window Flashing Tape
CodeMark™ CM70040	DriStud W11
CodeMark™ CMNZ70141	DriStud Repel
CodeMark™ CMNZ70152	ProctorPassive Wraptite SA
CodeMark™ CMNZ70153	ProctorPassive Wraptite UV-SA
CodeMark™ CMNZ70158	ProctorPassive Rainscreen (RS-IT)

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this part of the work:
DriStud Product Literature:
DriStud Wall Wrap Installation Guide
DriStud EcoWall Wrap Installation Guide (Feb 2025)
DriStud Cool Window Flashing Tape Installation Guide for Rigid Air Barriers
DriStud Cool Window Flashing Tape Installation Guide for Flexible Wall Underlays
DriStud Cool Window Product Technical Statement
DriStud Repel Installation Guide
DriStud Repel Product Technical Statement
DriStud Sealant Compatibility Chart
DriStud FRU 38 Roof Underlay Product Technical Statement
DriStud FRU 36 Roof Underlay Product Technical Statement
DriStud RU 24 Roof Underlay Product Technical Statement
DriStud FRU38 Installation Guide Rev 4.0 (Sep 2024)
DriStud FRU36 Installation Guide Rev 5.0 (Sep 2024)
DriStud RU22 Installation Guide Rev 4.0 (August 2023)
DriStud RU24 Installation Guide Rev 5.0 (Sep 2024)
DriStud EcoDri FR Installation Guide Rev 1.0 (Sep 2024)
DriStud W8 - fire retardant medium weight white faced foil
DriStud W11 - synthetic fire retardant heavy weight premium white faced foil

ProctorPassive Wraptite SA - self-adhering, fire retardant, vapour permeable wall and roof underlay
ProctorPassive Wraptite UV-SA - self-adhering, high UV, fire retardant, vapour permeable wall underlay. Suitable for Open Joint Cladding applications.
ProctorPassive Rainscreen RS-IT - fire retardant, high UV, vapour permeable wall underlay
ProctorPassive Rainscreen RS-IT Installation Guide, June 2021
ProctorPassive SmartVap - vapour control layer for airtight ceiling and wall
ProctorPassive GeoVap - vapour control layer for airtight ceiling and wall for high humid environments

Manufacturer/supplier contact details;

Company:	TCL Hunt Ltd
Trading as:	DriSpace
Web:	www.drispace.co.nz
Email:	technical@drispace.co.nz
Telephone:	0800 374 7883

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years	For materials

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of original purchase.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 NO SUBSTITUTIONS

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

1.7 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

Performance - General

1.8 COMPATIBILITY TEST - SEALANTS & DRISTUD COOL WINDOW FLASHING TAPE

The following sealants are tested and found to be compatible in accordance with AAMA 713-08 "Voluntary Test Method to Determine Chemical Compatibility of Sealants and Self-Adhered Flexible Flashings", using test temperatures of 5ºC, 30ºC, 60ºC and 80ºC with DriStud Cool Window Flashing Tape.

- Dowsil 758
- Dowsil 790
- Dowsil 795
- Fixall HG MS
- Fixall 220 MS
- Gorilla Firestop MS
- Sika AT
- Sika MS

1.9 COMPATIBILITY TEST - TRADE-SEALS (MARSHALL INNOVATIONS) & DRISTUD WALL WRAP

Trade seals from Marshall Innovations and DriStud Wall Wrap samples were tested and found to be compatible according to AAMA 713-08 "Voluntary Test Method to Determine Chemical Compatibility of Sealants and Self-Adhered Flexible Flashings", using test temperatures of 5ºC, 30ºC, 60ºC and 80ºC.

1.10 COMPATIBILITY - PROCTOR PASSIVE WRAPTITE SA, PROCTOR PASSIVE WRAPTITE UV-SA AND MULTIPLE SUBSTRATES

ProctorPassive Wraptite SA and ProctorPassive Wraptite UV-SA are compatible with the following substrates;

- Exterior Gypsum Sheathing
- Aluminium (painted or mill finish)
- OSB
- Most rigid insulation
- Cast in place concrete
- Rigid Vinyl
- Pre-painted steel
- Galvanized metal
- Pre-cast concrete
- Steel
- Concrete block
- Plywood

2 PRODUCTS

Floor

2.1 DPC

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

Roof Underlays

2.2 DRISTUD FRU 38 FIRE RETARDANT SELF-SUPPORT SYNTHETIC ROOF UNDERLAY

A 220gsm heavy weight, fire retardant, self support synthetic non-woven roofing underlay consisting of two spun-bonded polyolefin fabric layers laminated to a micro porous water resistant film. CodeMark™ certified and designed for use as a water absorbent, breathable, water resistant roofing underlay under masonry tiles, metal tiles or profiled metal roof claddings, on timber or steel framing. Suitable for direct fix with absorbent and non-absorbent cladding including metal cladding. Suitable for wind zones up to and including Extra High, as outlined in NZS 3604.
Fire retardant to AS 1530.2 with flammability index of ≤ 5, to NZBC C/AS2, meets the requirements for suspended fabrics.

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

Design, application and installation of DriStud products to NZBC E2/AS1, CodeMark™ certification, DriStud Technical Literature and Industry Codes of Practice.

3.2 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

3.3 PRE-INSTALLATION REQUIREMENTS

Check work previously carried out and confirm it is of the required standard for this part of the work. Carry out remedial work identified before laying underlay.

Application - Roofing Underlay and Foil

3.4 ROOF UNDERLAY INSTALLATION

Install in accordance with the DriStud Instruction Manual. Apply from the lowest point to allow laps to shed water. All edge and end laps must be overlapped by a minimum of 150mm. Ensure that the underlay is properly fixed to the surface at perimeters or around penetrations.

Completion

3.5 COMPLETION MATTERS

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

4 SELECTIONS

For further details on selections go to www.drispace.co.nz
Substitutions are not permitted to the following.

Roofing Underlays

4.1 DRISTUD FRU 38

Location:	To Garage Roof
Type:	DriStud FRU 38

4165DV DRISPACE ROOF VENTILATION & WALL VENTED CAVITY BATTEN

1 GENERAL

This section relates to the supply and installation of DriSpace VENT roof and wall ventilation systems.

It includes:

- Ventilated Wall Cavity Batten
- Ventilated Roof Products

1.1 RELATED WORK

Refer to 4161TH DRISPACE UNDERLAYS, DPC & AIRTIGHT SYSTEMS for roof and wall underlays.

Documents

1.2 DOCUMENTS

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

NZBC C/AS1	Protection from fire
NZBC C/AS2	Protection from fire
NZBC C/VM1	Protection from fire
NZBC E2/AS1	External moisture

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:
BRANZ Appraisal 979 Roof Ventilation Products
BRANZ Appraisal 1099 (2024) - Vent Ventilated Wall and Drainage Cavity Batten
Roof Ventilation Design Guide for all roof pitches
VENT Passive Ventilation System - brochure
VENT Product Technical Sheets - for various products
ProctorPassive HC9 Drainage Mat - Product Technical Statement

Manufacturer/supplier contact details

Company:	DriSpace (a division of TCL Hunt Ltd)
Web:	www.drispace.co.nz
Email:	sales@drispace.co.nz technical@drispace.co.nz
Telephone:	0800 DRISTUD (0800 374 7883)

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years	For durability of DriSpace ventilation products

- Provide this warranty on the TCL Hunt Warranty for DriSpace Products standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT).
- Refer to TCL Hunt Warranty for DriSpace Products warranty form for conditions and limitations of warranty.
- 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.

2 PRODUCTS

Materials

2.1 VENT VB20 VENTILATION AND DRAINAGE ROOF BATTEN

VENT VB20 Ventilation and Drainage Roof Batten, a 45mm wide x 20mm thick x 1800mm long batten manufactured from extruded polypropylene with peel-off adhesive backing with 4mm vents that provide passive air flow of 16,000mm² per lineal metre. Used to provide ventilation and drainage for skillion roof cavities.

2.2 VENT VB10 VENTILATION AND DRAINAGE ROOF BATTEN

VENT VB10 Ventilated and Drainage Roof Batten, a 45mm wide x10mm thick x 1800mm long batten manufactured from extruded polypropylene with peel-off adhesive backing and with 4mm vents that provide passive air flow of 8,000mm² per lineal metre. Use to provide ventilation and drainage between the roof underlay and steel longrun roofing mitigating dew point condensation.

2.3 VENT G1200N & G2500N OVER FASCIA VENT - ROOF

VENT G1200N & G2500N Over Fascia Vents are manufactured from extruded polypropylene with 4mm vents that provide passive air flow 10,000mm² per lineal metre for G1200N and 25,000mm² per lineal metre for G2500N. Supplied in 1000mm lengths, black colour.

2.4 VENT G1275 EAVES COMB FILLER - ROOF

VENT G1275 Eaves Comb Filler, is manufactured from injection moulded polyethylene designed with flexible fingers which adjust to fill gaps left when using profiled tiles or steel roofing cladding. The use of G1275 provides airflow into the roof spacing between the underlay and roof cladding whilst preventing bird or insect entry. Supplied in 1m lengths, black colour.

2.5 VENT RV10P & RV10DT, ROOF RIDGE VENT / APRON VENT

VENT RV10P & RV10DT Ridge Vents, manufactured from extruded polypropylene with an aluminium-based conformable, soft edge flashing along the bottom edge and provides passive air flow of 8,000mm² per lineal metre. VENT RV10P is 410mm wide (including flashing) x 20mm thick x 1200mm long lengths, to suit trough depths that are less than 34mm and VENT RV10DT is 460mm wide (including flashing) x 20mm thick x 1200mm long lengths, to suit trough depths between 34mm and 60mm. RV10P & RV10DT can be used as an Apron Vent, for abutments and barges, by cutting RV10P & RV10DT in half lengthwise.

Components

2.6 FIXINGS - ROOF BATTEN VB20 FIXING

40 x 2.5mm hot-dip galvanized flat head nails or hot-dip galvanized or stainless steel finishing brads.

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. Carry out remedial work identified before installing VENT products.

3.4 CONDITIONS - PREVENTION OF FIRE

Separation or protection must be provided to the VENT products from heat sources such as fire places, heating appliances, flues and chimneys. Refer to NZBC C/AS1-AS2 and NZBC C/VM1 for requirements.

3.5 CONDITIONS - SITE EXPOSURE

Do not expose VENT propylene products to weather or ultra-violet light for a prolonged periods of time, especially G502 Roll Panel Vent (Ventilated Eaves Baffle) which should be covered on the same day as installation.

Installation/application

3.6 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Application - Roof

3.7 INSTALL VENT VB20 VENTILATION AND DRAINAGE ROOF BATTEN

Install VENT VB20 Ventilation and Drainage Roof Batten to the manufacturer's requirements prior to the installation of roof underlay.

Remove peel-off backing to battens and temporarily fix to the top of the purlins. Fix with 40 x 2.5mm hot-dip galvanized flat head nails or hot-dip galvanized / stainless steel finish brads at approximately 400mm centres. Battens maybe cut with a knife, handsaw or drop-saw.

3.8 INSTALL OVER FASCIA VENT - ROOF

Install selected Over Fascia Vent to the manufacturer's requirements to the top of fascia board prior to the installation of roofing underlay. Fix in place using screws or nails through the fixing holes provided.

3.9 FIX ROOF UNDERLAY

Refer to relevant underlay section for installation.

3.10 INSTALL VENT VB10 VENTILATION AND DRAINAGE ROOF BATTEN

Install VENT VB10 Ventilation and Drainage Roof Batten to the manufacturer's requirements after the installation of roof underlay.

Remove peel-off backing to battens and temporarily fix over underlay to the top of the purlins. Battens maybe cut with a knife, handsaw or dropsaw. The battens are fixed by the roof cladding fixings which will penetrate the roof framing.

3.11 INSTALL ROOF RIDGE VENTS & ROOF APRON VENTS

Install selected VENT Ridge to the manufacturer's requirements after the installation of roof cladding but prior to the installation of flashings. Cut ridge vents in half lengthwise to use as apron vents.

Lay in position over the top of roof cladding, remove peel-off backing and temporary fix in place, if required screw at each corner to ensure the underside of vent is flat against the roof.

Ensure all moisture and dust are removed from roof before dressing down the aluminium soft edge, notch or snip to suit roofing profile.

3.12 INSTALL EAVES COMB FILLER - ROOF

Install VENT G1275 Eaves Comb Filler to the manufacturer's requirements after the installation of roof underlay. Fix to the top of fascia or VENT Over Fascia Vent using screws or nails through the fixing holes provided.

Completion & Commissioning

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

Materials

4.1 VENT VB20 VENTILATION AND DRAINAGE ROOF BATTEN

Location:	Between Purlin and Underlay to Garage Roof
Supplier:	DriSpace
Manufacturer:	Blue Building Solutions Ltd (T/A VENT)
Type/Brand:	VENT VB20 - Ventilation and Drainage Roof Batten
Size:	45mm wide x 20mm thick x 1800mm long
Fixings:	Self-adhesive backing (temporary fix) & ~ at approximately 400mm centres

4.2 VENT VB10 VENTILATION AND DRAINAGE ROOF BATTEN

Location:	Between Underlay and Roof Cladding to Garage Roof
Supplier:	DriSpace
Manufacturer:	Blue Building Solutions Ltd (T/A VENT)
Type/Brand:	VENT VB10 - Ventilation and Drainage Roof Batten
Size:	45mm wide x 10mm thick x 1800mm long
Fixings:	Self-adhesive backing (temporary fixing)

4.3 VENT OVER FASCIA VENT

Location:	Above Garage Roof Fascia
Supplier:	DriSpace
Manufacturer:	Blue Building Solutions Ltd (T/A VENT)
Type/Brand:	VENT ~ - Over Fascia Vent
Colour:	Black
Fixings:	Ñail or screw in place

4.4 VENT G1275 EAVES COMB FILLER - ROOF

Location:	At Garage Roof Fascia
Supplier:	DriSpace
Manufacturer:	Blue Building Solutions Ltd (T/A VENT)
Type/Brand:	VENT G1275 Eaves Comb Filler
Colour:	Black
Fixings:	Ñail or screw in place

4.5 VENT RIDGE VENT / APRON VENT

Location:	Garage Roof Ridge
Supplier:	DriSpace
Manufacturer:	Blue Building Solutions Ltd (T/A VENT)
Type/Brand:	VENT ~ - Ridge Vent
Size:	~mm wide (including flashing) x 20mm thick x 1200mm long lengths
Fixings:	Self-adhesive backing (& if required screw at each corner)

4221CH RK TIMBERS HORIZONTAL WEATHERBOARDS

1 GENERAL

This section relates to the supply and fixing of RK Timbers Horizontal weatherboard cladding.

It includes:

- Rusticated weatherboards
- Bevel Back weatherboards
- Proprietary vertical Cavity batten systems (Non-Structural)
- Fascia
- Exterior mouldings
- Exterior corrosive resistant soakers
- Proprietary powder coated flashings
- Proprietary factory/site-applied oil, stain and paint finish systems
- Proprietary plug nail fixings

1.1 RELATED WORK

- Refer to 4221CV RK TIMBERS VERTICAL WEATHERBOARDS for complementary vertical weatherboard cladding system.
- Refer to 4161 UNDERLAYS, FOIL & DPC for flexible wall underlays.

For finishes to timber weatherboard cladding, refer to the following relevant sections, as approved for use by RK Timbers for this system:

- Refer to 6734D DRYDEN WOODOIL MIGRATING NON-FILMING TIMBER PROTECTOR for transparent finish.
- Refer to 6711R RESENE PAINTING EXTERIOR for paint finishing.
- Refer to 6711D DULUX PAINTING EXTERIOR for paint finishing.

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:

BSF	Band Sawn Face
COC	Chain of Custody
DF	Dressed Face
DFS	Dressed Face Sanded
FSC®	Forest Stewardship Council®
LBP	Licensed Building Practitioner
MCA	Micronized Copper Azole
PC	Premium Clears
PEFC	Programme for the Endorsement of Forest Certification
PP-U	Profile Paint Finish - Undercoated
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 C/AS1	Protection from fire for buildings with sleeping (residential) and outbuildings (risk group SH)
NZBC C/AS2	Protection from fire for buildings other than risk group SH
NZBC E2/AS1	External moisture
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 3617	Profiles of weatherboards, fascia boards and flooring
NZS 4211	Specification for performance of windows
AS/NZS 4284	Testing of building facades
BRANZ BU 411	Recommended timber cladding profiles

CodeMark Certificate CMNZ70081 ver2 - RK Horizontal Shiplap

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
RK Rusticated Weatherboards External Horizontally Fixed Wall Cladding System V5, October 2020
RK Bevel Back Weatherboards External Horizontally Fixed Wall Cladding System V4, October 2020
Rusticated Weatherboard - 20mm Cavity on Rigid Underlay - Drawing Set 12 October 2020.
Rusticated Weatherboard - 20mm Cavity on Flexible Underlay - Drawing Set 12 October 2020.
Bevel Back Weatherboard - 20mm Cavity on Flexible Underlay - Drawing Set 12 October 2020
Bevel Back Weatherboard - 20mm Cavity on Rigid Underlay - Drawing Set 12 October 2020
RK Timbers Factory Oil Maintenance Guide
Sika Methodology - RK Timbers powder coated flashing to cedar bonding

Manufacturer/supplier contact details

Company:	ITI NZ Ltd
Trading as:	RK Timbers
Web:	www.rktimbers.co.nz
Email:	info@rktimbers.co.nz
Telephone:	09 573 0503

Requirements

1.5 QUALIFICATIONS WORKERS - LICENSED UNDER STATUTE

Workers and supervisors to be appropriately qualified to applicable legislative requirements. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.
RK Timbers require the installers of the weatherboard cladding system to be competent Licensed Building Practitioners in the Carpentry licence class, hold relevant certification and experienced with installing similar materials.

1.6 ACCEPTABLE PRODUCT/MATERIAL SUPPLIERS

Where a product or material supplier is named in SELECTIONS, the product/material must be provided by the named supplier.

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 following general operation and maintenance information as electronic PDF format documents:
~
Provide this information prior to practical completion.
Provide two copies of all relevant coating system maintenance information from manufacturer/importer/supplier on completion of the work. Refer to SELECTIONS.

Compliance information

1.9 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -
- Applicator's approval certificate from the manufacturer / importer / distributor
- 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.

Performance

1.10 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. Refer to RK Timbers for fixing details and technical specification.

1.11 EXTERNAL FIRE SPREAD - CLADDING EXEMPT FROM TESTING

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

1.12 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed cladding system, including all penetrations. To NZBC B2/AS1 and NZBC E2/AS1 and AS/NZS 4284 .

2 PRODUCTS

Materials

2.1 TIMBER SPECIES

A choice of three imported species is available:
- Western Red Cedar (Thuja Plicata)
- Larch (Larix Sabirica)
- Truwood® (thermally-modified Ayous timber)

2.2 RK TIMBERS BEVEL BACK WEATHERBOARDS

Timber weatherboards to RK Timbers profiles as detailed. General design to NZS 3617 and/or BRANZ BU 411, 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.

2.3 RK TIMBERS MOULDINGS - BEVEL BACK

Timber mouldings to RK Timbers 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.** Mouldings 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.

2.4 RK TIMBERS FASCIA BOARDS

Timber fascia boards to RK Timbers 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.** Fascia 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.

2.5 WALL UNDERLAYS

For flexible wall underlays, refer to the appropriate separate section(s

Components

2.6 RK TIMBERS CAVITY BATTENS

To NZBC E2/AS1, clause 9.1.8, **Drained cavities.** Radiata Pine battens, H3.2 MCA treated, nominal 20mm x 45mm wide non-structural timber to comply with NZBC B2/AS1.
Batten types and applications as follows:
- 20mm x 45mm RK-V cavity battens are fixed to studs and vertical fixing points.
- 18mm x 45mm RK-V cavity battens are fixed at jambs and behind internal/external corner flashings.

2.7 RK TIMBERS CAVITY CLOSER / VERMIN-PROOFING

To be provided above window heads and at the base of the drained cavity. Powder coated aluminium, or stainless steel or PVC with the length and width to suit cavity. To NZBC E2/AS1, 9.1.8.3 and figure 66.

2.8 RK TIMBERS PLUG NAILS - SILICON BRONZE

Fixings to NZBC E2/AS1, Table 24 and to NZS 3604 for exposure zones for durability.
Refer to RK Timbers construction details for fixing details and to SELECTIONS for fixing sizes.

Accessories

2.9 RK TIMBERS ALUMINIUM FLASHINGS - BEVEL BACK

To NZBC E2/AS1, 4.0 **Flashings**. Extruded aluminium profiles, powder coated finish. 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, cladding materials and fixings.

Finishes

2.10 FACTORY COATING

Factory-applied application of initial coats in selected proprietary finish systems, available in three options:
- Oiled timber finish, in clear or coloured tones (standard finish option),
- Stained timber finish, in clear or coloured tones,
- Painted timber finish, in solid colour options.

Spray-applied onto all faces of the weatherboards prior to site delivery and installation.
Note: Dressed face profiles are to be face sanded prior to factory finishing.

2.11 SITE COATING

For sealing cut or exposed edges on site and for applying the finishing coat(s) to the installed cladding. Site application of finishes to manufacturer's specifications.

3 EXECUTION

Conditions

3.1 GENERALLY

Execution to NZBC E2/AS1: 3.0 **Weathertightness risk factors**, 9.0 **Wall claddings**, 9.1.7 **Wall underlays**, 9.1.8 **Drained cavities** and 9.4 **Timber weatherboards**.

3.2 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.
Take delivery of RK Timbers timber products, dry, unmarked and undamaged from freight and handling (grade characteristics excluded). Store on site, laid flat and true under cover in a cool and dry place, free from sub trade contamination and elevated on bearers approximately 100mm from the ground.

3.3 ROUTINE MATTERS

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

3.4 PRE-INSTALLATION REQUIREMENTS

Check work previously carried out and confirm it is of the required standard for this part of the work.
Moisture content: 16-18% maximum

3.5 PRE-COATING / FINISHING REQUIREMENTS

Check work previously carried out and confirm it is of the required standard for specified finish.
Carry out such additional preparatory work as required to bring the substrate to suitable condition.

Application - general

3.6 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.7 SUBSTRATE

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

Application - factory-applied finish coats

3.8 FACTORY COATING - PAINTED FINISH

Primer and undercoat paint coatings factory-applied on all faces of RK Timbers weatherboard profiles. Dressed face profiles have a micron radius to outer edges and are pre-sanded prior to factory undercoating and priming.
Note: Dressed face profiles are to be face sanded prior to factory finishing.
Ensure a pre-order of matching selected paint product has been ordered for sealing cut or exposed edges on site.

Application - over cavity battens

3.9 CAVITY BATTENS - NON-STRUCTURAL

Install 20mm minimum thickness Radiata Pine H3.2 MCA treated vertical cavity battens to form drained cavity to NZBC E2/AS1: 9.0 **Wall claddings**, where required. The battens are fixed by the cladding fixings which then 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, doors and meter boxes etc). Do not use horizontal cavity battens. Use cavity spacers where fixing is required between cavity battens, to NZBC E2/AS1: 9.1.8.2 f) and figure 67. Separate all vertical cavity battens by 10mm minimum.

Application - weatherboards

3.10 FIX BEVEL BACK WEATHERBOARDS

Ensure Bevel Back weatherboards are installed by a registered LBP. QA documents to be completed and signed by the LBP prior to completion.

Install level, true to line and face, to NZBC E2/AS1: 9.4 **Timber weatherboards**.
Start the fixing process from the bottom plate. Set out a storey rod to account for measurements between the bottom plate, window sill, head and top plate. This will aid set out and position the weatherboards correctly at wall junctions and openings.

Bevel back weatherboards to be lapped 32mm aligning weather grooves. Pilot drill all fixings slightly smaller than gauge of fixing to ensure a snug fit and to minimise risk of moisture entry. Single nail weatherboards to each fixing point 10mm clear above the lap. Ensure care is taken not to overdrive the nail and damage or expose surface fibres. Butt end or scarf joints, mitre external corners and notch and scribe internal corners. Orientate scarf joints to face away from prevailing winds and weather.

Back flash internal and external corners. Fit soakers to butt end joints, scarf joints and external corners. Stagger butt end joints randomly or scarf joints across adjacent boards.
Refer to RK Timbers website: www.rktimbers.co.nz for technical details.

Application - fixing nails & site-applied finish coats

3.11 FIXING NAILS & SITE COATING - PAINTED FINISH

For fastener dimensions and fixing requirements refer to NZBC E2/AS1, Table 24, **Fixing selection for wall claddings**.
Coat all cut ends on site with the correct undercoat and primer before fixing in place.
Finish the heads of RK Timbers stainless steel jolt head nails flush with the surface and punch 2mm below the surface with a hole punch.
Once cladding system is installed, spot prime the nail areas with a single coat, fill all nail holes flush and sand. Apply undercoat to nail areas as a uniform blend with the factory finished pre-coated boards.
Apply two (min.) topcoats of selected exterior acrylic paint, using a paint brush, with application all to manufacturer's instructions.
NOTE: All undercoat, primers, fillers and surface paints to be as specified.

Application - fascia boards

3.12 FIX FASCIA BOARDS

Fix RK Timbers fascia boards onto ends of trusses or rafters to form eaves fascias. Fix also as barge boards onto ends of purlins or outriggers to form gable verges.
Set fascia boards level, with face plumb and aligned to take gutters and soffit bearers & linings.
Set barge boards on rake to match roof pitch, with face plumb and aligned for purlins or outriggers & soffit linings.
Fix fascia and barge boards to framing as required by NZS 3604, clauses 10.2.1.14 and 10.2.1.15 and Fig. 10.16, including appropriate fixings or brackets, and to meet NZBC E2/AS1, clauses 5.2 and 5.3.

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Application - Ancillary

3.13 WINDOW FIXING - CAVITY

Fix to RK Timbers fixing details.

3.14 ALUMINIUM WINDOW

Installation to comply with NZS 4211 and to meet NZBC E2/AS1, clauses 9.1.10 and 9.4.7.

3.15 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 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. WGANZ bars installed, where required.
- Required holes in cladding accurately formed and cut to RK Timbers 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 proprietary meter box flashing kit to manufacturer's details.

3.16 INSTALL FLASHINGS

Install flashings, covers and soakers as detailed on the drawings and to NZBC E2/AS1. Refer to RK Timbers fixing details and technical specification. Material compatibility to NZBC E2/AS1, table 21. For installation of RK J-mould flashings at jamb lines, ensure correct position and alignment with window jamb flange. Adhesive fix the associated timber packer/bead the full length of jamb flashing prior to trimming weatherboards into the jamb.

3.17 INSTALL SCRIBERS

Ensure RK12 scribers are nailed, wet sealed in place and fixed in accordance with RK Timbers fixing details.

3.18 COMPLETE

Ensure the work is complete with all flashings, finishings and trim properly installed to ensure the cladding system is completely weathertight. In addition, ensure all associated QA check sheets have been signed off by the main contractor.

Completion

3.19 COMPLETION MATTERS

Refer to 1270 CONSTRUCTION for completion requirements.

4 SELECTIONS

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

Materials

4.1 RK TIMBERS BEVEL BACK WEATHERBOARDS

Species:	RK Timbers Western Red Cedar
Grade:	PC2
System:	Bevel Back
Profile number/name:	RK61 Bevel Back Weatherboard
Finished dimensions:	140mm x 18.5mm
Surface finish:	BSF (Band Sawn Face)
Moisture content:	16 -18% at fixing
Fixing system:	Bevel Back

4.2 RK TIMBERS MOULDINGS - BEVEL BACK

Species:	RK Timbers Western Red Cedar
Grade:	PC2

Profile number/name/finished dims:	RK91 - Boxed corner - 69mm x 18.5mm
Profile number/name/finished dims:	RK92 - Boxed corner - 90mm x 18.5mm
Profile number/name/finished dims:	RK12 - Scriber - 40mm x 17mm
Profile number/name/finished dims:	RK120 - Vertical Board - 135mm x 18.5mm
Profile number/name/finished dims:	RK121 - Vertical Board - 180mm x 18.5mm
Surface finish:	DF (Dressed Face)
Moisture content:	16 -18% at fixing

4.3 RK TIMBERS FASCIA BOARDS

Species:	RK Timbers Western Red Cedar
Grade:	PC1
Finished dimensions:	Refer to drawings
Surface finish:	Dressed Face (DF)

Components

4.4 FASTENINGS - RK PLUG NAILS - BEVEL BACK

Fixing type:	Cavity fix (non structural)
Nail size/material:	85mm x 3.25mm - Silicon bronze, annular grooved, Pentagon head

4.5 RK TIMBERS CAVITY BATTENS

Brand/code:	CS-V Cavity Structural Treated Timber Vertical Batten
Size:	43mm x 42mm
Timber species:	Radiata Pine
Timber grade:	Merchant or better
Treatment:	H3.2

4.6 RK TIMBERS CAVITY CLOSER / VERMIN-PROOFING

Brand/type:	RK Timbers cavity closure profile, for 20mm cavity
Profile code/material /finish:	Aluminium extrusion / powder coat finish

Accessories

Finishes

4.7 RK TIMBERS - PAINTED FINISH

Brand/Type:	Resene
Species:	Western Red Cedar
1st coat - Factory-applied:	Resene Wood Primer - Solvent-borne Primer
2nd coat - Factory-applied:	Resene Quick Dry - Water-borne Acrylic Primer Undercoat
3rd and 4th coats - Site-applied:	Resene Lumbersider - Water Based - Low Sheen
Colour:	TBC

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4239JH JAMES HARDIE® SOFFITS

1 GENERAL

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

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

Documents

1.1 ABBREVIATIONS AND DEFINITIONS

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

1.2 DOCUMENTS

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

NZBC E2/AS1	External moisture
AS/NZS 1170.2:2011	Structural design actions - Wind actions
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
NZS 3604	Timber-framed buildings

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:
Eaves and Soffits Installation Manual by James Hardie® (Feb 2025)
Fire and Acoustic Design Manual by James Hardie, May 2025
James Hardie® Eclipsa™ Eaves Lining Product Technical Statement
James Hardie® Hardie™ Groove Lining Product Technical Statement
James Hardie® Villaboard™ Lining Product Technical Statement
James Hardie® Eaves and Soffit Care and Maintenance
BRANZ Appraisal 1285 (2025) - James Hardie Fire And Acoustic Wall Systems

Manufacturer/supplier contact details

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

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years:	For lining product and accessories

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.6 NO SUBSTITUTIONS

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

1.7 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of the following general operation and maintenance information as electronic PDF format documents:
James Hardie® Eaves and Soffit Care and Maintenance

Performance

1.8 PERFORMANCE - UP TO AND INCLUDING VERY HIGH WIND ZONE

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

2 PRODUCTS

Materials

2.1 VILLABOARD™ SOFFIT LINING

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

Components

2.2 FASTENER TYPE

Fasteners to minimum durability requirements of the NZBC. Refer to NZBC E2/AS1, Table 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	Nail	Hot-dip galvanized steel	B
Sheltered	Nail	Stainless steel	B, C, D, E
Sheltered	Screw	Stainless steel	B, C, D, E

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

Components - Villaboard™ Soffit Lining

2.3 CONTROL JOINT

Refer to SELECTIONS.

2.4 HARDIE™ DRIVE SCREW

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

2.5 VILLADRIVE SCREW

Villadrive Screw, 30mm x 6g, Class 3

2.6 FIBREZIP® SCREW

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

2.7 HARDIE™ FLEX NAILS

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

2.8 SEALER

Multiplast resin by Plaster systems

2.9 BASE COMPOUND

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

2.10 JOINT REINFORCING TAPE

52mm wide perforated paper tape.

2.11 BEDDING COMPOUND

Hardie™ Base Coat compound powder.

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2.12 FINISHING COMPOUND

Hardie™ Top Coat topping compound premixed.

Components - General

2.13 FLEXIBLE JOINT SEALANT

Refer to SELECTIONS.

3 EXECUTION

Conditions

3.1 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

3.2 ROUTINE MATTERS

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

3.3 PRE-INSTALLATION REQUIREMENTS

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

3.4 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Application - general

3.5 SHEET LAYOUT

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

3.6 OFFSET PATTERN SHEET LAYOUT

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

3.7 CUTTING SOFFIT CLADDING

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

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.

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3.14 SEALANTS

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

3.15 FINISHING OVER DRIVEN FASTENERS

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

3.16 VILLABOARD™ JOINT FINISHING - LEVEL 3 FINISH

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

3.17 VILLABOARD™ JOINT FINISHING - LEVEL 4 FINISH

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

3.18 VILLABOARD™ JOINT FINISHING - LEVEL 5 FINISH

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

3.19 PAINTING

Refer to painting section/s for protective coating system.

Completion

3.20 COMPLETION MATTERS

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

4 SELECTIONS

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

Materials

4.1 VILLABOARD™ SOFFIT LINING - FLUSH JOINTED

Location:	External soffits
Brand/type:	James Hardie® Villaboard™ Soffit Lining
Thickness/Edge:	6mm thick sheet with 2 recessed edges to length - 1.2m x 2.4m, 1.2m x 3.0m sheets
Joint:	Flush joint (base compound and topping compound)
Fixing method:	Nail and adhesive - superior finish by minimising nail fixings
Fixing Type:	Stainless steel Hardie™ Flex Nail, 40 x 2.8mm
Adhesive:	Sikaflex-11FC by Sika or Seal N Flex-1 by Bostik
Level of Finish:	Level 4 - for smooth textured finishes and satin/flat/low sheen paints in non-critical lighting conditions.
Control joint type:	Hardie™ uPVC control joint for use in flush stopped applications

Painting

4.2 PAINTING

Refer to painting section/s for details. Villaboard™ Soffit Lining must be paint finished within 90 days of their installation.

4311RI ROOFING INDUSTRIES PROFILED METAL ROOFING

1 GENERAL

This section relates to the supply and fixing of **Roofing Industries** profiled roofing complete with accessories.

1.1 RELATED WORK

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

1.2 ABBREVIATIONS

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

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
MS	Modified silicone
LBP	Licensed Building Practitioner

Documents

1.3 DOCUMENTS

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

NZBC C/AS2	Protection from fire
NZBC C/VM2	Protection from fire
NZBC E2/AS1	External Moisture
NZBC G12/AS1	Water Supplies
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 1530.2	Methods for fire tests on building materials, components and structures - Test for flammability of materials
AS/NZS 1665	Welding of aluminium structures
AS/NZS 1734	Aluminium and aluminium alloys - flat sheet, coiled sheet and plate
AS/NZS 2728	Prefinished/prepainted sheet metal products for interior/exterior building applications - performance requirements
AS 3566	Self-drilling screws for the building and construction industries
AS/NZS 4020	Testing of products for use in contact with drinking water
AS/NZS 4201.6	Pliable building membranes and underlays - methods of test Method 6: Surface water absorbency
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
Roofing Industries Profile Technical Summary

Manufacturer/supplier contact details

Company:	Roofing Industries Ltd
Web:	www.roof.co.nz
Email:	techinfo@roof.co.nz
Telephone:	0800 844 822

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

~ years	For paint will not flake, peel or excessively fad
~ years	For substrate will not perforate through corrosion

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

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:
5 years for workmanship

- Provide this warranty on the metal roofing installers standard warranty form.
- Commence the warranty from the date of practical completion of the contract works.

NOTE: Include a copy of the Roofing Industries maintenance requirements with the warranty.
Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.7 QUALIFICATIONS

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.8 NO SUBSTITUTIONS

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

Performance - General

1.9 DRINKING WATER

ColorCote® have been tested in accordance with AS/NZS 4020 and have passed the requirements for products in contact with drinking water in accordance with NZBC G12/AS1.

2 PRODUCTS

Materials

2.1 STEEL - TYPE AZ COATING (ALUMINIUM/ZINC ALLOY), PREPAINTED

Formability steel sheet, G550 for roll forming or G300 for flashings, coated to AS 1397. Prefinished /prepainted to AS/NZS 2728.

Fixings

2.2 FASTENERS GENERALLY

Fixings and fasteners are to be compatible with all materials, the environment and meeting the requirements of the NZ Building Code.

2.3 FIXING SCREWS

Screws to AS 3566 and Roofing Industries Profile Technical Summary fixing chart or Specific Engineered Design, with a minimum Class 4 or 5 durability and not less than the material being fixed. Refer to SELECTIONS.

2.4 RIVETS

Sealed aluminium, minimum diameter 4.0mm. Refer to Roofing Industries for requirements.

Components

2.5 FLASHINGS GENERALLY

To E2/AS1, 4.0, Flashings.
Formable grade 0.55 BMT for galvanized, coated and pre-painted steel, and 0.90 BMT for folded aluminium to the same standards as the profiled sheets, notched where across profile or provided with a soft edge.

2.6 BOOT FLASHINGS

Generally to E2/AS1, 8.4.17 Roof penetrations.
EPDM proprietary pipe flashing laid on 45º bias to roofing, with over-flashing (soaker flashing) if required.
A boot flashing should be positioned so that it dams a roofing pan no more than 50%, if this cannot be avoided use an over-flashing back to the ridge and fix the boot flashing to that.

2.7 ALUMINIUM FLASHINGS - WELDED

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

Accessories

2.8 UNDERLAY AND REFLECTIVE FOIL

Refer to 4161 UNDERLAYS, FOIL AND DPC for roof underlays.

2.9 SEALANT

Neutral curing silicone or MS polymer sealant as required by Roofing Industries and used as directed.

2.10 CLOSURE STRIPS

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

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 on a level firm base with packs well ventilated and completely protected from weather and damage. Do not allow moisture to build up between sheets.

Do not drag sheets across each other and other materials. Protect edges and surface finishes from damage. Use soft, flat sole shoes when fixing and for all other work on the roof.

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.

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

Ensure moisture content is:
Timber framing: 18% maximum
12-16% maximum under traverse flashings

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

3.4 SEPARATION

Isolate dissimilar materials (metals and non-metals) in close proximity as necessary by painting the surfaces or fitting separator strips of compatible materials. Place isolators between metals and treated timber and cement based materials.

Application

3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

3.6 FIXING GENERALLY

Install and fix in accordance with the NZMRM CoP recommendations, and to Roofing Industries requirements, to form a weather-tight performance for the completed roofing system, including all junctions, flashing/cappings and penetrations through the roofing.

3.7 WELDING ALUMINIUM FLASHINGS

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

3.8 PENETRATIONS AND JUNCTIONS

Check that adjoining walls and parapets are prepared ready for the installation of the roofing. Confirm that openings have been prepared ready for the installation of skylights and other penetrations through the roof.
Required work includes the following:

- underlay turned up at wall and parapet lines
- underlay finished and dressed off to all openings, ready for the installation of skylights and other penetrations
- 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).

3.9 SET-OUT

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

3.10 MARKING AND CUTTING

Use ink pen, chalk line or coloured pencil for marking roof sheets prior to cutting. Do not use lead pencil for marking Zincalume®, Colorsteel® and ColorCote®. Cut by shear only, using nibblers or hand snips. Remove all cutting and drilling debris from the roof.

3.11 FIX SHEETS

Fix sheets in place using the fastening system in accordance with Roofing Industries Profile Technical Summary - fixing chart to suit project wind loadings stated in the general section 1220 PROJECT or in accordance with specific design in accordance with project engineers requirements.

Use only screws as required by Roofing Industries. For timber purlins ensure minimum 30mm embedment and for steel purlins ensure minimum embedment of 3 threads. Paint colour matched fixings and accessories before installation.

3.12 THERMAL MOVEMENT

Fix for Thermal Movement to Roofing Industries Profile Technical Summary for Selected Profile.

3.13 END LAPS

End laps are not permitted, except where specifically detailed.

3.14 STOP ENDS AND DOWNTURNS

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

3.15 INSTALL FLASHINGS

Flash roof to parapets, walls and penetrations to detail. Flashings to be installed on timber framing with a moisture content of less than 20%. Where no detail is provided flash to NZMRM CoP recommendations and Roofing Industries and NZBC E2/AS1 requirements. Cut accurately and fix using sealant and rivets to detail and to Roofing Industries requirements to form a weatherproof cover. For visible flashings, plan joints/junction to take account of the aesthetic requirements.

3.16 USE OF SEALANTS

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

3.17 FLASHING PENETRATIONS

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

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

Roofing

4.1 ROOFING INDUSTRIES - TRUE OAK™ CORRUGATE ROOFING

Location:	Garage Roof
BMT/material:	0.55mm Steel
Coating system:	ColorCote® MagnaFlow™
Colour:	TBC
Purlin material:	Timber
Fixing:	12-11x55 Class 4* Type 17 Woodteks with neos or M6x55 Unitites Roofzips with neos

Accessories

4.2 FLASHINGS - GENERALLY

Profile:	Refer to drawings
BMT/material:	0.55mm Steel
Coating system:	To match roofing
Coating colour:	To match roofing

4.3 CLOSURE STRIPS

Brand:	To match roofing

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4821 FLASHINGS

1 GENERAL

This section relates to the fabrication and installation of flashing systems not forming part of a proprietary system.

1.1 RELATED WORK

Refer to ~ for ~.

Documents

1.2 DOCUMENTS

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

NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture
AS/NZS 2728	Prefinished/prepainted sheet metal products for interior/exterior building applications - Performance requirements
AS 3566	Self-drilling screws for the building and construction industries - General requirements and mechanical properties
NZS 3604	Timber-framed buildings
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

Requirements

1.3 QUALIFICATIONS

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

1.4 VERIFY DIMENSIONS

Verify dimensions against site measurements prior to fabrication.

Standards of performance

1.5 DURABILITY REQUIREMENTS

Design and install the flashings appropriate for the durability applications in accordance with NZBC B2/AS1. The Building Code B2, 3.2 requires that all hidden elements have at least the same durability as that of the element that covers it. Refer to NZBC B2/AS1 Table 1: Durability Requirements of Nominated Building Elements and NZBC E2/AS1 Table 20 Material selection.

1.6 COMPATIBILITY REQUIREMENTS

Each flashing material shall be selected in accordance with NZBC E2/AS1 Table 20 to minimise corrosion. Refer to either NZS 3604 Clause 4.2 or AS/NZS 2728 for the relevant exposure conditions. For compatibility of materials in contact and subject to run-off, refer to NZBC E2/AS1 table 21 and NZBC E2/AS1 table 22.

1.7 PROTOTYPES - REVIEW

Refer to the general section 1270 CONSTRUCTION for details of how prototypes will be reviewed and how instructions to proceed will be given. For flashings where there are no specific details or drawings, provide full size prototypes of the flashings to integrate components into the weathertight system. Co-ordinate with the trades affected by the installation. Provide the prototype flashings to the contract administrator for review.

2 PRODUCTS

2.1 FLASHING MATERIALS

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

2.2 FLASHING FABRICATION

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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.

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.

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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 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

3.12 PROTECT

Protect new work from damage.

3.13 REPLACE

Replace all damaged or marked elements.

3.14 LEAVE

Leave work to the standard required for following procedures.

3.15 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 FLASHINGS

Type	Material and finish/colour
General flashings:	0.9mm Aluminium - Colour TBC
Window/doors:	
- Head:	0.9mm Aluminium - Colour TBC
- Sill:	0.9mm Aluminium - Colour TBC
Cladding:	
- External corner:	0.9mm Aluminium - Colour TBC
- Internal corner:	0.9mm Aluminium - Colour TBC
Garage door:	0.9mm Aluminium - Colour TBC
Meter box:	0.9mm Aluminium - Colour TBC
Wall/roof junctions:	0.9mm Aluminium - Colour TBC

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6700 PAINTING GENERAL

1 GENERAL

This section relates to the general matters related to painting work

1.1 RELATED WORK

Refer to 6711 PAINTING EXTERIOR for exterior paint systems.
Refer to 6721 PAINTING INTERIOR for interior paint systems.

1.2 ABBREVIATIONS

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

APAS	Australian Paint Approval Scheme
MPNZA	Master Painters New Zealand Association Inc.
VOC	Volatile organic compound

Documents

1.3 DOCUMENTS

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

NZBC C/AS2	Protection from fire
AS/NZS 2311	Guide to the painting of buildings
AS/NZS 2312.1	Guide to the protection of structural steel against exterior atmospheric corrosion by the use of protective coatings - Paint Coatings
AS/NZS 5131	Structural steelwork - Fabrication and erection
AS/NZS ISO 9001	Quality management systems - requirements
SNZ TS 3404	Durability requirements for steel structures and components
WorkSafe	Guidelines for the provision of facilities and general safety in the construction industry
WorkSafe	Guidelines for the management of lead-based paint
MPNZA	Specification manual
MPNZA	Health and Safety Programme

Health and Safety at Work Act 2015

1.4 MANUFACTURER'S DOCUMENTS

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

Copies of the above literature are available from ~

Web:	~
Email:	~
Telephone:	~

Requirements

1.5 NO SUBSTITUTIONS

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

1.6 QUALIFICATIONS

Painters to be a member of MPNZA and experienced competent workers, familiar with the materials and the techniques specified.

1.7 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety at Work Act 2015 and WorkSafe: Guidelines for the provision of facilities and general safety in the construction industry. If the elimination or isolation of potential hazards is not possible then minimise hazards in this work on site by using the proper equipment and techniques as required in the MPNZA Health and Safety Programme. Supply protective clothing and equipment. Inform employees and others on site of the hazards and put in place procedures for dealing with emergencies.

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Refer to WorkSafe: Guidelines for the management of lead-based paint for the required procedures and precautions when:

- treating/removing lead-based paint
- burning off paint
- sanding off paint
- using solvent based paint removers.

1.8 MATERIAL SAFETY DATA SHEET

Obtain from each paint manufacturer the material safety sheet for each product used. Keep sheets on site and comply with the required safety procedures.

Warranties

1.9 WARRANTY

Warrant this work under normal environmental and use conditions against failure.
2 years: Warranty period

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

Performance

1.10 MANUFACTURER'S INSPECTION

Allow the paint manufacturers to inspect the work in progress and to take samples of their products from site if requested.

1.11 INSPECTION OF WORK

Inspection of the whole of the work at each of the stages scheduled may be made. Agree a programme that will facilitate such inspection, including notification when each part and stage of the work is ready for inspection.

2 PRODUCTS

Materials

2.1 PAINT TYPES

Use the manufacturer's complete system and only the products specified.

2.2 MATERIALS GENERALLY

Use only the Manufacturer's products which are guaranteed for their consistency and performance under AS/NZS ISO 9001 and APAS approval, prepared, mixed and applied as directed in the Manufacturer's specification sheets, specification manuals and product data sheets.

2.3 THINNERS AND ADDITIVES

Only use thinners or additives within the stated limits for the particular situations specified.

Accessories

2.4 FILLERS

For recommendations on; fillers, stopping, paint strippers, cleaning agents, etching solutions, mould inhibitors, rust inhibitors, knotting and other commodities used for the surface preparation, refer to the manufacturer of the specified coating.

3 EXECUTION

Conditions

3.1 EXECUTION

To conform to manufacturer's requirements and those methods, practices and techniques contained in AS/NZS 2311, the MPNZA Specification manual, and WorkSafe: Guidelines for the provision of facilities and general safety in the construction industry.

3.2 CORROSION PROTECTION SUPERVISION FOR STRUCTURAL STEEL

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To AS/NZS 5131, 9.9.20, for corrosion protection of structural steel. Provide an Inspection and Test Plan (ITP) to AS/NZS 5131, 13.9.1, prior to commencement.
Corrosion protection painting to be supervised by a competent person.

3.3 PREPARE

Prepare surfaces to the coating manufacturer's requirements.

3.4 COATED SURFACES

Ensure that substrate surfaces are able to achieve the specified finish.

3.5 PRE-PRIMED SURFACES

Sand down any breakdown or damage of the primer to a sound surface and immediately re-prime.

3.6 BRUSH DOWN

Brush down surfaces immediately before application, to remove dust, dirt and loose material.

3.7 COMPATIBILITY

Check that materials are as required by the paint manufacturers for the particular surface and conditions of exposure, and that they are compatible with each other. Use paint from the same manufacturer for each paint system. If not compatible, obtain instructions before proceeding.

3.8 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.

3.9 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.

3.10 ANCILLARY SURFACES

The coatings listed in schedules and elsewhere are of necessity simplified. Coat ancillary exposed surfaces to match similar or adjacent materials or areas, except where a fair-faced natural finish is required or items are completely prefinished. In cases of doubt obtain instructions before proceeding.

3.11 HARDWARE

Do not paint hinges or hardware that cannot be removed. If items can be removed, carefully remove hardware, fixtures and fittings before commencing work. Set aside where they cannot be damaged or misplaced and replace on completion.

3.12 PROTECTION

Use dropsheets, coverings and masking necessary to protect adjoining fixtures, fittings and spaces from paint drops, spots, spray and damage.

Preparation - unpainted and pre-primed timber and wood based products

3.13 MOISTURE CONTENT

Ensure moisture content at the time of application is near to the equilibrium moisture content pertaining to the particular locality in which the timber is used, without any excessive moisture content gradient between core and surface.

3.14 PREPARING DRESSED TIMBER

Ensure dressed timber is smooth, free from raised or woolly grain, planing burrs or other machining defects. Slightly round or ease sharp edges to ensure they can be properly coated. Sand timber to bring up to a smooth finish along the direction of the grain. Sand timber back to new condition timber that has been weathered.

3.15 PREPARING ROUGH SAWN TIMBER

Thoroughly brush along the direction of the grain to remove dust and dirt.

3.16 PREPARING PRE-PRIMED TIMBER

Check pre-prime coat for damage, powdering, weathering or loss of adhesion. Where primer is sound, thoroughly brush along the direction of the grain to remove dust and dirt. If there is doubt, sand back and re-prime.

3.17 TIMBER SPECIES

Check that the preparation and paint system is suitable for the timber species.

3.18 PREPARING DAMAGE AND DEFECTS

Scrape clean loose or soft material holes, depressions, resin or gum pockets, knot holes, surface splits, checks, or any localised decay. Apply primer and/or sealer specified and fill these areas with linseed oil putty or other appropriate filler.

3.19 FIXINGS

Take timber fixings below the painted or clear finished surface. Leave corrosion resistant timber fixings flush with clear finished surfaces.

3.20 CLEANING

Remove grease and oil by wiping down with solvent or water-based degreasing agent. Remove resin by wiping down with solvent or water-based degreasing agent or heating and scraping. Remove sanding dust. Bad staining may be untreatable and require replacement of timber, discuss with paint manufacturer and main contractor.

Preparation - unpainted metal

3.21 PREPARING STEEL

All steel to AS/NZS 2312.1 and structural steel also to SNZ TS 3404.
Remove loose rust and mill scale by hand-tool or power-tool cleaning. Remove more adherent rust and scale by abrasive blast cleaning or pickling. Use chemical pre-treatment to remove the last traces of rust and to inhibit rust formation.

3.22 PREPARING ZINC AND ALUMINIUM-ZINC ALLOY COATED STEEL

Remove grease, oil and other solvent soluble contaminants by wiping and/or brushing with mineral turpentine or white spirit. Wipe with a clean solvent. Allow to dry and proceed immediately with the next operation.

3.23 PREPARING ALUMINIUM

Remove grease, oil and dust by wiping and/or brushing with mineral turpentine or white spirit. Wash thoroughly using water with a few drops of detergent, then wash with clean water. Allow to dry and proceed immediately with the next operation.

Preparation - painted surfaces generally

3.24 SURFACE PREPARATION

Refer to the Manufacturer's specification sheets and product data sheets. Carry out the preparatory work required by them for each of the substrates.

For interior surfaces such as paper faced plasterboard use the Manufacturer's recommended finishing compound as an aid to achieving a Level 5 finish.

3.25 MOULD

Sterilise surface mould by washing or sponging the whole surface with a one part sodium hypochlorite household bleach to three parts clean water solution. Allow bleach to act for 30 minutes and wash off with clean water. Wash cloths and sponges regularly in clean water. Reapplication may be necessary. Treat with anti-mould solution to the treatment manufacturer's requirements.

3.26 GAP FILLING

Fill cracks, holes, indented and damaged surfaces with putty, plaster filler, wood filler, or plastic wood, as appropriate and in accordance with the paint manufacturer's requirements. Allow to dry or set before sanding back level with the surface. Prime coat or seal the timber before using putty. Wet cement or gypsum base plasters before applying filler. Use only Portland cement base types, or water-insoluble organic-based gap fillers in exterior or wet areas.

Preparation - painted surfaces in good condition

3.27 PREPARING SURFACES

Wash down surfaces with either:

- a chlorine based solution; or
- 5-10 millilitres of ordinary household detergent to 1 litre of warm water; or
- a solution of 30 grams of trisodium phosphate to 1 litre of water

Replace solutions frequently and finally wipe over a second time with a clean absorbent cloth.

For surfaces containing heavy smoke and grease deposits, wash down with either:

- mineral turpentine; or
- a 5% solution of ammonia; or
- a 1:40 solution of sugar soap and water

as necessary to remove the deposits. Wipe over with a clean absorbent cloth.

Prepare coatings which have chalked by sanding, brushing, waterblasting or other methods as appropriate.

Lightly sand glossy surfaces to ensure good adhesion of the coatings.

Application - before applying final coatings

3.28 OFF-SITE WORK

Carry out off-site preparation and coating under cover, in a suitable environment and with adequate lighting. Store items both before and after coating in a clean, dry area, protected from the weather and mechanical damage, properly stacked and spaced to permit air circulation and to prevent sticking of surfaces.

3.29 PRIMING JOINERY

Before priming preservative treated timber ensure that any cut surfaces have been retreated. Liberally coat end grain, allow to soak in and then recoat. Ensure LOSP. treated joinery has dried sufficiently to lose odour.

3.30 CONCEALED JOINERY SURFACES

Apply off-site coatings to all surfaces including those which will be concealed when incorporated into the building.

3.31 CONCEALED METAL SURFACES

Apply primer to suit the coating system to all metal surfaces which will be concealed when incorporated into the building.

3.32 DOORS

Prime or seal and paint all six faces of doors before hanging.

3.33 BEAD GLAZING

Before glazing apply the first two coats, or the primer and one undercoat, to rebates of stained, varnished or painted joinery and beads.

3.34 PUTTY GLAZING

Follow putty manufacturers recommendations for application, drying, and painting. Ensure that the putty is fully protected by the coating system as soon as it is sufficiently hard.

Application - generally

3.35 PAINTING GENERALLY

Comply with the paint manufacturer's requirements and any additional requirements in this specification.

3.36 MIXING

Thoroughly mix paints. Lift any settled pigment and ensure the paint is homogenous.

3.37 ENVIRONMENT

Paint exterior surfaces only in favourable weather conditions:

- warm dry days without frost or heavy dews
- avoid painting in direct sunlight any surfaces that absorb heat excessively
- as far as possible apply paint in the temperature range 15°C to 25°C
- do not paint if temperatures fall outside the range of 10°C and 35°C unless paints with the necessary temperature tolerance have been specified
- do not apply solvent borne paint if moisture is present on the surface

3.38 SEQUENCE OF OPERATIONS

Painting work to generally follow the following sequences:

- back painting and pre-installation painting, then post-installation exposed-face painting
- complete surface preparation before commencing painting
- apply paint in the specified sequence using the specified paint
- allow full drying time between coats to the paint manufacturer's requirements
- do not expose primers, undercoats and intermediate coats beyond manufacturers stated instructions before applying the next coat
- finish broad areas before painting trim
- ensure batch numbers of tins are matched for whole areas
- internally, paint ceilings before walls and walls before joinery, trim and other items

3.39 PAINT APPLICATIONS

Select brush, roller, or pad and apply paint to the requirements of the paint manufacturer and to obtain a smooth even coating of correct thickness, uniform gloss and colour.

3.40 DRYING TIME

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

3.41 LIGHTLY SAND

Lightly sand primers, sealers, undercoats and intermediate coats to remove dust pick-up, protruding fibres and coarse particles. Remove dust immediately before applying the next coat.

3.42 DEFECTIVE WORK

Correct defective work immediately and re-coat as required, following precisely the paint system specified.

3.43 EACH COAT

Each coat of paint and the completed paint system to have the following qualities and properties:

- uniform finish, colour, texture, sheen and hiding power
- the specified number of coats applied
- no blemishes such as runs, sags, crinkling, fat edges, entrained paint skins, hairs, dust, bare or starved patches, cracks, brush marks, ladder marks and blistering
- proper covering of corners, crannies, thin edges, cracks, end grain and other difficult places of application

Completion

3.44 CLEAN

Clean adjoining surfaces, glass and fittings of any paint contamination. Clean off glass indicators at completion of the building works. Clean glass inside and out to a shining finish.

3.45 CLEAN EQUIPMENT

Use the Manufacturer's environmental wash system for the cleaning of water-based paint and plasters from brushes, rollers, plastering or spray equipment to separate the solids from the water component for safe disposal.

3.46 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.

3.47 REMOVE

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

3.48 REPLACE HARDWARE

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

4 SELECTIONS

4.1 SELECTIONS

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

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6711 PAINTING EXTERIOR

1 GENERAL

This section relates to the preparation of exterior unpainted and pre-painted surfaces, and the application of exterior:

- decorative paint coatings
- protective paint coatings
- sealers
- stains
- clear finishes

Related work

1.1 RELATED SECTIONS

Refer to 6700 PAINTING GENERAL for general painting matters.
Refer to 6721 PAINTING INTERIOR for interior paint systems.

Documents

1.2 MANUFACTURER'S DOCUMENTS

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

Copies of the above literature are available from ~

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

Warranties

1.3 WARRANTY

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

2 years:	Warranty period

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

2 PRODUCTS

2.1 PRODUCTS

Refer to 6700 PAINTING GENERAL for product clauses.

3 EXECUTION

3.1 EXECUTION

Refer to 6700 PAINTING GENERAL for execution clauses.

4 SELECTIONS

Paint systems

4.1 WESTERN RED CEDAR WEATHERBOARD - PAINT

Brand:	Resene
Coating type:	Paint
System:	Resene Lumbersider - Water Based - Low Sheen
Preparation:	To manufacturers recommendation
1st coat - Factory-applied:	Resene Wood Primer - Solvent-borne Primer
2nd coat - Factory-applied:	Resene Quick Dry - Water-borne Acrylic Primer Undercoat

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3rd and 4th coats - Site-applied:

6721 PAINTING INTERIOR

1 GENERAL

This section relates to the preparation of interior unpainted and pre-painted surfaces, and the application of interior:

- decorative paint coatings
- protective paint coatings
- sealers
- stains
- clear finishes

Related work

1.1 RELATED SECTIONS

Refer to 6700 PAINTING GENERAL for general painting matters.
Refer to 6711 PAINTING EXTERIOR for exterior paint systems.

Documents

1.2 MANUFACTURER'S DOCUMENTS

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

Copies of the above literature are available from ~
Web: ~
Email: ~
Telephone: ~
Facsimile: ~

Warranties

1.3 WARRANTY

Warrant this work under normal environmental and use conditions against failure.
2 years: Warranty period

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

2 PRODUCTS

2.1 PRODUCTS

Refer to 6700 PAINTING GENERAL for product clauses.

3 EXECUTION

3.1 EXECUTION

Refer to 6700 PAINTING GENERAL for execution clauses.

4 SELECTIONS

Paint systems

4.1 TIMBER - PAINT

Brand: TBC
Coating type: TBC
System: TBC
Preparation: TBC
1st coat: TBC
2nd coat: TBC
3rd coat: TBC

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4.2 CONCRETE - INTERNAL CONCRETE TO NUDURA ONE SERIES WALLS

Brand:	TBC
Coating type:	Clear seal
System:	TBC
Preparation:	TBC
1st coat:	TBC
2nd coat:	TBC
3rd coat:	TBC

4.3 TIMBER TRIM / DOORS / FRAMES

Brand:	TBC
Coating type:	TBC
System:	TBC
Preparation:	TBC
1st coat:	TBC
2nd coat:	TBC
3rd coat:	TBC

4.4 CONCRETE FLOORS

Brand:	TBC
Coating type:	Clear seal
System:	TBC
Preparation:	TBC
1st coat:	TBC
2nd coat:	TBC
3rd coat:	TBC

4.5 METAL

Brand:	TBC
Coating type:	TBC
System:	TBC
Preparation:	TBC
1st coat:	TBC
2nd coat:	TBC
3rd coat:	TBC

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7112 WATER STORAGE TANKS

1 GENERAL

This section relates to the installation of water storage tanks for potable or non-potable water.

1.1 RELATED WORK

Refer to ~ for ~.

Documents

1.2 DOCUMENTS

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

NZBC B1/AS1	Structure
NZBC E1/AS2	Surface water
NZBC G1/AS1	Personal hygiene
NZBC G2/AS1	Laundering
NZBC G3/AS1	Food preparation and prevention of contamination
NZBC G12/AS1	Water Supplies
NZBC G12/AS3	Water Supplies
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent application
AS 1445	Hot-dipped zinc-coated, aluminium/zinc-coated or aluminium/zinc /magnesium-coated steel sheet - 76 mm pitch corrugated
AS/NZS 1546.1	On-site domestic wastewater treatment units - septic tanks
AS 2070	Plastic materials for food contact use
AS/NZS 2845.1	Water supply - Mechanical backflow prevention devices - materials, design and performance requirements
AS/NZS 3000	Electrical installations (Known as the Australian/New Zealand Wiring Rules)
AS/NZS 3500.1	Plumbing and drainage - water services
AS/NZS 3500.3	Plumbing and drainage - stormwater drainage
AS/NZS 4020	Testing of products for use in contact with drinking water
AS/NZS 4130	Polyethylene (PE) pipes for pressure applications
AS/NZS 4671	Steel for the reinforcement of concrete
AS/NZS 4766	Polyethylene storage tanks for water and chemicals
NZS 3104	Specification for concrete production
NZS 3106	Design of concrete structures for the storage of liquids. - SPONSORED
NZS 3109	Concrete construction
NZS 7601	Specification for polyethylene pipe (Type 3) for cold water services
NZS 7602	Specification for polyethylene pipe (Type 5) for cold water services
NZS 7610	Specification for blue polyethylene pipes up to nominal size 63 for below ground use for potable water
HB 230	MPMSAA Rainwater Tank Design and Installation Handbook (Standards Australia)
HE4602	Household water supplies: The selection, operation, and maintenance of individual household water supplies
HE10148	Water collection tanks and safe household water (Ministry of Health)
SNZ PAS 4509	New Zealand Fire Service Firefighting Water Supplies Code of Practice
Ministry of Health	Guidelines for drinking-water quality management for New Zealand

Electricity (Safety) Regulations 2010 (Reprint as at 21 January 2019).

Warranties

1.3 WARRANTY

Provide warranty for:

~ years	For ~

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

Refer to the general section 1237 WARRANTIES for additional requirements.

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:
~ years For ~

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

Refer to the general section 1237 WARRANTIES for additional requirements.

1.5 WARRANTY - INSTALLER

Provide an installer/applicator warranty:
~ years For ~

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.7 QUALIFICATIONS WORKERS – LICENSED UNDER STATUTE

Workers and supervisors to be appropriately qualified to applicable legislative requirements. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.8 HEALTH REQUIREMENTS

Refer to HE4602 for guidance.

1.9 NO SUBSTITUTIONS

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

1.10 INFORMATION FOR OPERATION AND MAINTENANCE

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

Provide this information prior to practical completion.

Compliance information

1.11 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

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

1.12 INFORMATION REQUIRED FOR POTABLE WATER SAFETY COMPLIANCE

Provide the following compliance documentation:

- Drinking Water Register entry.

Performance

1.13 DESIGN AND INSTALLATION

To HB 230 Rainwater Tank Design and Installation Handbook, to AS/NZS 3500.1 as modified by NZBC G12/AS1, AS/NZS 3500.3 as modified by NZBC E1/AS2 and to NZBC G1/AS1 and NZBC G12/AS1.

1.14 TESTING OF PRODUCTS

Materials used in the manufacture of rainwater tanks to be tested to AS/NZS 4020.

1.15 TESTING OF POTABLE WATER QUALITY

Submit test results from a Ministry of Health-registered laboratory.

Quality control and assurance

2 PRODUCTS

Materials

2.1 TANK BASE BEDDING

Clean sand or concrete 100 to 150mm thick.

2.2 CONCRETE

Concrete for foundations to NZS 3104.
Prescribed mix 17.5 MPa: For in situ tank base and water pump pad.

Components

2.3 UNDERGROUND WATER STORAGE TANK

Tank generally to NZBC G12/AS1, AS/NZS 3500.1 as modified by NZBC G12/AS3, section 2 Materials and products and section 8 Water storage tanks, AS/NZS 4020 and:

- Underground tank manufactured from polyethylene to AS/NZS 4766 and to AS 2070.
- Underground tank manufactured from reinforced concrete. To be designed, inspected and certified by a professional consulting engineer in accordance with the specified test method, performance requirements, pressure testing and objectives of AS/NZS 1546.1.

Tanks to be fitted with a secure fitting lid to provide internal access for cleaning or inspection.

Accessories

2.4 TANK FITTINGS

Fittings kit supplied with the tank for complete installation.

2.5 PVC-U PIPES AND FITTINGS

Unplasticised PVC pipe and fittings to AS/NZS 1260.

2.6 POLYETHYLENE PIPES AND FITTINGS

High density polyethylene pipe and fittings to AS/NZS 4130.

2.7 WATER PRESSURE PUMP

Pump designed to pressurise water supply from tank into the building.

2.8 TANK VENT

Vent with insect proof stainless steel mesh fitted on top of the tank.

2.9 FIRST FLUSH WATER DIVERTER

Wall mounted or underground system specific to installation. To prevent the first flow of water from the roof entering the water storage tank.

2.10 FILTER SYSTEM

Inline cartridge filter housing fitted between the first flush diverter and the inlet, or a 955 micron filter tank screen system fitted within the tank.

2.11 INLET LEAF STRAINER

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Inlet leaf strainer manufactured from UV stabilised polypropylene. Built-in stainless steel or anodised aluminium mesh & light diffuser to minimize build-up of algae. Copper or copper alloys must not be used. Overflow diameter to match inflow pipe diameter. Fitted with a PVC-U overflow with appropriately contoured flanges or a stormwater pipe adapter.

2.12 TANK VACUUM SYSTEM

Designed to suck from the bottom of the tank when the tank is full to overflowing. System to include anti siphon device.

2.13 WATER TREATMENT (UV)

Combination filtration and UV disinfection system.

2.14 SEALS

Uniseals for pipe connections to the top of the tank.

2.15 RAIN HEAD

Head piece, forming a screened entry point to the tank. Designed to fit at the top of vertical PVC piping, incorporating a mesh screen to intercept debris and thereby allowing only water to pass through.

2.16 TANK LEVEL INDICATOR

- Floating pole type water level gauge with a large red-orange ball indicator protruding above the tank roof.
- Simple pulley and counterweight system with free hanging indicator beside the tank.

2.17 RAINWATER-TO-MAINS WATER SWITCHING DEVICE

Dual source controller designed to source rainwater for water applications such as toilets and/or laundry, with automatic mains water back-up. Also suitable for exterior taps. Switches between rainwater and mains water supply. Fits on top of the tank. Built-in backflow protection valve (dual check valve) to AS/NZS 3500.1 as modified by G12/AS3.

3 EXECUTION

Conditions

3.1 SITE ACCESS

Transportation on site to the position of the tank is at the risk and responsibility of the contractor. Make provision for manoeuvring and unloading of tank.

3.2 DELIVERY, STORAGE & HANDLING OF PRODUCTS

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

3.3 ROUTINE MATTERS

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

3.4 PRE-INSTALLATION REQUIREMENTS

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

Installation - generally

3.5 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Installation - site

3.6 SITE EXCAVATION FOR UNDERGROUND TANK

Excavate to required size. Place tank into excavation and connect up to the plumbing system with backflow prevention fitted to AS/NZS 3500.1, as modified by NZBC G12/AS3. Drainage system to AS/NZS 3500.3, as modified by NZBC E1/AS2. Backfill with free draining material to manufacturer's requirements. Ensure tank access lids are designed and installed to prevent child and stormwater ingress.

3.7 INSTALL UNDERGROUND TANK

Lay 100mm compacted base course material under tank. Position tank on the prepared compacted level base. Fix underground tank installation anchors and hydraulic uplift restraint ties.
Backfill around tank with crushed stone or gravel to minimum 150mm above tank crown level.
Backfill and base course material to be either:

- Crushed stone or gravel: washed, with angular particle sizes no larger than 13.2mm with no more than 5% passing a 2.36mm sieve. Dry density must not be less than 1500kg/m³.
- Approved backfill should not be mixed with sand or native soils and should always be brought up to at least the tank crown level. The use of non-specified backfill material could result in tank failure. (i.e. Gap 7).
- Naturally rounded gravel: clean naturally-rounded aggregate with particle sizes no larger than 19mm with no more than 5% passing a 2.36mm sieve. Dry density must not be less than 1500kg/m³.
- Contractor to work in maximum backfill lifts of 300mm. After each lift, contractor to use long handled probe to work the backfill material under the entire length of the tank and within any ribs.
- All voids and spaces to be filled to ensure adequate support of tank.

Stated depths assume no hydraulic loads. Consult engineer if high water table is possible or expected.
Top of tank to be minimum 350mm below finished ground level. Depth of cover for tanks must not exceed 2000mm over top of tank. Backfill over tank with clay or native soil, then spread minimum 100mm topsoil over.
Fix trafficable lid and riser.

3.8 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.

Installation - fittings

3.9 WATER PUMP INSTALLATION

Install pump on a solid base bolted down through base plate. Place weather tight housing over the pump and secure to base. Connect to water supply and power supply.

3.10 WATER TREATMENT SYSTEM INSTALLATION

Install ultraviolet light radiation treatment unit between pump and house to manufacturer's specifications. Connect to power supply provided.

3.11 BACK FLOW PREVENTION DEVICES

Install to AS/NZS 2845.1, to AS/NZS 3500.1 as modified by G12/AS3 and to NZBC G12/AS1.

Installation - connections

3.12 FIRST FLUSH WATER DIVERTER

Install either adjacent to the tank or underground, first flush water diverter. Connect downpipes from the roof gutter to the first flush water diverter. Connect the first flush diverter to the top of the tank. Refer to manufacturer's installation details.

3.13 FILTER INSTALLATION

Install proprietary in-line filter before the inlet connection.

3.14 INLET CONNECTION

Install inlet pipe into top of tank at manufacturer's designated mounting area using a Uniseal type connection.

3.15 OUTLET CONNECTION

Install pipe to manufacturer's installation details. To the outlet connect a floating arm draw-off to deliver water from 100mm below the surface. From the base connection run a flexible hose to the pump. Install ball valve in line between base connection and water pump. Support all pipework at outlet.

3.16 OVERFLOW PIPE

Install pipe to manufacturer's installation details and connect to approved discharge point or as detailed.

3.17 PIPE SEALS

Insert Uniseals in clean cut holes of the correct size. Insert Uniseal into hole with widespread facing the pipe to be inserted. Lubricate the pipe with detergent and push through the Uniseal. Use only on top of tank connections.

3.18 RAIN HEAD

Fit rain head to junction between rainwater downpipe and water storage tank inlet pipe.

3.19 TANK LEVEL INDICATOR

Install tank level indicator into top of above ground water storage tank.

3.20 LINKING MULTIPLE TANKS

Link multiple tanks together by the following method:

- Top link - fills tanks individually in series, via overflow pipes. Connect the outlet (to tap) across all tanks (at the bottom; with isolation valve on each.
- Bottom link - fills all tanks in parallel, via bottom inlet. Only one tapping point needed.

Tanks to be sited level with each other.

3.21 RAINWATER-TO-MAINS WATER SWITCHING DEVICE

Install switching device to water storage tank, to divert outgoing water supply from tank-fed to reticulated water main-fed. Make connections for automatic operation.

3.22 ELECTRICAL CONNECTION

Installation to Electricity (Safety) Regulations 2010, and AS/NZS 3000. Allow to connect up water pump and water treatment unit to the power supply as provided.

Completion & commissioning

3.23 COMPLETION MATTERS

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

3.24 COMPLETION - TESTS & CERTIFICATION

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

3.25 POTABLE WATER - ODOUR & TASTE

Ensure that contaminants are not introduced into the water tank. In the event that any odour or taste is noticed, check the catchment area for contaminants such as lichen or deceased animals. New tanks should be flushed out if slight odour or taste is present. First fill of water in tanks to be discarded prior to use. Flush-out tank if odour or taste is still present.

3.26 COMMISSIONING - TESTS & CERTIFICATION

Refer to 1270 CONSTRUCTION for general test and certification requirements for commissioning.
~

3.27 POST INSTALLATION TESTING

Test and commission the completed system to manufacturer requirements and AS/NZS 3500.1, 17.3 Testing and for potable water, tanks shall be cleaned and disinfected prior to use, in accordance with AS/NZS 3500.1 Appendix G Cleaning and disinfection of storage tanks. At the completion and testing of the water service, check all valves and other components to confirm their correct performance.

4 SELECTIONS

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

Products

4.1 UNDERGROUND WATER STORAGE TANK

Location:	3no Tanks to South of New Garage
Manufacturer:	Oasis Clearwater
Tank material:	Precast concrete
Capacity:	20 cubic meters

Filter: In-line cartridge filter housing

Spares & maintenance products

7411 RAINWATER SPOUTING SYSTEMS

1 GENERAL

This section relates to rainwater disposal systems including spouting and downpipes in:

- metal
- PVC

1.1 RELATED WORK

Refer to ~ for ~.

1.2 ABBREVIATIONS AND DEFINITIONS

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

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
Spouting	Roof gutter bracketed off the roof edge or fascia.
Gutter	Internal gutter or gutter formed as integral part of the roof fabric.

Documents

1.3 DOCUMENTS

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

NZBC E1/AS1	Surface water
NZBC E1/AS2	Surface water
AS 1273	Unplasticised PVC (uPVC) downpipe and fittings for rainwater
AS/NZS 3500.3	Plumbing and drainage - Stormwater drainage
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

1.4 MANUFACTURER'S DOCUMENTS

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

Copies of the above literature are available from ~

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

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this work under normal environmental and use conditions:

10 Years	For failure of coating adhesion
10 Years	For weatherproofing by material penetration

Form:	Manufacturer's standard warranty form
From:	Commence the warranty from the date of completion of installation

Refer to the general section 1237 WARRANTIES for details of when completed warranty must be submitted.

1.6 WARRANTY - INSTALLER/APPLICATOR

Warrant this work under normal environmental and use conditions against:

3 years:	For weatherproofing by substandard workmanship:
From:	Commence the warranty from the date of completion of installation
Form:	Installers standard warranty form

Refer to the general section 1237 WARRANTIES for details of when completed warranty must be submitted.

Requirements

1.7 QUALIFICATIONS

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

Performance

1.8 TEST

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

2 PRODUCTS

Materials - metal

2.1 SPOUTING

Complete with matching brackets to suit spouting and screws. Refer to SELECTIONS for type.

2.2 SPOUTING BRACKETS

All exposed brackets to be colour matched before installation. Brackets to be hot-dipped galvanised, zincalume, aluminium, stainless steel or brass as specified and to suit application. Electroplated components are not acceptable. Refer to SELECTIONS for type.

2.3 DOWNPIPES

Complete with stand-off brackets, screw fixed. Refer to SELECTIONS for type.

Components

2.4 DROPPERS

Metal or uPVC droppers, compatible with spouting material and sized to fit inside the downpipe.

2.5 FASTENERS GENERALLY

Minimum Class 4 durability and not less than the roofing material being fixed.

2.6 RIVETS

Sealed aluminium, minimum diameter 4mm.

2.7 SEALANT

MS Polymer sealant.

3 EXECUTION

Conditions

3.1 HANDLE AND STORE

Handle and store downpipes, spouting and accessories to avoid damage. Store on site under cover, on a clean level area, stacked to eliminate movement and away from work in progress. Avoid exposure to sunlight if strippable film is still on the product.

3.2 SUBSTRATE

Check that fascias, barges or cladding are level and true to line and face and will allow work of the required standard without distortion to the product alignment. Do not proceed until they are up to standard.

3.3 THERMAL MOVEMENT

Make adequate provision in the fixing and jointing of the spouting for thermal movement in the length of the spouting. Provide an expansion joint in spouting over 18 metres in length for steel gutter.

3.4 CORROSION

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Separate metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips. Do not allow copper downpipes to discharge onto lower galvanized or zinc aluminium coated steel roofs.

Application - metal

3.5 INSTALLATION GENERALLY

Install to NZMRM CoP recommendations where not otherwise specified.

3.6 INSTALL VALLEY GUTTERS

Attach valley gutters to valley boards by clips allowing for thermal movement to NZMRM CoP, clause 5.6, **Valley Gutters**. Separate valley gutter from valley boards with a layer of bituminous roof underlay.

3.7 INSTALL SECRET GUTTERS

Install secret gutters to fall allowing for thermal movement to NZMRM CoP, clause 5.5.7 **Secret Gutters**. Rivet and seal joints with MS Polymer sealant.

3.8 INSTALL METAL SPOUTING

Establish minimum falls necessary (minimum 1:500, 2mm in 1 metre) to outlets to prevent ponding and screw fix brackets, true to line at 750mm centres maximum for external gutters less than 175mm wide and at 600mm centres maximum for gutters 175mm to 300mm wide. In areas where snow fall is possible the centres should be reduced to 600mm maximum. Lap spouting joints a minimum of 40mm, silicone seal between surfaces and pop rivet to the manufacturer's recommendations. Ensure the joint is fixed over its full girth. Cut out neatly for and fit the pre-formed downpipe dropper and rivet and seal around the joint. All installation to NZMRM CoP recommendations.

3.9 INSTALL PRE-PAINTED METAL SPOUTING

Establish minimum falls necessary (minimum 1:500, 2mm in 1 metre) to outlets to prevent ponding and screw fix brackets true-to-line at 750mm centres maximum for external gutters less than 175mm wide and at 600mm centres maximum for gutters 175mm to 300mm wide. In areas where snow fall is possible the centres should be reduced to 600mm maximum. Lap spouting joints a minimum of 40mm and silicone seal and pop rivet to the manufacturer's recommendations. Cut out neatly for and fit the pre-formed downpipe dropper and silicone seal around the lap joint. All installation to NZMRM CoP recommendations.

3.10 INSTALL DROPPERS

Install either 2 outlets or one outlet and an overflow to each spouting section. Cut out neatly for and fit the pre-formed downpipe dropper and rivet and seal around the joint. All installation to NZMRM CoP recommendations.

3.11 INSTALL METAL DOWNPIPES

Form downpipes complete with angle bends as needed with joints lapped and sealed. Screw fix with pipe clips to rigidly stand off the wall plumb and discharging into stormwater gully or inlet pipe. All installation to NZMRM CoP recommendations.

3.12 INSTALL OUTLETS AND OVERFLOWS

Install outlets and overflows where required to NZMRM CoP, clauses 5.8.2, **Outlets and Overflows.**

Completion

3.13 REPLACE

Replace damaged or marked elements.

3.14 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.

3.15 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 SPOUTING

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Brand:	TBC
Profile/size:	To match existing villa
Cross section:	To match existing villa
Material:	To match existing villa
Thickness:	0.55mm
Coating system:	To match existing villa
Colour:	TBC

4.2 SPOUTING BRACKETS

Type:	TBC
Material:	TBC

4.3 DOWNPIPES

Brand:	TBC
Profile/size:	80mm dia
Material:	To match existing villa
Thickness:	0.55mm
Coating system:	To match existing villa
Colour:	To match existing villa

4.4 DOWNPIPE BRACKETS

Type:	TBC
Material:	TBC

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7411 RAINWATER SPOUTING SYSTEMS

1 GENERAL

This section relates to rainwater disposal systems including spouting and downpipes in:

- metal
- PVC

1.1 RELATED WORK

Refer to ~ for ~.

1.2 ABBREVIATIONS AND DEFINITIONS

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

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
Spouting	Roof gutter bracketed off the roof edge or fascia.
Gutter	Internal gutter or gutter formed as integral part of the roof fabric.

Documents

1.3 DOCUMENTS

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

NZBC E1/AS1	Surface water
NZBC E1/AS2	Surface water
AS 1273	Unplasticised PVC (uPVC) downpipe and fittings for rainwater
AS/NZS 3500.3	Plumbing and drainage - Stormwater drainage
NZMRM CoP	NZ Metal Roof and Wall Cladding Code of Practice

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Warrant this work under normal environmental and use conditions:

10 Years	For failure of coating adhesion
10 Years	For weatherproofing by material penetration
Form:	Manufacturer's standard warranty form
From:	Commence the warranty from the date of completion of installation

Refer to the general section 1237 WARRANTIES for details of when completed warranty must be submitted.

1.5 WARRANTY - INSTALLER/APPLICATOR

Warrant this work under normal environmental and use conditions against:

3 years:	For weatherproofing by substandard workmanship:
From:	Commence the warranty from the date of completion of installation
Form:	Installers standard warranty form

Refer to the general section 1237 WARRANTIES for details of when completed warranty must be submitted.

Requirements

1.6 QUALIFICATIONS

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

Performance

1.7 TEST

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

2 PRODUCTS

Materials - metal

2.1 SPOUTING

Complete with matching brackets to suit spouting and screws. Refer to SELECTIONS for type.

2.2 SPOUTING BRACKETS

All exposed brackets to be colour matched before installation. Brackets to be hot-dipped galvanised, zincalume, aluminium, stainless steel or brass as specified and to suit application. Electroplated components are not acceptable. Refer to SELECTIONS for type.

2.3 DOWNPIPES

Complete with stand-off brackets, screw fixed. Refer to SELECTIONS for type.

Components

2.4 DROPPERS

Metal or uPVC droppers, compatible with spouting material and sized to fit inside the downpipe.

2.5 FASTENERS GENERALLY

Minimum Class 4 durability and not less than the roofing material being fixed.

2.6 RIVETS

Sealed aluminium, minimum diameter 4mm.

2.7 SEALANT

MS Polymer sealant.

3 EXECUTION

Conditions

3.1 HANDLE AND STORE

Handle and store downpipes, spouting and accessories to avoid damage. Store on site under cover, on a clean level area, stacked to eliminate movement and away from work in progress. Avoid exposure to sunlight if strippable film is still on the product.

3.2 SUBSTRATE

Check that fascias, barges or cladding are level and true to line and face and will allow work of the required standard without distortion to the product alignment. Do not proceed until they are up to standard.

3.3 THERMAL MOVEMENT

Make adequate provision in the fixing and jointing of the spouting for thermal movement in the length of the spouting. Provide an expansion joint in spouting over 18 metres in length for steel gutter.

3.4 CORROSION

Separate metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips. Do not allow copper downpipes to discharge onto lower galvanized or zinc aluminium coated steel roofs.

Application - metal

3.5 INSTALLATION GENERALLY

Install to NZMRM CoP recommendations where not otherwise specified.

3.6 INSTALL VALLEY GUTTERS

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Attach valley gutters to valley boards by clips allowing for thermal movement to NZMRM CoP, clause 5.6, **Valley Gutters**. Separate valley gutter from valley boards with a layer of bituminous roof underlay.

3.7 INSTALL SECRET GUTTERS

Install secret gutters to fall allowing for thermal movement to NZMRM CoP, clause 5.5.7 **Secret Gutters**. Rivet and seal joints with MS Polymer sealant.

3.8 INSTALL METAL SPOUTING

Establish minimum falls necessary (minimum 1:500, 2mm in 1 metre) to outlets to prevent ponding and screw fix brackets, true to line at 750mm centres maximum for external gutters less than 175mm wide and at 600mm centres maximum for gutters 175mm to 300mm wide. In areas where snow fall is possible the centres should be reduced to 600mm maximum. Lap spouting joints a minimum of 40mm, silicone seal between surfaces and pop rivet to the manufacturer's recommendations. Ensure the joint is fixed over its full girth. Cut out neatly for and fit the pre-formed downpipe dropper and rivet and seal around the joint. All installation to NZMRM CoP recommendations.

3.9 INSTALL PRE-PAINTED METAL SPOUTING

Establish minimum falls necessary (minimum 1:500, 2mm in 1 metre) to outlets to prevent ponding and screw fix brackets true-to-line at 750mm centres maximum for external gutters less than 175mm wide and at 600mm centres maximum for gutters 175mm to 300mm wide. In areas where snow fall is possible the centres should be reduced to 600mm maximum. Lap spouting joints a minimum of 40mm and silicone seal and pop rivet to the manufacturer's recommendations. Cut out neatly for and fit the pre-formed downpipe dropper and silicone seal around the lap joint. All installation to NZMRM CoP recommendations.

3.10 INSTALL DROPPERS

Install either 2 outlets or one outlet and an overflow to each spouting section. Cut out neatly for and fit the pre-formed downpipe dropper and rivet and seal around the joint. All installation to NZMRM CoP recommendations.

3.11 INSTALL METAL DOWNPIPES

Form downpipes complete with angle bends as needed with joints lapped and sealed. Screw fix with pipe clips to rigidly stand off the wall plumb and discharging into stormwater gully or inlet pipe. All installation to NZMRM CoP recommendations.

3.12 INSTALL OUTLETS AND OVERFLOWS

Install outlets and overflows where required to NZMRM CoP, clauses 5.8.2, **Outlets and Overflows.**

Completion

3.13 REPLACE

Replace damaged or marked elements.

3.14 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.

3.15 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 SPOUTING

Brand:	TBC
Profile/size:	To match relocated villa
Material:	Painted steel
Thickness:	0.55mm
Coating system:	To match Relocated villa.
Colour:	To match Relocated villa.

4.2 SPOUTING BRACKETS

Type:	To match Relocated villa.

Material:	To match Relocated villa.

4.3 DOWNPIPES

Brand:	TBC
Profile/size:	80mm dia.
Material:	Painted Steel
Thickness:	0.55mm
Coating system:	To match Relocated villa.
Colour:	To match Relocated villa.

4.4 DOWNPIPE BRACKETS

Type:	To match Relocated villa.
Material:	To match Relocated villa.

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7430 DRAINAGE

1 GENERAL

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

1.1 DOCUMENTS

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

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

Plumbers, Gasfitters and Drainlayers Act 2006

1.2 MANUFACTURER'S DOCUMENTS

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

Copies of the above literature are available from ~

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

1.3 AS BUILT DOCUMENTS

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

1.4 QUALIFICATIONS

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

2 PRODUCTS

2.1 CONCRETE

17.5 MPa prescribed mix to NZS 3104.

2.2 REINFORCEMENT

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

Components

2.3 PVC-U PIPES

PVC-U pipes bends, junctions, fittings and joints to AS/NZS 1254 and AS/NZS 1260.
Underground PVC-U pipe to be classified as follows:

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

2.4 SURFACE WATER SUMP GRATINGS

Cast iron frame with lift-up grating.

2.5 STRIP DRAIN CHANNEL

Proprietary, modular, variable invert, plastic, steel (various types), or polymer concrete drainage channel sections and drainage sump, embedded in site concrete and fitted with selected metal gratings.

Foul water

2.6 TRENCH BACKFILLING MATERIAL, FOUL WATER - NZBC G13/AS2

Bedding and backfilling material to NZBC G13/AS2, 2.0 Materials**,** for methods shown in NZBC G13/AS2, figure 7, Bedding and backfilling.

3 EXECUTION

3.1 EXCAVATE

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

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

3.2 MANUFACTURER'S REQUIREMENTS

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

3.3 FOUL WATER DRAINAGE GENERALLY - NZBC G13/AS2

Carry out foul water drainage work to NZBC G13/AS2 and NZBC G1/AS1 and complete all tests to NZBC G13/AS1, 7.1 Test Methods.
Lay uPVC pipe systems to relevant sections of AS/NZS 2032. Lay polyethylene pipes and fittings to relevant sections of AS/NZS 2033.

3.4 SURFACE WATER DRAINAGE GENERALLY - E1/AS1

Carry out stormwater drainage work to NZBC E1/AS1, and complete all tests to NZBC E1/VM1, 8.0 Drain Leakage Tests.
Lay uPVC pipe systems to relevant sections of AS/NZS 2032, AS/NZS 2566.1 and AS/NZS 2566.2. Lay polyethylene pipes and fittings to relevant sections of AS/NZS 2033 and AS/NZS 2566.1.

3.5 LAY FOUL WATER DRAINS

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

3.6 LAY STORMWATER DRAINS

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

3.7 INSTALL STRIP DRAIN CHANNEL

Excavate trench and form site concrete base to fall. Set interlocking channel sections, sumps and accessories in place, all in accordance with the channel manufacturer's requirements. Check falls and install gratings and covers.

3.8 INSTALL SURFACE WATER SUMP

To NZBC E1/AS1 or to AS/NZS 3500.3 section 7 as modified by NZBC E1/AS2, complete with ceramic half-siphon pipe and cast iron frame with a lift out grating.

3.9 SOAKHOLES OR TRENCHES

Dispose of stormwater on site as shown on the drawings, by soakage, to suit local geology and soil structure; all as directed by the territorial authority.

3.10 TESTING - FOUL WATER

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

3.11 TESTING - SURFACE WATER

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

Backfilling and encasement - Foul water and surface water

3.12 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.

3.13 TRENCH BACKFILLING GENERALLY - FOUL WATER

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

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

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

3.14 TRENCH BACKFILLING GENERALLY - SURFACE WATER - NZBC E1/AS1

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.

3.15 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.
PVC-U pipe to AS/NZS 2032 and polyethylene pipes to AS/NZS 2033.

3.16 SURFACE WATER TRENCH BACKFILLING - NZBC E1/AS1

Carry out surface water trench backfilling to NZBC E1, 3.9.6 and fig. 13.
PVC-U pipe to AS/NZS 2032 and polyethylene pipes to AS/NZS 2033.

4 SELECTIONS

4.1 PVC-U PIPES

Brand/type:	TBC

4.2 STRIP DRAIN

Location:	To New Garage and Rear of Relocated Villa
Brand/type:	TBC
Size:	TBC
Grate:	TBC

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7556E ESCEA WOOD FIRES

1 GENERAL

This section relates to the supply and installation of Escea wood fires.
It includes;

- Indoor Spartherm wood fires
- Indoor Escea wood fires
- Outdoor Escea wood fires

1.1 RELATED WORK

Refer to ~ for ~.

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

AAC	Autoclaved Aerated Concrete
NES	Resource Management (National Environmental Standards for Air Quality) Regulations 2004
ECAN	Environment Canterbury
GRC	Glass Reinforced Concrete
LEB	Low Emission Burner(to AS/NZS 4012 & AS/NZS 4013, emissions ≤ 1.5 g/kg, efficiency ≥ 65%)
CM1	ECAN Canterbury Method 1 for testing of ultra-low emission wood burners
NCC	Nelson City Council
SFAIT	Solid Fuel Appliance Installation Technician

Documents

1.3 DOCUMENTS

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

NZBC B2/AS1	Durability
AS/NZS 2918	Domestic solid fuel burning appliances-Installation
AS/NZS 4012	Domestic solid fuel burning appliances - Method for determination of power output and efficiency
AS/NZS 4013	Domestic solid fuel burning appliances - Method for determination of flue gas emission

Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (NES)
ECAN Canterbury Method 1 for testing of ultra-low emission wood burners (CM1)

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

- Spartherm Wood Fires product catalogue
- Spartherm Wood Fires technical information
- Spartherm Wood Fires Installation Manual
- Escea TFS650-1000 Installation Manual
- Escea TC950 Installation Manual
- Escea Outdoor Fires product catalogue
- Escea EK Series Installation Manual
- Escea EK Series Timber Cavity/AAC Heat Cell Design Guide
- Escea EK Series Concrete Cavity Design Guide
- Escea EW5000 Installation Manual
- Escea EP1350 Installation Manual

Manufacturer/supplier contact details

Company:	Escea Ltd
Web:	www.escea.com/nz www.sparthermfires.co.nz
Telephone:	0800 173 000 / 03 478 8220

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Warranties

1.5 WARRANTY - INSTALLER

Provide an installer/applicator warranty:
2 year: 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.

1.6 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:
5 year: Escea Indoor Firebox Warranty
1 year: Escea Indoor 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

1.7 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Escea or Spartherm products, or associated products, components or accessories listed in this section.

1.8 QUALIFICATIONS WORKERS – MANUFACTURER / SUPPLIER REQUIREMENTS

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

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.

Performance

1.10 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'.

1.11 DURABILITY

Solid fuel-burning appliances to be installed to comply with NZBC B2/AS1 Table 1 Durability requirements of nominated building elements.

1.12 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.

1.13 INSPECTIONS

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1.14 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 INDOOR INBUILT WOOD FIRE - SPARTHERM

Install fireplace complete with necessary fittings to Spartherm installation requirements. Ensure non-combustible light weight Skamotec 225 Insulation board is installed for cavity lining of all Spartherm in-built wood fires. Include compulsory convection air vents and combustion air vents. Refer to Spartherm installation instructions.

3.8 INSTALL SURROUNDS / FASCIAS

Install surrounds and fascias complete with necessary fittings to manufacturer's installation requirements. Refer to Escea for installation instructions.

3.9 INSTALL SPARTHERM INDOOR WOOD FLUE

Install Spartherm Wood Fire flue system, in the selected location, complete with the necessary fittings and flashings to Spartherm installation requirements and *AS/NZS 2918.*

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 www.escea.com/nz or www.sparthermfires.co.nz Substitutions are not permitted to the following, unless stated otherwise.

Indoor wood burners

4.1 ESCEA INDOOR WOOD BURNER – TFS1000 FREESTANDING (RURAL ONLY)

Location/type:	Freestanding to New Garage
Manufacturer:	Escea
Model:	TFS1000
Appliance size:	606mm height x 988mm width x 506mm depth
Viewable glass area:	480mm height x 940mm width
Colour:	Black
Output (avg.):	8.7kW
ECAN number:	N/A - Rural sites only
Weight:	216kg
Aeration:	Variable
Door type:	Swing door with heat-resistant handle
Flue system:	Triple skinned flue - 150mm/200mm/250mm ∅ SS Flue (quantity 2) and GAL liners (quantity 1)
Flue kit:	Escea freestanding wood fire classic flue kit
Designer flue shroud:	Not required
Plinth or base:	Insitu concrete base using Nudura
Hearth dimensions:	Refer to drawings
Hearth material:	Selected non-combustible material at recommended hearth height (375mm)

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 ∅ stainless steel
Intake flue:	1200mm length x 200mm ∅ black
Flue casing:	1200mm length x 250mm ∅ galvanized steel
Cowl:	325mm ∅ stainless steel anti-downdraught cowl
Casing cover:	915mm length x 150-325mm ∅ stainless steel tapered casing cover
Flue kit length:	4.5m
Flue offsets:	Not required
Offset type:	NA

Accessories

4.3 ESCEA INDOOR WOOD FIRE DOUBLE SKIN FLUE EXTENSION

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Location/quantity:	New Garage
Manufacturer:	Escea
Model:	Double skin flue extension 1.2m
Colour:	Stainless steel/galvanized steel
Size:	1200mm length x 150mm ∅ stainless steel flue 1200mm length x 200mm ∅ black liner

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7701 ELECTRICAL BASIC

1 GENERAL

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

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

1.1 RELATED WORK

Refer to ~ for ~.

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.
The following abbreviations apply specifically to this section:

AFDD	Arc Fault Detection Device
ELV	Extra Low Voltage
GLS	general lighting service
IP	international (ingress) protection classification
NUO	Network Utility Operator
PCB	printed circuit board
PIR	passive infrared
SIA	security integration architecture
TPS	tough plastic sheathed
TCF	Telecommunications Carriers' Forum

Documents

1.3 DOCUMENTS

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

NZBC E2/AS1	External moisture
NZBC F6/AS1	Visibility in escape routes
NZBC G4/AS1	Ventilation
NZBC G9/AS1	Electricity
AS/NZS 1125	Conductors in insulated electric cables and flexible cord
AS/NZS 1768	Lightning protection
AS/NZS 2201.1	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
AS 2293.1:2005	Emergency escape lighting and exit signs for buildings - System design, installation and operation
AS 2293.3:2005	Emergency escape lighting and exit signs for buildings - Emergency escape luminaires and exit signs
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3008.1.2	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical New Zealand installation conditions
AS/NZS 3100	Approval and test specification-general requirements for electrical equipment
AS/NZS 3112	Approval and test specification - Plugs and socket-outlets
AS/NZS 3113	Approval and test specification - Ceiling roses
AS/NZS 3190	Approval and test specification - Residual current devices (current-operated earth-leakage devices)

AS/NZS 3439.3	Low-voltage switchgear and controlgear assemblies - Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards
NZS 4514	Interconnected smoke alarms for houses
NZS 4246	Energy Efficiency - Installing bulking thermal insulation in residential buildings
AS/NZS 5000.2	Electric cables - Polymeric insulated - for working voltages up to and including 450/750v
AS/NZS 60335.1	Household and similar electrical appliances - Safety - General requirements
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance.
AS/NZS 61439.3	Low-voltage switchgear and controlgear assemblies - Part 3: Distribution boards intended to be operated by ordinary persons (DBO).
IEC 61643	Components for low voltage surge protection devices

Electricity (Safety) Regulations 2010 (Reprint as at 21 January 2019).
TCF Premises Wiring Cable Installers Guidelines for Telecommunication Services

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

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents related to this section are:
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Manufacturer/supplier contact details:

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

Warranties

1.5 WARRANTY

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

1 year:	Warranty period

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

Requirements

1.6 COMPLY

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

1.7 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

1.8 QUALIFICATIONS WORKERS – LICENSED UNDER STATUTE

Workers and supervisors to be appropriately qualified to applicable legislative requirements. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.

1.9 CONFIRM SELECTIONS

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

1.10 ELECTRICAL CERTIFICATE OF COMPLIANCE

Supply a certificate of compliance (CoC) to the owner, and if required the NUO, as required by the Electricity (Safety) Regulations 2010, prior to connection.

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- Arrange for the NUO to inspect before the meter installation, listed work inspection, polarity check and supply becoming live.
- Arrange for an inspector to inspect high risk electrical work as required by regulation 70.

1.11 ELECTRICAL SAFETY CERTIFICATE

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

Quality control and assurance

1.12 INSPECTIONS

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2 PRODUCTS

2.1 CABLES

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

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

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

2.2 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.

2.3 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.

2.4 SWITCHED SOCKET UNITS

10 amp, 230 volt flat 3 pin socket outlets fitted with safety shutters and manufactured to AS/NZS 3100, AS/NZS 3112 and AS/NZS 3113, single or multi gang as detailed.

2.5 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.

2.6 BATTEN HOLDERS

Standard white plastic bayonet cap, with cap angled where wall mounted. Brass liners.

2.7 FIRE & SMOKE ALARM SYSYEM

Refer to SELECTIONS.

2.8 LIGHT FITTINGS

Fluorescent and High Intensity Discharge fittings with low loss control gear and power factor corrected to 0.95 minimum. Control gear suitable for dimming if this is required. All fittings complete with lamps; Incandescent GLS lamps pearl, coiled-coil 230v rated, bayonet cap; Fluorescent triphosphor 2700K; CFL; halogen ELV 12v dichroic reflector with cover glass unless detailed otherwise; integral/non-integral LEDs, reflectors, lenses, heatsinks and drivers - 3,000K to 4,000K, CRI >80, L70.

2.9 EXTERIOR LIGHT FITTINGS

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

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

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

3.3 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

3.4 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

3.5 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.

3.6 ARC FAULT DETECTION DEVICE (AFDD)

To AS/NZS 3000 clause 2.9, AFDD on all final sub-circuits not exceeding 20A.

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3.7 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.

3.8 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.

3.9 CABLING

Install wiring systems to AS/NZS 3000. All cabling run concealed. No TPS cable laid directly in concrete. Locate holes in timber framing for the passage of cables at the centre line of the timber member. Install cable in conduits where required to pass through concrete or underground. In walls run cabling horizontally and vertically in straight lines. In ceilings either run cabling along ceiling framing or attached to catenary wires. Clip cabling to ceiling framing/catenary wires.

3.10 CABLING CIRCUITS

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

3.11 WALL BOXES

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

3.12 SWITCHES AND SWITCHED SOCKET UNITS

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

3.13 LIGHT FITTINGS

Install light fittings in locations and at heights specified and confirmed by the owner, in accordance with the fitting manufacturer requirements.

3.14 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.

3.15 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, 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).

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- Loose fill insulation will require fixed barriers to NZS 4246 to maintain gaps.

3.16 LIGHT FITTINGS TO INSULATION

Type of fitting	Minimum insulation clearance	Comments
Recessed, marked NON-IC, or unmarked	100mm (increase if over 100W)	To NZS 4246. NON-IC fittings and new or old unmarked & unknown fittings, and/or insulation. Insulation to be secured.
Recessed, CA 80, CA 90, or CA 135.	Abut fittings	To NZS 4246. Do not cover the fittings.
Recessed, IC, IC-F, or IC-4.	Abut & cover fittings.	To NZS 4246. Ensure insulation complies.
Recessed, marked Do-Not-Cover	Manufacturer clearances	To NZS 4246. Do not cover the fittings.
Independent control gear	Place on top of insulation & 50mm from fittings	To NZS 4246. If not on top allow 50mm clearance to insulation, do not cover. Includes, transformers, ballasts & drivers etc.
Surface fittings not exposed to insulation	Nil	To NZS 4246. Where surface fittings are isolated from insulation by appropriate linings. Excludes high heat fittings.
Surface fittings & exposed insulation	200mm	To NZS 4246. This is exposed insulation to any part of the exposed fitting & bulb/tube (e.g. exposed light in an unlined basement). Insulation to be secured.

3.17 RECESSED LIGHT FITTINGS TO COMBUSTIBLE BUILDING ELEMENTS

Type of recessed fitting	Minimum building element clearance **	Comments
Marked NON-IC, or unmarked, ≤100W	100mm, vertical & horizontal	To AS/NZS 3000:2018
Marked NON-IC, or unmarked, >100W	200mm, vertical & horizontal	To AS/NZS 3000:2007
CA 80, CA 90 or CA 135	100mm, vertical & horizontal	To AS/NZS 3000:2018
IC, IC-F or IC-4	100mm, horizontal NA, vertical	To AS/NZS 3000:2018 To be NA vertical, fitting must be covered by insulation. If not covered use 100mm clearance.
Marked Do-Not-Cover	100mm, vertical & horizontal	To AS/NZS 3000:2018. Manufacturer clearances if greater than 100mm

****** Combustible building elements exclude metal elements, but include timber framing or other timber based elements, and normal linings etc. Highly flammable materials & those likely to melt will need more clearance.

3.18 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.

3.19 OUTDOOR/EXTERIOR SERVICES

Install all wiring systems in accordance with AS/NZS 3000 and in accordance with the manufacturer recommendations:
Provide circuits and connections for exterior installations, including ELV 12/24 Volt path lighting and electronic irrigation systems. Refer to drawings for connection points. Where underground, ensure appropriate protection, such as thickness of sheathing, conduit, depth of cabling, and proximity to other services.

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

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

3.20 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.

Completion & Commissioning

3.21 COMPLETION MATTERS

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

3.22 COMPLETION - TESTS & CERTIFICATION

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

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3.23 COMMISSIONING - TESTS & CERTIFICATION

Refer to 1270 CONSTRUCTION for general test and certification requirements for commissioning.

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4 SELECTIONS

Materials

4.1 FIRE & SMOKE ALARM SYSTEM

Refer to appropriate fire and smoke alarm section:
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Outlets - fittings

4.2 INTERIOR SWITCHES AND SWITCHED SOCKET UNITS

Item	**Brand / type**
Switch / socket outlets:	TBC
Coverplate colour:	TBC
Switch module colour:	TBC

Item	**Brand / type**
Light dimmers:	TBC

Item - RCD	**Brand / type**
Socket outlet:	TBC
Shaver outlet:	TBC
Safety switch:	TBC

4.3 INTERIOR LIGHT FITTINGS

Fitting	**Brand / type**
Pendant lights:	TBC
Pendant cord:	TBC
Ceiling lights:	TBC
Recessed floor lights:	TBC
Wall lights:	TBC
Spotlights:	TBC
Transformers:	TBC
LED Drivers:	TBC

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4.4 EXTERIOR LIGHT FITTINGS

Fitting	**Brand / type**
Wall lights:	TBC
Bulkhead lights:	TBC
Recessed lights:	TBC
Security lights:	TBC
Security light sensors:	TBC
Transformers:	TBC
LED Drivers:	TBC

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