Linda Osborne

From: Administration Requests
Sent: Monday, 11 February 2019 1:36 PM
To: Steve Hull
Cc: Administration Requests
Subject: FW: LGOIMA Request
Attachments: Hull- EHO Report 08022019.docx.pdf; Hull- Funeral specifications 08022019.pdf; Hull-Statement NDHB 08022018.pdf; FW: Dargaville Funeral Services Ltd - Registration under Health (Burial) Act 1946 and Premises Act 1966; Hull-registration 08022019.pdf; Hull-Notice to cease 08022018.pdf

Hi Steve

Thank you for your request for information relating to Dargaville Funeral Services under the Local Government Official Information and Meetings Act 1987.

Below is Council's response in red to your requests and documentation attached.

Thanks Linda

From: council@kaipara.govt.nz [mailto:council@kaipara.govt.nz]
Sent: Thursday, 20 December 2018 12:09 p.m.
To: Administration Requests <administrationrequests@kaipara.govt.nz>
Subject: LGOIMA Request

There was a form submission on your website, on the page https://www.kaipara.govt.nz/Our+Council/Local+Government+Official+Information+and+Meetings+Act+1987+LGOIMA.html.

The submitted details were:

Name	Inspect Services Ltd - Steve Hull (Managing Director)
Organisation (optional)	[redacted]
Email address	[redacted]
Telephone number	
Detailed description of request	On behalf of Dargaville Funeral Services I have been engaged to look after the project of establishing a Funeral business at the above address So far we have asked for information from F MacCabee & D Nuralli. Both have refused to answer e-mails etc. We are after the following: Details of who made the original complaint relating to the funeral business that was being run out of this address. Also what the actual complaint related to especially given Council had already approved and issued a licence for the previous 12 months.

Please find attached a redacted copy of the complaint received. Under section 7(2)(c) details relating to the complainant have been withheld as Council believes releasing this would be likely to prejudice the supply of similar information, or information from the same source, and it is in the public interest that such information should continue to be supplied.

In accordance with section 27 of LGOIMA, you have the right to complain to the Ombudsman for an investigation or review of the decision to refuse to supply some of the information in response to your request.

There was a meeting held on the 15/11/18 with Council officers - F MacCabee & D Nuralli - we require copies of the minutes from that meeting. At the meeting it was claimed that advice had been sourced from the Local Health Board - we would like a copy of this letter.

> The meeting held on the 15/11/2018 was a discussion to confirm Council's decision after consideration of your client's feasibility report and to further discuss Council's report provided to your client's lawyer beforehand. At this meeting Council discussed the reasons for discontinuation of registration, therefore not allowing [redacted] to continue operating their business as the Dargaville Funeral Services. No notes where taken at this meeting, however your client's legal representation was also present at the meeting and may have taken some notes that could be of help to you. I have included all of the relevant communication with your clients that may be of assistance to you. Please note that copies of all correspondence have been provided to your clients prior to your engagement and may also be obtained from them.
>
> The attached report documents the NDHB reasons, which assisted the Councils' decision making. I have also attached the supporting conclusion from the District Health Board.

We require a copy of the reasons why Council have withdrawn the funeral licence even after Dargaville Funeral Services had complied with requests from Council to make improvements for their licence to be renewed.
A copy of the formal notice canceling the licence along with the reasons why.

> [redacted] were made well aware that there were certain conditions placed on the registration certificate dated March 2018. The conditions were not complied with within the time period given and therefore the registration was not renewed. I have included both the notice to cease operating and registration certificate with these conditions on it. Note the conditions included how to comply with the Health Act 1956 and Regulations from the Act, including the Health Burial Regulations 1946. The report provided states where the Health Burial Regulations 1946 are not being met.
>
> Another funeral business has recently been redeveloped in Dargaville. We would like a copy of the specifications and regulations they were required to comply with.
>
> Attached is a copy of the building specifications as requested.
>
> All funeral businesses are required to comply with the Health Act 1956 and Regulations from the Act, including the Health Burial Regulations 1946. Please note there may be other legislative requirements for the specific site of Dargaville Funeral Services such as the Building Act 2004 and the Health and Safety Act 2015.

Kind regards

Steve Hull

Managing Director
Inspect Services Ltd

Report for Dargaville Funeral Directors compiled on 23 October 2018.

My name is Fern Maccabee , I have been an Environmental Health Officer employed by several Councils within the Auckland region for the past nine years. As part of my role during this time I have inspected funeral homes and there facilities including mortuaries.

Funeral Directors and their place of business are registered by Territorial Authorities under the Health (Burial) Regulations 1946.

This report is to provide an overview of the current practise and areas where the legislation is not being met and practices are not adequate to satisfy the regulatory standards and requirements currently in place.

Currently, the wash hand basin has been located outside of the cool room were body work is being carried out. Therefore, the person will need to enter in and out of the cool room door for hand washing. This is not easily accessible to wash hands and also provides a contamination risk as soiled hands or gloves will be touching the cool room door handle and then potentially be tracked outside.

In order to carry out hand washing and cleaning up after and during body work, the cool room door will need to be opened. The fly screens are not able to be cleaned and disinfected due to the material they are made of and could cross-contaminate and harbour bacteria and viruses. As there is no access to any hot or cold running water in the treatment area it is to be expected the worker will need to come in and out of the door including the fly screen door will need to be opened allowing the risk of contamination of the deceased due to insects' dirt or debris.

The current wash hand basin is located outside attached to a shed and has been constructed of wood. The basin has no flooring and therefore any spillage from any hand washing is not able to be cleaned up adequately. The area around the hand wash basin is not able to be properly cleaned and disinfected due to the material it has been constructed out of not being non-absorbent and the fact that is located in the open.

Current equipment that is being used on the deceased is needing to be removed, washed and disinfected in a sink that is located in a different area inside the shed and has been constructed of wood. The area around the sink is not able to be properly cleaned and disinfected due to the material it has been constructed out of not being non-absorbent.

Waste disposal is currently taken to the dump in black rubbish bags. Due to the risk of contamination this waste should be properly disposed of and treated as medical waste and therefore should be disposed of as medical waste. Information has been provide.

Chiller space is limited and there is currently no ventilation in the chiller.

There also needs to be consideration with regards to the chemicals and products that are being used as they may have an adverse effect on the septic system, such as large amounts of disinfectant. No report of the current septic system has been provided and therefore it is unclear as to the capability of the system or the condition of the current system.

There is likely to be worksafe requirements that are not being met that should be considered, therefore Dargaville Funeral Services should contact Worksafe NZ to ensure they meet the requirements of the Health and Safety at Work Act 2015.

It is my recommendation that the current proposal to operate in these conditions is denied and no Certificate of Registration is issued as the risks associated with this activity given the current facililty are not able to be adequately managed or mitigated to an acceptable level and compliance with regulatory standards and requirements are not being meet.

Below is listed the areas where the Health (Burial) Regulations 1946, Part 4 Mortuaries Section 21 do not comply:

Section 20 states that no Inspector of Health or Sanitary Inspector shall grant a certificate of fitness in respect of a mortuary unless in their opinion it complies with the requirements of the next succeeding regulation.

(b) it shall be substantially built and in good repair and so constructed as to prevent, as far as possible, the harbourage of rats and other vermin:
The areas outside of the chiller do not comply with this regulation as these areas cannot prevent vermin and are not in a good state of repair.

(c) the floor shall be constructed of cement concrete, mineral asphalt, or similar impervious material finished with a smooth even surface and graded and drained so that any liquid falling on the floor shall be discharged into a trapped drain outside the building:
The areas outside of the chiller does not comply with this regulation as the flooring around the wash hand basin is gravel therefore not impervious material finished with a smooth and even surface graded and drained appropriately. The gravel under the basin does not meet regulations.

(f) the walls and ceilings shall be so constructed as to be easily cleaned and to prevent, as far as possible, the lodgement of dust:

The wash hand basin area outside of the chiller does not comply with this regulation because there is no celling or floor around the wash hand basin and it is located in open air therefore exposed to dust, vermin and other contamination.

(g) it shall be adequately ventilated and the windows or other openings shall be provided with fly-proof screens, and with louvres or blinds so arranged as to be capable of excluding direct sunlight:
It is not reasonable to have the chiller door open to ventilate the chiller while working inside the chiller. There is no other ventilation therefore this regulation is not able to be met.

(h) slabs on which bodies are placed shall be of marble or other non-absorbent material and shall have a smooth even surface. The edges of all such slabs shall be raised, and a suitable outlet shall be provided for liquids to discharge into a channel in the floor or into a suitable receptacle. All angles of the slabs, both internal and external, shall be rounded:
The proposal states a first call stretcher is being used which is taken in and out of the chiller. No evidence of a suitable slab of non-absorbant material with a smooth even surface to be located in the chiller has been provided.

(i) it shall be adequately provided with hot and cold water services, an ablution basin for the cleansing of hands, and a suitable sink for the cleansing of appliances.
The wash hand basin and cleaners sink is not located in the area of work and there does not appear to be adequate area to place these within the chiller while providing sufficient space for body work.

Below is listed the areas where the Health (Burial) Regulations 1946, Part 5 Maintenance of Mortuaries Section 28 do not comply:

Section 28 states no person shall use a mortuary or cause or permit a mortuary to be used for any other purpose than as a mortuary or reception room.
The areas outside of the chiller are also being used domestically and there are no separations between the areas. The areas are unable to be separated.

This report along with all of the information provided by Dargaville Funeral Services for their proposal has been peer reviewed by Jeffery Garnham, Health Protection Officer from District Health Board who has provided the attached statement.

Note: Comments below provided by the Building Compliance Inspector Perry Veacock as unauthorised building work has been carried out:

Please note that unauthorised building work was carried out associated with establishing Dargaville Funeral Services at [redacted]Dargaville.
The building work included the sanitary plumbing and drainage associated with each floor waste within the chiller container and the installation of a wash hand basin.

The described above work required the authority of a building consent and as no building consent was obtained such work is deemed to be unauthorised and in breach of Section 40 of the Building Act 2004.

One option to remedy the contravention is to obtain a Certificate of Acceptance.

An application form for a Certificate of Acceptance has been provided to their lawyer [redacted] on the 30 October 2018.

There is no guarantee that a Certificate of Acceptance will be granted by Council. Please refer to the Building Compliance Officer regarding this aspect.

Signed by Fern Maccabee, **Environmental Health Officer**

Signed by Dean Nuralli, **Regulatory Services Mananger**

SPECIFICATION

of work to be done and materials to be used in carrying

out the works shown on the accompanying drawings

XXXX

(project name)

XXXX

(project address)

XXXX

(client)

Project Ref:

Date: 31 January 2019

Contents

1220 PROJECT

1 GENERAL

This general section describes the project including:

- A description of the work
- 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.

Description of the work

1.2 RESTRICTED BUILDING WORK

This project includes Restricted Building Work.

Site

1.3 LEGAL DESCRIPTION

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

Site environment - Wind

1.4 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 High (refer to NZS 3604, table 5.4)

Site environment - Durability

1.5 EXPOSURE ZONE

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

Site environment - Seismic

The site zone is: C

1.6 EARTHQUAKE ZONE - NON SPECIFIC DESIGN

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

The earthquake zone is: 1

Archaeological discovery

1.7 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 maybe 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.

2210 PREPARATION AND 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 NZ 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 HARD FILL

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

2.2 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.

2.3 FREE-DRAINING AGGREGATE

Scoria or crushed gravel graded 50 to 14 clean.

3 EXECUTION

3.1 EXCAVATION GENERALLY

Carry out excavation, using plant suitable for the purpose, to the guidelines set by the WorkSafe NZ, Good

Practice Guidelines - Excavation Safety.

3.2 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.

3.3 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.

3.4 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.

3.5 GENERAL EXCAVATION

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

3.6 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.

3.7 INADEQUATE BEARING

If 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. Confirm any changes with the territorial authority.

Below slabs on grade: Hardfill compacted in 150mm layers

Below footings: 10 MPa concrete

Service trenches: Hardfill compacted in 150mm layers

If excavation exceeds the required depths, backfill and compact to the correct level with material as listed.

3.8 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.

3.9 GRANULAR BASE FOR SLABS

To conform to NZS 3604, section 7.5.3, **Granular base**. Consolidate with a vibrating roller. Blind the surface with 20mm of coarse sand or sand/cement and roll ready to receive a damp-proof membrane.

3.10 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.

3.11 SURPLUS MATERIAL

Remove surplus and excavated material from the site.

3155 RAFT FLOOR SYSTEM

1 GENERAL

This section relates to a raft floor system, a non-specific design reinforced concrete waffle raft floor slab-onground.

1.1 ABBREVIATIONS AND DEFINITIONS

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

The following definitions apply specifically to this section:

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

1.2 DOCUMENTS

Documents referred to in this section are:

NZS 3101.1&2	Concrete structures standard
NZS 3104	Specification for concrete production
NZS 3109	Concrete construction
NZS 3114	Specification for concrete surface finishes
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
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.

Requirements

1.3 QUALIFICATIONS

Tradespeople to be competent, experienced and familiar with the raft floor system materials and techniques specified.

1.4 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.

1.5 QUALITY RECORDS

Keep accurate records relating to strength and quality of materials used during construction. Include records of workmanship during construction and photographs of as-built details. Make the information available to the Building Consent Authority inspector on request.

2 PRODUCTS

Materials

2.1 BLINDING

50mm maximum compacted GAP 7.

2.2 TIMBER FORMWORK

No. 2 framing and dressing or merchantable grade radiata pine boards to NZS 3631.

2.3 DAMP-PROOF MEMBRANE

0.25mm minimum polyethylene to NZS 3604: clause 7.5.4, Damp-proof membrane (DPM). Refer to **SELECTIONS**.

2.4 POLYSTYRENE PODS

Proprietary purpose made polystyrene pods.

2.5 REINFORCEMENT

Bars to AS/NZS 4671. Grade 500E deformed, other than for ties, stirrups and spirals, unless shown otherwise on the drawings.

2.6 INTERNAL CORNER REINFORCEMENT

Minimum 2 x D10 bars Grade 300E to AS/NZS 4671.

2.7 MESH

Welded reinforcing mesh to AS/NZS 4671 generally, Class E, minimum to NZBC B1/AS1 - Grade 500E,

2.27kg/m2 (1.14kg/m2 in each direction). Minimum SE62 500E mesh or the equivalent.

2.8 TYING WIRE

Mild drawn steel wire not less than 1.2mm diameter.

2.9 CONCRETE - RAFT APPLICATIONS

20 MPa 100mm slump mix in either 13mm or 19mm nominal aggregate size.

Components

2.10 SPACERS

Proprietary spacers. Refer to SELECTIONS for size.

3 EXECUTION

Conditions

3.1 STORAGE

Take delivery of and accept all materials and accessories dry and undamaged. Store on timber fillets on hard ground protected from weather, contamination and damage in a secure area clear of any building operation.

Handle and store reinforcing steel and accessories without damage or contamination.

Ensure reinforcement is clean and remains clean so that at the time of placing concrete it is free of all loose mill scale, loose rust and any other contamination that may reduce bonding capacity. Store steel fabric flat.

3.2 HANDLING

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

Application - raft floor system

3.3 SITE CLEARANCE

Clear the slab area of any vegetation and topsoil down to the subgrade level.

3.4 BUILDING PLATFORM

Create a building platform to a level surface approximately 330mm below finished floor level. Cut and/or fill sloping sites. Confirm finished floor level.

3.5 POST-CUT INSPECTION

Inspect and confirm that the soil conditions are as anticipated by the geotechnical investigation and report and conform to the requirements of the raft system supplier manual.

3.6 TEMPORARY BUILDING PLATFORM DRAINAGE

Construct suitable drainage to keep excessive ground water off the building platform during and after construction as required.

3.7 UNDERGROUND SERVICES

Ensure underfloor services are installed in the subsoil or hardfill in locations as shown on the drawings and according to the raft floor system manufacturer's requirements.

3.8 BLINDING LAYER

Spread GAP 7 blinding layer to a minimum 500mm past the outside edge of the slab, compact to a level layer no greater than 50mm thick and no higher than 305mm below finished floor level.

3.9 FORMWORK

Construct formwork as required, well braced and tied to remain in position, straight and plumb during construction. Ensure formwork will provide for the topping depth, including rebates and the required concrete finish.

3.10 INSTALL DAMP-PROOF MEMBRANE

Apply DPM to the prepared basecourse extending to the outside of all edge beams or fold and staple up the inside of the formwork. Overlap all joints in the DPM sheets a minimum 150mm. Tape laps and penetrations with 50mm wide pressure sensitive plastic tape. Ensure DPM is not damaged during the construction process.

Repair all damage to DPM before proceeding with following procedures.

3.11 PLACE POLYSTYRENE PODS

Place polystyrene pods in a regular waffle pattern using the spacers in the specified grid pattern to fit the floor plan. Cut pods on site with a saw or suitable hot wire as required. Cut holes for services and trim around piles as required on site.

3.12 INSTALL SPACERS

Install spacers and locations to the raft floor system manufacturer's requirements.

Form standard ribs between pods using 100mm spacers. Place the spacers at a minimum of one spacer along each edge of each pod or part pod. The ribs in both directions form a waffle pattern throughout the slab.

Form the edge beam using 300mm spacers. Place the spacers at 1200mm centres maximum along the perimeter of the slab at least and one spacer per pod or part pod.

Form ribs to support load bearing walls using 300mm spacers. Place the spacers at a minimum of one spacer along the edge of each pod or part pod.

3.13 PLACE REINFORCING STEEL: RIB STEEL

Place rib reinforcing steel in the bottom of the internal ribs and supported in the correct position by spacers.

Lap all steel 480mm minimum. At the junction with the edge beam, each rib steel bar shall sit on top of the edge beam bars and extend to the outermost bar. Allow for 75mm cover to the edge of the beam. Place 1 x H12 bar in each 100mm wide rib and 2 x H12 bars in each 300mm wide rib.

3.14 PLACE REINFORCING STEEL: EDGE BEAM STEEL

Place the two edge beam reinforcing bars in the bottom of the edge beam and supported in the correct position by the spacers. Tie one edge beam bar below the mesh at the perimeter of the area

covered by the polystyrene pods. Lap all steel 480mm minimum. At corners, the inner bottom bars and the top bars cross each other and extend to 75mm from the outside face of the edge beam. Tie these bars together where they cross. Tying of edge beam steel is only required at corners.

3.15 PLACE REINFORCING STEEL: RE-ENTRANT CORNER STEEL

Place two D10 bars, 1200mm in length across the corner. Tie to the top of the mesh at re-entrant corners at 200mm centres with 50mm side cover from the internal corner.

Install specified steel to raft floor system manufacturer's requirements. Ensure specified minimum cover requirements are maintained.

3.16 PLACE REINFORCING MESH AND CHAIRS

Place reinforcing mesh over the pods and support on the mesh chairs spaced at 1200mm centres minimum, with two mesh chairs minimum placed per pod and with one mesh chair minimum per part pod.

3.17 MESH LAPS

Welded reinforcing mesh to be lapped and tied, such that the outermost wires overlap by the greater of:

- the spacing of the cross wires plus 50mm
- 150mm or
- manufacturer's requirements

Do not count bar extensions beyond the outermost cross wire.

3.18 FORM SLAB AND OPENING REBATES

Form rebates, as detailed on drawings.

Form a minimum 50mm rebate in slab for masonry veneer construction with a width dependent on the veneer width, cavity width and overhang. Waterproof the rebate with a bituminous sealer on both the vertical and horizontal faces.

3.19 TOPPING SLAB DEPTH

85mm minimum plus additional cover as required for infloor heating.

3.20 PRE-PLACEMENT INSPECTION

Arrange for excavations, formwork and reinforcement to be inspected and passed by the Building Consent Authority.

3.21 CONCRETE PLACEMENT AND COMPACTION

Ensure the rib and edge beam canals are clean, free of debris. Pour the floor in a single pour ensuring that the pods remain in position during placing. Pour concrete onto the top of each pod prior to filling the ribs around the pod to help prevent them from floating and lifting.

Compact concrete using a suitable poker vibrator for the ribs and ground beams and into all corners of the formwork. Screed as required. Confirm levels with a laser level.

3.22 CONCRETE FINISHING

Float and trowel to provide a U3 finish to NZS 3114: table 2, Classes of floor, exterior pavement and invert finishes.

3.23 CONCRETE CURING

Curing of the concrete slab must take place immediately after finishing the concrete to NZS 3109 by one of the following curing methods:

- ponding or continuous sprinkling of water
- placing a wet covering or plastic membrane over the slab
- the use of liquid membrane curing compounds

3.24 SHRINKAGE CONTROL JOINTS

Cut shrinkage control joints as shown on the plans after hardening to a minimum depth of 25mm within 24 hours in summer or 48 hours in winter.

Where shrinkage control joints have not been shown on the plans, position the shrinkage control joints to coincide with major changes in the floor plan. Agree position of shrinkage control joints with the designer.

Bay dimensions formed by the shrinkage control joints to be limited to a maximum ratio of length to width of 2 to 1 with a maximum dimension of 6 metres. Place the shrinkage control joints over the 100mm wide internal ribs wherever possible. Where a shrinkage control joint runs along the line of a 300mm wide loadbearing rib, locate the cut directly above one edge of the 300mm rib. Do not place supplementary reinforcing bars (including re-entrant corner steel) across any shrinkage control joints.

3.25 CLEAN OUT SHRINKAGE CONTROL JOINTS

Clean out control joints. If required fill with suitable flexible sealant.

Finishing

3.26 STRIKE FORMWORK

Strike formwork at least 12 hours after the slab has been finished without damaging or overloading structure.

3.27 SURFACE DEFECTS

Make good surface defects immediately after forms are stripped. Make good hollows or bony areas with suitable patching mortar, finished to the same tolerances as the parent concrete. Fill any tie rod holes with 1:2 mortar.

Completion

3.28 LEAVE

Leave work to the standard required by following procedures.

3.29 CLEAN UP

Clean up surrounding areas following completion of the concrete placement.

3.30 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 DAMP-PROOF MEMBRANE

Type: Polythene

4.2 CONCRETE SURFACE FINISH

Finish class: U3 (interior)

3820 CARPENTRY

1 GENERAL

This section relates to the supply and erection of light timber framing, floors, flooring underlays and decking.

1.1 RELATED WORK

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

1.2 DOCUMENTS

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

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

NZBC B2/AS1 Durability

AS/NZS 1328.1 Glued laminated structural timber - Performance requirements and minimum production requirements

AS/NZS 1604.5 Specification for preservative treatment - Glue laminated timber products

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

NZS 3603 Timber structures standard

NZS 3604 Timber-framed buildings

NZS 3622 Verification of timber properties

NZS 3640 Chemical preservation of round and sawn timber

AS/NZS 4357.0 Structural laminated veneer lumber - Specification

FTMA CoP Frame and Truss Manufacturers Association Code of Practice

1.3 QUALIFICATIONS

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

1.4 DIMENSIONS

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

2 PRODUCTS

2.1 TIMBER FRAMING, TREATED

Species, grade and in service moisture content to NZS 3602, NZBC B2/AS1 and treatment to NZS 3640, NZBC

B2/AS1. Structural grade (SG) to NZS 3604, NZS 3622 with properties to NZS 3603.

2.2 TIMBER TRUSSES

To FTMA CoP. Moisture content 16% at supply.

2.3 NAILS

Type to NZS 3604, section 4, **Durability**, and of the size and number for each particular types of joint as laid down in the nailing schedules of NZS 3604, sections 6-10.

2.4 BOLTS AND SCREWS

Bolts and screws of engineering and/or coach type complete with washers, to the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10.

2.5 NAIL PLATES

Comply with the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10. Plates to the plate manufacturer's design for the particular locations as shown on the drawings.

2.6 CONNECTORS

Comply with the requirements of NZS 3604, section 4, **Durability**, and of the number and form required for each particular junction to NZS 3604, sections 6-10. Connectors and structural brackets to the connector manufacturer's design for particular locations shown on drawings.

2.7 CORROSION RISKS

For interior timber, treated with copper-based timber preservatives (H3.2 or higher), use a minimum of hotdipped galvanized steel fixings and fasteners.

For exterior timber, timber in damp areas and timber subject to occasional wetting, use only stainless steel (or equivalent) fixings and connectors, when the timber is treated with; Copper Azole (CuAz, Preservative code 58), Alkaline Copper Quaternary (ACQ, Preservative code 90), Micronise Copper Azole (code 88) or Micronised Copper Quaternary (code 89).

2.8 DPC

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3 EXECUTION

3.1 EXECUTION GENERALLY

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

3.2 SEPARATION

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

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

Provide and fix blocks, nogs, openings and other items as required by other trades.

3.4 MOISTURE CONTENT

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

Framing at erection: 24% maximum

Framing at enclosure: 20% maximum

Framing at lining: 16% maximum

3.5 SET-OUT

Set out framing in accordance with the requirements of NZS 3604 and as required to support sheet linings and claddings.

3.6 FRAMING WALLS

Frame to required loading and bracing complete with lintels, sills and nogs, all fabricated and fastened to NZS 3604, section 8, **Walls**.

3.7 FRAMING ROOFS

Frame to required loading and bracing complete with valley boards, ridge boards and purlins. Design and fit roof trusses complete with anchorage. All fabricated and fastened to NZS 3604, section 9, **Posts** and 10, **Roof framing**.

3.8 FRAMING CEILINGS

Frame to required loading and bracing complete with runners and battens set out to support ceiling lining. All fabricated and fastened to NZS 3604, section 13, **Ceilings**. Trim for openings in ceilings and hatches to NZS 3604 section 13.3, **Openings in ceilings**. Provide blocking for water tanks located in the ceiling space to NZS 3604, section 13.4, **Water tanks in roof space**.

3.9 INSTALLING WALL UNDERLAYS

Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.10 DPC TO LOSP TREATED TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section.

3.11 DPC TO TIMBER

Refer to 4161 UNDERLAYS, FOIL AND DPC section.

4 SELECTIONS

4.1 EXTERIOR WALL FRAMING

Member	Species	Grade	Treatment
Exterior walls:	Radiata pine	SG8	H1.2

4.2 ROOF FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Rafters:	Radiata pine	SG8	H1.2
Trusses:	Radiata pine	SG8	H1.2
Purlins:	Radiata pine	SG8	H1.2
Ceiling Joists and Battens:	Radiata pine	SG8	H1.2
Skillion Roof Framing:	Radiata pine	SG8	H1.2
Enclosed Flat Roof Framing:	Radiata pine	SG8	H1.2

4.3 INTERIOR FRAMING - RADIATA PINE

Member	Species	Grade	Treatment
Non-structural Walls:	Radiata pine	SG8	H1.2
Structural and Braced Walls:	Radiata pine	SG8	H1.2

4161M TEKTON WEATHERIZATION SYSTEM

1 GENERAL

This section relates to the application of **Marshall Innovations Limited Tekton® Weatherization System** which consists of:

- **Tekton® Building Wrap** (also called **Tekton HouseWrap)**
- **Tekton® Seam Tape**
- **SUPER-STICK Building Tape®**
- **TRADE-SEAL** (penetration seal)

1.1 ABBREVIATIONS AND DEFINITIONS

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

The following definitions apply specifically to this section:

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

Documents

1.2 DOCUMENTS

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

NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Specification for **Tekton® Weatherization System**

Specification for **Tekton® Building Wrap**

Brochure for **Tekton® HouseWrap**

Specification for **SUPER-STICK Building Tape®**

Brochure for **SUPER-STICK Building Tape®**Specification for **TRADE-SEAL**

Brochure for **TRADE-SEAL**

BRANZ Appraisal 621 - The Tekton® Weatherization System

BRANZ Appraisal 548 - Tekton® Building Wrap

BRANZ Appraisal 846 - SUPER-STICK Flexible Flashing Tape

BRANZ Appraisal 719 - Trade-Seal Pipe and Penetration Seal

Manufacturer/supplier contact details

Company: **Marshall Innovations Limited**

Web: www.mwnz.com

Email: headoffice@mwnz.com

Telephone: 0800 776 9727

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years: For **Tekton® Building Wrap**

15 years: For **Tekton® Seam Tape**

15 years: For **SUPER-STICK Building Tape®**

15 years: For **TRADE-SEAL**

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 QUALIFICATIONS

Work to be carried out by tradespeople experienced, competent and familiar with the **Marshall Innovations Limited** materials and techniques specified.

1.6 NO SUBSTITUTIONS

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

2 PRODUCTS

Materials

2.1 TEKTON BUILDING WRAP

Tekton® Building Wrap, a synthetic breather-type wall underlay, as a coated spun-bonded polypropylene product approximately 0.6mm thick. Supplied in rolls 2740mm x 37m and 1370mm x 37m.

2.2 TEKTON SEAM TAPE

Tekton® Seam Tape, a white polypropylene film coated with a cold weather acrylic adhesive.

2.3 TRADE-SEAL

TRADE-SEAL, a one piece self adhesive EPDM collar for pipes and conduits that penetrate the cladding/wrap/underlay. Provides secondary protection air and moisture seal, and is available in sizes to suit penetration diameters from 8mm to 220mm.

2.4 SUPER-STICK BUILDING TAPE

SUPER-STICK Building Tape® utilizes a high tack pressure sensitive adhesive (PSA) combined with a high performance toughened film. Tape is supplied in 75mm, 150mm and 200mm wide x 23m long rolls.

Accessories

2.5 FIXINGS

Staples, clouts or other temporary fixings to attach the wall underlay to the framing.

2.6 BUILDING WRAP/WALL UNDERLAY RESTRAINTS

Polypropylene tape or galvanized wire or mesh, to NZBC E2/AS1, clause 9.1.8.5, **Wall framing behind cavities**, for intermediate restraining of the building wrap/wall underlay from bulging into the drained cavity where stud spacings are greater than 450mm. Wire or tape to be run horizontally at 300mm centres.

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To NZBC E2/AS1 Table 23 Properties of Roof Underlays and Wall Underlays; and manufacturer's technical literature.

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

3.2 STORAGE

Store all products under clean dry conditions that ensure no deterioration or damage. Store rolls in an upright position on a smooth floor and protected from sunlight, UV radiation and moisture. Rolls of **Tekton® Building Wrap** to be to be stored on end.

3.3 PRE-INSTALLATION REQUIREMENTS

Before starting work, check that the framing will allow work of the required standard. The framing must be free from any sharp protrusions that may damage the wrap/underlay. Carry out remedial work identified before the installation of **Tekton® Weatherization System**.

Installation - generally

3.4 STANDARDS AND TOLERANCES

To NZBC B2/AS1 and NZBC E2/AS1. Refer to the general section 1270 CONSTRUCTION for general requirements.

Installation - Tekton® Building Wrap

3.5 WRAP/UNDERLAY GENERALLY

To comply with Marshall Innovations Limited specification for **Tekton® Weatherization System**, BRANZ

Appraisal 621 - The **Tekton® Weatherization System** and BRANZ Appraisal 548 - Tekton® Building Wrap.

Face branded side of the wrap/underlay away from the framing. Run horizontally and extend from upper side of the top plate to the underside of bearers or wall plates supporting ground floor joists, or below bottom plates on concrete slabs.

Ensure horizontal laps no less than 75mm with the direction of the lap ensuring that water is shed to the outside. End laps to be made over framing and be no less than 150mm wide.

3.6 FIXINGS

Fix the wrap/underlay into place using 6mm to 8mm zinc plated staples, hot dip galvanised large head clouts, tek screws or proprietary wrap/underlay fixings. Care to be taken when fixing in windy conditions, due to large sail area created by roll widths.

3.7 POSITION ROLL

Position roll against the framing with a short length of wrap/underlay free of the roll. Align the guide marks printed on the **Tekton® Building Wrap** with visible studs and nail/staple to the framing.

3.8 FIX TO FRAMING

Unroll wrap/underlay across framing and fix to all framing members at a maximum of 300mm centres. Keep straight and taught over framing. Unroll wrap/underlay across framing and fix to all framing members at a maximum of 300mm centres. Keep straight and taut over framing.

3.9 WRAP/UNDERLAY OVER OPENINGS

Run wrap/underlay over any openings and leave covered until windows and doors are ready to be installed.

3.10 FORM OPENINGS

Form openings by cutting wrap/underlay at a 45 degree diagonal in from each corner. Fold and staple wrap/underlay to the inside of the framed opening.

3.11 APPLY SEAM TAPE

Apply **Tekton® Seam Tape** to all horizontal and vertical building wrap/underlay joints. Lap joint to sit halfway under the tape width. Press all tape firmly into position to enhance adhesion. Use **Tekton® Seam Tape** to repair small rips, punctures or tears in the building wrap/underlay and tape into place. Ensure overlapping material extends at least 150mm beyond the damaged area.

3.12 INSTALL PENETRATION SEAL

For pipe and conduit penetrations of the cladding/wrap/underlay use the appropriate sized **TRADE-SEAL**, to ensure a tight fit around the pipe. Any paired cable or multiple air conditioning pipes must pass through a conduit. Conduits must be sealed to prevent entry of any wind driven moisture. Conduits can be sealed with either an expanding foam or sealant. Install the **TRADE-SEAL** to Marshall Innovations Limited requirements.

Push back the collar to fit the cavity width. Ensure the **TRADE-SEAL** exposure to weather and UV does not exceed 90 days. Trade-Seals should never be forced over pipes or conduit, they can be trimmed to get appropriate fit.

Installation - SUPER-STICK Building Tape

3.13 SUPER-STICK BUILDING TAPE

To comply with Marshall Innovations Limited specification for **Tekton® Weatherization System**, BRANZ

Appraisal 621 - The **Tekton® Weatherization System** and BRANZ Appraisal 846 - SUPER-STICK Building Tape®.

3.14 PREPARATION

Ensure all surfaces are clean, dry and free of any foreign matter that may adversely affect adhesion. Do not install tape below -6ºC. When used in conjunction with LOSP treated timber, allow solvent to evaporate for a minimum of 7 days prior to application. Extend building wrap/underlay over opening and cut on a 45º angle away from each corner. Fold flaps into opening and secure to the interior face of framing.

3.15 SILL AREA – OVER BUILDING WRAP

Cut 4 strips of SUPER-STICK at 150mm x 75mm, Apply 2 strips at a 45 degree angle to the two bottom corners overlapping the corner by 3mm to create a seal at the corner junction. Measure and mark 150mm up the jamb from the bottom corners of opening. Measure sill length. Measure and cut a length of **SUPERSTICK** 300 mm longer than sill length. Roll up the cut length with the split release film to the outside of the roll. Peel back 50mm of the split release film from the inside edge. Align SUPER-STICK with 150mm mark and flush with inside edge of the opening. Apply tape down frame and tight into corner.

When the sill jamb junction is reached ensure tape is pressed firmly into corner. Continue removing backing paper and adhering SUPER-STICK across the length of the sill and up the other jamb. Keep tape flush with inside edge of opening and the overhang to the outside of the framing.

At the corner and starting at the front edge of the tape overhang, carefully cut the tape back towards the framing stopping 3mm from the opening corner. The remainder of the split release film can now be removed.

Fold the overhang onto the face of the framing and smooth firmly into place over the building wrap and corner butterflys. Press the tape down firmly to ensure proper adhesion.

Apply a layer of 75 mm SUPER-STICK over the top of the original flashing tape along the entire length of the sill. Align the tape to the inside face of the sill or alternatively apply a 150 mm by 150 mm square of Super Stick on top of the original flashing tape on the sill where a nail, screw or staple will penetrate to provide a fixing seal as per Branz Appraisal.

3.16 TOP CORNERS - OVER BUILDING WRAP

Cut two 300mm lengths of **SUPER-STICK**. Mark 150mm down from the underside of the lintel. Roll up the cut length with the split release film to the outside of the roll. Peel back 50mm of the split release film from the inside edge. Align SUPER-STICK with 150mm mark and flush with inside edge of opening. Apply tape up the frame and tight into the corner. Press tape firmly into the corner junction, then continue across the underside of the opening. At the corner and starting at the front edge of the tape overhang, carefully cut the tape back towards the framing stopping 3mm from the opening corner. The rest of the split liner / release film can now be removed.

Fold the overhang onto the face of the framing and smooth firmly into place.

Take the 75mm x 150mm strips of **SUPER-STICK**, remove the backing paper. Adhere diagonally across each corner, overlapping the corner by 3mm to create a seal at the corner junction. Press the overlap tightly into the corner to form a tight bond between the tapes. Smooth all tape firmly into place to maximize adhesion.

3.17 HEAD FLASHING

Install tape to head flashings using **SUPER-STICK** 75mm in accordance with Marshall Innovations Limited

SUPER-STICK specification and RAB manufacturer's specifications.

Completion

3.18 ROUTINE CLEANING

Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused materials and elements from the site.

3.19 DEFECTIVE OR DAMAGED WORK

Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Adjust operation of equipment and moving parts not working correctly. Leave work to the standard required for following procedures.

4 SELECTIONS

Materials

4.1 TEKTON WEATHERIZATION SYSTEM - SUPER-STICK BUILDING TAPE

Location:	All exterior walls
Wrap/underlay:	**Tekton® Building Wrap**
Seam tape:	**Tekton® Seam Tape**
Penetration seal:	**TRADE-SEAL**
Sill tape/system:	**SUPER-STICK Building Tape®**

4230 WALL CLADDING

1 GENERAL

This section relates to the supply and installation of exterior cladding, including:

- associated flashings
- timber fascias
- timber barges
- timber trims
- timber beads
- timber facings

Documents

1.1 DOCUMENTS

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

NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture
AS/NZS 1491	Finger jointed structural timber
AS/NZS 2269.0	Plywood - Structural - Specification
AS/NZS 2908.2	Cellulose-cement products - Flat sheets
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 3617	Profiles of weatherboards fascia boards and flooring
NZS 3631	New Zealand timber grading rules
BRANZ BU 601	Sealants for cladding joints

1.2 MANUFACTURER'S DOCUMENTS

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

BGC Duraplank

Copies of the above literature are available from

Web: www.bgcinnovadesign.co.nz

Telephone: 0800 424 234

Performance

1.3 PERFORMANCE

Accept responsibility for the weathertight performance of the completed cladding system, including all penetrations.

2 PRODUCTS

2.1 WALL UNDERLAYS

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

2.2 EXTERIOR CAVITY WALL BATTENS

Radiata pine battens, minimum 20mm thickness, width and height to match timber framing studs. Treatment to NZBC B2/AS1 and NZS 3602, table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.

2.3 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

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

2.4 FIBRE-CEMENT WEATHERBOARD

Cellulose cement autoclaved sheets to NZS/AS 2908.2.

2.5 FIBRE-CEMENT SOFFIT LINING

Cellulose cement autoclaved sheets to AS/NZS 2908.2.

2.6 TIMBER FASCIAS AND BARGE BOARDS

Dressing grade to NZS 3631 and treated to NZS 3602, table 2, reference 2A.3, Requirements for wood-based building components to achieve a 15-year durability performance. Finger jointed timber to AS/NZS 1491.

2.7 PVC JOINTERS

To suit sheet thickness.

2.8 NAILS, SCREWS AND FASTENINGS

Metal, size and pattern, to cladding manufacturer's requirements and complying with the relevant aspects of NZS 3604, section 4, Durability.

2.9 FLASHINGS

To NZBC E2/AS1, 4.0 **Flashings**. Material, grade and colour as detailed and scheduled. Ensure that materials used for flashings are compatible with the window frame materials and fixings and cladding materials and fixings.

3 EXECUTION

3.1 MOISTURE CONTENT

Maximum allowable moisture content to NZS 3602 for:

Equilibrium moisture content (EMC)

- Framing: 20% at closing in
- Weatherboards: 14% at time of fixing
- Exterior joinery and trim: 14%
- 3.2 EXECUTION METHODS AND PRACTICES

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

3.3 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/rigid air barrier to openings finished and dressed off with flashing tape ready for the installation of window and door frames and other penetrations
- claddings neatly finished off to all sides of openings
- installation of flashings (those required to be installed prior to installation of penetrating elements).

3.4 INSTALL DRAINED CAVITY

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

3.5 INSTALL FIBRE CEMENT WEATHERBOARDS

Install to the weatherboard manufacturer's requirements and to NZBC E2/AS1: 9.5 Fibre cement weatherboard. Refer to the cladding manufacturer's literature for fixing details and NZS 3604 for fixings durability requirements for specific provisions.

3.6 INSTALL FIBRE CEMENT SOFFITS WITH JOINTERS AND CAPPING MOULDS

Cut sheets dry and scribe fit to fully support all edges and joints. Nail and drill for and insert fasteners to the sheet manufacturer's requirements. Fit complete with jointers and capping moulds. Refer to the cladding manufacturer's literature for fixing details and NZS 3604 for fixings durability requirements for specific provisions.

3.7 INSTALL EXTERIOR TIMBER FINISHINGS

Install timber fascias, barge boards, facings, beads, trim and enclosures level, true to line and face, with all end grain sealed and joints mitred.

3.8 INSTALL FLASHINGS

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

3.9 USE OF SEALANTS

Selection and use of sealants to follow BRANZ BU 601: Sealants for cladding joints.

3.10 COMPLETE

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

3.11 REPLACE

Replace damaged or marked elements. Remove unused materials from the site.

4 SELECTIONS

4.1 CAVITY BATTENS

Timber species:	Pine
Treatment:	H3.1 (non-structural)

4.2 CAVITY CLOSER/VERMIN-PROOFING

Material:	PVC

4.3 FIBRE-CEMENT WEATHERBOARD

Brand/type:	BGC Duraplank

4.4 FIBRE-CEMENT SOFFIT LINING

Brand/type:	James Hardie
Thickness:	6mm
Finish:	Paint

4.5 TIMBER FASCIAS AND BARGE BOARDS

Species and grade:	Pine
Treatment:	H3.1
Width:	180mm

Priming: Pre-primed

4.6 NAILS, SCREWS AND FASTENINGS

Cladding	Fixing/fastening (metal/finish)	Fixing/fastening (type, gauge and length)	Centres (general and edge)
	Galv	75x3.15 FH	

4311 PROFILED METAL ROOFING

1 GENERAL

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

1.1 RELATED WORK

Refer to 7411 RAINWATER SPOUTING SYSTEMS for rainwater disposal

1.2 ABBREVIATIONS

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

The following abbreviations apply specifically to this section:

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

Documents

1.3 DOCUMENTS

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

NZBC	E2/AS1 External Moisture
AS/NZS 1170.2	Structural design actions - Wind actions
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
NZS 2295	Pliable, permeable building underlays
AS 3566	Self-drilling screws for the building and construction industries
NZS 3604	Timber-framed buildings
AS/NZS 4200.1	Pliable building membranes and underlays - Materials
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
NZMRM CoP	NZ metal roof and wall cladding Code of Practice

Warranties

1.4 WARRANTY - INSTALLER/APPLICATOR

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

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

Include a copy of the roofing manufacturers' maintenance requirements with the warranty.

Refer to the general section 1237 WARRANTIES - INSTALLER/APPLICATOR for additional requirements.

1.5 WARRANTY - MANUFACTURER/SUPPLIER

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

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

Requirements

1.6 QUALIFICATIONS

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

Performance

1.7 CO-ORDINATE

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

1.8 PERFORMANCE

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

1.9 FIXINGS, WIND

Design and use the fixings appropriate for the design loads of this site; refer to general section 1220

PROJECT for details of wind zone. Allow for specific loadings at corners and the periphery of the roof, where localised pressure factors apply.

Performance - Wind (design by contractor)

1.10 DESIGN PARAMETERS - NON SPECIFIC DESIGN

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

Refer to general section 1220 PROJECT for details.

2 PRODUCTS

Materials

2.1 WIRE NETTING AND SAFETY MESH

Refer to 4161 UNDERLAYS, FOIL AND DPC.

2.2 UNDERLAY AND REFLECTIVE FOIL

Refer to 4161 UNDERLAYS, FOIL AND DPC.

2.3 INSULATION

Refer to appropriate insulation section.

2.4 PRE-FINISHED HOT-DIPPED ALUMINIUM/ZINC COATED STEEL

Formability G550 steel sheet coated to AS 1397.

Components

2.5 FLASHINGS GENERALLY

To E2/AS1, 4.0 **Flashings**.

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

2.6 FLASHINGS TO VERGE, RIDGE AND HIP

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

2.7 BOOT FLASHINGS

Generally to E2/AS1, 8.4.17 **Roof penetrations** (note; E2/AS1, Figure.54 **Soaker flashing for pipe penetration**, has an error, use as guide only).

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.

Fixings

2.8 FASTENERS GENERALLY

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

2.9 FIXING SCREWS

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

2.10 RIVETS

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

Accessories

2.11 SEALANT

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

2.12 LAP SEALING TAPE

Closed cell self adhesive nitrile tape.

3 EXECUTION

Conditions

3.1 INSPECTION

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

3.2 FRAMING TIMBER MOISTURE

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

3.3 STORAGE

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

3.4 HANDLING

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

3.5 SEPARATION

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

Application

3.6 SET-OUT

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

3.7 END LAPS

End laps are not permitted, except where specifically detailed.

3.8 MOVEMENT JOINTS

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

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

3.9 FIXING GENERALLY

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

3.10 MARKING AND CUTTING

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

3.11 FIX SHEETS

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

3.12 STOP ENDS AND DOWNTURNS

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

3.13 FLASHINGS

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

3.14 USE OF SEALANTS

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

3.15 FLASHING PENETRATIONS

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

3.16 INSTALL RIDGING

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

Completion

3.17 REPLACE

Replace damaged or marked elements.

3.18 LEAVE

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

3.19 REMOVE

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

Remove debris, unused materials and elements from the site.

4 SELECTIONS

Roofing

4.1 PROFILED METAL ROOFING PRE-FINISHED HOT-DIPPED ALUMINIUM/ZINC COATED STEEL

Brand/profile:	Corrugate
BMT:	0.40mm
Coating grade:	TBC
Colour:	TBC

Accessories

4.2 FLASHING

Material/thickness:	0.55mm

4521 ALUMINIUM WINDOWS AND DOORS

1 GENERAL

This section relates to the manufacture, supply, and installation of :-

- aluminium windows
- aluminium doors and frames
- hardware and furniture
- flashings
- 1.1 RELATED WORK

Refer to glazing sections for glass types

1.2 ABBREVIATIONS AND TERMS

SLS	Serviceability limit state
ULS	Ultimate limit state
WANZ	Windows Association of Zealand
PQAS	Powder Coating Quality Assurance System

Documents

1.3 DOCUMENTS

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

NZBC	E2/AS1 External moisture
NZBC	F4/AS1 Safety from falling
NZBC	H1/VM1 Energy efficiency
NZBC	H1/AS1 Energy efficiency
AS/NZS 1580.108.1	Methods of test for paints and related materials - Determination of dry film thickness on metallic substrates - Non destructive methods
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 1734	Aluminium and aluminium alloys - flat sheets, coiled sheet and plate
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
NZS 3604	Timber-framed buildings
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications
BS 3900	Methods of tests for paints, Part C5: Determination of film thickness
NZS 4211	Specification for performance of windows
NZS 4223.3	Glazing in buildings - Human impact safety requirements
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
WANZ Installation	The WANZ Guide to Window Installation as described in E2/AS1
Guide:	Amendment 6.
WANZ PQAS	Powder Coating Quality Assurance System
WANZ SFA 3503-03	Anodic Oxide coatings on wrought aluminium for external architectural application (2005).
BRANZ BU 337	Protecting Window Glass from Surface Damage

AAMA 2604	Voluntary specification, performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels.
AAMA 2605	Voluntary specification, performance requirements and test procedures for superior performing organic coatings on aluminium extrusions and panels.

US Federal Specification

TT-S-001543A	Sealing compound, silicone rubber base (for caulking, sealing and glazing in buildings and other structures)
TT-S-00230C	Sealing compound, elastomeric type, single component (for caulking, sealing and glazing in buildings and other structures)

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

5 years: For fabrication

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

Requirements

1.5 QUALIFICATIONS

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

1.6 COMPLIANCE

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

1.7 CERTIFICATION

Provide evidence of a certificate by a laboratory accredited by International Accreditation of New Zealand that the windows and doors offered comply with the requirements of NZS 4211.

Performance

1.8 PERFORMANCE - WINDOWS AND DOORS

To NZS 4211, including:

- deflection, opening sashes, air infiltration, water penetration, ultimate strength, torsional strength of sashes, marking.

Refer to SELECTIONS.

1.9 PERFORMANCE - STRUCTURAL/WEATHER-TIGHTNESS

The structural and weather-tight performance of the completed joinery, the glazing and infill panels is the responsibility of the window manufacturer.

Performance - Wind (design by contractor)

1.10 WIND - NON SPECIFIC DESIGN

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

Refer to 1220 PROJECT for wind zone.

2 PRODUCTS

Materials

2.1 ALUMINIUM EXTRUSIONS

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

2.2 ALUMINIUM SHEET AND STRIP

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

Alloy designation: 5251 - H16 or 5005 - H16

2.3 GLASS

Refer to the glazing section for glass types and installation.

2.4 REVEALS - TIMBER PAINTED

Timber reveals for paint finish with all sides primed grooved for wall linings or flush finished for architraves.

2.5 FLASHINGS GENERALLY

To NZBC E2/AS1, 9.1.10 **Windows and Doors**. Material, grade and colour of head flashings to match the window frames. Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

Components - for direct fix systems

2.6 SILL PAN FLASHING

To NZBC E2/AS1, 9.1.10.5 Window and Door Sills. Flashing for direct fix claddings to collect and drain water that may penetrate through the window or door unit. Size to extend from the inner most point of the aluminium frame out over the external face of the cladding.

2.7 WANZ SUPPORT ANGLE

Support angle, for use below the sill pan, for deeper claddings to transfer the weight of the window back to the frame. Size to suit cladding thickness.

Components

2.8 GLAZING GASKETS

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

2.9 HARDWARE AND FURNITURE

Hinges, stays, catches, fasteners, latches, locks and furniture as offered by the window and door manufacturer. Refer to SELECTIONS for type and finish. Key alike all lockable window hardware able to be keyed alike.

2.10 SAFETY STAYS

Stainless steel non releasable restrictors to limit window opening to NZBC F4/AS1, Table 2, Acceptable opening sizes for barriers.

Sealants

2.11 STRUCTURAL SEALANT

Silicone chemically curing sealant specifically formulated and tested or approved equivalent with not less than a ± 40% movement factor complying with US Federal Specification TT S 001543A.

2.12 WEATHERING/INSTALLATION SEALANT

Building sealant used in accordance with manufacturer's instructions for weather sealing aluminium frames to the cladding, complying with US Federal Specification TT S 0011534A, or a one-part polyurethane moisture curing, elastic joint sealant of medium modulus (± 25% movement) to US Federal Specification TT S 00230C.

3 EXECUTION

3.1 FOAM TAPE

Foam tape to NZBC E2/AS1, 9.1.10.7 **Closed cell foam tape**.

Conditions - generally

3.2 DO NOT DELIVER

Do not deliver to site any elements which cannot be unloaded immediately into suitable conditions of storage.

3.3 UNLOAD WINDOW JOINERY

Unload, handle and store elements in accordance with the window manufacturer's requirements.

3.4 AVOID DISTORTION

Avoid distortion of elements during transit, storage and handling.

3.5 PREVENT DAMAGE

Prevent prefinished surfaces rubbing together, and contact with mud, plaster and cement. Keep paper and cardboard wrappings dry.

3.6 PROPRIETARY ELEMENTS

Fix in accordance with the window manufacturer's requirements.

3.7 PROTECTIVE COVERINGS

Retain protective coverings and coatings to BRANZ BU 337 and keep in place during the fixing process.

Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades. Remove protection on completion.

3.8 ADDITIONAL PROTECTION

Supply and fix additional protection as necessary to prevent marking of surfaces which will be visible on completed work.

Conditions - fixings and fastenings

3.9 INSTALLATION FIXING

To NZBC E2/AS1, 9.1.10.8, **Attachments for windows and doors**. Fix windows/doors through reveal to frame with a pair of 75 x 3.15mm minimum galvanised jolt head nails or a pair of 8 gauge x 65mm minimum stainless steel screws. Fix at a maximum of 450 centres along all reveals and a maximum of 150mm from reveal ends. Ensure fixings do not penetrate metal flashings.

Install packers between reveals and framing at fixing points, except at the head.

Assembly

3.10 FABRICATION

Fabricate frames as detailed on shop drawings. Install glazing, hinges, stays and running gear as scheduled.

Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.

3.11 TIMBER / PVC REVEALS

Before fixing to aluminium frames, ensure that timber reveals which are being painted have been primed on all surfaces.

3.12 HARDWARE GENERALLY

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

3.13 SAFETY STAYS

Factory fit safety stays to all windows scheduled for safety stays and to all windows where safety stays are required to comply with NZBC F4/AS1 4.0, Opening windows.

Installation - windows and doors

3.14 CORROSION PROTECTION

Before fixing, apply suitable barriers of bituminous coatings, stops or underlays between dissimilar metals in contact, or between aluminium in contact with concrete.

3.15 CONFIRM PREPARATION OF EXTERIOR WALL OPENINGS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames. Do not proceed with the window and door installation until required preparatory work has been completed.

Required preparatory work includes the following:

- wall underlay/building wrap to openings finished and dressed off ready for the installation of window and door frames to NZBC E2/AS1:9.1.5 **Wall underlays to wall openings**.
- Full height 20mm jamb battens to NZBC E2/AS1 figure 72A (direct fix only)
- claddings neatly finished off to all sides of openings
- installation of flashings (those which are required to be installed prior to frames).
- 3.16 INSTALLATION

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

3.17 INSTALLATION DIRECT FIX

Install to window manufacturers details and drawings including sill pans to window and door units.

3.18 INSTALL FLASHINGS

Install flashings to heads, jambs and sills of frames as supplied and required by the window manufacturer and as detailed on the drawings. Finish head flashings to match window finish.

Place all flashings so that the head flashing weathers the jamb flashings, which in turn weathers over the upstand of the sill flashing. Ensure that sill flashings drain to the outside air.

Except where window/door frames are recessed, ensure that head flashings over-sail unit by 20mm minimum plus any jamb scriber width at each end.

3.19 COMPLETE AIR SEAL

To NZBC E2/AS1:9.1.6 Air seals. Form an air-tight seal by means of a proprietary expanding foam or sealants used with backing rods, applied between the window / door reveal and structural framing to a depth of 10 - 20mm, to provide a continuous air tight seal to the perimeter of the window or door.

3.20 FIX HARDWARE

Fix all sash and door hardware and furniture as scheduled.

Application - jointing and sealing

3.21 SEAL FRAMES ON SITE

Seal frames to each other and to adjoining structure and finishes, all as required by the window manufacturer and to make the installation weathertight. In very high and extra high or greater wind zones, seal between the window head and the head flashing. Do not seal the junction between the sill member and the cladding or sill flashing which must remain open.

3.22 PREPARE JOINTS

Ensure joints are dry. Remove loose material, dust and grease. Prepare joints in accordance with the sealant manufacturer's requirements, using required solvents and primers where necessary. Mask adjoining surfaces which would be difficult to clean if smeared with sealant.

3.23 BACK UP

When using back-up materials do not reduce depth of joint for sealant to less than the minimum required by the manufacturer of the sealant. Insert polyethylene rod or tape back-up behind joints being pointed with sealant.

3.24 SEALANT FINISH

Tool sealant to form a smooth fillet with a profile and dimensions required by the sealant manufacturer.

Remove excess sealant from adjoining surfaces, using the cleaning materials nominated by the sealant manufacturer and leave clean.

Completion

3.25 PROTECTIVE COVERINGS

Retain protective coverings and coatings and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades.

3.26 SAFETY

Indicate the presence of transparent glasses for the remainder of the contract period, with whiting, tape or signs compatible with the glass type. Indicators other than whiting must not be applied to the glass surface.

Masking tape must not be used for this purpose.

3.27 IN SITU TOUCH-UP TO POWDER COATED ALUMINIUM

In situ touch-up of polyester or fluoropolymer coated aluminium is only permitted only to minor surface scratching. Otherwise replace all damaged material.

3.28 REMOVE

At the appropriate stage of the project, remove safety indicators and protective coverings and wipe down all joinery thoroughly.

3.29 REPLACE

Replace damaged, cracked or marked elements.

4 SELECTIONS

Performance

4.1 THERMAL PERFORMANCE

R-value:	0.26 (as determined from NZBC H1/VM1 or H1/AS1)

Window and door system

4.2 WINDOW AND DOOR REVEALS - TIMBER

Timber species:	Pine
Grade/treatment:	H3.1
Thickness:	19mm
Reveals:	Grooved or flush for architraves
Finish:	Paint

4555 GARAGE DOORS

1 GENERAL

This section relates to the manufacture, supply and installation of garage door systems including required opening/operating systems.

Documents

1.1 DOCUMENTS REFERRED TO

Documents referred to in this section are:

AS/NZS 1170 Structural design actions

NZS 1170.5 Structural design actions - Earthquake actions - New Zealand

NZS 3604 Timber-framed buildings

AS/NZS 4505 Garage doors and other large access doors

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

Requirements

1.2 INFORMATION FOR OPERATION AND MAINTENANCE

Provide operating instructions for the garage doors and associated opening equipment. Provide a list of all components requiring regular maintenance.

Performance

1.3 RESPONSIBILITY FOR PERFORMANCE

Accept responsibility for the structural and weathertight performance of the completed garage door installation.

1.4 DESIGN PARAMETERS WIND

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

2 PRODUCTS

2.1 LOADS - NON - SPECIFIC DESIGN - DOORS UP TO 3.0M HIGH

Garage doors complete with hinges, roller assemblies and fasteners to comply with wind performance requirements to NZS 3604.

2.2 GARAGE DOOR

Manufacture to AS/NZS 4505 complete with a compliance label.

3 EXECUTION

3.1 PREPARATION FOR INSTALLATION

Check that the trimmed and lined openings are formed and constructed to suit the required door units. Do not proceed until openings are properly formed.

3.2 MANUFACTURER'S REQUIREMENT FOR INSTALLATION

Install door, track and operating equipment complete with all specified and necessary accessories and hardware to the manufacturer's requirements.

3.3 START UP

Carry out start up procedures and verify proper performance of the doors.

3.4 ADJUSTMENT

Lubricate bearings and sliding parts and adjust doors to operate easily, free of warp, twist or distortion with a weathertight fit round the entire perimeter.

3.5 DEMONSTRATION

Carry out start up procedures and verify proper performance of the door. Demonstrate the operation of the door to the principal/principal's representative. Set security features to principal's requirements. Reset security features at practical completion of the contract works.

4 SELECTIONS

4610 GLAZING RESIDENTIAL

1 GENERAL

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

- windows and doors
- frameless shower and bath screens
- splashbacks, wall linings
- balustrade systems, pool fences
- mirrors and mirror frames

1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

PVB	Polyvinyl Butyral
CIP	Cast in place

Documents

1.2 DOCUMENTS

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

NZBC F4/AS1	Safety from falling
NZBC H1/AS1	Energy Efficiency
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 3604	Timber-framed buildings
NZS 4211	Specification for performance of windows
NZS 4218	Thermal insulation - Housing and Small Buildings
NZS 4223.1	Glazing in buildings - Glass selection and glazing
NZS 4223.Supp1	Glazing in buildings - Supplement 1 to NZS 4223.1:2008 and NZS 4223.4:2008
NZS 4223.2	Glazing in buildings - Insulating glass units
NZS 4223.3	Glazing in buildings - Human impact safety requirements
NZS 4223.4	Glazing in buildings - Wind, dead, snow and live action
AS/NZS 2208	Safety glazing materials in buildings
AS/NZS 4666	Insulating glass units
BRANZ BU 337	Protecting window glass from damage

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER

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

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

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

Performance

1.4 ENERGY EFFICIENCY

Provide glazing to meet the energy requirements of NZS 4218 and NZBC H1/AS1 for housing small buildings.

Refer to SELECTIONS and schedules for location and type of glazing.

2 PRODUCTS

Materials

2.1 TOUGHENED GLASS

Grade A Safety Glass to AS/NZS 2208.

2.2 INSULATING GLASS UNITS (IGU'S)

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

Materials, mirrors

2.3 MIRROR GLASS

Clear annealed mirror float glass, including silver, activation, passivation and two protective coats.

2.4 SAFETY MIRROR GLASS

4mm, 5mm and 6mm annealed float glass mirror vinyl back safety glazing material to AS/NZS 2208.

Materials, screens

2.5 GLASS SCREENS SHOWER & BATH

Proprietary shower / bath screens, formed to shape before toughening, complete with matching hardware.

Components, aluminium and uPVC glazing

2.6 GLAZING TAPE AND GASKETS

Single/double sided pressure sensitive self-adhesive low/medium/high density foam tapes/butyl tapes selected to suit the glazing detail to window manufacturers' requirements.

2.7 SETTING BLOCKS

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

Components, wall mounted glass (mirrors and splashbacks)

2.8 GLASS ADHESIVE

Adhesive mirror-mastic and double-sided adhesive tape.

2.9 GLASS MOUNTING CHANNELS

Refer to SELECTIONS/drawings for type and finish.

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To NZS 4223.1, NZS 4223.3, NZS 4223.4. All external glazing to be wind and watertight on completion.

3.2 DELIVERY

Keep glass dry and clean during delivery and bring on to site when ready to glaze directly into place. Comply also with the storage requirements set out in BRANZ BU 337.

3.3 GLASS CONDITION

All glass to have undamaged edges and surfaces.

3.4 GLASS THICKNESS

If not specifically stated in the glazing schedule determine the minimum thickness of glass for each sheet as required by NZS 4223.1, NZS 4223.3, NZS 4223.4 and NZS 4223. Supp 1. For windows tested to NZS 4211, ensure glass meets the requirements of the window testing.

Determine the final glass thickness based on whether wind loading or human impact considerations govern.

3.5 REBATE DIMENSIONS

Provide rebates for glazing to the widths and depths necessary for each situation including minimum glass edge cover to NZS 4223.1, Section 4 Glazing.

Conditions - human impact safety requirements

3.6 SAFETY GLAZING, GENERAL REQUIREMENTS

Glazing of doors, side panels, low level and window seat glazing, bathrooms, stairwell landings and similar locations, to NZS 4223.3 for thickness and maximum areas of safety glass.

3.7 SAFETY GLAZING MATERIAL

Use only safety glazing materials defined in NZS 4223.3, that also comply with the relevant requirements of AS/NZS 2208. Ensure material is permanently marked and if cut by the distributor or installer mark each piece to NZS 4223.3, 2.8 Identification.

3.8 CONTAINMENT

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

Assembly

3.9 WORKING OF GLASS

All working of glass as required in NZS 4223.1.

3.10 EDGE WORK AND BEVELLING

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

3.11 SURFACE TREATMENT

Refer to SELECTIONS/drawings for finish.

3.12 SURFACE CUTTING

Refer to SELECTIONS/drawings for finish.

3.13 INSTALL SAFETY GLASS

To NZS 4223.3.

Application aluminium

3.14 INSTALL GLASS TO ALUMINIUM FRAMES

Install glass to NZS4223.1.

- Bead glaze to Section 4 Glazing.
- Channel glaze to Section 4 Glazing, and Section 5 for Framed, Unframed, Partly Framed Glass

Assemblies.

Application - wall mounted glass (mirrors and splashbacks)

3.15 WALL MOUNTED GLASS, SCREW FIXED

For mirrors and splashbacks, fix with proprietary zinc-plated steel countersunk-head screws, fitted with black neoprene washers with fine-threaded upstands to receive chrome plated dome screw covers.

3.16 WALL MOUNTED GLASS, CHANNEL MOUNTED

For mirrors and splashbacks, fix with proprietary mounting channels, to the channel manufacturer's requirements.

3.17 WALL MOUNTED GLASS, ADHESIVE FIXED

For mirrors and splashbacks, fix with adhesive mirror-mastic and double-sided adhesive tape. Adhesive area

0.2 m2 per 1 m2 of glass to NZS 4223.3.

Application miscellaneous

3.18 INSTALL GLASS BALUSTRADES

Confirm/design and carry out installation to

NZS 4223.3, 22 Barriers (Balustrades, fences, and screens).

NZBC F4/AS1: Safety from falling, 1.0 Barriers in buildings.

3.19 INSTALL GLASS SHOWER & BATH SCREENS

Install shower and bath screens and doors to manufacturer's requirements.

Finishing

3.20 SAFETY

Indicate the presence of transparent glass for the remainder of the construction period, with whiting, tape or signs compatible with the glass type.

Completion

3.21 TRADE CLEAN

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

3.22 REPLACE

Replace damaged, cracked or marked glass.

3.23 LEAVE

Leave work to the standard required by following procedures.

3.24 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 WIND ZONE - NON-SPECIFIC DESIGN

Building wind zone: Refer 1220 PROJECT.

4710 INSULATION

1 GENERAL

This section relates to materials installed, laid, hung or fitted as thermal and/or acoustic insulation.

1.1 RELATED WORK

Refer to 3101 CONCRETE WORK - BASIC for insulation under concrete slabs.

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

Refer to roofing sections for roofing underlays.

1.2 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

BIB	Building Insulation Blanket
EPS	Expanded polystyrene sheets

Documents

1.3 DOCUMENTS

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

NZBC H1/AS1	Energy efficiency
AS/NZS 3000	Electrical installations
NZS 4218:2004	Energy efficiency - Small building envelope
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
AS/NZS 60598.2.2:2001	Luminaires- Particular Requirements - Recessed luminaires
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance

Health and Safety at Work Act 2015

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

Manufacturer/supplier contact details

Company: **Knauf**

Web: http://www.knaufinsulation.co.nz

Email: tech.nz@knaufinsulation.com

Requirements

1.5 QUALIFICATIONS

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

2 PRODUCTS

Materials

2.1 GLASS FIBRE THERMAL INSULATING PADS

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

NOTE: When insulation abutting or covering recessed downlights is intended to be in contact with IC, CA 80,

CA 135 luminaries the insulation must withstand a 30s Needle Flame test to AS/NZS 60695.11.5.

Components

2.2 NAILS

Galvanized steel clouts, 25mm gauge.

2.3 STAPLES

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

2.4 STRAPPING TAPES

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

2.5 ADHESIVE TAPE

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

3 EXECUTION

3.1 DELIVERY

Keep insulation dry in transit. Take delivery of insulation dry and undamaged and store in a location that protects them from the weather and damage. Reject all damaged materials.

3.2 STORAGE

Accept materials undamaged and dry and store in a location that protects them from the weather and damage. Avoid distortion, stretching, puncturing and damage to edges of sheet materials. Do not use damaged sheets.

3.3 HANDLING

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

3.4 HAZARD & RISK MANAGEMENT

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

3.5 INSPECTION

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

Application - general

3.6 INSTALL INSULATION - GENERAL

Lay, install, fit and fix to NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope, and to manufacturer's requirements. Install in housing to NZS 4218 and NZS 4246. Install in large buildings to NZS 4243.1 and NZS 4220. Allow insulation to re-loft/relax prior to installation. Do not cover vents. Allow a clear gap around metal flues as recommended by the fireplace manufacturer. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

3.7 RECESSED LIGHT FITTINGS - CLEARANCE

Non-residential applications;

The clearance between insulation and recessed downlights

- 100mm gap to AS/NZS 3000, figure 4.9.
- Provide larger clearances where required by the light manufacturer.

Residential applications;

- Ensure new recessed downlights are one of the new classes classified in AS/NZS 60598.2.2; CA 80, CA 135, IC and IC - F
- Classification type CA 80, CA 135, to AS/NZS 60598.2.2; insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to AS/NZS 60598.2.2; insulation can abut and cover over the top of the downlight
- Provide larger clearances where required by the light manufacturer.
- In a retrofit situation where recessed downlights are unclassified or unknown, ensure 100mm clearance from the insulation to AS/NZS 3000, figure 4.9.

3.8 CLEARANCE TO ROOFING UNDERLAY

Ensure a minimum 25mm clearance is maintained between the insulation and any non-rigid roofing underlay.

3.9 INSULATION CLEARANCES GENERALLY

Insulation may need to have a gap to some mechanical and electrical services and equipment, including ducts and chimneys. The gaps should be to the NZS 4246 based tables below or to the equipment manufacturer's requirements if they require larger gaps. Smaller gaps to manufacturers requirements can be used for equipment specifically manufactured with heat shielding or similar (excludes light fittings). Installed gap not to be more than 50mm bigger than the required gap.

The following tables are subject to:

- The requirements of NZS 4246
- The insulation is exposed to the source of heat or equipment etc.
- Insulation, has passed the needle flame test to AS/NZS 60695.11.5 and/or is non-combustible
- Gaps to hot surfaces may have to be increased with non-compliant insulation and plastic/polymeric type insulation (EPS, XPS, PIR, etc), check with insulation manufacturer
- Gaps to hot surfaces may be able to be reduced with non-combustible insulation, check with equipment manufacturer
- "Secure insulation" if required means, glue, mechanical fix, or provide fixed barriers at gap edge of insulation to hold in place. Rigid or semi rigid insulation may only need a firm friction fit (secure loose pieces).
- Loose fill insulation will require fixed barriers to NZS 4246 to maintain gaps

LIGHT FITTINGS

Type of fitting	Minimum insulation clearance	Comments
Unmarked recessed	100mm	New or old unmarked & unknown fittings and/or insulation. Secure insulation.
CA 80, CA 90 or CA 135 recessed	Abut in residential. 100mm in others	Do NOT cover the fittings
IC, IC-F or IC-4 recessed	Abut in residential. 100mm in others	Cover in residential only. Do NOT cover in others
Independent control gear	Place on top of insulation & 50mm from fitting	If not on top allow 50mm clearance to insulation, do not cover. Includes, transformers, ballasts & drivers etc.

Type of fitting	Minimum insulation clearance	Comments
Surface fittings not exposed to insulation	Nil	Where surface fittings are isolated from insulation by appropriate linings. Excludes high heat fittings.
Surface fittings & exposed inslation	200mm	This is exposed insulation to any part of the exposed fitting & bulb/tube (e.g. exposed light in an unlined basement). Secure insulation.

INBUILT RECESSED HOT APPLIANCES

Appliance	Minimum insulation clearance	Comments
Electrical heaters	100mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation
Gas appliance exposed flame	200mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Excludes uncommon appliances, refer NZS 4246.
Gas appliance flues	75mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation. Excludes uncommon appliances refer NZS 4246.
Oil-fired appliances and flues	230mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Open fireplace opening	200mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation.
Brick masonry chimneys	50mm	Clearance may be able to be reduced with non-combustible insulation. Secure insulation
Metal chimneys & flues	75mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Solid fuel appliance	600mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation.
Solid fuel appliance flue	600mm	Clearance may be able to be reduced with non-combustible insulation or with specific details from the appliance manufacturer. Secure insulation

EXTRACTS, VENTS, PIPES & ROOF UNDERLAY

Application	Minimum insulation clearance	Comments

Ducted fan motors	50mm	Includes ducted rangehoods, extractors etc. Applies to the motor unit and electrical enclosures (not the ducts).
Ducted fan ducts	Abut	Excludes motor unit and electrical enclosures.
Unducted fan motors usually discharging to ceiling space	200mm	Includes unducted, rangehoods, extractors etc, discharging into roof space. To prevent debris falling into motor. Clearance may be able to be reduced, by providing a fixed barrier around the vent.
Passive vents (still in use)	200mm	To prevent debris falling through. Clearance may be able to be reduced, with more cohesive insulation, like some of the rigid plastic types or providing a fixed barrier around the vent.
Plumbing penetrations through floors	100mm	Keep gap between pipe penetration and floor insulation in case of leaks
Roofing material/underlay	25mm	From underside of roofing or flexible roofing underlay, to prevent wicking

3.10 FIT GLASS FIBRE THERMAL INSULATING PADS

Friction fit insulating pads in place to completely fill the whole of the cavities. Carefully scribe cut insulating pads slightly oversize to maintain friction fit to each other, to smaller spaces and around penetrations. Leave no gaps between, and maintain full thickness of the insulating pads over the whole of the installation. Do not cover vents and cut around metal flues to the safety requirements of the fireplace manufacturer.

Completion

3.11 CLEAN UP

Clean up as the work proceeds, so no spare offcuts or any other matter or item remain behind claddings or linings.

3.12 CHECK WALL WRAPS AND ROOF UNDERLAYS

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

3.13 LEAVE

Leave work to the standard required by following procedures.

3.14 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

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

4.1 GLASS FIBRE INSULATION

Location:	Walls, ceilings
Brand:	Knauf
R Value:	R2.6 walls, R3.6 ceilings
Thickness:	90mm walls, 175 ceiling

5113G GIB® PLASTERBOARD LININGS

1 GENERAL

This section relates to the supply, fixing and jointing of GIB® plasterboard linings and accessories to timber and steel framed walls and ceilings to form:

- standard systems
- bracing systems
- wet area systems

1.1 ABBREVIATIONS AND DEFINITIONS

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

The following abbreviations apply specifically to this section:

AWCINZ	Association of Wall and Ceiling Industries New Zealand

Documents

1.2 DOCUMENTS

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

NZBC	C/AS2-AS6 Protection from fire
NZBC	E2/AS1 External moisture
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 3604	Timber-framed buildings
AS/NZS 4600	Cold-formed steel structures
ISO 5660.1	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method)
ISO 5660.2	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 2: Smoke production rate (dynamic measurement)
BRANZ Technical Paper	BRANZ Technical Paper P21: A wall bracing test and evaluation
P21	procedure (2010)
NASH	Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

- GIB® Site Guide (Dec 2014)
- GIB® Noise Control Systems (March 2006)
- GIB® Fire Rated Systems (Oct 2012)
- GIB Aqualine® Wet Area Systems (March 2007)
- GIB Superline® (June 2013)
- GIB® Ezybrace® Systems (2016)
- GIB Ezybrace® Bracing Software (2016)
- GIB Ezybrace® Systems (June 2011), with amendments (Dec 2014)
- GIB Ezybrace® for Steel Frame Housing (NASH) Software (2011)
- GIBFix® Framing System (2016)
- GIB® Rondo® Metal Ceiling Batten Systems
- GIB-Cove®

- GIB® Goldline™ Platinum Tape-on Trims (Jan 2006)
- GIB® UltraFlex® high impact corner mould (Sept 2004)
- GIB® Tough Systems (Nov 2014)

BRANZ Appraisal 294 (2011) - GIB Ezybrace® Systems

BRANZ Appraisal 427 (2007) - GIB Aqualine® Wet Area Systems

BRANZ Appraisal 928 (2016) - GIB Ezybrace® Systems 2016

GreenTag Certification WWLCG001-001-A-2015 - GreenTag™ GreenRate/Level C for:

- GIB® Standard (10mm & 13mm)
- GIB Fyreline®(10mm, 13mm, 16mm &19mm)
- GIB Braceline® (10mm & 13mm)
- GIB® Noiseline® (10mm & 13mm)
- GIB Toughline® (13mm)

Copies of the above literature are available at

Company: Winstone Wallboards

Web: www.gib.co.nz

Telephone: 0800 100 442

Requirements

1.4 NO SUBSTITUTIONS

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

1.5 INSTALLER WORK SKILLS AND QUALIFICATIONS

GIB® plasterboard fixers and plasterers to be experienced competent workers, familiar with GIB® plasterboard lining systems installation and finishing techniques. Submit evidence of experience on request. For example:

- National Certificate of Interior Systems; or
- Certified Business member of AWCINZ.

Performance

1.6 INSPECTIONS AND ACCEPTANCE

Allow for inspection of the finished plasterboard surface:

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

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

1.7 BRACING REQUIREMENTS

Braced wall systems to NZS 3604 when tested to BRANZ Technical Paper P21, using:

- GIB Ezybrace® Systems (2016) and/or GIB Ezybrace® Bracing Software (2016)
- GIB Ezybrace® Systems (2011)
- GIB Ezybrace® for Steel Frame Housing (NASH) Software 2011 (to NASH Residential and Low-Rise

Steel Framing Part 1 2010 Design Criteria)

Refer to drawings for location and type.

2 PRODUCTS

Materials

2.1 GIB® PLASTERBOARD

Gypsum plaster core encased in a face and backing paper formed for standard and water resistance use to AS/NZS 2588. Refer to SELECTIONS for location, type, thickness and finish.

GIB® Standard plasterboard

GIB Braceline® & GIB® Noiseline dual purpose wall bracing & noise control plasterboard

GIB Aqualine® wet area plasterboard

2.2 GIB® COVING

GIB-Cove® plasterboard coving. Refer to SELECTIONS for profile and size.

Components

2.3 CEILING BATTENS

GIB® Rondo® metal ceiling battens, batten joiners and perimeter channel.

2.4 SCREWS

GIB® Grabber® drywall screws.

2.5 TAPE ON TRIMS AND EDGES

GIB® Goldline™ tape-on trims

GIB® UltraFlex® high impact corner mould

GIB® Levelline® Tape on Trim

2.6 METAL ANGLE TRIMS

GIB® galvanized steel slim angle trims.

Accessories

2.7 ADHESIVE

Timber frame and/or steel frame:

GIBFix® One ultra low VOC water based wallboard adhesive

GIBFix® All-Bond solvent based wallboard adhesive

2.8 JOINTING COMPOUND

Bedding compound:	GIB Tradeset®, GIB Lite Blue®, GIB MaxSet®, GIB ProMix® All Purpose, GIB Plus 4®
Finishing compound:	GIB ProMix® All Purpose, GIB® Trade Finish®, GIB® Trade Finish® Lite, GIB ProMix® Lite, GIB® U-Mix, GIB Plus 4®, GIB Trade Finish® Multi
Cove:	GIB-Cove® Bond

2.9 JOINTING TAPE

GIB® paper jointing tape.

2.10 GAP FILLER

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

3 EXECUTION

Conditions

3.1 STORAGE

Store GIB® plasterboard sheets and accessories in dry conditions stored indoors out of direct sunlight in neat flat stacks on either an impervious plastic sheet or clear of the floor with no sagging and avoiding damage to ends, edges and surfaces. Reject damaged material. Refer to GIB® Site Guide (Dec 2014).

3.2 LEVELS OF PLASTERBOARD FINISH

Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in AS/NZS 2589.

3.3 SUBSTRATE

Do not commence work until the substrate is plumb, level and to the standard required by the sheet manufacturer's requirements. Refer to GIB® Site Guide (Dec 2014).

3.4 TIMBER FRAME MOISTURE CONTENT

Maximum allowable moisture content to AS/NZS 2589 for timber framing at lining: 18% or less for plasterboard linings. Refer to NZBC E2/AS1 and GIB® Site Guide (Dec 2014).

3.5 PROTECTION

Protect surfaces; cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage. Refer to GIB® Site Guide (Dec 2014).

Application

3.6 INSTALL CEILING BATTENS

Install to GIB® Rondo® Ceiling Batten Systems requirements.

3.7 LINING WALLS AND CEILINGS GENERALLY

Form to GIB® Site Guide (Dec 2014). Ensure bulk insulation thickness shall not exceed that of the wall framing.

3.8 BOARD ORIENTATION

Minimise joints by careful sheet layout using the largest sheet sizes possible, and generally fixing horizontally.

Where part sheets are required for various stud heights they should be positioned so the cut sheet is as low as possible to keep joints below eye level.

3.9 FORM WET AREA SYSTEMS

Form to GIB Aqualine® Wet Area Systems requirements.

3.10 FORM BRACING SYSTEMS

Form bracing systems to:

- GIB Ezybrace® Systems (2016)
- GIB Ezybrace® Systems (2011)

3.11 INSTALL COVES

Install to GIB-Cove® literature using GIB-Cove® Bond.

Finishing

3.12 FINISHING GENERALLY

To GIB® Site Guide (Dec 2014) and AS/NZS 2589.

Completion

3.13 REPLACE

Replace damaged sheets or elements.

3.14 CLEAN DOWN

Clean down completed surfaces to remove irregularities and finally sand down with fine paper to the sheet manufacturer's requirements, to leave completely smooth and clean.

3.15 REMOVE

Remove debris, unused materials and elements from the site.

3.16 LEAVE

Leave work to the standard required by following procedures.

4 SELECTIONS

Plasterboard

4.1 GIB® STANDARD SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
	GIB® Standard plasterboard	10mm	

4.2 GIB® WATER RESISTANT SYSTEMS WALLS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Bathroom, Laundry	GIB Aqualine® plasterboard	10mm	

4.3 GIB® STANDARD SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
	GIB® Standard plasterboard	13mm	

4.4 GIB® WATER RESISTANT SYSTEMS CEILINGS

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Bathroom, Laundry	GIB Aqualine® plasterboard	13mm	

4.5 GIB® BRACING SYSTEMS

Refer to:

- GIB Ezybrace® Systems (2016)
- GIB Ezybrace® Systems (2011)

For bracing element location refer to drawn documentation.

Accessories

4.6 GIB® RONDO® CEILING BATTENS

Brand/type: GIB® Rondo® Ceiling battens

6411 VINYL SURFACING

1 GENERAL

This section relates to the supply and installation of vinyl surfacing including skirtings, nosings, trims and edges.

It includes:

- PVC sheet

Documents

1.1 DOCUMENTS

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

NZBC D1/VM1	Access routes
NZBC D1/AS1	Access routes
NZS/AS 1884	Floor coverings - Resilient sheet and tiles - Installation practices
AS/NZS 3661.1	Slip resistance of pedestrian surfaces - Requirements
BRANZ BU 330	Thin flooring materials - 2 Preparation and laying

Requirements

1.2 QUALIFICATIONS

Vinyl layers to be experienced, competent trades people familiar with the materials and techniques specified.

1.3 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 VINYL SHEET

High vinyl content homogeneous monolayer flexible PVC sheet flooring.

2.2 TRIMS AND EDGING

PVC as supplied by the sheet manufacturer to complete the work.

Accessories

2.3 ADHESIVE

Standard acrylic adhesive to suit the material and substrate and to the vinyl manufacturer's requirements.

2.4 PRIMER AND SEALER

To the adhesive manufacturer's requirements for the particular substrate.

3 EXECUTION

Conditions

3.1 GENERALLY

To manufacturer's requirements and NZS/AS 1884.

3.2 STORAGE

Maintain rolls of sheet, packages of tiles and accessories undamaged and dry. Store rolls upright with other material on level surfaces in non-traffic, non-work areas that are enclosed, clean and dry.

3.3 HANDLING

Avoid distortion, stretching, marking and damage to edges while shifting, unrolling and handling sheet, tiles and accessories. Inspect for any faulty material. Do not use faulty or damaged material.

3.4 BEFORE COMMENCING WORK

Ensure that the building is enclosed, wet work complete, doors hung and lockable, finishes and trim complete, and good lighting available, before starting work.

3.5 INSPECT

Inspect the substrate to ensure it is of the standard required for work in this section.

3.6 LAYING

Carry out the whole of the work to NZS/AS 1884, BRANZ BU 330 and to the flooring manufacturer's requirements.

3.7 LAYOUT

Before beginning the installation confirm the proposed layout of material, location of seams and other visual considerations of the finished work.

Preparing substrate

3.8 NEW CONCRETE

Clear substrate of debris, clean off surface contamination and carry out surface repairs using a proprietary levelling compound. Carefully feather out at perimeters of repaired areas. Grind level, then vacuum to remove all dust. Check moisture content to NZS/AS 1884, Appendix A and do not commence laying vinyl until readings for the whole area show 75% relative humidity or less..

Vinyl floor laying

3.9 PREPARATION

Check that each colour supplied is from the same batch. Follow the vinyl manufacturer's requirements for conditioning of rolls and the working temperatures and conditions before, during and after laying. Protect work from solar heat gain and switch off under-floor heating during and for 48 hours either side, of the work period.

3.10 ADHESIVE APPLICATION

Apply approved adhesive as required by the vinyl manufacturer and without trowel marks after setting. Follow requirements for open time, taking note of substrate porosity, ambient temperature and relative humidity.

Remove excess adhesive as the work proceeds using required techniques.

3.11 LAYING VINYL SHEET

Roll out, cut, leave to condition and install sheet vinyl to the vinyl manufacturer's requirements. Ensure there are no air bubbles or twisting, that the seams are kept clear of adhesive, and immediately the sheet is adhered roll with a 68 kg roller.

3.12 THERMO-WELDING VINYL SHEET

Machine groove and thermo-weld all seams in specified areas, heating the sheet and weld rod to a sufficient temperature to melt and fuse them together into a single mass. Trim the weld to leave a smooth, flush surface with the sheet.

3.13 CROSS JOINS

Plan and allow cuts to avoid cross joins. Obtain written approval of the owner before proceeding if cross joins are unavoidable. Cross joins are not acceptable in wet areas.

3.14 FIT VINYL EDGING

Fit tapered vinyl edging to all borders, except where abutting carpet.

3.15 CLEAN

Leave vinyl flooring surfaces free of adhesive, dirt and debris. Vacuum off, damp mop with a low foam neutral detergent, with a pH level of 7 to 8. Allow to dry and finally buff with a rotary machine using suitable pads at 300 rpm. Polymer polishes to be used only where approved by the vinyl manufacturer and accepted by the owner.

Cleaning

3.16 CLEAN AND POLISH VINYL

Vacuum off, damp mop with a low foam neutral detergent, with a pH level of 7 to 8. Allow to dry and finally buff with a rotary machine using suitable pads at 300 rpm. Use polymer polishes only where approved by the manufacturer. Leave vinyl flooring surfaces free of adhesive, dirt and debris and to the standard required by following procedures.

4 SELECTIONS

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

Materials

4.1 VINYL SHEET

Location: TBC

Manufacturer/brand: TBC

6511 CARPETING

1 GENERAL

This section relates to the supply and installation of carpet laid conventionally (stretched), direct stuck or double stuck down.

It includes:

- carpet underlay
- woven sheet carpet

It is not suitable for natural fibre floor coverings.

Documents

1.1 DOCUMENTS

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

AS/NZS 2455.1 Textile floor coverings - Installation practice - General

Warranties

1.2 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

1 year: For materials

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

Refer to the general section 1237 WARRANTIES for additional requirements.

1.3 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

1 year: For execution

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.4 QUALIFICATIONS

Carpet layers to be experienced, competent trades people familiar with the materials and the techniques specified, and with AS/NZS 2455.1.

1.5 MOISTURE CONTENT OF CONCRETE SLAB

Concrete slab is be cured and dried to a relative humidity of not exceeding 75% or until the moisture content does not exceed 5.5%, in accordance with AS/NZS 2455.1, refer to section 6192 FLOORING SUBSTRATE PREPARATION.

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. Where more than one named supplier, any one of the named suppliers will be acceptable.

1.7 NO SUBSTITUTIONS

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

1.8 SAMPLES

Provide samples of each carpet for review of colour, design and quality. Submit on request samples of underlay and accessories offered.

1.9 RESERVE MATERIAL

Supply reserve carpet, all suitably packaged for delivery and storage. Refer to SELECTIONS.

2 PRODUCTS

Materials

2.1 UNDERLAY

To AS/NZS 2455.1 Soft underlay and underlays manufacturer's requirements.

Refer to SELECTIONS for product selection.

2.2 CARPET

To AS/NZS 2455.1 Textile floor coverings.

Refer to SELECTIONS for product selection.

Components

2.3 BINDER BARS

Anodised aluminium section with fluted face.

2.4 EDGE GRIPPER

To AS/NZS 2270.

Timber/plywood with steel grippers to carpet manufacturer's requirements, constructed of sufficient pins and nails so as to withstand a minimum stretching force of 6580N over a 1220 mm length.

Accessories

2.5 TAPE

To carpet manufacturer's requirements.

3 EXECUTION

Conditions

3.1 DELIVERY

Take delivery of materials and goods and store on site and protect from damage.

Accept rolls of carpet and accessories undamaged and dry.

3.2 HANDLE AND STORE

Handle carpet on flat dollies using carpet cradles, with probes on fork- lifts and without sharp bending or folding. Store carpet in flat bins with a maximum height of three rows. Keep dry. Protect from damage.

3.3 INSPECTION

Before starting work inspect the substrate to ensure that it will allow work of the required standard, and that all fittings and fixtures around which the carpet is to be scribed are in place.

3.4 PROTECTION

Protect adjoining work surfaces and finishes during the carpet installation.

3.5 TAPE

Tape for binding and seaming using type and width required by the carpet manufacturer to suit the specified carpet and the standard of performance required.

3.6 LAYOUT

Plan the general layout so that:

- seams run lengthways
- traffic runs along the seam
- light from windows is not across the seam
- pile faces away from the light source.

3.7 TEMPERATURE

Acclimatise carpet to a room temperature above 15°C through the whole of the installation.

3.8 FLOOR PREPARATION

Refer to 6192 FLOORING SUBSTRATE PREPARATION. Prepare floor and check conditions required for laying to AS/NZS 2455.1, section 2.

Application - substrate preparation

3.9 PREPARING NEW CONCRETE FLOOR

To be level, smooth, clean, cured and dry. Remove loose material and dust. Refer to 6192 FLOORING SUBSTRATE PREPARATION.

Application - carpet laying

3.10 INSTALLATION, CONVENTIONAL SYSTEM

Tape carpet joints, fix grippers to floor and install underlay and carpet to AS/NZS 2455.1, section 3. Stretch carpet tight in both width and length evenly without bowing, square with walls.

3.11 FIXING TRIMS

Fix binder bars, carpet to carpet bars, and trims to all junctions with other materials and to carpet edges, to the carpet manufacturer's requirements. Ensure that junctions with other materials are neatly formed, with bars and trim securely fastened to the substrate, 20mm from each end and at a maximum of 100mm centres.

Completion

3.12 DEFECTIVE OR DAMAGED WORK

Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures.

4 SELECTIONS

4.1 CARPET SELECTIONS

Location Brand/type/weight/code Installation method

Location	Brand/type/weight/code	Installation method
TBC		

6700 PAINTING GENERAL

This section relates to the general matters related to painting work

1 GENERAL

Refer to 6711 PAINTING EXTERIOR for exterior paint systems.

Refer to 6721 PAINTING INTERIOR for interior paint systems.

1.1 RELATED WORK

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

Documents

1.2 ABBREVIATIONS

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

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

Health and Safety at Work Act 2015

1.3 DOCUMENTS

NZBC C/AS1-AS7	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 ISO 9001	Quality management systems - requirements
WorkSafe NZ	Guidelines for the provision of facilities and general safety in the construction industry
WorkSafe NZ	Guidelines for the management of lead-based paint
MPNZA	Specification manual
MPNZA	Painters hazard handbook

Requirements

1.4 NO SUBSTITUTIONS

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

1.5 QUALIFICATIONS

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

1.6 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety at Work Act 2015 and WorkSafe NZ: Guidelines for the provision of facilities and general safety in the construction industry. If the elimination or isolation of potential hazards is not possible then minimise hazards in this work on site by using the proper equipment and techniques as required in the MPNZA Painters hazard handbook. Supply protective clothing and equipment.

Inform employees and others on site of the hazards and put in place procedures for dealing with emergencies.

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

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

1.7 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

1.8 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

1.9 MANUFACTURER'S INSPECTION

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

2 PRODUCTS

Materials

2.1 PAINT TYPES

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

2.2 MATERIALS GENERALLY

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

2.3 THINNERS AND ADDITIVES

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

Accessories

2.4 FILLERS

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

3 EXECUTION

Conditions

3.1 EXECUTION

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

3.2 PREPARE

Prepare surfaces to the coating manufacturer's requirements.

3.3 COATED SURFACES

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

3.4 PRE-PRIMED SURFACES

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

3.5 BRUSH DOWN

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

3.6 COMPATIBILITY

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

3.7 TREATED SURFACES

Where surfaces have been treated with preservatives or fire retardants, check with the treatment manufacturer that coating materials are compatible with the treatment and do not inhibit its performance. If they are not compatible, obtain instructions before proceeding.

3.8 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.

3.9 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.

3.10 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

3.11 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.

3.12 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.

3.13 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 reprime.

3.14 TIMBER SPECIES

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

3.15 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.

3.16 FIXINGS

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

3.17 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 linings

3.18 PREPARING PLASTERBOARD

Check that joints are prepared to a smooth level surface finish. Fill cracks and surface imperfections with the sheet manufacturer's required stopping compound and lightly sand smooth. Remove dust.

Preparation - painted surfaces generally

3.19 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.

3.20 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.

Application - before applying final coatings

3.21 DOORS

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

Application - generally

3.22 PAINTING GENERALLY

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

3.23 MIXING

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

3.24 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

3.25 SEQUENCE OF OPERATIONS

Painting work to generally follow the following sequences:

- 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

3.26 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.

3.27 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.

3.28 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.

3.29 DEFECTIVE WORK

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

3.30 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

3.31 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.

3.32 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.

3.33 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.

3.34 REMOVE

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

3.35 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.

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

Related work

1.1 RELATED SECTIONS

Refer to 6700 PAINTING GENERAL for general painting matters.

Refer to 6721 PAINTING INTERIOR for interior paint systems.

Warranties

1.2 WARRANTY

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

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

2 years: Warranty period

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.

Paint systems

4 SELECTIONS

4.1 TIMBER - PAINT

System: 3 coat acrylic

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

Related work

1.1 RELATED SECTIONS

Refer to 6700 PAINTING GENERAL for general painting matters.

Refer to 6711 PAINTING EXTERIOR for exterior paint systems.

Warranties

1.2 WARRANTY

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

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

2 years: Warranty period

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 PLASTERBOARD

Brand: TBC

System: 3 coat acrylic

4.2 PLASTERBOARD - WET AREA

Brand: TBC

System: 3 coat acrylic enamel

4.3 TIMBER TRIM / DOORS / FRAMES

Brand: TBC

System: 3 coat acrylic

7120 HOT & COLD WATER SYSTEM

1 GENERAL

This section relates to piped potable water supply systems from the network utility supply authority water main to designated points and appliances, the installation of hot water heating appliances, distributing piped hot water to other appliances, and the installation of valves.

1.1 RELATED WORK

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures and tapware selections.

Documents

1.2 DOCUMENTS

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

NZBC B2/AS1	Durability
NZBC G4/AS1	Ventilation
NZBC G12/VM1	Water supplies
NZBC G12/AS1	Water supplies
NZBC H1/AS1	Energy Efficiency
AS 1432	Copper tubes for plumbing, gasfitting and drainage applications
AS/NZS 2492	Cross Linked Polyethylene (PE-X) pipe for pressure applications
AS/NZS 2537.2	Mechanical joining fittings for use with crosslinked Polyethylene (PE-X) for pressure applications - Plastics piping systems for hot and cold water installations - Crosslinked Polyethylene (PE-X) - Fittings
AS/NZS 2642.1	Polybutylene pipe systems - Polybutylene (PB) pipe extrusion compounds
AS/NZS 2642.2	Polybutylene pipe systems - Polybutylene (PB) pipe for hot and cold water applications
AS/NZS 2642.3	Polybutylene pipe systems - Mechanical jointing fittings for use with polybutylene (PB) pipes for hot and cold water applications
AS/NZS 2845.1	Water supply - Backflow prevention devices - Materials, design and performance requirements
AS 2845.3	Water supply - Backflow prevention devices - Field testing and maintenance
AS/NZS 3500.1:2003	Plumbing and drainage - Water services
AS/NZS 3500.4: 2003	Plumbing and drainage - Heated water services
AS/NZS 3500.5	Plumbing and drainage - Housing installations
NZS 3501	Specification for copper tubes for water, gas and sanitation
AS 3688	Water supply - Metallic fittings and end connectors
AS/NZS 4130	Polyethylene (PE) pipes for pressure applications
NZS 4305	Energy efficiency domestic type hot water systems
NZS 4617	Tempering (3-port mixing) valves
AS/NZS 5601.1: 2010	Gas installations - general installations
DIN 8077	Polypropylene (PP) Pipes - PP-H, PP-B, PP-R, PP-RCT - Dimensions

DIN 8078 Polypropylene (PP) Pipes - PP-H, PP-B, PP-R, PP-RCT - General quality requirements and testing.

Gas (Safety and Measurement) Regulations 2010

Plumbers, Gasfitters and Drainlayers Act 2006

NZ Backflow Testing Standard: NZ Backflow Testing Standard 2011, Field testing of backflow prevention devices and verification of air gaps

Requirements

1.3 QUALIFICATIONS

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

Carry out all work under the direct supervision of a certifying plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

Warranties

1.4 WARRANTY

Provide warranty for:

2 years: For the supply and installation of the plumbing system and fixtures

- Provide the warranty in the standard form in the general section 1237WA WARRANTY AGREEMENT.
- Commence the warranty from the date of practical completion of the contract works.

Performance

1.5 TESTING - TO AS/NZS 3500

Test to AS/NZS 3500.1:2003, Section 16, **Testing and commissioning**, for cold water.

- Test reticulation system to a pressure of 1500 kpa for period not less than 30 minutes, to AS/NZS 3500.1:2003, 16.3.1 **Hydrostatic test**. Test storage tanks to AS/NZS 3500.1:2003, 16.3.2 **Storage tanks.**

and

AS/NZS 3500.4: 2003, Section 11, **Testing and commissioning**, for hot water.

- Test reticulation system (excluding tanks, water heaters, and some fixtures, valves etc) to a pressure of 1500 kpa for period not less than 30 minutes, to AS/NZS 3500.4: 2003, 11.3 **Testing**. Test complete system (including valves, pumps, water heaters etc) under normal working conditions for a minimum of 48 hours, then check visually, to AS/NZS 3500.4: 2003, 11.3 **Testing.**

Confirm the timing before carrying out any tests. Supply potable water and the apparatus needed.

Slowly fill service pipes with water to exclude air. Test and ensure there is no measurable loss of pressure for the minimum period. Slowly fill distribution pipes with water to exclude air. Ensure that with draw-off taps closed the system must remain water-tight.

1.6 STANDARDS FOR COPPER PIPE

This section is based on NZS 3501 to NZBC G12/AS1 for the supply of copper pipe and fittings.

If the specified pipe is not available, pipes to AS 1432 and fittings to AS 3688 can be used, under NZBC

G12/VM1 if written BCA approval is obtained by the plumber (both Standards are referenced in AS/NZS

3500.1:2003). If these Standards are used adjust diameters so that bore sizes are not compromised, otherwise comply with all other aspects of this section.

The whole project to be either to NZS 3501 or AS 1432.

1.7 GAS CERTIFICATE OF COMPLIANCE

Provide a Certificate of Compliance (CoC) as required by the Gas (Safety and Measurement) Regulations 2010 to the owner, and when required provide a copy to the energy supplier before connection.

1.8 GAS SAFETY CERTIFICATION

Provide a Gas Safety Certificate (GSC) as required by the Gas (Safety and Measurement) Regulations 2010 and provide a copy to the owner and when required the BCA. To be provided at completion of the work, prior to Practical Completion.

1.9 GAS APPLIANCE COMPLIANCE

Supplier to provide a Supplier Declaration of Compliance (SDoC) in accordance with the requirements of the Gas (Safety and Measurement) Regulations 2010.

2 PRODUCTS

2.1 COPPER PIPE

To NZS 3501 complete with copper-alloy compression fittings or crox type joints and seal ring compression joints complete with fittings and accessories brand matched to the pipe manufacturer's requirements with durability to NZBC B2/AS1, Table 1 and NZBC G12/AS1, Table 1.

2.2 POLYETHYLENE PIPE

To AS/NZS 4130 Series 1 complete with fittings and accessories brand matched to the pipe manufacturer's requirements with durability to NZBC B2/AS1, table 1 and NZBC G12/AS1, table1.

2.3 WATER METER

To the requirements of the network utility operator.

2.4 VALVES

Pressure reducing or limiting valve, filter, non-return valve, cold water expansion valve, pressure relief or temperature valve, pressure relief valve and isolating valves to NZBC G12/AS1.

2.5 TEMPERING VALVE

Tempering valve to NZS 4617 to NZBC G12/AS1.

Materials - Hot water heating appliances

2.6 GAS HOT WATER HEATER, CONTINUOUS FLOW TYPE

Continuous flow unit with an integral gas burner and flue to NZS 4305.

Components

2.7 PROTECTIVE TAPE

Plasticised PVC tape system with primer, mastic fixing and outer coating.

3 EXECUTION

Generally carry out the whole of this work and tests to NZBC G12/VM1 or NZBC G12/AS1.

3.1 EXECUTION GENERALLY

Handle and store pipes, fittings and accessories to avoid damage. Store on site, under cover on a clean level area, stacked to eliminate movement and away from work in progress.

3.2 HANDLE AND STORE

Store tapware in a shelved, dry and securely locked area. Retain tapware in the manufacturer's original packaging, complete with all fixings and installation instructions. Label each unit separately with its space/fixture number to match.

3.3 CORE HOLES AND SLEEVES

Review location and fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Strip core holes and make good after installation of pipework.

3.4 CONCEAL

Conceal pipework within the fabric of the building unless detailed otherwise. Satin finish chrome plate exposed work, complete with matching ferrule at the surface penetration.

3.5 CORROSION

Separate all metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips.

3.6 THERMAL MOVEMENT

Accommodate movement in pipes resulting from temperature change by the layout of the pipe runs, by expansion joints and by sleeving through penetrations.

3.7 PIPE SIZE

Flow rates to each outlet to be no less than those given in NZBC G12/VM1 or NZBC G12/AS1, table 3, Acceptable flow rates to sanitary fixtures. Pipe size as determined in NZBC G12/AS1, table 4, Tempering valve and nominal pipe diameters.

3.8 ELECTROLYTIC ACTION

Avoid electrolytic action by eliminating contact or continuity of water between dissimilar metals.

3.9 EXCAVATE

Excavate for the water main to a firm, even trench base in straight runs. Allow to backfill.

Application - Jointing

3.10 JOINTING COPPER PIPE

Braze pipe, fit alloy compression fittings, crox type joints and seal ring compression joints to NZBC G12/AS1.

3.11 JOINTING POLYETHYLENE PIPE

Seal ring compression joints and electrofusion to NZBC G12/AS1.

Application - Pipework installation

3.12 WATER SUPPLY CONNECTION

Arrange with the network utility operator for a connection to the water main and from there through a water meter and gate valve. Provide back flow prevention to NZBC G12/AS1.

3.13 POTABLE WATER SUPPLY PIPEWORK INSTALLATION

From connection point, run pipes complete with all fittings, support and fixing, joins and install to manufacturer’s specifications. Size the pipes and branches in straight runs to deliver the acceptable flow rate to NZBC G12/VM1 or NZBC G12/AS1, table 3, Acceptable flow rates to sanitary fixtures at each outlet. Allow for the expected concurrent use of adjoining fixtures and size the piping layout to eliminate loss of pressure at any point by simultaneous draw-off. Pipework support spacing to be firmly fixed and buffered to eliminate noise and hammer, with preformed tee-connection take-offs and branches, with machine made 3 diameter bends, complete with necessary valves and fittings. Conceal pipework and pressure test before the wall linings are fixed.

3.14 HOT WATER PIPEWORK

Use a take-off spigot to give separate branches to each fitting, lay out pipes with support spacing to NZBC G12/VM1 or NZBC G12/AS1, table 7 Water supply pipework support spacing. Fix firmly and buffer to eliminate noise and hammer, with preformed tee-connection take-offs and branches, and

preformed 3 diameter bends, complete with all necessary valves and fittings Lag all pipes with rigid insulation to the manufacturer's requirements and G12/VM1 or G12/AS1.

3.15 EQUIPOTENTIAL BONDING

Earth metallic water supply pipe and metallic sanitary fixtures to NZBC G12/AS1, 9.0.

3.16 IN-LINE FILTER

Install an in-line filter immediately adjacent to the main isolating valve at the point of entry to the building, in an accessible position to allow for easy cleaning.

Application - Hot water systems

3.17 SEISMIC RESTRAINTS - GAS WATER HEATING APPLIANCES

Gas appliances to be restrained to manufacturer's requirements, AS/NZS 5601.1 and NZBC C/AS1-AS7, 7.2 Gas-burning Appliances.

3.18 INSTALL GAS HOT WATER HEATER, CONTINUOUS FLOW TYPE

Install complete with the necessary fittings to the manufacturer's requirements and in accordance with NZBC G12/AS1, 6. 11, Water heater installation. Install flue in accordance with the manufacturer's details and requirements and, AS/NZS 5601.1 (for internal or external appliances) or NZBC G4/AS1 (internal appliances).

Also refer to section 7221 GAS APPLIANCES for installation of gas appliances.

3.19 INSTALL TEMPERING VALVE

Install 1 metre minimum from outlet of hot water cylinder and to manufacturer's instructions. Install copper pipework for 1 metre minimum downstream of tempering valve prior to connection of non-metallic pipework.

3.20 PENETRATIONS

Provide and fit collars and escutcheon plates to match the pipework at all penetrations through constructions.

Installation - Valves

3.21 INSTALLING BELOW GROUND ISOLATING VALVE

Install all below ground items such as main isolating valves and water meters in preformed concrete pits or approved equivalent.

3.22 INSTALLING APPLIANCE ISOLATING VALVES - CONCEALED

Install isolating valves for appliances in accessible positions. Locate in adjacent cupboards and position to allow for easy connection and operation.

Completion

3.23 LABEL

Label all pipework with permanent adhesive markers at 3 metre minimum intervals.

3.24 CLEAN IN-LINE FILTER

Clean all in-line filters on completion of works.

3.25 REPLACE

Replace damaged or marked elements.

3.26 LEAVE

Leave work to the standard required by following procedures.

3.27 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

Water main

4.1 POLYETHYLENE WATER MAIN

Size: 25mm outside diameter (i.e. DN 25 in AS/NZS 4130)

Pipework

4.2 COPPER PIPE

Nominal bore:	15mm
Wall thickness:	0.70mm

Hot water systems

4.3 GAS HOT WATER HEATER, CONTINUOUS FLOW TYPE

Brand:	TBC
Model size:	TBC
Gas type:	LPG

Valves and accessories

4.4 TEMPERING VALVE

Location:	At gas califont
Brand/type:	TBC

7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES

1 GENERAL

This section relates to the supply and installation of sanitary fixtures, tapware and sanitary accessories.

1.1 RELATED WORK

Refer to 7120 or 7123 HOT AND COLD WATER SYSTEM for hot water cylinders.

Refer to 7420 or 7421 SANITARY SYSTEMS for the supply and fitting of waste disposal pipework

Refer to the electrical section/s for electrical connection of accessories.

Documents

1.2 DOCUMENTS

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

NZBC E3/AS1	Internal moisture
NZBC F2/AS1	Hazardous building materials
NZBC G1/AS1	Personal hygiene
NZBC G12/VM1	Water supplies
NZBC G12/AS1	Water supplies
NZBC G13/AS1	Foul water
NZBC G13/AS3	Plumbing and drainage
AS/NZS 1730	Washbasins
AS/NZS 2023	Baths for ablutionary purposes
AS/NZS 3500.1:2003	Plumbing and drainage - water services
AS/NZS 3500.2:2003	Plumbing and drainage - sanitary plumbing and drainage
AS/NZS 3662	Performance of showers for bathing
NZS 4223.3	Glazing in buildings - Human impact safety requirements

Plumbers, Gasfitters and Drainlayers Act 2006

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

Requirements

1.3 QUALIFICATIONS

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

Carry out all work under the direct supervision of a Certifying Plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

1.4 SUPPLIER

A specialist in the supply of tapware, and employing experienced architectural representatives available to assist during the course of the installation.

2 PRODUCTS

2.1 SANITARY FIXTURES

All TBC

2.2 TAPWARE

All TBC

3 EXECUTION

Conditions - sanitary fixtures

3.1 QUALITY STANDARDS INCLUDING AS/NZS 3500.2

Installation work to comply with NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, AS/NZS 3500.2:2003, as modified by NZBC G13/AS3, and the fixture manufacturer's requirements.

3.2 SUBSTRATE

Ensure substrate and fixings will allow work of the specified standard.

3.3 INSTALLATION REQUIREMENTS INCLUDING AS/NZS 3500.2

Install to NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC E3/AS1, AS/NZS 3500.2:2003, as modified by NZBC G13/AS3, and to the fixture manufacturer's installation requirements for each component. Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries and sealants in sequence.

Seal between all sanitary fixtures and wall linings, fixtures and the tops they are in, the tops and wall linings, to NZBC E3/AS1, 3.2.2. Fixtures include baths, basins, tubs or sinks, Tops include, vanities, bath surrounds, sink benches, etc, and there upstands.

3.4 PROVIDE SUPPORT

Confirm fixing points needed for each unit and provide solid blocking at each fixing bracket location.

Conditions - tapware

3.5 RETAIN

Retain tapware in the manufacturer's original packaging and ensure that units are complete with fixings and installation instructions. Label each unit separately with its fitting name and space number.

Installation - sanitary fixtures

3.6 INSTALLING TOILET PAN

Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries/bedding and sealants in sequence. Fit the toilet pan in position, plumb, level, flush and rigid without stressing the attachment points of the component. Fixings to be corrosive resistant. Fit seat.

3.7 INSTALLING CISTERNS

Fit firmly in place and connect the specified cisterns from the supply services through the flush pipes to the relative fixtures in the positions as detailed all plumb and level.

Installation - Basins

3.8 INSTALLING VANITIES - INTEGRAL BASINS

Install in accordance with the manufacturer's requirements. Connect to supply and drains through trap to the drainage system. Seal top and upstand to wall surface to comply with NZBC E3/AS1.

Installation - Showers

3.9 INSTALLING SHOWER FITTINGS

Shower waste, mixer and rose to be install to NZBC G1/AS1 and to AS/NZS 3662.

3.10 INSTALLING SHOWER ENCLOSURES AND WALL LININGS

Install in accordance with NZBC E3/AS1. Sit tray firmly in place as detailed, to levels shown and connect to drainage service, ready for following work. Fit screen and door unit to manufacturer's details. Lining materials and finishes to comply with NZBC E3/AS1.

3.11 INSTALLING SHOWER DOOR AND SCREEN

To NZS 4223.3 and to the product manufacturer's requirements. Set units level, plumb and true to line and required location, with moving parts and actions freely and easily operating.

Installation - Baths

3.12 INSTALLING BATHS

Install to NZBC G1/AS1. Set firmly in cradle with required points fully supported, level and flush. Connect to supply and drainage services.

3.13 INSTALLING BATH SCREEN / DOOR

To NZS 4223.3 and to the product manufacturer's requirements. Set units level, plumb and true to line and required location, with moving parts and actions freely and easily operating. Do not make any modifications to supplied units.

Installation - Sinks

3.14 INSTALLING SINK BENCHES

Install in accordance with manufacturer's/supplier's requirements. Connect to supply and drainage services.

Application - tapware

3.15 GENERAL

To AS/NZS 3500.1 dated 2003 and in accordance with the manufacturer's requirements. Maintain safe water temperatures to comply with NZBC G12/AS1.

Completion

3.16 REPLACE

Replace damaged or marked elements.

3.17 PROTECTIVE COVERINGS

Leave fixtures, fittings and accessories clean and unblemished with stickers and protective coverings removed, with supply and drainage connections and all parts fully operating and working. Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following work.

3.18 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

7411 RAINWATER SPOUTING SYSTEMS

1 GENERAL

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

- metal
- PVC

Documents

1.1 DOCUMENTS

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

NZBC E1/AS1	Surface water
AS 1273	Unplasticised PVC (uPVC) downpipe and fittings for rainwater
NZMRM CoP	NZ metal roof and wall cladding Code of Practice

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
MRM	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.

Requirements

1.3 QUALIFICATIONS

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

Warranties

1.4 WARRANTY - INSTALLER/APPLICATOR

Warrant this work under normal environmental and use conditions against:

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

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

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.

Performance

1.6 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 - uPVC

2.1 UPVC DOWNPIPES

To suit the spouting system, pipes solvent cement jointed and complete with stand-off brackets, galvanized screws and accessories, brand matched and complete to the manufacturer's specifications. Refer to SELECTIONS for type.

Materials - metal

2.2 SPOUTING

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

2.3 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.

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 - uPVC

3.5 INSTALL UPVC DOWNPIPES

Assemble downpipes, solvent welded complete, fit to outlets, galvanized screw fix with pipe clips to rigidly stand 25mm off the wall, plumb and discharging into the stormwater gully or pipe inlet to the downpipe manufacturer's required practice.

Application - metal

3.6 INSTALLATION GENERALLY

Install to NZMRM CoP NZ metal roof and wall cladding Code of Practice recommendations where not otherwise specified.

3.7 INSTALL VALLEY GUTTERS

Attach valley gutters to valley boards by clips allowing for thermal movement to NZMRM CoP NZ metal roof and wall cladding Code of Practice, clause 8.4.5 Valley gutters. Separate valley gutter from valley boards with a layer of bituminous roof underlay.

3.8 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 NZ metal roof and wall cladding Code of Practice recommendations.

3.9 INSTALL OUTLETS AND OVERFLOWS

Install outlets and overflows where required to NZMRM CoP NZ metal roof and wall cladding Code of Practice, clause 8.6.2 Outlets and overflows.

Completion

3.10 REPLACE

Replace damaged or marked elements.

3.11 LEAVE

Leave the whole of this work discharging completely and freely into the stormwater system and free of all debris. Leave work to the standard required by following procedures.

3.12 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 SPOUTING

Brand:	TBC
Thickness:	0.55mm
Coating system:	Colorsteel
Colour:	TBC

UPVC system

4.2 UPVC DOWNPIPES

Brand:	Marley
Profile/size:	80mm

7420 SANITARY SYSTEMS

1 GENERAL

This section relates to above ground gravity flow sanitary systems;

- for foul water
- from sanitary fixtures to first underground drain connection
- including system wastes, floor wastes, floor waste gullies, traps, vents and valves
- with associated components and accessories to make the system work

1.1 RELATED SECTIONS

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures tapware and accessories.

Refer to 7430 DRAINAGE for underground drains.

1.2 DOCUMENTS

Documents referred to in this section are:

NZBC G1/AS1	Personal hygiene
NZBC G13/AS1	Foul water - Sanitary plumbing
NZBC G13/AS3	Plumbing and drainage
AS 2887	Plastic waste fittings
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent applications
AS/NZS 2032	Installation of PVC pipe systems
AS/NZS 3500.2:2003	Plumbing and drainage - Sanitary plumbing and drainage

Plumbers, Gasfitters and Drainlayer’s Act 2006

1.3 QUALIFICATIONS

Carry out all work under the direct supervision of a certifying plumber under the Plumbers, Gasfitters and Drainlayer’s Act 2006.

2 PRODUCTS

2.1 PVC-U WASTE, DISCHARGE AND VENT PIPES

PVC-U pipe to AS/NZS 1260 complete with fittings brand-matched to the pipe manufacturer's requirements.

3 EXECUTION

3.1 EXECUTION GENERALLY - AS/NZS 3500.2

Carry out this work and complete all tests to NZBC G1/AS1: 2.0, 3.0 and AS/NZS 3500.2:2003, as modified by NZBC G13/AS3.

3.2 ELECTROLYTIC ACTION

Avoid electrolytic action by eliminating actual contact or continuity of water between dissimilar metals.

3.3 INSTALL TRAPS, WASTE AND VENT PIPES - AS/NZS 3500.2

Connect waste outlets to traps and run waste pipes and back vents concealed, sized and fixed to AS/NZS 3500.2:2003, as modified by NZBC G13/AS3, and AS/NZS 2032. Discharge wastes into the drainage system stack, soil pipe, or gully trap as shown. Bird proof mesh to all roof vents and vermin proof mesh to all untrapped waste pipes.

3.4 PENETRATIONS

At penetrations through constructions provide and fit collars and escutcheon plates to match pipework.

3.5 TEST

Test soil and waste disposal systems to ensure no leakage exists and leave in proper working order.

4 SELECTIONS

7430 DRAINAGE

1 GENERAL

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

1.1 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZBC B1/AS1	Structure
NZBC E1/AS1	Surface water
NZBC G13/AS2	Foul Water
NZBC G13/AS3	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
NZS 3104	Specification for concrete production
AS/NZS 3500.2:2003	Plumbing and drainage - Sanitary plumbing and drainage
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
AS/NZS 4671	Steel reinforcing materials
AS/NZS 5065 sewerage applications	Polyethylene and polypropylene pipes and fittings for drainage and
Plumbers,	Gasfitters and Drainlayers Act 2006

1.2 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.

1.3 QUALIFICATIONS

Drainlayer's 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 Drainlayer's 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.

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

3 EXECUTION

3.1 TRENCH BACKFILLING MATERIAL - AS/NZS 3500.2

Bedding & surround: Crushed rock or gravel screenings of nominal size of 7 - 10 mm.

Backfill material: Excavated material from the trench (free from rock, hard matter and organic material) containing no soil lumps larger than 75 mm.

3.2 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.
- NZBC G13/AS2, 5.6, **Proximity of Trench to Building**, for foul water drains.

3.3 MANUFACTURER'S REQUIREMENTS

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

3.4 DRAINAGE GENERALLY - AS/NZS 3500.2 & NZBC E1/AS1

Carry out drainage work and tests to AS/NZS 3500.2:2003, as modified by NZBC G13/AS3 (foul water), NZBC E1/AS1 (stormwater). Lay uPVC pipe systems to relevant sections of AS/NZS 2032, NZS 2566.1 and AS/NZS 2566.2. Lay polyethylene pipes and fittings to relevant sections of AS/NZS 2033 and 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

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 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.

3.8 FIELD TEST

Field test drains for watertightness (PVC-U to AS/NZS 2032 or AS/NZS 2566. 2 Appendix N) to the satisfaction of the territorial authority inspector.

3.9 BACKFILL

Backfill drain lines in 150mm layers, well tamped but without disturbing the drains. Finish off with 150mm of topsoil, slightly mounded above the finished ground line.

4 SELECTIONS

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

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:

CFL	compact fluorescent lamp
ELV	extra low voltage
GLS	general lighting service
IP	international (ingress) protection classification
LCD	liquid crystal display
LED	light emitting diode
MCB	miniature circuit breaker
NUO	Network Utility Operator
PCB	printed circuit board
PIR	passive infrared
RCBO	residual current-operated circuit breaker with over current protection
RCCB	residual current-operated circuit breakers
RCD	residual current device
SIA	security integration architecture
TPS	tough plastic sheathed
TCF	Telecommunications Carriers' Forum

Documents

1.2 DOCUMENTS

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

NZBC E2/AS1	External moisture
NZBC F6/AS1	Visibility in escape routes
NZBC F7/AS1	Warning systems
NZBC G4/AS1	Ventilation
NZBC G9/AS1	Electricity
AS/NZS 1125	Conductors in insulated electric cables and flexible cord
AS/NZS 1768	Lightning protection

AS/NZS 2201.1	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
AS/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 (currentoperated earth-leakage devices)
AS/NZS 3350.1	Safety of household and similar electrical appliances – General requirements
AS/NZS 3439.3	Low-voltage switchgear and controlgear assemblies – Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards
AS 3786	Smoke alarms
NZS 4514	Interconnected smoke alarms for houses
AS/NZS 5000.2	Electric cables - Polymeric insulated - for working voltages up to and including 450/750v
AS/NZS 60598.2.2:2001	Luminaires - Particular requirements - Recessed luminaires
IEC 61643	Components for low voltage surge protection devices

Electricity (Safety) Regulations 2010 (Reprint as at 4 April 2016)

TCF Premises Wiring Code of Practice 2011

Warranties

1.3 WARRANTY

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

1 year:	Warranty period

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

Requirements

1.4 COMPLY

Comply with the Electricity (Safety) Regulations 2010, AS/NZS 3000, AS/NZS 3008.1.2 and TCF Premises

Wiring Code of Practice 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.

1.5 QUALIFICATIONS

Carry out work under the supervision of an electrical licensed supervisor.

1.6 ELECTRICAL CERTIFICATE OF COMPLIANCE

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

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

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

2 PRODUCTS

2.1 MAINS SUPPLY, SINGLE PHASE

Tough plastic sheathed neutral screened cable to AS/NZS 4961 and AS/NZS 3008.1.2, with a minimum rating of 60 amps per phase. Include pilot cable where required by network utility company.

2.2 CABLES

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

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

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 on 32 amp MCBs

2.3 METER BOX

Proprietary manufactured, zinc plated powder coated metal case, or ABS plastic, with glazed panel door, weatherproof where mounted outdoors, and complete with meter mounting, main switch and fuse.

2.4 DISTRIBUTION BOARD

Flush surface mount boards manufactured to AS/NZS 3439.3 and installed in accordance with AS/NZS 3000.

Manufactured from engineering grade resin with a glow wire rating of 850°C, complete with neutral and earth busbars, and insulated comb phase bar. Distribution boards to have 20% spare capacity for future additions and alterations.

2.5 CIRCUIT PROTECTION

General requirements including main switch 63A or 100A. Residual current protection 30mA, ensure RCCBs' meet Type A and comply with AS/NZS 3190. MCBs to 4.5kA or 6kA rated.

2.6 WALL BOXES

Standard grid size or equivalent to be manufactured from plastic or metal, with 2 or more gang size to be metal with steel inserts for accessory securing screws. Screw fixed.

2.7 SWITCH UNITS

Single pole switches to be 16 amp minimum rated, double pole or intermediate to be 16 amp minimum rated.

All switches to be 230 volt a.c. polycarbonate flushplate units. Refer to drawings/schedules for number of switches per unit, dimmer units, neon (indicator or toggle) units and 2 way units.

2.8 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.

2.9 SMOKE ALARMS

Type 1 domestic smoke alarm to NZBC F7/AS1. 1.2 **Descriptions of alarm systems**. Alarm to AS 3786. A wired 230 volt ionised smoke detector type.

2.10 SURGE PROTECTION

Protection for the homes appliances with IEC 61643 Class ll surge protection devices fitted to the switchboard.

For variable electronic equipment fit IEC 61643 Class lll surge protection to switched socket outlets.

2.11 CEILING ROSES

White plastic mounting base with screwed cover, manufactured to AS/NZS 3113. Terminal type. Cylindrical section TPS for suspended fittings.

2.12 BATTEN HOLDERS

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

2.13 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.

2.14 RESIDENTIAL RECESSED LIGHT FITTINGS

Residential recessed luminaires to AS/NZS 60598.2.2, types IC-F, IC, CA-80 or CA-135 only.

2.15 EXHAUST FANS

Ceiling, wall or duct mounted exhaust fans for ventilation to NZBC G4/AS1, and compliant with AS/NZS 3350.1.

2.16 HEATED TOWEL RAILS

Fixed wired heated towel warmers, double insulated, IPX4 splash-proof, compliant with AS/NZS 3350.1, scratch resistant powdercoated or chrome finish.

3 EXECUTION

3.1 MAIN SUPPLY

Lay underground mains to the NUO requirements. Excavate trench, install cable and marker tape and backfill.

3.2 METER BOX

Fit to meter box manufacturer's and Electricity Retailer's requirements. Recess into external wall in sheltered area and flash to weatherproof to NZBC E2/AS1 fig 69. Arrange for meter installation and connection.

3.3 DISTRIBUTION BOARD

Fit to AS/NZS 3000 and board manufacturer's requirements. Recess into wall or surface mount and ensure fire containment properties of the enclosure are maintained.

3.4 CIRCUIT PROTECTION

Install MCBs at distribution board to AS/NZS3000 to protect each final sub circuit.

3.5 EARTH BONDS

Bond together and to earth all plumbing fittings not adequately isolated, to AS/NZS 3000, the Electricity (Safety) Regulations 2010 and the fitting manufacturer's requirements.

3.6 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.

3.7 EARTH LEAKAGE PROTECTION

Install RCD protection to AS/NZS 3000.

3.8 RCD - DOMESTIC INSTALLATIONS

Install 30mA RCD protection at the switchboard for all final sub circuits to control outlets and lighting except for fixed or stationary cooking equipment, to AS/NZS 3000.

3.9 RCD - SPECIFIC INSTALLATIONS

Install 30mA RCDs at the distribution board.

Install fixed wired RCD protected outlets (SRCD) in the following 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.

3.10 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.

3.11 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.

3.12 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.

3.13 LIGHT FITTINGS

Install light fittings in locations and at heights specified and confirmed by the owner, in accordance with the fitting manufacturer's 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's 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 RECESSED LIGHT FITTINGS - CLEARANCE TO INSULATION

Non-residential applications;

The clearance between insulation and recessed downlights;

- Leave 100mm gap to AS/NZS 3000, figure 4.9
- Provide larger gaps where required by the downlight manufacturer

Residential applications;

- Ensure new recessed downlights are one of the new classes classified in AS/NZS 60598.2.2; CA 80, CA 135, IC and IC - F.
- Classification type CA 80, CA 135, to AS/NZS 60598.2.2; insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to AS/NZS 60598.2.2; insulation can abut and cover over the top of the downlight
- Provide larger gaps where required by the light manufacturer
- In a retrofit situation where the insulation is non-approved or unknown, ensure 100mm clearance from the insulation to AS/NZS 3000, figure 4.9.
- 3.16 SMOKE ALARMS

Install Type 1 domestic smoke alarm system to NZBC F7/AS1 3.0 **Domestic smoke alarms**, NZS 4514 and to the alarm manufacturer's requirements. Fit neatly and without damage to the surrounding finish.

3.17 SURGE PROTECTION

Install surge protection devices to manufacturer's requirements and in accordance with AS/NZS 3000 and AS/NZS 1768. When fitting IEC 61643 Class ll protection at the switchboard, protect the device by a dedicated MCB.

3.18 ELECTRIC POWERED FITTINGS AND EQUIPMENT

Install and wire fittings and equipment to individual fittings and equipment manufacturer's requirements. Refer to the drawings for required layouts and locations for equipment. Refer to SELECTIONS for schedules of fittings.

3.19 BATHROOM ELECTRICAL FIXTURES

Install all electrical fixtures. Connect the following bathroom and toilet electrical items:

- Heated towel rails: Install to manufacturers requirements and installed in accordance with AS/NZS 3000 and the NZBC G9/AS1
- Mirror demisters: Locate centrally above the wash hand basin(s). Connect wiring to room lighting unless specified otherwise.
- Exhaust fans: Install exhaust fans to manufacturer requirements. Installed in accordance with AS/NZS 3000 and NZBC G4/AS1.

3.20 OUTDOOR/EXTERIOR SERVICES

Install all wiring systems in accordance with AS/NZS 3000 and in accordance with the manufacturer's 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 to IP56, and sockets to IP53 as a minimum. Install to manufacturer's 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.

3.21 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

3.22 COMPLETION

Leave installation operating correctly, with equipment clean and operational.

Materials

4 SELECTIONS

4.1 SELECTIONS - FITTINGS AND HARDWARE

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

6512J JACOBSEN CARPET TILES

1. GENERAL

This section relates to the supply and installation of **Jacobsen** modular commercial carpet tiles.

1.1 RELATED WORK

Refer to ~ for ~.

Documents

1.2 DOCUMENTS

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

NZBC C/AS2-AS7	Protection from fire
AS/NZS 2455.1	Textile floor coverings - installation practice - General
AS/NZS 2455.2	Textile floor coverings - installation practice - Carpet tiles

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Shaw/Tarkett installation

Textile flooring maintenance

Selected range colours

Selected range technical

Manufacturer/supplier contact details

Company:	Jacobsen
Web:	www.jacobsens.co.nz
Telephone:	Auckland 09 574 0640
Wellington	04 495 4300
Christchurch	03 366 4153

Warranties

1.4 WARRANTY

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

~ years: Carpet tile material

1 year: Execution

Provide the execution warranty in the standard form in the general section 1237WA

WARRANTY AGREEMENT.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 SAMPLES

Provide full size sample tiles for each selected range and colour, for approval of colour, design and quality.

1.6 NO SUBSTITUTIONS

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

1.7 QUALIFICATIONS

Carpet tile layers to be competent, experienced workers familiar with the materials and techniques specified.

1.8 RESERVE MATERIAL

Supply reserve carpet tiles, suitably packaged for delivery and storage. Refer to SELECTIONS for details.

Performance

1.9 SURFACE FIRE PERFORMANCE

Flooring to meet the fire performance requirements of NZBC C/AS2-AS7, 4.17.3, by:

Either,

Flooring is tested and achieved the minimum Critical Radiant Flux requirements of NZBC C/AS2-AS6, Table 4.2. Provide certificates or other evidence that the flooring will comply.

or,

Critical Radiant Flux not required if area of non-conforming products have an aggregate surface area of not greater than 5m² within a firecell, to NZBC C/AS2-AS7, 4.17.6.a.

2. PRODUCTS

Materials

2.1 CARPET TILES

Refer to SELECTIONS.

2.2 ADHESIVE

Refer to Jacobsen for product specific adhesives.

3. EXECUTION

Conditions

3.1 INSPECTION

Before starting work inspect the substrate to ensure that it will allow work of the required standard and that fittings and fixtures, around which the carpet is to be scribed, are in place.

3.2 PROTECTION

Protect adjoining work surfaces and finishes during the carpet installation.

3.3 LAYOUT

Plan the general layout to:

- to conform with any special pattern requirements as detailed
- to maximise perimeter and cut module sizes and
- subject to any specific design instructions, to ensure that tiles are laid parallel to the longest wall.

3.4 TEMPERATURE

Floor temperature: Minimum 16°C.

Concrete pH: No more than 10.0.

Carpet tiles: Conditioned at 16°C for a minimum of 24 hours prior to installation.

3.5 HANDLE AND STORE

Keep carpet tiles dry. Protect from damage.

Application - substrate preparation

3.6 PREPARING NEW CONCRETE FLOOR

To be level, smooth, clean, cured and dried to a relative humidity not exceeding 75% or until the moisture content does not exceed 5.5%. Remove loose material and dust.

3.7 PREPARING NEW WOOD PRODUCT FLOOR

To be level, sanded smooth and dry with loose material and dust removed. Check for moisture content and do not commence laying until readings for the whole area show a moisture content of:

8 - 12% for air conditioned buildings

10 - 14% for intermittently heated buildings

12 - 16% for unheated buildings

3.8 PREPARING EXISTING CONCRETE FLOOR

Remove existing coverings completely including adhesives, bituminous materials and paints. Patch cracks and depressions with compatible latex patching compound to the carpet manufacturer's requirements. Seal large areas of patching. Leave surface level, smooth and clean with loose material and dust removed. Seal powdery surfaces.

3.9 PREPARING EXISTING TIMBER OR WOOD PRODUCT FLOOR

Remove existing coverings completely including adhesives, bituminous materials, waxes and paints. Check for soundness, replace any substandard boards or panels and nail down loose boards. Sand smooth and remove loose material and dust.

Application - carpet tile laying

3.10 LAYING GENERALLY

Lay in accordance with AS/NZS 2455.1, AS/NZS 2455.2 and **Jacobsen** installation instructions.

3.11 ADHESIVE

Prepare surfaces and apply adhesive compound strictly in accordance with the carpet tile and adhesive manufacturer's instructions.

3.12 LAYING DIRECTION

Lay in a mono direction, except where specifically instructed otherwise.

3.13 CUTTING OF TILES

Cut tiles from the back, using the carpet tile manufacturer's required cutting technique.

Completion

3.14 REPLACE

Replace damaged or marked carpet tiles.

3.15 LEAVE

On completion of the flooring installation thoroughly vacuum the finished carpet, using the vacuuming technique recommended by the carpet tile manufacturer. Leave surfaces free of adhesive, dirt and debris and to the standard required by following procedures.

3.16 REMOVE

Remove debris, unused materials and elements from the site.

3.17 PROTECT

Protect completed work from damage for the period between completion of laying and completion of the contract works.

3.18 SPECIAL PROTECTION

~

4. SELECTIONS

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

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

4.1 CARPET TILES

Location:	~
Brand/Type:	~
Range:	~
Colour:	~

4.2 ADHESIVE

Brand/Type:	~

4.3 RESERVE MATERIAL

Tile Range	Quantity
~	~

KAIPARA DISTRICT

Kaipara te Oranganui • Two Oceans Two Harbours

KAIPARA DISTRICT COUNCIL

Certificate of Registration

Issued pursuant to Health Act 1956, Health (Burial) Regulations 1946, Council Bylaws

[redacted]

Dargaville 0371

Details of Registration	
License No:	FD0003
Business Name:	Dargaville Funeral Services Ltd
Location:	[redacted]
Manager:	[redacted]
Business Activities:	FUNERAL DIRECTORS
Date of Issue:	23 April 2018
Expiry Date:	30 June 2018

Conditions:

- Compliance with the Health Act 1956 and regulations from the Act, and compliance with Council Bylaws
- This Certificate must be displayed in a prominent position on the premises in view of the public
- This licence is granted on the undertaking of the operators that the new premises will be constructed with adequate wastewater disposal in accordance with TP58 and an engineer's design and certification to adequately provide for the waste water associated with such an operation. Alternatively a separate waste water treatment system or holding tank must be provided for the reception of waste chemicals associated with embalming ie. **Embalming chemicals** that utilize a variety of preservatives, sanitising and disinfectant agents or other additives used in modern embalming to temporarily prevent further decomposition in order to preserve bodies.
- This licence is only valid until the expiry date and will not be renewed until the new building is completed and conditions of consent are complied with i.e. CCC granted.

Signed for and on behalf of the Environmental Health Officer:
Kaipara District Council

Linda Osborne

From: Linda Osborne
Sent: Friday, 8 February 2019 2:42 PM
To: Linda Osborne
Subject: FW: Dargaville Funeral Services Ltd - Registration under Health (Burial) Act 1946 and Premises Act 1966

From: [redacted]
Sent: Monday, 23 July 2018 11:50 AM
To: Mayor Dr Jason Smith <Mayor@kaipara.govt.nz>
Cc: [redacted] Health Queries <health@kaipara.govt.nz>
Subject: Dargaville Funeral Services Ltd - Registration under Health (Burial) Act 1946 and Premises Act 1966

Dear Dr Smith,

We write to express our concern and continued frustration regarding Dargaville Funeral Services Ltd.

We have emailed and telephoned our concerns to the Environmental Health officials at Kaipara Council a number of times but have not receive any satisfactory answers to our questions.

We understand that Dargaville Funeral Services Ltd operate from a residential property at 437 Notorious West Road. To the best of our knowledge this is an unlicensed funeral premises where bodies are taken and prepared for burial or cremation. Bodies are then stored at another unlicensed location until the day of the funeral.

The Health (Burial) Act 1946 is very clear as to the process required in order to be a licenced funeral director. It also sets out what constitutes a mortuary and the requirements for its construction and use. We believe that Dargaville Funeral Services Ltd are in breach of these regulations. We have brought this to the attention of the Environmental Health Department of Kaipara Council, but have to date not received a satisfactory reply to our concerns.

[redacted] We believe there are serious public health issues that need addressing, along with this we have a deep feeling of uneasiness around the dignity and respect afforded to the deceased while in the care of Dargaville Funeral Services Ltd. Neither of the proprietors have any qualification in the care of the deceased or embalming or any supervision from a suitably qualified individual.

[redacted]

We trust that in writing to you, we will receive some satisfactory response as a matter of urgency.

Your sincerely,
[redacted]

[redacted]

[redacted]

[redacted]

Please consider the environment before printing this e-mail

Kaipara te Oranganui
KAIPARA DISTRICT
Two Oceans Two Harbours

42 Hokianga Road,
Private Bag 1001,
Dargaville 0340, Northland,
New Zealand
p 09 439 3123
p 0800 727 059
f 09 439 6756
e council@kaipara.govt.nz
www.kaipara.govt.nz

18 September 2018

[redacted]

Dargaville 0371

Email: [redacted]

Dear [redacted]

Notice to Cease Operating as a Funeral Director [redacted]

I am writing to you to inform you that the current timeframe for applying for your building consent has lapsed and you are operating as a funeral director illegally. As you are aware conditions were placed on your registration in March 2018 which you have not complied with.

You are therefore required to cease operating until such time as you have a building consent issued and a Code Compliance Certificate for the building which you operate your business from.

As discussed, in order for your registration to be renewed you will need to comply with the Health Act 1956 and Regulations from the Act, including the Health Burial Regulations 1946 which allow you to operate as a funeral director.

If you require further information, please feel free to contact me on 09 439 1205 or email me on fmaccabee@kaipara.govt.nz.

Kind Regards

Fern Maccabee
Environmental Health Officer

FM:ma

52/0107006702; 3617.0
Notice to Cease Operation 18092018 ltr

To: Fern Maccabee Environmental Health Officer, Kaipara District Council

From: Jeff Garnham Health Protection Officer, Northland District Health Board.

Subject: Dargaville Funeral Services

1. My name is Jeffrey John Garnham, I have been a Health Protection Officer for the past 25 years. For 20 years of this time I carried out the role of an Environmental Health Officer for the Far North District Council via a contract held by my employer Northland District Health Board.
2. I have inspected Funeral Homes and the facilities within them including mortuaries as an Environmental Health Officer. In the role of a Health Protection Officer I have supervised disinterment's and complaints relating to burial and cremation.
3. In making this statement I have reviewed the documents sent to be by Fern Maccabee which I understand were submitted by Dargaville Funeral Services.
4. In preparing this statement I have read the report written by Fern Maccabee assessing the facilities and reviewed "The Natural Funeral Company" web site as it is reference in the documentation provided by Dargaville Funeral Services.
5. The Environmental Health Officers report has in my opinion correctly assessed the facilities as inadequate for the operation of a mortuary/funeral home. The deficiencies have been correctly assessed and in my experience cannot be covered by the implementation of procedures. The Natural Funeral Company provides both embalming and non-embalming services. I do not consider it appropriate to take procedures from this business, which from the website appears to have complete and fully compliant facilities, and use them to be considered as a means to by-pass basic requirements for overall compliance.

6. Northland is a sub-tropical region with temperatures, particularly in summer, that present challenges to preserving a body in a presentable condition for a funeral, particularly for open casket Tangi that may continue for some days. I am aware of cases where partially embalmed bodies have had to be returned for further treatment to arrest decomposition. Circumstances which must have been considered to have degraded the dignity of the deceased and been disturbing to relatives and those attending the Tangi.

7. Dargaville Funeral Services has said in it's documentation that it will turn away clients that are not suited to their services. Funerals and Family can be subject to complexities and it may not necessarily be clear who either speaks for the family or what if there is agreement of consensus on how the deceased is to be treated or the nature of other services they want to be provided. If there have not already been complaints relating to the services provided by Dargaville Funeral Services, in my opinion, it is only a matter of time before they do, if they continue to operate with their current facilities. In my opinion the facilities outlined in the documentation are seriously inadequate and should not be considered for registration in their current state.

Signed
Jeffrey John Garnham