

ARCLIGHT
ARCHITECTURE

Arclight Architecture Limited

PROJECT SPECIFICATION

LOT 291- 31 KAHIWI DRIVE, LOWER SHOTOVER, QUEENSTOWN 9304

31 KAHIWI DRIVE
LOWER SHOTOVER
QUEENSTOWN

Issued for Consent

26101

PROJECT OVERVIEW

Scope

Single storey detached dwelling

Timber framed wall, concrete Maxraft foundation.

Aluminium windows/ doors

Wall Cladding: Vertical shiplap Cedar weatherboard, Brick Veneer

Roofing: Metalcraft T-Rib Roofing

1

Address

Site Address	31 KAHIWI DRIVE
Suburb	LOWER SHOTOVER
Region	QUEENSTOWN
Lot #	29
DP #	599390

Site Conditions

Wind Zone	H - High Wind Speed
Earthquake Zone	Zone 3
Exposure Zone	Zone B - Low
Snow Loading Zone	Zone N0

© Productspec 2026

TABLE OF CONTENTS

Preliminaries & General 8
Project Overview 8
Siteworks 16
Site & Scope 16
Excavation & Siteworks 17
Drives, Paths & Paving 20
Landscaping 21
Demolition 21
Concrete 29
MAXRaft® Fully Insulated Foundations 29
Structural Steelwork 45
Workmanship 46
Brickwork 47
Brickwork 47
Waterproofing 49
Interior Wet Area Waterproofing Membrane Systems 49
Carpentry 55
Timber Framing 56
Workmanship & Materials 62
Thermakraft Underlay, DPM, DPC & Tapes 71
GIB® Intertenancy Barrier Systems for Terrace Homes 100
GIB® Plasterboard Linings 105
GIB® EzyBrace® Systems 127
GIB® Wet Area Systems 135
Hermpac Weatherboard Cladding Systems 142
External Window & Door Joinery 175
Aluminium Windows & Doors 175
Glazing 180
Non-Structural Glazing 180
Insulation 184
Pink Batts Insulation 184
Roofing 210
Metalcraft Longrun Roofing 210
Metalwork & Balustrades 220
Metalwork 220
Tiling 231
Tiling 231
Floor Coverings 277
Carpet & Resilient Floor Coverings 277
Gas 281
Gas System - LPG Cylinders (LPGA CoP No.2) 281
Drainage 292
Workmanship 292
Electrical 294
Workmanship 294
Fire Protection 297
Interconnected Smoke Alarms 297
Appendix 299
BRANZ 1054 (2024) Amended 1 Sept 2026 MAXRaft Concrete Slab Floor System 299

© Productspec 2026

CodeMark Certificate of Conformity - Thermakraft Covertek 403 Plus Roof Underlay 299
CodeMark Product Certificate - Thermakraft Covertek 405 Synthetic Roof and Wall Underlay 299
CodeMark Certificate of Conformity - Watergate Plus Wall Underlay 299
BRANZ Appraisal No.651 - Thermakraft Covertek 407 Roof and Wall Underlay 299
CodeMark Product Certificate - Thermakraft Covertek 407 Synthetic Roof and Wall Underlay 299
Covertek 407 Install Guide 299
Covertek 407 Data Sheet 299
BRANZ Appraisal No.329 - Supercourse 500 Damp-Proof Course & Concealed Flashing 299
Thermakraft Corner Moulds Datasheet & Installation 299
BRANZ Appraisal No.1122 - Thermaflash Flashing Tape 299
Thermaflash Install Guide 299
Thermaflash Data Sheet 299
Kingspan Thermakraft Product Warranty Statement 299
BRANZ Appraisal No.394 - GIB Noise Control Systems 299
BRANZ Appraisal No.394 - GIB Noise Control Systems 2025 299
BRANZ Appraisal 650 299
CODEMARK CMNZ30036 299
Product Technical Statement - Vertical Shiplap Cavity 299
Installation Specifications - Vertical Shiplap - Direct Fixed 299
HermPac -Vertical Shiplap PTS 299
Product installation Check List 299
BRANZ Appraisal 828 – Board & Batten 299
Product Technical Statement – Board & Batten 299
Product installation Check List – Board & Batten 299
Installation Specifications - Board & Batten Cavity Fixed 299
BRANZ Appraisal 1181 – Vertical Shiplap 299
CODEMARK CMNZ30138 Vertical Shiplap 299
Installation Specifications - Vertical Shiplap Cavity Fixed 299
Product installation Check List 299
Brick Veneer Best Practice Guide 299
BRANZ Appraisal No.632 - Pink Batts Snugfloor Insulation 299
BRANZ Appraisal No.767 - Pink® Batts® Skillion Roof Insulation 299
BRANZ Appraisal No.238 - Pink® Batts® Insulation 299
Pink Batts Acoustic Silencer Product Sheet 299
Pink® Batts® SnugFloor® 299
Pink® Batts® Wall Installation 299
Pink® Batts® Ceiling - General Suspended Ceiling 299
Pink® Batts® BIB - Wall 299
Pink® Batts® Skillion Roof Installation 299
Pink® Batts® Silencer® Wall 299
BRANZ Appraisal No. 238 PINK® BATTS® INSULATION 299
MAXRaft Product Guide Dec 2024 299
MAXRaft Onsite Guide V62018 299
BRANZ Appraisal No.917 - Thermakraft Covertek 403 Roof and Wall Underlay 299
Covertek 403 Install Guide 299
Covertek 403 Data Sheet 299
BRANZ Appraisal No.743 - Thermakraft Covertek 405 Roof and Wall Underlay 299
Covertek 405 Install Guide 299
Covertek 405 Data Sheet 299
Thermabar 344 Installation Guide 299

Thermabar 344 Data Sheet....299
BRANZ Appraisal No.695 - Watergate-Plus Wall Underlay....299
Watergate Plus Install Guide....299
Watergate Plus Data Sheet....299
BRANZ Appraisal No.912 - Thermakraft 220 Wall Underlay....299
Thermakraft 220 Install Guide....299
Thermakraft 220 Data Sheet....299
BRANZ Appraisal No. 1277 – RAINARMOR Self Adhesive Roof and Wall Underlay....299
RainArmor Self Adhesive Install Guide....299
RainArmor Self Adhesive Data Sheet....299
BRANZ Appraisal No.1229 - Covertek 215 Roof Underlay....299
Covertek 215 Install Guide....299
Covertek 215 Data Sheet....299
BRANZ Appraisal No.917 - Thermakraft Covertek 403 Roof and Wall Underlay 299
Covertek 403 Install Guide....299
Covertek 403 Data Sheet....299
BRANZ Appraisal No.743 - Thermakraft Covertek 405 Roof and Wall Underlay 299
Covertek 405 Install Guide....299
Covertek 405 Data Sheet....299
Thermabar 344 Installation Guide....299
Thermabar 344 Data Sheet....299
BRANZ Appraisal No.1000 - Thermakraft Thermabar 397 Light Diffusing Reflective Underlay....299
Thermabar 397 Installation Guide....299
Thermabar 397 Data Sheet....299
BRANZ Appraisal No.943 - Covertek 401 Roof and Wall Underlay....299
Covertek 401 Install Guide....299
Covertek 401 Data Sheet....299
BRANZ Appraisal No.1229 - Covertek 215 Roof Underlay....299
Covertek 215 Install Guide....299
Covertek 215 Data Sheet....299
BRANZ Appraisal No. 1277 – RAINARMOR Self Adhesive Roof and Wall Underlay....299
RainArmor Self Adhesive Install Guide....299
RainArmor Self Adhesive Data Sheet:....299
Thermathene Black Install Guide....299
Thermathene Black Data Sheet....299
Thermakraft White GP Tape Data Sheet....299
BRANZ Appraisal No. 1104 - Thermathene Orange Concrete Underlay....299
Thermathene Orange Install Guide....299
Thermakraft White GP Tape Data Sheet....299
Thermathene Orange Data Sheet....299
Thermakraft Aluband Data Sheet....299
Supercourse 500 DPC Install Guide....299
Supercourse 500 DPC Data Sheet....299
Perimeter DPC Install Guide....299
Perimeter DPC Data Sheet....299
BRANZ Appraisal No.912 - Thermakraft 220 Synthetic Wall Underlay....299
Thermakraft 220 Installation Guide....299
Thermakraft 220 Data Sheet....299
BRANZ Appraisal No.912 - Thermakraft 220 Wall Underlay....299
Thermakraft 220 Installation Guide....299
Thermakraft 220 Data Sheet....299

© Productspec 2026

Stud Strap and Thermastrap Installation Guide and Data Sheet 299
Ausmesh Install Guide 299
Ausmesh Data Sheet 299
Stud Strap and Thermastrap Installation Guide and Data Sheet 299
BRANZ Appraisal No.1029 - Thermakraft AUSNET Hexagonal Wire Mesh 299
AUSNET Wire Mesh Install Guide 299
AUSNET Wire Mesh Data Sheet 299
BRANZ Appraisal No.878 - Thermakraft Aluband Window Flashing Tape 299
Aluband Install Guide 299
Aluband Data Sheet 299
BRANZ Appraisal No.962 - Thermakraft One Wrap System 299
BRANZ Appraisal No.942 - ONESEAL MULTI-FIT PIPE AND CABLE PENETRATION SEALS 299
OneSeal Install Guide 299
OneSeal Data Sheet 299
Thermakraft White GP Tape Data Sheet 299
Thermakraft Vapour Shield Install Guide 299
Thermakraft Vapour Shield Data Sheet 299
Thermakraft Premium Joining Tape Install Guide 299
Thermakraft Premium Joining Tape Data Sheet 299
Thermakraft White General Purpose Tape Data Sheet and Install Guide 299
BRANZ Appraisal No.940 - GIB® Intertenancy Barrier Systems for Terrace Homes 299
BRANZ Appraisal No.928 - GIB EzyBrace Systems 299
BRANZ Appraisal No.427 (2021) - GIB Aqualine Wet Area Systems 299
BRANZ Appraisal No.289 - GIB Fire Rated Systems 299
GIB® Fire Rated Systems Specification and Installation Manual 299
BRANZ Appraisal No.928 - GIB EzyBrace Systems 299
BRANZ Appraisal No.427 (2021) - GIB Aqualine Wet Area Systems 299

© Productspec 2026

2 PRELIMINARIES & GENERAL

2.1 Project Overview

2.1.1 Contract Documents

The Contract Documents are complementary and comprise this Specification, the accompanying drawings, the Contract together with Schedules as specified below, any written documentation clarifications issued during tendering/estimating, any manufacturer/supplier information issued with this Specification, any list of agreed Subcontractors, the contract establishment letter and any other relevant correspondence, and any Site Instructions or additional details or instructions issued as Variations.

If the Architect/Designer has not been engaged to administer the Contract or observe the works, then the term Architect/Designer, where referred to in this specification, means Contract Administrator.

These Project Specific Conditions supersede the Standard Conditions where they are in conflict. Refer any ambiguity or apparent discrepancy within or between any Contract Documents to the Architect/Designer, whose interpretation shall be binding on all parties.

Ensure that all Trades are aware of all Conditions and that subcontract prices are accepted on this basis, and in a form acceptable to the Registered Master Builders Federation or the Certified Builders Association. Ensure that all persons engaged on the works are aware of all items in this specification and on the drawings that may in any way affect their section of the works.

2.1.2 Site

Relevant site conditions are believed to be correctly represented in the Contract Documents, however the Contractor (and Subcontractors where appropriate) are requested to inspect the site to ascertain for themselves the nature and extent of the works and the rights and interests that may be interfered with in the execution of the works, as no claims for additional payment will be recognised on the grounds of insufficient description.

2.1.3 Adjacent Owners

Carry out whatever actions or precautions are required to avoid or to absolutely minimise noise, dirt, dust, access, etc. inconvenience or disruption of any nature to the adjacent owners or tenants. Indemnify the Principal against any claims arising from this source.

2.1.4 Protection

Take all appropriate precautions to protect all third party property, services, etc., and indemnify the Principal against any claims arising from the construction operations. Any damage to third party property caused by construction activities or failure to protect shall be rectified as soon as possible by the person causing the damage, or by appropriately qualified trades-persons employed by the person responsible for the damage if necessary.
Suspend operations during weather which would affect the quality of work in progress.

Secure the works as soon as possible against adverse weather, dust and vandals. Avoid structural damage that is caused by overloading.
Adequately protect all finished work and maintain until the date of Practical Completion. Each trade shall protect the work of all other trades, and each trade is responsible for making good any damage they cause to finished works. Arrange special protection as required for windows and doors, finished timber work, plumbing fittings and hardware, cabinets and other joinery, and similar items.

2.1.5 Responsibility

The Contractor will be held responsible for the full period of their legal responsibility in connection with this Contract for ensuring that all work execution, materials, and fittings, are completely in accordance with Contract requirements.
The Contractor is responsible to the Principal for the appropriateness and fitness, in relation to a reasonable expectation or requirement, of all of the materials and workmanship incorporated into the works by themselves or their subcontractors; for this reason few specific guarantees are required in these contract documents. The terms and conditions of any warranty or guarantee required or provided shall not in any way negate the minimum remedies available under common law as if no warranty or guarantee had been furnished.
No apparent expression of the Architect's/Designer's reasonable satisfaction shall be deemed to be acceptance of defective materials or workmanship within the terms of the Contract or to be an authority for any Variation except where such Variation is authorised as provided for in the Contract. Instructions that are given verbally are deemed to be instructions for proper execution of the works and do not involve extra charges.

Workmanship in all trades is required to be equal to or better than recognised good trade practice.
The Contractor shall provide all necessary setting out information and component dimensions for subcontractors and shall check and be responsible for the accuracy of their work.

Should any tradesperson consider that the surface finish or general conditions of previous work are unsatisfactory to ensure a proper finish for their own work thereon, that tradesperson shall give immediate notice to the Contractor or Architect/Designer as appropriate and shall not proceed until all necessary improvements have been made. Failing such notice the trade concerned will not be relieved of responsibility for a poor finish due to such unsatisfactory condition.
Specialist Finishes Subcontractors are responsible for ensuring that substrates are completely appropriate for them to achieve first class results, and to this end shall, in sufficient time, instruct the Contractor with regard any fixings, primings, sealings or whatever for the substrate that vary in any way from the substrate manufacturer's standard recommendations. The Contractor shall advise the Architect/Designer with regard these variances, and not proceed until the Architect/Designer has agreed to them.

The Contractor and all Subcontractors affected shall be jointly and severally responsible for completion of the whole of the works in a completely watertight condition and shall therefore examine all details to be satisfied that this condition can be achieved. If any detail is considered unsatisfactory the Architect/Designer shall be notified immediately and he/she will

then either interpret the detail to the Contractor's satisfaction, or accept responsibility for watertightness at the points in question, always assuming reasonable workmanship.

Ensure that all materials or items incorporated into any particular construction or finish are compatible and that their individual use is approved by the manufacturers and/or suppliers of the other parts of the system.
For all electronic/electrical/mechanical operating systems all work and all necessary materials and items incidental to the primary item specified, that are incorporated into the works, shall be such as to leave a neat, efficient, easily maintained and robust installation, completely in accordance with all of the recommendations of the primary items' manufacturers. Where appropriate, source all parts of a system from a single supplier or manufacturer.

The Contractor shall make provision for all temporary works and services required for the satisfactory completion of the contract works. The Contractor shall pay all associated costs and fees; carry out all necessary maintenance, alterations and servicing requirements; and remove temporary works and services on completion of the contract works. Temporary works and services shall comply with the requirements New Zealand Building Code.

2.1.6 Specification

This Specification covers contract administration, standards, materials quality, workmanship and the scope of works only: the exact nature of the works and all specialist items, descriptions, etc., are contained on the drawings, which also take full precedence.
All clauses in all specification sections apply to their full extent and meaning to the entire Contract.
Trade sections and paragraphs have been introduced into this specification for reference only and it shall not be construed that each trade section is a complete segregation of the materials and labour of that trade. The onus is on all trades to be conversant with any and all clauses which in any way affect their work.
(Be aware that the ‘scope’ noted in the ‘Project Overview’, and scope and general extent clauses within this specification, are included to provide a general indication only and must NOT be interpreted as schedules of quantities - the exact nature and extent of all aspects of the works are shown on the drawings).

2.1.7 Standards

New Zealand Standards (NZS), Australian Standards (AS), Joint Standards (AS/NZS), British Standards (BS), Acts of Parliament, Regulations made thereunder, Codes of Practice, and any specific Manufacturer's Instructions or Manufacturer's Recommendations that are referred to in these Contract Documents shall all be deemed to be the latest published edition thereof at the time of drawings issue, and shall be followed by the Contractor and all Subcontractors to the full extent applicable consistent with the intent of this Contract.
Documents cited within other cited publications are deemed to form part of this specification.
Where Standards have a number of Divisions, e.g. AS/NZS 3500.1, AS/NZS 3500.2, etc., each of the Divisions relevant to this project is deemed to form part of this specification.
Retain current copies of significant cited documents and manufacturer's technical literature on the site.

2.1.8 Authorities and Charges

Comply with all relevant provisions of the NZ Building Code, and with all relevant territorial or statutory authority regulations, by-laws, obligations, etc. Give all required notices.

The Principal has obtained a Land Use Consent. The Principal has applied for and paid for the Project Information Memoranda, the Building Consent and other approvals required for the works to start. The PIM and Building Consent will be forwarded to the Contractor as quickly as possible after they are issued by the Territorial Authority. Note: It is an offence under the Building Act to carry out work not in accordance with a Building Consent.
Should the Building Consent be subject to any conditions which modify the requirements of the Contract Documents in any way, the Architect/Designer reserves the right to negotiate any or all of these modifying conditions with the Building Consent Authority. If after these negotiations additional work is required, it will be handled as a Variation to the Contract.

2.1.9 Code Compliance Certificate

The Principal will apply for the Code Compliance Certificate (CCC) and any other licenses or approvals for the building to be used. However, Practical Completion will NOT be certified until the CCC inspection has occurred and any additional works required by the local Building Consent Authority have been completed. To this end it is recommended that the Contractor obtains all required certificates, guarantees, Producer Statements, as-built drawings, etc., required for the CCC application as work proceeds, to facilitate application for the CCC as soon as the works are completed. For their part, the Principal hereby undertakes to apply for the CCC within one day of all required material being in hand. Likewise, the Contractor should have capacity available to attend as quickly as possible to any items identified by the Building Consent Authority as being required prior to the issue of the CCC.

2.1.10 Coordination of the Works

Coordinate the works of all trades to ensure efficient progress of the works. Ensure that all holes, sleeves, penetrations, supports, etc., that are required for services are correctly incorporated as work proceeds. Identify and sufficiently forward-notify the appropriate persons of all deadlines for the supply of fittings, components, information, etc.

2.1.11 Documents Interpretation

Except where they are clearly to the contrary, all dimensions are deemed to be to the bare surface of concrete, masonry, timber framing or other basic construction material. All figured dimensions take precedence over scaled sizes. Where any detail is included in more than one drawing the larger scale detail takes precedence. Where any ambiguity exists refer to the Architect/Designer for interpretation.
The word ‘provide' and the word ‘fix' used separately in the Documents shall be taken to mean ‘provide and fix' unless otherwise stated.
When the term ‘allow' occurs in the Documents, except with reference to Monetary Allowances, the cost of the item shall be at the risk of the Contractor.
The terms ‘approved', ‘directed', and ‘selected' when used in the Documents refers to the approval, direction or selection of or by the Architect/Designer. Please give adequate notice of when these decisions are required. ‘Architect/Designer' shall mean the Architect or Designer, their representative or any Consulting Engineer engaged by the Architect/Designer.

2.1.12 Work Shown and Mentioned

The Contract Documents show the extent and nature of the works but there is no warranty expressed or implied that they show each and every minor detail or item required to be included by the Contractor. Should any material, structural member, fixing, or item or work appear to be inadequately described, yet obviously necessary for the neat, strong and satisfactory completion of the work, it shall be incorporated into the Contract Works.

2.1.13 Site Safety

Comply with the Health and Safety at Work Act 2015 (HSWA), and with all relevant Health and Safety at Work Regulations 2016, and with all relevant WorkSafe New Zealand (WorkSafe) Approved Codes of Practice and WorkSafe Information and Guidance, particularly those for construction and building maintenance. Comply with the relevant provisions of the New Zealand Building Code, in particular Clause F5.

So far as is reasonably practicable and according to a PCBU's (person conducting a business or undertaking) primary duty of care, take all necessary steps required to make the site and the contract works safe, and to provide and maintain a safe working environment. Ensure that all those working on or visiting the site are aware of the site safety rules and are not unnecessarily exposed to hazards.

Each PCBU, so far as is reasonably practicable, must ensure the health and safety of workers, and that other people are not put at risk by its work. If more than one PCBU has a duty in relation to the same matter, each PCBU with the duty must, so far as is reasonably practicable, consult, co-operate with, and co-ordinate activities with all other PCBUs who have a duty in relation to the same matter. PCBUs can enter reasonable agreements with other PCBUs to meet their duties, but cannot contract out of their duties.

Notify WorkSafe as soon as possible when a notifiable event occurs. Take all reasonable steps to preserve the site of the notifiable event in accordance with WorkSafe requirements. Ensure that the site of the event is not disturbed until authorised otherwise by WorkSafe. Keep records of all notifiable events.

Scaffolding shall comply with all Statutory and Local Authority Regulations, with the WorkSafe 'Best Practice Guidelines for Scaffolding', AS/NZS 1576 (Scaffolding equipment), AS/NZS 4576 (Guidelines for Scaffolding), and AS/NZS 4994 (Roof edge scaffolding), and shall be maintained for the duration and removed on completion.

The use of ballistic fixings must absolutely comply with all relevant safety recommendations at all times. No rubbish fires are allowed on site. Portable/personal disc/tape players, radios and iPods must not be used anywhere on the site. No smoking on site, except in the designated location in accordance with the Smoke Free Environments Act 1990, the location of which will be determined by the Contractor, with the approval of the Principal.

A PCBU's primary duty of care includes, but is not limited to, so far as is reasonably practicable:
- providing and maintaining a work environment that is without risks to health and safety;
- providing and maintaining safe plant and structures;

- providing and maintaining safe systems of work;
- ensuring the safe use, handling and storage of plant, structures and substances;
- providing adequate facilities for the welfare at work of workers in carrying out work for the business or undertaking, including ensuring access to those facilities;
- providing any information, training, instruction, or supervision that is necessary to protect all persons from risks to their health and safety arising from work carried out as part of the conduct of the business or undertaking;
- monitoring the health of workers and the conditions at the workplace for the purpose of preventing injury or illness of workers arising from the conduct of the business or undertaking.

Before commencing work on the site, the Contractor shall prepare and submit to the contract administrator a health and safety plan. The health and safety plan shall include, but not be limited to:
- the health and safety of all people on the site and on other properties, and the general public;
- identification of existing and potential construction hazards and risks;
- safety procedures to eliminate, isolate or minimise construction hazards;
- the equipment to be used to minimise the hazards;
- the maintenance of a register of hazards for the site;
- the name and qualifications of the site safety person;
- emergency procedures;
- first aid facilities and safety equipment;
- the methodology for notifying, recording and investigating accidents and injuries.

Carry out all construction operations in accordance with the submitted health and safety plan.

2.1.14 Variations

The Architect/Designer will issue Site Instructions (SI) to amend or clarify the works. Upon receipt of a SI the Contractor shall immediately notify the Architect/Designer if they believes there are price or timing adjustment implications. The Architect/Designer will then issue a Variation Price Request (VPR) for pricing of the possible Variation by the Contractor, within the time stipulated, or within 10 days if no time is stipulated. If the Contractor does not return the VPR within the time stipulated the Architect/Designer will assess it at reasonable rates. Once agreement is reached on price and/or timing a Variation Order (VO) for the item will be issued. Note that works covered by a SI or a VPR must NOT be actioned until the VO is issued.

When a Variation is contemplated and timing does not allow SI and VPR action the Contractor is to advise, and record in the site diary, an estimate of price and timing implications. If accepted by the Architect/Designer, a VO will be issued immediately. The Contractor shall then co-operate with the Architect/Designer to establish agreed pricing. Claims for Variations neither priced nor estimated prior to being put in hand (but considered valid) will be incorporated into Progress Payment Certificates or the Draft Final Accounts as claimed and accepted but with a proviso allowing 5 (five) days for written objections by either the Principal or the Contractor, to any aspect of them, for further consideration.

The Main Contractor's Variations Margin agreed pre-contract will be the maximum accepted for any trade unless higher rates are nominated pre-contract and are accepted. The Main Contractor's agreed Variations Margin shown shall be deemed to include all preliminary and general costs, overheads, variation processing costs, and profit. If no margin is given, a 5% overall margin will be applied.
Note that ‘loss of anticipated profit' claims consequent upon reduction of works extent will NOT be recognised, and that the cost of processing Variations is deemed to be included in the P & G Allowance.
Also note that for Variations pricing all materials shall be charged at the actual net invoiced cost plus margin; i.e. recognised ‘Trade Price’, volume discounted where appropriate.

2.1.15 Progress Claims

Progress Claims shall be in writing, shall be in accordance with the requirements of the Construction Contracts Act 2002, and shall include all of the following:
- The overall amount claimed.
- The percentage completion and amount claimed for each Subcontractor. For accurate claim verification please ensure that this breakdown exactly matches the trades costs breakdown agreed-to pre-contract.
- The total Contract Sum Adjustment for any/all Variations authorised prior to the claim.
- Items covered by Monetary Allowances listed separately.
- And, if specifically requested, confirmation that amounts previously claimed on behalf of Subcontractors, certified by the Architect/Designer, and paid by the Principal, have actually been paid to the Subcontractor (apart from normal retentions).

Note that retentions will be held exactly in accordance with the Conditions of Contract.

2.1.16 Cleaning and Completion

Clear construction debris and rubbish from the works at regular intervals, and additionally if so instructed by the Architect/Designer. Clean each space thoroughly before commencing any finishing works.

In preparation for the Practical Completion inspection carry out the following:
- Clean the works thoroughly, removing all debris, surplus materials, splashes, marks, temporary markings, etc. (All cleaning methods and materials shall be as recommended by the manufacturer of the item being cleaned).
- Remove protective wrappings and coverings unless otherwise directed.
- Touch up minor painting faults, carefully matching colour, and brushing out edges. Repaint any badly marked surfaces back to suitable break-lines.
- Adjust, ease and/or lubricate as required all doors, drawers, controls and other moving parts to ensure their efficient operation.
- Any other works required to leave all spaces ready for immediate occupation and all electronic/electrical/mechanical systems fully operational.
- Clean out all spoutings, gutters, downpipes, and gullies and flush out all drains.
- Clean all sanitary appliances and check all aspects of the water services.
- Thoroughly re-inspect all aspects of the works (and have any defects fully rectified) to be certain that the works are completely ready for the Practical Completion inspection - if an unreasonable number of items are noted by the Architect/Designer during the inspection it will be terminated and then rescheduled for at least a week forward to allow proper completion to

be achieved.
(Note that a Code Compliance Certificate must be obtained before Practical Completion will be certified. Obtain all required certificates, guarantees, as-built drawings, etc., as work proceeds to enable the CCC application to be submitted as soon as construction is completed).

3 SITEWORKS

3.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

3.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

NZBC F1	Hazardous Agents on Site
NZBC F2	Hazardous Building Materials
NZBC F3	Hazardous Substances and Processes
NZBC F4	Safety from Falling
NZBC F5	Construction and Demolition Hazards

3.3 Site & Scope

3.3.1 Site

Take great care to excavate exactly up to the wall foundations to avoid any damage to adjacent property.

Note that bulk landforming, building platform excavation and roadway construction will be carried out prior to this contract.

Note that no claims will be recognised on the grounds of insufficient description of existing site conditions in the Contract Documents.

Take great care to excavate exactly for the wall foundations to avoid any damage to adjacent property.

Take great care to excavate/cut up to the boundary, but not over.

Take great care to ensure that no excavation material tumbles down the slope on to the property below.

3.3.2 Scope

This section covers:

Rabbits control
Demolition work
Boulders salvage

Removal of vegetation
Excavation of topsoil and stockpiling and final distribution
Excavation of topsoil and stockpiling and final distribution (and new topsoil)

Excavation as required for foundations and slabs
Excavation as required for foundations, slabs, and drive
Excavation as required for foundations, slabs, and carpark
Excavation as required for foundations, slabs, carpark and drive

Supply, placing and compaction of hardfill basecourse and sand blinding
Supply and placing of any site concrete required

Supply and installation of retaining walls waterproofing systems and field drains
Backfilling behind retaining walls

Preparation for, and installation of asphalt driveway paving
Supply and installation of asphaltic concrete

Preparation for paving works, and sandstone and asphalt paving
Preparation for sandstone and schist paving
Preparation for and installation of paving
Preparation for, and installation of exposed aggregate paving
Supply and installation of flagstone paving

Preparation for, and installation of topsoil to planter areas
Instant lawn supply and installation
Grass for disturbed areas around the works areas

Polythene groundcover under the timber floor
Preparation for and installations of Gobi blocks
Supply and installation of the trampoline

3.3.3 Construction Sequence

The following construction sequence is suggested in the belief that it will benefit the actual construction process as well as the finished project. Tenderers must notify with their tender if they do not intend to follow this sequence:

3.4 Excavation & Siteworks

3.4.1 Excavation

Excavation work shall be carried out in accordance with the WorkSafe NZ Excavation Code of Practice. Co-ordinate with other trades as to set-out and timing to ensure that all cut faces are covered or finished etc. as soon as possible after the excavation is complete.

Plan the excavation carefully to ensure that stockpiles will not interfere with concrete construction, to stockpile just sufficient material for the filling, backfilling and reshaping required later, and to avoid overlaying areas outside the works area with material.

As the bulk scope of excavations works will have been carried out prior to commencing work on site, advise and co-ordinate with the separate contractor to ensure that the main building platform is consistent with what is expected. If any concerns are raised please immediately advise the Architect for direction.

Cease machine excavation above final levels and trim to the finish profiles by hand where appropriate. Any over excavation in critical foundation, etc. areas made up with 10MPa concrete unless otherwise approved. Trim slab benches exactly to the required level to allow for hardfill and blinding.

Noisy excavation equipment shall be used only during hours which will avoid undue nuisance to the occupants of adjacent properties.

Excavate accurately in position and true to line and minimum sizes and to levels and grades required for all slabs, footings and foundations, and over the rest of the areas shown for levels adjustment.

Excavations down to firm undisturbed ground, and footings and foundations 200mm minimum into solid, except where shown otherwise.

Below slabs on ground the general intent is to excavate to a stable undisturbed subgrade (of 300 kPa ultimate bearing capacity).

Trim slab benches as required to allow for hardfill and blinding.

Batter all excavation cuts at a stable slope.

From the excavated material select the most appropriate material for compacted filling and stockpile it in appropriate positions sufficient for filling and backfilling (but NOT for hardfilling).

Remove all surplus material from the site as soon as it is excavated, taking care to avoid damaging the footpath or streets or spilling material on to them.

Remove individual boulders from the excavated material and stockpile them where noted for future landscaping use by others.

Keep excavations free of water - remove foundation trench material which becomes water-softened.

Ensure that rainwater runoff from excavated surfaces does not carry material onto adjacent properties.

Report for instruction when any unexpected voids, made-up ground or similar are encountered.

Report the finding of antiquities or other items of value, and leave them undisturbed until approval (and instruction) is given for their removal - they remain the property of the Principal.

As soon as excavation and filling is complete foundation material will be inspected by the Architect, and any changes to foundation widths/details will be directed.

3.4.2 Excavation Completion

As soon as excavation and filling is complete and before any concrete is placed or other work proceeded with the foundation material will be inspected by the Engineer, and any necessary changes to foundation widths or details will be directed.

3.4.3 Filling

Filling with salvaged material (of appropriate moisture content) shall be compacted in 150mm layers with mechanical rammers, to 95% relative compaction. All work generally in accordance with the provisions of NZS 4431.

On completion clean up the stockpile areas and the site.

3.4.4 Hardfill & Blinding

Providing the excavation is carried out as specified there will be no need for hardfill beneath the slabs on grade, and if the subsoils are clean sand as anticipated there will be no need for blinding under the polythene DPC.

Hardfill under slabs on grade shall be 150mm of standard TNZ AP40 basecourse free of clay or organic matter compacted to 95% relative compaction in accordance with NZS 4402 Test 4.1.1.

Hardfill under slabs on grade shall be a 100mm of granular fill material complying with NZS 3604: 7.5.3.2, compacted to 95% relative compaction.

Hardfill under slabs on grade shall be 150mm of standard M4 basecourse compacted to 95% relative compaction.

Hardfill under slabs on grade shall be a 100mm of standard basecourse M4 compacted to 95% relative compaction.

Any fill required below 150mm below the slab soffit shall be suitably graded imported rock to AP65 sub-base specification.

Where required bulk hardfill with clean quarry forkings in 200mm loose thickness layers compacted to 95% relative compaction.

Blind all fill under all slabs to a minimum 20mm thickness with damp sand (clean, approx 10-30% passing 300 micron sieve, max 5% passing 150 micron.

Blind all fill or hardfill under all slabs to a minimum 20mm thickness with damp sand.

Blind hardfill under all slabs to a minimum 20mm thickness with clean damp sand.

3.4.5 Sealing Retaining Walls

The exterior of concrete blockwork walls shall be waterproofed with all aspects of the surface preparation and application exactly in accordance with the manufacturers recommendations.

(manufacturer & product info here)

3.4.6 Field Drains

Install field drains around retaining walls to enclosed spaces, (drains and their discharge positions more or less where indicated on the drawings). Install as soon as possible after the retaining wall waterproofing membrane is installed. Ensure that the slab DPM and the retaining wall waterproofing membrane are not damaged in any way during installation of the field drain.

Field drain shall be 110mm diameter Novaflo pre-wrapped in Bidim filter fabric, shall be laid in a 100mm minimum depth bed of no-fines shingle with even falls from the high point (where the underside of the drain is 20mm below the adjacent slab level), and discharging at the ends onto grade. Cover the top and sides of the drain with 100mm minimum of no-fines Pea metal.

Against the surface of retaining walls membrane install 100mm thick free-draining polystyrene sheet. This drainage layer shall extend full surface from 100mm above the field drain to the top of the wall or 50mm below the finished ground surface adjacent to the wall as appropriate. Install with neatly butted joints. (It is suggested that the drainage layer is installed concurrently with the backfilling, ensuring that the bottom of the sheets is tight down into the gravel above the field drain, and to avoid the need to fix the polystyrene sheet).

3.4.7 Backfilling

Backfill as soon as possible after retaining walls are in place and sealing, field drains and FormFlow are in place, and fully checked. Remove any timber offcuts and any/all other rubbish prior to backfilling.

Backfill with hardfill as specified above (or with approved clean salvaged site material of appropriate moisture content) compacted in 150mm layers with mechanical rammers to 90% relative compaction. Avoid any damage or displacement of the drainage layer during backfilling and compaction.

3.5 Drives, Paths & Paving

3.5.1 Cars Area

To the cars area identified on the setout plan, and soon after the excavation work is completed and approved, install an 80mm layer of no fines drainage chips or roading reject 20mm chips, and partly compact this layer into the sand subsoils. Finish the edge of the chips to reasonably smooth lines (where drawn), but without any permanent edging.

3.5.2 Driveway

Check that the excavated surface is accurately to the gradients and levels required and then install 100mm of standard basecourse M4 compacted to 95% relative compaction, and cover this with a 30mm depth of 20mm no-fines chips.

3.5.3 Vehicle Crossing

The contractor shall arrange for the construction of a new 3m wide vehicle crossing (complete with adjacent kerb and channel reinstatement and making good etc.) to replace the existing crossing, all in compliance with ACC rules.

The consent for and adjustment to the existing road edge planter kerbing will be arranged separately by the Principal.

3.6 Landscaping

3.6.1 Topsoil

On completion of all exterior works supply top grade (but not sterilised) topsoil and spread to 150mm lightly compacted thickness.

3.6.2 Grass

Spread mixed grass seed at the recommended rate (grass seed blend as recommended for the exposure/soil/subsoils), spread lawn fertilizer at the recommended rate, and water and keep watered and keep the birds away as required until a good lawn appears.

3.6.3 Auto Watering

The Plumber will run 20mm feeds from the pump to the auto-watering control positions. From appropriate controls to manage on and off timing etc., in these locations reticulate to the auto-watering positions shown on the drawings.

Reticulation shall more or less follow other piped services lines and elsewhere shall be sufficiently below the finished surface to minimize the possibility of accidental damage. Install pop-up sprinklers to the lawn areas, trickle irrigation heads to the planter holes within paved areas, and small spread sprinklers to the garden areas, all selected to provide even and appropriate service for the probable planting they are watering. Commencement of auto-watering installation by a Subcontractor indicates their full agreement to and acceptance of an unwritten guarantee to maintain the system in satisfactory working condition for two years, irrespective of the 90 day general maintenance period.

Ensure that all work and materials and incidental items that are incorporated within this system are such as to leave a neat, efficient, easily maintained and robust installation.

3.7 Demolition

3.7.1 Scope

Demolish the buildings, structures and items on the site that are indicated for demolition on the approved drawings, including those that are located below ground level, and remove and

dispose of all resulting demolished debris, materials and disturbed ground from the site. Aspects of this work include the provision of all precautionary safety measures, screens, scaffoldings, hoarding, covered walkways and the like necessary for carrying out and completing the demolition work. All aspects of this work shall be carried out to comply with the requirements of the NZ Building Code, relevant Regulations and Acts, the controlling Territorial Authority, and as specified herein.

The following is a list and/or general description of the extent of the Demolition works, which are more specifically defined in the contract documents, required for the completion of the contract works:

3.7.2 Requirements

3.7.2.1 Safety

Comply with the Health and Safety at Work Act 2015 (HSWA), and with all relevant Health and Safety at Work Regulations 2016, and with all relevant WorkSafe New Zealand (WorkSafe) Approved Codes of Practice and WorkSafe Information and Guidance.

Comply with the NZDAA 'Demolition - Best Practice Guidelines for Demolition in New Zealand', and the WorkSafe General risk and workplace management - part 1.

3.7.2.2 Asbestos

In addition to all other compliance requirements for general demolition, the removal, transportation and disposal of asbestos and Asbestos-Containing-Materials (ACMs) shall comply with the Health and Safety at Work (Asbestos) Regulations 2016, and with the 'Management and Removal of Asbestos Approved Code of Practice' (ACOP).

In addition to the Demolition Plan (Method Statement), prepare and submit an Asbestos Management Plan conforming to the requirements of the ACOP that clearly outlines the management, handling and removal of asbestos materials.

Confirm all local authority and WorkSafe NZ requirements before commencing demolition. Only certified asbestos removers with a current Certificate of Competence for Restricted Work with Asbestos shall carry out work associated with asbestos materials and ACMs.

3.7.2.3 Site Assessment

The Contractor is deemed to have visited the site and examined the buildings and structures on the site and those adjoining, and the contents and environment of the site, and shall be fully aware of any and all circumstances that may affect the demolition of the buildings and structures for demolition. This includes the materials of the buildings and structures to be demolished, basements, tunnels, underground tanks, pits, sumps or other voids. It also includes satisfying themselves as to site conditions, levels, access, piped and cabled services, adjoining buildings, traffic conditions, and all other matters affecting the execution of the demolition works including disposal.

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

3.7.2.4 Compliance

Allow for all work associated with the safe and orderly execution of the demolition work, including complying with all Territorial Authority requirements, Building Consent, Building Act, Health and Safety requirements, and all other acts, laws, by-laws and regulations that may affect the execution of the works.

3.7.2.5 Demolition Contractor

Demolition work shall be carried out by a competent Demolition Contractor employing suitably skilled and experienced workers and operators trained for this type of work, including the necessary demolition methods and the maintenance and inspection of demolition plant and equipment.

Ensure that supervisory personnel of the demolition works have a detailed knowledge of the precautions and procedures outlined in the NZDAA 'Demolition - Best Practice Guidelines for Demolition in New Zealand'.

Notify the Contract Administrator the name of the appointed demolition supervisor prior to commencement. Provide evidence of the demolition supervisor's current safety qualifications recognised by WorkSafe.

All practicable steps must be taken for the safety of employees, and equipment must be operated by competent operators. Particular care must be taken when demolishing unsafe or damaged structures such as brittle roofing, fire-damaged sturctures and cantilevered structures.

Where there is a danger to the public, warning signs, barricades or warning devices must be provided and used.

3.7.2.6 Demolition Plan (method statement)

Prior to commencing the work, prepare a Demolition Plan (Method Statement), as outlined in the WorkSafe NZ document 'Demolition - Best Practice Guidelines for Demolition in New Zealand', incorporating a step-by-step plan on how the demolition contractor intends to safely demolish the building or structure.

The Demolition Plan shall include (but not be limited to):
- a description of the structure or building, including constructed materials;
- the location of the structure or building, including relationship to surrounding structures/buildings;
- a description of the historical use of the building;
- a description of the works to be undertaken;
- staged description of how the works will be done safely, taking into consideration safe access by personnel; any temporary platforms required for the works; intended plant and equipment to be used; proximity to adjacent structures and buildings; constraints implemented by the Territorial; Authority and/or Principal.
- notifiable work;
- location of underground services;
- any special conditions such as working hours;
- worksite access;

- any hazardous substances present within the building, their location, extent, type and intended method of removal;
- territorial consents required for the job;
- work permits required (hot works/confined space etc.);
- engineer's calculations and required reports;
- intended site personnel to be onsite, specifically the site supervisor, ticketed/qualified personnel and first aiders;
- temporary structures to be used onsite by the contractor; and
- any other conditions identified through the pre-demolition check.

The Demolition Plan shall be submitted to the BCA at the time of application for consent. Provide a copy of the Demolition Plan to the Contract Administrator.

3.7.2.7 Hours of Demolition Work - Restricted

The times during which demolition work may be carried out is restricted. Comply with all conditions of the Building Consent. Do not carry out demolition work outside the permitted times.

The permitted hours in which demolition work can be carried out is between:

3.7.2.8 Notifiable Work

Notify WorkSafe NZ of work that is notifiable (particular hazardous work) under the Health and Safety in Employment Regulations 1995, 24 hours before starting the work.

3.7.2.9 Inspections

Inspection of the demolition work shall take place at each of the stages as scheduled in the Building Consent. Confirm a written programme to facilitate these inspections, including notification when each stage of the work is ready for inspection.

Obtain and pay all fees for any required inspections that are additional to the Building Consent.

3.7.2.10 Fence the Site

Provide all necessary measures to secure the site against unauthorised entry during the demolition work. On completion of the demolition work, securely fence the site.

3.7.2.11 Protection of Adjacent Sites

Take all necessary precautions to avoid damage to adjoining public and private property and shall be wholly responsible for reinstating any damage incurred during the demolition works. Undertake responsibility for keeping all public thoroughfares clear and free of debris.

Prior to the commencement of works, carry out a condition survey of neighbouring properties likely to be affected by the demolition work. This shall include a photographic survey and the results of the survey shall be agreed with the owners of the neighbouring properties.

3.7.2.12 Principal's Right to Remove Items before Demolition

The Principal has the right to remove any fixtures and fittings, and to demolish or remove any part of the building, before the building is handed over to the Contractor.

3.7.3 Explosives

The use of explosives is prohibited, and demolition methods by explosion or implosion are not permitted.

3.7.4 Materials for Salvage

3.7.4.1 Salvage Materials

All materials, debris and other items arising from demolition shall become the property of the Contractor unless specifically stated otherwise, and due allowance for the credit value (if any) of such materials, items, etc., shall be made in the tender.

3.7.4.2 Salvage Materials as Property of the Owner

Carefully dismantle and remove any materials and items that are scheduled or identified to remain the property of the Owner. Store and protect these materials and items from damage, weather and contamination until completion of the works or as directed otherwise, and hand over to the Owner.

The following materials and items shall be salvaged and remain the property of the Owner:

3.7.5 Materials for Disposal

Apart from those items scheduled or identified for salvage or reuse, all demolition material becomes the property of the Contractor and together with rubble shall be removed from the site as quickly as possible.

Remove all demolition rubble and waste material off the site to an approved landfill, and in such a manner as to cause as little inconvenience as possible to the adjoining owners and the public. Pay all associated landfill and disposal fees.

Remove demolition rubble, waste and salvaged materials continually from the site through the period of the demolition, and do not allow these to accumulate on site.

The burning of demolition waste on the site is NOT permitted.

3.7.6 Existing Services

Take full responsibility for:
- Locating all underground services affected by any excavation work. Any details of existing underground services provided by the Principal is done so in good faith.
- Obtaining all records of underground services held by service authorities other than the Principal.
- Giving all required notices to the water, sewage, gas, telecoms and electricity authorities or companies, and the Territorial Authority, and paying all relevant fees and charges.
- Carrying out a detection survey of the site to ensure there are no buried operative electric cables.
- Locating all existing underground services before working in any area.
- Protecting existing services lines and items that are to be retained.
- Removing, disconnecting, sealing off, etc., existing services lines and items that are to be made redundant.

- Rectifying any damage or interference to existing services that are to be retained, and providing temporary services while repairs are being carried out.
- Protecting services adjacent to the site.

3.7.7 Adjacent Structures

3.7.7.1 Integrity of Adjacent Buildings

Check the relationship and the condition of adjacent buildings, structures and areas. No part of the demolition process shall adversely affect the integrity of adjacent buildings, structures or areas to be retained. Allow for all monitoring, shoring and underpinning, and any likely changes in soil condition as a result of the demolition.

Do not remove support to undermine or in any way lessen the capacity of foundations to adjacent structures. If foundations for demolition cannot be removed without affecting the stability of adjacent structures, seek advice from the Contract Administrator before proceeding.

3.7.7.2 Separation from Adjacent Buildings

Allow for the neat removal of all flashings, etc., and generally allow for all measures required to separate the building or structure from those on adjacent sites.

Make all necessary allowances where the to-be-demolished structure is attached to adjacent property, including separation measures necessary to carry out the demolition without damaging the adjacent property.

3.7.7.3 Temporary Weatherproofing of Exposed Walls

Temporarily protect and make weathertight exposed wall faces of the adjcent buildings with 0.250mm thick black polythene sheet. Lap all joints 150mm and such that any moisture will be shed to the outside, tape all lapped joints and penetrations with 50mm PVC tape, and fasten to the wall face with 50mm x 25mm timber vertical battens at 600mm centres using fasteners appropriate for the substrate.

3.7.7.4 Access to Adjacent Buildings

Requirements for access to adjacent buildings from the site shall be as directed by the Contract Administrator and in accordance with the Demolition Plan (method statement), and shall be maintained and adhered to throughout the demolition process.

The level of safety protection for access to adjacent buildings during demolition shall be no less than that required for public places.

3.7.8 Dust & Noise Control

Take all necessary measures to minimise nuisance from dust, noise and other causes affecting adjoining properties and the public, including thoroughfares.

Refer to NZS 6803 'Acoustics - Construction Noise', and comply with the requirements of the Demolition Consent/Building Consent (as applicable).
Use appropriate plant, equipment and machinery so as to comply with required noise limits.

The use of water spraying shall be used to prevent the generation of dust. Accordingly, ensure proper control of water supply and drainage systems in order to prevent flooding. The watering down of demolition debris, including loaded vehicles, chutes, floors, stairways and other places, shall be carried out frequently.

Silt run-off caused from watering-down operations shall be prevented from entering the stormwater system and waterways with the use of silt mats, catch pit filters, silt fencing, bunding or other types of silt screens.

3.7.9 Control of Debris

Debris shall only be allowed to fall freely and without deflection through chutes specially provided for the purpose. Precautions shall be taken against flying or falling debris by sealing off all openings in walls adjacent to the area of fall.

Prevent excessive buildup of lateral pressure from demolition debris stacked against adjacent walls and structures.

3.7.10 Removal from Ground

Dig out those in-ground elements and items scheduled and identified for demolition and removal, including paving and ground slabs, foundations, footings, basements, cellars, tanks etc., trenches, pits, sumps, manholes and drains that are part of or service the demolished building. Leave the voids that result. Do not backfill voids unless instructed otherwise by the Contract Administrator.

3.7.11 Carting, Loading & Unloading

Ensure that public roads and footpaths are not obstructed and traffic is not impeded due to the loading and off-loading of demolition waste and materials.

Comply with all controlling authorities' regulations for the carting, loading and off-loading of demolition plant and machinery, and demolition waste and materials.

3.7.12 Clearing the Site

The site shall be left to the required standard, clear of all demolition waste and disturbed ground. Unless directed otherwise by the Contract Administrator, disturbed ground shall not be reused or re-compacted, and must be removed from the site.

Except where required otherwise, the site shall be left essentially flat, and in all cases lower than the nearest adjoining footpath(s). Ensure the edge of adjacent footpaths is protected with banked ground.

3.7.13 Damage & Reinstatement

Make all necessary allowances to reinstate and make good any damage caused by the demolition work to any existing building or property, including site, being retained. No reinstatement or making good work shall be undertaken without prior assessment and instruction from the Contract Administrator.

3.7.14 Completion

Ensure that all demolition work has been carried out to the required standard, including the disconnection and sealing off of redundant services.

Leave the site clear of all demolition waste and disturbed ground, to the required standard.

Remove all associated machinery, plant, tools, equipment, etc., from the site.

Check that any remedial work associated with demolition damage to other buildings or property or retained areas of the site has been carried out to the requirements and satisfaction of the Contract Administrator.

Check that any materials and/or items salvaged on behalf of the Owner have been handed over to the Owner and are no longer the responsibility of the Contractor.

Provide copies of all necessary compliance documents to the relevant parties.

4 CONCRETE

4.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

4.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

3101.1&2:2006(NZS)	Concrete Structures Standard
3104:2003(NZS)	Specification for concrete production
3109:1997(NZS)	Concrete construction
3112.1:1986(NZS)	Methods of test for concrete - Tests relating to fresh concrete
3112.2:1986(NZS)	Methods of test for concrete - Tests relating to the determination of strength of concrete
3114:1987(NZS)	Specification for concrete surface finishes
3121:2015(NZS)	Water and aggregate for concrete
3122:2009(NZS)	Specification for Portland and blended cements (General and special purpose)
3604:2011(NZS)	Timber-framed buildings
4431:1989(NZS)	Code of practice for earth fill for residential development
NZBC B1/VM1	Structure
NZBC B2/AS1	Durability

4.3 MAXRaft® Fully Insulated Foundations

4.3.1 Scope

Supply and install MAXRaft® Fully Insulated Foundations, as specified herein, to the location, layout and details as shown on the design drawings, complete with all necessary components and accessories required for proper installation and performance. All aspects of this work shall be in complete accordance with MAXRaft® technical literature, including the MAXRaft® Technical Details and MAXRaft® Installation Manual and detail drawings (check www.maxraft.co.nz, or email info@maxraft.co.nz, or call 0800 629 7238 for the latest editions) within the conditions and limitations of the MAXRaft® Fully Insulated Foundations CodeMark Certificate of Conformity, BRANZ Appraisal 1054, and other relevant product manufacturers' recommendations.

The MAXRaft® Fully Insulated Foundations system is CodeMark assured to comply with the NZ Building Code subject to specific conditions and limitations - refer to CodeMark Certificate of Conformity No: CMA-CMA40124-101-R02, issued by CertMark International Pty Ltd.

No substitutions are permitted for MAXRaft® Fully Insulated Foundations.

For the purpose of this specification, MAXRaft® Fully Insulated Foundations is referred to as 'MAXRaft® Floor'. All associated MAXRaft® technical literature, including the MAXRaft® Technical Details and MAXRaft® Installation Manual and detail drawings and the Code Mark Certificate, are collectively referred to as the 'Technical Literature'.

All MAXRaft® Floors are fully engineered by independent engineers on a site-specific basis to ensure the design of the MAXRaft® system is appropriate for the ground conditions and building type.

This specification should be read in conjunction with other relevant specification sections as they are interrelated, in particular, Siteworks and relevant services - i.e. Drainlaying, Plumbing, Electrical, etc.

The following is a general description of the extent of the MAXRaft® Floor works, which are more specifically defined in the contract documents, required for the completion of the contract works:

4.3.2 Requirements

4.3.2.1 Safety

Comply with the Health and Safety at Work Act 2015 (HSWA), and with all relevant Health and Safety at Work Regulations 2016, and with all relevant WorkSafe New Zealand (WorkSafe) Approved Codes of Practice and WorkSafe Information and Guidance, particularly those for construction and building maintenance.

4.3.2.2 Substitutions

The MAXRaft® Floor shall be as specified herein and on the design drawings. The substitution of the MAXRaft® Floor for an alternative brand or system is not permitted under any circumstances.

The substitution of a specified MAXRaft® Floor system/material for an alternative MAXRaft® Floor system/material by the Contractor shall only be permitted with the Contract Administrator's written authorisation and shall be at no additional cost to the Principal. Should any resultant extra work and/or redesign work be required to accommodate an alternative MAXRaft® Floor system/material to satisfy design, performance and compliance requirements, then the cost of these shall be borne by the Contractor.

4.3.2.3 Geotechnical Report

A geotechnical investigation of the site has been carried out - refer to the Geotechnical Report appended.

4.3.2.4 Producer Statement PS1

Furnish a fully completed Producer Statement PS1 (Design) as confirmation that the MAXRaft® Floor as designed and documented complies with the relevant clauses of the New Zealand Building Code. The Producer Statement PS1 shall be submitted with the Building

Consent documentation. The PS1 Producer Statement shall not serve as a product warranty or guarantee of compliance.

4.3.2.5 Producer Statement PS4

Furnish a fully completed Producer Statement PS4 (Construction Review) as confirmation that the MAXRaft® Floor as constructed complies with the relevant requirements of the Building Consent and Building Consent Amendments, with respect to the relevant clauses of the New Zealand Building Code. The Producer Statement PS4 shall be submitted by the Contractor with the application for Code Compliance Certificate of the contract works.

4.3.2.6 Certificate of Design Work

Provide all necessary Certificates of Design Work (CoW) required by the BCA for Building Consent as confirmation that the MAXRaft® Floor as designed and constructed complies with respect to the relevant clauses of the New Zealand Building Code.

4.3.2.7 Shop Drawings

Prepare and submit to the Contract Administrator for review shop drawings of the MAXRaft® Floor. The review of shop drawings shall in no way relieve responsibility for the accuracy of the shop drawings and for the correctness of the setting out and construction of the MAXRaft® Floor.

Shop drawings shall be coordinated between disciplines and incorporate specific requirements shown on all design drawings.

Shop drawings shall include, but not be limited to:
- the location, layout and general arrangement of the floor;
- dimensioned and notated plan of the MAXRaft® Floor and its components (at a suitable scale);
- dimensioned and notated construction details of all aspects of the floor (at a suitable scale);
- size, spacing and cover of all steel reinforcement;
- position and dimensions of penetrations, recesses and rebates on the floor;
- position and details of all cast-in items;
- location of in-slab hydraulic heating system pipework - as applicable;
- location and type/class of surface finishes, including surface roughening;
- concrete mix, strength, slump and volume;
- a schedule of polystyrene components;
- a schedule of all steel reinforcement.

4.3.2.8 Inspections & Reporting

BCA inspections of the works shall take place at each of the stages as scheduled in the Building Consent. Confirm a written programme to facilitate these inspections, including notification when each stage of the work is ready for inspection.

Carry out all necessary pre-installation and installation inspections for each area and stage of the works.
Complete all necessary Pre-Installation Checklists, and all necessary Installation Checklists.
Complete all necessary Sign-Off Certificates before handing over completed work.
Complete and sign the MAXRaft® Polystyrene Installation Quality Assurance Form.

Notify the BCA and the Contract Administrator for all required inspections of the MAXRaft® Floor construction, including the excavations. All inspections and test results shall be properly recorded and documented by the Contractor and made available on request.

The Contractor shall provide all necessary quality control checklists to the Contract Administrator prior to pouring and with sufficient time for their pre-pour inspection.

The Contract Administrator and BCA shall be notified and given reasonable opportunity to inspect the section of work prior to pouring. The Contractor shall give at least one working day's notice of intention to place concrete in any area.

The Contract Administrator's and/or BCA's instructions shall be carried out before concrete placing commences. Instructions issued by the Design Engineer must be authorised by the Contract Administrator. Unless approval is given by the Contract Administrator, Design Engineer (or their agent) and/or BCA, no concrete shall be placed in that section of work. Any concrete placed without authorisation may require removal from the works at the Contractor's expense.

4.3.2.9 Engineer's Site Monitoring

The Design Engineer (CPEng) or their authorised agent shall have reasonable access to the site where the work is being carried out for the purposes of inspection, recording, or testing. Any resulting notification or instruction arising from their site monitoring must be authorised by the Contract Administrator.

4.3.2.10 Quality Assurance

Maintain and comply with industry-recognised quality control and assurance procedures to ensure that all stages of the works are carried out to the highest standard. Ensure that the construction of the MAXRaft® Floor complies in all respects with the design drawings and specifications.

A signed quality assurance form must be provided from MAXRaft® confirming that the polystyrene has been installed in accordance with the Producer Statement - PS1.

If requested, prepare and submit to the Contract Administrator details of the quality assurance procedures for concrete work for approval.

The quality assurance procedures shall encompass all aspects of the MAXRaft® Floor construction including, but not limited to:
- Concrete quality; and
- Formwork quality; and
- Construction tolerances; and
- Reinforcing steel placement; and
- Cast-in items; and
- Concrete finishes.

The Contractor shall advise the Contract Administrator in writing the name of a suitably experienced and qualified representative to be responsible for the quality control of concrete work.

The Contractor's nominated representative shall be required to complete and sign a written quality control checklist for each on-site concrete pour. A copy of each completed checklist shall be provided to the Contract Administrator before pouring commences and with sufficient time for the pre-pour inspection. The format and detail of the checklist shall be agreed to by the Contract Administrator and the Contractor prior to the commencement of any concrete work.

The Contractor shall supply evidence of concrete production quality standards to the Contract Administrator in advance of construction in accordance with the requirements of NZS 3109.

4.3.2.11 Tolerances

Except where specified otherwise herein or on the drawings, dimensional tolerances of the MAXRaft® Floor shall be within 5mm of the position shown on plan and conforming to NZS 3109, Table 5.2 - 'Tolerance for *in situ* construction' for all other aspects, and to NZS 3114 for off-the-form and unformed surface tolerances.

To ensure that elements such as external claddings, window and door joinery etc will properly fit the building, the Contractor shall maintain accurate control of the overall set-out and construction of the MAXRaft® Floor.

4.3.2.12 No-Slab Heating Systems

No embedded underfloor heating in slab. MAX85 is not designed to work in conjunction with embedded Underfloor Heating.

4.3.2.13 In-Slab Heating Systems

In-Slab Heating System - refer to separate specification section. As specified and shown on the design drawings, an in-slab floor heating system (by others) shall be incorporated into the MAXRaft® Floor. Make all necessary provisions to accommodate the in-slab floor heating system and to coordinate the installation of components into the MAXRaft® Floor.

4.3.2.14 Applied Coatings & Finishes

The MAXRaft® polystyrene insulation system exterior requires protection from physical damage, UV rays and water absorption. MAXRaft® polystyrene insulation should be protected by the use of a coating that protects the insulation and is suitable for use in the subgrade.

Refer to the Technical Literature for guidance, and to the project design drawings and specification for coatings and finishes to be applied to MAXRaft® polystyrene insulation exterior surfaces.

4.3.3 Ground Classification

4.3.3.1 Ground Prone to Liquefaction and Categorised as TC2

The ground conditions have been established as ground prone to liquefaction and categorised as TC2 by a geotechnical investigation compliant with local Territorial Authority requirements and MBIE technical guidance for a TC2 site. Refer to the Geotechnical Report.

4.3.4 MAXRaft® & MAXSlab® Floor System

4.3.4.1 MAXRaft® Plus+ 320.

MAXRaft® Plus+ 320.
A reinforced concrete, waffle slab-on-ground foundation system contained entirely within a thermal envelope of specifically-designed MAXRaft® insulation, consisting of perimeter footings and a grid of concrete ribs in conjunction with MAXRaft® Plus+ insulation. Suitable for single-storey residential buildings and two-storey residential buildings depending on cladding and the bearing capacity of the ground.
The ground immediately beneath the floor can be less than 200 kPa bearing capacity or designated as TC2 type ground.
Meets Homestar V5, give a foundation with an R value between 2.5 and 4.03 depending on the design.
Suitable for embedded UF Heating on sites that are not good ground.

System Details:
- Total Depth: 320mm, including polystyrene envelope.
- Concrete Topping Thickness: 100mm, unless specified otherwise on the design drawings.
- Perimeter Footings: 350mm wide x 320mm deep (170mm to underside of concrete topping) including polystyrene envelope. MAX189EX tapered or Passive edge.
- Components: MAXRaft® Insulation, concrete, steel reinforcement, damp proof membrane - refer to Materials clauses.

Installed Location:

4.3.5 Materials - MAXRaft® Insulation

MAXRaft® Plus+ 320
MAXRaft® Plus+320 Polystyrene Insulation Components - including, but not limited to 350mm wide x 50mm thick Perimeter Profiles, 120 wide x 50mm thick Rib Insulation (pod spacers), 1100 x 1100 x 220mm thick Pods - selected according to MAXRaft® project-specific design requirements and installed to the layout shown on the project-specific MAXRaft® Panel Plan.

Load-bearing insulation material, including perimeter footings, shall be from 300kPa extruded polystyrene (XPS) or 165kPa Class-VH expanded polystyrene (EPS). All other insulation material shall be from Class-S expanded polystyrene (EPS) with a density between 16-30kg/m³.

4.3.6 Materials - Concrete

4.3.6.1 Concrete Mix

Concrete shall be 20MPa, 140mm slump mix, in either a 13mm or 19mm nominal aggregate size, Normal Concrete (N) produced in accordance with NZS 3104 from a New Zealand Ready Mixed Concrete Association audited plant, with sufficient cement quantity to ensure satisfactory finish and durability.

4.3.6.2 Concrete Tests

The ready-mix concrete supplier shall carry out and evaluate control tests in accordance NZS 3104, and shall pay the costs of such tests.

In addition to the tests required by NZS 3104, take test cylinders on site at random for each pour of concrete, in accordance with NZS 3112.2, Clause 3 as follows:
- Make four standard cylinders for the first 25m³ of concrete placed, or part thereof and test in an approved laboratory.
- Make four standard cylinders for each subsequent 100m³ of concrete placed, or part thereof and test in an approved laboratory.
- Test results for breaking one cylinder at 7 days and the remaining three cylinders at 28 days shall be forwarded to the Contract Administrator on completion of the test together with details of where that particular concrete was placed in the structure.

Delivery dockets and other certified records of concrete quality shall be kept on site for inspection.

Failure to conform to the requirements of this specification, or failure to provide or complete the concrete manufacturer's delivery docket could result in the ready-mix concrete being subject to rejection at the time of delivery.

4.3.7 Materials - Steel Reinforcement

4.3.7.1 Steel Reinforcement

Steel Mesh:
- SE62 Ductile Mesh (or minimum 2.29kg/m²) Grade 500E welded steel mesh, complying with AS/NZS 4671 and subject to the requirements of NZBC B1/VM1 Paragraph 14.0.
- Machine-welded wire mesh; 500 MPa minimum yield strength; 6.1mm wire diameter; 200 x 200mm wire centres.
- Installed as slab topping reinforcement in accordance with the Technical Literature and the design drawings.

Steel Bar:
- Grade 500E to AS/NZS 4671.
- Except where otherwise specified on the design drawings, reinforcing bars shall be HD12.
- Grade 500E reinforcing bar shall be manufactured by Pacific Steel micro-alloy process. *Alternative manufacturers of Grade 500E reinforcing will only be approved if written evidence is provided, including test certificates, verifying the product*.
- Installed as main reinforcement and sundry bars; all in accordance with the Technical Literature and the design drawings.

General Requirements:
- Mill certificates must be provided to the Contract Administrator for all reinforcing steel used.
- All bundles of reinforcing steel supplied to the job shall be clearly marked with numbers relating to the Bending Schedule and related design drawing.
- Ensure that all reinforcing is adequately supported off the ground while stored on-site.
- Reinforcing bars shall be cut, bent, placed and fixed by suitably trained and experienced personnel to the requirements of NZS 3109.

- Ensure that all preparatory works and formwork have been completed to the specified requirements prior to placing reinforcing.
- Steel reinforcement shall be installed to the locations and spacings shown on the design drawings, and supported with the use of proprietary bar chairs and spacers to ensure correct placement and cover is achieved.
- All reinforcing bar laps shall be minimum 50 x the bar diameter.
- Where Ductile 500E mesh is lapped, the lap length between outer cross bars shall be to the manufacturer's requirements.
- Minimum concrete cover to reinforcement shall be as specified on the design drawings or otherwise as specified in NZS 3109 - the design drawings shall take precedence over those specified in NZS 3109.
- The ends of wire ties shall be turned away from the concrete face to maintain cover.
- Do not tie wire ties to formwork.

4.3.8 Materials - Damp Proof Membrane

4.3.8.1 Polyethylene Sheet - 250µm thick

Damp Proof Membrane (DPM) - 250µm. A 250 micron thick, tear-resistant, polyethylene (polythene) film sheet damp-proof membrane. Installed over a maximum 25mm thick layer of compacted sand blinding, in accordance with the Technical Literature and the design drawings.

The DPM shall be laid over the entire building platform directly on top of a sand blinding layer, and extend 100mm beyond the foundation perimeter to a straight line. All DPM joints shall be lapped minimum 150mm and tape-sealed with minimum 50mm wide pressure sensitive PVC tape. Tape-seal around penetrating pipes and sleeves.

Take all reasonable measures to protect the DPM from damage during construction, and repair any perforations or other damage.

Do not leave the DPM exposed for more than the maximum period recommended by the manufacturer.

4.3.9 Concrete Finishes

4.3.9.1 General

Unless specified otherwise herein or on the design drawings, concrete finishes shall comply with the provisions of NZS 3114 applicable to the surface finish class specified.

Surface finishes not specified in this specification or on the design drawings shall be in accordance with Table 1 or Table 2 of NZS 3114, as appropriate for location and use.

Arrange the pouring to allow adequate time for floating and finishing to the specified finish class.

Floating and any subsequent finishing shall be at the correct time to obtain the quality of compaction and finish required. No finishing work shall be carried out on a surface where

there is free surface water. The application of dry cement or sand to absorb free surface water is not permitted.

All trowelling ridges shall be removed while soft, or by subsequent light grinding where appropriate. Slabs not fulfilling the standard of finish required shall be ground smooth or otherwise treated to the satisfaction of the Contract Administrator.

4.3.9.2 Schedule of Concrete Finishes

MAXRaft® Floor Schedule of Concrete Finishes:
- Slab Surface: *U3 Class Finish*.
- Unformed Surfaces to take Plaster or Tiles: *U2 Class Finish.*
- Off-the-Form Surfaces to take Plaster or Tiles: *F2 Class Finish*.
- Off-the-Form Surfaces Exposed (inside or outside the finished building): *F5 Class Finish*.

4.3.9.3 Concrete Finish Sample

Prepare and submit a clearly identified 750 x 750mm sample reference panel showing texture, colour and special effects of the specified concrete finish, as described herein, for assessment by the Contract Administrator. Do not commence concreting until the sample has been approved.

The approved sample reference panel shall establish the required attributes of the specific concrete finish, and serve as a quality reference for the concrete floor.

Finish Class and Description:
Location of Specific Finish:

4.3.9.4 Polished Concrete Floor

The MAXRaft® Floor shall be honed and polished to a uniform stone exposure and sheen level, to match the approved reference sample. Treat the polished concrete floor in accordance with the floor polisher's recommendations.

Level of Aggregate Exposure:
Finished Abrasion Grade (final polish):
Location of Polished Finish:

4.3.9.5 Polished Concrete Floor Sample Section

Provide a sample section of the polished concrete floor to the specified surface finish and treatment for approval by the Contract Administrator. Do not continue polishing treatment until the sample section has been approved or directed otherwise.

Sample Size:
Location:

4.3.10 Formwork

4.3.10.1 Formwork

Formwork shall conform to NZS 3109 Section 5, and comply with the provisions of NZS 3114 according to the specified off-the-form-finish classification.

Formwork shall have sufficient strength to retain and support the wet concrete being placed to the required profiles and tolerances.

The formwork surface finish shall be of suitable quality necessary to produce the specified concrete finish. Any formwork with a deteriorated or damaged surface that does not meet the requirements of the surface finish shall not be used.

Fair-faced formwork shall be constructed so as to provide straight and true angles, and so as to produce cast surfaces within a maximum tolerance of 5mm of the given dimensions, and without visible offsets, bulges, or misalignment of the concrete. Form neat arrised edges, except where chamfers are indicated on the drawings or required to match existing detail.

Plywood formwork shall be constructed from Formply plywood sheets or C-grade faced standard plywood sheets (according to concrete finish), placed in a regular pattern and tightly butted together to avoid grout loss. Plywood formwork shall not be permitted to stain visually-exposed concrete.

The formwork face shall be adequately clean and treated with a general purpose concrete form release agent in accordance with the manufacturer's requirements. Diesel and oil-based products are not permitted. Care shall be taken to ensure that the release agent is kept out of contact with the reinforcement and is compatible with any subsequent coating system applied to the concrete.

Erected formwork shall be set and checked for dimensional accuracy and alignment before, during and after concreting, and any damaged formwork replaced. All debris shall be removed from formed voids immediately before concrete is placed.

Do not remove formwork for at least 12 hours after concrete placement. Formwork shall be removed without shock or vibration and in such a manner as to prevent damage. Do not permit bars or other tools to lever against the MAXRaft® Insulation or set concrete when removing formwork. Any damage to the concrete occurring during removal shall be repaired to the required standard by an approved method at the Contractor's expense.

4.3.11 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the design drawings.

Coordinate with other trades, as required, the installation of all cast-in items and piped and cabled services, including drains, conduits, in-slab heating system, etc, within the MAXRaft® Floor.

4.3.12 Workmanship

Where required by the NZ Building Act 2004 it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner.

MAXRaft® Floor construction work, including sand-blinding, DPM laying, formwork erection, reinforcing placement, and concrete placing and finishing techniques, shall be carried out by

experienced and competent workers, familiar with the specified products and construction techniques, under the direct supervision of a Licensed Building Practitioner, in accordance with the Technical Literature and NZS 3109 and NZS 3114, and to fully comply with all warranty requirements.

All work shall be such as to leave a neat, efficient, robust and structurally sound installation, to the required standard.

4.3.13 Delivery & Handling

Take delivery of materials undamaged. Reject any item found to be defective or damaged and contact the manufacturer/supplier for replacement.

Store MAXRaft® Insulation components and reinforcing steel clear of the ground and in a manner that prevents damage and distortion in accordance with the manufacturer's requirements. Protect these materials from damage, distortion and contamination until use.

Do not use damaged or defective materials, or products that are beyond their designated shelf life.

Should a problem be encountered with any MAXRaft® Floor product during use or delivery, immediately contact MAXRaft® on 0800 629 7238. Do not continue to use the product that is not performing to specification or expectation. Keep the product in question and where possible, the document batch numbers and/or manufacturing details.

Handle materials and products in accordance with the manufacturer's recommendations and in a manner that prevents damage.

Installers shall be familiar with and comply with the manufacturer's Material Safety Data Sheet precautions for use, and use appropriate safety gear when handling materials.

Installers shall conform with all relevant WorkSafe NZ Guidelines and Codes of Practice - including the OSH Guidelines For the Provision of Facilities and General Safety in the Construction Industry.

4.3.14 Preparation

4.3.14.1 Site Clearing, Stripping, Excavation & Earthfill

Site Clearing, Stripping, Excavation & Earthfill - refer to separate specification section - Siteworks.

4.3.14.2 Piped & Cabled Services

Except where shown otherwise on the design drawings, piped and cabled services shall be run in-ground beneath the MAXRaft® Floor and returned vertically, at right angles through the floor at the required exit/entry points shown on the design drawings.

All service pipes in direct contact with concrete shall be lagged with a minimum 6mm thick, compressible, impermeable material.

In-ground services installations, including trenching, bedding, backfilling, ducting and sleeving, gradients, etc., shall be as specified for the applicable service (Drainlaying, Plumbing, Electrical), and must comply with the requirements of the New Zealand Building Code and the conditions of the Building Consent.

Plumbing and drainage fixtures installed in or on the MAXRaft® Floor shall be to the locations dimensioned on the design drawings, and shall not deviate from these without written prior approval from the Contract Administrator.

IMPORTANT:
- Service pipes are not permitted to be run lengthways within any MAXRaft® Floor footing or rib under any circumstance, nor shall they penetrate vertically through a footing without specific detailing.
- A service pipe is only permitted to pass perpendicular through a footing or rib according to the requirements of the specific design drawings.

4.3.14.3 Granular Basecourse to NZS 3604

Granular base to the underside of the MAXRaft® Floor shall consist of granular fill material conforming to NZS 3604 Section 7.5.3, and shall be systematically placed and compacted in horizontal layers no thicker than 150mm over the area beneath the slab and extending minimum 1.0m beyond the slab perimeter. Each layer shall be placed and compacted as a separate operation to subsequent layers.

The total thickness of the granular base shall be in relation to the finished slab level indicated on the design drawings, and no less than 75mm and no more than 600mm.

Compact each layer until the material is tightly bound together and does not visibly deform under the weight of a pressed adult heel. Compaction shall only be carried out with approved, special-purpose compaction equipment appropriate for the application. Compaction equipment shall follow systematic patterns of travel and make sufficient passes to ensure that the required compaction has been uniformly obtained everywhere for each layer. Care should be taken not to overwork the subgrade or to cause weaving.

4.3.14.4 Sand Blinding

Blind the finished subgrade with a 5-25mm thick layer of clean, compacted sand or approved blinding material, covering the entire area and extending 500mm beyond the perimeter footing. Ensure the sand blinding is compacted and levelled to within +/- 3mm of the required level, without deviation. Do not leave sand blinding exposed to the elements any longer than necessary, and install the DPM immediately or as soon as practicable.

4.3.15 Installation

Damp Proof Membrane
Lay the DPM over the entire platform and extending at least 100mm beyond the perimeter footing, with joints overlapped minimum 150mm and tape-sealed, and any services penetrations tape-sealed. Tape repair any damaged DPM as soon as it occurs - check the DPM for damage during all stages and repair as necessary.

Formwork
Erect perimeter formwork to straight and true to lines, and to the slab dimensions, levels and details shown on the design drawings. Form all edge rebates, set-downs, block-outs and sloping falls as dimensioned and detailed. Do not strike formwork for at least 12 hours after concrete placement.

MAXRaft® Insulation - MAXSlab® 300 base

Install individual, pre-cut and numbered MAXSlab® 300 polystyrene insulation components (perimeter edge beam panels, slab thickening panels, standard panels) over the DPM according to the MAXRaft® Panel Plan layout and the Technical Literature, with all components tightly butted together without gaps or voids, and the perimeter edge beam firmly supported by formwork. Install MAXRaft Spacers at edge beam as per panel plan (remove prior to concrete pour)
Carry out any necessary site-cutting, including holes for service pipes, with a saw or suitable hot wire as required.

A signed quality assurance form must be provided from MAXRaft® confirming the polystyrene has been installed in accordance with the Producer Statement - PS1."

MAXRaft® Insulation - MAXRaft® Plus+320
Install individual, pre-cut and numbered MAXRaft® Plus+320 polystyrene insulation components (perimeter profiles, rib formers, interior pods) over the DPM according to the MAXRaft® Panel Plan layout and the Technical Literature, with the perimeter profiles firmly supported by formwork and tightly butted together without gaps or voids.

Install polystyrene pods to the required grid, with the pods evenly spaced apart with 120mm wide rib formers and aligned to straight and true lines. Check for and correct any deviation from the required grid layout during installation.

Carry out any necessary site-cutting, including holes for service pipes, with a saw or suitable hot wire as required.

A signed quality assurance form must be provided from MAXRaft® confirming the polystyrene has been installed in accordance with the Producer Statement - PS1.

Steel Reinforcement - MAXSlab® 300 Base

Do not install reinforcing steel and mesh until all polystyrene perimeter and interior panels have been installed, and all required piped services works within the slab are complete.

Steel reinforcement types, sizes and placement must be as specified and in accordance with the layout and details shown on the specific design drawings. Reinforcing bars and mesh shall be accurately positioned and firmly secured to the specified placement and cover.

Install reinforcing bars to perimeter edge beam and slab thickenings as detailed using bar chairs to achieve the specified cover. Install reinforcing mesh using mesh chairs OR pod sticks to achieve the specified concrete cover.

Install shrinkage control bars across re-entrant corners only where specified on the specific design drawings.

Steel Reinforcement - MAXRaft® Plus+ 320

Do not install reinforcing steel and mesh until all polystyrene perimeter and interior panels have been installed, and all required piped services works within the slab are complete.

Steel reinforcement types, sizes and placement must be as specified and in accordance with the layout and details shown on the specific design drawings. Reinforcing bars and mesh shall be accurately positioned and firmly secured to the specified placement and cover.

Install reinforcing bars to perimeter edge beam and slab thickenings as detailed using bar chairs to achieve the specified cover. Install reinforcing mesh using mesh chairs OR pod sticks to achieve the specified concrete cover.
Install shrinkage control bars across re-entrant corners only where specified on the specific design drawings.

4.3.16 Concreting

4.3.16.1 Handling, Placement & Compaction

The handling, placement, and compacting of MAXRaft® Floor concrete shall conform to NZS 3109 and the requirements of the Technical Manual.

Concrete shall be transported, handled, placed and compacted so as to:
- Prevent segregation or loss of materials;
- Produce a monolithic mass between planned joints or the extremities of the floor slab, or both;
- Completely fill the formwork to the intended level, expel entrapped air, and closely surround all reinforcement and embedments; and
- Provide the specified finish to the formed surfaces of the floor slab;
- Ensure there is no contamination of the concrete;
- Ensure that the transporting, handling, placing and compaction of the concrete is complete before setting reactions have passed the point which prevents the concrete from attaining its potential fully cured properties.

Take all necessary precautions and measures during unfavourable conditions, as required by NZS 3109 Section 7.2, to ensure the quality and finish of the concrete is not compromised or reduced in any manner.

Immersion vibrators shall be used for the compaction of the concrete and shall be moved to new positions as frequently as necessary to ensure uniform vibration of the whole mass and fully compacted concrete. On no account shall immersion vibrators be allowed to come into

contact with the face of formwork. Vibrators should not be used to transport concrete along footings.

4.3.16.2 Curing & Protection

Concrete shall be cured in accordance with NZS 3109 Section 7.8. The use of concrete curing compounds shall be only as agreed with the Contract Administrator before it is used or applied. Ensure that any agreed concrete curing compound is compatible with subsequent floor coverings or surface treatments, including any sealers, paints, waterproofing membranes, etc.

The finished concrete slab shall be protected from damage during subsequent stages of the building contract. Repairs and remedial work to the slab shall be carried out to the satisfaction of the Contract Administrator.

No loads are to be placed on the concrete slab or MAXRaft® insulation before the concrete has cured sufficiently over 4 days. When the perimeter formwork has been struck and removed, check all exposed perimeter polystyrene insulation surfaces for concrete slurry leaks and spills and clean down immediately.

4.3.16.3 Remedial Work

Defects and imperfections in the concrete floor shall be remedied to the satisfaction of the Contract Administrator. No structural repair of concrete shall be undertaken without specific instruction from the Contract Administrator.

The removal of surface markings from visually exposed concrete shall be carefully carried out with the use of wire brushing, pumice stone, carborundum stone, or washing and scrubbing such as will remove the marks without scratching, discolouring or otherwise affecting the surrounding or underlying concrete.

Patching or filling of visually exposed fair-faced concrete and making good broken edges and corners shall be done with coloured sands and cement where necessary to match the colour of the surrounding concrete when dry. Epoxy compounds may be used when necessary but only with prior approval from the Contract Administrator.

4.3.17 Saw Cutting

4.3.17.1 Saw-Cut Shrinkage Control Joints

Saw-cut shrinkage control joints shall be cut into the MAXRaft® Floor within 24 hours after pouring and when the slab is sufficiently hard, and according to the control joint layout, dimensions and details shown on the design drawings.

Unless specified otherwise on the design drawings, saw cuts shall be 25mm deep for an 85mm thick concrete topping. For thicker toppings, deeper saw cuts will be required of approximately ⅓ of the topping thickness - to the cut depth specified on the design drawings.

Early-entry soft cutting is recommended. Saw cutting shall be carried out without excessive chipping, spalling or tearing of the concrete. Saw cuts shall be straight and true and within +/- 5mm of correct alignment.

4.3.18 Completion

Check the MAXRaft® Floor has been correctly formed to the required setout, dimensions, levels, alignment and detailing as shown on the specific design drawings, and that any deviation from these is within the specified tolerances.

Check that all required cast-in items and provisions for services are correctly located and positioned as shown on the design drawings.

Check that concrete surfaces have been properly finished to the required finish level.

Check for any damage and defective work. Carry out any necessary repairs and/or remedial work as specified and/or instructed by the Contract Administrator to the required standard.

Leave all of this work complete and structurally sound, and to the required standard.

Leave the slab surface and surrounding work areas clean and free of rubbish. Remove all associated rubbish and excess material from site.

Provide all necessary Producer Statements.

5 STRUCTURAL STEELWORK

5.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

5.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

1163:2016(AS/NZS)	Cold-formed structural steel hollow sections
1252.1:2016(AS/NZS)	High-strength steel fastener assemblies for structural engineering - Bolts, nuts and washers - Part 1: Technical requirements
1252.2:2016(AS/NZS)	High-strength steel fastener assemblies for structural engineering - Bolts, nuts and washers - Part 2: Verification testing for bolt assemblies
14341:2012(AS/NZS)	Welding consumables – Wire electrodes and weld deposits for gas shielded metal arc welding of non alloy and fine grain steels – Classifications
1554.1:2014(AS/NZS)	Structural steel welding - Part 1: Welding of steel structures
1554.2:2003(AS/NZS)	Structural steel welding - Stud welding (steel studs to steel)
1554.4:2014(AS/NZS)	Structural steel welding - Part 4: Welding of high strength quenched and tempered steels
2312.1:2014(AS/NZS)	Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings - Part 1: Paint coatings
3404.1&2:1997(NZS)	Steel Structures Standard
3404:2018(SNZ TS)	Durability requirements for steel structures and components
3678:2016(AS/NZS)	Structural steel - Hot-rolled plates, floorplates and slabs
3679.1:2016(AS/NZS)	Structural steel - Part 1: Hot-rolled bars and sections
3679.2:2016(AS/NZS)	Structural steel - Part 2: Welded I sections
3750(AS/NZS):Parts 1-23	Paints for steel structures
4600:2018(AS|NZS)	Cold-formed steel structures
4680:2006(AS/NZS)	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
4781:1973(NZS)	Code of practice for safety in welding and cutting
5131:2016(AS/NZS)	Structural steelwork - Fabrication and erection

5.3 Workmanship

5.3.1 Scope

The work to be done under this Section comprises the supply of all labour, materials and plant for the fabrication and erection of all structural steelwork and the supply only of sundry metalwork shown or implied on drawings or in this specification.

5.3.2 Workmanship

Steelwork fabrication and welding shall be by personnel qualified and certified in accordance with AS/NZS 1554.1. Confirm all dimensions with the Main Contractor before fabrication. Allow for minimal erection tolerances - excessive will not be accepted. All items true to line and detail, with no welding or shaping distortion. Flame cutting of steel generally unacceptable.

Co-ordinate steelwork with Concretor, Carpenter, and all services subcontractors as appropriate with regard dimensions and setting-out of built-in items and fixings for peripheral elements. Supply and install all associated sundry fixings, weld plates, brackets, etc. necessary to complete the contract. Hollow sections ends sealed with 6mm plate unless noted otherwise.

5.3.3 Fabrication & Erection

All steelwork fabricated and erected in accordance with the requirements of AS/NZS 5131.

All welding to be Category SP in accordance with AS/NZS 1554.1. Butt welds full penetration with seal runs or backing strips. Fillet welds 5mm continuous unless otherwise noted. Welds exposed to weather and welds subject to hand contact shall be finished to a smooth even surface.

Steelwork shall be erected plumb, true to line, square and without strain, and shall be temporarily braced, as necessary, to provide adequate stability during erection.

Dry packing under baseplates shall be undertaken using an approved non-shrink grout, mixed to consistency suitable for the nature of the application. Clean surfaces before grouting, pack the grout tightly, and smooth the edges.

All bolts and fasteners shall be fitted with appropriate washers and shall be thoroughly tightened (to torque settings as recommended by manufacturers). Protruding ends of bolts to be centre-punched against nuts to prevent loosening.

6 BRICKWORK

6.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

6.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

2699.1:2000(AS/NZS)	Built-in components for masonry construction - Wall ties
3103:1991(NZS)	Specification for sands for mortars and plasters
3604:2011(NZS)	Timber-framed buildings
4210:2001(NZS)	Masonry construction: Materials and workmanship
4236:2002(SNZHB)	Masonry veneer wall cladding

6.3 Brickwork

6.3.1 Scope

Supply and lay the selected bricks to form the brick elements as shown on the drawings. All aspects of this work shall be in accordance with the related compliance documents and as shown on the drawings.

6.3.2 Workmanship

Where required by the NZ Building Act 2004 it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner.

All work shall only be carried out by Licensed Building Practitioners - Bricklaying and Blocklaying, and conform to the requirements of NZS 4210.

Submit evidence on request of experience, relevant qualifications, LBP Licence - Bricklaying & Blocklaying, New Zealand Masonry Trades Association (NZMTA) Member Registration.

Co-operate with the concretor and carpenter in the setting out of the works.
Co-operate with other trades to ensure that all preliminary and preparatory works, including all framing, membranes, wraps, rigid air barriers, and flashings, all relevant clearances, and any other related works, are completed to specification and as shown on the drawings.
Co-ordinate with trades the locations of pipes, outlets, cables, meter boards and other fittings installed by others.

All brick veneer walls shall be true to line, level and plumb, and within the tolerances tabled in NZS 4210 and SNZ HB4236. All brickwork laid to stretcher bond pattern, with joints width 10mm +/- 3mm.

6.3.3 Installation

Install all brickwork related damp proof courses in accordance with the requirements of NZBC E2/AS1 and to the details shown on the drawings.

Mortar shall have a minimum compressive strength of 12.5 MPa, and be manufactured from cement, sand, lime, and admixtures, and be accurately measured and mixed in accordance with NZS 4210. Mineral oxide pigment dosages shall be to NZS 4210.

Form all necessary openings, reveals, sills, weepholes, separation and control joints, and cavities to the locations and details shown on the drawings, and in accordance with the requirements of NZBC E2/AS1 and NZS 4210. Install necessary vermin stops. Weatherproof all separation joints to the details shown on the drawings.

Wall tie type, durability, spacing, fixing and installation shall be as defined in NZBC E2/AS1 Tables 18A, 18B, 18C, and NZS 4210.

Install steel angle lintels to openings as required by NZBC E2/AS1 Table 18E and as noted on the drawings.

Install all necessary flashings to openings, and other locations as required, to the details shown on the drawings and in accordance with NZBC E2/AS1 requirements.

During the progress of work every care must be taken to prevent moisture penetration of the bricks. No bricklaying shall proceed during wet weather. Upon completion of each days work, exposed tops of brick veneers shall be protected from inclement weather.
Comply with NZS 4210 Cold Weather Construction and Hot Weather Construction requirements.

On completion or the works leave brickwork clean and free of marks and staining. All brickwork cleaning shall be done to the brick manufacturer's recommendations.
Thoroughly clean all other surfaces affected by the brickworks.

6.3.4 Mortar Pointing

Mortar joints shall be concave, tooled to a depth not exceeding 6mm and burnished after the initial stiffening has occurred.

7 WATERPROOFING

7.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

7.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

3740:2010(AS)	Waterproofing of domestic wet areas
4858:2004(AS/NZS)	Wet area membranes
NZBC B2/AS1	Durability
NZBC E3/AS1	Internal Moisture

7.3 Interior Wet Area Waterproofing Membrane Systems

7.3.1 Scope

Supply and install the specified Interior Wet Area Waterproofing System, to the locations shown on the drawings, complete with all accessories. All aspects of this work shall be in strict accordance with the manufacturer's technical guidelines, installation specifications and details, other relevant product manufacturers' recommendations, and as shown on the drawings.

No substitutions are permitted for the specified Interior Wet Area Waterproofing System.

7.3.2 Waterproofing System

Sheet Rubber Waterproofing Membrane System. 0.5mm thick synthetic rubber sheet waterproofing membrane, suitable for residential and commercial interior wet area floor and wall applications to be subsequently tiled or otherwise covered and protected.

Installed as an interior wet area undertile waterproofing membrane system in accordance with the manufacturer's requirements, NZBC E3/AS1, AS 3740, and as shown on the drawings.

Brand & Product:
Location:

Liquid-Applied Waterproofing Membrane System. A liquid applied, modified polyurethane, high-build acrylic, flexible waterproof membrane, suitable for residential and commercial interior wet area floor and wall applications to be subsequently tiled or otherwise covered and protected.

Installed as an interior wet area undertile waterproofing membrane system in accordance with the manufacturer's requirements, NZBC E3/AS1, AS 3740, and as shown on the drawings.

Brand & Product:
Number of Coats:
Coverage per Coat (l/m²):
Location:

Edit clause to specify waterproofing system.

7.3.3 Primer

Primer - Rubber Sheet Waterproofing Membrane System. Apply the primer to properly prepared substrates for optimum waterproofing adhesion in accordance with the manufacturer's requirements. Use primers recommended by the waterproofing manufacturer only.

Limit priming to no more than can be covered by the waterproofing in one working day or as recommended by the manufacturer, and allow the primer to properly dry before installing the waterproofing.

Protect primed surfaces from damage and contamination until the waterproofing membrane application is complete.

Primer - Liquid-Applied Waterproofing Membrane System. Apply the primer to properly prepared substrates for optimum waterproofing adhesion in accordance with the manufacturer's requirements. Use primers recommended by the waterproofing manufacturer only.

Limit priming to no more than can be covered by the waterproofing membrane in one working day or as recommended by the manufacturer, and allow the primer to properly dry before applying the waterproof membrane.

Protect primed surfaces from damage and contamination until the waterproofing membrane application is complete.

Edit clause to specify waterproofing system primer.

7.3.4 Adhesive

Adhesive - Rubber Sheet Waterproofing Membrane System. Use adhesives recommended by the waterproofing membrane manufacturer only. Apply the membrane adhesive to the properly prepared substrate at the recommended application rate to achieve proper membrane bonding, and to membrane joints and folds as necessary, in accordance with the manufacturer's requirements.

Edit clause to specify waterproofing system adhesive.

7.3.5 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings.

Coordinate with other trades to install the specified Interior Wet Area Waterproofing System as required.

7.3.6 Workmanship

All installation work shall be carried out by experienced contractors, authorised by the manufacturer, familiar with the specified products and installation techniques, to fully comply with all of the manufacturer's warranty requirements in accordance with the manufacturer's installation requirements and as noted and detailed on the drawings.

7.3.7 Delivery & Handling

Store products off the ground on a flat surface undercover, keep materials dry and out of direct sunlight, and protect from damage. Do not use damaged or faulty products, or products beyond the designated shelf life. Handle materials and products in accordance with the manufacturer's recommendations.

7.3.8 Preparation

Check that the internal wet area substrate and any channel drains are to the falls and levels as shown on the drawings, and that any floor waste and drain outlets are correctly installed. Check that crack control and movement joints are incorporated to the locations as shown on the drawings, and are constructed as recommended by the manufacturer - do not bridge or cover them with the waterproofing.
Ensure the substrate is clean and free of oil, grease, and other contaminants, and is smooth with any defects filled to an even surface prior to installation.

Ensure the concrete substrate surface is U3 finished to NZS 3114 (by steel trowel) and to the manufacturer's recommendations, that it has cured for at least 28 days, that the relative humidity of the concrete is 75% or less, and that it is surface dry at the time of waterproofing. Grind off any high spots on the concrete slab, FLC (proprietary levelling compound) repair flush with feathered edges any low spots or damaged areas then grind smooth. Lightly grind or shot blast any surface glazed to the extent that may compromise bonding.

Location:

Check that the plywood has been laid with staggered joints, and is supported on framing at maximum 400mm centres in each direction, that the plywood is 17mm minimum thickness, is CD grade (C face up), is H3 CCA treated (LOSP treated plywood must NOT be used), is installed and fixed exactly to the ply manufacturer's and membrane manufacturer's recommendations, and has a maximum moisture content of 20% at the time of installation. Plywood must be fixed with countersunk head, 10g x 50 mm stainless steel screws at maximum 150mm centres along edges and maximum 200mm centres through the body of the sheets.

Plywood manufacturer, brand name & type:
Location:

Ensure the fibre cement compressed sheets are installed and fixed exactly to the sheet manufacturer's and waterproofing manufacturer's recommendations, and as shown on the drawings.
Fibre cement must be fixed using a suitable glue adhesive and with countersunk head stainless steel screws at centres recommended by the sheet manufacturer.
Check that all fastenings are countersunk below the surface. All indentations flush filled with a manufacturer approved compound.

Check that the plasterboard has been installed in accordance with the manufacturer's recommendations.
Check that fixings do not protrude above the plasterboard surface, and that sheet joints have been correctly stopped.

Plasterboard manufacturer, brand name & type:
Location:

7.3.9 Installation

Rubber Sheet Waterproofing Membrane System. Install the under-tile membrane waterproofing system, including surface priming, membrane application, jointing, flashing and sealing etc., and system-supplied accessories in strict accordance with the manufacturer's installation requirements and details, and as shown on the drawings.

Prepare all substrate floor/wall junctions and sheet joints with a system-approved pressure sensitive bond breaker tape.

Unroll the membrane on to the substrate and allow it to relax prior to installation. Do not lay membrane sheets under tension.

Commence membrane installation at any channel drain and proceed through to the main floor then to walls. Sheets generally laid in two stages and folded along the sheet length.

Apply adhesive to the substrate and the underside of the first half of the folded membrane sheet, leave to activate, then fold the sheet along its length over the adhesive, thoroughly roll to remove entrapped air and to achieve full bonding, repeat the process to apply the other half of the sheet along its length.

Joints to be fully hot-air welded and pressure rolled, minimum 100mm side-lap and end-laps, and neatly finished straight and parallel. Floor membrane returned minimum 150mm up the walls, and wall membrane to overlap the floor membrane wall-return minimum 150mm and hot-air welded and pressure rolled.

Unless otherwise shown on the drawings, floor membrane shall be laid out in accordance with AS 3740 substrate type requirements.
Unless otherwise shown on the drawings, wall membrane shall extend minimum 1800mm

above floor level, and minimum 300mm above and minimum 1500mm either side the shower rose if unenclosed, or to the shower panel if enclosed and less than 1500mm.

Use neatly cut strips of membrane for upstands, and install system supplied floor waste outlets as required and/or specified to complete the installation.
Finish the membrane at control joints, floor wastes and drain outlets to the manufacturer's requirements.
Consult the manufacturer regarding any detail where a standard system detail does not exist.

Protect installed membrane as required, avoid puncturing or damaging the membrane during installation; repair or replace as necessary.

Liquid Applied Waterproofing Membrane System. Install the undertile membrane waterproofing system, including surface priming, membrane application, jointing, flashing and sealing etc., and system-supplied accessories in strict accordance with the manufacturer's installation requirements and details, and as shown on the drawings. Application and workmanship shall be in accordance with AS/NZS 4858:2004 and AS 3740:2004.

Substrates shall be free of dust, grease, wax, oil, dirt, loose plaster, laitance, curing compounds, paint and other contaminants likely to prevent proper bonding, and shall be structurally sound, securely fastened and properly supported to eliminate any movement which may cause cracking. New concrete should be sufficiently aged for a minimum of 4 to 6 weeks. Allow proprietary floor levelling compounds and screeds to cure in accordance with the manufacturer's recommendations prior to application.

Seal substrate corner junctions and substrate joints and fixings and visible cracks, with a suitable sealant. Prepare all substrate floor/wall junctions and sheet joints with a system-approved pressure sensitive bond breaker tape. Prime all surfaces with the specified system primer.

Apply the specified liquid-applied membrane undiluted on to a dry and primed substrate uniformly by brush or roller in accordance with the manufacturer's instructions.
Finish the membrane at control joints, floor wastes and drain outlets to the manufacturer's requirements. Consult the manufacturer regarding any detail where a standard system detail does not exist.

Allow to membrane dry in accordance with the manufacturer's requirements. Where required; carry out a full flood test prior to tiling. Protect the installed membrane as required; avoid puncturing or damaging when exposed - repair as necessary

Edit clause to specify waterproofing system installation requirements.

7.3.10 Completion

Check that the internal wet area waterproofing system has been installed correctly, and that any system accessories are correctly installed and finished. Check for damage, repair or replace as necessary.

Leave the completed waterproofing system leak free and watertight.
Leave the working area clean and tidy ready for tiling, remove rubbish from site.

Advise the Main Contractor to protect the completed works from damage until tiling is completed.

Issue to the Owner a copy of the product and installation warranty for the completed works.

8 CARPENTRY

8.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

8.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

1397:2001(AS)	Steel sheet and strip - Hot-dip zinc-coated or aluminium/zinc-coated
1491:1996(AS/NZS)	Finger jointed structural timber
1530.3:1999(AS/NZS)	Methods for fire tests on building materials, components and structures - Simultaneous determination of ignitability, flame propagation, heat release and smoke release
1859.1:2017(AS|NZS)	Reconstituted wood-based panels - Specifications - Part 1: Particleboard
1859.2:2017(AS|NZS)	Reconstituted wood-based panels - Specifications - Part 2: Dry process fibreboard
2270:2006(AS/NZS)	Plywood and blockboard for interior use
2271:2004(AS/NZS)	Plywood and blockboard for exterior use
2295:2006(NZS)	Pliable, permeable building underlays
2588:2018(AS|NZS)	Gypsum plasterboard
2589:2017(AS/NZS)	Gypsum linings - Application and finishing
2904:1995(AS/NZS)	Damp-proof courses and flashings
2908.2:2000(AS/NZS)	Cellulose-cement products - Flat sheets
3601:1973(NZS)	Metric dimensions for timber
3602:2003(NZS)	Timber and wood-based products for use in building
3603:1993(NZS)	Timber Structures Standard
3604:2011(NZS)	Timber-framed buildings
3617:1979(NZS)	Specification for profiles of weatherboards, fascia boards, and flooring
3622:2004(NZS)	Verification of timber properties
3631:1988(NZS)	New Zealand timber grading rules
3640:2003(NZS)	Chemical preservation of round and sawn timber
4200.1:2017(AS|NZS)	Pliable building membranes and underlays - Part 1: Materials
4200.2:1994(AS/NZS)	Pliable building membranes and underlays - Installation requirements
4389:2015(AS/NZS)	Roof safety mesh
AS/NZS 1080.1:2012	Timber - Methods of test - Method 1: Moisture content

AS/NZS 2269.0:2012	Plywood - Structural - Part 0: Specifications
NASH Standard	Residential and Low-rise Steel Framing - Part 1: Design Criteria
NZBC B2/AS1	Durability
NZBC C/AS2-AS6	Protection from Fire
NZBC G6	Airborne and Impact Sound
NZBC H1	Energy Efficiency
SNZ HB 3604:2011	Timber-framed buildings - Selected extracts from NZS 3604:2011

8.3 General

This section includes the receiving, stacking and storage of all Carpenter's materials and the fabrication, erection and fixing of all framing, sheathings and finishing timbers, including all work incidental to neatly finishing in other trades and all temporary work and temporary bracing.

The Carpenter shall attend upon all trades, and shall supply and fix all obviously necessary but not specifically mentioned fixings and materials.

8.4 Timber Framing

8.4.1 Scope

Supply and install timber framing to the floors, walls, roofs, and other timber framed elements, as identified and detailed on the drawings. All aspects of this work shall be in accordance with NZS 3604, product manufacturers' recommendations, and as shown on the drawings and the specification.

8.4.2 Workmanship

Where required by the NZ Building Act 2004 it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner.

All work shall be carried out to current best trade practise by experienced and competent tradesmen, familiar with the materials and installation techniques, in accordance with NZS 3604 and as shown on the drawings.

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings prior to installing timber framing. Co-ordinate with other trades to install timber framing as required.

8.4.3 Timber Framing

8.4.3.1 Timber Grade and Quality

Unless otherwise noted or specified on the drawings or specification, all framing timber shall be minimum structural grade SG 8 Radiata pine in accordance with NZS 3622.
Framing timber shall be seasoned or kiln dried, and be straight and true and free from wind, warp and distortion, and in lengths suitable for the members required, and shall have a

moisture content of between 12% and 18% before installation.
Do not used damaged, faulty or defective materials.

8.4.3.2 Timber Treatment

All non-durable timber framing shall be appropriately treated against moisture and/or insect decay by treatment plants with recognised quality assurance systems that are administered by the Timber Preservation Council (NZTPC). Treatment of timber and wood-based building products shall be to the requirements of NZS 3602 as an absolute minimum, and all treated timber shall be identified and marked as required.
Carefully manage treated framing during installation to avoid accidental use of timber with a lower performance or durability treatment than that required or specified.

8.4.3.3 Storage & Handling

Check timber framing upon delivery and reject sub-standard or damaged material.
Store timber framing dry under cover, fillet stacked and well clear of the ground, and protect from damage, moisture, and contamination.
Ensure all appropriate personal protection equipment is worn at all times when handling and cutting treated framing.

8.4.3.4 Framing Installation

All timber framing members, including all dwanging, strutting, blocking, bracing etc, shall be sized, setout, fitted and fixed to the requirements of NZS 3604 and as shown on the drawings to accommodate structural loadings, cladding and lining setout and support, and the installation of other building components, fixtures and fittings.

All framing shall be erected without deviation, true to line, level, angle and plumb, and evenly aligned and square, and within the tolerances allowed in NZS 3604 Table 2.1. Framing members accurately cut, lapped, housed, joined, and seated so as to provide full contact over the bearing surfaces.

Temporarily prop, brace, tie, and secure framing members and elements as required until the framing is complete and self supporting. Leave in place for safety purposes as long as required.

Protect timber framing as required during installation against damage and moisture, and against significant variation of moisture content until ready for lining. Avoid ponding of water around floor plates.

8.4.3.5 Concrete Separation

Separate timber framing with an approved continuous damp proof course when in direct contact with concrete or masonry. Ensure that the DPC material is compatible with the timber treatment.
Free draining separations to external vertical faces shall be 12mm minimum and as noted on the drawings.

8.4.3.6 Timber Re-treatment

All cut or drilled surfaces of H4 and H5 treated timber framing shall be flood coat re-treated, with a suitable product recommended by the original treatment plant, before installation.

8.4.3.7 Edge Notching and Centre Holes

The notching, checking, and boring of framing members shall be in strict accordance with the requirements of NZS 3604.
Avoided checking and cutting where possible and keep to such dimensions so as not to prejudice the purpose for which the member is used. Keep edge notching to a minimum and where possible use centrally bored holes instead.
Concealed services pipes and wiring shall not project beyond the framing face and where possible shall be beyond the lining's fixing reach.

8.4.3.8 Framing Protection

Protect timber framing as required during installation against damage and moisture, and against significant variation of moisture content until ready for lining. Avoid ponding of water around floor plates.

8.4.3.9 Built-up Framing Members

Except for jack studs, bottom plates and top plates, framing members may be substituted with built-up members in accordance with the limitations of NZS 3604 2.4.4.7 with the prior approval of the Architect/Designer only.

8.4.4 Steel Fixings

8.4.4.1 Fastenings and Connectors

Unless otherwise noted or specified, timber framing fastenings and connectors shall be as specified in the relevant fixing schedules of NZS 3604 or have an equivalent capacity as specified therein. Timber framing connectors and fixings shall comply with the product information as required in NZS 3604 2.4.6, and shall be used and installed in accordance with the manufacturer's recommendations. Pre-drill nail holes in split-prone framing as necessary.

8.4.4.2 Durability of Fixings & Fastenings

Unless otherwise noted or specified, the minimum durability of timber framing fixings and fastenings, excluding nails and screws, shall comply with the durability requirements of NZS 3604 Table 4.1.
Galvanised steel fixing components, excluding nails and screws, shall have galvanised coating masses in accordance with NZS 3604 Table 4.2.
Unless noted or specified otherwise, the materials for nails and screws shall be as given in NZS 3604 Table 4.3.
Steel fixings and fastenings in contact with timber treated with copper based timber preservatives (H3.2 or higher) shall be in accordance with NZS 3604 4.4.4.
Stainless steel nails shall be minimum Grade 304 unless otherwise specified or noted.

8.4.4.3 Bolts and Coachscrews

Unless specified or shown otherwise, all bolted and coach screwed connections shall be M12 or M16 in accordance with the relevant fixing requirements given in NZS 3604.
Bolted and coach screwed connections shall have either a 50mm x 3mm square, or a 55mm x 3mm round, washer to each head and nut for M12 and M16 fixings. Washers shall be of the same material and durability as the bolt or coach screw.

8.4.5 Floor Framing

Unless specified or shown otherwise, timber floor joists shall be to the dimensions and spacings given in NZS 3604 Table 7.1.
Floor joists shall be laid on edge true to line and level, have a minimum support bearing of 32mm (except when cantilevered), and so that any crook will straighten under load.
Floor joists shall be jointed over supports (except when cantilevered beyond the support) in accordance with NZS 3604 7.1.1.7.

Unless specified or shown otherwise, timber floor joists shall be to the dimensions and spacings given in NZS 3604 Table 14.8.
Floor joists shall be laid on edge true to line and level, have a minimum support bearing of 32mm, and so that any crook will straighten under load.
Floor joists shall be jointed over supports in accordance with NZS 3604 7.1.1.7.

Unless specified or shown otherwise, boundary joists shall be continuous 25mm thick x joist depth as lateral support, and fixed to each end of the floor joists in accordance with NZS 3604 Table 7.5.

Boundary joist size:

Unless specified or shown otherwise, solid blocking shall be 45mm thick x joist depth and installed between joist ends at maximum 1.8m centre spacings as lateral edge support, and fixed in accordance with NZS 3604 Table 7.5. Floor joists supported by by a foundation wall shall have solid blocking over a distance of minimum 1.8m at joist ends.

Floor joists with a span of 2.5m or greater and a depth of at least 4 times the joist thickness shall have 45mm thick continuous solid blocking at mid span, fixed in accordance with NZS 3604 Table 7.5.

Floor joists with a span of 2.5m or greater and a depth of at least 4 times the joist thickness shall have continuous herringbone strutting at mid span in accordance with NZS 3604 7.1.2.4(b) and Table 7.5.

Loadbearing walls run parallel to the line of joists shall be supported directly over double joists located at no more than 200mm centre-to-centre from a pile row.

Loadbearing walls run at right angles to the line of joists shall be located at no more than 200mm centre-to-centre from a bearer or subfloor loadbearing wall (running parallel to the loadbearing wall).

Non-loadbearing walls, without a bracing element, within 150mm and parallel to a floor joist, shall be supported by minimum 90mm x 45mm solid blocking on-edge at maximum 1.2m centres and at each side of door openings.

Non-loadbearing walls, with a bracing element, parallel to floor joists and not supported by a floor joist, shall be supported by minimum 90mm x 45mm solid blocking on-edge at maximum 1.2m centres and at each side of door openings.

Unless specified or shown otherwise cantilevered floor joists for 1.5 kPa floors shall to the dimensions and spacings given in NZS 3604 Table 7.2, and shall be continuous over the outermost support as required by NZS 3604 7.1.5.3(a).

Unless specified or shown otherwise cantilevered floor joists for 1.5 kPa floors shall to the dimensions and spacings given in NZS 3604 Table 7.2, and shall be lapped over the outermost support and fixed to the adjacent joist as required by NZS 3604 7.1.5.3(b).

Unless specified or shown otherwise cantilevered floor joists for 2 kPa floors shall to the dimensions and spacings given in NZS 3604 Table 7.2, and shall be continuous over the outermost support as required by NZS 3604 7.1.5.3(a).

Unless specified or shown otherwise cantilevered floor joists for 2 kPa floors shall to the dimensions and spacings given in NZS 3604 Table 7.2, and shall be lapped over the outermost support and fixed to the adjacent joist as required by NZS 3604 7.1.5.3(b).

Unless specified or shown otherwise trimmers shall be fixed to trimming joists by half housing not less than 25mm deep and fixed with 3/100x3.75 nails in accordance with NZS 3604 7.1.6.5(a).

Unless specified or shown otherwise trimmers shall be fixed to trimming joists by proprietary joist hangers in accordance with NZS 3604 7.1.6.5(b).

Hanger brand name & type:

8.4.6 Wall Framing

8.4.6.1 Plates

Top and bottom plates shall be to the dimensions and layout shown on the drawings. Unless specified or shown otherwise, top and bottom plates shall be fixed in accordance with NZS 3604 7.5.12 and Tables 8.18 and 8.19, true to line and level or angle.
Joints in top plates shall be made over a stud or over blocking between studs, and all top plate connections shall be in accordance with NZS 3604 8.7.3. Form all holes and edge notches in top and bottom plates in accordance with NZS 3604 8.7.5.

8.4.6.2 Studs

Studs shall be to the dimensions and spacings shown on the drawings, and installed true to line and plumb in both directions between top and bottom plates.
Unless noted otherwise, non-load bearing wall studs shall be to the spacings given in NZS 3604 Table 8.4, stud width as shown on the drawings.
Form all holes and edge notches in studs in accordance with NZS 3604 8.5.1.5. Do not notch, check, cut, or bore holes in the middle third of any trimming stud.
Should the need arise, studs shall be straightened in accordance with NZS 3604 8.5.3 with prior approval from the Architect/Designer only.

Unless noted otherwise, studs in loadbearing walls for 3 kPa floor loads shall be in accordance with NZS 3604 Table 14.10.

8.4.6.3 Lintels

Lintels shall be to the dimensions and locations shown on the drawings, and installed true to line and level, and shall be supported by a 45mm thick doubling stud or jack stud fixed to a trimming stud, and secured against uplift in accordance with NZS 3604 8.6.1.8 as required. The thickness of a lintel may be made from two or more members, where each member is the length of the lintel, in accordance with NZS 3604 2.4.4.7.

8.4.6.4 Sill & Head Trimmers

Unless specified or shown otherwise, sill and head trimmers to openings shall be the same width as the wall stud and to the thickness given in NZS 3604 Table 8.15, and installed at the required opening height true to line and level, and supported by a 45mm thick doubling stud or jack stud fixed to a trimming stud.

8.4.6.5 Dwangs

Dwangs shall be the same width and thickness as the wall stud, and installed at the centres noted on the drawings, and accurately cut and fixed in place true to line and level and flush with stud edges. Dwangs fixed in accordance with NZS 3604 Table 8.19.

8.4.6.6 Ribbon Boards

Ribbon boards shall be as dimensioned and located on the drawings, and installed on edge and checked 25mm into studs at the required height, true to line and level, and fixed in place in accordance with NZS 3604 Table 8.19.

8.4.7 Roof Framing

8.4.7.1 Roof Trusses

Roof trusses shall be Specific Engineering Design (SED) in accordance with NZBC B1/VM1 and manufactured by an accredited fabricator, and shall comply with all aspects of NZS 3604 10.2.2. Roof trusses shall be fabricated to meet the specific design requirements of the roof including, but not limited to; roof layout, pitch, and details, in accordance with the drawings and specification.
Roof trusses shall be supported and fixed to the truss fabricator's specifications but shall be no less than that required by NZS 3604 Tables 10.14 and 10.15. Roof trusses shall be braced as shown on the drawings and in accordance with NZS 3604 10.3.

8.4.7.2 Roof Bracing

Roof bracing shall be as shown on the drawings and in accordance with NZS 3604 10.3 and 10.4 as necessary.

8.4.8 Ceiling Framing

Ceiling framing shall be to the dimensions, layout, spacings, and details shown on the drawings, and shall be installed true to line, level and plane, and securely fixed in accordance with NZS 3604 Table 13.3.

Unless specified or shown otherwise, timber ceiling battens shall be to the dimensions and spacings shown on the drawings and in accordance with NZS 3604: Table 13.1, and shall be installed true to line, level and plane, and fixed to the underside of floor joists, rafters, ceiling joists or truss chords in accordance with NZS 3604: Table 13.3.

Ceiling battens shall be of Merchantable grade or better timber complying with NZS 3631.

8.5 Workmanship & Materials

8.5.1 Workmanship

8.5.1.1 Supervision

Where required by the NZ Building Act 2004 it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner. It is the main contractor's responsibility to ensure that the construction of all structural timber complies in all respects with the drawings and the specification.

All non-restricted building work shall be carried out by or under the direct supervision of competent tradespersons, suitably qualified for the work undertaken, and in accordance with the best and latest trade practice.

8.5.1.2 Timberwork

All timber shall be worked and cut to be true and square and free from wind and warp with all joints matching and mating to a proper contact fit over the full surface of the joint. All connections whether nailed screwed, glued, mortised or dovetailed shall be accurately made and properly executed to provide sound satisfactory connections for the class of work required.

Timber containing unacceptable defect or distortion shall not be cramped to provide mating at connections but shall be discarded and replaced by true defect-free timber before connections are made. Distribute any acceptable defects in timber so as not to impair the strength or the appearance of the finished work. Do not cut studs across the grain to straighten them.

The checking and cutting away of timbers shall be avoided where possible and shall be limited to such dimensions as will not prejudice the purpose for which the timber is used. Observe NZS 3604 restrictions on holing and checking of timber joists and beams. Concealed services pipes and wiring shall not project beyond the framing face and where possible shall be beyond the linings/claddings fixings reach.

Neatly punch exposed nailing to the diameter of the nail head below the surface. Completley remove bruises and tool marks, and replace all split timbers and hammer-marked finishing timbers.

Fit a 3-ply bituminous DPC or a single layer high impact polyethylene DPC at all timber to concrete junctions to provide complete separation. Ensure that the DPC material is compatible with the timber treatment.

Clean out framing voids before fixing sheathings or linings. Ensure framing voids are fully vermin proofed to the exterior. Build in as necessary all required flashings (supplied by others) to windows, doors, roof edges, etc.

8.5.1.3 Wall Underlay

Install a flexible heavyweight building paper or breathable/absorbent wall underlay behind all exterior wall claddings, fixed horizontally, with minimum 150mm horizontal laps and minimum 150mm vertical joint laps made over a stud, and kept taut without sagging or bulging.
Fix wall underlay at maximum 300mm centres, with 6mm - 8mm stainless steel staples or 20mm large-head galvanised clouts or galvanised proprietary fixings, fixed through nylon vertical strapping at every stud in exposed locations. Provide additional fasteners fixed through the underlay around framed openings. Cut window and door openings just prior to joinery installation; cut underlay at 45º angle away from each corner and return full framing depth and fasten to inside of frame.
Finish wall underlay at edges as detailed, and return full framing depth into window and door openings. Install all necessary flexible flashing tapes to openings, around pipes, ducts and other services penetrating the underlay, parapet and balustrade junctions, along head flashings and inter-storey flashings when installed, as required to seal the underlay, in accordance with wall underlay manufacturer's requirements and as shown on the drawings.
For drained cavity construction to framed walls without a rigid wall underlay and where the studs are at greater than 450mm centres, restrain the underlay with nylon strapping to prevent the underlay from bulging into the cavity space.
Any damaged underlay shall be made good by lapping in a new section.
Do not leave wall underlays exposed before covering with wall cladding for more than the manufacturer's recommended duration.

8.5.1.4 Roof Underlay

Install heavyweight building paper or breathable/absorbent roof underlay behind roof cladding as detailed, with minimum 150mm side and end laps, lapped such that any water will be shed to the outside of the underlay, and sufficiently tensioned in a manner that prevents sagging or ponding.
R1 class roof underlays shall be fully supported on nylon straps or non-corrosive netting/mesh; R2 class self-supporting underlays shall be laid to maximum 1200mm span between adjacent supports.
Run roof underlay horizontally or vertically up the roof slope on roof pitches above 10° pitch, and horizontally on roof pitches 10° or less.
Fix roof underlay at maximum 300mm centres to purlins, with 6mm - 8mm stainless steel staples or 20mm large-head galvanised clouts or proprietary underlay fixings.
For tiled roofs, lay the roof underlay over the anti-ponding board and no-corrosive support netting/mesh, and fix at maximum 300mm centres to the rafters/trusses before the tile battens are installed.
Finish roof underlay along roof edges and junctions, valley gutters, and at the ridge as shown on the drawings. Carefully cut underlay at roof openings at 45º angle away from each corner and lap-tape closed to framed up-stands, ducts and other services penetrating the underlay in accordance with the underlay manufacturer's requirements and as detailed. Roof underlay must be separated from chimneys and flues in accordance with the requirements of the NZBC C1-C6 Acceptable Solutions.
Any damaged underlay shall be made good by lapping in a new section.
Do not leave roof underlays exposed before covering with the roof cladding for more than the manufacturer's recommended duration.

8.5.1.5 Window Installation

Prepare window and external door framing openings for joinery installation by neatly cutting the building wrap at 45º into corners, returning turning the wrap through the frame depth and fixing to the inside face.
Over-flash the underlay along the sill with a flexible flashing tape, installed full frame depth and length of the opening, returned minimum 100mm up the jambs, and with minimum 50mm return over the outside edge.
Over-flash the underlay at head/lintel corners with a flexible flashing tape, extending minimum 100mm each way from the corner, full frame depth, and with minimum 50mm return over the outside face.

Install external joinery frames with metal flashings as detailed and/or as required to completely weatherproof all frame-to-cladding junctions.
Unless shown otherwise, head flashings shall be carried minimum 75mm up behind claddings, extended at 15º out over the joinery head or facing board and returned down to cover the joinery or facing board minimum 10mm and finished with a 5mm, 45º 'kick out' drip-edge.
Neatly dress down the head flashings at the ends of the facings - for drained cavity construction, also form up-turned stop-ends in-line with the outside edge of cavity above.
Install metal (as specified) head flashings, fixed over the wall underlay, with the flashing upstand over-flashed minimum 50mm with a flexible flashing tape against the underlay, or with an additional piece of underlay extended over and lapped behind the underlay above, behind the inter-storey flashing or sill flashing above, or to the underside of the eaves.
Unless shown otherwise, sill flashings, where required, shall have a minimum 5º slope, minimum 8mm rear upstand with sealed sloping stop-ends, and be carried down minimum 35mm over the lower cladding and finished with a 5mm, 45º 'kick out' drip-edge.

Take delivery of window and door joinery. Check substrates for correct profile and alignment and that the joinery is fabricated to the correct wall construction set-out and depth. Set shims or pack as necessary to install joinery exactly true and square. Use appropriate separators between aluminium and other materials, and fix securely with due regard for any anticipated movements and for linings, trim, etc.

Install neat sealant beads as detailed or required.

After joinery installation, install closed cell backing rods as required and expanding foam seal the gap between the opening substrate and joinery liners/reveals (all round, from the inside).

On completion ensure that all sashes and doors neatly fit the openings with regular tolerances to all edges, and that all moving components and hardware are correctly adjusted and operating smoothly, without binding, to the required functionality.

8.5.1.6 Joinery Installation

Take delivery of all scheduled joinery items (doors, cabinets, shelves, etc.) and install in the positions shown, accurately aligned, true to level, plumb and square, and securely fastened as noted and in accordance with best trade practice and with due regard for adjacent linings, finishes and trim, and anticipated movements.

Cabinets scribed and/or recessed packers scribed to adjacent surfaces as detailed or directed. Protect all installed Joinery from damage including surface marking and contamination, dirt and dust, and moisture until completion. Do not use Joinery items for working supports or platforms or for storage of materials or tools and equipments.

On completion ensure that joinery item doors and drawers all neatly fit the openings with regular tolerances to all edges, and that all moving components and hardware are correctly adjusted and operating to the required functionality.

8.5.2 Timber

8.5.2.1 Timber Materials

All timber shall be graded in accordance with NZS 3631 - Structural Grade MSG8 or better for all framing timber - (to meet the requirements of Table 2.3 of NZS 3603 for mechanically graded timber), and Dressing Grade for all finishing timber. Timber that is deemed below standard, in the opinion of the Architect/Designer, shall be removed from the site.

All non-durable timber, including components in manufactured items, shall be appropriately treated against moisture and/or insect decay by treatment plants with recognised quality assurance systems that are administered by the Timber Preservation Council (NZTPC). Treatment of timber and wood-based building products shall be to the requirements of NZS 3602 as an absolute minimum, and all treated timber shall be identified and marked as required.
Ensure that similar timbers with different treatment levels are carefully managed during construction to avoid accidental use of an H1 treated item where H3 hazard class treatment is required by the NZS 3602.
Do not use LOSP (light organic solvent-based preservative) treated timber that has not adequately 'flashed-off'.
Ensure that all cut or drilled surfaces of H4 and H5 hazard class treated timbers are flood coat re-treated, with the product recommended by the original treatment plant, before installation.

All timber shall be seasoned or kiln dried, to the stable moisture content, be straight and true and free from wind, warp and distortion, and in lengths suitable for the members required and the location in the finished construction. All framing timber shall have a moisture content between 12% and 18 % before being installed. If the use of inadequately seasoned timber results in damage or opening joints in the finished building the timber shall be replaced.
Fixing of internal linings shall be delayed after closing in until the timber framing has dried back below 20% moisture content and to allow for the maximum settling of substrates.

All kiln dried, dressed and/or finishing timbers shall be stacked under cover on delivery to the site, and all timber shall be full to the nominal sizes shown or specified, subject only to normal cutting and dressing tolerances.
All finishing timber shall have machine marks, stains and roughness removed and shall be sanded smooth.

Ensure that enclosed surfaces and ends of paint-finished exterior finishing timbers are fully primed before fixing. If this trade (Carpentry) carries out the priming it shall be to the specification and standard required of the Painter.

Unless specified otherwise, exposed framing timbers shall be unfinished to the exterior, and be fine bandsawn milled, treated with a minimum of discolouration, handled carefully at all times to avoid surface damage, and delivered free of crayon or pencil or other markings. Hazard class treatment markings shall be on the ends, NOT on the faces.

8.5.2.2 Timber Species

Unless noted or specified on the drawings, in the list below, or elsewhere in this specification all timber used shall be Radiata pine.
Other timbers shall be as follows:

- Douglas Fir (*NZ Oregon, Psuedotsuga menziesii*)
- Jarrah Clears (*Eucalyptus marginata*)
- Kwila Clears (*Merbau*)
- Balau (*Shorea spp*)
- Kwila (*Merbau*)
- Cedar Clears (*Western Red Cedar, Thuja plicata*)
- Rimu - (*NZ Red Pine*)
- Vitex Clears - (*Vitex cofassus*)
- Eucalypt Saligna Clears - *(Sydney Blue Gum*)
- Tasmanian Oak - (*Eucalyptus delegatensis / obliqua / regnans*)

Note: the use of alternate grades and varieties to those specified is subject to approval in each instance.

8.5.2.3 Timber Cavity Battens

To wall areas as noted install H3.1 treated ex.50mm x 25mm timber battens to form a drained vertical cavity complying with E2/AS1 in all respects. Ensure that flexible wall underlay and flexible flashing tape are completely and correctly installed before fixing battens in place. Fix the battens with 60mm hot-dip galvanised flat head nails at maximum 400mm centres, ensuring that the batten set-out completely fulfils the cladding's fixing requirements. Install 1:12 sloping horizontal cavity spacers where required to suit claddings, keeping the ends 50mm clear of the vertical battens.

8.5.2.4 Other Materials

Materials shall be delivered to site with the packaging and labelling intact, shall be of the same type, finish or colour to maintain continuity, shall be stored, and conditioned if required, in accordance with manufacturer's recommendations, and shall be protected from damage, contamination, and moisture - as appropriate.
Handle all materials in accordance with best practice and the manufacturer's requirements, and in a manner that prevents damage or deterioration to the material. Do not use damaged or defective materials or products, or products that are beyond their designated shelf life.

8.5.3 Proprietary Sheet Bracing Systems

Proprietary sheet bracing systems to walls, ceilings and sub-floor foundations shall be installed in strict accordance with the manufacturer's technical literature and design guides. No materials specified in the manufacturer's technical literature and design guide can be substituted without the written approval from the Architect/Designer.

8.5.4 Proprietary Roof Trusses

Roof trusses shall be of proprietary design, complying with the requirements of NZS 3603, NZS 3604, and AS/NZS 1170, and manufactured by suitably qualified fabricators.

Make allowance for all notching and holing to timber members to accommodate roof bracing etc., in the design of member sections of the roof trusses. Allow for all additional rafters, purlins, fixings and bracing necessary to complete the roof framing system with all accessories and incidental items necessary for proper installation even where not specifically shown on the drawings.
Proprietary roof trusses shall be designed to carry all imposed gravity and lateral loads. Refer to the approved design drawings for truss set-out and specified design loads. Roof trusses are assumed to be generally at 900mm centres spanning clear between walls or roof beams as shown on the drawings. The Main Contractor is responsible for the design of proprietary roof trusses, including their layout and interaction with and dependence on adjoining elements.

Provide all necessary design information and shop drawings for all proprietary roof trusses to be incorporated in the works for review prior to fabrication.
Provide Producer Statements from a Charted Professional Engineer covering the design and construction of the roof trusses. Provide all information required by the Territorial Authority for the purpose of obtaining a Building Consent.

8.5.5 Flooring

8.5.5.1 Particleboard Flooring

20mm high density temporary weatherproofed flooring grade particleboard, installed in accordance with the manufacturer's requirements to the locations shown on the drawings.
Use sheets as large as possible, and set out sheets to approval. Accurately cut sheets to size, with the edges shot as necessary to provide tight butt joins. All handling, observation of requirements to accommodate moisture movement, expansion gaps and off-sets from fixed elements, fixings and adhesives and other aspects of this work shall all be exactly in accordance with the manufacturer's recommendations.
Punch nail fastenings and lightly sand particleboard flooring to an even finish over the entire surface before laying floor coverings or clear finishing, taking care to avoid damage to finished adjacent work - do not over-sand flooring.

8.5.5.2 Plywood Flooring - Fully-Supported Square Edge

19mm CD grade square edge plywood flooring, H3.2 Treated (CCA), installed in accordance with the manufacturer's requirements to the locations shown on the drawings.
Use sheets as large as possible, and lay sheets at right angles to the line of floor joists, with staggered sheet join lines, sheets gapped 2mm apart, and with all sheet joins and edges fully supported. Accurately cut to size, with the edges shot as necessary to provide 2mm square butt joins and with a 5mm backset from exterior floor/wall lines. Sheets glued and screwed down to joists. All handling, observation of requirements to accommodate moisture movement, fixings and adhesives, and other aspects of this work shall all be exactly in accordance with the manufacturers recommendations.
Lightly sand plywood flooring to an even finish over the full surface before laying floor

coverings or clear finishing, taking care to avoid damage to finished adjacent work - do not over-sand the flooring.

8.5.6 Fixings

8.5.6.1 Nails

Comply with the requirements of NZS 3604 Section 2.4.4 and the Nailing Schedules of NZS 3604 as applicable. Unless noted or specified on the drawings or elsewhere in this specification, all nails fixing exterior timbers shall be Grade 304 or 316 stainless steel. Nails that will be covered with plaster or any similar material shall be hot-dipped galvanised, unless noted or specified otherwise.

Finishing brads to all finishing timbers shall be set out neatly and punched to the diameter of the nail below the surface. Bore slightly undersize holes for nailing that could cause splitting of the timber. Power-driven staples are completely unacceptable in finishing timbers.

8.5.6.2 Screws

Screw fastenings shall be of suitable gauge, head type, thread design, and length to provide secure fastening into the substrate material, and be suitable for the assembly/construction of the fixed item/element and the substrate material.
Unless noted or specified otherwise, screws exposed to the exterior shall be Grade 304/316 stainless steel or hot-dipped galvanised, and hot-dipped galvanised or similar corrosion resistant for damp situations.
Self-drilling screws shall be in accordance with AS 3566 for fastener type and corrosion resistance class.
Unless noted or specified otherwise, screws fixing hardware or similar shall be of the same material and finish as the hardware. Except where raised head screws are shown or specified, screws shall be countersunk flush or recessed where stopped/filled.

8.5.6.3 Bolts

Where bolts are used they shall be complete with nuts and washers unless specified otherwise. All bolts, nuts and washers shall at least meet the durability requirements of NZS 3604 Table 4.1. Where a higher durability material is specified on the drawings, the higher durability material shall be used. The diameter of a hole for a bolt shall not be less than the bolt diameter nor exceed it by 1.5mm.

For the following bolt diameters use washer sizes as below unless noted otherwise on the drawings:
- up to M8: 25x 25 x 1.5mm;
- up to M12: 50 x 50 x 3mm;
- up to M20: 65 x 65 x 5mm;
- up to M20: 75 x 75 x 6mm.

Round washers may be used proving they are of a thickness and area not less than those specified above.

Subfloor framing - unless noted otherwise on the drawings, cast-in holding down bolts for subfloor framing fixed to concrete foundation walls shall be M12 Grade 304 stainless steel,

embedded minimum 150mm into concrete, to the spacings required by NZS 3604, and located centrally on the timber.
Bottom plates - unless noted otherwise on the drawings, cast-in holding down bolts for bottom plates fixed to a concrete slab shall be M12 galvanised, embedded minimum 120mm into concrete, to the spacings required by NZS 3604, and located centrally on the timber.
Framing - timber/timber and timber/steel - Unless noted otherwise on the drawings, M16, hexagonal head mild steel and with 50 x 50 x 3mm washers.
Timber/concrete (dry situations) - Unless noted otherwise on the drawings, Ramset Trubolts, T12140 at maximum 900mm centres - for damp or exterior situations use stainless steel Trubolts.
Bolts shall be tightened until the washer just indents the timber surface. Exposed bolts shall be re-tightened just prior to Practical Completion to remove any slack consequent on timber shrinkage. Allow to countersink bolt heads and nuts as necessary to clear linings.

8.5.6.4 Framing Hardware

Proprietary timber framing hardware and fixings, including multigrips, joist shoes, Z nails, gang nails and similar hardware, may be used where specifically approved, or where required on the drawings or by NZS 3604 schedules, in accordance with the manufacturer's requirements.
Proprietary timber framing structural brackets and ties, including post and bearer brackets, beam supports, angle brackets, tie cleats and similar hardware, shall be as noted on the drawings and installed in accordance with the manufacturer's requirements.
Refer to Metalwork or Structural Steel section of this specification for specific design engineered fabricated steel components that connect structural timber framing.

8.5.6.5 Powder Fastening Systems

Powder powered fasteners are not permitted for fastening structural timber framing unless specifically noted on the drawings. All applications are subject to specific approval.

8.5.6.6 Adhesives

Aliphatic PVA for dry timber applications - all other adhesives for timber jointing are subject to specific approval or as specified. Check surfaces are in appropriate condition to receive adhesive, and that adhesives are used strictly in accordance with the manufacturer's instructions. Clamp adhesive-jointed timber connections and check alignment of members before the adhesive has set.

8.5.7 Flashings

Flashing materials shall be in accordance with the requirements of NZBC E2/AS1 Sections 2.2 Materials, 4.0 Flashings, Table C.1.1.1B: Compatibility of materials in contact , and Table C.1.1.1C: Compatibility of materials subject to run-off, and as noted on the drawings.
All flashings around windows, doors and other openings and apertures, at internal and external corners, inter-storey junctions, soffit junctions, and at junctions with other building elements and cladding systems, etc., shall all be carefully constructed, fixed and finished to the details shown on the drawings.

8.5.8 Sealants

8.5.8.1 Sealants

For critical joints such as primary water/weatherproofing seals, precast panels primary seals, structural floor slab control joints, structural glazing, immersion or hydrostatic pressure seals, etc., either use the sealant noted on the drawings or obtain a reputable sealant manufacturer's recommendation for the precise situation, and submit the manufacturer's specifications covering all relevant criteria and characteristics of the proposed sealant, primers, joint surfaces preparation, etc. to the Architect/Designer for review and confirmation to proceed.
If so requested, additionally submit a sample of the proposed sealant made up into a demonstration joint, incorporating the same materials, preparation, finish tooling, etc. After confirmation to proceed with the proposed sealant install a sample joint to approval, length approximately 2% of the overall length of the joints required, with a minimum length of two metres; when accepted this joint becomes the quality control sample for all subsequent similar joints.

For less critical joints such as those in covered or protected situations, and bathroom and kitchen ceramics and sanitaryware etc., either use the sealant noted on the drawings or select the sealant from a reputable manufacturer's range for the substrate materials involved, with due regard for the flexibility required, acid or neutral curing, mould resistance, paintability or clear or standard colours, slumping characteristics, temperature range expected, etc. - silicone, polymer or polyurethane sealants are anticipated.
For all simple gap-filling and draught sealing situations, either use the sealant noted on the drawings or select from a reputable manufacturer's range for a paintable acrylic sealant with good adhesion characteristics for the substrates involved - pay particularly care in the sealant selection where bare metal, polycarbonate, polystyrene or similar substrates or where bituminous-based membranes are adjacent or where exposure to solvents is possible.

All joint surfaces preparation and priming and all sealant application work shall be exactly in accordance with the sealant manufacturer's recommendations, and carried out by competent and experienced applicators familiar with the materials and techniques required.
Ensure that the sealant is being used within the manufacturer's stated design parameters, particularly with regard joint design and anticipated cyclic movement.
Check that the joint faces are sound, completely dry, and frost free, clean and free of dirt, rust, oil, grease, laitance, etc., and they are primed to suit the surface porosity - particularly for critical locations.
Insert a polyethylene tape slip layer at the back of the joint or a closed cell polyethylene PEF backer rod where required and to the sealant manufacturer's recommendations. Mask off joint edges where a clean straight finish line is required.
Check the toxicity of the selected sealant and handle it appropriately. Check that the temperature during sealant installation is within the manufacturer's guidelines.
Apply the sealant and tool the filled joint's surface smooth and even, utilising a lubricant as necessary and strictly within the manufacturer's guidelines.
Remove any masking tape immediately after tooling, clean up all adjacent surfaces using the recommended cleaning agents as required, and protect the finished joint until the sealant has properly cured.

8.5.9 Exterior Finishing Trim

Fascias and barges ex.150x40mm, painted radiata. All exterior trim handled as for interior trim.

8.5.10 Interior Finishing Trim

All interior finishing trim shall be cut to the exact dimensions and fine sanded smooth, and with lightly sanded arrisses, and all fixed with plated finishing pins. Machine staple fixing is NOT acceptable. Note that even traces of planer marks are unacceptable on architraves. Margins between interior trim and other elements shall be exactly even, and all mitres shall be exact and tight.

8.5.11 Garage Door

Sectional, overhead, ply and polystyrene sandwich panel, cedar TG & V faced, garage door(s) as shown and noted on the drawings, installed complete with automatic opening door gear including integrated light(s), wall switch and two remote car activators per door.

8.6 Thermakraft Underlay, DPM, DPC & Tapes

8.6.1 Scope

Supply and install Thermakraft Underlays and Membranes, as specified herein, to the locations identified on the drawings, complete with all accessories required for proper installation and performance. All aspects of this work shall be in complete accordance with Thermakraft Ltd technical information and installation requirements (check www.thermakraft.co.nz, or call 0800 806 595 for the latest editions), other relevant product manufacturers' recommendations, and as shown on the design drawings.

No substitutions are permitted for the specified products from Thermakraft Ltd.

The following is a list and a general description of the extent of the Thermakraft Underlays and Membranes works, which are more specifically defined in the contract documents, required for the completion of the contract works:

8.6.2 Requirements

8.6.2.1 Safety

Comply with the Health and Safety at Work Act 2015 (HSWA), and with all relevant Health and Safety at Work Regulations 2016, and with all relevant WorkSafe New Zealand (WorkSafe) Approved Codes of Practice and WorkSafe Information and Guidance, particularly those for construction and building maintenance.

8.6.2.2 Warranty

Kingspan Thermakraft Product Warranty Statement:

- 15 Years Warranty - for all Thermakraft warranted products installed, according to the warranty conditions.
- Provide the Thermakraft Ltd Product Warranty on the manufacturer's standard warranty form.
- Commence the warranty from the date of permanent installation.

8.6.2.3 Substitutions

Thermakraft Ltd products shall be as specified herein and as indicated on the approved drawings. The substitution of Thermakraft branded products for alternative brands is not permitted under any circumstances.

The substitution of a specified Thermakraft product for an alternative Thermakraft branded product by the Contractor shall only be permitted with the Contract Administrator's written authorisation, and shall be at no additional cost to the Principal. Should any resultant extra work and/or redesign work be required to accommodate alternative Thermakraft branded products to satisfy design, performance and compliance requirements, then the cost of these shall be borne by the Contractor.

8.6.3 Damp-Proof Membrane

Thermathene Black (250µm). A 250 micron thick (0.25mm), tear resistant, recycled polyethylene film sheet concrete underlay. Coloured black.

Installed over nominal 10mm (max. 25mm) thick compacted sand blinding layer, over a properly prepared base course, as a moisture vapour barrier under concrete slabs on-ground (prior to concreting), in accordance with the manufacturer's requirements and as shown on the drawings (Install Guide).

Thermathene Black must be laid in a continuous manner with all laps minimum 150mm, and penetrations to be taped with Thermakraft White General Purpose Tape. Tape-seal around penetrations. Inspect immediately before pouring concrete and repair any holes or other damage.

Installed Location:

Thermathene Orange™, a super heavy duty high impact polythene film, 300 microns thick and manufactured from recycled alloyed polythene materials. Commonly used on commercial sites where increased robustness is required. Coloured orange.

Installed over nominal 10mm (max. 25mm) thick compacted sand blinding layer, over a properly prepared base course, as a moisture vapour barrier under concrete slabs on-ground (prior to concreting), in accordance with the manufacturer's requirements and as shown on the drawings (Install Guide).

Thermathene Orange must be laid in a continuous manner with all laps minimum 150mm, and penetrations to be taped with Thermakraft White General Purpose tape or Aluband Window Flashing Tape. Thermathene Orange must not be left exposed for more than 30 days. Tape-seal around penetrations. Inspect immediately before pouring concrete and repair any holes or other damage.

Installed Location:

8.6.4 Damp-Proof Course

Supercourse 500 DPC. A 0.75mm thick, high-impact, single-layer Polyethylene film, embossed on both sides. Available in 50mm 75mm, 90mm, 100mm, 150mm, 200mm, 250mm, 300mm, and 500mm roll widths. Supercourse 500 DPC is suitable for use as a separation barrier between most incompatible and dissimilar materials.

Used as a general damp proof course (DPC) for separating timber and wood-based products and metal from concrete, masonry, brick, and stone surfaces, and as a moisture barrier (Install Guide).

Also used as a concealed flashing behind brick veneer cladding in accordance with NZS 4229 and NZBC E2/AS1.

Installed in accordance with the manufacturer's requirements, BRANZ Appraisal No.329, and as shown on the drawings.

Perimeter. A bitumen saturated, heavy Kraft lightly coated with Perlite. Available in 50mm, 75mm, 90mm, 100mm, 150mm, 200mm, 250mm and 300mm roll widths. Perrimeter DPC is used as a general damp proof course (DPC) for separating timber and wood-based products and metal from concrete, masonry, brick, and stone surfaces, and as a moisture barrier.

Also used as a concealed flashing behind brick veneer cladding in accordance with NZS 4229 and NZBC E2/AS1.

Installed in accordance with the manufacturer's requirements, and as shown on the drawings (Install Guide).

8.6.5 Wall Underlay

RAINARMOR Self Adhesive is three-layer product coated with a water vapour permeable adhesive, which is designed for to protect rigid substrates with the need for mechanical fixings, such as staples. It will provide temporary weather protection during construction.

Thermakraft® RAINARMOR Self Adhesive Underlay has been appraised for use as a flexible wall underlay when installed over fibre cement or plywood rigid wall underlays in accordance with NZBC Acceptable Solution E2/AS1 or NASH Building Envelope Solutions. The product has also been appraised for use as a flexible underlay when used over proprietary rigid wall underlays and for use as a roof underlay over plywood roof sarking on timber and steel-framed buildings within the manufacturer’s requirements and BRANZ Appraisal No. 1277.

RAINARMOR Self Adhesive Underlay is suitable for use in all Wind Zones of NZS 3604 up to, and including, Extra High when used as an overlay for rigid wall underlays.

Do not leave RAINARMOR Self Adhesive exposed on roofs and walls for more than a total of 120 days before covering.

Watergate Plus. A fire-retardant, absorbent, breathable, composite non-woven polyolefin synthetic underlay.

Watergate Plus is part of the Thermakraft ONE WRAP System - a total building wrap solution.

Can only be used in lined applications. Section E2 of the NZBC defines lining at " the rigid sheet covering for a wall, celing or other interior surface".

Thermakraft Watergate Plus Wall Underlay is CodeMark assured to comply with the NZ Building Code subject to specific conditions and limitations - refer to CodeMark Certificate of Conformity No: BRANZ-CM-1002-Rev 4, issued by BRANZ Ltd.

Installed as a standalone flexible underlay over timber or steel wall framing in accordance with the manufacturer's requirements and BRANZ Appraisal No.695, in NZS 3604 Wind Zones up to and including 'Very High'.

Installed as a flexible underlay over a rigid air barrier in accordance with NZBC E2/AS1 9.1.7.2 to the manufacturer's requirements and BRANZ Appraisal No.695, in NZS 3604 Wind Zones up to and including 'Extra High'.

Watergate Plus can be used with absorbent and non-absorbent direct-fixed wall claddings, and absorbent and non-absorbent wall claddings over a 20mm drained cavity, and masonry veneer cladding over a drained cavity in accordance with NZBC E2/AS1 and BRANZ Appraisal No.695.

(See Install Guide attached)

Do not leave Watergate Plus exposed on walls for more than a total of 90 days before covering.

Installed Location:

Thermakraft 220. A lightweight fire-retardant, absorbent, breathable, composite non-woven polypropylene, synthetic wall underlay.

Thermakraft 220 Synthetic Underlay is part of the Thermakraft ONE WRAP System - a total building wrap solution.

Can only be used in lined applications. Section E2 of the NZBC defines lining as 'the rigid sheet covering for a wall, ceiling or other interior surface".

Installed as a standalone flexible underlay over timber or steel wall framing in accordance with the manufacturer's requirements and BRANZ Appraisal No.912, in NZS 3604 Wind Zones up to and including 'Very High'.

Installed as a flexible underlay over a rigid air barrier in accordance with the manufacturer's requirements and BRANZ Appraisal No.912, in NZS 3604 Wind Zones up to and including 'Extra High'.

Thermakraft 220 can be used with absorbent and non-absorbent direct-fixed wall claddings, and absorbent and non-absorbent wall claddings over a 20mm drained cavity, and masonry veneer cladding over a drained cavity in accordance with NZBC E2/AS1 and BRANZ Appraisal No.912.

(Install Guide).

Do not leave Thermakraft 220 exposed on walls for more than a total of 42 days before covering.

Installed Location:

Covertek 215. A grey-coloured, economic, versatile and lightweight self-supporting, non-fire-retardant, absorbent, breathable, synthetic non-woven polyolefin roof and wall underlay. Constructed with a microporous water-resistant film between spun-bonded polyolefin layers, providing resistance to shrinkage, tearing, and moisture ingress.

Can only be used in lined applications. Section E2 NZBC defines a lining as "the rigid sheet covering for wall, ceiling or other interior surface." Must not be used in unlined buildings such as unlined garages, sheds, soffits or canopies.

Installed as a roof or wall underlay over timber or steel framing in accordance with the manufacturer's requirements and BRANZ Appraisal No. 1229. Suitable for use in NZS 3604 wind zones up to and including Extra High (roof) and Very High (wall).

Covertek 215 roof underlay can be used directly under direct-fixed roof claddings or under roof cavity battens, including profiled metal, metal tile and masonry tile roofing. It must be installed taut, with a minimum 150mm lap, and fixed at maximum 300mm centres. Printed side must face outwards.

Covertek 215 roof underlay must be installed in a manner that prevents ponding of water and span no more than 1200mm without additional support. When run vertically at pitches from 3° up to 10°, additional support is required (see Install Guide).

Do not leave Covertek 215 exposed on roofs for more than a total of 7 days before covering. For wall applications, maximum exposure is 60 days. Cannot be used under translucent roof sheeting.

Covertek 403 Roof and Wall Underlay. A fire-retardant, absorbent, breathable, synthetic non-woven polyolefin underlay.

Thermakraft 403 Synthetic Underlay is part of the Thermakraft ONE WRAP System - a total building wrap solution.

Can only be used in lined applications. Section E2 of the NZBC defines lining as " the rigid sheet covering for a wll, ceiling or other interior surface".

Installed as a standalone flexible wall underlay over timber or steel wall framing in accordance with the manufacturer's requirements and BRANZ Appraisal No.917, in NZS 3604 Wind Zones up to and including 'Very High'.

Installed as a flexible wall underlay over a rigid air barrier in accordance with NZBC E2/AS1 9.1.7.2 to the manufacturer's requirements and BRANZ Appraisal No.917 (2020), in NZS 3604 Wind Zones up to and including 'Extra High'.

Covertek 403 can be used with absorbent and non-absorbent direct-fixed wall claddings, or absorbent and non-absorbent wall claddings over a 20mm drained cavity, and masonry veneer cladding over a drained cavity in accordance with NZBC E2/AS1 and BRANZ Appraisal No.917.

Do not leave Covertek 403 exposed on walls for more than a total of 42 days before covering.

Installed Location:

Covertek 405. A fire-retardant, absorbent, breathable, synthetic non-woven polyolefin underlay.

Can only used in lined applications. Section E2 of the NZBC defines lining as "the rigid sheet covering for a wall, celing or other interior surface."

Installed as a standalone flexible underlay over timber or steel wall framing in accordance with the manufacturer's requirements, in NZS 3604 Wind Zones up to and including 'Very High'.

Installed as a flexible underlay over a rigid air barrier in accordance with NZBC E2/AS1 9.1.7.2 to the manufacturer's requirements and as shown on the drawings, in NZS 3604 Wind Zones up to and including 'Extra High'.

Covertek 405 can be used with absorbent and non-absorbent direct fixed wall claddings, or absorbent and non-absorbent wall claddings over a 20mm drained cavity.

Do not leave Covertek 405 exposed on walls for more than a total of 60 days before covering.

Do not leave Covertek 405 exposed in a roof application for more than a total of 7 days before covering

Installed in accordance with the manufacturer's requirements and BRANZ Appraisal No.743.

Installed Location:

Thermabar 344, A fire-retardant, reinforced aluminium light diffuser foil insulation/vapour control layer, synthetic underlay, one side highly burnished aluminium foil with a white face for

light diffusuion. Thermabar 344 is not suitable for installation in residential or associated buildings.

Thermabar 344 can be used in unlined sheds, commercial and industrial buildings constructed with timber or steel framing. Can be used in conjunction with profiled metal roof and wall claddings where adequate ventilation and mositure and condensation control is provided to the building interior for the intended use (Install Guide).

Can be situated in NZ3604 Wind Zones up to and including 'Extra High'

Refer to the NZ Metal Roof and Wall Cladding Code of Practice for advice when used in contact with profiled metal roof cladding.

Cannot be used under translucent sheeting.
Thermabar 344 can be used with absorbent and non-absorbent direct-fixed wall claddings.

Thermabar 344 is self supporting.

Thermabar 344 must not be exposed to the weather or UV for more than 7 days.

Thermabar 344 must NEVER come into contact with wet concrete or other lime based products.
Location:

8.6.6 Roof Underlay

RAINARMOR Self Adhesive is three-layer product coated with a water vapour permeable adhesive, which is designed for to protect rigid substrates with the need for mechanical fixings, such as staples. It will provide temporary weather protection during construction.

Thermakraft® RAINARMOR Self Adhesive Underlay has been appraised for use as a flexible wall underlay when installed over fibre cement or plywood rigid wall underlays in accordance with NZBC Acceptable Solution E2/AS1 or NASH Building Envelope Solutions. The product has also been appraised for use as a flexible underlay when used over proprietary rigid wall underlays and for use as a roof underlay over plywood roof sarking on timber and steel-framed buildings within the manufacturer’s requirements and BRANZ Appraisal No. 1277.

RAINARMOR Self Adhesive Underlay is suitable for use in all Wind Zones of NZS 3604 up to, and including, Extra High when used as an overlay for rigid wall underlays.

Do not leave RAINARMOR Self Adhesive exposed on roofs and walls for more than a total of 120 days before covering.

Covertek 215. A grey-coloured, economic, versatile and lightweight self-supporting, non-fire-retardant, absorbent, breathable, synthetic non-woven polyolefin roof and wall underlay.

Constructed with a microporous water-resistant film between spun-bonded polyolefin layers, providing resistance to shrinkage, tearing, and moisture ingress.

Can only be used in lined applications. Section E2 NZBC defines a lining as "the rigid sheet covering for wall, ceiling or other interior surface." Must not be used in unlined buildings such as unlined garages, sheds, soffits or canopies.

Installed as a roof or wall underlay over timber or steel framing in accordance with the manufacturer's requirements and BRANZ Appraisal No. 1229. Suitable for use in NZS 3604 wind zones up to and including Extra High (roof) and Very High (wall).

Covertek 215 roof underlay can be used directly under direct-fixed roof claddings or under roof cavity battens, including profiled metal, metal tile and masonry tile roofing. It must be installed taut, with a minimum 150mm lap, and fixed at maximum 300mm centres. Printed side must face outwards.

Covertek 215 roof underlay must be installed in a manner that prevents ponding of water and span no more than 1200mm without additional support. When run vertically at pitches from 3° up to 10°, additional support is required (see Install Guide).

Do not leave Covertek 215 exposed on roofs for more than a total of 7 days before covering. For wall applications, maximum exposure is 60 days. Cannot be used under translucent roof sheeting.

Covertek 401. A self-supporting, non-fire-retardant, absorbent, breathable, synthetic non-woven polyolefin roof underlay.

Can only be used in lined applications. Section E2 of the NZBC defines a lining as "the rigid sheet covering for a wall, ceiling or other interior surface." Must not be used in unlined buildings such as unlined garages, sheds, soffits or canopies.

Installed as a roof underlay over timber or steel roof framing in accordance with the manufacturer's requirements and BRANZ Appraisal No.943.

Covertek 401 roof underlay can be used directly under direct-fixed roof claddings, or directly under roof cavity battens in accordance with Thermakraft requirements.

Covertek 401 roof underlay must installed in a manner that prevents ponding of water, and span no more than 1200mm without additional support. When run vertically at pitches from 3° up to10° additional support is required (see Install Guide attached).

Do not leave Covertek 401 exposed on roofs for more than a total of 7 days before covering.

Installed Location:

Covertek 403. A fire-retardant, absorbent, breathable, synthetic non-woven polyolefin roof underlay.

Can only be used in lined applications. Section E2 of NZBC defines a lining as ' the rigid sheet covering for a wall, ceiling or other interior surface." Must not be used in unlined buildings such as unlined garages, sheds, soffits or canopies.

Covertek 403 roof underlay is CodeMark assured with the NZ Building Code: CodeMark Certificate of Conformity No:CMNZ 30069 RevH, issued by Global-Mark Pty Ltd.

Installed as a roof underlay over timber or steel roof framing in accordance with the manufacturer's requirements and BRANZ Appraisal No.917.

Covertek 403 roof underlay can be used directly under direct-fixed roof claddings, or directly under roof cavity battens in accordance with Thermakraft requirements.

Covertek 403 roof underlay must installed in a manner that prevents ponding of water, and span no more than 300mm without additional support.

Do not leave Covertek 403 exposed on roofs for more than a total of 7 days before covering.

Installed Location:

Covertek 405. A self-supporting, fire-retardant, absorbent, breathable, synthetic non-woven polyolefin underlay.

Can only be used in lined applications. Section E2 of NZBC defines a lining as ' the rigid sheet covering for a wall, ceiling or other interior surface." Must not be used in unlined buildings such as unlined garages, sheds, soffits or canopies.

Covertek 405 is CodeMark assured with the NZ Building Code: CodeMark Certificate of Conformity No:CM30030-Rev I, issued by Global-Mark Pty Ltd.

Installed as a roof underlay over timber or steel roof framing in accordance with the manufacturer's requirements and BRANZ Appraisal No.743.

Covertek 405 roof underlay can be used directly under direct-fixed roof claddings, or directly under roof cavity battens or tile battens in accordance with Thermakraft requirements.

Covertek 405 roof underlay must be installed in a manner that prevents ponding of water. Provide additional support at no more than 300mm centres when Covertek 405 is installed on roofs with slopes less than 10°.

Do not leave Covertek 405 exposed on roofs for a total of more than a total of 7 days before covering.

Installed Location:

Covertek 407. A self-supporting, fire-retardant, absorbent, breathable, synthetic non-woven polyolefin underlay.

Can only be used in lined applications. Section E2 of the NZBC defines a lining as "the rigid sheet covering for a wall, ceiling or other interior surface." Must not be used in unlined buildings such as unlined garages, sheds, soffits or canopies.

Covertek 407 is CodeMark assured with the NZ Building Code: CodeMark Certificate of Conformity No:CM30028-RevI, issued by Global-Mark Pty Ltd.

Installed as a roof underlay over timber or steel roof framing in accordance with the manufacturer's requirements and BRANZ Appraisal No.651.

Covertek 407 roof underlay can be used directly under direct-fixed roof claddings, or directly under roof cavity battens or tile battens in accordance with Thermakraft requirements.

Covertek 407 roof underlay must installed in a manner that prevents ponding of water. Refer to Covertek 407 Installation guide for underlay support requirements. Support requirements are dependent upon pitch, purlin spacing and installation direction of underlay.

Do not leave Covertek 407 exposed on roofs for more than a total of 7 days before covering.

Installed Location:

Thermabar 397 Synthetic Foil. A fire-retardant, self-supporting, white-faced, synthetic light-diffuser foil insulation/vapour control layer, synthetic underlay. Thermabar 397 Synthetic Foil is not suitable for installation in residential or associated buildings.

Installed as a roof underlay over timber or steel roof framing on unlined and uninsulated roofs in accordance with the manufacturer's requirements, BRANZ Appraisal No.1000, and as shown on the drawings.

Thermabar 397 Foil roof underlay can be used under roof claddings, or directly under roof cavity battens in accordance with Thermakraft requirements.

When used on its own as a reflective insulating vapour control layer, separate Thermabar 397 Foil from the roof cladding as detailed.

Thermabar 397 can be used in warehouses, commercial and industrial buildings constructed with timber or steel framing. Use in conjunction with profiled metal roof and wall claddings where adequate ventilation and moisture and condensation control is provided to the building interior for the intended use. Can be situated in NZS 3604 Wind Zones up to and including ‘Extra High’.

Thermabar 397 Foil roof underlay must be installed in a manner that prevents ponding of water, and supported on safety mesh or netting as specified - refer to Thermakraft's requirements when used in conjunction with netting and bulk insulation (Install Guide).

Thermabar 397 Foil must NOT be exposed to the weather or UV for more than 7 days.

Installed Location:

Thermabar 344. A self-supporting, fire-retardant, single-sided aluminium light diffuser foil insulation/vapour control layer. Thermabar 344 is not suitable for installation in residential or associated buildings.

Installed over timber or steel roof framing on unlined and uninsulated roofs in accordance with the manufacturer's requirements and as shown on the drawings.

Thermabar 344 roof underlay can be used under roof claddings, or directly under roof cavity battens in accordance with Thermakraft requirements

When used on its own as a reflective insulating vapour control layer, separate Thermabar 344 from the roof cladding as detailed.

Thermabar 344 roof underlay must installed in a manner that prevents ponding of water, and supported on safety mesh or netting as specified - refer to Thermakraft requirements when used in conjunction with netting and bulk insulation.

Thermabar 344 can be used in unlined sheds, commercial and industrial buildings constructed with timber or steel framing. Can be used in conjunction with profiled metal roof and wall claddings where adequate ventilation, and moisture and condensation control, is provided to the building interior for the intended use (Install Guide attached).

Thermabar Foil must NOT be exposed to the weather or UV for more than 7 days.

Installed Location:

8.6.7 Vapour Barrier

8.6.7.1 Thermakraft Vapour Shield

Thermakraft Vapour Shield. Vapour Shield is a tear resistant polyethylene vapour barrier layer with one side that is white and one side that is black and can be laid either side up. Roll width 2130mm.

Thermakraft Vapour Shield is tear resistant, moisture proof and impervious to rot mildew and most chemicals, and can withstand climate extremes. Suitable as underlayment for roof construction where condensation and moisture control is required.

Thermakraft Vapour Shield is suitable for use in all NZS 3604 Wind Zones up to and including 'Extra High' when installed in strict accordance with the manufacturer's requirements and the NZMRM Code of Practice.

Thermakraft Vapour Shield must be installed with minimum 150mm side and end laps - lapped such that any moisture will be shed to the outside of the membrane. Seal all membrane laps and joints with Thermakraft White General Purpose Tape 60mm. Where

battens are nailed through the membrane, cover pre-nail battens with sealastic at nail points. Any other projections and penetrations through the membrane and must be sealed. Ensure a minimum clearance of 200mm is maintained from the outer liner of chimney flue stacks (Install Guide).

Do not leave Thermakraft Vapor Shield exposed to atmospheric conditions and UV light for more than 7 days before covering.

Thermakraft Vapour Shield is not fire retardant.

Installed Location:

8.6.8 Underlay for Stucco Plaster

Thermakraft 220. A fire-retardant, absorbent, breathable, composite non-woven polypropylene, synthetic wall underlay.

Installed as a stucco plaster cladding non-rigid backing supported by galvanised mesh or plastic tape or wire at 150mm centres over cavity battens, in accordance with Thermakraft requirements, NZS 4251.1, BRANZ Appraisal No.912, and as shown on the drawings (Install Guide).

Do not leave Thermakraft 220 exposed on walls for more than a total of 42 days before covering.

Installed Location:

Thermakraft 220. A fire-retardant, absorbent, breathable, composite non-woven polypropylene, synthetic wall underlay.

Installed as a stucco plaster cladding slip layer over a rigid backing in accordance with Thermakraft requirements, NZS 4251.1, BRANZ Appraisal No.912 , and as shown on the drawings (Install Guide attached).

Do not leave Thermakraft 220 exposed on walls for more than a total of 42 days before covering.

Installed Location:

8.6.9 Underlay Support

Thermakraft AUSNET Hexagonal Wire Mesh. 75mm woven hexagonal, galvanised mild steel wire netting. 1.0mm diameter wire, 150g/m² galvanised coating, Class W10 to AS/NZS 4534. Supplied in 2.0m wide x 25/50m long rolls.

BRANZ appraised as a roof underlay support, and also foil and insulation support, on buildings situated in NZS 3604 Wid Zones up to and including Extra High, within the scope of BRANZ Appraisal No.1029.

Used as a support for roof underlays and non-rigid insulation, and installed in accordance with the manufacturer's requirements and BRANZ Appraisal No.1029 (2018) and as shown on the drawings.

Do not leave AUSNET Hexagonal Wire Mesh exposed to the elements for more than the manufacturer's exposure period (install guide).

Installed Location:

Ausmesh - Roof Underlay Support and Fall Safety Mesh. A 150mm x 300mm x 2mm diameter galvanised wire safety mesh complying with AS/NZS 4389.

Used as a support for roof underlays and non-rigid insulation, and installed in accordance with the manufacturer's requirements, AS/NZS 4389, and as shown on the drawings. Suitably jointed and tensioned when installed to avoid any sagging and to keep the roof underlay in a flat plane.

Do not walk or stand on installed Ausmesh - Roof Uderlay Support and Fall Safety Mesh or use it as a working platform.

Installed Location:

Thermakraft Thermastrap. A 19mm wide x 0.4mm thick polythene embossed rigid strap. For use as a support for non-self support roof underlays, and to restrict the bellowing of flexible wall underlays in drained cavities. Suitably tensioned when installed to avoid any sagging and to keep the flexible underlay in a flat plane. Installed at right angles to roof purlins or walls studs, at maximum 300mm centres.

Application/Use:

Thermakraft Stud Strap. A 25mm wide x 0.4mm thick polypropylene woven and coated flexible strap. For use as a support for non-self support roof underlays, and to restrict the bellowing of flexible wall underlays in drained cavities. Suitably tensioned when installed to avoid any sagging and to keep the flexible underlay in a flat plane. Installed at right angles to roof purlins or wall studs, at maximum 300mm centres.

Application/Use:

8.6.10 Window Flashing Tape

8.6.10.1 Aluband Bituminous Adhesive Flexible Window Flashing Tape

Aluband Window Flashing Tape. A polymeric faced, bituminous modified, self-adhesive tape with a release backing paper. Must be used in conjunction with the Thermakraft Corner Moulds, and when used with the declared Kingspan Thermakraft flexible underlays is part of the Thermakraft OneWrap System.

Aluband Window Flashing Tape is part of the Thermakraft ONE WRAP System - a total building wrap solution.

Aluband Window Flashing Tape is suitable for use on timber or steel framed buildings, in conjunction with a compatible flexible underlay, around framed joinery openings as a secondary weather barrier, in NZS 3604 Wind Zones up to and including 'Extra High'.

Aluband Window Flashing Tape can be used on the sill and lintel of framed joinery openings, and to seal flashing upstands to a flexible underlay.

Physical Properties:
- Thickness: 0.65mm.
- Installation temperature range: minimum 5°C; maximum 30°C.
- Maximum UV exposure: 42 days.
- Tape width: Available in 75mm, 150mm, and 200mm wide rolls.

The width of Aluband Window Flashing Tapes used shall be selected to suit the depth of framed openings and Thermakraft installation requirements.

Installed in accordance with the requirements of the Thermakraft Aluband Application & Installation Guide and BRANZ Appraisal No.878, to the locations and details shown on the drawings.

Compatible with all Thermakraft building underlays. Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in well ventilated area. Recommended minimum 7 days.

Thermakraft Corner Moulds MUST be used at flashing corners (see installation guide).

Do not leave Aluband Window Flashing Tape exposed to weather and UV light for more than 42 days after installation.

Flashing Tape Size:
Installed Location:

8.6.10.2 Thermaflash High Adhesion Synthetic Window Flashing Tape

Thermaflash High Adhesion Synthetic Window Flashing Tape. Thermaflash Synthetic Window Flashing tape is part of the Thermakraft ONE WRAP System - a total building wrap solution. The advanced adhesive technology provides a high strength bond to most building surfaces and wall underlays. It is suitable for window and door installation as well as other wall penetrations. Thermaflash can be installed in a wide range of temperatures and can withstand UV exposure for up to 180 days.

Thermaflash Window Flashing Tape is suitable for use on timber or steel framed buildings, in conjunction with a compatible flexible underlay, around framed joinery openings as a secondary weather barrier.

Thermaflash Window Flashing Tape can be used as a flexible flashing system around window and door joinery openings on timber and steel framed buildings within the following scope:
- Installed into and around joinery openings over the wall underlay and exposed frame to

cover both the face and edge of the opening as a secondary weather resistant barrier.
• To assist the overall weathertightness performance of window and door joinery installations.
• To be used in conjunction with air seals and joinery flashing systems. Installer must check for air seal product compatibility with Thermaflash.
• Situated in NZS3604 Wind Zones up to, and including, 'Extra High'.
• Suitable for residential builds (E2/AS1 timber framed and E2/AS4 steel framed) and medium rise buildings (E2/VM2)

General
Physical Properties:
- Thickness: 400 µm.
- Installation temperature range: minimum -10°C.
- Maximum UV exposure: 180 days.
- Tape width: Available in 75x23mm, 150x23mm, and 200x23mm wide rolls.

The width of Thermaflash Window Flashing Tape used shall be selected to suit the depth of framed openings and Thermakraft installation requirements.

Installed in accordance with the requirements of the Thermaflash Window Flashing Tape Installation Guide and BRANZ Appraisal No.1122 (2020), to the locations and details shown on the drawings.

Compatible with all Thermakraft building underlays. Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent chemical to flash off in well ventilated area. Recommended minimum 7 days.
Corner Moulds are optional however butterfly strips must be used in the absence of a corner mould (see installation guide).

Do not leave Thermaflash Window Flashing Tape exposed to weather and UV light for more than 180 days after installation.

Flashing Tape Size:
Installed Location:

8.6.11 Joining Tapes

8.6.11.1 Thermakraft Premium Joining Tapes

Thermakraft Premium Joining Tapes are high-end construction tapes to join James Hardie RAB sheets. They can also be used to join a wide range of flexible underlays and rigid sheathing products. The thick layer of acrylic adhesive, bonds to common construction substrates and supports a wide range of operating temperatures.

Thermakraft Premium Joining Tape is part of the RAB™ Board system by James Hardie™. It can be used to join the laps of wall and roof underlays, damp proof membranes, vapour control products such as foil underlays and rigid sheathing products (e.g., plywood rigid

underlay, OSB board, fibre cement and insulation panels). Installer or designer must check the compatibility of Thermakraft Premium Joining Tape with the substrate manufacturer.

• With flexible underlays that meet the performance requirements outlined in standard NZS 2295.2006.
• Is suitable to use with air barrier underlays in unlined wall spaces.
• Is suitable to be used in conjunction with thermal breaks on steel framed buildings.
• Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent to flash off in a well-ventilated area. Recommended minimum 7 days.

General
Physical Properties:
- Thickness: 400 µm.
- Installation temperature range: minimum -10°C.
- Maximum UV exposure: 180 days.
- Tape width: Available in 75x23mm wide rolls.

Limitations :
- Thermakraft Premium Joining Tape is NOT a window flashing tape and must NOT be used as a window flashing tape.
- Must NOT be used in areas where the tape is permanently exposed to the weather or UV.

Installed in accordance with the requirements of the Thermakraft Premium Joining Tape Installation Guide, to the locations and details shown on the drawings.

8.6.11.2 Thermakraft White General Purpose Tape

Thermakraft White General Purpose Tapes is an acrylic adhesive giving providing bonding in a wide range of environments. It is commonly used on synthetic underlays, or damp-proof membranes such as Thermathene. The tape is also ideal for sealing edges of vapour control layers.

It can be used to join the laps of wall and roof underlays, damp proof membranes, vapour control products such as foil underlays. Installer or designer must check the compatibility of Thermakraft White General Purpose Tape with the substrate manufacturer.

• With flexible underlays that meet the performance requirements outlined in standard NZS 2295.2006.
• Unaffected by LOSP or other solvent based treated timber. However, LOSP or other solvent based treated timber must have sufficient time for the solvent to flash off in a well-ventilated area. Recommended minimum 7 days.

General
Physical Properties:
- Installation temperature range: minimum +10°C.
- Tape width: Available in 66mx60mm wide rolls.

Limitations :

- Thermakraft White General Purpose Tape is NOT a window flashing tape and must NOT be used as a window flashing tape.

- Must be stored undercover well away from direct moisture, rainfall and sunlight (UV). Care should be taken not stack other materials on top of the product.

Installed in accordance with the requirements of the Thermakraft White General Purpose Tape Installation Guide, to the locations and details shown on the drawings.

8.6.12 Underlay Penetration Seals

8.6.12.1 OneSeal - Multi-fit pipe and cable penetration seals

Thermakraft OneSeal, multi-fit pipe and cable penetration seals. A range of pipe and service penetration seals consisting of soft, flexible EPDM membrane with a self-adhesive flange.

OneSeal multi-fit pipe and cable penetration seals are part of the Thermakraft ONE WRAP System - a total building wrap solution, and are a patented airtight solution for round or rectangular pipes, cables or conduits when passing through underlay barriers.

Pipe Seals
Four pre-notched rings for pipes sized from 15mm to 110mm diameter.

Cable Seals
1 x conduit – 55mm to 80mm diameter;
OR
2 x cables – 10mm to 22mm diameter; and
4 x cables – 7mm to 10mm diameter.
Installed in accordance with the manufacturer's requirements and BRANZ Appraisal No.942, with stand-alone flexible wall underlay over timber or steel wall framed walls on buildings situated in NZS 3604 Wind Zones up to and including 'Very High'.

Installed in accordance with the manufacturer's requirements and BRANZ Appraisal No.942, with flexible wall underlay used over a rigid wall underlay on buildings situated in NZS 3604 Wind Zones up to and including 'Extra High'.

8.6.13 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings.

Coordinate with other trades to install Thermakraft Underlays, DPMs, and DPCs as required.

8.6.14 Workmanship

Where required by the NZ Building Act 2004 it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner.

All installation work shall be carried out by experienced and competent tradespersons, familiar with the specified products and installation techniques, in accordance with the manufacturer's requirements, and to fully comply with all warranty requirements.

All cutting, joining, and fixing techniques shall be exactly as recommended by the manufacturer, and carried out with the use of suitable tools and equipment appropriate for the application. All work shall be such as to leave a neat, efficient, and weathertight installation.

8.6.15 Delivery & Handling

Store underlay rolls on end, undercover, on a flat, clean and dry surface. Keep stored materials dry, out of direct sunlight, and protected from damage and contamination at all times.

Handle materials in accordance with the manufacturer's requirements and in a manner that prevents damage to or deterioration of the product.

Do not used damaged or defective materials, or products that are beyond their designated shelf life.

Installers shall be familiar with and comply with the manufacturer's safe handling requirements and precautions for use, and shall use appropriate safety gear when handling materials.

Installers shall conform with all relevant WorkSafe NZ Guidelines and Codes of Practice - including General risk and workplace management - part 1.

8.6.16 Preparation

8.6.16.1 General

Prior to installation, carry out all necessary inspections and preparatory work required, and ensure that all preliminary works by other trades has been completed to specification and as shown on the approved drawings.

Do not commence installation until all necessary preliminary works by others is complete and to the required standard. The commencement of work shall be deemed to indicate full acceptance by the installer that all preliminary works by other trades is complete.

Supporting timber framing shall comply with NZS 3604, or with NZS 3603 and AS/NZS 1170 for specific design, and have a maximum moisture content of 20% at the time of cladding installation. Allow LOSP treated timber to sufficiently flash-off before installing Thermakraft building underlays and foils.

Supporting light structural steel framing shall comply with the requirements of AS/NZS 4600 or the NASH Standard for Residential and Low-rise Steel Framing, Part 1: Design Criteria. Comply with the light structural steel framing fabricator's specifications and requirements for fixing cladding and roofing components.

Supporting heavy steel structures shall comply with NZS 3404.

8.6.16.2 Under-Slab Basecourse

Under-Slab Basecourse - prior to laying under-slab DPM, check all aspects of preparatory works, including but not limited to:
- Check that the under-slab basecourse has been correctly laid and compacted as specified.
- Check that the surface has been properly prepared and compacted to the required standard, and is smooth and flat.
- Ensure any sand blinding is free of aggregate, sharp protrusions.
- Ensure the final surface is free of hollows and ponded water prior to laying the DPM.

8.6.16.3 Under-Slab Tidy Slab

Under-Slab Tidy Slab - prior to laying under-slab DPM, check all aspects of preparatory works, including but not limited to:
- Check that the tidy slab blinding has been laid and finished to the required standard.
- Ensure the finished tidy slab is dry and free of all loose aggregate and sharp protrusions.
- Ensure the final surface is free of hollows and ponded water prior to laying the DPM.

8.6.16.4 Wall Framing

Wall Framing - prior to wall underlay installation check all aspects of preparatory works, including but not limited to:
- Check that wall framing has been completed as shown on the drawings, complies with the relevant design and construction standards.
- Check that framing is securely fixed, true to line and plane, is plumb and level where required, and is trimmed at edges, openings and penetrations as required.
- Check that there are no projections due to structural bracing and bracketry etc.
- Check that the required clearances from ground, deck, balcony or lower roof to the bottom edge of the underlay/cladding are in accordance with NZBC E2/AS1.

8.6.16.5 Roof Structure

Roof Structure - prior to roof underlay installation check all aspects of preparatory works, including but not limited to:
- Check that the supporting purlins or battens are set-out to the required set-out and spacings, are straight and true to line and plane, and are securely fixed.
- Check that all barge and fascia boards have been installed to the correct line and plane with all edge blocking complete and secure.
- Check that valley gutter and hidden gutter framing is to the required dimensions with solid backing supports securely fixed, true to line and plane.
- Check that internal gutter membrane linings are complete, and dressed back and adhered to a solid substrate along the roof edge as shown on the approved drawings.
- Check that all trimming for roof penetrations, all roof/wall junction blocking, and all necessary work by other trades is complete.
- Check that solid sarking required for fully-supported roofing is complete and securely fixed in accordance with the approved drawings.
- Check that any required anti-ponding boards for tiled roofs have been correctly installed to a minimum 5° (1:12) fall to the eaves gutter.

8.6.17 Installation - Wall Underlay

8.6.17.1 Covertek 403 Wall Underlay

Covertek 403 Wall Underlay shall be installed, printed face out, to the exterior face of the wall framing, run horizontally, starting from the bottom edge and finishing at the top edge, extending 35mm below the bottom plate or bearer, and lapped such that any water will be shed to the outside of the underlay with minimum 150mm horizontal laps and minimum 150mm vertical joint laps made over a stud, and kept taut without sagging or bulging.

Fix at maximum 300mm centres, with 6-8mm stainless steel staples or 20mm large-head galvanised clouts or galvanised proprietary fixings. Provide additional fasteners fixed through Thermakraft Stud Strap around framed openings before cutting Covertek 403 at openings.

Cut window and door openings just prior to joinery installation; cut underlay at 45º angle away from each corner and return full framing depth and fasten to inside of frame. Install Thermakraft Corner Moulded flashings and Thermakraft Window Flashing Tape over the underlay at opening corners and along sill trimmers in accordance with Thermakraft requirements.

For drained cavity wall construction where studs are at greater than 450mm centres, install Thermakraft Stud Strap horizontally at 300mm centres to prevent bulk insulation from pushing the underlay into the cavity space.

Finish Covertek 403 Wall Underlay at edges as detailed.

Can only be used in lined applications.

Install all necessary flexible flashing tapes to openings, around pipes, ducts and other services penetrating the underlay, parapet and balustrade junctions, along head flashings and inter-storey flashings when installed, as required to seal the underlay, in accordance with Thermakraft requirements and as shown on the drawings.

8.6.17.2 Covertek 405 Wall Underlay

Covertek 405 Wall Underlay shall be installed, printed face out, to the exterior face of the wall framing, run horizontally, starting from the bottom edge and finishing at the top edge, extending 35mm below the bottom plate or bearer, and lapped such that any water will be shed to the outside of the underlay with minimum 150mm horizontal laps and minimum 150mm vertical joint laps made over a stud, and kept taut without sagging or bulging.

Fix at maximum 300mm centres, with 6-8mm stainless steel staples or 20mm large-head galvanised clouts or galvanised proprietary fixings. Provide additional fasteners fixed through Thermakraft Stud Strap around framed openings before cutting Covertek 405 at openings.

Cut window and door openings just prior to joinery installation; cut underlay at 45º angle away from each corner and return full framing depth and fasten to inside of frame. Install Thermakraft Corner Moulded flashings and Thermakraft Window Flashing Tape over the underlay at opening corners and along sill trimmers in accordance with Thermakraft requirements.

For drained cavity wall construction where studs are at greater than 450mm centres, install Thermakraft Stud Strap vertically as additional restraint mid-way between battens/studs, or horizontally at 300mm centres, to prevent bulk insulation from pushing the underlay into the cavity space.

Finish Covertek 405 underlay at edges as detailed.

Can only be used in lined applications.

Install all necessary flexible flashing tapes to openings, around pipes, ducts and other services penetrating the underlay, parapet and balustrade junctions, along head flashings and inter-storey flashings when installed, as required to seal the underlay, in accordance with Thermakraft requirements and as shown on the drawings.

8.6.17.3 Covertek 407 Wall Underlay

Covertek 407 Wall Underlay shall be installed, printed face out, to the exterior face of the wall framing, run horizontally, starting from the bottom edge and finishing at the top edge, extending 35mm below the bottom plate or bearer, and lapped such that any water will be shed to the outside of the underlay with minimum 150mm horizontal laps and minimum 150mm vertical joint laps made over a stud, and kept taut without sagging or bulging.

Fix at maximum 300mm centres, with 6-8mm stainless steel staples or 20mm large-head galvanised clouts or galvanised proprietary fixings. Provide additional fasteners fixed through Thermakraft Stud Strap around framed openings before cutting Covertek 407 at openings.

Cut window and door openings just prior to joinery installation; cut underlay at 45º angle away from each corner and return full framing depth and fasten to inside of frame. Install Thermakraft Corner Moulded flashings and Thermakraft Window Flashing Tape over the underlay at opening corners and along sill trimmers in accordance with Thermakraft requirements.

For drained cavity wall construction where studs are at greater than 450mm centres, install Thermakraft Stud Strap horizontally at 300mm centres to prevent bulk insulation from pushing the underlay into the cavity space.

Finish Covertek 407 underlay at edges as detailed.

Can only be used in lined applications.

Install all necessary flexible flashing tapes to openings, around pipes, ducts and other services penetrating the underlay, parapet and balustrade junctions, along head flashings and inter-storey flashings when installed, as required to seal the underlay, in accordance with Thermakraft requirements and as shown on the drawings.

8.6.17.4 Thermakraft 220 Wall Underlay

Thermakraft 220 Wall Underlay shall be installed, printed face out, to the exterior face of the wall framing, run horizontally, starting from the bottom edge and finishing at the top edge, extending 35mm below the bottom plate or bearer, and lapped such that any water will be

shed to the outside of the underlay with minimum 150mm horizontal laps and minimum 150mm vertical joint laps made over a stud, and kept taut without sagging or bulging.

Fix at maximum 300mm centres, with 6-8mm stainless steel staples or 20mm large-head galvanised clouts or galvanised proprietary fixings. Provide additional fasteners fixed through Thermakraft Stud Strap around framed openings before cutting Thermakraft 220 at openings.

Cut window and door openings just prior to joinery installation; cut underlay at 45º angle away from each corner and return full framing depth and fasten to inside of frame. Install Thermakraft Corner Moulded flashings and Thermakraft Window Flashing Tape over the underlay at opening corners and along sill trimmers in accordance with Thermakraft requirements.

For drained cavity wall construction where studs are at greater than 450mm centres, install Thermakraft Stud Strap horizontally at 300mm centres to prevent bulk insulation from pushing the underlay into the cavity space.

Finish Thermakraft 220 underlay at edges as detailed.

Can only be used in lined applications.

Install all necessary flexible flashing tapes to openings, around pipes, ducts and other services penetrating the underlay, parapet and balustrade junctions, along head flashings and inter-storey flashings when installed, as required to seal the underlay, in accordance with Thermakraft requirements and as shown on the drawings.

8.6.17.5 Watergate Plus Wall Underlay

Watergate Plus Wall Underlay shall be installed, printed face out, to the exterior face of the wall framing, run horizontally, starting from the bottom edge and finishing at the top edge, extending 35mm below the bottom plate or bearer, and lapped such that any water will be shed to the outside of the underlay with minimum 150mm horizontal laps and minimum 150mm vertical joint laps made over a stud, and kept taut without sagging or bulging.

Fix at maximum 300mm centres, with 6-8mm stainless steel staples or 20mm large-head galvanised clouts or galvanised proprietary fixings. Provide additional fasteners fixed through Thermakraft Stud Strap around framed openings before cutting Watergate Plus at openings.

Cut window and door openings just prior to joinery installation; cut underlay at 45º angle away from each corner and return full framing depth and fasten to inside of frame. Install Thermakraft Corner Moulded flashings and Thermakraft Window Flashing Tape over the underlay at opening corners and along sill trimmers in accordance with Thermakraft requirements.

For drained cavity wall construction where studs are at greater than 450mm centres, install Thermakraft Stud Strap horizontally at 300mm centres to prevent bulk insulation from pushing the underlay into the cavity space.

Finish Watergate Plus underlay at edges as detailed.

Can only be used in lined applications.

Install all necessary flexible flashing tapes to openings, around pipes, ducts and other services penetrating the underlay, parapet and balustrade junctions, along head flashings and inter-storey flashings when installed, as required to seal the underlay, in accordance with Thermakraft requirements and as shown on the drawings.

8.6.17.6 Thermabar 344- reinforced aluminium foil underlay

Thermabar 344 shall be installed to the wall framing, white face out, as shown on the drawings, run vertically from the top plate/girt downwards to the bottom plate/girt, with minimum 150mm vertical laps and minimum 150mm horizontal joint laps made over a dwang/girt, and kept taut without sagging or bulging.

Fix at maximum 300mm centres, with 6-8mm stainless steel staples or 20mm large-head galvanised clouts, screws, or galvanised proprietary fixings. Provide additional fasteners fixed through Thermakraft Stud Strap around framed openings before cutting Thermabar 344 at openings.

Cut window and door openings just prior to joinery installation; cut underlay at 45º angle away from each corner and return full framing depth and fasten to inside of frame.

Finish Thermabar 344 foil insulation at edges and corners as detailed.

When installed as a vapour barrier, seal all laps and edges, and all pipes and ducts etc. penetrating the vapour barrier, with Thermakraft Pure Foil Tape 403F in accordance with Thermakraft requirements.

As aluminum based foils have the potential to conduct electricity, care must be taken when installing foils to ensure that there is no possible contact with any electrical cabling or installations. Foils are not suitable for installation in residential or associated buildings.

Take all necessary care to ensure no contact with electrical cords, cables or fittings - 100mm minimum clearance is recommended - is made during installation of foil insulation.

8.6.17.7 Thermabar 397 - synthetic foil underlay

Thermabar 397, light diffusing foil underlay shall be installed to the wall framing as shown on the drawings, run vertically from the top plate/girt downwards to the bottom plate/girt, with minimum 150mm vertical laps and minimum 150mm horizontal joint laps made over a dwang/girt, and kept taut without sagging or bulging.

Fix at maximum 300mm centres, with 6-8mm stainless steel staples or 20mm large-head galvanised clouts, screws, or galvanised proprietary fixings. Provide additional fasteners fixed through Thermakraft Stud Strap around framed openings before cutting Thermabar 397 at openings.

Cut window and door openings just prior to joinery installation; cut underlay at 45º angle away from each corner and return full framing depth and fasten to inside of frame.

Finish Thermabar 397 at edges and corners as detailed.

When installed as a vapour barrier, seal all laps and edges, and all pipes and ducts etc. penetrating the vapour barrier, with Thermakraft White General Purpose Tape in accordance with Thermakraft requirements.

Take all necessary care to ensure no contact with electrical cords, cables or fittings - 100mm minimum clearance is recommended - is made during installation of foil insulation.

8.6.17.8 Aluband Window Flashing Tape

Install Aluband Window Flashing Tape in accordance with the manufacturer's requirements, to the locations and details shown on the approved drawings.

Window Sills:
- Fit Thermakraft Corner Moulded Piece to the bottom corners of the opening.
- Cut Aluband Window Flashing Tape to the length of the sill trimmer plus an additional 400mm.
- Apply the tape over the underlay along the sill trimmer, with the back edge flush with the inside edge of the framing, and returned minimum 200mm up both trimming studs.
- Fold the tape minimum 50mm over the face of the underlay on the outside of the opening.
- Press the tape firmly in place over the underlay to ensure a continuous weathertight seal is maintained.

Window & Door Lintels:
- Install Aluband Window Flashing Tape to the top corners of framed window and door openings, over the underlay and 200mm along the lintel and 200mm down the trimming stud, with the back edge flush with the inside edge of the framing.
- Fold the tape minimum 50mm over the face of the underlay on the outside of the opening.
- Press firmly in place over the underlay to ensure a weathertight seal.
- Apply a 100mm strip of Aluband Window Flashing Tape at 45° over the taped outside face of each corner.

Avoid joining Aluband Window Flashing Tape. Where necessary, form joins with minimum 100mm overlap, keep any required joining to an absolute minimum.

Do not over-stretch tape during installation, and ensure adequate adhesion and weathertightness is maintained against the underlay.

Do not leave Aluband Window Flashing Tape exposed to weather and UV light for more than 42 days after installation - replace with new window flashing tape if 42 day's exposure is exceeded.

8.6.17.9 Thermaflash Window Flashing Tape

Thermaflash Window Flashing Tape in accordance with the manufacturer's requirements, to the locations and details shown on the approved drawings.

Window Sills:
- Fit Thermakraft Corner Moulded Piece to the bottom corners of the opening.
- Cut Thermaflash Window Flashing Tape to the length of the sill trimmer plus an additional 400mm.
- Apply the tape over the underlay along the sill trimmer, with the back edge flush with the inside edge of the framing, and returned minimum 200mm up both trimming studs.
- Fold the tape minimum 50mm over the face of the underlay on the outside of the opening.
- Press the tape firmly in place over the underlay to ensure a continuous weathertight seal is maintained.

Window & Door Lintels:
- Install Thermaflash Window Flashing Tape to the top corners of framed window and door openings, over the underlay and 200mm along the lintel and 200mm down the trimming stud, with the back edge flush with the inside edge of the framing.
- Fold the tape minimum 50mm over the face of the underlay on the outside of the opening.
- Press firmly in place over the underlay to ensure a weathertight seal.
- Apply a 100mm strip of Thermaflash Window Flashing Tape at 45° over the taped outside face of each corner.

Avoid joining Thermaflash Window Flashing Tape. Where necessary, form joins with minimum 100mm overlap, keep any required joining to an absolute minimum.

Do not over-stretch tape during installation, and ensure adequate adhesion and weathertightness is maintained against the underlay.

Do not leave Thermaflash Window Flashing Tape exposed to weather and UV light for more than 180 days after installation - replace with new window flashing tape if 180 day's exposure is exceeded.

8.6.17.10 Thermakraft Premium Joining Tape

Thermakraft Premium Joining Tape, in accordance with the manufacturer's requirements, to the locations and details shown on the approved drawings.

Thermakraft Premium Joining Tape must be handled with care to prevent damage such as tearing, excessive puncture and roll deformation. The product must be stored under cover well away from direct moisture, rainfall contact and sunlight (UV). Care should be taken not stack other materials on top of the product

Apply the Thermakraft Premium Joining Tape just before the installation of the external cladding. This will reduce the chance of overexposing the tape to UV and strong wind undoing the tape as the underlay flexes heavily. Note, the maximum UV or weather exposure for Thermakraft Premium Joining Tape is 180 days.

Ensure the underlay has a minimum lap space of 150mm
Always ensure Thermakraft Premium Joining Tape is applied to surfaces that are clean and free of dust, contaminates, solvents, oil or waxes
Peel off the release liner from the Thermakraft Premium Joining Tape.

Firmly press Thermakraft Premium Joining Tape down and peel off more release liner from the tape as needed. Do not stretch or pull the tape at any point during the installation.
Lap join distance between Thermakraft Premium Joining Tape must be minimum 50mm.
For rigid sheathing or rigid underlay application, always check the compatibility of Thermakraft Premium Joining Tape with the substrate manufacturer before mass installation.
Note: Tape damages due to installation or site activities must be repaired by applying a second layer over the damaged area. Lap join distance is minimum 50mm.

Thermakraft Premium Joining Tape must be handled with care to prevent damage such as tearing, excessive puncture and roll deformation. The product must be stored under cover well away from

8.6.18 Installation - Roof Underlay

8.6.18.1 Covertek 215 - synthetic roof underlay

Covertek 215 Roof Underlay shall be installed without additional support on roofs with slopes 10° or greater, provided the span between supports does not exceed 1200mm. Lay the underlay horizontally across the roof slope, over rafters or purlins, starting at the gutter or lowest point and progressing upwards to the ridge. Extend no more than 20mm into gutters. Provide a minimum 150mm shiplap at side and end laps, ensuring all laps are formed to shed water to the exterior. The underlay must be installed tight and without creases or sagging, with fasteners “capturing” the underlay at each purlin to prevent downward slippage.

Fix Covertek 215 at maximum 300mm centres to timber framing using 8–12mm stainless steel staples, 20mm large-head galvanised clouts, proprietary galvanised underlay fixings, or self-drilling wafer-head screws. For steel-framed buildings, refer to the NZ Metal Roof and Wall Cladding Code of Practice for appropriate fixing methods.

Where the span exceeds 1200mm or where roof pitch is between 3° and 10°, additional underlay support must be provided using AUSMESH Roof Safety Mesh, AUSNET hexagonal netting, or Thermastrap, as recommended by Kingspan Thermakraft. Horizontal installation must not be used where purlin spacing exceeds 1200mm.

For concrete or pressed metal tile roofs, install Covertek 215 over rafters and over anti-ponding boards in accordance with NZBC E2/AS1. Fix at maximum 300mm centres before tile battens are installed. Allow the underlay to drape no more than 20mm into the gutter.

Complete all roof edge, ridge, valley, and penetration detailing in accordance with the Thermakraft Covertek 215 Installation Guide and the NZ Metal Roof and Wall Cladding Code of Practice. For penetrations, cut the underlay at 45° from each corner and lap-tape around upstands and ducts using Thermakraft Premium Joining Tape, White General Purpose Tape, or Aluband (note: Aluband must not be used near polybutene piping). Maintain a minimum clearance of 50mm to the outer liner of flue penetrations.

Can only be used in lined applications

Covertek 215 can only be used in lined applications. It provides temporary weather protection for a maximum of 7 days and should be covered with roofing as soon as practicable.

8.6.18.2 Covertek 401 - synthetic roof underlay

Covertek 401 Roof Underlay shall be installed without support on roofs with slopes 10° or greater (unless specified otherwise), run horizontally across the roof slope and over the purlins, starting from the gutter/lowest point up to the ridge/highest point, extending maximum 20mm into gutters, with minimum 150mm side and end laps, lapped such that any water will be shed to the outside of the underlay, and sufficiently tensioned without sagging.

Fix at maximum 300mm centres to purlins, with 6-8mm stainless steel staples, or 20mm long large-head galvanised clouts, or galvanised proprietary underlay fixings, or self-drilling wafer head screws.

For tiled roofs, lay Covertek 401 underlay over the anti-ponding board and rafters/trusses, and fix at maximum 300mm centres to the rafters/trusses before the tile battens are installed.

Can only be used in lined applications

Finish Covertek 401 underlay along roof edges and junctions, valley gutters, and at the ridge as shown on the drawings. Carefully cut underlay at roof openings at 45º angle away from each corner and lap-tape closed to framed up-stands, ducts and other services penetrating the underlay in accordance with Thermakraft requirements and as detailed. Leave underlay minimum 50mm distance clear of the outer liner of flue stacks.

8.6.18.3 Covertek 403 - synthetic roof underlay

Covertek 403 synthetic underlay shall be installed over the specified support netting/strapping, run horizontally across the roof slope and over the purlins, starting from the gutter/lowest point up to the ridge/highest point, extending maximum 20mm into gutters, with minimum 150mm side and end laps, lapped such that any water will be shed to the outside of the underlay, and sufficiently tensioned without sagging.

Fix at maximum 300mm centres to purlins, with 8-2mm stainless steel staples or 20mm large-head galvanised clouts or galvanised proprietary grippers.

For tiled roofs, lay Covertek 403 synthetic underlay over the anti-ponding board and specified support netting/strapping, and fix at maximum 300mm centres to the rafters/trusses before the tile battens are installed.

Can only be used in lined applications

Finish Covertek 403 synthetic underlay along roof edges and junctions, valley gutters, and at the ridge as shown on the drawings. Carefully cut underlay at roof openings at 45º angle away from each corner and lap-tape closed to framed up-stands, ducts and other services penetrating the underlay in accordance with Thermakraft requirements and as detailed. Leave underlay minimum 50mm distance clear of the outer liner of flue stacks.

8.6.18.4 Covertek 405 - synthetic roof underlay

Covertek 405 underlay shall be installed without support on roofs with slopes 10° or greater (unless specified otherwise), run horizontally across the roof slope and over the purlins, starting from the gutter/lowest point up to the ridge/highest point, extending maximum 20mm

into gutters, with minimum 150mm side and end laps, lapped such that any water will be shed to the outside of the underlay, and sufficiently tensioned without sagging.

Fix at maximum 300mm centres to purlins, with 8-12mm stainless steel staples or 20mm large-head galvanised clouts or galvanised proprietary grippers.

For tiled roofs, lay Covertek 405 underlay over the anti-ponding board and rafters/trusses, and fix at maximum 300mm centres to the rafters/trusses before the tile battens are installed.

Can only be used in lined applications

Finish Covertek 405 underlay along roof edges and junctions, valley gutters, and at the ridge as shown on the drawings. Carefully cut underlay at roof openings at 45º angle away from each corner and lap-tape closed to framed up-stands, ducts and other services penetrating the underlay in accordance with Thermakraft requirements and as detailed. Leave underlay minimum 50mm distance clear of the outer liner of flue stacks.

8.6.18.5 Covertek 407 - synthetic roof underlay

Covertek 407 synthetic roof underlay shall be installed without support on roofs with slopes 10° or greater (unless specified otherwise), run horizontally across the roof slope and over the purlins, starting from the gutter/lowest point up to the ridge/highest point, extending maximum 20mm into gutters, with minimum 150mm side and end laps, lapped such that any water will be shed to the outside of the underlay, and sufficiently tensioned without sagging.

Fix at maximum 300mm centres to purlins, with 8-12mm stainless steel staples or 20mm large-head galvanised clouts or galvanised proprietary grippers.

For tiled roofs, lay Covertek 407 underlay over the anti-ponding board and rafters/trusses, and fix at maximum 300mm centres to the rafters/trusses before the tile battens are installed.

Can only be used in lined applications

Finish Covertek 407 underlay along roof edges and junctions, valley gutters, and at the ridge as shown on the drawings. Carefully cut underlay at roof openings at 45º angle away from each corner and lap-tape closed to framed up-stands, ducts and other services penetrating the underlay in accordance with Thermakraft requirements and as detailed. Leave underlay minimum 50mm distance clear of the outer liner of flue stacks.

8.6.18.6 Thermabar 344 - foil underlay

Thermabar 344 shall be installed silver or white face down, over the specified support netting/strapping, run horizontally or vertically over the purlins, starting from the gutter/lowest point up to the ridge/highest point, extending maximum 20mm into gutters, with minimum 150mm side and end laps, lapped such that any water will be shed to the outside of the underlay, and sufficiently tensioned without sagging.

Fix at maximum 300mm centres to purlins for direct fix roof cladding, or firmly secure as show on the drawings if overlaid with battens.

Finish Thermabar 344 along roof edges and junctions, valley gutters, and at the ridge as shown on the drawings. Carefully cut underlay at roof openings at 45º angle away from each corner and lap-tape closed to framed up-stands in accordance with Thermakraft requirements and as detailed. Leave underlay minimum 50mm distance clear of the outer liner of flue stacks.

When installed as a vapour barrier, seal all laps and edges, and all pipes and ducts etc. penetrating the vapour barrier, with Kingspan Air Cell Insulation tape or Thermakraft White General Purpose Tape in accordance with Thermakraft requirements.

As aluminum based foils have the potential to conduct electricity, care must be taken when installing foils to ensure that there is no possible contact with any electrical cabling or installations. Foils are not suitable for installation in residential or associated buildings.

Take all necessary care to ensure no contact with electrical cords, cables or fittings - 100mm minimum clearance is recommended - is made during installation of foil insulation.

8.6.18.7 Thermabar 397 - foil underlay

Thermabar 397 light diffusing foil underlay shall be installed, white face down, over the specified support netting/strapping, run horizontally or vertically over the purlins, starting from the gutter/lowest point up to the ridge/highest point, extending maximum 20mm into gutters, with minimum 150mm side and end laps, lapped such that any water will be shed to the outside of the underlay, and sufficiently tensioned without sagging.

Fix at maximum 300mm centres to purlins for direct fix roof cladding, or firmly secure as show on the drawings if overlaid with battens.

Finish Thermabar 397 along roof edges and junctions, valley gutters, and at the ridge as shown on the drawings. Carefully cut underlay at roof openings at 45º angle away from each corner and lap-tape closed to framed up-stands in accordance with Thermakraft requirements and as detailed. Leave underlay minimum 50mm distance clear of the outer liner of flue stacks.

When installed as a vapour barrier, seal all laps and edges, and all pipes and ducts etc. penetrating the vapour barrier, with Thermakraft General Purpose White Tape in accordance with Thermakraft requirements.

Take all necessary care to ensure no contact with electrical cords, cables or fittings - 100mm minimum clearance is recommended - is made during installation of foil insulation.

8.6.19 Completion

Check that all underlays have been installed correctly and are properly supported, and that all underlay edges, joins and ends are correctly finished prior to closing off with claddings - all in accordance with Thermakraft installation requirements.

Check installed membranes and underlays for defective work and damage - replace and/or repair as necessary to the required standard.

Leave all of this work complete, and free of defects, and to the required standard in accordance with the manufacturer's warranty requirements.

Issue to the Owner a copy of the Thermakraft maintenance requirements and the Thermakraft product warranties for the installed products.

8.7 GIB® Intertenancy Barrier Systems for Terrace Homes

8.7.1 Scope

Supply and install the specified GIB® Intertenancy Barrier Systems for Terrace Homes to the locations identified on the drawings, incorporating GIB Barrierline® central barrier and all system components and accessories required for proper installation and performance. All aspects of this work shall be in complete accordance with the GIB® Intertenancy Barrier Systems for Terrace Homes Specification and Installation Manual and the current GIB® Site Guide (check www.gib.co.nz, or call 0800 100 442 for the latest editions), BRANZ Appraisal No.940, other relevant product manufacturers' recommendations, and as shown on the drawings.

No substitutions are permitted for GIB® Intertenancy Barrier Systems for Terrace Homes, GIB® Plasterboard Linings, GIB® Systems or GIB® System components and accessories.

This specification section must be read in conjunction with the GIB® Plasterboard Linings specification and other specification sections, as they are interrelated.

For the purpose of this specification, the GIB® Intertenancy Barrier System for Terrace Homes Specification and Installation Manual has been abbreviated to 'GIB® Intertenancy Manual'..

8.7.2 Requirements

8.7.2.1 Safety

Comply with the Health and Safety at Work Act 2015 (HSWA), and with all relevant Health and Safety at Work Regulations 2016, and with all relevant WorkSafe New Zealand (WorkSafe) Approved Codes of Practice and WorkSafe Information and Guidance, particularly those for construction and building maintenance.

8.7.2.2 Warranty

GIB® Product & System Warranty:

- 10 Years Warranty - for all GIB® Products and Systems installed, according to warranty conditions.
- Provide the GIB® Product & System Warranty on the manufacturer's standard warranty form.
- Commence the warranty from the date of practical completion of the contract works.

Include with the warranty: a copy of the completed GIB® Installation Sign-Off sheet, and the GIB® Plasterboard Lining Systems Care and Maintenance bulletin.

8.7.2.3 Piped & Cabled Services

GIB® Intertenancy Barrier Systems for Terrace Homes allow installation of piped and cable services in the cavities either side of the central barrier. Refer to page 9 of the GIB® Intertenancy Manual for further information.

Only where shown and specified on the approved drawings shall penetrations be made through the GIB Barrierline® central barrier within a roof space and fire-sealed to the specified fire resistance rating. Do not permit piped or cabled services to penetrate the GIB Barrierline® central barrier under any circumstances unless clearly shown and specified on the approved drawings, or without prior written approval from the Architect/Designer.

8.7.2.4 Exposure to Elements

The construction programme must ensure that the GIB Barrierline® central barrier is left exposed to the elements for as short a time as possible. Take all necessary precautions to protect the erected central barrier from exposure to moisture and adverse weather conditions.

Once installed and in a vertical orientation, GIB Barrierline® plasterboard can be exposed to the elements for up to 12 weeks before the building is closed in.

Once installed and in a vertical orientation, 16mm GIB Fyreline® plasterboard can be exposed to the elements for up to 4 weeks before the building is closed in.

GIB® plasterboard linings must not be exposed to water or be installed in situations where extended exposure to humidity above 90% RH can reasonably be expected. GIB® plasterboard linings must not be exposed to temperatures in excess of 52°C for prolonged periods.

8.7.2.5 Quality Assurance

Ensure that the installation and finishing of GIB® Intertenancy Barrier Systems for Terrace Homes comply in all respects with the approved design drawings and specifications, and Building Consent.

Maintain and comply with industry-recognised quality control and assurance procedures to ensure that all stages of work are carried out to the highest standard.

8.7.2.6 Inspection & Acceptance of GIB® Intertenancy Barrier Systems for Terrace Homes

Carry out all necessary pre-installation, installation and finishing inspections necessary for GIB® Intertenancy Barrier Systems for Terrace Homes for each area of work in accordance with the requirements of the GIB® Intertenancy Manual, GIB® Site Guide, GIB® Systems literature.

Complete the GIB® Site Guide Pre-Installation Checklist prior to installing plasterboard linings, and relevant GIB® Performance Systems Installation Checklists.

Complete the GIB® Plasterer/Stopper Installation Sign-Off Certificate upon completion and before handover for subsequent decoration.

8.7.2.7 Defective Materials & Work

Should defective materials and/or work be found at any time before the final acceptance of the work, it shall be rejected. Rejected GIB® Intertenancy Barrier Systems for Terrace Homes materials and/or work shall be repaired and/or replaced to the satisfaction of the Architect/Designer, without delay and at no additional cost to the Principal.

8.7.2.8 Substitution of GIB® Plasterboard Linings

GIB® plasterboard linings shall be as specified herein and as indicated on the approved drawings. The substitution of GIB® branded plasterboard linings and other GIB® System components for alternative brands is not permitted under any circumstances.

The substitution of a specified GIB® plasterboard lining for an alternative GIB® plasterboard lining by the Contractor shall be in strict accordance with the requirements of the GIB® Site Guide: 2.3 - Board Substitution Options, and relevant GIB® Systems literature. Such substitutions shall only be permitted with the Architect's/Designer's written authorisation, and shall be at no additional cost to the Principal. Should any resultant extra work and/or redesign work be required to accommodate alternative GIB® Plasterboard Linings to satisfy design, performance and compliance requirements, then the cost of these shall be borne by the Contractor.

8.7.3 Performance

8.7.3.1 Bracing Performance

Bracing Performance - GIB EzyBrace® Systems. To the timber framed elements noted as 'Bracing' on the drawings, additionally comply with all relevant aspects of the GIB EzyBrace® Systems (2016) publication and GIB Ezybrace® Bracing Software according to the specified bracing unit rating, BRANZ Appraisal No.928 (2016), and other relevant product manufacturers' recommendations. Refer to separate specification GIB EzyBrace® Systems.

8.7.3.2 Fire Rating Performance

Fire Rating Performance - GIB® Fire Rated Systems. To the areas noted as 'Fire-rated' on the drawings, additionally comply with all relevant aspects of the latest GIB® Fire Rated Systems (2018) publication according to the specified fire resistance rating (FRR), BRANZ Appraisal No.289 (2018), and other relevant product manufacturers' recommendations. Refer to separate specification GIB® Fire Rated Systems.

8.7.3.3 Sound Insulation Performance

Sound Insulation Performance - GIB® Noise Control Systems. To the areas noted as 'Sound-rated' on the drawings, additionally comply with all relevant aspects of the GIB® Noise Control Systems (2017) publication according to the specified sound transmission class (STC) rating, BRANZ Appraisal No.394 (2017), and other relevant product manufacturers' recommendations. Refer to separate specification GIB® Noise Control Systems.

8.7.3.4 Wet Areas

Wet Area Plasterboard Linings - GIB Aqualine® Wet Area Systems. To the areas noted as 'Wet Area' on the drawings, additionally comply with all relevant aspects of the latest GIB Aqualine® Wet Area Systems publication, BRANZ Appraisal No.427 (2007), and other relevant product manufacturers' recommendations. Refer to separate specification GIB Aqualine® Wet Area Systems.

8.7.4 GIB® Intertenancy Barrier System

8.7.4.1 GBTLAB 60b

GIB® Intertenancy Barrier System for Terrace Homes - GBTLAB 60b. Refer to the GIB® Intertenancy Manual.

8.7.5 System Components

8.7.5.1 System Components

System Components, including, but not limited to:
- GIB Barrierline®;
- 16mm GIB Fyreline®;
- GIB® H-Stud;
- GIB® Rondo® 140 Perimeter Channel;
- GIB® Wall Clip;
- GIB® Wall Strap;
- Timber framing;
- Wall cavity insulation;
- Fire stopping consisting of treated timber battens or mineral wool cavity insulation;
- GIB® plasterboard wall linings;
- Fasteners.

Refer to pages 10-11 of the GIB® Intertenancy Manual for further information.

8.7.6 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings.

Coordinate with other trades to install GIB® Intertenancy Barrier Systems for Terrace Homes to the required layout and standard, and to ensure:
- the clear distance between the GIB Barrierline® central barrier and wall framing on both sides is between 25-40mm.
- the appropriate tolerances and clearances allow for correct installation of the central barrier, mineral wool cavity insulation; and
- any building services located within the wall cavities are correclty installed to maintain the integrity and performance of the system; and
- when installed and in a vertical orientation, GIB Barrierline® is not exposed to the elements for more than 12 weeks before the building is closed in; and
- when installed and in a vertical orientation, 16mm GIB Fyreline® is not exposed to the elements for more than 4 weeks before the building is closed in.

Refer to the GIB® Intertenancy Manual for further information.

8.7.7 Workmanship

Where required by the NZ Building Act 2004, it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner.

Installation of GIB® Intertenancy Barrier Systems for Terrace Homes shall be carried out by experienced and competent tradespersons, who are familiar with the specified materials and installation techniques, in accordance with the manufacturer's installation requirements, and to fully comply with all warranty requirements. Submit evidence of experience on request, e.g. National Certificate of Interior Systems, or Certified Business Member of AWCINZ.

Carry out all necessary installation inspections in accordance with the GIB® Site Guide, and to fully comply with the manufacturer's warranty requirements as the works progress.

All cutting, jointing, fixing and sealing techniques shall be exactly as recommended by the manufacturer. All work shall be such as to leave a neat, efficient and robust installation, to the required standard, free from damage and defects.

Make all necessary provisions to protect adjacent work and surfaces from damage during installation.

8.7.8 Delivery & Handling

GIB Barrierline® has a water and mould resistant core. Despite this it is important to remember that paper-faced gypsum plasterboard should only be handled when dry. Therefore GIB Barrierline® and GIB Fyreline® must be kept dry after delivery and before installation. All GIB Barrierline® and GIB Fyreline® pallets shall be delivered with waterproof covers fitted.

Once installed and in a vertical orientation, GIB Barrierline® plasterboard can be exposed to the elements for up to 12 weeks before the building is closed in.
Once installed and in a vertical orientation, 16mm GIB Fyreline® plasterboard can be exposed to the elements for up to 4 weeks before the building is closed in.

Store all GIB® plasterboard ceiling and wall linings and system components indoors, off the floor, on a flat, level surface in accordance with the manufacturer's requirements. Keep stored plasterboard linings and system accessories dry, out of direct sunlight, and protected from damage, moisture and contamination at all times.

Do not use damaged or defective materials and products, or products that are beyond the designated shelf life.

Should a problem be encountered with any GIB® product during installation or delivery, immediately contact the GIB® Helpline on 0800 100 442. Do not continue to use the product that is not performing to specification or expectation. Keep samples of the product in question and where possible, document batch numbers and/or manufacturing dates.

Handle all materials in accordance with the manufacturer's requirements and relevant Product Data Sheets, and in a manner that prevents damage.

Installers shall be familiar with and comply with the manufacturer's Material Safety Data Sheet precautions for use, and use appropriate safety gear when handling materials. Carry plasterboard sheets on edge, and avoid damage to sheet edges, ends, and surfaces.

Installers shall conform with all relevant WorkSafe NZ Guidelines and Codes of Practice - including General risk and workplace management - part 1.

8.7.9 Preparation

Carry out all necessary inspections and preparatory work to the supporting elements in accordance with the GIB® Site Guide prior to installation.

Check that all preliminary and preparatory building works have been completed to specification and as shown on the drawings.

Supporting elements and substrates for plasterboard wall linings shall be at least to the requirements of AS/NZS 2589.

Supporting timber framing shall comply with NZS 3604, or with NZS 3603 and AS/NZS 1170 for specific design, and have a maximum moisture content 18% at the time of installation of plasterboard linings.

Supporting concrete structures shall comply with NZS 3109, and new concrete must have aged for a minimum of 28 days prior to installation.

Supporting steel structures shall comply with NZS 3404.

The building must be fully enclosed, weathertight and suitably dry before installation of internal GIB® plasterboard ceiling and wall linings commences.

Confirm the location and details of movement control joints, as indicated on the drawings, prior to installation.

The commencement of work on each section/area shall be deemed to indicate full acceptance by the installer that all preparatory works by other trades is complete.

8.8 GIB® Plasterboard Linings

8.8.1 Scope

Supply and install GIB® Plasterboard Linings specified herein, as sheet lining materials to the walls, ceilings and other elements identified on the drawings, complete with all accessories required for proper installation, finishing and performance. All aspects of this work shall be in complete accordance with the current GIB® Site Guide and relevant GIB® Systems literature (check www.gib.co.nz, or call 0800 100 442 for the latest editions), and other relevant product manufacturers' recommendations.

No substitutions are permitted for GIB® Plasterboard Linings, GIB® Systems or GIB® System components and accessories.

This specification must be read in conjunction with relevant GIB® Systems specifications - GIB® EzyBrace® Systems, GIB® Fire Rated Systems, GIB® Noise Control Systems, GIB® Aqualine® Wet Area Systems, GIB® X-Block® Systems, GIB® Quietline®, GIB® Intertenancy Barrier System, and GIB® Rondo® Metal Batten Systems - and other specifications sections, as they are interrelated

8.8.2 Requirements

8.8.2.1 Safety

Comply with the Health and Safety at Work Act 2015 (HSWA), and with all relevant Health and Safety at Work Regulations 2016, and with all relevant WorkSafe New Zealand (WorkSafe) Approved Codes of Practice and WorkSafe Information and Guidance, particularly those for construction and building maintenance.

8.8.2.2 Warranty

GIB® Product & System Warranty:

GIB Systems Durability.
The following systems have, unless stated otherwise in GIB® technical literature, a serviceability life in excess of that stated and satisfy the requirements of NZBC Clause B2 Durability:
15 Years:
- GIB Aqualine® Wet Area Systems.

50 Years:
- GIB® Fire Rated Systems
- GIB EzyBrace® Systems
- GIB X-Block® Systems
- GIB Noise Control® Systems.

Provide the GIB® Product & System Warranty on the manufacturer's standard warranty form. Commence the warranty from the date of practical completion of the contract works.

Include with the warranty: a copy of the completed GIB® Installation Sign-Off sheet, and the GIB® Plasterboard Lining Systems Care and Maintenance bulletin.

8.8.2.3 AWCI Membership

Installation of GIB® Plasterboard Linings and associated GIB® Systems shall be carried out by a registered member of the Association of Wall and Ceiling Industries of New Zealand Inc. (AWCI). If not already provided and if requested, submit evidence of AWCI membership and relevant experience.

8.8.2.4 Quality Assurance

Ensure that the installation and finishing of GIB® Plasterboard Linings and associated GIB® Systems comply in all respects with the approved design drawings and specifications, and Building Consent.

Maintain and comply with industry-recognised quality control and assurance procedures to ensure that all stages of work are carried out to the highest standard.

8.8.2.5 Inspection & Acceptance of GIB® Plasterboard Linings

Carry out all necessary pre-installation, installation and finishing inspections of GIB® Plasterboard Linings for each area of work in accordance with the requirements of the GIB® Site Guide and associated industry Code of Practice (AWCI) recommendations.

Complete the GIB® Site Guide Pre-Installation Checklist prior to installing GIB® plasterboard linings, and relevant GIB® Performance Systems Installation Checklists.

Complete the GIB® Interior Plasterer/Stopper Installation Sign-Off Certificate upon completion and before handover for subsequent decoration.

8.8.2.6 Defective Materials & Work

Should defective materials and/or work be found at any time before the final acceptance of the work, it shall be rejected. Rejected GIB® Plasterboard Linings and GIB® Systems materials and work shall be repaired and/or replaced to the satisfaction of the Architect/Designer, without delay and at no additional cost to the Principal.

8.8.2.7 Producer Statement (other manufacturer's system)

Producer Statement PS1 - where required. Where GIB® Plasterboard Linings are installed as a component of another manufacturer's proprietary system, the system manufacturer shall furnish a completed Producer Statement PS1 (Design) as confirmation that the specified proprietary system as designed and documented complies with the relevant clauses of the New Zealand Building Code. The PS1 Producer Statement shall not serve as a product warranty or guarantee of compliance.

8.8.2.8 Substitution of GIB® Plasterboard Linings

GIB® plasterboard linings shall be as specified herein and as indicated on the approved drawings. The substitution of GIB® branded plasterboard linings and GIB® System components for alternative brands is not permitted under any circumstances.

The substitution of a specified GIB® plasterboard lining for an alternative GIB® plasterboard lining by the Contractor shall be in strict accordance with the requirements of the GIB® Site Guide: 2.3 - Board Substitution Options, and relevant GIB® Systems literature. Such substitutions shall only be permitted with the Architect's/Designer's written authorisation, and shall be at no additional cost to the Principal. Should any resultant extra work and/or redesign work be required to accommodate alternative GIB® Plasterboard Linings to satisfy design, performance and compliance requirements, then the cost of these shall be borne by the Contractor.

8.8.3 Performance

8.8.3.1 Limitations of GIB® Plasterboard

GIB® plasterboard products must NOT be:
- used in external situations, or
- exposed to water or be installed in situations where extended exposure to humidity above

90% RH can reasonably be expected, or
- exposed to temperatures in excess of 52°C for prolonged periods.

8.8.3.2 Bracing Performance - Timber Framing

Bracing Performance - GIB EzyBrace® Systems - Timber Framing. To the timber framed elements noted as 'Bracing' on the drawings, additionally comply with all relevant aspects of the GIB EzyBrace® Systems (2016) publication and GIB Ezybrace® Bracing Software according to the specified bracing unit rating, BRANZ Appraisal No.928, and other relevant product manufacturers' recommendations. Refer to separate specification GIB EzyBrace® Systems.

8.8.3.3 Bracing Performance - Steel Framing

Bracing Performance - GIB EzyBrace® Systems - Steel Framing. To the steel framed elements noted as ‘Bracing’ on the drawings, additionally comply with all relevant aspects of the latest GIB Ezybrace® For Light Steel Frame Systems publication and GIB Ezybrace® Bracing Software according to the specified bracing unit rating, and other relevant product manufacturers' recommendations. Refer to separate specification GIB EzyBrace® Systems.

8.8.3.4 Fire Rating Performance

Fire Rating Performance - GIB® Fire Rated Systems. To the areas noted as 'Fire-rated' on the drawings, additionally comply with all relevant aspects of the GIB® Fire Rated Systems (2024) publication according to the specified fire resistance rating (FRR), BRANZ Appraisal No.289, and other relevant product manufacturers' recommendations. Refer to separate specification GIB® Fire Rated Systems.

8.8.3.5 Sound Insulation Performance

Sound Insulation Performance - GIB® Noise Control Systems. To the areas noted as 'Sound-rated’ on the drawings, additionally comply with all relevant aspects of the GIB® Noise Control Systems (2017) publication according to the specified sound transmission class (STC) rating, BRANZ Appraisal No.394, and other relevant product manufacturers' recommendations. Refer to separate specification GIB® Noise Control Systems.

8.8.3.6 Wet Areas

Wet Area Plasterboard Linings - GIB Aqualine® Wet Area Systems. To the areas noted as ‘Wet Area’ on the drawings, additionally comply with all relevant aspects of the GIB Aqualine® Wet Area Systems publication, BRANZ Appraisal No.427 (2021), and other relevant product manufacturers' recommendations. Refer to separate specification GIB Aqualine® Wet Area Systems.

8.8.4 GIB® Plasterboard Linings

8.8.4.1 GIB Curveline® Plasterboard, 6.5mm

GIB Curveline® | GIB® 6.5mm. A 6.5mm thick standard plasterboard interior lining, typically installed as a two layered system. Suitable for use in residential and commercial applications on walls. Can accommodate a 250mm min radius for convex curves and 450mm min radius for concave curves. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.2 GIB® Standard Plasterboard, 10mm

GIB® Standard Plasterboard, 10mm. A 10mm thick standard plasterboard interior lining. Suitable for use in residential and commercial applications on walls. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.3 GIB® Standard Plasterboard, 13mm

GIB® Standard Plasterboard, 13mm. A 13mm thick standard plasterboard interior lining. Suitable for use in residential and commercial applications on walls and ceilings. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.4 GIB Wideline®, 10mm

GIB Wideline®, 10mm. A 10mm thick x 1350mm wide standard plasterboard interior lining. Suitable for use in residential and commercial applications on walls. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.5 GIB Wideline®, 13mm

GIB Wideline®, 13mm. A 13mm thick x 1350mm wide standard plasterboard interior lining. Suitable for use in residential and commercial applications on walls and ceilings. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.6 GIB Toughline®

GIB Toughline®. A 13mm thick high performance plasterboard interior lining, with a high-density core reinforced with an embedded fibreglass mesh. Suitable for use in residential and commercial applications on walls and ceilings in high traffic spaces where improved impact resistance is required. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.7 GIB Braceline® & GIB Noiseline®, 10mm

GIB Braceline® & GIB Noiseline®, 10mm. A 10mm thick dual purpose plasterboard interior lining, with a high-density core for extra bracing and noise control performance. Suitable for use in residential and commercial applications on walls and ceilings where increased bracing and noise control performance is required. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.8 GIB Braceline® & GIB Noiseline®, 13mm

GIB Braceline® & GIB Noiseline®, 13mm. A 13mm thick dual purpose plasterboard interior lining, with a high-density core for extra bracing and noise control performance. Suitable for use in residential and commercial applications on walls and ceilings where increased bracing and noise control performance is required. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.9 GIB Aqualine®, 10mm

GIB Aqualine®, 10mm. A 10mm thick moisture resistant plasterboard interior lining, with a water resistant polymer impregnated core to help prevent moisture penetration. Suitable for use in residential and commercial applications on walls and ceilings in spaces at risk from water or moisture damage. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.10 GIB Aqualine®, 13mm

GIB Aqualine®, 13mm. A 13mm thick moisture resistant plasterboard interior lining, with a water resistant polymer impregnated core to help prevent moisture penetration. Suitable for use in residential and commercial applications on walls and ceilings in spaces at risk from water or moisture damage. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.11 GIB Fyreline®, 10mm

GIB Fyreline®, 10mm. A 10mm thick plasterboard interior lining, with a high-density modified core that resists exposure to fire longer than standard plasterboard. Suitable for use in residential and commercial applications on walls and ceilings in spaces where increased fire resistance performance is required. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.12 GIB Fyreline®, 13mm

GIB Fyreline®, 13mm. A 13mm thick plasterboard interior lining, with a high-density modified core that resists exposure to fire longer than standard plasterboard. Suitable for use in residential and commercial applications on walls and ceilings in spaces where increased fire resistance performance is required. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.13 GIB Fyreline®, 16mm

GIB Fyreline®, 16mm. A 16mm thick plasterboard interior lining, with a high-density modified core that resists exposure to fire longer than standard plasterboard. Suitable for use in

residential and commercial applications on walls and ceilings in spaces where increased fire resistance performance is required. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.14 GIB Fyreline®, 19mm

GIB Fyreline®, 19mm. A 19mm thick plasterboard interior lining, with a high-density modified core that resists exposure to fire longer than standard plasterboard. Suitable for use in residential and commercial applications on walls and ceilings in spaces where increased fire resistance performance is required. Manufactured to exceed the requirements of AS/NZS 2588. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.15 GIB X-Block®

GIB X-Block®. A 13mm thick specialist plasterboard lining with a lead-free modified core formulated to limit the passage of potentially harmful X-rays. Suitable for use in medical X-ray diagnostic rooms where radiation shielding is required. Manufactured to exceed the requirements of AS/NZS 2588, and tested in accordance with AS/NZS 4543.1. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.16 GIB® Quietline®

GIB® Quietline®. A 13mm thick, high performance, perforated plasterboard interior lining, with Pearcoat™ coated paper technology, a fibre-reinforced core, and backed with GIB® QuietFabric™ backing fabric. Suitable for use in commercial applications on walls and ceilings in spaces where an enhance acoustic performance is required. Refer to the GIB® Site Guide.

Installed Location:

8.8.4.17 GIB Toughline® Aqua

GIB Toughline® Aqua, 13mm. A 13mm thick multi-performance plasterboard interior lining designed for areas requiring increased impact resistance and durability, as well as water, fire, noise and bracing performance. Suitable for use on walls and ceilings in internal wet areas, including bathrooms, shower rooms, laundries, toilets and kitchens. Refer to the GIB® Site Guide and relevant GIB® system literature. gib.co.nz

Installed Location:

8.8.5 GIB-Cove®

8.8.5.1 GIB-Cove® Classic 90mm

GIB-Cove® Classic 90mm. A 90mm half-round profile ceiling cornice with 10mm thick edge. Available in 3.6m lengths. Used in conjunction with GIB-Cove® Bond setting compound. Refer to the GIB® Site Guide.

Installed Location:

8.8.5.2 GIB-Cove® Classic 75mm

GIB-Cove® Classic 75mm. A 75mm half-round profile ceiling cornice with 10mm thick edge. Available in 3.6m lengths. Use in conjunction with GIB-Cove® Bond setting compound. Refer to the GIB® Site Guide.

Installed Location:

8.8.5.3 GIB-Cove® Classic 55mm

GIB-Cove® Classic 55mm. A 55mm half-round profile ceiling cornice with 8mm thick edge. Available in 3.6m lengths. Use in conjunction with GIB-Cove® Bond setting compound. Refer to the GIB® Site Guide.

Installed Location:

8.8.5.4 GIB-Cove® Alto

GIB-Cove® Alto. A 50mm square rebate profile ceiling cornice with a 25mm thick edge. Available in 3.6m lengths. Use in conjunction with GIB-Cove® Bond setting compound. Refer to the GIB® Site Guide.

Installed Location:

8.8.5.5 GIB-Cove® Mezzo

GIB-Cove® Mezzo. A 75mm profile ceiling cornice. Available in 3.6m lengths. Use in conjunction with GIB-Cove® Bond setting compound. Refer to the GIB® Site Guide.

Installed Location:

8.8.5.6 GIB-Cove® Basso

GIB-Cove® Basso. A 45° angle, book-ended by a double-step. Available in 3.6m lengths. Use in conjunction with GIB-Cove® Bond setting compound. Refer to the GIB® Site Guide.

Installed Location:

8.8.6 Components & Accessories

8.8.6.1 Metal Ceiling Battens

Metal Ceiling Battens - GIB® Rondo® Metal Batten Systems. Installed in accordance with the manufacturer's requirements to the layout and details shown on the approved drawings. Refer to the GIB® Site Guide, and to separate specification GIB® Rondo® Metal Batten Systems.

8.8.6.2 Timber Ceiling Battens

Timber Ceiling Battens. Except where specified otherwise on the approved drawings, timber ceiling battens shall be minimum 70mm x 35mm, H1.2 treated, Merchantable grade Radiata, fixed in accordance with NZS 3604: Table 13.3. Refer to the GIB® Site Guide., and to separate specification section Timber Framing.

8.8.6.3 GIBFix® Framing System

GIBFix® Framing System - incorporating GIBFix® Angle and GIB® Grabber® Dual Thread Drywall Screws. Refer to the GIB® Site Guide, and to separate specification GIBFix® Framing System.

8.8.6.4 Plasterboard Fasteners

GIB® Plasterboard Fasteners. Fasteners for fixing GIB® Plasterboard Linings shall be selected and used according to best fixing practices and the GIB® Site Guide and relevant GIB® Systems literature. Fastener heads shall be set slightly below the plasterboard sheet surface without breaking the paper facing.

Screw Fixing to Timber Framing:
- GIB® Grabber® High Thread Drywall Screws: A coarse high-thread screw for fixing into timber with superior holding power and ease of penetration.
- GIB® Grabber® Self Tapping Drywall Screws: A fine self-tapping thread, needle point screw, suitable for fixing to timber and light gauge steel framing.
- GIB® Grabber® Dual Thread Drywall Screws: A dual coarse/fine threaded, needle point screw, as a component of the GIBFix® Framing System and for fixing to timber framing.

Nail Fixing to Timber Framing:
- GIB Nail: Passivated coated, annular grooved, bugle head drywall nails with chequer-keyed head.

Screw Fixing to Light Steel Framing:
- GIB® Grabber® Self Tapping Drywall Screws: A fine self-tapping thread needle point screw, suitable for fixing to light gauge (0.45-0.95mm) steel framing.
- GIB® Grabber® Dual Thread Drywall Screws: A dual coarse/fine threaded, needle point screw, suitable for fixing to light gauge (0.45-0.95mm) steel framing.

8.8.6.5 Adhesives

GIB® Adhesives. In addition to GIB® plasterboard fasteners, fix GIB® Plasterboard Linings using GIB® adhesives in accordance with the requirements of the GIB® Site Guide and GIB® System literature.

GIB® Adhesives:
- GIBFix® One: An acrylic based plasterboard adhesive with ultra low VOC, suitable for use on timber and metal substrates, including all treated timber. Minimum application temperature - 10°C.
- GIBFix® All-Bond: A solvent based plasterboard adhesive, suitable for use on timber and metal substrates, including all treated timber. Do not use on polystyrene surfaces.

8.8.6.6 Metal Trims

GIB® Metal Trims. Perforated metal corner beads and edge trim made from galvanised steel. Installed in accordance with the requirements of the GIB® Site Guide and GIB® Systems literature.

GIB® Metal Trim Profiles:
- External 90° Perforated Corner Trim (P01): GIB® Slim Angle - Standard. Available in

2.4/2.7/3.0/3.6m lengths.
- External 135° Perforated Corner Trim (P01A): GIB® Slim Angle - Off Angle. Available in 2.4/2.7/3.0m lengths.
- Perforated Curvable Corner Edge trim (P10): GIB® Slim Arch Bead. Available in 2.4/3.0m lengths.
- L-Trim for Stopped End Trim: Rondo® Stopping Angle. Profiles available for 10/13/16mm thick plasterboard. Available in 3.0m lengths.
- End Cap Bead - stopped: Rondo® Stopping Bead. Profiles available for 10/13mm thick plasterboard. Available in 2.4/3.0m lengths.
- Reveal or Z-trim: Rondo® Shadowline Stopping Bead. Profile available for 10mm thick plasterboard. Available in 3.0m lengths.
- End Cap Bead - un-stopped (P50): Rondo® Casing Bead. Profiles available for 10/13mm thick plasterboard. Available in 2.4/3.0m lengths.

8.8.6.7 Paper Faced Metal Trims

GIB® Goldline® Paper Faced Metal Trims. Paper-faced metal corner beads and edge trim made with a patented, high quality paper laminated to galvanised steel forms. Paper faced metal trims shall be embedded in jointing compound - do not mechanically fasten paper faced trims. Installed in accordance with the requirements of the GIB® Site Guide and GIB® Systems literature.

GIB® Goldline® Profiles:
- External 90° Corner Trim (G1-W): profile available in 2.4/2.7/3.0m lengths.
- External 135° Corner Trim (G1-O): profile available in 2.4m lengths.
- Internal 90° Corner Trim (G2): profile available in 2.4/2.7/3.0m lengths.
- Internal 135° Corner Trim (G2-O): profile available in 2.4m lengths.
- Bullnose External 90° Corner Trim (G1-B): profile available in 2.4/2.7/3.0m lengths.
- Reveals (GR): profiles available for 10mm thick and 13mm thick plasterboard.
- L-Trims (G4): profiles available for 10mm thick and 13mm thick plasterboard.

8.8.6.8 Paper Faced Composite Trims

GIB® Paper Faced Composite Trims. Flexible, reinforced, cut-to-length, paper faced corner trims, suitable for use on internal and external corners with an angle between 90° and 270°. Paper faced composite trims shall be embedded in jointing compound - do not mechanically fasten paper faced trims. Installed in accordance with the requirements of the GIB® Site Guide and GIB® Systems literature.

GIB® Paper Faced Composite Trims:
- Flexible Composite Trim: GIB® LevelLine™. Available in 70mm roll width.
- High Impact Flexible Composite Trim: GIB® UltraFlex® No Coat. Available in 82mm and 112mm roll widths.

8.8.6.9 Proprietary Control Joints

GIB® Plasterboard Control Joints. Form movement control joints in plasterboard lined walls and ceilings to the locations and details shown on the approved drawings. Where not indicated on the drawings, movement joints shall be positioned in accordance with the requirements and recommendations given in the GIB® Site Guide and relevant GIB® Systems literature.

When not specified on the drawings, select the most suitable GIB® Plasterboard Control Joint according to location, application, durability, and finish detail required.

GIB® Plasterboard Control Joints:
- Metal Control Joint: GIB® Rondo® P35 Control Joint, with perforated metal flanges. 18mm wide. Available in 3.0m lengths.
- Plastic Smooth Control Joint: GIB® Plastic Smooth Control Joint, with flush face. 10mm wide. Available in 3.0m lengths.
- Plastic W-Profile Control Joint: GIB® Plastic W-Profile Control Joint, with tear-away beads. 14mm wide. Available in 3.0m lengths.

8.8.6.10 Joint & Finishing Compounds

GIB® Compounds. Use the most suitable GIB® Compounds to joint and finish GIB® Plasterboard Linings according to the plasterboard type, location, application, durability, and quality of finish required. GIB® Compounds shall be applied and finished in accordance with the manufacturer's requirements to the specified finish level, and used in conjunction with GIB® Paper Joint Tape and GIB® Plasterboard Trims.

GIB® Compounds:
- GIB TradeSet®: Setting type compound. Suitable for Tape Coat, 2nd Coat. Easy to scrape. 20/45/90/150 minute working/set times.
- GIB MaxSet®: Setting type compound. Suitable for Tape Coat, 2nd Coat. Scrape while 'green'. 90 minute working/set time.
- GIB Lite Blue®: Setting type compound. Suitable for 2nd Coat. Easy sanding. 90 minute working/set time.
- GIB Trade Finish® Heavy Weight: Air drying ready-mix type compound. Suitable for Finishing Coat. Moderate sanding.
- GIB Trade Finish® Multi: Air drying ready-mix type compound. Suitable for Tape Coat, 2nd Coat; Finishing Coat. Easy sanding.
- GIB Trade Finish® Lite: Air drying ready-mix type compound. Suitable for Finishing Coat. Very easy sanding.
- GIB Promix® Lite: Air drying ready-mix type compound. Suitable for Finishing Coat. Very easy sanding.
- GIB® U-Mix: Air drying powder-mix type compound. Suitable for Finishing Coat. Easy Sanding.
- GIB Plus 4®: Air drying ready-mix type compound. Suitable for Tape Coat, 2nd Coat, Finishing Coat. Very easy sanding.
- GIB Promix® All Purpose: Air drying ready-mix type compound. Suitable for Tape Coat, 2nd Coat, Finishing Coat. Moderate sanding.
- GIB-Cove® Bond: Setting type compound. Suitable for bonding GIB-Cove® cornice, back-blocking plasterboard linings, and direct-bonding plasterboard to concrete and masonry walls. Hard to scrape. 45/90 minute working/set times.
- GIB X-Block® Jointing Compound: Used in conjunction with GIB X-Block® plasterboard wall and ceiling linings in accordance with the GIB X-Block® Radiation Shielding publication.

8.8.6.11 Joint Tape

GIB® Paper Joint Tape. A 50mm wide, spark perforated paper joint tape used to strengthen joints between plasterboard sheets. Centre-creased for internal and external corner

applications. Recommended for jointing GIB® plasterboard wall and ceiling linings in accordance with the GIB® Site Guide and GIB Systems literature.

8.8.6.12 Acoustic Sealant

GIB Fire Soundseal®. A water-based, low VOC, highly flexible, paintable, acoustic sealant for use in GIB® Noise Control Systems. Applied in accordance with the GIB® Site Guide and relevant GIB® Systems literature.

8.8.6.13 Fire-Resistant Sealant

Fire-Resistant Sealant. Used in accordance with the sealant manufacturer's requirements, and according to the GIB® Site Guide and GIB® System literature.

8.8.6.14 Wet Area Sealant

Wet Area Sealant. A mould resistant, flexible, neutral curing silicone sealant with strong adhesion, suitable for wet area applications and where there is high humidity, including bathrooms, toilets, showers, wash-down areas, kitchens, laundries.

Applied in accordance with the sealant manufacturer's instructions, as required by the GIB® Site Guide and GIB® System literature. Sealant joints shall be in accordance with the sealant manufacturer's joint design width-to-depth ratio.

Manufacturer & Brand:

8.8.6.15 Gap Filler

GIB® Gapfiller. A general purpose, gun applied, one-part water based, paintable acrylic gap filler. Provides excellent adhesion for gaps and cracks and other low movement joints. Used in strict in accordance with the manufacturer's requirements. Refer to the GIB® Site Guide.

8.8.7 Level of Finish

8.8.7.1 Level of Finish

To the areas noted as a specific Level of Finish (3-5) on the drawings, additionally comply with all relevant aspects of the GIB® Site Guide and AS/NZS 2589, complete with all system accessories, and other relevant product manufacturers' recommendations.

NOTE: Unless stated otherwise, Level 4 is the default Level of Finish.

8.8.7.2 Acceptance of Levels of Finish

Carry out all necessary inspections and assessments of completed plasterboard jointing and finishing prior to hand-over for subsequent decoration.

Do not apply surface sealers and decorative treatments until written agreement between the Contractor and Painter/Decorator is given confirming the specified Finish Levels have been achieved and the plasterboard linings are ready for subsequent sealing and decoration.

8.8.8 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings.

Co-operate with the Decorator to ensure that the specified Finish Levels for plasterboard jointing and finishing is achieved before decorating commences.

Coordinate with other trades to install GIB® Plasterboard Linings as required, and to ensure that:
- appropriate tolerances and clearances allow for adjacent internal linings, fixtures, fittings, services, etc; and
- the linings correctly allow for proper door and window installation; and
- penetrations for building services are correctly handled to maintain sheet integrity and system performance.

8.8.9 Workmanship

Where required by the NZ Building Act 2004, it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner.

Installation and finishing work of GIB® Plasterboard Linings shall be carried out by qualified and experienced tradespersons, familiar with the specified materials and installation and finishing techniques, in accordance with the GIB® Site Guide and the relevant GIB® product technical literature, and to fully comply with all warranty requirements. Submit evidence of experience on request, e.g. National Certificate of Interior Systems, or Certified Business Member of AWCINZ.

GIB® Plasterboard Linings shall be jointed and finished to the specified Finish Levels in accordance with AS/NZS 2589 and GIB® Site Guide. Make all necessary arrangements for the quality assessment of plasterboard jointing and finishing Finish Levels prior to commencing decorating.

All cutting, fixing, jointing, finishing and sealing techniques shall be exactly as recommended by the manufacturer. All work shall be such as to leave a neat, efficient and robust installation, to the required standard and free from damage and defects.

Protect surrounding surfaces and areas from jointing compound splashes and sanding dust.

8.8.10 Delivery & Handling

Store GIB® Plasterboard Linings indoors, in neat, flat stacks off the floor, in dry conditions and without any sagging or distortion, in accordance with the GIB® Site Guide. Keep plasterboard linings, compounds and accessories dry, out of direct sunlight, and protected from damage, moisture and contamination at all times.

Do not use damaged or defective materials and products, or products that are beyond the designated shelf life.

Should a problem be encountered with any GIB® product during installation or delivery, immediately contact the GIB® Helpline on 0800 100 442. Do not continue to use the product that is not performing to specification or expectation. Keep samples of the product in question and where possible, document batch numbers and/or manufacturing dates.

Handle all products and materials in accordance with the manufacturer's requirements and relevant Product Data Sheets and GIB® Site Guide, and in a manner that prevents damage. Carry plasterboard sheets on edge, and avoid damage to sheet edges, ends, and surfaces.

Installers shall be familiar with and comply with the requirements of the GIB® Site Guide precautions for use, and use appropriate safety gear when handling materials.

Installers shall conform with all relevant WorkSafe NZ Guidelines and Codes of Practice.

8.8.11 Preparation

8.8.11.1 General

All framing and substrates shall be complete and ready for GIB® Plasterboard Lining installation.

Timber framing shall comply with NZS 3604, or with NZS 3603 and AS/NZS 1170 for specific design, and have a maximum moisture content 18% at the time of plasterboard lining installation.

Light structural steel framing shall comply with the requirements of AS/NZS 4600 or the NASH Standard for Residential and Low-rise Steel Framing, Part 1: Design Criteria. All light structural steel framing members shall satisfy the requirements of AS/NZS 1170. Comply with the steel framing fabricator's specifications and requirements for plasterboard installation.

Steel stud partitioning shall comply with AS 1397 and as specified and shown on the drawings. Comply with the manufacturer's specifications and requirements for plasterboard installation.

Concrete substrates shall comply with the CCANZ CP 01:2011 or with NZS 3109. New concrete must have aged for a minimum of 28 days. Ensure that concrete surfaces are within the tolerances specified. For of direct bonded plasterboard linings, concrete substrates must below 75% relative humidity prior to installation.

Concrete masonry substrates shall comply with NZS 4229, or with NZS 4230 and AS/NZS 1170 for specific design. For of direct bonded plasterboard linings, concrete masonry substrates must below 75% relative humidity prior to installation.

Carry out all necessary moisture readings. Do not commence installation until the moisture readings are below the required level.

Carry out all necessary substrate inspections and preparatory work in accordance with the manufacturer's recommendations and the GIB® Site Guide prior to installation. Complete and sign the GIB® Site Guide Pre-Installation Checklist.

Check that the building envelope has been finished at all penetrations including doors, windows, services, etc., and the building is weathertight.

Check junctions to all other building elements and ensure that all necessary works have been completed, including cavity insulation.

Check that all fixtures, fittings and built-in items are correctly installed, and that all framing and substrate edges are completed as detailed.

Confirm the location and details of movement control joints, as indicated on the drawings, prior to installation.

Ensure all pre-wiring and service piping is installed and complete.

Check that any required cavity insulation has been installed correctly and its bulk thickness does not exceed the framing thickness.

Remove all debris and rubbish from framing voids prior to installing linings.

The commencement of work on each section/area shall be deemed to indicate full acceptance by the installer that all preparatory works by other trades is complete.

8.8.11.2 Framing Check

Framing - check all aspects of preparatory works, including but not limited to:
- Check that the framing is straight and true to line, and is plumb/level and correctly aligned.
- Check that the framing is within the required deviation tolerances defined in AS/NZS 2589 according to the specified Finish Level.
- Check that vertical and horizontal framing members are at the spacings shown on the drawings, and that any required battens or furring channels are installed to the required layout.
- Check that the framing has no projections due to structural and bracing bracketry, etc. Ensure that framing brackets, plates, braces, hold-downs, etc., are correctly installed.

8.8.11.3 Work above Ceilings

Check that all building work, mechanical, plumbing, electrical, fire protection and other services installed above the ceiling are completed and independently supported by the building structure - not by the ceiling system.

8.8.12 Installation

8.8.12.1 General

Install GIB® Plasterboard Linings and accessories in accordance with the requirements of the GIB® Site Guide and product technical literature and associated fixing schedules, to the locations and details shown on the drawings. For GIB® Performance Systems, refer to the relevant GIB® system specification.

Prior to installation, confirm:
- The locations and construction details of all movement control joints;
- The locations and installation details of all building services items within framed structures;
- The specified GIB® plasterboard installation and fixing requirements;

- The specified Finish Level(s) for the plasterboard linings.
- Subsequent surface treatments and finishes applied to GIB® plasterboard.

8.8.12.2 Standard Ceiling Fixing - Metal Ceiling Battens

GIB® Plasterboard Ceiling Linings - Standard Ceiling Fixing with Metal Ceiling Battens. Metal ceiling battens shall be from the GIB® Rondo® Metal Batten Systems - refer to separate specification GIB® Rondo® Metal Batten Systems.

Unless independently supported, uniformly distributed loads (fixtures and fittings and/or overlaid insulation) supported by GIB® plasterboard ceiling linings shall not exceed 3.0 kg/m².

Metal ceiling batten spacings shall be shall be as given in the GIB® Site Guide according to the specified plasterboard thickness - 600mm for 13mm or greater thickness, 450mm for 10mm thickness. Ceiling battens shall all run in the same direction within the ceiling area. In no case shall ceiling battens be continuous over movement control joints in the structure.

Install GIB® Plasterboard sheets right angles to ceiling battens, with sheet end-joints staggered minimum 600mm and located off battens and back-blocked. Fully support sheets during positioning and fixing - for ceiling installations, the use of a mechanical lifting machine is recommended.

Plasterboard sheets shall be fixed to ceiling battens in conjunction with GIBFix® adhesive applied at maximum at 200mm centres. Do not apply adhesive at sheet edges or within 200mm of fasteners. Firmly press the plasterboard where adhesive has been applied to ensure full contact.

Fix sheets to timber ceiling battens with GIB® Grabber® Self Tapping Screws in accordance with GIB® Site Guide fastener schedule according to the plasterboard thickness. Position fasteners no closer than 12mm from a tapered edge or 18mm from a cut sheet edge.

Install all necessary paper-faced metal beads, casing beads, shadow and reveal beads and other edge trims to plasterboard corners and edges as necessary and as detailed on the drawings.

Form movement control joints to the locations and details shown on the approved drawings. Where not indicated on the drawings, movement joints shall be positioned at maximum 12m intervals in both directions on any single ceiling, and where there is a change in ceiling lining material, and shall coincide with the junctions between adjoining spaces.

Accommodate recessed light fittings, heating and ventilating diffusers and grilles and other utility fixtures and fittings that penetrate the ceiling lining.

8.8.12.3 Standard Ceiling - Timber Ceiling Battens

GIB® Plasterboard Ceiling Linings - Standard Ceiling Fixing with Timber Ceiling Battens. Timber ceiling battens shall be 75 x 35mm thick and fixed in accordance with NZS 3604: Table 13.3. Refer to separate specification section Timber Framing.

Unless independently supported, uniformly distributed loads (fixtures and fittings and/or overlaid insulation) supported by GIB® plasterboard ceiling linings shall not exceed 3.0 kg/m².

Timber ceiling batten spacings shall not exceed the spacings given in the GIB® Site Guide according to the specified plasterboard thickness - 600mm for 13mm or greater thickness, 450mm for 10mm thickness. Where a ceiling batten spacing given in NZS 3604: Table 13.1 is less than that stated in the GIB® Site Guide, the NZS 3604 spacing shall be achieved. Ceiling battens shall all run in the same direction within the ceiling area or between movement control joints. In no case shall ceiling battens be continuous over movement control joints in the structure.

Install GIB® Plasterboard sheets right angles to ceiling battens, with sheet end-joints staggered minimum 600mm and located off battens and back-blocked. Fully support sheets during positioning and fixing - for ceiling installations, the use of a mechanical lifting machine is recommended.

Plasterboard sheets shall be fixed to ceiling battens in conjunction with GIBFix® adhesive applied at maximum at 200mm centres. Do not apply adhesive at sheet edges or within 200mm of fasteners. Firmly press the plasterboard where adhesive has been applied to ensure full contact.

Fix sheets to timber ceiling battens with GIB® Grabber® High Thread Screws in accordance with GIB® Site Guide fastener schedule according to the plasterboard thickness. Position fasteners no closer than 12mm from a tapered edge or 18mm from a cut sheet edge.

Install all necessary paper-faced metal beads, casing beads, shadow and reveal beads and other edge trims to plasterboard corners and edges as necessary and as detailed on the drawings.

Form movement control joints to the locations and details shown on the approved drawings. Where not indicated on the drawings, movement joints shall be positioned at maximum 12m intervals in both directions on any single ceiling, and where there is a change in ceiling lining material, and shall coincide with the junctions between adjoining spaces.

Accommodate recessed light fittings, heating and ventilating diffusers and grilles and other utility fixtures and fittings that penetrate the ceiling lining.

8.8.12.4 Ceiling Diaphragms

Ceiling Diaphragms - refer to separate specification GIB® Ezybrace Systems, and to the GIB EzyBrace® Systems publication.

8.8.12.5 Wall Linings - Horizontally Fixed - Timber Frame

GIB® Plasterboard Wall Linings Horizontally-Fixed to Timber Framing. Install GIB® plasterboard sheets horizontally, at right angles to studs, with any end-joints staggered, and with the bottom edge of the lower sheet gapped 5–10mm off finished floor level.

All joints between sheets shall be touch fitted. Eliminate or minimise the butting of sheet end-joints by using full-length or long-length sheets. Give careful consideration to the placement

of sheet joints. Where possible, place joints in situations where they are less likely to be affected by critical lighting.

It is recommended that sheet end joints in horizontally fixed plasterboard be unsupported, off-stud and back blocked - stud centres must not exceed 600mm. For plasterboard linings with Level 3 Finish and Level 4 Finish, sheet end joints can be located on-stud.

Sheet end joints at openings, such as window and door openings, shall not coincide with the vertical edges of the opening - sheets shall be fitted so that the vertical end joint falls minimum 200mm either side of the edge of the opening.

Plasterboard sheets shall be fixed to timber framing in conjunction with GIBFix® adhesive applied at maximum at 300mm centres to intermediate studs. Do not apply adhesive at sheet edges or within 200mm of fasteners. Firmly press the plasterboard where adhesive has been applied to ensure full contact.

Fix sheets to timber framing with GIB® Grabber® High Thread Screws or GIB® Nails in accordance with GIB® Site Guide fastener schedule. Place fasteners at 300mm centres to top and bottom plates and to perimeter studs, and to each stud where the horizontal joint crosses the stud, with screws no closer than 12mm from sheet edges. It is recommended that fasteners at wall corners are placed 50mm in from the corner in each direction (horizontal/vertical).

Install all necessary paper-faced and metal beads, casing beads, shadow and reveal beads and other edge trims to plasterboard corners and edges as necessary and as detailed on the drawings.

Form movement control joints to the locations and details shown on the approved drawings. Where not indicated on the drawings, movement joints shall be positioned at maximum 12m intervals in both directions (horizontally/vertically), and shall coincide with movement joints in the primary structure, and where there is a change in wall lining material.

Accommodate piped and cabled services and other building services fixtures and fittings that penetrate the wall lining.

8.8.12.6 Wall Linings - Vertically Fixed - Timber Frame

GIB® Plasterboard Wall Linings Vertically-Fixed to Timber Framing. Install GIB® plasterboard sheets vertically, parallel with studs, with any end-joints staggered, and with the bottom edge of the lower sheet gapped 5–10mm off finished floor level.

All joints between sheets shall be touch fitted. Eliminate or minimise the butting of sheet end-joints by using full-length or long-length sheets. Give careful consideration to the placement of sheet joints. Where possible, place joints in situations where they are less likely to be affected by critical lighting.

Form sheet edge joints on studs. Short vertical edge joints (400mm or less) such as above windows and door can be made off stud and back blocked.

Sheet joints at openings, such as window and door openings, shall not coincide with the vertical edges of the opening - sheets shall be fitted so that the vertical end joint falls minimum 200mm inside the edge of the opening.

Plasterboard sheets shall be fixed to timber framing in conjunction with GIBFix® adhesive applied at maximum at 300mm centres to intermediate studs. Do not apply adhesive at sheet edges or within 200mm of fasteners. Firmly press the plasterboard where adhesive has been applied to ensure full contact.

Fix sheets to timber framing with GIB® Grabber® High Thread Screws or GIB® Nails in accordance with GIB® Site Guide fastener schedule. Place fasteners at 300mm centres around the perimeter of each sheet, no closer than 12mm from sheet edges. It is recommended that fasteners at wall corners are placed 50mm in from the corner in each direction (horizontal/vertical).

Install all necessary paper-faced and metal beads, casing beads, shadow and reveal beads and other edge trims to plasterboard corners and edges as necessary and as detailed on the drawings.

Form movement control joints to the locations and details shown on the approved drawings. Where not indicated on the drawings, movement joints shall be positioned at maximum 12m intervals in both directions (horizontally/vertically), and shall coincide with movement joints in the primary structure, and where there is a change in wall lining material.

Accommodate piped and cabled services and other building services fixtures and fittings that penetrate the wall lining.

8.8.12.7 Wall Linings - Horizontally Fixed - Steel Frame

GIB® Plasterboard Wall Linings Horizontally-Fixed to Lightweight Steel Framing. Install GIB® plasterboard sheets horizontally, at right angles to studs, with any end-joints staggered, and with the bottom edge of the lower sheet gapped 5–10mm off finished floor level.

All joints between sheets shall be touch fitted. Eliminate or minimise the butting of sheet end-joints by using full-length or long-length sheets. Give careful consideration to the placement of sheet joints. Where possible, place joints in situations where they are less likely to be affected by critical lighting.

It is recommended that sheet end joints in horizontally fixed plasterboard be unsupported, off-stud and back blocked - stud centres must not exceed 600mm. For plasterboard linings with Level 3 Finish and Level 4 Finish, sheet end joints can be located on-stud.

Sheet end joints at openings, such as window and door openings, shall not coincide with the vertical edges of the opening - sheets shall be fitted so that the vertical end joint falls minimum 200mm either side of the edge of the opening.

Plasterboard sheets shall be fixed to light steel framing in conjunction with GIBFix® adhesive applied at maximum at 300mm centres to intermediate studs. Do not apply adhesive at sheet

edges or within 200mm of fasteners. Firmly press the plasterboard where adhesive has been applied to ensure full contact.

Fix sheets to light steel framing with GIB® Grabber® Self Tapping Screws in accordance with GIB® Site Guide fastener schedule. Place fasteners at 300mm centres to top and bottom channels and to perimeter studs, and to each stud where the horizontal joint crosses the stud, with screws no closer than 12mm from sheet edges. It is recommended that fasteners at wall corners are placed 50mm in from the corner in each direction (horizontal/vertical).

Install all necessary paper-faced and metal beads, casing beads, shadow and reveal beads and other edge trims to plasterboard corners and edges as necessary and as detailed on the drawings.

Form movement control joints to the locations and details shown on the approved drawings. Where not indicated on the drawings, movement joints shall be positioned at maximum 12m intervals in both directions (horizontally/vertically), and shall coincide with movement joints in the primary structure, and where there is a change in wall lining material.

Accommodate piped and cabled services and other building services fixtures and fittings that penetrate the wall lining.

8.8.12.8 Wall Linings - Vertically Fixed - Steel Frame

GIB® Plasterboard Wall Linings Vertically-Fixed to Lightweight Steel Framing. Install GIB® plasterboard sheets vertically, parallel with studs, with any end-joints staggered, and with the bottom edge of the lower sheet gapped 5–10mm off finished floor level.

All joints between sheets shall be touch fitted. Eliminate or minimise the butting of sheet end-joints by using full-length or long-length sheets. Give careful consideration to the placement of sheet joints. Where possible, place joints in situations where they are less likely to be affected by critical lighting.

Form sheet edge joints on studs. Short vertical edge joints (400mm or less) such as above windows and door can be made off stud and back blocked. Where plasterboard linings are fixed both sides of lightweight steel framing, the sheet joints shall be staggered from the joints on the other side of the frame - maximum 600mm offset to intermediate studs.

Sheet joints at openings, such as window and door openings, shall not coincide with the vertical edges of the opening - sheets shall be fitted so that the vertical end joint falls minimum 200mm inside the edge of the opening.

Always commence sheet installation and fixing sequence from the open side of the steel studs - not the closed side.

Plasterboard sheets shall be fixed to lightweight steel framing in conjunction with GIBFix® adhesive applied at maximum at 300mm centres to intermediate studs. Do not apply adhesive at sheet edges or within 200mm of fasteners. Firmly press the plasterboard where adhesive has been applied to ensure full contact.

Fix sheets to lightweight steel framing with GIB® Grabber® Self Tapping Screws in accordance with GIB® Site Guide fastener schedule. Place fasteners at 300mm centres around the perimeter of each sheet, no closer than 12mm from sheet edges. It is recommended that fasteners at wall corners are placed 50mm in from the corner in each direction (horizontal/vertical).

Install all necessary paper-faced and metal beads, casing beads, shadow and reveal beads and other edge trims to plasterboard corners and edges as necessary and as detailed on the drawings.

Form movement control joints to the locations and details shown on the approved drawings. Where not indicated on the drawings, movement joints shall be positioned at maximum 12m intervals in both directions (horizontally/vertically), and shall coincide with movement joints in the primary structure, and where there is a change in wall lining material.

Accommodate piped and cabled services and other building services fixtures and fittings that penetrate the wall lining.

8.8.12.9 Wall Linings - Direct Bonded to Concrete/Masonry (above ground level)

GIB® Plasterboard Wall Linings Direct Bonded to Concrete and Masonry Substrates (above ground level). Install GIB® plasterboard sheets horizontally, with any end-joints staggered, and with the bottom edge of the lower sheet gapped 5–10mm off finished floor level.

All joints between sheets shall be touch fitted. Eliminate or minimise the butting of sheet end-joints by using full-length or long-length sheets. Give careful consideration to the placement of sheet joints. Where possible, place joints in situations where they are less likely to be affected by critical lighting.

Sheet end joints at openings, such as window and door openings, shall not coincide with the vertical edges of the opening - sheets shall be fitted so that the vertical end joint falls minimum 200mm either side of the edge of the opening.

Plasterboard sheets shall be direct bonded to concrete and masonry walls with GIB-Cove® Bond applied in daubs approximately 50mm diameter x 12mm thick, at 300-400mm centres vertically and 500-600mm centres horizontally, and no closer than 25mm from the sheet edges. Position the sheet and press into place. Ensure each sheet achieves proper contact with GIB-Cove® Bond, and is in true alignment over the surface of the sheet before setting.

Install all necessary paper-faced and metal beads, casing beads, shadow and reveal beads and other edge trims to plasterboard corners and edges as necessary and as detailed on the drawings.

Form movement control joints to the locations and details shown on the approved drawings. Where not indicated on the drawings, movement joints shall coincide with movement joints in the primary structure, and where there is a change in wall lining material.

Accommodate piped and cabled services and other building services fixtures and fittings that penetrate the wall lining.

8.8.12.10 Jointing & Finishing

Joint and finish GIB® Plasterboard Linings with GIB® joint and finishing compounds appropriate for the plasterboard type and durability, and the finish level required. Refer to Joint & Finishing Compounds clause.

Carry out jointing and finishing according to the specified Finish Level in accordance with the GIB® Site Guide and GIB® Compounds brochure. Reinforce sheet joints and internal corners with joint tape or paper-faced trim embedded into the Taping (first) Coat.

Sheet joints, internal and external corners, and fastener heads shall be evenly finished with GIB® compounds. When dry, lightly sand to a smooth finish with 220 grit sandpaper or drywall sanding screen to remove tool marks, ridges and other imperfections prior to subsequent sealing and decorating.

8.8.13 Completion

Check that GIB® Plasterboard Linings have been installed in accordance with the GIB® Site Guide and GIB® Systems literature, and are finished to the specified finish levels.

Check for any damage and defective work - repair or replace as necessary to the required standard.

Ensure that inspection and assessment of the plasterboard Finish Level has been carried out, and that written agreement stating the completed jointing and finishing is acceptable for subsequent surface sealing and decoration has been provided.

Ensure that the GIB® Installation Sign-Off Certificate has been completed and signed by the Interior Plasterer/Stopper.

Leave all of this work complete and to the required standard in accordance with the manufacturer's warranty requirements, as shown on the drawings and the conditions of the Building Consent.

Clean up thoroughly and leave the finished work and surrounding surfaces clean and free of contamination from compound splashes and dust. Remove all associated rubbish and excess material from the site.

Issue to the Owner a copy of the GIB® Plasterboard Lining Systems Care and Maintenance bulletin, and a copy of the GIB® Product and System Warranty.

Preparation and painting (by others) of GIB® Plasterboard Linings shall be carried out in accordance with AS/NZS 2311 and with the paint manufacturer's recommendations. Refer to separate specification section Painting & Decorating.

Preparation, including application of under-tile waterproofing membranes, and tiling (by others) of GIB® Plasterboard Linings shall be carried out in accordance with AS 3589.1 and the BRANZ Good Practice Guide: Tiling. Refer to separate specification section Tiling.

8.9 GIB® EzyBrace® Systems

8.9.1 Scope

Supply and install the specified GIB EzyBrace® Systems to the locations identified on the drawings, incorporating GIB® plasterboards and all system components and accessories required for proper installation and performance. All aspects of this work shall be in complete accordance with the GIB EzyBrace® Systems publication, GIB EzyBrace® Bracing Software and the current GIB® Site Guide (check www.gib.co.nz, or call 0800 100 442 for the latest editions), BRANZ Appraisal No.928, other relevant product manufacturers' recommendations, and as shown on the drawings.

No substitutions are permitted for GIB EzyBrace® Systems, GIB® Plasterboard Linings, or GIB® System components and accessories.

This specification section must be read in conjunction with the GIB® Plasterboard Linings specification and relevant GIB® Systems specifications, and other specification sections, as they are interrelated..

8.9.2 Requirements

8.9.2.1 Safety

Comply with the Health and Safety at Work Act 2015 (HSWA), and with all relevant Health and Safety at Work Regulations 2016, and with all relevant WorkSafe New Zealand (WorkSafe) Approved Codes of Practice and WorkSafe Information and Guidance, particularly those for construction and building maintenance.

8.9.2.2 Warranty

GIB® Product & System Warranty:
- 10 Years Warranty - for all GIB® Products and Systems installed, according to warranty conditions.
- Provide the GIB® Product & System Warranty on the manufacturer's standard warranty form.
- Commence the warranty from the date of practical completion of the contract works.

Include with the warranty: a copy of the completed GIB® Installation Sign-Off sheet, and the GIB® Plasterboard Lining Systems Care and Maintenance bulletin.

8.9.2.3 Quality Assurance

Ensure that the installation and finishing of GIB EzyBrace® Systems comply in all respects with the approved design drawings and specifications, and Building Consent.

Maintain and comply with industry-recognised quality control and assurance procedures to ensure that all stages of work are carried out to the highest standard.

8.9.2.4 Inspection & Acceptance of GIB EzyBrace® Systems

Carry out all necessary pre-installation, installation and finishing inspections necessary for GIB EzyBrace® Systems for each area of work in accordance with the requirements of the GIB EzyBrace® Systems Manual, GIB® Site Guide, and BRANZ Appraisal No.928.

Complete the GIB® Site Guide Pre-Installation Checklist prior to installing GIB® plasterboard linings.

Complete the GIB® Interior Plasterer/Stopper Installation Sign-Off Certificate upon completion and before handover for subsequent decoration.

8.9.2.5 Defective Materials & Work

Should defective materials and/or work be found at any time before the final acceptance of the work, it shall be rejected. Rejected GIB EzyBrace® System materials and/or work shall be repaired and/or replaced to the satisfaction of the Architect/Designer, without delay and at no additional cost to the Principal.

8.9.2.6 Producer Statement (other manufacturer's system)

Producer Statement PS1 - where required. Where GIB® plasterboard linings are installed as a component of another manufacturer's proprietary system, the system manufacturer shall furnish a completed Producer Statement PS1 (Design) as confirmation that the specified proprietary system as designed and documented complies with the relevant clauses of the New Zealand Building Code. The PS1 Producer Statement shall not serve as a product warranty or guarantee of compliance.

8.9.2.7 Substitution of GIB® Plasterboard Linings

GIB® plasterboard linings shall be as specified herein and as indicated on the approved drawings. The substitution of GIB® branded plasterboard linings and GIB EzyBrace® Systems components for alternative brands is not permitted under any circumstances.

The substitution of a specified GIB® plasterboard lining for an alternative GIB® plasterboard lining by the Contractor shall be in strict accordance with the requirements of the GIB EzyBrace® Systems Manual and GIB® Site Guide: 2.3 - Board Substitution Options. Such substitutions shall only be permitted with the Architect's/Designer's written authorisation, and shall be at no additional cost to the Principal. Should any resultant extra work and/or redesign work be required to accommodate alternative GIB® plasterboard linings to satisfy design, performance and compliance requirements, then the cost of these shall be borne by the Contractor.

8.9.3 Performance

8.9.3.1 Limitations of GIB® Plasterboard

GIB® plasterboard products must NOT be:
- used in external situations, or
- exposed to water or be installed in situations where extended exposure to humidity above 90% RH can reasonably be expected, or
- exposed to temperatures in excess of 52°C for prolonged periods.

GIB EzyBrace® Systems must NOT be used in showers or behind baths. GIB EzyBrace® Systems may be used in watersplash areas provided they are protected with an impervious finish in accordance with the requirements of NZBC E3/AS1, and the GIB Aqualine® Wet Area Systems publication.

8.9.3.2 Bracing Performance - Timber Framing

Bracing Performance - GIB EzyBrace® Systems - Timber Framing. To the timber framed elements noted as 'Bracing' on the drawings, additionally comply with all relevant aspects of the GIB EzyBrace® Systems (2016) publication and GIB Ezybrace® Bracing Software according to the specified bracing unit rating, BRANZ Appraisal No.928, and other relevant product manufacturers' recommendations. Refer to separate specification GIB EzyBrace® Systems.

8.9.3.3 Bracing Performance - Steel Framing

Bracing Performance - GIB EzyBrace® Systems - Steel Framing. To the steel framed elements noted as ‘Bracing’ on the drawings, additionally comply with all relevant aspects of the latest GIB Ezybrace® For Light Steel Frame Systems publication and GIB Ezybrace® Bracing Software according to the specified bracing unit rating, and other relevant product manufacturers' recommendations. Refer to separate specification GIB EzyBrace® Systems.

8.9.3.4 Fire Rating Performance

Fire Rating Performance - GIB® Fire Rated Systems. To the areas noted as 'Fire-rated' on the drawings, additionally comply with all relevant aspects of the GIB® Fire Rated Systems (2018) publication according to the specified fire resistance rating (FRR), BRANZ Appraisal No.289, and other relevant product manufacturers' recommendations. Refer to separate specification GIB® Fire Rated Systems.

8.9.3.5 Sound Insulation Performance

Sound Insulation Performance - GIB® Noise Control Systems. To the areas noted as 'Sound-rated’ on the drawings, additionally comply with all relevant aspects of the GIB® Noise Control Systems (2017) publication according to the specified sound transmission class (STC) rating, BRANZ Appraisal No.394, and other relevant product manufacturers' recommendations. Refer to separate specification GIB® Noise Control Systems.

8.9.3.6 Wet Areas

Wet Area Plasterboard Linings - GIB Aqualine® Wet Area Systems. To the areas noted as ‘Wet Area’ on the drawings, additionally comply with all relevant aspects of the GIB Aqualine® Wet Area Systems (2007) publication, BRANZ Appraisal No.427, and other relevant product manufacturers' recommendations. GIB EzyBrace® Systems must not be located in shower cubicles or behind baths or the like. Refer to separate specification GIB Aqualine® Wet Area Systems.

8.9.4 GIB EzyBrace® Systems - Timber Frame

8.9.4.1 GS1-N

GIB EzyBrace® System - GS1-N. A timber frame, external or internal wall bracing system incorporating one layer of any 10mm or 13mm GIB® Standard Plasterboard on one side. Refer to the GIB EzyBrace® Systems literature.

Installed Location:

8.9.4.2 GS2-NOM

GIB EzyBrace® System - GS2-NOM. A timber frame, internal wall bracing system incorporating one layer of any 10mm or 13mm GIB® Standard Plasterboard on each side. Refer to the GIB EzyBrace® Systems literature.

Installed Location:

8.9.4.3 GS2-N

GIB EzyBrace® System - GS2-N. A timber frame, internal wall bracing system incorporating one layer of 10mm or 13mm GIB® Standard Plasterboard each side. Refer to the GIB EzyBrace® Systems literature.

Installed Location:

8.9.4.4 GSP-H

GIB EzyBrace® System - GSP-H. A timber frame, external or internal wall bracing system incorporating one layer of any 10mm or 13mm GIB® Standard Plasterboard on one side, and one layer of minimum 7mm structural plywood on the other, and panel hold-down fixings with panel hold downs. Refer to the GIB EzyBrace® Systems literature.

Installed Location:

8.9.4.5 BL1-H

GIB EzyBrace® System - BL1-H. A timber frame, external or internal wall bracing system incorporating one layer of 10mm or 13mm GIB Braceline® on one side with panel hold downs. Refer to the GIB EzyBrace® Systems literature.

Installed Location:

8.9.4.6 BLG-H

GIB EzyBrace® System - BLG-H. A timber frame, internal wall bracing system incorporating one layer of GIB Braceline® on one side, and one layer of any 10mm or 13mm GIB® Plasterboard on the other, and panel hold-down fixings with panel hold downs. Refer to the GIB EzyBrace® Systems literature.

Installed Location:

8.9.4.7 BLP-H

GIB EzyBrace® System - BLP-H. A timber frame, external or internal wall bracing system incorporating one layer of 10mm or 13mm GIB Braceline® on one side, and one layer of minimum 7mm structural plywood on the other, and panel hold-down fixings with panel hold downs. Refer to the GIB EzyBrace® Systems literature.

Installed Location:

8.9.5 GIB EzyBrace® Systems - Steel Frame

8.9.5.1 GS1s

GIB EzyBrace® System - GS1s. A light steel frame, exterior or interior wall, bracing system incorporating one layer of 10mm GIB® Standard Plasterboard on one side, and panel hold-down fixings. Refer to the GIB EzyBrace® Systems literature.

Installed Location:

8.9.5.2 GS2s

GIB EzyBrace® System - GS2s. A light steel frame, interior wall, bracing system incorporating one layer of 10mm GIB® Standard Plasterboard each side. Refer to the GIB EzyBrace® Systems literature.

Installed Location:

8.9.5.3 GB1s

GIB EzyBrace® System - GB1s. A light steel frame, exterior or interior wall, bracing system incorporating one layer of 10mm GIB Braceline® on one side, and panel hold-down fixings. Refer to the GIB EzyBrace® Systems literature.

Installed Location:

8.9.5.4 GBPs

GIB EzyBrace® System - GBPs. A light steel frame, exterior or interior wall, bracing system incorporating one layer of 10mm GIB Braceline® on one side, and one layer of minimum 7mm Ecoply® structural plywood on the other, and panel hold-down fixings. Refer to the GIB EzyBrace® Systems literature.

Installed Location:

8.9.6 Ceiling Diaphragms

8.9.6.1 Limitations

GIB® plasterboard ceiling diaphragms must be constructed in accordance with the requirements and within the limitations of the GIB EzyBrace® Systems Manual.

Openings are permitted within the middle third of the diaphragm's length and width. Opening dimensions (length or width) shall not exceed a third of the diaphragm width. Fix GIB® Plasterboard ceiling linings to opening trimmers at 150mm centres. Larger openings, or openings in other locations, require specific engineering design.

8.9.7 Components & Accessories

8.9.7.1 Components & Accessories

GIB EzyBrace® Systems components and accessories, including, but not limited to:
- GIB® Plasterboard Linings;
- GIB® Plasterboard Fasteners;

- Plywood Sheathing;
- GIB® HandiBrac® Panel Hold-down Bracket with Bowmac® Blue Head Screw Bolt;
- Galvanised Steel Strap Plate Connectors;
- Ceiling Diaphragm Ceiling Battens;
- GIB® Adhesives - GIBFix® One and/or GIBFix® All-Bond;
- GIB® Metal Trims & Paper Faced Trims;
- GIB® Plasterboard Control Joints;
- GIB® Joint and Finishing Compounds;
- GIB Soundseal® Acoustic Sealant;
- Fire Resistant Sealant.

Refer to the GIB EzyBrace® Systems literature and the GIB® Site Guide for further information.

8.9.8 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings.
Co-operate with the Decorator to ensure that the specified Finish Levels for plasterboard jointing and finishing is achieved before decorating commences.

Coordinate with other trades to install GIB EzyBrace® Systems to the required set-out and standard, and to ensure:
- appropriate tolerances and clearances allow for adjacent internal linings, fixtures, fittings, services, etc; and
- GIB® plasterboard linings correctly allow for proper door and window installation; and
- penetrations for building services are correctly handled to maintain sheet integrity and system performance.

8.9.9 Workmanship

Where required by the NZ Building Act 2004, it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner.

Installation of GIB EzyBrace® Systems shall be carried out by experienced and competent tradespersons, who are familiar with the specified materials and installation techniques, in accordance with the manufacturer's installation requirements, and to fully comply with all warranty requirements. Submit evidence of experience on request, e.g. National Certificate of Interior Systems, or Certified Business Member of AWCINZ.

Carry out all necessary installation inspections in accordance with the GIB EzyBrace® Systems Manual and the GIB® Site Guide, and to fully comply with the manufacturer's warranty requirements as the works progress.

All cutting, jointing, fixing and sealing techniques shall be exactly as recommended by the manufacturer. All work shall be such as to leave a neat, efficient and robust installation, to the required standard, free from damage and defects.

Make all necessary provisions to protect adjacent work and surfaces from damage during installation.

On Completion:
- Check that GIB EzyBrace® Systems have been correctly installed and finished in accordance with the requirements of the GIB EzyBrace® Systems Manual and GIB® Site Guide, to the correct set-out, dimensions and details shown on the drawings.
- Check for any damage and defective work - repair or replace as necessary to the required standard.
- Ensure that inspection and assessment of the plasterboard Finish Level have been carried out, and that written agreement stating the completed jointing and finishing is acceptable for subsequent surface sealing and decoration has been provided.
- Ensure that the GIB® Installation Sign-Off Certificate has been completed and signed by the Interior Plasterer/Stopper.
- Leave all of this work complete and to the required standard in accordance with the manufacturer's warranty requirements, as shown on the drawings and the conditions of the Building Consent.
- Clean up thoroughly and leave the finished work and surrounding surfaces clean and free of contamination from compound splashes and sanding dust. Remove all associated rubbish and excess material from the site.
- Issue to the Owner a copy of the GIB® Plasterboard Lining Systems Care and Maintenance bulletin, and a copy of the GIB® Product and System Warranty.

8.9.10 Delivery & Handling

Store all GIB EzyBrace® Systems plasterboard linings and system components indoors, off the floor, on a flat, level surface in accordance with the manufacturer's requirements. Keep stored plasterboard linings and system accessories dry, out of direct sunlight, and protected from damage, moisture and contamination at all times.

Do not use damaged or defective materials and products, or products that are beyond the designated shelf life. Cracked or damaged GIB Aqualine® sheets must never be used.

Should a problem be encountered with any GIB® product during installation or delivery, immediately contact the GIB® Helpline on 0800 100 442. Do not continue to use the product that is not performing to specification or expectation. Keep samples of the product in question and where possible, document batch numbers and/or manufacturing dates.

Handle all materials in accordance with the manufacturer's requirements and relevant Product Data Sheets, and in a manner that prevents damage.

Installers shall be familiar with and comply with the manufacturer's Material Safety Data Sheet precautions for use, and use appropriate safety gear when handling materials. Carry plasterboard sheets on edge, and avoid damage to sheet edges, ends, and surfaces.

Installers shall conform with all relevant WorkSafe NZ Guidelines and Codes of Practice - including General risk and workplace management - part 1.

8.9.11 Preparation

8.9.11.1 General

All framing shall be complete and ready for GIB® Ezybrace Systems and associated GIB® plasterboard linings installation.

Timber framing shall comply with NZS 3604, or with NZS 3603 and AS/NZS 1170 for specific design, and have a maximum moisture content 18% at the time of plasterboard lining installation.

Light structural steel framing shall comply with the requirements of AS/NZS 4600 or the NASH Standard for Residential and Low-rise Steel Framing, Part 1: Design Criteria. All light structural steel framing members shall satisfy the requirements of AS/NZS 1170. Comply with the steel framing fabricator's specifications and requirements for plasterboard installation.

Steel stud partitioning shall comply with AS 1397 and as specified and shown on the drawings. Comply with the manufacturer's specifications and requirements for plasterboard installation.

Concrete substrates shall comply with the CCANZ CP 01:2011 or with NZS 3109. New concrete must have aged for a minimum of 28 days. Ensure that concrete surfaces are within the tolerances specified.

Concrete masonry structures shall comply with NZS 4229, or with NZS 4230 and AS/NZS 1170 for specific design.

Carry out all necessary moisture readings. Do not commence installation until the moisture readings are below the required level.

Carry out all necessary substrate inspections and preparatory work in accordance with the manufacturer's recommendations and the GIB® Site Guide prior to installation. Complete and sign the GIB® Site Guide Pre-Installation Checklist.

Check that the building envelope has been finished at all penetrations including doors, windows, services, etc., and the building is weathertight.

Check junctions to all other building elements and ensure that all necessary works have been completed, including cavity insulation.

Check that all fixtures, fittings and built-in items are correctly installed, and that all framing and substrate edges are completed as detailed.

Confirm the location and details of movement control joints, as indicated on the drawings, prior to installation.

Ensure all pre-wiring and service piping is installed and complete.

Check that any required cavity insulation has been installed correctly and its bulk thickness does not exceed the framing thickness.

Remove all debris and rubbish from framing voids prior to installing linings.

The commencement of work on each section/area shall be deemed to indicate full acceptance by the installer that all preparatory works by other trades is complete.

8.9.11.2 Framing Check

Framing - check all aspects of preparatory works, including but not limited to:
- Check that the framing is straight and true to line, and is plumb/level and correctly aligned.
- Check that the framing is within the required deviation tolerances defined in AS/NZS 2589 according the specified Finish Level.
- Check that vertical and horizontal framing members are at the spacings shown on the drawings, and that any required battens or furring channels are installed to the required layout.
- Check that the framing has no projections due to structural and bracing bracketry, etc. Ensure that framing brackets, plates, braces, hold-downs, etc., are correctly installed.

8.10 GIB® Wet Area Systems

8.10.1 Scope

Supply and install the specified GIB Aqualine® Wet Area Systems to the locations identified on the drawings, incorporating GIB® plasterboards and all system components and accessories required for proper installation and performance. All aspects of this work shall be in complete accordance with the GIB Aqualine® Wet Area Systems publication and the current GIB® Site Guide (check GIB® Wet Area Systems | GIB®, or call 0800 100 442 for the latest editions), BRANZ Appraisal No.427, other relevant product manufacturers' recommendations, and as shown on the drawings.

No substitutions are permitted for GIB Aqualine® Wet Area Systems, GIB® Plasterboard Linings, or GIB® System components and accessories.

This specification section must be read in conjunction with the GIB® Plasterboard Linings specification and relevant GIB® Systems specifications, and other specification sections, as they are interrelated.

For the purpose of this specification, the GIB Aqualine® Wet Area Systems publication is referred to as the GIB® Wet Area Systems Manual..

8.10.2 Requirements

8.10.2.1 Safety

Comply with the Health and Safety at Work Act 2015 (HSWA), and with all relevant Health and Safety at Work Regulations 2016, and with all relevant WorkSafe New Zealand (WorkSafe) Approved Codes of Practice and WorkSafe Information and Guidance, particularly those for construction and building maintenance.

8.10.2.2 Warranty

GIB® Product & System Warranty:
- 10 Years Warranty - for all GIB® Products and Systems installed, according to warranty conditions.
- Provide the GIB® Product & System Warranty on the manufacturer's standard warranty form.
- Commence the warranty from the date of practical completion of the contract works.

Include with the warranty: a copy of the completed GIB® Installation Sign-Off sheet, and the GIB® Plasterboard Lining Systems Care and Maintenance bulletin.

8.10.2.3 Quality Assurance

Ensure that the installation and finishing of GIB Aqualine® Wet Area Systems comply in all respects with the approved design drawings and specifications, and Building Consent.

Maintain and comply with industry-recognised quality control and assurance procedures to ensure that all stages of work are carried out to the highest standard.

8.10.2.4 Inspection & Acceptance of GIB® Wet Area Systems

Carry out all necessary pre-installation, installation and finishing inspections necessary for GIB Aqualine® Wet Area Systems for each area of work in accordance with the requirements of the GIB® Wet Area Systems Manual, GIB® Site Guide, and BRANZ Appraisal No.427.

Complete the GIB® Wet Area Systems Manual and GIB® Site Guide Pre-Installation Checklists prior to installing GIB® plasterboard linings.

Complete the GIB® Interior Plasterer/Stopper Installation Sign-Off Certificate upon completion and before handover for subsequent decoration.

8.10.2.5 Defective Materials & Work

Should defective materials and/or work be found at any time before the final acceptance of the work, it shall be rejected. Rejected GIB Aqualine® Wet Area System materials and/or work shall be repaired and/or replaced to the satisfaction of the Architect/Designer, without delay and at no additional cost to the Principal.

8.10.2.6 Producer Statement (other manufacturer's system)

Producer Statement PS1 - where required. Where GIB® plasterboard linings are installed as a component of another manufacturer's proprietary system, the system manufacturer shall furnish a completed Producer Statement PS1 (Design) as confirmation that the specified proprietary system as designed and documented complies with the relevant clauses of the New Zealand Building Code. The PS1 Producer Statement shall not serve as a product warranty or guarantee of compliance.

8.10.2.7 Substitution of GIB® Plasterboard Linings

GIB® plasterboard linings shall be as specified herein and as indicated on the approved drawings. The substitution of GIB® branded plasterboard linings and GIB Aqualine® Wet Area Systems components for alternative brands is not permitted under any circumstances.

The substitution of a specified GIB® plasterboard lining for an alternative GIB® plasterboard lining by the Contractor shall be in strict accordance with the requirements of the GIB Aqualine® Wet Area Systems Manual and GIB® Site Guide: 2.3 - Board Substitution Options. Such substitutions shall only be permitted with the Architect's/Designer's written authorisation, and shall be at no additional cost to the Principal. Should any resultant extra work and/or redesign work be required to accommodate alternative GIB® plasterboard linings to satisfy design, performance and compliance requirements, then the cost of these shall be borne by the Contractor.

8.10.3 Performance

8.10.3.1 Limitations of GIB® Plasterboard

GIB® plasterboard products must NOT be:
- used in external situations, or
- exposed to water or be installed in situations where extended exposure to humidity above 90% RH can reasonably be expected, or
- exposed to temperatures in excess of 52°C for prolonged periods.

In addition to the limitations above, GIB Aqualine® plasterboard must NOT be:
- used for bracing purposes in shower cubicles or above baths; or
- applied directly to solid plaster (gypsum or cement), wood based sheet linings or similar materials, masonry or concrete; or
- installed over a vapour barrier or a wall acting as a vapour barrier.

8.10.3.2 Bracing Performance - Timber Framing

Bracing Performance - GIB EzyBrace® Systems - Timber Framing. To the timber framed elements noted as 'Bracing' on the drawings, additionally comply with all relevant aspects of the GIB EzyBrace® Systems (2016) publication and GIB Ezybrace® Bracing Software according to the specified bracing unit rating, BRANZ Appraisal No.928 (2016), and other relevant product manufacturers' recommendations. Refer to separate specification GIB EzyBrace® Systems.

8.10.3.3 Bracing Performance - Steel Framing

Bracing Performance - GIB EzyBrace® Systems - Steel Framing. To the steel framed elements noted as ‘Bracing’ on the drawings, additionally comply with all relevant aspects of the latest GIB Ezybrace® For Light Steel Frame Systems publication and GIB Ezybrace® Bracing Software according to the specified bracing unit rating, and other relevant product manufacturers' recommendations. Refer to separate specification GIB EzyBrace® Systems.

8.10.3.4 Fire Rating Performance

Fire Rating Performance - GIB® Fire Rated Systems. To the areas noted as 'Fire-rated' on the drawings, additionally comply with all relevant aspects of the GIB® Fire Rated Systems (2018) publication according to the specified fire resistance rating (FRR), BRANZ Appraisal No.289 (2018), and other relevant product manufacturers' recommendations. Refer to separate specification GIB® Fire Rated Systems.

8.10.3.5 Sound Insulation Performance

Sound Insulation Performance - GIB® Noise Control Systems. To the areas noted as 'Sound-rated' on the drawings, additionally comply with all relevant aspects of the GIB® Noise Control Systems (2017) publication according to the specified sound transmission class (STC) rating, BRANZ Appraisal No.394, and other relevant product manufacturers' recommendations. Refer to separate specification GIB® Noise Control Systems.

8.10.4 GIB Aqualine® Non-Tiled Wall Systems

8.10.4.1 Non-Tiled Walls - Timber Frame

GIB Aqualine® Wet Area Systems - Non-Tiled Walls - Timber Framing. A timber frame, wet area lining system for non-tiled walls incorporating one layer of 10mm or 13mm GIB Aqualine® on the wet area side. Refer to the GIB® Aqualine® Systems literature.

8.10.4.2 Non-Tiled Walls - Steel Frame

GIB Aqualine® Wet Area Systems - Non-Tiled Walls - Steel Framing. A light steel frame, wet area lining system for non-tiled walls incorporating one layer of 13mm GIB Aqualine® on the wet area side. Refer to the GIB® Aqualine® Systems literature.

8.10.5 GIB Aqualine® Tiled Wall Systems

8.10.5.1 Tiled Walls (tile weight - max. 26kg/m²) - Timber Frame

GIB Aqualine® Wet Area Systems - Tiled Walls - Timber Frame. A timber frame, wet area lining system for tiled walls with a maximum tile weight of 26kg/m², incorporating one layer of 10mm GIB Aqualine® on the wet area side. Refer to the GIB® Wet Area Systems literature.

8.10.5.2 Tiled Walls (tile weight - max 40kg/m²) - Timber Frame

GIB® Wet Area Systems - Tiled Walls - Timber Frame. A timber frame, wet area lining system for tiled walls with a maximum tile weight of 40kg/m², incorporating one layer of 13mm GIB Aqualine® on the wet area side. Refer to the GIB® Wet Area Systems literature.

8.10.5.3 Tiled Walls (tile weight - max. 26kg/m²) - Steel Frame

GIB® Wet Area Systems - Tiled Walls - Steel Frame. A light steel frame, wet area lining system for tiled walls with a maximum tiled weight of 26kg/m², incorporating one layer of 10mm GIB Aqualine® on the wet area side. Refer to the GIB® Wet Area Systems literature.

8.10.5.4 Tiled Walls (tile weight - max 40kg/m²) - Steel Frame

GIB® Wet Area Systems - Tiled Walls - Steel Frame. A light steel frame, wet area lining system for tiled walls with a tile weight maximum of 40kg/m², incorporating one layer of 13mm GIB Aqualine® on the wet area side. Refer to the GIB® Wet Area Systems literature.

8.10.6 GIB Aqualine® Ceiling Systems

8.10.6.1 Timber Ceiling Battens/Framing

GIB Aqualine® Wet Area Systems - Ceilings - Timber Ceiling Battens and/or Joists. A wet area drywall ceiling lining system over timber ceiling battens and/or timber ceiling joists incorporating one layer of 10mm or 13mm GIB Aqualine®. Refer to the GIB® Wet Area Systems literature.

8.10.6.2 Metal Ceiling Battens

GIB Aqualine® Wet Area Systems - Ceilings - Metal Ceiling Battens. A wet area drywall ceiling lining system over metal ceiling battens incorporating one layer of 10mm or 13mm GIB Aqualine®. Refer to the GIB® Wet Area Systems literature.

8.10.7 Components & Accessories

8.10.7.1 Components & Accessories

GIB Aqualine® Wet Area Systems components and accessories, including, but not limited to:
- GIB® Plasterboard Linings;
- GIB® Plasterboard Fasteners;
- GIB® Adhesives - GIBFix® One and/or GIBFix® All-Bond;
- GIB® Rondo® NZ18 Perimeter Angle: shower corner reinforcing, 32 x 32 x 0.55mm thick galvanised steel angle.
- GIB® Metal Trims & Paper Faced Trims;
- GIB® Plasterboard Control Joints;
- GIB® Joint and Finishing Compounds;
- Wet Area Sealant.

Refer to the GIB® Wet Area Systems literature and the GIB® Site Guide for further information.

8.10.8 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings.
Co-operate with the Decorator to ensure that the specified Finish Levels for plasterboard jointing and finishing is achieved before decorating commences.

Coordinate with other trades to install GIB Aqualine® Wet Area Systems to the required set-out and standard, and to ensure:
- appropriate tolerances and clearances allow for adjacent internal linings, fixtures, fittings, services, etc; and
- GIB® plasterboard linings correctly allow for proper door and window installation; and
- penetrations for building services are correctly handled to maintain sheet integrity and system performance.

8.10.9 Workmanship

Where required by the NZ Building Act 2004, it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner.

Installation of GIB Aqualine® Wet Area Systems shall be carried out by experienced and competent tradespersons, who are familiar with the specified materials and installation techniques, in accordance with the manufacturer's installation requirements, and to fully comply with all warranty requirements. Submit evidence of experience on request, e.g. National Certificate of Interior Systems, or Certified Business Member of AWCINZ.

Carry out all necessary installation inspections in accordance with the GIB® Wet Area Systems Manual and the GIB® Site Guide, and to fully comply with the manufacturer's warranty requirements as the works progress.

All cutting, jointing, fixing and sealing techniques shall be exactly as recommended by the manufacturer. All work shall be such as to leave a neat, efficient and robust installation, to the required standard, free from damage and defects.

Make all necessary provisions to protect adjacent work and surfaces from damage during installation.

On Completion:
- Check that GIB Aqualine® Systems have been correctly installed and finished in accordance with the requirements of the GIB® Wet Area Systems Manual and GIB® Site Guide, to the correct set-out, dimensions and details shown on the drawings.
- Check for any damage and defective work - repair or replace as necessary to the required standard.
- Ensure that inspection and assessment of the plasterboard Finish Level have been carried out, and that written agreement stating the completed jointing and finishing is acceptable for subsequent surface sealing and decoration has been provided.
- Ensure that the GIB® Installation Sign-Off Certificate has been completed and signed by the Interior Plasterer/Stopper.
- Leave all of this work complete and to the required standard in accordance with the manufacturer's warranty requirements, as shown on the drawings and the conditions of the Building Consent.
- Clean up thoroughly and leave the finished work and surrounding surfaces clean and free of contamination from compound splashes and sanding dust. Remove all associated rubbish and excess material from the site.
- Issue to the Owner a copy of the GIB® Plasterboard Lining Systems Care and Maintenance bulletin, and a copy of the GIB® Product and System Warranty.

8.10.10 Delivery & Handling

Store all GIB Aqualine® Wet Area Systems plasterboard linings and system components indoors, off the floor, on a flat, level surface in accordance with the manufacturer's requirements. Keep stored plasterboard linings and system accessories dry, out of direct sunlight, and protected from damage, moisture and contamination at all times.

Do not use damaged or defective materials and products, or products that are beyond the designated shelf life. Cracked or damaged GIB Aqualine® sheets must never be used.

Should a problem be encountered with any GIB® product during installation or delivery, immediately contact the GIB® Helpline on 0800 100 442. Do not continue to use the product that is not performing to specification or expectation. Keep samples of the product in question and where possible, document batch numbers and/or manufacturing dates.

Handle all materials in accordance with the manufacturer's requirements and relevant Product Data Sheets, and in a manner that prevents damage.

Installers shall be familiar with and comply with the manufacturer's Material Safety Data Sheet precautions for use, and use appropriate safety gear when handling materials. Carry plasterboard sheets on edge, and avoid damage to sheet edges, ends, and surfaces.

Installers shall conform with all relevant WorkSafe NZ Guidelines and Codes of Practice - including General risk and workplace management - part 1.

8.10.11 Preparation

8.10.11.1 General

All framing shall be complete and ready for GIB Aqualine® Wet Area Systems and associated GIB® plasterboard linings installation.

Timber framing shall comply with NZS 3604, or with NZS 3603 and AS/NZS 1170 for specific design, and have a maximum moisture content 18% at the time of plasterboard lining installation.

Light structural steel framing shall comply with the the requirements of AS/NZS 4600 or the NASH Standard for Residential and Low-rise Steel Framing, Part 1: Design Criteria. All light structural steel framing members shall satisfy the requirements of AS/NZS 1170. Comply with the steel framing fabricator's specifications and requirements for plasterboard installation.

Steel stud partitioning shall comply with AS 1397 and as specified and shown on the drawings. Comply with the manufacturer's specifications and requirements for plasterboard installation.

Concrete substrates shall comply with the CCANZ CP 01:2011 or with NZS 3109. New concrete must have aged for a minimum of 28 days. Ensure that concrete surfaces are within the tolerances specified.

Concrete masonry structures shall comply with NZS 4229, or with NZS 4230 and AS/NZS 1170 for specific design.

Carry out all necessary moisture readings. Do not commence installation until the moisture readings are below the required level.

Carry out all necessary substrate inspections and preparatory work in accordance with the manufacturer's recommendations and the GIB® Site Guide prior to installation. Complete and sign the GIB® Site Guide Pre-Installation Checklist.

Check that the building envelope has been finished at all penetrations including doors, windows, services, etc., and the building is weathertight.

Check junctions to all other building elements and ensure that all necessary works have been completed, including cavity insulation.

Check that all fixtures, fittings and built-in items are correctly installed, and that all framing and substrate edges are completed as detailed.

Confirm the location and details of movement control joints, as indicated on the drawings, prior to installation.

Ensure all pre-wiring and service piping is installed and complete.

Check that any required cavity insulation has been installed correctly and its bulk thickness does not exceed the framing thickness.

Remove all debris and rubbish from framing voids prior to installing linings.

The commencement of work on each section/area shall be deemed to indicate full acceptance by the installer that all preparatory works by other trades is complete.

8.10.11.2 Framing Check

Framing - check all aspects of preparatory works, including but not limited to:
- Check that the framing is straight and true to line, and is plumb/level and correctly aligned.
- Check that the framing is within the required deviation tolerances defined in AS/NZS 2589 according the specified Finish Level.
- Check that vertical and horizontal framing members are at the spacings shown on the drawings, and that any required battens or furring channels are installed to the required layout.
- Check that the framing has no projections due to structural and bracing bracketry, etc.

Ensure that framing brackets, plates, braces, hold-downs, etc., are correctly installed.

8.11 Hermpac Weatherboard Cladding Systems

8.11.1 Scope

Scope

Supply and install the Hermpac Pacific Limited Weatherboard System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. For the purpose of this specification, Hermpac Pacific Limited shall be referred to as Hermpac. All aspects of this work shall be complete in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 09 421 9840 for the latest editions), and as shown on the drawings.

No substitutions or deletions are permitted for the Hermpac product.

8.11.2 Vertical Weatherboard

Vertical Shiplap Weatherboard

Supply and install the Hermpac Vertical Shiplap Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Shiplap Weatherboard Cavity System is CodeMark assured.

No substitutions or deletions are permitted for the Hermpac Vertical Shiplap Weatherboard Cavity System.

Vertical Shiplap Weatherboard
Supply and install the Hermpac Vertical Shiplap Weatherboard System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
No substitutions or deletions are permitted for the Hermpac Vertical Shiplap Weatherboard System.

Vertical Shiplap CedarOne Weatherboard
Supply and install the Hermpac Vertical Shiplap CedarOne Evolve Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Shiplap CedarOne Evolve Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Shiplap CedarOne Evolve Weatherboard Cavity System.

Vertical Shiplap CedarLine Evolve Weatherboard
Supply and install the Hermpac Vertical Shiplap CedarOne Evolve Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Shiplap CedarLine Evolve Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Shiplap CedarLine Evolve Weatherboard Cavity System.

Vertical Shiplap CedarOne Mantle Weatherboard
Supply and install the Hermpac Vertical Shiplap CedarOne Mantle Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Shiplap CedarOne Mantle Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Shiplap CedarOne Mantle Weatherboard Cavity System.

Vertical Shiplap CedarLine Mantle Weatherboard
Supply and install the Hermpac Vertical Shiplap CedarOne Mantle Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Shiplap CedarLine Mantle Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Shiplap CedarLine Mantle Weatherboard Cavity System

Board & Batten Weatherboard
Supply and install the Hermpac Board & Batten Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Board & Batten Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Board & Batten Weatherboard Cavity System.

Vertical Random Width Weatherboard
Supply and install the Hermpac Vertical Random Width Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Random Width Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Random Width Weatherboard Cavity System

Vertical Random Width CedarOne Weatherboard
Supply and install the Hermpac Vertical Random Width CedarOne Evolve Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Random Width CedarOne Evolve Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Random Width CedarOne Evolve Weatherboard Cavity System.

Vertical Random Width CedarLine Evolve Weatherboard
Supply and install the Hermpac Vertical Random Width CedarOne Evolve Weatherboard

Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Random Width CedarLine Evolve Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Random Width CedarLine Evolve Weatherboard Cavity System.

Vertical Random Width CedarOne Mantle Weatherboard
Supply and install the Hermpac Vertical Random Width CedarOne Mantle Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Random Width CedarOne Mantle Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Random Width CedarOne Mantle Weatherboard Cavity System.

Vertical Random Width CedarLine Mantle Weatherboard
Supply and install the Hermpac Vertical Random Width CedarOne Mantle Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Random Width CedarLine Mantle Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Random Width CedarLine Mantle Weatherboard Cavity System.

Vertical Random Width & Depth Weatherboard
Supply and install the Hermpac Vertical Random Width & Depth Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Random Width & Depth Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Random Width & Depth Weatherboard Cavity System.

8.11.3 Vertical Accoya Weatherboard

Vertical Shiplap Weatherboard
Supply and install the Hermpac Vertical Shiplap Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Shiplap Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Shiplap Weatherboard Cavity System.

Vertical Random Width Weatherboard
Supply and install the Hermpac Vertical Random Width Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Random Width Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Random Width Weatherboard Cavity System

Vertical Random Width & Depth Weatherboard
Supply and install the Hermpac Vertical Random Width & Depth Weatherboard Cavity System, as specified herein, to the walls identified on the drawings, complete with all accessories and trim. All aspects of this work shall be completed in accordance with the Hermpac product specifications and technical literature (check www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for the latest editions), NZBC E2/AS1, other relevant product manufacturers' recommendations, and as shown on the drawings.
The Hermpac Vertical Random Width & Depth Weatherboard Cavity System is CodeMark assured.
No substitutions or deletions are permitted for the Hermpac Vertical Random Width & Depth Weatherboard Cavity System

8.11.4 Timber Species & Profile

Western Red Cedar
Weatherboard Profile *~as identified on the accompanying drawings*
Grade PC1 ~as identified on the accompanying drawings
Grain/Cut -Mixed-Grain *~as identified on the accompanying drawings*
Face Finish *~as identified on the accompanying drawings*
Coating *~as identified on the accompanying drawings*

Yellow Cedar
Weatherboard Profile *~as identified on the accompanying drawings*
Grade -PC1*~as identified on the accompanying drawings*
Grain/Cut -Mixed-Grain *~as identified on the accompanying drawings*

Face Finish ~*as identified on the accompanying drawings*
Coating ~*as identified on the accompanying drawings*

CedarOne Evolve
Weatherboard Profile ~*as identified on the accompanying drawings*
Grade ~*as identified on the accompanying drawings*
Grain/Cut - quartersawn
Face Finish ~*as identified on the accompanying drawings*
Coating ~*as identified on the accompanyng drawings*

CedarLine Evolve
Weatherboard Profile ~*as identified on the accompanying drawings*
Grain/Cut – Mixed grain
Face Finish – Oil/Stainable ~*as identified on the accompanying drawings*
Coating ~*as identified on the accompanying drawings*

CedarOne Mantle
Weatherboard Profile ~*as identified on the accompanying drawings*
Grain/Cut - Quartersawn
Face - Finish Dressed
Coating – Paint Finish ~*as identified on the accompanying drawings*
CedarLine Mantle
Weatherboard Profile ~*as identified on the accompanying drawings*
Grain/Cut – Mixed grain
Face Finish – Dressed
Coating – Paint Finish ~*as identified on the accompanying drawings*
Accoya
Weatherboard Profile ~*as identified on the accompanying drawings*
Grade ~A1 Grade
Face Finish ~*as identified on the accompanying drawings*
Coating ~*as identified on the accompanying drawings*
Accoya Grey
Weatherboard Profile ~*as identified on the accompanying drawings*
Grade ~A1 Grade
Face Finish ~*as identified on the accompanying drawings*
Coating ~*no coating required* as identified on the accompanying drawings
Kanda
Weatherboard Profile ~*as identified on the accompanying drawings*
Grade - S&B
Face Finish ~*as identified on the accompanying drawings*
Coating ~*as identified on the accompanying drawings*

8.11.5 Accessories

Hermpac Aluminium Corner Back Flashings
Hermpac Aluminium Corner Back Flashings - internal and external corner back flashings,

sized to suit specific corner details in accordance with Hermpac requirements and as shown on the drawings.

Hermpac 316 Stainless Steel Corner Back Flashings
Hermpac 316 Stainless Steel Corner Back Flashings - internal and external corner back flashings, sized to suit specific corner details in accordance with Hermpac requirements and as shown on the drawings.
Hermpac Cover Battens - Shiplap Weatherboard
Hermpac Vertical Shiplap Weatherboard Cover Battens - Selected to suit the details shown on the drawings. Fixed with 50 x 2.8mm nails matched with the selected weatherboard fixing. Unless specified otherwise on the drawings, timber species, grade and surface finish to match weatherboards.
Hermpac External Corner Mouldings - Shiplap Weatherboard
Hermpac Vertical Shiplap Weatherboard External Corner Moulding - Selected to suit the details shown on the drawings. Nail fixings matched with the selected weatherboard fixing. Unless specified otherwise on the drawings, timber species, grade and surface finish to match weatherboards.
Hermpac Internal Corner Mouldings - Shiplap Weatherboard
Hermpac Vertical Shiplap Weatherboard Internal Corner Moulding - Selected to suit the details shown on the drawings. Nail fixings matched with the selected weatherboard fixing. Unless specified otherwise on the drawings, timber species, grade and surface finish to match weatherboards.
Hermpac Eave Mouldings - Shiplap Weatherboard
Hermpac Vertical Shiplap Weatherboard Eave Moulding - Selected to suit the details shown on the drawings. Nail fixings matched with the selected weatherboard fixing. Unless specified otherwise on the drawings, timber species, grade and surface finish to match weatherboards.
Hermpac Cover Battens - Board & Batten Weatherboard
Hermpac Board & Batten Weatherboard Cover Battens - Selected to suit the details shown on the drawings. Fixed with 50 x 2.8mm nails matched with the selected weatherboard fixing. Unless specified otherwise on the drawings, timber species, grade and surface finish to match weatherboards. Aluminium corner flashings to suit moulding (refer www.hermpac.co.nz for required flashing size).
Hermpac Eave Mouldings - Board & Batten Weatherboard
Hermpac Board & Batten Weatherboard Eave Moulding - Selected to suit the details shown on the drawings. Nail fixings matched with the selected weatherboard fixing. Unless specified otherwise on the drawings, timber species, grade and surface finish to match weatherboards.

8.11.6 Cavity Batten & Base Closer

Vertibat 18mm thick Timber Cavity Battens - to form a nominal 18mm deep drained cavity for Hermpac vertical weatherboards. Vertibat V1 - 40 x 20mm thick, and Vertibat V2 - 70mm x 20mm thick, bevelled and castellated timber cavity battens; incorporating 20mm wide x 5mm deep, alternating rebates at 100mm centres either side of the batten. Manufactured from minimum H3.1 treated Radiata pine or H3.2 Micropro V8 18x45mm cavity battens. Select Vertibat cavity battens is also available manufactured from Western Red Cedar.
Fix Vertibat 20mm thick cavity battens along dwang lines, etc., with 40 x 2.5mm hot-dipped galvanised flat head nails or 50 x 2.8mm Hot-dipped galvanised gun nails, or stainless-steel finishing brads.

Installed horizontally, at minimum 400mm to maximum 480mm vertical centres, to the layout and details shown on the drawings and in accordance with the Hermpac VertiLine Installation Specification.

uPVC
uPVC Cavity Base Closer. Punched with 3-5mm holes or slots complying with NZBC E2/AS1 Paragraph 9.1.8.3. Fitted to the base of the drained cavity, above window and door heads, and inter-storey junctions. Installed in accordance with E2/AS1 to the locations and details shown on the drawings.

Aluminium
Aluminium Cavity Base Closer. Punched with 3-5mm holes or slots complying with NZBC E2/AS1 Paragraph 9.1.8.3. Fitted to the base of the drained cavity, above window and door heads, and inter-storey junctions. Installed in accordance with E2/AS1 to the locations and details shown on the drawings.
Finish - *As identified on the accompanying drawings*

Stainless Steel
Stainless Steel Cavity Base Closer. Punched with 3-5mm holes or slots complying with NZBC E2/AS1 Paragraph 9.1.8.3. Fitted to the base of the drained cavity, above window and door heads, and inter-storey junctions. Installed in accordance with E2/AS1 to the locations and details shown on the drawings.

8.11.7 Co-operation

Co-operation
Co-operate with other trades to ensure that all preliminary and preparatory works, including membranes, flexible underlays, rigid air barriers, and trims and any other related works are completed in accordance with the Hermpac Cavity System Installation Specification and Construction Drawings
Coordinate with trades the locations of pipes, outlets, cables, meter boards and other fittings installed by others, and to install Hermpac Weatherboard Cladding System as required.

8.11.8 Workmanship

Where required by the NZ Building Act 2004 it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner.
Installation work shall be carried out by suitably qualified and experienced tradespersons, familiar with the specified products and the required construction and installation techniques, in accordance with the requirements of the Hermpac technical literature and associated BRANZ Appraisal, NZBC E2/AS1, and as noted and detailed on the approved construction drawings.
Upon completion of the installation, the installing LBP shall complete and sign a Restricted Building Work (RBW) memorandum and the associated Hermpac Weatherboard Cladding System, Product Installation Check List. Issue a copy of the RBW document to the Building Consent Authority and to the Main Contractor.
All work shall be such as to leave a neat, efficient, robust and weathertight installation, to the required standard, free from damage and defects, including surface marking.

Make all necessary provisions to protect adjacent finished work and surfaces from damage during installation.
Refer www.hermpac.co.nz, email: technical@hermpac.co.nz, or call 0800 329 423 for any technical assistance required, and ensure that current Hermpac technical literature is referenced and followed when installing Hermpac weatherboards.

8.11.9 Delivery & Handling

Delivery & Handling
Store weatherboards and accessories undercover, flat and true, clear of the ground by at least 150mm and supported on dry and clean timber bearers at maximum 900mm centres in accordance with Hermpac recommendations. Keep stored weatherboards and accessories dry and protected from damage and contamination, and free from bending or excessive compression.
Do not use damaged or defective weatherboards or accessories.

Dock any oversized knots, unacceptable or unrequired grade characteristic, or damaged areas of weatherboard. Do not install weatherboards during periods of wet weather. Double seal all cut ends and fresh cut timber with selected exterior coating. Some grades of timber will require more docking than others. Please check NZ Grading Rules to ensure that all timber installed meets the NZBC requirements.
Handle weatherboards in accordance with the manufacturer's recommendations and in a manner that prevents damage and surface marking.
Installers shall be familiar with, and comply with, the manufacturer's safe handling requirements and precautions for use, and shall use appropriate safety gear when handling materials.
Installers shall conform with all relevant WorkSafe NZ Guidelines and Codes of Practice - including the Best practice guidelines for working at height in NZ, and the OSH Guidelines For the Provision of Facilities and General Safety in the Construction Industry.

8.11.10 Preparation and Installation

General Requirements
Install the specified Hermpac Weatherboard Cladding System, complete with accessories, in accordance with the Hermpac installation requirements and technical literature and as shown on the approved construction drawings.
Confirm the layout and location of all control joints; the layout of cavity battens; and any specific cladding detailing requirements prior to installation.
Ensure that all associated preliminary and preparatory works are completed to the required standard and specification, and as shown on the drawings.
Ensure that the current and up-to-date Hermpac installation and technical literature is readily available on site for reference during installation.
Weatherboard soaker and/or flashing material compatibility shall be in accordance with NZBC E2/AS1 2.2, and as shown on the drawings.
Ensure all cut ends and fresh timber is double coated and sealed in accordance with Hermpac requirements before fixing.
Refer to Fixing for fixing type and placement etc.

All internal and external weatherboard corner junctions, inter-storey junctions, and weatherboard trim and accessories, shall be constructed and installed to the details shown on the drawings.
Always keep Hermpac weatherboard cladding lines consistent and true along walls and around corners.
All flashings around windows, doors and other openings, at corner junctions, inter-storey junctions, soffit junctions, and pipe penetrations, shall be carefully constructed, fixed and finished to the details shown on the drawings.
Hermpac Vertical Shiplap Weatherboard Cavity-Fixed over a Flexible Wall Underlay on Timber framing
Preparation
- Check all aspects of preparatory works, including, but not limited to:
- Check that the timber wall framing complies with NZS 3604, has studs at maximum 600mm centres and Nogs/Dwangs as per design specification and NZBC (or at 400mm min. - 480mm max. centres) for vertical cladding, is plumb and in true alignment, includes all blocking required for cavity battens and fixing at openings, joints, corners, soffits, etc., and has a maximum moisture content of 18% at the time of cladding installation.
- Check that the flexible wall underlay, as specified, has been installed in accordance with NZBC requirements and the manufacturer’s recommendations, and with all finishing tapes, flashings etc. at windows, doors, corners and penetrations all correctly incorporated to provide a continuous seal.
- Where the studs are at greater than 450mm centres, check that appropriate additional restraint is correctly installed to the wrap to keep bulk insulation from pushing the underlay into the cavity space.
- Check that all preparatory materials are lapped such that any water will run down to the exterior.
Installation
Hermpac Vertical Shiplap Weatherboards installed over a cavity drain (20mm/40mm/45mm) over a flexible wall underlay:
Over the flexible wall underlay, install and fix the specified cavity battens to the timber framing to the layout and details shown on the drawings.
Back flash all internal and external corners with Hermpac aluminium corner flashings.
Carefully set-out cladding vertically to straight plumb lines with side laps directed away from prevailing weather.
As specified and shown on the drawings, fix shiplap weatherboards to the timber framing through 20mm thick Vertibat cavity battens, or fix to Vertibat 40mm or 45mm thick cavity battens, and maintain the base overhang minimum 50mm, or as detailed, below the bottom plate or floor structure.
Install full length weatherboards where possible. Where joints are unavoidable, scarf the weatherboards at 30º over a cavity batten line, and fix weatherboard ends, with the top board fixed through the top overlapping board above the joint - not through the joint.
Overlap, joint and fix cavity-installed Hermpac Shiplap Weatherboards in accordance with Hermpac installation requirements and as detailed on the drawings. NB: Ensure weatherboard end-grains are double coated.
Hermpac Vertical Shiplap Weatherboard Cavity-Fixed over a Rigid Wall Underlay on Timber framing
Preparation

- Check all aspects of preparatory works, including, but not limited to:
- Check that the timber wall framing complies with NZS 3604, has studs at maximum 600mm centres and Nogs/Dwangs as per design specification and NZBC (or at 400mm min. - 480mm max. centres) for vertical cladding, is plumb and in true alignment, includes all blocking required for cavity battens and fixing at openings, joints, corners, soffits, etc., and has a maximum moisture content of 18% at the time of cladding installation.
- Check that the rigid wall underlay, as specified, has been installed in accordance with NZBC requirements and the manufacturer’s recommendations, with all finishing tapes, flashings etc. at windows, doors, corners and penetrations all correctly incorporated to provide a continuous seal.
- Check that all preparatory materials are lapped such that any water will run down to the exterior.

Installation

Hermpac Vertical Shiplap Weatherboards installed over a cavity drain (20mm/40mm/45mm) over a rigid wall underlay:

Over the rigid wall underlay, install and fix the specified cavity battens to the timber framing to the layout and details shown on the drawings.

Back flash all internal and external corners with Hermpac aluminium corner flashings.

Carefully set-out cladding vertically to straight plumb lines with side laps directed away from prevailing weather.

As specified and shown on the drawings, fix shiplap weatherboards to the timber framing through 20mm thick Vertibat cavity battens, or fix to Vertibat 40mm or 45mm thick cavity battens, and maintain the base overhang minimum 50mm, or as detailed, below the bottom plate or floor structure.

Install full length weatherboards where possible. Where joints are unavoidable, scarf the weatherboards at 30º over a cavity batten line, and fix weatherboard ends, with the top board fixed through the top overlapping board above the joint - not through the joint.

Overlap, joint and fix cavity-installed Hermpac Shiplap Weatherboards in accordance with Hermpac installation requirements and as detailed on the drawings. NB: Ensure weatherboard end-grains are double coated.

Hermpac Vertical Shiplap Weatherboard Direct-Fixed over a Flexible Wall Underlay on Timber framing

Preparation

- Check all aspects of preparatory works, including, but not limited to:
- Check that the timber wall framing complies with NZS 3604, has studs at maximum 600mm centres and Nogs/Dwangs as per design specification and NZBC (or at 400mm min. - 480mm max. centres) for vertical cladding, is plumb and in true alignment, includes all blocking required for fixing at openings, joints, corners, soffits, etc., and has a maximum moisture content of 18% at the time of cladding installation.
- Check that the flexible wall underlay, as specified, has been installed in accordance with NZBC requirements and the manufacturer’s recommendations, and with all finishing tapes, flashings etc. at windows, doors, corners and penetrations all correctly incorporated to provide a continuous seal.
- Check that all preparatory materials are lapped such that any water will run down to the exterior.

Installation

Hermpac Vertical Shiplap Weatherboards direct-fixed to timber framing over a flexible wall underlay:
Back flash all internal and external corners with Hermpac aluminium corner flashings.
Carefully set-out cladding vertically to straight plumb lines with side laps directed away from prevailing weather.
Fix weatherboards to the timber framing, and maintain the base overhang minimum 50mm, or as detailed, below the bottom plate or floor structure.
Install full length weatherboards where possible. Where joints are unavoidable, scarf the weatherboards at 30º over a nog/dwang line, and fix weatherboard ends, with the top board fixed through the top overlapping board above the joint - not through the joint.
Overlap, joint and fix weatherboards in accordance with the manufacturer's recommendations and as detailed on the drawings. NB: Ensure weatherboard end-grains are double coated.
Check for and eliminate any creep and/or spread of shiplap weatherboards during installation.
Internal and external corner junctions, weatherboard trim and accessories, all constructed and installed to the details shown on the drawings.
All flashings around windows, doors and other openings, at corners, inter storey and soffit junctions, and pipe penetrations, shall all be carefully constructed, fixed and finished to the details shown on the drawings.
Hermpac Vertical Shiplap Weatherboard Direct-Fixed over a Rigid Wall Underlay on Timber framing
Preparation
- Check all aspects of preparatory works, including, but not limited to:
- Check that the timber wall framing complies with NZS 3604, has studs at maximum 600mm centres and Nogs/Dwangs as per design specification and NZBC (or at 400mm min. - 480mm max. centres) for vertical cladding, is plumb and in true alignment, includes all blocking required for fixing at openings, joints, corners, soffits, etc., and has a maximum moisture content of 18% at the time of cladding installation.
- Check that the rigid wall underlay, as specified, has been installed in accordance with NZBC requirements and the manufacturer’s recommendations, with all finishing tapes, flashings etc. at windows, doors, corners and penetrations all correctly incorporated to provide a continuous seal.
- Check that all preparatory materials are lapped such that any water will run down to the exterior.
Installation
Hermpac Vertical Shiplap Weatherboards direct-fixed to timber framing over a rigid wall underlay:
Back flash all internal and external corners with Hermpac aluminium corner flashings.
Carefully set-out cladding vertically to straight plumb lines with side laps directed away from prevailing weather.
Fix weatherboards to the timber framing through the rigid underlay, and maintain the base overhang minimum 50mm, or as detailed, below the bottom plate or floor structure.
Install full length weatherboards where possible. Where joints are unavoidable, scarf the weatherboards at 30º over a nog/dwang line, and fix weatherboard ends, with the top board fixed through the top overlapping board above the joint - not through the joint.
Overlap, joint and fix weatherboards in accordance with the manufacturer's recommendations and as detailed on the drawings. NB: Ensure weatherboard end-grains are double coated.
Check for and eliminate any creep and/or spread of shiplap weatherboards during installation.

Internal and external corner junctions, weatherboard trim and accessories, all constructed and installed to the details shown on the drawings.
All flashings around windows, doors and other openings, at corners, inter storey and soffit junctions, and pipe penetrations, shall all be carefully constructed, fixed and finished to the details shown on the drawings.
Hermpac Board & Batten Weatherboard Cavity-Fixed over a Flexible Wall Underlay on Timber framing
Preparation
- Check all aspects of preparatory works, including, but not limited to:
- Check that the timber wall framing complies with NZS 3604, has studs at maximum 600mm centres and Nogs/Dwangs as per design specification and NZBC (or at 400mm min. - 480mm max. centres) for vertical cladding, is plumb and in true alignment, includes all blocking required for cavity battens and fixing at openings, joints, corners, soffits, etc., and has a maximum moisture content of 18% at the time of cladding installation.
- Check that the flexible wall underlay, as specified, has been installed in accordance with NZBC requirements and the manufacturer’s recommendations, and with all finishing tapes, flashings etc. at windows, doors, corners and penetrations all correctly incorporated to provide a continuous seal.
- Where the studs are at greater than 450mm centres, check that appropriate additional restraint is correctly installed to the underlay to keep bulk insulation from pushing the wrap into the cavity space.
- Check that all preparatory materials are lapped such that any water will run down to the exterior.
Installation
Hermpac Board & Batten Weatherboards installed over a cavity drain (20mm/40mm/45mm) over a flexible wall underlay:
Over the flexible wall underlay, install and fix the specified cavity battens to the timber framing to the layout and details shown on the drawings.
Back flash all internal and external corners with Hermpac aluminium corner flashings.
Carefully set-out board & batten cladding vertically to straight and plumb lines.
As specified and shown on the drawings, fix boards and battens to the timber framing through 20mm thick Vertibat cavity battens, or fix to Vertibat 40mm or 45mm thick cavity battens, and maintain the base overhang minimum 50mm, or as detailed, below the bottom plate or floor structure.
Install full length boards and battens where possible. Where joints are unavoidable, scarf boards and battens at 30º over a cavity batten line, and fix board/batten ends, with the top board/batten fixed through the top overlapping board/batten above the joint - not through the joint. NB: Ensure weatherboard end-grains are double coated.
Check for and eliminate any creep and/or spread of cladding boards during installation.
Internal and external corner junctions, weatherboard trim and accessories, all constructed and installed to the details shown on the drawings.
All flashings around windows, doors and other openings, at corners, inter storey and soffit junctions, and pipe penetrations, shall all be carefully constructed, fixed and finished to the details shown on the drawings.
Hermpac Board & Batten Weatherboard Cavity-Fixed over a Rigid Wall Underlay on Timber framing
Preparation

- Check all aspects of preparatory works, including, but not limited to:
- Check that the timber wall framing complies with NZS 3604, has studs at maximum 600mm centres and nogs/dwangs at maximum 480mm centres for vertical cladding, is plumb and in true alignment, includes all blocking required for cavity battens and fixing at openings, joints, corners, soffits, etc., and has a maximum moisture content of 18% at the time of cladding installation.
- Check that the rigid wall underlay, as specified, has been installed in accordance with NZBC requirements and the manufacturer's recommendations, with all finishing tapes, flashings etc. at windows, doors, corners and penetrations all correctly incorporated to provide a continuous seal.
- Check that all preparatory materials are lapped such that any water will run down to the exterior.

Installation

Hermpac Board & Batten Weatherboards installed over a cavity drain (20mm/40mm/45mm) over a rigid wall underlay:

Over the rigid wall underlay, install and fix the specified cavity battens to the timber framing to the layout and details shown on the drawings.

Back flash all internal and external corners with Hermpac aluminium corner flashings.

Carefully set-out board & batten cladding vertically to straight and plumb lines.

As specified and shown on the drawings, fix boards and battens to the timber framing through 20mm thick Vertibat cavity battens and rigid underlay, or fix to Vertibat 40mm or 45mm thick cavity battens, and maintain the base overhang minimum 50mm, or as detailed, below the bottom plate or floor structure.

Install full length boards and battens where possible. Where joints are unavoidable, scarf boards and battens at 30º over a cavity batten line, and fix board/batten ends, with the top board/batten fixed through the top overlapping board/batten above the joint - not through the joint. NB: Ensure weatherboard end-grains are double coated.

Check for and eliminate any creep and/or spread of cladding boards during installation.

Internal and external corner junctions, weatherboard trim and accessories, all constructed and installed to the details shown on the drawings.

All flashings around windows, doors and other openings, at corners, inter storey and soffit junctions, and pipe penetrations, shall all be carefully constructed, fixed and finished to the details shown on the drawings.

8.11.11 Fixing

Fix Hermpac Vertical Shiplap Weatherboards

Fix Hermpac Weatherboards with Grade 316 Stainless Steel Annular Grooved Rose Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.

The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.

When fixing with rose head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 30mm penetration into the Vertibat cavity battens.

All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.

Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.

Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden side lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement
Fix Hermpac Vertical Shiplap Weatherboards
Fix Hermpac Vertical Shiplap Weatherboards with Silicon Bronze Annular Grooved Rose Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with rose head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 30mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden side lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.
Fix Hermpac Vertical Shiplap Weatherboards
Fix Hermpac Vertical Shiplap Weatherboards with Grade 316 Stainless Steel Annular Grooved Flat Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with flat head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 30mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between the boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden side lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.
Fix Hermpac Vertical Shiplap Weatherboards

Fix Hermpac Vertical Shiplap Weatherboards with Silicon Bronze Annular Grooved Flat Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with flat head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 30mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drill a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden side lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.
Fix paint-finished Hermpac Vertical Shiplap Weatherboards
Fix paint-finished Hermpac Vertical Shiplap Weatherboards with Grade 316 Stainless Steel Annular Grooved Jolt Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with jolt head nails (used most often for a paint finish), the nail length must allow minimum 35mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 35mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm (35-40mm for Multisplay profiles) from the edge of the weatherboard, and no closer than 32mm from the end of the board.
Punch nails 2mm below the board surface, prime nail holes and fill prior to sanding and finishing.
The hidden side lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.
Fix Hermpac Shiplap Weatherboards
Fix Hermpac Shiplap Weatherboards with Grade 316 Stainless Steel finish as identified on the accompanying drawings, Hermpac Starcap Screws in accordance with Hermpac fixing requirements and as shown on the drawings.
When fixing with Starcap screws (used most often for an oil/stain finish), the shank length must allow minimum 21mm penetration of the wall frame.
All screw fixings shall be pre-drilled a maximum of 1mm diameter smaller than the screw gauge.

Ensure the weatherboards are set-out with an overlap of 32mm.
Single fix weatherboards at every fixing point, with screws driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Screws shall be set flush onto the board surface - not into or below the surface.
Finish - *as identified on the accompanying drawings*
Fix Hermpac Vertical Shiplap Weatherboards
Fix Hermpac Vertical Shiplap Weatherboards with Grade 316 Stainless Steel Annular Grooved Hermpac Crown Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 30mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden side lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement
Fix Hermpac Vertical Shiplap Weatherboards
Fix Hermpac Vertical Shiplap Weatherboards with Hermpac Crown Head, annular grooved Silicon Bronze Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 30mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden side lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.
Fix Hermpac Board & Batten Weatherboards

Fix Hermpac Board & Batten Weatherboards with Grade 316 Stainless Steel Annular Grooved Hermpac Crown Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
For cavity-fixed board & batten, the nail shank must be minimum 3.15mm diameter for boards, and 4.0mm diameter for battens.
For direct-fixed board & batten, the nail shank must be minimum 2.8mm diameter for boards, and 3.15mm diameter for battens.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 30mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with a nominal 7mm gap between boards.
Single fix in centre of the board width at maximum 480mm vertical centres, with nails driven in a slight upward slope.
Fix battens over boards, with weathergrooves perfectly aligned, with single fixing in centre of batten; ensure the nail is clear of the boards behind.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden side laps must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the board, refer to Hermpac details for correct placement.
Crown Head Nail, Silicon Bronze
Fix Hermpac Board & Batten Weatherboards with Silicon Bronze Annular Grooved Hermpac Crown Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
For cavity-fixed board & batten, the nail shank must be minimum 3.15mm diameter for boards, and 4.0mm diameter for battens.
For direct-fixed board & batten, the nail shank must be minimum 2.8mm diameter for boards, and 3.15mm diameter for battens.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 30mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the boards are set-out with a nominal 7mm gap between boards.
Single fix in centre of the board width at maximum 480mm vertical centres, with nails driven in a slight upward slope.
Fix battens over boards, with weathergrooves perfectly aligned, with single fixing in centre of batten; ensure the nail is clear of the boards behind.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden side laps must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the board, refer to Hermpac details for correct placement.
Fix Hermpac Cedar Board & Batten Weatherboards
Fix Hermpac Cedar Board & Batten Weatherboards with Grade 316 Stainless Steel Annular Grooved Rose Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.

For cavity-fixed board & batten, the nail shank must be minimum 3.15mm diameter for boards, and 4.0mm diameter for battens.
For direct-fixed board & batten, the nail shank must be minimum 2.8mm diameter for boards, and 3.15mm diameter for battens.
When fixing with rose head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 30mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the boards are set-out with a nominal 7mm gap between boards.
Single fix in centre of the board width at maximum 480mm vertical centres, with nails driven in a slight upward slope.
Fix battens over boards, with weathergrooves perfectly aligned, with single fixing in centre of batten; ensure the nail is clear of the boards behind.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden side laps must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the board, refer to Hermpac details for correct placement.
Fix Hermpac Board & Batten Weatherboards
Fix Hermpac Board & Batten Weatherboards with Silicon Bronze Annular Grooved Rose Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
For cavity-fixed board & batten, the nail shank must be minimum 3.15mm diameter for boards, and 4.0mm diameter for battens.
For direct-fixed board & batten, the nail shank must be minimum 2.8mm diameter for boards, and 3.15mm diameter for battens.
When fixing with rose head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 30mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the boards are set-out with a nominal 7mm gap between boards.
Single fix in centre of the board width at maximum 480mm vertical centres, with nails driven in a slight upward slope.
Fix battens over boards, with weathergrooves perfectly aligned, with single fixing in centre of batten; ensure the nail is clear of the boards behind.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden side laps must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the board, refer to Hermpac details for correct placement.
Fix Hermpac Board & Batten Weatherboards
Fix Hermpac Board & Batten Weatherboards with Grade 316 Stainless Steel Annular Grooved Flat Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
For cavity-fixed board & batten, the nail shank must be minimum 3.15mm diameter for boards, and 4.0mm diameter for battens.
For direct-fixed board & batten, the nail shank must be minimum 2.8mm diameter for boards, and 3.15mm diameter for battens.

When fixing with flat head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 30mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the boards are set-out with a nominal 7mm gap between boards.
Single fix in centre of the board width at maximum 480mm vertical centres, with nails driven in a slight upward slope.
Fix battens over boards, with weathergrooves perfectly aligned, with single fixing in centre of batten; ensure the nail is clear of the boards behind.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden side laps must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the board, refer to Hermpac details for correct placement.

Fix Hermpac Board & Batten Weatherboards
Fix Hermpac Board & Batten Weatherboards with Silicon Bronze Annular Grooved Flat Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
For cavity-fixed board & batten, the nail shank must be minimum 3.15mm diameter for boards, and 4.0mm diameter for battens.
For direct-fixed board & batten, the nail shank must be minimum 2.8mm diameter for boards, and 3.15mm diameter for battens.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm thick cavity battens, nails shall achieve a minimum 30mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the boards are set-out with a nominal 7mm gap between boards.
Single fix in centre of the board width at maximum 480mm vertical centres, with nails driven in a slight upward slope.
Fix battens over boards, with weathergrooves perfectly aligned, with single fixing in centre of batten; ensure the nail is clear of the boards behind.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden side laps must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the board, refer to Hermpac details for correct placement.
Fix paint-finished Hermpac Board & Batten Weatherboards
Fix paint-finished Hermpac Board & Batten Weatherboards with Grade 316 Stainless Steel Annular Grooved Jolt Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
For cavity-fixed board & batten, the nail shank must be minimum 3.15mm diameter for boards, and 4.0mm diameter for battens.
For direct-fixed board & batten, the nail shank must be minimum 2.8mm diameter for boards, and 3.15mm diameter for battens.
When fixing with jolt head nails (used most often for a paint finish), the nail length must allow minimum 35mm penetration of the wall frame. When installed over Vertibat 40mm or 45mm

thick cavity battens, nails shall achieve a minimum 35mm penetration into the Vertibat cavity battens.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the boards are set-out with a nominal 7mm gap between boards.
Single fix in centre of the board width at maximum 480mm vertical centres, with nails driven in a slight upward slope.
Fix battens over boards, with weathergrooves perfectly aligned, with single fixing in centre of batten; ensure the nail is clear of the boards behind.
Nails shall be set flush onto the board surface - not into or below the surface.
Punch nails 2mm below the board surface, prime nail holes and fill prior to sanding and finishing.
The hidden side laps must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the hidden edge - the nail must not be fixed through the board, refer to Hermpac details for correct placement.
Fix Hermpac Board & Batten Weatherboards
Fix Hermpac Board & Batten Weatherboards with Grade 316 Stainless Steel or Bronzed Stainless Hermpac Starcap Screws in accordance with Hermpac fixing requirements and as shown on the drawings.
When fixing with Starcap screws (used most often for an oil/stain finish), the shank length must allow minimum 21mm penetration of the wall frame.
All screw fixings shall be pre-drilled a maximum of 1mm diameter smaller than the screw gauge.
Ensure the weatherboards are set-out with an overlap of 32mm.
Single fix weatherboards at every fixing point, with screws driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Screws shall be set flush onto the board surface - not into or below the surface.
Finish- *as identified on the accompanying drawings*
Fix Hermpac Bevelback Weatherboards
Fix Hermpac Bevelback Weatherboards, with Grade 316 Stainless Steel Annular Grooved Hermpac Crown Head Nails, in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 32mm.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface

Fix Hermpac Bevelback Weatherboards
Fix Hermpac Bevelback Weatherboards with Silicon Bronze Annular Grooved Hermpac Crown Head Nails, in accordance with Hermpac fixing requirements and as shown on the drawings.

The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 32mm.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
Rose Head Nail, Stainless Steel - Cedar Bevelback Weatherboard
Fix Hermpac Cedar Bevelback Weatherboards with Grade 316 Stainless Steel Annular Grooved Rose Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with rose head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 32mm.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.

Fix Hermpac Bevelback Weatherboards
Fix Hermpac Bevelback Weatherboards with Silicon Bronze Annular Grooved Rose Head Nails, in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with rose head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 32mm.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.

Fix Hermpac Bevelback Weatherboards
Fix Hermpac Bevelback Weatherboards with Grade 316 Stainless Steel Annular Grooved Flat Head Nails, in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with flat head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.

Ensure the weatherboards are set-out with an overlap of 32mm.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.

Fix Hermpac Bevelback Weatherboards
Fix Hermpac Bevelback Weatherboards with Silicon Bronze Annular Grooved Flat Head Nails, in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with flat head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 32mm.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.

Fix paint-finished Hermpac Bevelback Weatherboards
Fix paint-finished Hermpac Bevelback Weatherboards with Grade 316 Stainless Steel Annular Grooved Jolt Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with jolt head nails (used most often for a paint finish), the nail length must allow minimum 35mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 32mm.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Punch nails 2mm below the board surface, prime nail holes and fill prior to sanding and finishing.

Fix Hermpac Cedar Bevelback Weatherboards
Fix Hermpac Cedar Bevelback Weatherboards with Grade 316 Stainless Steel finish as identified on the accompanying drawings, Hermpac Starcap Screws in accordance with Hermpac fixing requirements and as shown on the drawings.
When fixing with Starcap screws (used most often for an oil/stain finish), the shank length must allow minimum 21mm penetration of the wall frame.
All screw fixings shall be pre-drilled a maximum of 1mm diameter smaller than the screw gauge.
Ensure the weatherboards are set-out with an overlap of 32mm.

Single fix weatherboards at every fixing point, with screws driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Screws shall be set flush onto the board surface - not into or below the surface.
Finish - *as identified on the accompanying drawings*

Fix Hermpac Rebated Bevelback Weatherboards
Fix Hermpac Rebated Bevelback Weatherboards with Grade 316 Stainless Steel Annular Grooved Hermpac Crown Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with a minimum overlap of 25mm, with a 2mm expansion gap between boards at the overlap. All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-32mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
Crown Head Nail, Silicon Bronze - Cedar Rebated Bevelback Weatherboard
Fix Hermpac Cedar Rebated Bevelback Weatherboards with Silicon Bronze Annular Grooved Hermpac Crown Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with a minimum overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-32mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.

Fix Hermpac Rebated Bevelback Weatherboards
Fix Hermpac Rebated Bevelback Weatherboards with Grade 316 Stainless Steel Annular Grooved Rose Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with rose head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.

Ensure the weatherboards are set-out with a minimum overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-32mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.

Fix Hermpac Rebated Bevelback Weatherboards
Fix Hermpac Rebated Bevelback Weatherboards with Silicon Bronze Annular Grooved Rose Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with rose head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with a minimum overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-32mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.

Fix Hermpac Rebated Bevelback Weatherboards
Fix Hermpac Rebated Bevelback Weatherboards with Grade 316 Stainless Steel Annular Grooved Flat Head Nails, in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with flat head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with a minimum overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-32mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.

Fix Hermpac Rebated Bevelback Weatherboards
Fix Hermpac Rebated Bevelback Weatherboards with Silicon Bronze Annular Grooved Flat Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with flat head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.

Ensure the weatherboards are set-out with a minimum overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-32mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.

Fix paint-finished Hermpac Rebated Bevelback Weatherboards
Fix paint-finished Hermpac Rebated Bevelback Weatherboards with Grade 316 Stainless Steel Annular Grooved Jolt Head Nails, in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with jolt head nails (used most often for a paint finish), the nail length must allow minimum 35mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with a minimum overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-32mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Punch nails 2mm below the board surface, prime nail holes and fill prior to sanding and finishing.

Fix Hermpac Rebated Bevelback Weatherboards
Fix Hermpac Rebated Bevelback Weatherboards with Grade 316 Stainless Steel finish as identified on the accompanying drawings, Hermpac Starcap Screws in accordance with Hermpac fixing requirements and as shown on the drawings.
When fixing with Starcap screws (used most often for an oil/stain finish), the shank length must allow minimum 21mm penetration of the wall frame.
All screw fixings shall be pre-drilled a maximum of 1mm diameter smaller than the screw gauge.
Ensure the weatherboards are set-out with an overlap of 32mm.
Single fix weatherboards at every fixing point, with screws driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Screws shall be set flush onto the board surface - not into or below the surface.
Finish- *as identified on the accompanying drawings*

Fix Hermpac Rusticated Weatherboards
Fix Hermpac Rusticated Weatherboards with Grade 316 Stainless Steel Annular Grooved Hermpac Crown Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.

All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.

Fix Hermpac Rusticated Weatherboards
Fix Hermpac Rusticated Weatherboards with Silicon Bronze Annular Grooved Hermpac Crown Head Nails, in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.

Fix Hermpac Rusticated Weatherboards
Fix Hermpac Rusticated Weatherboards with Grade 316 Stainless Steel Annular Grooved Rose Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with rose head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the bottom edge of the weatherboard and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.

The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge, the nail must not be fixed through the lap, refer to Hermpac details for correct placement.

Fix Hermpac Rusticated Weatherboards
Fix Hermpac Rusticated Weatherboards with Silicon Bronze Annular Grooved Rose Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with rose head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the bottom edge of the weatherboard and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.

Fix Hermpac Rusticated Weatherboards
Fix Hermpac Rusticated Weatherboards with Grade 316 Stainless Steel Annular Grooved Flat Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with flat head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the bottom edge of the weatherboard and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.

Fix Hermpac Rusticated Weatherboards
Fix Hermpac Rusticated Weatherboards with Silicon Bronze Annular Grooved Flat Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with flat head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.

All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the bottom edge of the weatherboard and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.

Fix paint-finished Hermpac Cedar Rusticated Weatherboards
Fix paint-finished Hermpac Cedar Rusticated Weatherboards with Grade 316 Stainless Steel Annular Grooved Jolt Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with jolt head nails (used most often for a paint finish), the nail length must allow minimum 35mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm, with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Punch nails 2mm below the board surface, prime nail holes and fill prior to sanding and finishing.
The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.

Fix Hermpac Rusticated Weatherboards
Fix Hermpac Rusticated Weatherboards with Grade 316 Stainless Steel finish as identified on the accompanying drawings, Hermpac Starcap Screws in accordance with Hermpac fixing requirements and as shown on the drawings.
When fixing with Starcap screws (used most often for an oil/stain finish), the shank length must allow minimum 21mm penetration of the wall frame.
All screw fixings shall be pre-drilled a maximum of 1mm diameter smaller than the screw gauge.
Ensure the weatherboards are set-out with an overlap of 32mm.
Single fix weatherboards at every fixing point, with screws driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Screws shall be set flush onto the board surface - not into or below the surface.
Finish- *as identified on the accompanying drawings*

Fix Hermpac Splaycut & Multi-Splay Weatherboards

Fix Hermpac Splaycut & Multi-Splay Weatherboards with Grade 316 Stainless Steel Annular Grooved Hermpac Crown Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm (30mm for Multi-Splay profiles), with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm (35-40mm for Multi-Splay profiles) from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.

Fix Hermpac Cedar Splaycut & Multi-Splay Weatherboards
Fix Hermpac Cedar Splaycut & Multi-Splay Weatherboards with Silicon Bronze Annular Grooved Hermpac Crown Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with crown head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm (30mm for Multi-Splay profiles), with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm (35-40mm for Multi-Splay profiles) from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.

Fix Hermpac Splaycut & Multi-Splay Weatherboards
Fix Hermpac Splaycut & Multi-Splay Weatherboards with Grade 316 Stainless Steel Annular Grooved Rose Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with rose head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.

Ensure the weatherboards are set-out with an overlap of 25mm (30mm for Multi-Splay profiles), with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm (35-40mm for Multi-Splay profiles) from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge, the nail must not be fixed through the lap, refer to Hermpac details for correct placement.

Fix Hermpac Splaycut & Multi-Splay Weatherboards
Fix Hermpac Splaycut & Multi-Splay Weatherboards with Silicon Bronze Annular Grooved Rose Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with rose head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm (30mm for Multi-Splay profiles), with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm (35-40mm for Multi-Splay profiles) from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.

Fix Hermpac Splaycut & Multi-Splay Weatherboards
Fix Hermpac Splaycut & Multi-Splay Weatherboards with Grade 316 Stainless Steel Annular Grooved Flat Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with flat head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm (30mm for Multi-Splay profiles), with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm (35-40mm for Multi-Splay profiles) from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement.

Fix Hermpac Splaycut & Multi-Splay Weatherboards
Fix Hermpac Splaycut & Multi-Splay Weatherboards with Silicon Bronze Annular Grooved Flat Head Nails in accordance with Hermpac fixing requirements and as shown on the drawings.
The nail shank must be minimum 3.15mm diameter for cavity-fixed weatherboards, or 2.8mm diameter for direct-fixed weatherboards.
When fixing with flat head nails (used most often for an oil/stain finish), the nail length must allow minimum 30mm penetration of the wall frame.
All nail fixings shall be pre-drilled a maximum of 1mm diameter smaller than the nail gauge.
Ensure the weatherboards are set-out with an overlap of 25mm (30mm for Multi-Splay profiles), with a 2mm expansion gap between boards at the overlap.
Single fix weatherboards at every fixing point, with nails driven in a slight upward slope, located 30-35mm (35-40mm for Multi-Splay profiles) from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Nails shall be set flush onto the board surface - not into or below the surface.
The hidden top lap must be restrained using the Hermpac Clinch Nail at every fixing point, with the nail shank flush against the top edge - the nail must not be fixed through the lap, refer to Hermpac details for correct placement

Fix Hermpac Splaycut & Multi-Splay Weatherboards
Fix Hermpac Splaycut & Multi-Splay Weatherboards with Grade 316 Stainless Steel finish as identified on the accompanying drawings, Hermpac Starcap Screws in accordance with Hermpac fixing requirements and as shown on the drawings.
When fixing with Starcap screws (used most often for an oil/stain finish), the shank length must allow minimum 21mm penetration of the wall frame.
All screw fixings shall be pre-drilled a maximum of 1mm diameter smaller than the screw gauge.
Ensure the weatherboards are set-out with an overlap of 32mm.
Single fix weatherboards at every fixing point, with screws driven in a slight upward slope, located 35-40mm from the bottom edge of the weatherboard, and no closer than 32mm from the end of the board.
Screws shall be set flush onto the board surface - not into or below the surface.
Finish- *as identified on the accompanying drawings*

8.11.12 Completion

Check that the specified Hermpac Weatherboard System has been correctly installed and fixed to the layout and details shown on the drawings; that all joints, associated trim and accessories finished correctly; and that all openings and penetrations have been properly flashed and sealed.
Check for damaged materials and defective work - carry out repairs as necessary to the required standard.
Ensure that the work of other trades does not negatively impact on or reduce the minimum clearances required by the NZ Building Code, between the cladding and ground, roof and/or deck junctures.
Leave all of this work complete and weathertight and to the required standard in accordance

with Hermpac requirements and NZBC E2/AS1.
Leave the completed works and surrounding surfaces clean and free of debris and rubbish.
Remove all rubbish and excess material from the site.
Complete and sign the Restricted Building Work (RBW) memorandum, and the Hermpac Weatherboard Cladding System Product Installation Check List. Issue a copy of the RBW document to the Building Consent Authority and to the Main Contractor.

9 EXTERNAL WINDOW & DOOR JOINERY

9.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

9.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

1734:1997(AS/NZS)	Aluminium and aluminium alloys - Flat sheets, coiled sheet and plate
1866:1997(AS/NZS)	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
2208:1996(AS/NZS)	Safety glazing materials in buildings
4211:2008(NZS)	Specification for performance of windows
4223.1:2008(NZS)	Code of practice for glazing in buildings - Glass selection and glazing
4223.2:2016(NZS)	Glazing in buildings - Part 2: Insulating glass units
4223.3:2016(NZS)	Glazing in buildings - Part 3: Human impact safety requirements
4223.4:2008(NZS)	Glazing in buildings - Part 4: Wind, dead, snow, and live actions
4667:2000(AS/NZS)	Quality requirements for cut-to-size and processed glass
4668:2000 (AS/NZS)	Glossary of terms used in the glass and glazing industry
AS/NZS 4666:2012	Insulating glass units

9.3 Aluminium Windows & Doors

9.3.1 Alternatives

No specific supplier is nominated, although a list of acceptable brands is given below. The Contractor shall state with their tender which brand they is using.

Thermal performance (NZBC H1/AS1) must be as required to meet the Designer’s Thermal Evaluation.

APL Brands:
-Altherm
-First
-Vantage
-Smartwood
-Metro Series

-Thermal Heart
-Architectural Series
-Commercial

ASL Brands:
-Elite
-Fairview
-Residential
-Evolution
-Architectural
-Commercial

Fletcher Aluminium Brands:
-Pacific Residential
-Pacific Thermal
-Pacific Architectural
-Atlantic High Performance
-ALTI
-Nubulite
-Rylock

Nalco Brands:
-Nulook
-Bradnams

9.3.2 Installation Type

9.3.2.1 Timber Frame Installation - Cavity Construction

All windows (and aluminium frame external doors) installation work shall be exactly in accordance with NZBC E2/AS1, the Windows Association's Windows Installation System (WANZ:WIS), and details on the drawings or supplied by the windows manufacturer.
Check framing alignment, and that window openings are square and the correct size for fitting tolerances.
Prepare framing openings by neatly cutting the building wrap at 45º into the corners, turning wrap through the frame depth and fixing to the inside face, flashing the bottom corners with moulded plastic and over-flashing the full sill and 200mm up the jambs with the specified flexible flashing tape, stapled to hold the stretched external corners. At head corners install flashing tape 200mm each way from the corners.

Install the WANZ extruded aluminium support bar with built in drainage and ventilation to NZBC E2, to provide continuous support to the window unit. Install the head cavity closer, positioned to provide a 15mm drip edge to the cladding.

Set shims or pack as necessary and install the frames exactly true and square, blocked-up off the support bar as required. Use appropriate separators between aluminium and other materials, and fix securely with due regard for any anticipated movements and for linings, trim etc.

Install the head flashing, extending 35mm up behind the cladding (and in turn over-flashed with an additional piece of wrap cover extended up under the wrap or flashing or eaves above), sloping at 15º down to the exterior, and turning down to cover the top of the aluminium frame by at least 10mm, before finishing with a 5mm 45º 'kick out'. Upstand the head flashing ends as detailed. Install jamb flashings/ sealant or scribers as detailed.
After frames installation install closed cell backing rods as required and expanding foam air-seal the gap between framing and liners.

9.3.2.2 Rebated Concrete Block

All windows (and aluminium frame external doors) installation work shall be exactly in accordance with the manufacturer’s requirements and as shown on the drawings.
Check concrete block rebate alignment, and that window openings are square and the correct size for fitting tolerances - minimum 5mm installation/packing gap to all sides of opening.
Check that all necessary waterproofing membrane systems have been properly applied and finished to openings, extending over the concrete block rebate into the opening and under the location of the aluminium frame, in accordance with the waterproofing manufacturer’s requirements and as shown on the drawings.

Set proprietary plastic shims or packers as necessary and install the frames exactly true and square. Fix frames securely as detailed with due regard for any anticipated movements and for linings, trim etc. Aluminium frames to cover rebate edges by minimum 10mm.

Externally seal between concrete block and head and jambs as detailed with a continuous bead of an approved and suitable flexible sealant – do not seal sills to concrete block and ensure sealant compatibility with any applied finish. Install any required aluminium wind deflection or pressure relief angles to cover the external sealant as detailed.

After frame installation install closed cell backing rods as required and expanding foam air-seal the gap between concrete block and liners.

9.3.3 Interior Finish

GIB Groove.

9.3.4 Reveal

Timber reveals for paint finish with all sides primed.

9.3.5 Glass Platform

Double Glazed.

9.3.6 Finish

9.3.6.1 Powder Coated Aluminium - Semi Gloss

Polyester powder coating in accordance with WANZ Powder Coating Quality Assurance System and AAMA 2603-98 performance is required.

9.3.7 Hardware

Hardware colour matched to Aluminium Joinery.

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

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

9.3.8 Workmanship

These windows will be manufacturerd in workshops containing all mechanical equipment appropriate for the work, and by experienced and competent tradesmen who are familiar with the techniques and materials specified.

The manufacturer will co-ordinate with other trades to establish the exact sizes for all frames before fabrication. Frames and sashes will be fabricated true, square, rigid, and ‘out of wind’, with all joints strongly mechanically fixed, and with mitres tight and fully sealed. Potential thermal, wind and seismic movements will be accommodated within the construction. All cavities will drain to the exterior, and all drilling swarf etc. will be removed during fabrication.

Stays, hinges, running gear and glazing will be installed as scheduled (the Designer will be notified if any scheduled hardware of fixing position appears to be inappropriate for this project).

Hardware will be fixed true to line and position, and adjusted and oiled as required for correct operation.

Glass will be cut true and square, sized to provide correct edge clearances, blocked into place as required, and all units will be delivered either pressure fit, pocket glaze, or beaded/wedged, unless site glazing is required. Glazing gaskets will be compatible with all adjacent materials, and cut 1% over-length to absolutely avoid stretching during installation. Frames will be braced etc. as necessary for transportation to the site.

Flashings as detailed will be supplied. Flashing materials will be compatible with the windows.

9.3.9 Delivery and Installation

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and the construction principles that are embodied in the Acceptable Solutions.

Arrange for delivery of windows to the site only when a suitable storage situation is available for them, handle the windows in accordance with the manufacturers requirements, avoid any frame distortion, avoid rubbing damage, avoid contact with concrete, plaster, mud etc. and keep them dry. Retain protective coverings for as long as possible, and remove them at completion.

Experienced and competent tradesmen who are familiar with the techniques and materials specified shall carry out all installation work. Fix in accordance with the manufacturer's instructions. Take utmost care to avoid damage to anodized or powder coated surfaces - correction of any such disfigurement requires written authority - replace any badly damaged items.

Use fixings compatible with the materials involved, as recommended by the windows manufacturer and to comply with the DWP requirements, basically aluminium or Type 316 stainless steel where exposed externally; galvanized to AS/NZS 4680, 610g/m2, may be used where not exposed.

Thoroughly check all preparatory work to openings prior to installation, including underlay, corner seal tapes, adjacent cladding, pre-installed flashings, waterproofing systems etc. as appropriate. Use inert barriers or coatings to prevent contact between dissimilar metals or between aluminium and concrete.

Install flashings as detailed and supplied by the windows manufacturer, installed tightly and neatly with absolute minimum tolerances, with head weathering jamb, jamb weathering sill, and sill open (draining) to exterior. Except where the window is recessed all head flashings shall extend 30mm minimum beyond the frame.

Air-seal all frame perimeters to adjacent structure to a depth of 15 - 20mm with expanding foam or appropriate sealant including a PEF rod at head, sill and jambs to retard the spread of sealant.

Weather-seal frame jambs etc. to adjacent surfaces (or to each other) as detailed or as required by the windows manufacturer, to achieve a fully watertight installation. In preparation for sealant the joints shall be clean, dry, and primed if necessary. Insert closed cell polyethylene backer rods or a polyethylene tape slip layer if required. Mask adjacent surfaces if appropriate, install the sealant fully in accordance with the sealant manufacturer's recommendations, and finish to even smooth surfaces.

Remove trade debris progressively, appropriately clean any affected adjacent surfaces, thoroughly clean the windows, check that all hardware is in full working order, and provide safety indication of the glass for the balance of adjacent works.

10 GLAZING

10.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

10.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

1170.0:2002(AS/NZS)	Structural design actions - Part 0: General principles
2208:1996(AS/NZS)	Safety glazing materials in buildings
3604:2011(NZS)	Timber-framed buildings
4211:2008(NZS)	Specification for performance of windows
4223.1:2008(NZS)	Code of practice for glazing in buildings - Glass selection and glazing
4223.2:2016(NZS)	Glazing in buildings - Part 2: Insulating glass units
4223.3:2016(NZS)	Glazing in buildings - Part 3: Human impact safety requirements
4223.4:2008(NZS)	Glazing in buildings - Part 4: Wind, dead, snow, and live actions
4232.2:1988(NZS)	Performance criteria for fire resisting enclosures - Part 2: Fire resisting glazing systems
4667:2000(AS/NZS)	Quality requirements for cut-to-size and processed glass
4668:2000 (AS/NZS)	Glossary of terms used in the glass and glazing industry
AS/NZS 4666:2012	Insulating glass units

10.3 Non-Structural Glazing

10.3.1 Scope

Supply and install the selected glass products to the windows, doors, curtain wall systems, roofs and canopies, balustrades and barriers, partitions and screens, and other non-structural glazing elements, as noted and shown on the drawings. All aspects of this work shall be in accordance with the glass manufacturer's installation requirements and recommendations, other relevant product manufacturers' recommendations, and as shown on the drawings.

10.3.2 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings.

Coordinate with other trades for all necessary holes and cut-outs, etc., for glass-mounted hardware, fittings and fixtures, and to install all glass and glazed elements as required.

10.3.3 Workmanship

All installation work shall be carried out by experienced and competent tradesmen familiar with the products specified and installation techniques, to the manufacturer's requirements and recommendations, and the requirements of the relevant Glazing Standards, and to the layout and details shown on the drawings.
Handle and store glass in accordance with the manufacturer's recommendations.
Provide temporary safety markings to all glass panes as the installation work progresses.
Finish all external glazing wind and watertight.
Do not use damaged, marked or faulty materials.

10.3.4 Glass Type

10.3.4.1 Low-E Glass

Low Emissivity Glass. Heat-reflective coated surface, annealed float glass, complying with AS/NZS 4667 and in accordance with NZS 4223.1. Installed to the locations identified on the drawings and schedules.

Manufacturer, brand name & type:

10.3.4.2 Toughened Safety Glass

Toughened Safety Glass. Toughened Grade 'A' Safety Glass, complying with AS/NZS 2208 and AS/NZS 4667 and in accordance NZS 4223.1. Installed to the locations identified on the drawings and schedules. All cutting and drilling and other processing requirements must be done prior to toughening.

Manufacturer, brand name & type:

10.3.4.3 Mirrored Safety Glass

Mirrored Safety Glass. Clear Grade 'A' Safety Glass with a reflective silvered coating and manufacturer applied protective backing, complying with AS/NZS 2208 and AS/NZS 4667 and in accordance NZS 4223. Installed to the locations identified on the drawings and schedules.

Manufacturer, brand name & type:

10.3.5 Insulating Glass Units

10.3.5.1 Standard Double Glazing

Standard Double Glazing. Air-filled and sealed insulating glass units (IGUs) complying with NZS 4223.2, with clear float glass complying with NZS 4223.1. Double glazed IGUs shall be manufactured and installed in accordance with AS/NZS 4666. Factory-fitted to the windows and doors identified as 'double glazed' on the drawings and schedules.

10.3.6 Components & Accessories

10.3.6.1 Aluminium Framed Glazing

Provide all necessary glazing components and accessories including glazing tape, setting and distance blocks, sealants, gaskets, etc., to complete aluminium framed glazing as required.

10.3.7 Installation

10.3.7.1 Aluminium, Double Glazed (IGU's)

Install Insulated Glass Units into aluminium frames in accordance with the glazing manufacturer's recommendations and NZS 4223.1, and as detailed.

10.3.8 Glass Barriers

Glass balustrades and fences that are fully framed, unframed or partly framed or structural shall comply with section 22 of NZS 4223.3.

New structural glass barriers shall comply with NZBC B1/AS1 and must have an interlinking rail, unless the barrier is laminated safety glass and has features to retain panes of glass or prevent collapse, in the event of breakage. The interlinking rail shall be designed to resist serviceability limit state (SLS) loads, specified in AS/NZS 1170 and B1/VM1, in the event that a glass pane of the barrier breaks.

Glass balustrades shall comply with section 22 of NZS 4223.3.

Glass balustrade panels cut to the dimensions shown on the drawings, and factory pre-drilled and cut as required for all necessary fixings, brackets, cleats, handrails, and other hardware or fixtures, and edge finished as specified, prior to installation.

Balustrade panels installed to the layout and details shown on the drawings and in accordance with any proprietary fixing manufacturer's requirements.

Balustrade panels set straight, true to line and plumb. Panel joints plumb and parallel as detailed.

All fixings, clamps and brackets etc. neatly set-out and aligned as detailed.

10.3.9 Frameless Doors & Screens

Frameless glass doors and screens shall be safety glass in accordance with NZS 4223.3.

Frameless glass doors and screen panels cut to the dimensions shown on the drawings, and factory pre-drilled and cut as required for all necessary fixings, brackets, cleats, hinges, locks, latches, closers and other hardware or fixtures, and edge finished as specified, prior to installation.

Install frameless glass doors and screen panels to the layout and details shown on the drawings and in accordance with any proprietary fixing manufacturer's requirements.

Glass screen panels set straight, true to line and plumb. Panel joints plumb and parallel as detailed.

Fixings, clamps, brackets, and hardware etc. neatly set-out and aligned as detailed.

Note: where relevant, new structural glass barriers shall comply with NZBC B1/AS1 (Amendment 13) and must have an interlinking rail, unless the barrier is laminated safety

glass and has features to retain panes of glass or prevent collapse, in the event of breakage. The interlinking rail shall be designed to resist serviceability limit state (SLS) loads, specified in AS/NZS 1170 and B1/VM1, in the event that a glass pane of the barrier breaks.

10.3.10 Mirrors

Frameless mirrors to the dimensions noted on the drawings, all edges finished as specified. Install to the locations indicated on the drawings with an approved adhesive and double sided adhesive tape in accordance with the glazing manufacturer's recommendations.

10.3.11 Edge Finishing

Flat and polished exposed edges to all frameless glass doors and screens, and where noted on the drawings.

Flat polished edges to frameless mirrors.

10.3.12 Manifestations

Manifestations shall be in accordance with NZS 4223 and as shown on the drawings, and applied to the manufacturer's requirements.

Manufacturer, brand name & type:

10.3.13 Completion

Check that all glass has been installed correctly to the required standard and as shown on the drawings. Check for damage and surface marking and replace as necessary. Clean off and remove all temporary safety markings, as programmed and when instructed, and leave glass trade clean. Remove all rubbish and waste material from site.
Issue to the Owner a copy of the Glass Manufacturer's maintenance requirements and all necessary Manufacturer Warranties.

11 INSULATION

11.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

11.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

4218:2009(NZS)	Thermal insulation - Housing and small buildings
4220:1982(NZS)	Code of practice for energy conservation in non-residential buildings
4243.1:2007(NZS)	Energy efficiency - Large buildings - Building thermal envelope
4246:2016(NZS)	Energy efficiency - Installing bulk thermal insulation in residential buildings
4859.1:2018(AS|NZS)	Thermal insulation materials for buildings - Part 1: General criteria and technical provisions

11.3 Pink Batts Insulation

11.3.1 Scope

Supply and install Pink® Batts® Insulation, as specified herein, to the locations identified on the drawings, complete with all accessories required for proper installation and performance. No substitutions are permitted for Pink® Batts® Insulation. All aspects of this work shall be in complete accordance with Pink® Batts® technical information and installation requirements and as shown on the drawings:
https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

The following is a list and/or general description of the extent of the Pink® Batts® Insulation works, which are more specifically defined in the contract documents, required for the completion of the contract works:

11.3.2 Requirements

11.3.2.1 Safety

Comply with the Health and Safety at Work Act 2015 (HSWA), and with all relevant Health and Safety at Work Regulations 2016, and with all relevant WorkSafe New Zealand (WorkSafe) Approved Codes of Practice and WorkSafe Information and Guidance, particularly those for construction and building maintenance.

11.3.2.2 Warranty - applies to BRANZ Appraised Pink® Batts® Ceiling & Wall products

Pink® Batts® Lifetime Product Warranty:
- 50 Years Warranty for BRANZ Appraised Pink® Batts® ceiling and wall products installed

according to the warranty conditions.
- Provide the Pink® Batts® Lifetime Product Warranty on the manufacturer's standard warranty form.
- Commence the warranty from the date of permanent installation.

11.3.2.3 Substitutions

Pink® Batts® Insulation shall be as specified herein and as indicated on the approved drawings. The substitution of Pink® Batts® branded products for alternative brands is not permitted under any circumstances.

The substitution of a specified Pink® Batts® product for an alternative Pink® Batts® branded product by the Installer (PinkFit® or other) shall only be permitted with the Contract Administrator's written authorisation, and shall be at no additional cost to the Principal. Should any resultant extra work and/or redesign work be required to accommodate alternative Pink® Batts® branded products to satisfy design, performance and compliance requirements, then the cost of these shall be borne by the Installer.

11.3.3 Underfloor Thermal Insulation

11.3.3.1 Pink® Batts® SnugFloor® R2.6 Narrow

Product code 7131451. A non-combustible, resin bonded fibrous glasswool insulation manufactured from over 80% New Zealand sourced recycled glass and cured urea extended phenolic resin. Suitable for use in timber-framed floors. R-value R-2.6. 110mm thick x 480mm wide x 1220mm long segments.

BRANZ Appraised for use as a thermal insulating material for timber framed floors in new and existing domestic buildings according to the conditions and limitations of BRANZ Appraisal No.632.

Pink® Batts® SnugFloor® R2.6 Narrow is licenced with Environmental Choice New Zealand: Thermal Building Insulant Licence No.2504017.

Installed as underfloor thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.3.2 Pink® Batts® SnugFloor® R2.6 Wide

Pink® Batts® SnugFloor® R2.6 Wide- product code 7131601. A non-combustible, resin bonded fibrous glasswool insulation manufactured from over 80% New Zealand sourced recycled glass and cured urea extended phenolic resin. Suitable for use in timber framed floors. R-value R-2.6. 110mm thick x 580mm wide x 1220mm long segments.

BRANZ Appraised for use as a thermal insulating material for timber framed floors in new and existing domestic buildings according to the conditions and limitations of BRANZ Appraisal No.632.

Pink® Batts® SnugFloor® R2.6 Wide is licenced with Environmental Choice New Zealand: Thermal Building Insulant Licence No.2504017.

Installed as underfloor thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.3.3 Pink® Batts® SnugFloor® R3.2 Wide

Pink® Batts® SnugFloor® R3.2 Wide- product code 7135832. A non-combustible, resin bonded fibrous glasswool insulation manufactured from over 80% New Zealand sourced recycled glass and cured urea extended phenolic resin. Suitable for use in timber-framed floors. R-value R-3.2 - 140mm thick x 580mm wide x 1220mm long segments.

BRANZ Appraised for use as a thermal insulating material for timber framed floors in new and existing domestic buildings according to the conditions and limitations of BRANZ Appraisal No.632.

Pink® Batts® SnugFloor® R3.2 - Wide is licenced with Environmental Choice New Zealand: Thermal Building Insulant Licence No.2504017.

Installed as underfloor thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.3.4 Pink® Batts® SnugFloor® R3.2 Narrow

Pink® Batts® SnugFloor® R3.2 Narrow- product code 7134832. A non-combustible, resin bonded fibrous glasswool insulation manufactured from over 80% New Zealand sourced recycled glass and cured urea extended phenolic resin. Suitable for use in timber-framed floors. R-value R-3.2 - 140mm thick x 480mm wide x 1220mm long segments.

BRANZ Appraised for use as a thermal insulating material for timber framed floors in new and existing domestic buildings according to the conditions and limitations of BRANZ Appraisal No.632.

Pink® Batts® SnugFloor® R3.2 - Narrow is licenced with Environmental Choice New Zealand: Thermal Building Insulant Licence No.2504017.

Installed as underfloor thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4 Wall Thermal Insulation

11.3.4.1 Pink® Batts® Classic R1.8 Wall

Pink® Batts® Classic R1.8 Wall - product code 7127118. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-1.8. 90mm thick x 560mm wide x 1140mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.2 Pink® Batts® Classic R2.2 Wall

Pink® Batts® Classic R2.2 Wall - product code 7127122. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-2.2. 90mm thick x 560mm wide x 1140mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.3 Pink® Batts® Classic R2.4 Wall

Pink® Batts® Classic R2.4 Wall - product code 7127124. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-2.4. 90mm thick x 560mm wide x 1140mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.4 Pink® Batts® R1.0 Masonry Wall

Pink® Batts® R1.0 Masonry Wall - product code 7160110. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-1.0. 40mm thick x 580mm wide x 1220mm long segments.

Pink® Batts® Masonry Wall insulation is specifically designed to be installed between vertical strapping members fixed to solid concrete/masonry walls. It is recommended that an absorbent building paper or a waterproof membrane is placed between the insulation and the concrete.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Installed as thermal insulation to strapped concrete/masonry wall to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.5 Pink® Batts® R1.2 Masonry Wall

Pink® Batts® R1.2 Masonry Wall - product code 7160134. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-1.2. 50mm thick x 580mm wide x 1220mm long segments.

Pink® Batts® Masonry Wall insulation is specifically designed to be installed between vertical strapping members fixed to solid concrete/masonry walls. It is recommended that an absorbent building paper or a waterproof membrane is placed between the insulation and the concrete.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Installed as thermal insulation to strapped concrete/masonry wall to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.6 Pink® Batts® R2.2 Narrow Wall

Pink® Batts® R2.2 Narrow Wall - product code 7120123. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-2.2. 90mm thick x 380mm wide x 1140mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.7 Pink® Batts® Ultra® R2.6 Wall

Pink® Batts® Ultra® R2.6 Wall - product code 7127126. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-2.6. 90mm thick x 560mm wide x 1140mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Pink® Batts® Ultra® R2.6 Wall is licenced with Environmental Choice New Zealand: Thermal Building Insulants Licence No.2504017.

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.8 Pink® Batts® Ultra® R2.8 Wall

Pink® Batts® Ultra® R2.8 Wall - product code 7127128. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-2.8. 90mm thick x 560mm wide x 1140mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Pink® Batts® Ultra® R2.8 Wall is licenced with Environmental Choice New Zealand: Thermal Building Insulants Licence No.2504017.

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.9 Pink® Batts® Ultra® R2.6 Narrow Wall

Pink® Batts® Ultra® R2.6 Narrow Wall - product code 7160207. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-2.6. 90mm thick x 380mm wide x 1140mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Pink® Batts® Ultra® R2.6 Narrow Wall is licenced with Environmental Choice New Zealand: Thermal Building Insulants Licence No.2504017.

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.10 Pink® Batts® Ultra® R3.2 140mm Wall

Pink® Batts® Ultra® R3.2 140mm Wall - product code 7127132. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-3.2. 140mm thick x 560mm wide x 1140mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Pink® Batts® Ultra® R3.2 140mm Wall is licenced with Environmental Choice New Zealand: Thermal Building Insulants Licence No.2504017.

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.11 Pink® Batts® Ultra® R3.2 140mm Narrow Wall

Pink® Batts® Ultra® R3.2 140mm Narrow Wall - product code 7160241. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-3.2. 140mm thick x 380mm wide x 1140mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Pink® Batts® Ultra® R3.2 140mm Narrow Wall is licenced with Environmental Choice New Zealand: Thermal Building Insulants Licence No.2504017.

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.12 Pink® Batts® Ultra® R4.0 140mm Wall

Pink® Batts® Ultra® R4.0 140mm Wall - product code 7127140. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-4.0. 140mm thick x 560mm wide x 1140mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Pink® Batts® Ultra® R4.0 140mm Wall is licenced with Environmental Choice New Zealand: Thermal Building Insulants Licence No.2504017.

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.13 Pink® Batts® Ultra® R4.0 140mm Narrow Wall

Pink® Batts® Ultra® R4.0 140mm Narrow Wall - product code 7160242. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-4.0. 140mm thick x 380mm wide x 1140mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and

limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Pink® Batts® Ultra® R4.0 140mm Narrow Wall is licenced with Environmental Choice New Zealand: Thermal Building Insulants Licence No.2504017.

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.14 Pink® Batts® Ultra® R4.3 140mm Wall

Pink® Batts® Ultra® R4.3 140mm Wall - product code 7127143. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-4.3 - 140mm thick x 560mm wide x 1140mm long segments.

BRANZ Appraised https://www.branz.co.nz/appraisal-codemark-certificates/238-2018-pink-batts-insulation/ for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Pink® Batts® Ultra® R4.3 140mm Wall is licenced with Environmental Choice New Zealand: Thermal Building Insulants Licence No.2504017.
Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.15 Pink® Batts® Ultra® R4.3 140mm Narrow Wall

Pink® Batts® Ultra® R4.3 140mm Narrow Wall - product code 7160262. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-4.3 - 140mm thick x 360mm wide x 1140mm long segments.

BRANZ Appraised https://www.branz.co.nz/appraisal-codemark-certificates/238-2018-pink-batts-insulation/ for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Pink® Batts® Ultra® R4.3 140mm Narrow Wall is licenced with Environmental Choice New Zealand: Thermal Building Insulants Licence No.2504017.

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.16 Pink® Batts® Steel R2.2 Wall

Pink® Batts® Steel R2.2 Wall - product code 7160214. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-2.2. 90mm thick x 610mm wide x 1220mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.4.17 Pink® Batts® Ultra® Steel R2.6 Wall

Pink® Batts® Ultra® Steel R2.6 Wall - product code 7160215. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-2.6. 90mm thick x 610mm wide x 1220mm long segments.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/Products/April-2022-changes-/Wall-Product-Sheet_April22_1075-RevF.pdf

Pink® Batts® Ultra® Steel R2.6 Wall is licenced with Environmental Choice New Zealand: Thermal Building Insulants Licence No.2504017.

Installed as wall cavity thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5 Ceiling Thermal Insulation

11.3.5.1 Pink® Batts® Classic R1.8 Ceiling

Pink® Batts® Classic R1.8 Ceiling - product code 7110118. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea

extended phenolic resin. R-value R-1.8. 95mm thick x 432mm wide x 1220mm long segments.

Pink® Batts® ceiling insulation is a lightweight flexible glasswool insulation products designed to:
- thermally insulate ceilings in new homes, be retrofitted into existing homes without insulation, or over existing insulation for better performance;
- fit easily into standard ceiling constructions, or be easily cut to fit non-standard constructions;
- meet the requirements of the New Zealand Building Code for different designs and environments.

Pink® Batts® Classic R1.8 Ceiling is BRANZ Appraised - refer to BRANZ Appraisal No.238. Refer to Product data sheet - https://www.pinkbatts.co.nz/assets/Uploads/Downloads/Roof-and-RTA-Data-Sheet-February-2023.pdf

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.2 Pink® Batts® Classic R2.2 Ceiling

Pink® Batts® Classic R2.2 Ceiling - product code 7110122.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

115mm thick x 432mm wide x 1220mm long segments.

Pink® Batts® ceiling insulation is a lightweight flexible glasswool insulation product designed to:

- thermally insulate ceilings in new homes, be retrofitted into existing homes without insulation, or over existing insulation for better performance;

- fit easily into standard ceiling constructions, or be easily cut to fit non-standard constructions;

- meet the requirements of the New Zealand Building Code for different designs and environments.

Pink® Batts® Classic R2.2 Ceiling is BRANZ Appraised - refer to BRANZ Appraisal No.238. Refer to data - https://www.pinkbatts.co.nz/assets/Uploads/Downloads/Roof-and-RTA-Data-Sheet-February-2023.pdf

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.3 Pink® Batts® Classic R2.6 Ceiling

Pink® Batts® Classic R2.6 Ceiling - product code 7110126.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

140mm thick x 432mm wide x 1220mm long segments.

Pink® Batts® ceiling insulation is a lightweight flexible glasswool insulation products designed to:

- thermally insulate ceilings in new homes, be retrofitted into existing homes without insulation, or over existing insulation for better performance;

- fit easily into standard ceiling constructions, or be easily cut to fit non-standard constructions;

- meet the requirements of the New Zealand Building Code for different designs and environments.

Pink® Batts® Classic R2.6 Ceiling is BRANZ Appraised - refer to BRANZ Appraisal No.238. Refer to data - https://www.pinkbatts.co.nz/assets/Uploads/Downloads/Roof-and-RTA-Data-Sheet-February-2023.pdf

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.4 Pink® Batts® Classic R3.2 Ceiling

Pink® Batts® Classic R3.2 Ceiling - product code 7110132.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

170mm thick x 432mm wide x 1220mm long segments.

Pink® Batts® ceiling insulation is a lightweight flexible glasswool insulation products designed to:

- thermally insulate ceilings in new homes, be retrofitted into existing homes without insulation, or over existing insulation for better performance;

- fit easily into standard ceiling constructions, or be easily cut to fit non-standard constructions;

- meet the requirements of the New Zealand Building Code for different designs and environments.

Pink® Batts® Classic R3.2 Ceiling is BRANZ Appraised - refer to BRANZ Appraisal No.238. Refer to data - https://www.pinkbatts.co.nz/assets/Uploads/Downloads/Roof-and-RTA-Data-Sheet-February-2023.pdf

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.5 Pink® Batts® Classic R3.6 Ceiling

Pink® Batts® Classic R3.6 Ceiling - product code 7110136.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

180mm thick x 432mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.6 Pink® Batts® R2.6C Ceiling

Pink® Batts® R2.6C Ceiling - product code 7160266.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

110mm thick x 432mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.7 Pink® Batts® R3.0C Ceiling

Pink® Batts® R3.0C Ceiling - product code 7160265.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

160mm thick x 432mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.8 Pink® Batts® Ultra® R4.0 Ceiling

Pink® Batts® Ultra® R4.0 Ceiling - product code 7110140.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

195mm thick x 432mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.9 Pink® Batts® Superbatts® R4.5 Ceiling

Pink® Batts® Superbatts® R4.5 Ceiling - product code 7113145.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

210mm thick x 460mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.10 Pink® Batts® Superbatts® R5.0 Ceiling

Pink® Batts® Superbatts® R5.0 Ceiling - product code 7113150.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

225mm thick x 460mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.11 Pink® Batts® Superbatts® R6.0 Ceiling

Pink® Batts® Superbatts® R6.0 Ceiling - product code 7113160.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

245mm thick x 460mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.12 Pink® Batts® Superbatts® R7.0 Ceiling

Pink® Batts® Superbatts® R7.0 Ceiling - product code 7113170.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

275mm thick x 460mm wide x 1220mm long segments.

11.3.5.13 Pink® Batts® Skillion Roof R1.0

Pink® Batts® Superbatts®Skillion Roof R1.0 - product code 7113210. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-1.0. 40mm Max. thickness x 580mm wide x 1220mm long segments.

Pink® Batts® Skillion Roof insulation products are specifically designed for skillion roofs, and provide high levels of thermal performance while ensuring the maximum thickness the segments can achieve.

Pink® Batts® Skillion Roof insulation has been BRANZ Appraised for use as a thermal insulating material for timber framed skillion roofs of domestic and commercial buildings - refer to BRANZ Appraisal No.767.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.14 Pink® Batts® Skillion Roof R3.2

Pink® Batts® Skillion Roof R3.2 - product code 7110232.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

115mm Max. thickness x 432mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.15 Pink® Batts® Skillion Roof R3.6

Pink® Batts® Skillion Roof R3.6 - product code 7110236.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

165mm Max. thickness x 432mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.16 Pink® Batts® Skillion Roof R4.5

Pink® Batts® Skillion Roof R4.5 - product code 7110245.
Glasswool insulation manufactured from over 80% recycled New Zealand glass.
Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.
165mm Max. thickness x 432mm wide x 1220mm long segments.
Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.
Installed Location:

11.3.5.17 Pink® Superbatts® Skillion Roof R5.0

Pink® Superbatts® Skillion Roof R5.0 - product code 7113250.
Glasswool insulation manufactured from over 80% recycled New Zealand glass.
Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.
180mm Max. thickness x 560mm wide x 1220mm long segments.
Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.18 Pink® Superbatts® Skillion Roof R6.0

Pink® Superbatts® Skillion Roof R6.0 - product code 7113260.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

230mm Max. thickness x 560mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.19 Pink® Superbatts® Skillion Roof R7.4

Pink® Superbatts® Skillion Roof R7.4 - product code 7113274.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

275mm Max. thickness x 560mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.20 Pink® Batts® Retrofit R2.9 Ceiling

Pink® Batts® Retrofit R2.9 Ceiling - product code 7110129.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

150mm thick x 432mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.5.21 Pink® Batts® Retrofit R3.3 Ceiling

Pink® Batts® Retrofit R3.3 Ceiling - product code 711013.

Glasswool insulation manufactured from over 80% recycled New Zealand glass.

Product is BRANZ Appraised, and supported by an EPD and Eco Choice certification.

175mm thick x 432mm wide x 1220mm long segments.

Installed as ceiling thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.6 Building Insulation Blanket (BIB)

11.3.6.1 Pink® Batts® BIB R1.2 Blanket

Pink® Batts® BIB R1.2 Blanket - product code 7250001. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-1.2. 50mm thick x 1.2m wide x 12m long rolls.

Pink® Batts® Building Insulation Blanket (BIB) is specifically designed for commercial roof and commercial wall applications. When used in residential applications, installation must be completed in line with NZS 4246.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/BIB/PB_BIB-ProductSheet_MARCH22_1080-RevD.pdf

Installed as thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.6.2 Pink® Batts® BIB R1.8 Blanket

Pink® Batts® BIB R1.8 Blanket - product code 7270001. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-1.8. 75mm thick x 1.2m wide x 8m long rolls.

Pink® Batts® Building Insulation Blanket (BIB) is specifically designed for commercial roof and commercial wall applications. When used in residential applications, installation must be completed in line with NZS 4246.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/BIB/PB_BIB-ProductSheet_MARCH22_1080-RevD.pdf

Installed as thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.6.3 Pink® Batts® BIB R2.2 Blanket

Pink® Batts® BIB R2.2 Blanket - product code 7210009. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-2.2. 100mm thick x 1.2m wide x 8m long rolls.

Pink® Batts® Building Insulation Blanket (BIB) is specifically designed for commercial roof and commercial wall applications. When used in residential applications, installation must be completed in line with NZS 4246.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/BIB/PB_BIB-ProductSheet_MARCH22_1080-RevD.pdf

Installed as thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.6.4 Pink® Batts® BIB R2.4 Blanket

Pink® Batts® BIB R2.4 Blanket - product code 7210052. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-2.4. 100mm thick x 1.2m wide x 8m long rolls.

Pink® Batts® Building Insulation Blanket (BIB) is specifically designed for commercial roof and commercial wall applications. When used in residential applications, installation must be completed in line with NZS 4246.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/BIB/PB_BIB-ProductSheet_MARCH22_1080-RevD.pdf

Installed as thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.6.5 Pink® Batts® BIB R2.6 Blanket

Pink® Batts® BIB R2.6 Blanket - product code 7200076. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-2.6. 110mm thick x 1.2m wide x 6m long rolls.

Pink® Batts® Building Insulation Blanket (BIB) is specifically designed for commercial roof and commercial wall applications. When used in residential applications, installation must be completed in line with NZS 4246.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/BIB/PB_BIB-ProductSheet_MARCH22_1080-RevD.pdf

Installed as thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.6.6 Pink® Batts® BIB R2.8 Blanket

Pink® Batts® BIB R2.8 Blanket - product code 720082. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-2.8. 130mm thick x 1.2m wide x 8m long rolls.

Pink® Batts® Building Insulation Blanket (BIB) is specifically designed for commercial roof and commercial wall applications. When used in residential applications, installation must be completed in line with NZS 4246.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/BIB/PB_BIB-ProductSheet_MARCH22_1080-RevD.pdf

Installed as thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.6.7 Pink® Batts® BIB R3.2 Blanket

Pink® Batts® BIB R3.2 Blanket - product code 7200450. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-3.2. 125mm thick x 1.2m wide x 8m long rolls.

Pink® Batts® Building Insulation Blanket (BIB) is specifically designed for commercial roof and commercial wall applications. When used in residential applications, installation must be completed in line with NZS 4246.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/BIB/PB_BIB-ProductSheet_MARCH22_1080-RevD.pdf

Installed as thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.6.8 Pink® Batts® BIB R3.6 Blanket

Pink® Batts® BIB R3.6 Blanket - product code 720081. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. R-value R-3.6. 140mm thick x 1.2m wide x 8m long rolls.

Pink® Batts® Building Insulation Blanket (BIB) is specifically designed for commercial roof and commercial wall applications. When used in residential applications, installation must be completed in line with NZS 4246.

BRANZ Appraised for use as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings according to the conditions and limitations of BRANZ Appraisal No.238. Refer to product data - https://www.pinkbatts.co.nz/assets/BIB/PB_BIB-ProductSheet_MARCH22_1080-RevD.pdf

Installed as thermal insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.7 Acoustic Insulation

11.3.7.1 Wall - Pink® Batts® Silencer® 100mm

Pink® Batts® Silencer® 100mm - product code 7317001. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. STC 43 (*with 10mm GIB® Standard plasterboard each side*), R-value R-2.4 (estimate only). 100mm thick x 560mm wide x 1140mm long segments. Suits 90mm thick framed internal walls.

Pink® Batts® Silencer® wall insulation is designed for use in internal walls only where both acoustic and thermal properties are desired. Do not use Pink® Batts® Silencer® insulation for external wall applications.

Refer to product data - https://www.pinkbatts.co.nz/assets/Acoustic-Silencer-Product-Sheet-FEB20-RevD.pdf

Installed as internal wall cavity acoustic insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.7.2 Wall - Pink® Batts® Silencer® 75mm

Pink® Batts® Silencer® 75mm - product code 7317003. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea

extended phenolic resin. STC 39 (*with 10mm GIB® Standard plasterboard each side*), R-value R-1.9 (estimate only). 75mm thick x 560mm wide x 1140mm long segments. Suits 70mm thick framed internal walls.

Pink® Batts® Silencer® wall insulation is designed for use in internal walls only where both acoustic and thermal properties are desired. Do not use Pink® Batts® Silencer® insulation for external wall applications.

Refer to product data - https://www.pinkbatts.co.nz/assets/Acoustic-Silencer-Product-Sheet-FEB20-RevD.pdf

Installed as internal wall cavity acoustic insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.7.3 Floor - Pink® Batts® Silencer® Midfloor

Pink® Batts® Silencer® Midfloor - product code 7310051. A non-combustible, resin bonded fibrous glasswool insulation manufactured from recycled and virgin glass and cured urea extended phenolic resin. IIC Rating 43 (*construction: 200 x 50mm floor joist @450mm crs, 20mm particle board flooring, 10mm GIB standard plasterboard ceiling lining fixed to ceiling battens @ 400mm crs)*. R-value R-3.6 (estimate only). 150mm thick x 432mm wide x 1140mm long segments.

Pink® Batts® Silencer® Midfloor insulation is specifically designed to reduce noise transmission between floors.

Refer to product data - https://www.pinkbatts.co.nz/assets/Acoustic-Silencer-Product-Sheet-FEB20-RevD.pdf

Installed as inter-storey floor acoustic insulation to the locations shown on the drawings in accordance with the manufacturer's requirements.

Installed Location:

11.3.8 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings.

Coordinate with trades to install Pink® Batts® Insulation as required.

11.3.9 Workmanship

All installation work shall be carried out by registered PinkFit® installers; the preferred Pink® Batts® installers, or by experienced and competent installers, familiar with the specified products and installation techniques, in accordance with the manufacturer’s requirements, and to fully comply with all warranty requirements. For more information on best practice

Pink® Batts® installation refer to:
https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

11.3.10 Delivery & Handling

Store the Pink® Batts® Insulation materials undercover, in a weatherproof environment, off the floor, on a flat, even surface in accordance with the manufacturer's requirements. Keep materials dry and protected from damage, moisture and contamination at all times.

For best practice, refer to Pink Batts Product and Installation Guides.
Further assistance contact 0800 746 522

Store the Pink® Batts® Insulation materials undercover, in a weatherproof environment, off the floor, on a flat, even surface in accordance with the manufacturer's requirements. Keep materials dry and protected from damage, moisture and contamination at all times.

Conform with all relevant WorkSafe NZ Guidelines and Codes of Practice - including the Workplace and facilities requirements

11.3.11 Installation

11.3.11.1 General

Install Pink® Batts® Insulation in accordance with NZS 4246.
All installation work shall be carried out by experienced and competent installers, familiar with the specified products and installation techniques, in accordance with the manufacturer's requirements, and to fully comply with all warranty requirements. For more information on best practice Pink® Batts® installation refer to:
https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

11.3.11.2 Pink® Batts® SnugFloor®

Install Pink® Batts® SnugFloor® Insulation in accordance with NZS 4246.

All installation work shall be carried out by experienced and competent installers, familiar with the specified products and installation techniques, in accordance with the manufacturer's requirements, and to fully comply with all warranty requirements. For more information on best practice Pink® Batts® installation refer to:

https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

11.3.11.3 Pink® Batts® Wall

Install Pink® Batts® Wall Insulation in accordance with NZS 4246.

All installation work shall be carried out by experienced and competent installers, familiar with the specified products and installation techniques, in accordance with the manufacturer's requirements, and to fully comply with all warranty requirements. For more information on best practice Pink® Batts® installation refer to:

https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

11.3.11.4 Pink® Batts® Ceiling - General Suspended Ceiling

Install Pink® Batts® Ceiling Insulation in accordance with NZS 4246.

All installation work shall be carried out by experienced and competent installers, familiar with the specified products and installation techniques, in accordance with the manufacturer's requirements, and to fully comply with all warranty requirements. For more information on best practice Pink® Batts® installation refer to:

https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

11.3.11.5 Pink® Batts® Ceiling - Truss/Framed Roof

Install Pink® Batts® Ceiling Insulation in accordance with NZS 4246.

All installation work shall be carried out by experienced and competent installers, familiar with the specified products and installation techniques, in accordance with the manufacturer's requirements, and to fully comply with all warranty requirements. For more information on best practice Pink® Batts® installation refer to:

https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

11.3.11.6 Pink® Batts® Skillion Roof

Install Pink® Batts® Skillion Roof in accordance with NZS 4246.

All installation work shall be carried out by experienced and competent installers, familiar with the specified products and installation techniques, in accordance with the manufacturer's requirements, and to fully comply with all warranty requirements. For more information on best practice Pink® Batts® installation refer to:

https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

11.3.11.7 Pink® Batts® BIB - Wall

Install Pink® Batts® BIB Insulation in accordance with NZS 4246.

All installation work shall be carried out by experienced and competent installers, familiar with the specified products and installation techniques, in accordance with the manufacturer's requirements, and to fully comply with all warranty requirements. For more information on best practice Pink® Batts® installation refer to:

https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

11.3.11.8 Pink® Batts® BIB - General Suspended Ceiling

Install Pink® Batts® BIB Insulation in accordance with NZS 4246.

All installation work shall be carried out by experienced and competent installers, familiar with the specified products and installation techniques, in accordance with the manufacturer's requirements, and to fully comply with all warranty requirements. For more information on best practice Pink® Batts® installation refer to:

https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

11.3.11.9 Pink® Batts® Ceiling - Armstrong Suspended Ceiling

Carefully lay Pink® Batts® BIB insulation blanket over the Armstrong suspended ceiling lining at right angles to the ceiling supports, ensuring there is no undue compression, gaps, creases, tucks or folds in the insulation.

Limit BIB insulation to a maximum of 1.27 kg/m2 - R2.6 (maximum) with the grid supporting the weight of the insulation. Where a higher total R value is required provide additional insulation between or below the roof structure on mesh as required by the drawings.

Butt insulation, without leaving gaps, against wall lining along suspended ceiling edges - where necessary, drape insulation into open wall cavities, trim around wall framing as necessary.

Firmly butt all insulation blanket joins together, ensuring there are no gaps, and maintain full thickness of the insulation to ensure maximum thermal performance.

Ensure that the appropriate clearances are maintained for electrical equipment, heating and ventilation equipment, heated flues and pipes, etc. Where possible, place insulation beneath electrical wiring and plumbing. Take extreme care when working around exposed electrical cables - treat all cables as live.

11.3.11.10 Pink® Batts® BIB - Roof

Install Pink® Batts® BIB Insulation in accordance with NZS 4246.

All installation work shall be carried out by experienced and competent installers, familiar with the specified products and installation techniques, in accordance with the manufacturer's requirements, and to fully comply with all warranty requirements. For more information on best practice Pink® Batts® installation refer to:

https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

11.3.11.11 Pink® Batts® Silencer® Wall

Install Pink® Batts® Silencer® Wall in accordance with NZS 4246.

All installation work shall be carried out by experienced and competent installers, familiar with the specified products and installation techniques, in accordance with the manufacturer's requirements, and to fully comply with all warranty requirements. For more information on best practice Pink® Batts® installation refer to:

https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

11.3.11.12 Pink® Batts® Silencer® Midfloor

Install Pink® Batts® Silencer® Midfloor in accordance with NZS 4246.

All installation work shall be carried out by experienced and competent installers, familiar with the specified products and installation techniques, in accordance with the manufacturer's requirements, and to fully comply with all warranty requirements. For more information on best practice Pink® Batts® installation refer to:

https://www.pinkbatts.co.nz/resources/downloads/product-data-sheets

11.3.12 Completion

Check that all specified Pink® Batts® Insulation products have been installed correctly in accordance with the manufacturer's requirements.

Check for damage and defects - replace damaged and defective insulation as necessary to the required standard.

Ensure the installed insulation will be adequately protected for durability and performance in accordance with the manufacturer's warranty requirements.

Leave all of this work complete, and in the condition required for proper performance, including for the installation of subsequent linings, in accordance with the manufacturer's warranty requirements.

Leave adjacent surfaces and finished work clean and free of damage. Remove all associated rubbish and waste material from site.

Issue to the Owner a copy of the Pink® Batts® Lifetime Product Warranty for all Pink® Batts® Insulation products installed.

12 ROOFING

12.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

12.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

1170.0:2002 SUPP1(AS/NZS)	Structural design actions - General principles - Commentary
1170.2:2011(AS/NZS)	Structural design actions - Wind actions
2295:2006(NZS)	Pliable, permeable building underlays
2728:2013(AS|NZS)	Prefinished/prepainted sheet metal products for interior/exterior building applications - Performance requirements
3604:2011(NZS)	Timber-framed buildings
4200.1:2017(AS|NZS)	Pliable building membranes and underlays - Part 1: Materials
NZBC F2	Hazardous Building Materials
NZBC G12	Water Supplies
NZMRM Code of Practice	NZ Metal Roof and Wall Cladding Code of Practice - Version 3.0

12.3 Metalcraft Longrun Roofing

12.3.1 Scope

Supply and install Metalcraft Longrun Roofing, as specified herein, to the locations and details shown on the design drawings, complete with all necessary components and accessories required for proper installation and performance. All aspects of this work shall comply with the NZ Building Code, related Metalcraft Longrun Roofing technical literature and publications (check http://www.metalcraftgroup.co.nz or call (0800) 766 369 for the latest editions), and other relevant product manufacturers' recommendations.

No substitutions are permitted for Metalcraft Longrun Roofing.

For the purpose of this specification, Metalcraft Longrun Roofing is referred to as 'Longrun Roofing', and all 'Metalcraft' associated technical literature and publications, including the 'Metalcraft Product Technical Statement', installation instructions and drawings, are collectively referred to as the 'technical literature'.

Extent of work:

The following is a list and/or general description of the extent of the Metalcraft Longrun Roofing works, which are more specifically defined in the contract documents, required for the completion of the contract works:

12.3.2 Requirements

12.3.2.1 Rainwater Run-off used as Potable Water:

Roofing for collecting potable water will be to the requirements of NZBC G12/AS1.

12.3.2.2 Safety:

Comply with the Health and Safety at Work Act 2015 (HSWA), and with all relevant Health and Safety at Work Regulations 2016, and with all relevant WorkSafe New Zealand (WorkSafe) Approved Codes of Practice and WorkSafe Information and Guidance, particularly those for construction and building maintenance.

12.3.2.3 Warranty:

Please refer to Metalcraft specifications for applicable warranty terms and conditions.

12.3.2.4 Substitutions:

The Metalcraft Longrun Roofing shall be as specified herein and on the design drawings. The substitution of the Metalcraft Longrun Roofing for an alternative brand is not permitted under any circumstances.

The substitution of the specified Metalcraft Longrun roofing or ancillary component for an alternative Metalcraft Longrun Roofing system or ancillary component by the Contractor shall only be permitted with the Contract Administrator's written authorisation and shall be at no additional cost to the Principal. Should any resultant extra work and/or redesign work be required to accommodate an alternative Metalcraft Longrun Roofing or ancillary component to satisfy design, performance and compliance requirements, then the cost of these shall be borne by the Contractor.

12.3.2.5 Samples:

As required, provide samples of the specified Metalcraft Longrun Roofing for verification by the Contract Administrator.

12.3.2.6 Producer statement (PS3):

The Metalcraft Longrun Roofing installer shall furnish a fully completed PS3 Producer Statement (Construction) at time of application for Code Compliance Certificate. The Producer Statement shall accurately reflect the scope of the installation of the Metalcraft Longrun Roofing in accordance with the consented drawings and specifications.

12.3.2.7 Inspections & reporting:

Inspections shall take place at each of the stages as scheduled in the building consent. Confirm a written programme to facilitate these inspections, including notification when each stage of the work is ready for inspection.

Carry out all necessary pre-installation and installation inspections for each area of the works.

Complete all necessary pre-installation checklists prior to installation, and all necessary installation checklists.

Complete all necessary final checklists and installation sign-off certificates before handing over completed work.

12.3.2.8 Quality assurance:

Maintain and comply with industry-recognised quality control and assurance procedures to ensure that all stages of the work are carried out to the highest standard.

12.3.2.9 Defective materials & workmanship:

Should defective materials and/or work be found at any time before the final acceptance of the work, it shall be rejected. Rejected Metalcraft Longrun Roofing materials and work shall be repaired and/or replaced to the satisfaction of the Contract Administrator without delay and at no additional cost to the Principal.

12.3.3 Profile

Metalcraft - T-Rib roof sheet - a trapazoidal profile; 29mm rib height and 760mm effective cover based on the selected BMT.

Material type - Refer to ‘Roof Sheet Material’ clause.
Thickness - 0.40mm BMT (G550), 0.55mm BMT (G550) and 0.9mm (Aluminium)
Windload – Refer to 'technical literature'
Mass (KG/M2)- Refer to 'Metalcraft'
Minimum pitch - 3 degrees

- Sheets shall be continuous from ridge to gutter, or where a step is designed into the roof, sheets shall be continuous from ridge to step and step to gutter.
- Sheet ends must be stop-ended under flashings.

Installed in accordance with the manufacturer's requirements to the locations and details shown on the drawings.

Installed Location:
Thickness:

12.3.4 Roof Sheet Material

Zincalume® to selected BMT. Hot-dipped aluminium/zinc alloy coated steel coil manufactured to AS 1397. 150g/m² coating weight.

Galvsteel® to selected BMT. Hot-dipped coated steel coil manufactured to ISO 5660 Part 1 and Part 2.

COLORSTEEL Altimate® to selected BMT. Pre-painted marine grade aluminium conforming with AS/NZS 2728.

Colour:

COLORSTEEL Maxam ® to selected BMT. Pre-painted hot dipped aluminium/zinc/magnesium alloy coated steel coil, with a minimum coating weight of 150g/m², conforming with AS/NZS 2728 Class 6. COLORSTEEL®

Colour:

12.3.5 Roof Ancillary Components & Accessories

Fit and lap roofing underlay over the netting/mesh or use a self-supporting underlay. Lay underlay horizontally or vertically with a 150mm side lap, over-sailing the spouting and/or gutters by 10mm, in accordance with 'technical literature'.

Non self-supporting underlay must be supported by hexagonal wire mesh, safety mesh or alternative support, as specified and/or as shown on the approved drawings, in accordance with the roofing underlay manufacturer's recommendations.

Underlay shall be installed in a manner so that it is sufficiently tensioned without sagging, overhangs fascia boards 20mm - 25mm, and finished along roof edges, ridges, valley gutters, roof/wall junctions and at penetrations to the details shown on the drawings.

Underlayment for fully-supported roofing shall be in accordance with NZMRM Code of Practice.

Separate roof underlay from chimneys and flues in accordance with the requirements of NZBC Acceptable Solutions C/AS2 to C/AS6, Paragraph 7.5.9.

Cladding screw fastener type and durability shall comply with AS 3566 Class 4 or Class 5, as appropriate, and be no less than the durability of the material being fixed. Fastener type and placement (frequency) shall be appropriate for the environmental conditions and the specified cladding profile and material and the supporting structure material; all in accordance with the NZMRM Code of Practice and E2 External Moisture.

COLORSTEEL Altimate® must be installed with CL 4% screw with 30mm minimum embedment. Screws must be installed through a clearance hole. All fasteners to be fitted with a bonded sealing washer.

Metal Flashings. Profiled metal cladding flashings shall be fabricated from material with the same coating as the cladding material, to maintain durability and compatibility requirements. Flashings shall be 0.55BMT G300 steel or H34 Aluminium coated to the same standards as the profiled cladding sheets, and notched/scribed when installed across the cladding profile or provided with a soft edge – in accordance with selected roof sheet material and NZMRM Code of Practice requirements.

Flashings, flashing fastenings and fastening frequency shall be in accordance with the NZMRM Code of Practice.

Do not construct flashing joints and flashing junctions in a manner that relies entirely on sealant to maintain weathertightness.

Rivet Fastenings. Rivets shall be sealed aluminium minimum 4mm diameter.

Use only neutral-curing silicone or MS polymer sealant, compatible with the specified metal cladding and flashing materials and finishes, that is suitable for the required application and use in accordance with the sealant manufacturer's instructions and to NZMRM Code of Practice requirements. All sealed joints must be mechanically fastened, and excess sealant neatly removed to prevent unnecessary dirt build-up. Sealant shall only be used to seal between two metal surfaces, do not fill holes or gaps with sealant.

Proprietary Collar Flashings. EDPM or silicone-polymer proprietary flexible collar flashings for weatherproofing cladding-penetrating pipes/flues/ducts. Sized to suit the applicable pipe/flue/duct and installed in strict accordance with the manufacturer's requirements and the NZMRM Code of Practice.

Profiled Foam Closure Strip. Non-bituminous, compressible, closed-cell foam strips profiled to fit the specified cladding profile. Installed to the details shown on the drawings and in accordance with selected roof sheet material and NZMRM Code of Practice recommendations.

12.3.6 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings.

Coordinate with other trades, as required, on the assembly and installation of the Metalcraft Longrun Roofing to the required layout, details and tolerances.

12.3.7 Qualifications & Workmanship

Where required by the NZ Building Act 2004 it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner.

All installation work shall be carried out by experienced and competent tradespersons, familiar with the specified products and installation techniques and suitably qualified to install Metalcraft Longrun Roofing, to fully comply with all warranty requirements in accordance with the manufacturer's requirements.

All cutting, fixing and installation techniques, fastenings and sealants shall be exactly as recommended by and in accordance with the NZMRM Code of Practice, and carried out with the use of suitable tools and equipment appropriate for the application.

Always maintain isolation of dissimilar materials in accordance with the NZMRM Code of Practice Section 4.10. Isolate dissimilar materials (metal and non-metal) in close proximity as necessary by fitting separator strips. Place isolators between metals and treated timber or cement-based materials.

Do not allow unpainted lead-sheet or copper materials to come in contact with, or allow water run-off from these onto Zincalume or galvanised materials.

All work shall be such as to leave a neat, efficient, robust and weathertight installation.

Where required by the NZ Building Act 2004 it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner.

All installation work shall be carried out by experienced and competent tradespersons, familiar with the specified products and installation techniques and suitably qualified to install Metalcraft Longrun Roofing, to fully comply with all warranty requirements in accordance with the manufacturer's requirements.

Installers of COLORSTEEL Maxam® shall be supervised by an accredited COLORSTEEL Maxam® installer.

All cutting, fixing and installation techniques, fastenings and sealants shall be exactly as recommended by and in accordance with the NZMRM Code of Practice, and carried out with the use of suitable tools and equipment appropriate for the application.

Always maintain isolation of dissimilar materials in accordance with the NZMRM Code of Practice Section 4.10. Isolate dissimilar materials (metal and non-metal) in close proximity as necessary by fitting separator strips. Place isolators between metals and treated timber or cement-based materials. Do not allow unpainted lead-sheet or copper materials to come in contact with, or allow water run-off from these onto Zincalume or galvanised materials.

All work shall be such as to leave a neat, efficient, robust and weathertight installation.

12.3.8 Delivery & Handling

Store Metalcraft Longrun Roofing, flashings and accessories clear of level ground, on bearers at evenly spaced centres as recommended by the NZMRM Code of Practice. Keep stored materials and accessories dry and protected from damage and contamination at all times.

Do not use damaged or defective materials or products, or products that are beyond their designated shelf life.

Handle materials in accordance with the manufacturer's requirements and in a manner that prevents damage to or deterioration of the material, including surface marking.

12.3.9 Preparation

Prior to installation, carry out all necessary inspections and preparatory work required, and ensure that all preliminary works by other trades have been completed to specification and as shown on the approved drawings.

Do not commence installation until all necessary preliminary works by others are complete and to the required standard. The commencement of work shall be deemed to indicate full acceptance by the installer that all preliminary works by other trades are complete.

Supporting timber structures shall comply with NZS 3604, or with NZS 3603 and AS/NZS 1170 for specific design, and have a maximum moisture content in accordance with the requirements of NZS 3602 at the time of installation.

Supporting light-gauge steel framed structures shall comply with the requirements of AS/NZS 4600 or the NASH Standard for Residential and Low-rise Steel Framing, Part 1: Design Criteria.

Supporting heavy steel structures shall comply with NZS 3404 and the NZ Building Code.

Roof Structure - check all aspects of preparatory works, including but not limited to:

- Check that the purlins are installed to the required set-out and spacings, are straight and true to line and plane, and are securely fixed.
- Check that all barge and fascia boards have been installed to the correct line and plane with all edge blocking complete and secure.
- Check that valley gutter and hidden gutter framing is to the required dimensions with solid backing supports securely fixed, true to line and plane.
- Check that internal gutter membrane linings are properly dressed back and adhered to a solid substrate along the roof edge as shown on the design drawings.
- Check that all trimming for roof penetrations, all roof/wall junction blocking, and all necessary work by other trades are complete.
- Check that solid backing required for fully supported roofing is complete and securely fixed in accordance with the design drawings.

12.3.10 Installation

Installers shall be familiar with and comply with the manufacturer's safe handling requirements and precautions for use and shall use appropriate safety gear when handling materials. Installers shall conform with all relevant WorkSafe NZ Guidelines Working at Heights.

Prevent contact with, or run-off from, incompatible materials in accordance with the recommendations in the NZMRM Code of Practice.

Protect the finished surface from damage at all times; replace the whole sheet where a significant depth of the finish has been damaged (including flashings).

Accurately set-out the planned cladding layout prior to fixing to ensure true and accurate cladding lines and incorporate correct relationships with other design features shown on the drawings; maintain this accurate set-out throughout installation.

Keep cladding lines consistent and true along the roof; with side-laps of sheets to be straight, true and accurately aligned up and down. Check for and eliminate any creep and/or spread of sheets during installation.

Cut metal cladding and flashings by shear only - do not use abrasive cutting tools. Do not use black lead pencils for marking pre-finished metal cladding and flashings.

All cladding jointing techniques and sealants shall be in accordance with the NZMRM Code of Practice and shall be compatible with the cladding material and finish. Joints shall be sealed with an approved neutral-cure sealant or approved closed-cell lap tape.

Install fasteners in a straight line with a consistent fastening pattern on each sheet in accordance with 'technical literature' requirements. Fasteners are to be set using a snug fitting socket and a setting tool that does not unduly damage the finish coating of the screw. Depth of setting is to be sufficient to achieve slight compression of the sealing washer without distorting the profile or the sealing washer itself.

Aluminium rivets are to be sealed type minimum 4mm diameter. Clip-fastened sheets shall be fixed with concealed proprietary fastening clips appropriate for the cladding profile and material, substrate/structure and the environment in accordance with the NZMRM Code of Practice recommendations.

Install flashings as detailed on the drawings and in accordance with the Zealand Metal Roofing Code of Practice. All flashings shall be neatly formed and finished, securely fastened to the structure, weatherproof, and lapped such that any water will run down to the exterior. For highly visible flashings, plan each flashing joint and/or junction with specific regard to aesthetic requirements. Penetration flashings shall be as per the design details and shall not rely solely on silicone sealant to achieve weathertightness of the flashing.

Handle sheets carefully to avoid scratching and denting. Do not walk on cladding sheets prior to installation. Remove strippable film, if applied, immediately after installation of roof cladding to avoid resin staining. Ensure sealant is trapped between joint surfaces and not exposed to the visual surface.

Installers shall be familiar with and comply with the manufacturer's safe handling requirements and precautions for use and shall use appropriate safety gear when handling materials. Installers shall conform with all relevant WorkSafe NZ Guidelines Working at Heights.

Prevent contact with, or run-off from, incompatible materials in accordance with the recommendations in the NZMRM Code of Practice.

Protect the coated surface from damage at all times; replace the whole sheet where a significant depth of the coating has been damaged (including flashings).

Accurately set-out the planned cladding layout prior to fixing to ensure true and accurate cladding lines and incorporate correct relationships with other design features shown on the drawings; maintain this accurate set-out throughout installation.

Keep cladding lines consistent and true along the roof; with side-laps of sheets to be straight, true and accurately aligned up and down. Check for and eliminate any creep and/or spread of sheets during installation.

Cut metal cladding and flashings by shear only - do not use abrasive cutting tools. Do not use black lead pencils for marking pre-finished metal cladding and flashings.

Screw fastenings for pre-painted metal must be pre-painted prior to installation for an accurate colour match.

All cladding jointing techniques and sealants shall be in accordance with the NZMRM Code of Practice and shall be compatible with the cladding material and finish. Joints shall be sealed with an approved neutral-cure sealant or approved closed-cell lap tape.

Install fasteners in a straight line with a consistent fastening pattern on each sheet in accordance with 'technical literature' requirements. Fasteners are to be set using a snug fitting socket and a setting tool that does not unduly damage the finish coating of the screw. Depth of setting is to be sufficient to achieve slight compression of the sealing washer without distorting the profile or the sealing washer itself.

Aluminium rivets are to be sealed type pre-painted to match cladding, minimum 4mm diameter. Clip-fastened sheets shall be fixed with concealed proprietary fastening clips appropriate for the cladding profile and material, substrate/structure and the environment in accordance with the NZMRM Code of Practice recommendations.

Install flashings as detailed on the drawings and in accordance with the Zealand Metal Roofing Code of Practice. All flashings shall be neatly formed and finished, securely fastened to the structure, weatherproof, and lapped such that any water will run down to the exterior. For highly visible flashings, plan each flashing joint and/or junction with specific regard to aesthetic requirements. Penetration flashings shall be as per the design details and shall not rely solely on silicone sealant to achieve weathertightness of the flashing.

Handle sheets carefully to avoid scratching and denting. Do not walk on wall cladding sheets prior to installation. Remove strippable film, if applied, immediately after installation of roof cladding to avoid resin staining. All accessories are to be colour matched prior to installation, do not use colour match paint for repairing any blemishes. Ensure sealant is trapped between joint surfaces and not exposed to the visual surface.

12.3.11 Compatibility

Ensure material is isolated from incompatible materials. It must not be in contact with, or receive run off from, less noble metals such as copper, brass and lead. It should not be in wet contact with stainless steel. Sustained wet contact with timber, either treated or untreated, must be avoided.

Ensure material is isolated from incompatible materials. It must not be in contact with, or receive run off from, less noble metals such as copper, brass and lead. It should not be in wet contact with stainless steel. Sustained wet contact with timber, either treated or untreated, must be avoided. For more information, see the COLORSTEEL® Installers Guide.

Coated Iron or steel products, that may deteriorate within the lifespan of the COLORSTEEL® material, must be positioned so that they are not in contact with COLORSTEEL Altimate®.

12.3.12 Completion

Check that the Metalcraft Longrun Roofing and associated components and flashings have been installed and finished correctly. Check for defective work, damage and surface marking - replace and/or repair as necessary. Ensure that the work of other trades does not reduce the clearances of the cladding to ground, deck or roof that are required by the NZ Building Code.

Leave all work complete and weathertight and to the required standard in accordance with the New Zealand Metal Roofing Code of Practice.

Leave the completed works and surrounding surfaces clean and free of debris and rubbish. Remove all rubbish and excess material from the site.

Maintenance should be carried out in accordance with Metalcraft maintenance requirements.

13 METALWORK & BALUSTRADES

13.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

13.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

1163:2016(AS/NZS)	Cold-formed structural steel hollow sections
1252.1:2016(AS|NZS)	High-strength steel fastener assemblies for structural engineering - Bolts, nuts and washers - Part 1: Technical requirements
1387:1985(NZS/BS)	Specification for screwed and socketed steel tubes and tubulars and for plain end steel tubes suitable for welding or for screwing to BS 21 pipe threads
14341:2012(AS/NZS)	Welding consumables – Wire electrodes and weld deposits for gas shielded metal arc welding of non alloy and fine grain steels – Classifications
1554.1:2014(AS/NZS)	Structural steel welding - Part 1: Welding of steel structures
1554.6:2012(AS/NZS)	Structural steel welding - Part 6: Welding stainless steels for structural purposes
1554.7:2014(AS/NZS)	Structural steel welding - Part 7: Welding of sheet steel structures
1665:2004(AS/NZS)	Welding of aluminium structures
1734:1997(AS/NZS)	Aluminium and aluminium alloys - Flat sheets, coiled sheet and plate
1866:1997(AS/NZS)	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
1897:1976(AS)	Electroplated coatings on threaded components (metric coarse series)
3678:2016(AS/NZS)	Structural steel - Hot-rolled plates, floorplates and slabs
3679.1:2016(AS/NZS)	Structural steel - Part 1: Hot-rolled bars and sections
3679.2:2016(AS/NZS)	Structural steel - Part 2: Welded I sections
3750(AS/NZS):Parts 1-23	Paints for steel structures
4680:2006(AS/NZS)	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles

13.3 Metalwork

13.3.1 Scope

Manufacture and install the Metalwork elements, as specified and identified on the drawings and schedules, to the locations, layout and details shown on the drawings, complete with all components and accessories. All aspects of this work shall be carried out to comply with the

requirements of the New Zealand Building Code, relevant Standards, and in accordance with any specific manufacturer's requirements, other relevant product manufacturers' recommendations, and as noted and detailed on the drawings and schedules.

13.3.2 Requirements

13.3.2.1 Shop Drawings

Prepare and submit to the Architect/Designer for verification and approval Shop Drawings, issued For Fabrication & Installation, covering the following aspects:

- Fully dimensioned plans, elevations and sections of all elements; to the appropriate scale.
- Assembly jointing and fixing methods and details; to the appropriate scale.
- Jointing details and method of fixing between individual elements/components.
- Methods of installation construction, site assembly connections and all support systems for fixed elements.
- Where required - provision for thermal movement, wind load movement, and seismic movement.
- Installation sequence for large elements.
- Co-ordination requirements with other work and trades.
- A schedule of materials, finishes, fittings, fixings and fastenings, sealants and other accessories.

Shop Drawings are required for the following Metalwork items:

13.3.2.2 Samples

Submit clearly identified material samples of specified finishes requested for approval by the Architect/Designer. Do not commence fabrication until the samples have been approved.

13.3.3 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings prior to installation.
Co-ordinate with other trades as required to manufacture and install Metalwork elements and components to the required locations and tolerances.

13.3.4 Workmanship

All fabrication, assembly and installation work shall be carried out by qualified welders and trade related tradesmen, familiar with the specified products and fabrication and assembly techniques, to the best standard of workmanship under experienced factory supervision and control. All work shall be such as to leave a neat, efficient and robust assembly. Do not use damaged or defective products to fabricate steel metalwork elements and components.

13.3.5 Delivery & Handling

Store Metalwork elements, components and accessories undercover, off the floor and on a flat, level surface. Keep dry and protect from damage, moisture and contamination at all times.

Handle elements without scratching or damaging and in a manner that prevents distortion or deformation and pre-finished and vulnerable surfaces from rubbing together. Do no install damaged or defective metalwork elements or accessories.

13.3.6 Fabricated Elements

13.3.6.1 Support Frames

Support Frames. Materials, finish, dimensions, assembly details and installation methods as specified, scheduled and shown on the drawings.

Materials:
Finish:
Location:

13.3.6.2 Fabricated Brackets

Fabricated Brackets. Materials, finish, dimensions, assembly details and installation methods as specified, scheduled and shown on the drawings.

Materials:
Finish:
Location:

13.3.6.3 Stairs

Stairs. Materials, finish, dimensions, assembly details and installation methods as specified, scheduled and shown on the drawings.

Materials:
Finish:
Location:

13.3.6.4 Balustrades

Balustrades. Materials, finish, dimensions, assembly details and installation methods as specified, scheduled and shown on the drawings.

Materials:
Finish:
Location:

13.3.6.5 Handrails

Handrails. Materials, finish, dimensions, assembly details and installation methods as specified, scheduled and shown on the drawings.

Materials:
Finish:
Location:

13.3.6.6 Access Ladders

Access Ladders. Materials, finish, dimensions, assembly details and installation methods as specified, scheduled and shown on the drawings.

Materials:
Finish:
Location:

13.3.6.7 Gates

Gates. Materials, finish, dimensions, assembly details and installation methods as specified, scheduled and shown on the drawings.

Materials:
Finish:
Location:

13.3.6.8 Fencing

Fencing. Materials, finish, dimensions, assembly details and installation methods as specified, scheduled and shown on the drawings.

Materials:
Finish:
Location:

13.3.6.9 Grates

Grates. Materials, finish, dimensions, assembly details and installation methods as specified, scheduled and shown on the drawings.

Materials:
Finish:
Location:

13.3.6.10 Grilles

Grilles. Materials, finish, dimensions, assembly details and installation methods as specified, scheduled and shown on the drawings.

Materials:
Finish:
Location:

13.3.6.11 Screens

Screens. Materials, finish, dimensions, assembly details and installation methods as specified, scheduled and shown on the drawings.

Materials:
Finish:
Location:

13.3.7 Steel Materials

13.3.7.1 Steel Bar

Mild Steel Bar. Including mild steel flat, square, angle and engineering round sections, to AS 3679-300. To the locations and details identified on the drawings and schedules.

13.3.7.2 Structural Sections

Mild Steel Structural Sections. Including mild steel channel, universal beam, universal column and rolled steel joist sections, to AS 3679-300. To the locations and details identified on the drawings and schedules.

13.3.7.3 Hollow Sections

Hollow Sections. Including rectangular and square sections, to NZS 4848.2. To the locations and details identified on the drawings and schedules.

13.3.7.4 General Purpose Pipe

General Purpose Pipe. Including galvanised pipe, primed pipe and black pipe, with plain-end, screwed-end or swaged-end, to NZS/BS 1387, and complete with any required screwed, welded and clamped pipe fittings and couplings. To the locations and details identified on the drawings and schedules.

13.3.7.5 Steel Tube

Steel Tube. Including boiler tube, EWR linepipe, seamless linepipe, EWSS tube, and EWR welded tube (round, square and rectangular profiles), to NZS/BS 1387. To the locations and details identified on the drawings and schedules.

13.3.7.6 Steel Plate

Steel Plate. Including mild steel plate, mild steel chequer plate, medium tensile plate, high tensile plate, weather resistant plate, abrasion resistant plate and boiler plate, to AS/NZS 1594. To the locations and details identified on the drawings and schedules.

13.3.7.7 Flat Rolled Sheet

Flat Rolled Sheet. Including cold rolled sheet, hot rolled sheet, electro-galvanised steel sheet and galvanised steel sheet, to AS/NZS 1595, AS/NZS 1594, AS/NZS 1397. To the locations and details identified on the drawings and schedules.

13.3.7.8 Welded Bar Grating

Manufactured Welded Bar Grating. Including forge-welded and twist-lock grating, with plain or serrated load bars and twisted or round cross bars, and with any required banding, kick plate, nosing, cut-outs and fixing accessories to suit the design and installation requirements. To the locations and details identified on the drawings and schedules. Galvanised or black (untreated) finish.

Manufacturer & brand Name:
Grate type & finish:
Location:

13.3.7.9 Grid Mesh

Manufactured Grid Mesh. Raised expanded mild steel grid mesh, complete with any required cut-outs and fixing accessories to suit the design and installation requirements. To the locations and details identified on the drawings and schedules. Galvanised or black (untreated) finish.

Manufacturer & brand:
Finish:
Location:

13.3.7.10 Expanded Metal

Manufactured Expanded Metal. Including raised and flattened expanded patterns, complete with any required cut-outs and fixing accessories to suit the design and installation requirements. To the locations and details identified on the drawings and schedules. Galvanised or black (untreated) finish.

Manufacturer & brand:
Material thickness:
Pattern type & finish:
Location:

13.3.7.11 Proprietary Handrail System

Proprietary Tubular Handrail System. Mild steel, pre-engineered handrail system for commercial and industrial applications, complete with system stanchions, base plates, mounting brackets, rails, bends, gates, drop barriers, and fixing accessories. Galvanised steel or untreated black steel. Installed in accordance with the manufacturer's requirements to the locations layout and details identified on the drawings.

Manufacturer & brand:
Material & finish:
Location:

13.3.8 Stainless Steel Materials

13.3.8.1 Flat Rolled Sheet - Grade 304

Flat Rolled Stainless Steel Sheet - Grade 304. Cold-rolled sheet, to ASTM A240, and specified finish (2B, BA, No.4). To the locations and details identified on the drawings and schedules.

Stainless finish:

13.3.8.2 Proprietary Balustrade System - Grade 304

Stainless Steel Proprietary Balustrade System - Grade 304. Pre-engineered balustrade system, complete with system stanchions, base plates, mounting brackets, rails, bends, end caps, and fixing accessories. Finish as specified. Installed in accordance with the manufacturer's requirements to the locations layout and details identified on the drawings.

Manufacturer & brand:
Finish:
Location:

13.3.9 Aluminium Materials

13.3.9.1 Flat Rolled Sheet

Flat Rolled Aluminium Sheet. Material alloy and temper as specified, to AS/NZS 1734, mill finish. To the locations and details identified on the drawings and schedules.

Alloy & temper:

13.3.9.2 Plate

Flat Rolled Aluminium Plate. Material alloy and temper as specified, to AS/NZS 1734, mill finish. To the locations and details identified on the drawings and schedules.

Alloy & temper:

13.3.10 Fastenings & Accessories

Bolts, Nuts & Washers. Selected to suit the mechanical properties and composition of the parent metal. Bolt type, size and finish shall be selected to suit the assembly and construction and the installed location and environment of the fabricated element.

Screws. Including self-tapping screws, self-tapping and machine screws. Selected to suit the mechanical properties and composition of the parent metal. Screw type, head, gauge and length and finish shall be selected to suit the assembly and construction and the installed location and environment of the fabricated element.

Socket Screws. Including cap screws, button head and countersunk socket screws, and grub screws. Selected to suit the mechanical properties and composition of the parent metal. Screw type, head, gauge and length and finish shall be selected to suit the assembly and construction and the installed location and environment of the fabricated element.

Security Screws. Including self-tapping screws, sheet metal screws and machine screws with security drive appropriate for the application. Selected to suit the mechanical properties and composition of the parent metal. Security screw type, head and drive, gauge, length and finish shall be selected to suit the assembly and construction and the installed location and environment of the fabricated element.

Hinges. Including butt hinges (split pin and fixed pin), barrel hinges, pivot hinges, gate hinges, case hinges and piano hinges. Selected to suit the mechanical properties and composition of the parent metal. Hinge type, size, finish and fixings, shall be selected to suit the load, function and operation and the installed location and environment of the hinged element.

Masonry Fasteners. Including split drive pins, nail-in anchors, through-bolts, sleeve anchors, masonry screw-bolts, chemical anchors and drop-in anchors. Selected to suit the mechanical properties and composition of the parent metal. Fastener type, diameter, length and finish

shall be selected to suit the installation requirements and environment of the fabricated element.

13.3.11 Fabrication & Assembly

13.3.11.1 General

Ensure that appropriate quality assurance measures are followed during fabrication and assembly of elements.
Check that all materials are free of defects and damage including warping, buckling and fractures prior to manufacture.

All cutting, folding, bending, drilling, welding, grinding and finishing of materials shall be carried out using suitable machinery, tools and equipment and fabrication and finishing techniques in a factory workshop to ensure the accurate fabrication and assembly of elements, without distortion, warp, buckling or fracture, to the dimensions and details shown on the approved contract drawings (shop or otherwise).

Take all measures to protect surfaces of the work that will be visible when complete from marking, scratching and other damage likely to affect the quality, finish and appearance of the element. Remove all burrs and sharp edges and form arrised edges.

Corner joints of identical sections shall be mitred unless shown or specified otherwise.

Mechanical joints shall be tight with no visible gaps. Unless shown or noted otherwise, use countersunk screws to mechanically connect cleats to frames. Mastic seal mechanical joints of externally installed metalwork elements, including all mating surfaces, cleats and other fixtures.

All moving parts shall move freely, without binding, to the required operation, functionality and tolerances when the element is fully assembled and installed.

Carrying out any necessary finishing and cleaning requirements and leave surfaces, edges and joints smooth and free of defects and contaminants to the required completion level and in preparation for any specified coating, treatment or finish.

Prior to dispatch and delivery and where necessary; trail assemble multiple components of a single element to the completed/installed arrangement to ensure proper site assembly, fitting and installation.

13.3.11.2 Welding - General

All welds shall be shop welds, unless specified as a field weld, and in accordance with the approved For Fabrication and Installation Shop Drawings.

All weld runs shall be as specified and without a concave surface. Welds shall have proper penetration, with all slag deposits removed as work proceeds and when runs are completed. Welds shall be continuous around joints to prevent the ingress of moisture.

All butt welds are to be full penetration unless specified otherwise on the shop drawings. Butt welds shall be ground flush.
Welding of hollow sections shall incorporate internal sections or backing plates as necessary to complete the specified weld.
Open ended hollow sections shall be capped using 3mm material and seal welded, unless shown otherwise on the approved shop drawings.

Properly prepare materials for welding; ensure that all edges to be welded are dry, clean and free of grease, dirt, rust and other contaminants. Grind off any residue or scale from cutting processes prior to welding.

Tack welds shall only be used for temporary attachment where jigging is impractical and only for permanent attachment where specified on the approved shop drawings as an integral component of the fabrication.

Protect surfaces of the work that will be visible when complete from weld splatter and other damage likely to affect the quality, finish and appearance of the element.

13.3.11.3 Steel Welding Requirements

Welding methods employed for the manufacture of steel metalwork shall be:

- metal-arc welding for mild steel to AS/NZS 1554.1
- projection welding to BS EN 28167:1992
- seam welding to BS EN ISO 16433:2007
- gas welding
- other methods subject to approval by the Architect/Designer.

13.3.11.4 Stainless Steel Welding Requirements

Welding methods employed for the manufacture of stainless steel metalwork shall be:

- arc welding for stainless steel to AS/NZS 1554.6
- projection welding to BS EN 28167:1992
- seam welding to BS EN ISO 16433:2007
- gas welding
- other methods subject to approval by the Architect/Designer.

13.3.11.5 Aluminium Welding Requirements

Welding methods employed for the manufacture of aluminium metalwork shall be:

- arc welding to AS/NZS 1665
- projection welding to BS EN 28167:1992
- seam welding to BS EN ISO 16433:2007
- gas welding
- other methods subject to approval by the Architect/Designer.

13.3.11.6 Sheet Metalwork

Accurately mark out sheet work square and true to line and as dimensioned with correct allowance for all folds, bends and laps. Use marking methods that do not damage or cause defect to the materials

Cut sheets using mechanical equipment and methods appropriate for the material, leaving edges true, square, and smooth and free from burr.

Use mechanical equipment and methods to form and fold sheets square and true and which leave faces free of deformation, warp and defect. Avoid over-bending and sharp bending of thick sheets - refer to the manufacturer's product specification and recommendations.

Isolate dissimilar materials in close proximity as necessary by painting the surfaces or fitting suitable separating/isolating membranes and gaskets. Place separating strips between metals and treated timber and cement-based materials.

13.3.12 Finish

Galvanised Metalwork. Metalwork elements, components, and accessories specified on the drawings and schedules as being Galvanised shall be hot-dip galvanised in accordance with AS/NZS 4680.
Galvanising vent holes shall only be as shown on the approved For Fabrication & Installation Shop Drawings and identified as 'Vent Hole'.

Painted Metalwork. Refer to Painting for specification requirements, materials, products, surface preparation and coatings for metalwork elements, components, and accessories specified on the drawings and schedules as being Paint finished. All factory priming and paint coating undertaken by the metalwork manufacturer shall be carried out in strict accordance with the requirements of the Painting specification.

Paint manufacturer, brand & type:
Colour:

Powder Coated Metalwork. Metalwork elements, components, and accessories specified on the drawings and schedules as being Powder Coated shall be polyester organic powder coat finished and properly prepared and treated prior to powder coating in accordance with the manufacturer's requirements.

Powder coating manufacturer & brand:
Thickness:
Colour:

Polished Finish Metalwork. Metalwork elements, components, and accessories specified on the drawings and schedules as being Polished Finish shall be machine polished to the required level and to match the approved material samples.

13.3.13 Installation

Check that all necessary building and finishing works have been carried out and completed and that the metalwork elements can be installed.

Install fixed metalwork elements plumb, level and true to line, and to the required tolerances to the locations, layout and details shown on the drawings. Provide all necessary temporary supports, all fixings and fastenings as specified and as required, and apply any required bedding compounds and sealants in accordance with the drawings. Ensure that fixed elements are secure and properly supported. Do not mark or scratch pre-finished metalwork surfaces.

13.3.14 Completion

Check that the metalwork elements have been fabricated and assembled and finished and installed to the required layout and tolerances as specified and shown on the drawings. Check that fixed elements are secure and correctly fastened. Check that all moving parts move freely and without binding to the required operation, functionality. Check for damage and defects and replace/repair as necessary.
Leave the completed works clean and tidy, and remove all rubbish and excess material from site.

Issue to the Owner a copy of any specific maintenance requirements and any manufacturer specific Product Warranty and Installer Warranty for the installed metalwork elements.

Where necessary, provide all Producer Statements.

14 TILING

14.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

14.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

2358:1990(AS)	Adhesives - For fixing ceramic tiles
3103:1991(NZS)	Specification for sands for mortars and plasters
3122:2009(NZS)	Specification for Portland and blended cements (General and special purpose)
3661.2:1994(AS/NZS)	Slip resistance of pedestrian surfaces - Part 2: Guide to the reduction of slip hazards
3740:2010(AS)	Waterproofing of domestic wet areas
4586:2004(AS/NZS)	Slip resistance classification of new pedestrian surface materials
4858:2004(AS/NZS)	Wet area membranes
BRANZ Good Practice Guide	Tiling
NZBC B2/AS1	Durability
NZBC D1/AS1	Access Routes
NZBC E3/AS1	Internal Moisture

14.3 Tiling

14.3.1 Scope

Supply, install and finish all Tiling works, complete with all necessary components and accessories required for proper installation and performance, as specified herein and to the locations, layouts and details shown on the approved drawings. All aspects of this work shall be carried out to comply with the New Zealand Building Code and relevant standards, and in accordance with the approved project design documentation, and with any relevant product manufacturers' technical literature.

The following is a list and a general description of the extent of Tiling work, which are more specifically defined in the contract documents, required for the completion of the contract works:

14.3.2 Requirements

14.3.2.1 Quality Assurance

Maintain and comply with industry-recognised quality control and assurance procedures to ensure that all stages of Tiling work are carried out to the highest standard.

14.3.2.2 Inspection & Acceptance of Tiling Work

Carry out all necessary pre-installation, installation and finishing inspections of Tiling for each area of work in accordance with the requirements of industry best practice recommendations and code of practice guidelines.

Complete all necessary Pre-Installation/Application Checklists prior to installing proprietary under-tile waterproofing systems and heating systems and floor levelling systems, and relevant Installation/Application Checklists.

Complete all necessary Installation/Application Sign-Off Certificates and before undertaking subsequent work or handing over.

14.3.2.3 Defective Materials & Work

Should defective materials and/or work be found at any time before the final acceptance of the work, it shall be rejected. Rejected Tiling materials and work shall be repaired and/or replaced to the satisfaction of the Architect/Designer, without delay and at no additional cost to the Principal.

14.3.2.4 Evidence of Slip Resistance

If requested, provide certified evidence of the slip resistance classification for each floor tile specified.

14.3.2.5 Tile Samples

Submit a clearly identified full-size sample of each tile specified, including colour/pattern, for signed approval by the Architect/Designer - do not proceed until the samples have been approved.

14.3.2.6 Tiled Sample Section

Allow to install a finished tiled sample section for inspection by the Architect/Designer. Do not commence installation until the sample section has been approved. Subject to confirmation in writing, the insitu sample section may form part of the completed installation.

Sample Size:
Installed Location:

14.3.2.7 Provision for Spare Tiles

Provision for Spare Tiles - refer to Reserve Material clause.

14.3.3 Performance

14.3.3.1 Slip-Resistance Performance of Access Routes

Slip-Resistance Performance of Access Routes. The slip-resistance performance of tiled access routes, ramps and stairs shall comply with the requirements of NZBC D1/VM1 and NZBC D1/AS1.

14.3.3.2 Interior Wet Area Performance

Interior Wet Area Performance. The performance of tiled interior wet areas shall comply with the requirements of NZBC E3/AS1.

14.3.4 Interior Dry Area Tiles

14.3.4.1 Floor Tile - Selection 1

Interior Dry Area Tiles - Floor Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior dry area floor tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.4.2 Floor Tile - Selection 2

Interior Dry Area Tiles - Floor Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior dry area floor tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.4.3 Floor Tile - Selection 3

Interior Dry Area Tiles - Floor Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior dry area floor tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.4.4 Wall Tile - Selection 1

Interior Dry Area Tiles - Wall Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior dry area wall tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
Installed Location:

14.3.4.5 Wall Tile - Selection 2

Interior Dry Area Tiles - Wall Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior dry area wall tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:

Colour:
Installed Location:

14.3.4.6 Wall Tile - Selection 3

Interior Dry Area Tiles - Wall Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior dry area wall tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
Installed Location:

14.3.4.7 Trimming Tile - Selection 1

Interior Dry Area Tiles - Trimming Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior dry area trimming tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.4.8 Trimming Tile - Selection 2

Interior Dry Area Tiles - Trimming Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior dry area trimming tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:

Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.4.9 Trimming Tile - Selection 3

Interior Dry Area Tiles - Trimming Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior dry area trimming tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.4.10 Stair/Step Nosing Tile - Selection 1

Interior Dry Area Tiles - Stair/Step Nosing Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior dry area stair/step nosing tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.4.11 Stair/Step Nosing Tile - Selection 2

Interior Dry Area Tiles - Stair/Step Nosing Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior dry area stair/step nosing tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.4.12 Stair/Step Nosing Tile - Selection 3

Interior Dry Area Tiles - Stair/Step Nosing Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior dry area stair/step nosing tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.5 Interior Wet Area Tiles

14.3.5.1 Floor Tile - Selection 1

Interior Wet Area Tiles - Floor Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior wet area floor tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:

Slip Resistance:
Installed Location:

14.3.5.2 Floor Tile - Selection 2

Interior Wet Area Tiles - Floor Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior wet area floor tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.5.3 Floor Tile - Selection 3

Interior Wet Area Tiles - Floor Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior wet area floor tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.5.4 Wall Tile - Selection 1

Interior Wet Area Tiles - Wall Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior wet area wall tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
Installed Location:

14.3.5.5 Wall Tile - Selection 2

Interior Wet Area Tiles - Wall Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior wet area wall tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
Installed Location:

14.3.5.6 Wall Tile - Selection 3

Interior Wet Area Tiles - Wall Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior wet area wall tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
Installed Location:

14.3.5.7 Trimming Tile - Selection 1

Interior Wet Area Tiles - Trimming Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior wet area trimming tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.5.8 Trimming Tile - Selection 2

Interior Wet Area Tiles - Trimming Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior wet area trimming tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.5.9 Trimming Tile - Selection 3

Interior Wet Area Tiles - Trimming Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior wet area trimming tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.5.10 Stair/Step Nosing Tile - Selection 1

Interior Wet Area Tiles - Stair/Step Nosing Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint

width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior wet area stair/step nosing tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.5.11 Stair/Step Nosing Tile - Selection 2

Interior Wet Area Tiles - Stair/Step Nosing Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior wet area stair/step nosing tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.5.12 Stair/Step Nosing Tile - Selection 3

Interior Wet Area Tiles - Stair/Step Nosing Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an interior wet area stair/step nosing tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:

Slip Resistance:
Installed Location:

14.3.6 Exterior Tiles

14.3.6.1 Floor Tile - Selection 1

Exterior Tiles - Floor Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an exterior floor tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.6.2 Floor Tile - Selection 2

Exterior Tiles - Floor Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an exterior floor tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.6.3 Floor Tile - Selection 3

Exterior Tiles - Floor Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an exterior floor tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.6.4 Wall Tile - Selection 1

Exterior Tiles - Wall Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an exterior wall tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
Installed Location:

14.3.6.5 Wall Tile - Selection 2

Exterior Tiles - Wall Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an exterior wall tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
Installed Location:

14.3.6.6 Wall Tile - Selection 3

Exterior Tiles - Wall Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of

imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an exterior wall tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
Installed Location:

14.3.6.7 Trimming Tile - Selection 1

Exterior Tiles - Trimming Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an exterior trimming tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.6.8 Trimming Tile - Selection 2

Exterior Tiles - Trimming Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an exterior trimming tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.6.9 Trimming Tile - Selection 3

Exterior Tiles - Trimming Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an exterior trimming tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.6.10 Stair/Step Nosing Tile - Selection 1

Exterior Tiles - Stair/Step Nosing Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an exterior stair/step nosing tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.6.11 Stair/Stair Nosing Tile - Selection 2

Exterior Tiles - Stair/Step Nosing Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an exterior stair/step nosing tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:

Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.6.12 Stair/Step Nosing Tile - Selection 3

Exterior Tiles - Stair/Step Nosing Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as an exterior stair/step nosing tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.7 Continuously Immersed Tiles

14.3.7.1 Floor Tile - Selection 1

Continuously Immersed Tiles - Floor Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as a continuously immersed floor tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Installed Location:

14.3.7.2 Floor Tile - Selection 2

Continuously Immersed Tiles - Floor Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as a continuously immersed floor tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Installed Location:

14.3.7.3 Floor Tile - Selection 3

Continuously Immersed Tiles - Floor Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as a continuously immersed floor tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Installed Location:

14.3.7.4 Wall Tile - Selection 1

Continuously Immersed Tiles - Wall Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as a continuously immersed wall tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
Installed Location:

14.3.7.5 Wall Tile - Selection 2

Continuously Immersed Tiles - Wall Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width;

free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as a continuously immersed wall tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
Installed Location:

14.3.7.6 Wall Tile - Selection 3

Continuously Immersed Tiles - Wall Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as a continuously immersed wall tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
Installed Location:

14.3.7.7 Trimming Tile - Selection 1

Continuously Immersed Tiles - Trimming Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as a continuously immersed trimming tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Installed Location:

14.3.7.8 Trimming Tile - Selection 2

Continuously Immersed Tiles - Trimming Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as a continuously immersed trimming tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Installed Location:

14.3.7.9 Trimming Tile - Selection 3

Continuously Immersed Tiles - Trimming Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as a continuously immersed trimming tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Installed Location:

14.3.7.10 Stair/Step Nosing Tile - Selection 1

Continuously Immersed Tiles - Stair/Step Nosing Tile, Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as a continuously immersed stair/step nosing tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:

PEI Rating:
Slip Resistance:
Installed Location:

14.3.7.11 Stair/Step Nosing Tile - Selection 2

Continuously Immersed Tiles - Stair/Step Nosing Tile, Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as a continuously immersed stair/step nosing tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.7.12 Stair/Step Nosing Tile - Selection 3

Continuously Immersed Tiles - Stair/Step Nosing Tile, Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions to facilitate laying with minimum joint width; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed in accordance with AS 3958.1, as a continuously immersed stair/step nosing tile, to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Installed Location:

14.3.8 Deck Jack Floating Tiles

14.3.8.1 Deck Jack Floating Tile - Selection 1

Deck Jack Floating Tiles - Selection 1 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed as a deck jack floating tile with the specified floating tile support system to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Weight (kg/m²):
Installed Location:

14.3.8.2 Deck Jack Floating Tile - Selection 2

Deck Jack Floating Tile - Selection 2 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions; free of imperfections; and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed as a deck jack floating tile with the specified floating tile support system to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Weight (kg/m²):
Installed Location:

14.3.8.3 Deck Jack Floating Tile - Selection 3

Deck Jack Floating Tile - Selection 3 - as specified below. Tiles shall be true to shape; free of warp; accurate in dimensions; free of imperfections, and true to samples. Tiles shall be from the same batch where possible, and delivered with the original packaging and labeling intact.

Installed as a deck jack floating tile with the specified floating tile support system to the locations, layout and details shown on the drawings.

Tile Brand & Style:
Material:
Finish:
Dimensions:
Colour:
PEI Rating:
Slip Resistance:
Weight (kg/m²):
Installed Location:

14.3.9 Floor Levelling

14.3.9.1 Floor Levelling Compound - Interior Tiles

Floor Levelling Compound - Interior Tiles - as specified below. A proprietary, pre-batched self-smoothing/levelling compound suitable for interior floor tiling applications. Applied as an underlayment and preparation treatment to uneven floor substrates and surfaces, for subsequent interior floor tiles (in dry or wet areas), in accordance with the manufacturer's requirements.

Brand & Product:

14.3.9.2 Floor Levelling Compound - Exterior Tiles

Floor Levelling Compound - Exterior Tiles - as specified below. A proprietary, pre-batched self-smoothing/levelling compound suitable for exterior floor tiling applications. Applied as an underlayment and preparation treatment to uneven floor substrates and surfaces, for subsequent exterior floor tiles, in accordance with the manufacturer's requirements.

Brand & Product:

14.3.9.3 Floor Levelling Compound - Continuously Immersed Tiles

Floor Levelling Compound - Continuously Immersed Tiles - as specified below. A proprietary, pre-batched self-smoothing/levelling compound suitable for continuously immersed tiling applications - including swimming and hydrotherapy pools. Applied as an underlayment and preparation treatment to uneven floor substrates and surfaces, for subsequent continuously immersed floor tiles, in accordance with the manufacturer's requirements.

Brand & Product:

14.3.10 Underlayment

14.3.10.1 Fibre Cement Sheet Underlay - Interior Floor Tiles

Interior Floor Tile Underlayment - Fibre Cement Sheet Underlay. 6mm thick fibre cement underlay sheet with pre-marked nailing pattern on the face. Suitable for tiling applications. Installed as an underlay over new or existing solid timber strip flooring or wood-based sheet flooring, for subsequent interior floor tiles, in accordance with the manufacturer's requirements to the locations and details shown on the drawings.

Installed Location:

14.3.10.2 Acoustic Underlay - Interior Floor Tiles

Interior Floor Tile Acoustic Underlayment - Impact Sound Reduction System - as specified below. A proprietary impact sound reduction system for the installation of tiles, incorporating nominal 4mm thick acoustic matting, mat adhesive. Installed as an acoustic underlay over new or existing solid timber strip flooring, wood-based sheet flooring, concrete slabs, cement screeds, floor levelling compounds, etc., for subsequent interior floor tiles, in accordance with the manufacturer's requirements to the locations and details shown on the drawings.

System Brand:
Installed Location:

14.3.10.3 Decoupling Layer - Interior Floor Tiles

Interior Floor Tile Decoupling Layer - as specified below. A proprietary decoupling matting system for the installation of tiles on interior floors. Installed over new or existing substrates for subsequent interior floor tiles, in accordance with the manufacturer's requirements to the locations and details shown on the drawings.

System Brand:
Installed Location:

14.3.10.4 Decoupling Layer - Exterior Floor Tiles

Exterior Floor Tile Decoupling Layer - as specified below. A proprietary decoupling matting system for the installation of tiles on exterior floors. Installed over new or existing substrates for subsequent interior floor tiles, in accordance with the manufacturer's requirements to the locations and details shown on the drawings.

System Brand:
Installed Location:

14.3.11 Undertile Waterproofing

14.3.11.1 Interior Wet Area Tiles - 1-Part Liquid-Applied Membrane

Interior Wet Area Tiles - Undertile Waterproofing System: 1-Part Liquid-Applied Undertile Waterproofing Membrane - as specified below. A proprietary, 1-part, flexible liquid-applied waterproofing membrane system suitable for interior wet area tiling applications - including showers. Complete with all system components and accessories required for proper installation and performance. Applied to properly prepared substrates in strict accordance with the manufacturer's instructions to the locations and details shown on the approved drawings.

Brand & Product:

14.3.11.2 Interior Wet Area Tiles - 2-Part Liquid-Applied Membrane

Interior Wet Area Tiles - Undertile Waterproofing System: 2-Part Liquid-Applied Undertile Waterproofing Membrane - as specified below. A proprietary, two-part, flexible, reinforced liquid-applied waterproofing membrane system suitable for interior wet area tiling applications - including showers. Complete with all system components and accessories required for proper installation and performance. Applied to properly prepared substrates in strict accordance with the manufacturer's instructions to the locations and details shown on the approved drawings.

Brand & Product:

14.3.11.3 Exterior Tiles - 2-Part Liquid-Applied Membrane

Exterior Tiles - Undertile Waterproofing System: 2-Part Liquid-Applied Undertile Waterproofing Membrane - as specified below. A proprietary, two-part, highly flexible,

reinforced liquid-applied waterproofing membrane system suitable for exterior tiling applications - including suspended decks, balconies, terraces. Complete with all system components and accessories required for proper installation and performance. Applied to properly prepared substrates in strict accordance with the manufacturer's instructions to the locations and details shown on the approved drawings.

Brand & Product:

14.3.11.4 Continuously Immersed Tiles - 2-Part Liquid-Applied Membrane

Continuously Immersed Tiles - Undertile Waterproofing System: 2-Part Liquid-Applied Undertile Waterproofing Membrane - as specified below. A proprietary, two-part, highly flexible, reinforced liquid-applied waterproofing membrane system, suitable for continuously immersed tiling applications - including swimming pools and permanently wet areas. Complete with all system components and accessories required for proper installation and performance. Applied to properly prepared substrates in strict accordance with the manufacturer's instructions to the locations and details shown on the approved drawings.

Brand & Product:

14.3.12 Undertile Heating

14.3.12.1 Interior Floor Tiles

Undertile Heating System - Interior Floor Tiles - as specified below. A low temperature radiant, electric floor surface warming and space heating system, incorporating an electric element heating cable embedded into tile adhesive or levelling screed, complete with all necessary system controls, components and accessories required for proper installation and performance.

When installed in an interior wet area, an undertile waterproof membrane must be used.

Installed in accordance with the manufacturer's requirements, complete with all necessary components and accessories, to the locations and details shown on the approved drawings.

Brand & Product:
Installed Location:

14.3.13 Tile Adhesive

14.3.13.1 Interior Dry Area Tiles - Floor Tile

Interior Dry Area Tiles - Floor Tile Adhesive - as specified below. A proprietary, high strength, flexible tile adhesive for bonding most types of floor tiles, including large-format and heavy tiles; and approved for use with the specified floor tiles (type), tiling application and substrate type. Suitable for interior dry area floor tiling applications; on new and existing substrates. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:

14.3.13.2 Interior Dry Area Tiles - Wall Tile

Interior Dry Area Tiles - Wall Tile Adhesive - as specified below. A proprietary, high strength, flexible tile adhesive for bonding most types of wall tiles; and approved for use with the specified wall tiles (type), tiling application and substrate type. Suitable for interior dry area wall tiling applications; on new and existing substrates. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:

14.3.13.3 Interior Wet Area Tiles - Floor Tile

Interior Wet Area Tiles - Floor Tile Adhesive - as specified below. A proprietary, high strength, flexible tile adhesive for bonding most types of floor tiles, including large-format and heavy tiles; and approved for use with the specified floor tiles (type), tiling application and substrate type. Suitable for interior wet area floor tiling applications; on new and existing substrates. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:

14.3.13.4 Interior Wet Area Tiles - Wall Tile

Interior Wet Area Tiles - Wall Tile Adhesive - as specified below. A proprietary, high strength, flexible tile adhesive for bonding most types of wall tiles; and approved for use with the specified wall tiles (type), tiling application and substrate type. Suitable for interior wet area wall tiling applications; on new and existing substrates. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:

14.3.13.5 Exterior Tiles - Floor Tile

Exterior Tiles - Floor Tile Adhesive - as specified below. A proprietary, high strength, flexible, floor tile adhesive for bonding most types of exterior floor tiles, including large-format and heavy tiles; and approved for use with the specified floor tiles (type), tiling application and substrate type. Suitable for exterior floor tiling applications; on new and existing substrates. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:

14.3.13.6 Exterior Tiles - Wall Tile

Exterior Tiles - Wall Tile Adhesive - as specified below. A proprietary, high strength, flexible tile adhesive for bonding most types of exterior wall tiles, including large-format and heavy tiles; and approved for use with the specified wall tiles (type), tiling application and substrate type. Suitable for exterior wall tiling applications; on new and existing substrates. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:

14.3.13.7 Continuously Immersed Tile

Continuously Immersed Tiles - Tile Adhesive - as specified below. A proprietary, high strength, flexible tile adhesive for bonding most types of floor and wall tiles, including large-format and heavy tiles; and approved for use with the specified tiles (type), tiling application and substrate type. Suitable for continuously immersed tiling applications - including swimming pools and permanently wet areas; on new and existing substrates. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:

14.3.14 Tile Grout

14.3.14.1 Interior Dry Area Tiles - Floor Tile

Interior Dry Area Tiles - Floor Tile Grout - as specified below. A proprietary, high performance, coloured tile grout. Suitable for interior dry area floor tiling applications, and approved for the tiling application. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:
Colour:

14.3.14.2 Interior Dry Area Tiles - Wall Tile

Interior Dry Area Tiles - Wall Tile Grout - as specified below. A proprietary, high performance, coloured tile grout. Suitable for interior dry area wall tiling applications, and approved for the tiling application. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:
Colour:

14.3.14.3 Interior Wet Area Tiles - Floor Tile

Interior Wet Area Tiles - Floor Tile Grout - as specified below. A proprietary, high performance, flexible, water-repellent, coloured tile grout with anti-fungal agent. Suitable for interior wet area floor tiling applications, and approved for the tiling application. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:
Colour:

14.3.14.4 Interior Wet Area Tiles - Wall Tile

Interior Wet Area Tiles - Wall Tile Grout - as specified below. A proprietary, high performance, flexible, water-repellent, coloured tile grout with anti-fungal agent. Suitable for interior wet area wall tiling applications, and approved for the tiling application. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:
Colour:

14.3.14.5 Exterior Tiles - Floor Tile

Exterior Tiles - Floor Tile Grout - as specified below. A proprietary, high performance, flexible, mould-resistant, water-repellent, coloured tile grout. Suitable for exterior floor tiling applications, and approved for the tiling application. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:
Colour:

14.3.14.6 Exterior Tiles - Wall Tile

Exterior Tiles - Wall Tile Grout - as specified below. A proprietary, high performance, flexible, mould-resistant, water-repellent, coloured tile grout. Suitable for exterior wall tiling applications, and approved for the tiling application. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:
Colour:

14.3.14.7 Continuously Immersed Tiles

Continuously Immersed Tiles - Tile Grout - as specified below. A proprietary, high performance, flexible, chemical-resistant, coloured tile grout. Suitable for continuously immersed tiling applications - including swimming pools and permanently wet areas. Used in strict accordance with the manufacturer's instructions and recommendations.

Brand & Product:
Colour:

14.3.15 Flexible Sealant

14.3.15.1 Interior Dry Area Tiles - Floor Tile

Interior Dry Area Tiles - Floor Tile Flexible Sealant - as specified below. Acetic-curing, UV-resistant, mildew-resistant, waterproof silicone sealant. Suitable for interior and exterior tiling applications, including general sealing, movement control joints, internal corner junctions, worktops and benches, sanitary installations. Applied in accordance with the sealant manufacturer's instructions, and neatly finished with the tiled surface.

Sealant joints shall be in accordance with the sealant manufacturer's joint design width-to-depth ratio. When sealing movement control joints, the sealant shall be applied over a suitably sized PEF backing rod inserted into the joint to the required depth.

Brand & Product:
Colour:

14.3.15.2 Interior Dry Area Tiles - Wall Tile

Interior Dry Area Tiles - Wall Tile Flexible Sealant - as specified below. Acetic-curing, UV-resistant, mildew-resistant, waterproof silicone sealant. Suitable for interior and exterior tiling applications, including general sealing, movement control joints, internal corner junctions,

worktops and benches, sanitary installations. Applied in accordance with the sealant manufacturer's instructions, and neatly finished with the tiled surface.

Sealant joints shall be in accordance with the sealant manufacturer's joint design width-to-depth ratio. When sealing movement control joints, the sealant shall be applied over a suitably sized PEF backing rod inserted into the joint to the required depth.

Brand & Product:
Colour:

14.3.15.3 Interior Wet Area Tiles - Floor Tile

Interior Wet Area Tiles - Floor Tile Flexible Sealant - as specified below. Acetic-curing, UV-resistant, mildew-resistant, waterproof silicone sealant. Suitable for interior and exterior tiling applications, including wet areas, showers, sanitary installations, kitchen worktops and benches, movement control joints, internal corner joints, general sealing, etc. Applied in accordance with the sealant manufacturer's instructions, and neatly finished with the tiled surface.

Sealant joints shall be in accordance with the sealant manufacturer's joint design width-to-depth ratio. When sealing movement control joints, the sealant shall be applied over a suitably sized PEF backing rod inserted into the joint to the required depth.

Brand & Product:
Colour:

14.3.15.4 Interior Wet Area Tiles - Wall Tile

Interior Wet Area Tiles - Wall Tile Flexible Sealant - as specified below. Acetic-curing, UV-resistant, mildew-resistant, waterproof silicone sealant. Suitable for interior and exterior tiling applications, including wet areas, showers, sanitary installations, kitchen worktops and benches, movement control joints, internal corner joints, general sealing, etc. Applied in accordance with the sealant manufacturer's instructions, and neatly finished with the tiled surface.

Sealant joints shall be in accordance with the sealant manufacturer's joint design width-to-depth ratio. When sealing movement control joints, the sealant shall be applied over a suitably sized PEF backing rod inserted into the joint to the required depth.

Brand & Product:
Colour:

14.3.15.5 Exterior Tiles - Floor Tiles

Exterior Tiles - Floor Tile Flexible Sealant - as specified below. Acetic-curing, UV-resistant, mildew-resistant, waterproof silicone sealant. Suitable for exterior tiling applications, including balconies, patios, facades, movement control joints, internal corner joints, general sealing, etc. Applied in accordance with the sealant manufacturer's instructions, and neatly finished with the tiled surface.

Sealant joints shall be in accordance with the sealant manufacturer's joint design width-to-depth ratio. When sealing movement control joints, the sealant shall be applied over a suitably sized PEF backing rod inserted into the joint to the required depth.

Brand & Product:
Colour:

14.3.15.6 Exterior Tiles - Wall Tiles

Exterior Tiles - Wall Tile Flexible Sealant - as specified below. Acetic-curing, UV-resistant, mildew-resistant, waterproof silicone sealant. Suitable for exterior tiling applications, including balconies, patios, facades, movement control joints, internal corner joints, general sealing, etc. Applied in accordance with the sealant manufacturer's instructions, and neatly finished with the tiled surface.

Sealant joints shall be in accordance with the sealant manufacturer's joint design width-to-depth ratio. When sealing movement control joints, the sealant shall be applied over a suitably sized PEF backing rod inserted into the joint to the required depth.

Brand & Product:
Colour:

14.3.15.7 Continuously Immersed Tiles

Continuously Immersed Tiles - Flexible Sealant - as specified below. A one-part, neutral (non-acid) curing, waterproof, flexible silicone sealant with high resistance to UV, chlorine, and fungal attack. Suitable for continuously immersed tiling applications - including swimming pools and permanently wet areas. Applied in accordance with the sealant manufacturer's instructions, and neatly finished with the tiled surface.

Sealant joints shall be in accordance with the sealant manufacturer's joint design width-to-depth ratio. When sealing movement control joints, the sealant shall be applied over a suitably sized PEF backing rod inserted into the joint to the required depth.

Brand & Product:
Colour:

14.3.16 Aluminium Trim

14.3.16.1 Aluminium Square-Edge Tile Trim

Aluminium Square-Edge Tile Trim. Square profiled extruded aluminium edge trim for tiling. Sized to suit the thickness of the tiling installation. Finish and colour as specified. Installed to the locations and details shown on the drawings.

Finish & Colour:

14.3.16.2 Aluminium Round-Edge Tile Trim

Aluminium Round-Edge Tile Trim. Quarter round profiled extruded aluminium edge trim for tiling. Sized to suit the thickness of the tiling installation. Finish and Colour as specified. Installed to the locations and details shown on the drawings.

Finish & Colour:

14.3.17 Deck Jack Tile Support System

Deck Jack Tile Support System - as specified below. A proprietary, open-joint, free-draining, tile paving support system, incorporating free-draining open tile joints, height-adjustable and slope-adjustable pedestals that compensate for height variation in the gradient and substrate of an exterior deck, balcony, terrace, etc. Tiles not included - refer to Deck Jack Floating Tiles clauses.

Installed in accordance with the manufacturer's requirements to suit the tile module size and the tile layout, levels and details shown on the approved drawings.

Brand & Product:
Tile Joint Width (open):
Maximum Load (per pedestal):
Maximum Slope (of substrate):
Installed Location:

14.3.18 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings.

Coordinate with other trades to install tiling as required, and to ensure that:
- appropriate tolerances and clearances allow for adjacent finishes, fixtures and fittings, etc; and
- penetrations for piped and cabled services are correctly located to maintain tile integrity and tiling performance.

14.3.19 Workmanship

Where required by the NZ Building Act 2004, it is the building contractor's responsibility to ensure that all restricted building work is carried out by a Licensed Building Practitioner.

All Tiling work shall be carried out to best trade practice by qualified and experienced tradespersons, familiar with the specified materials and installation and finishing techniques, in accordance with AS 3958.1 and relevant product manufacturers' technical literature, to the layout and details shown on the approved drawings, and to fully comply with all warranty requirements.

Submit evidence of experience on request, e.g. National Certificate in Floor and Wall Tiling, or certified member of Master Plasterers and Tilers Association.

All substrate preparation, tile laying and tiling accessories application and finishing techniques shall be exactly as recommended by the specified product manufacturer. All work shall be such as to leave a neat, efficient and robust installation.

Interior wet-area tiling shall be waterproof and installed over a waterproof membrane as shown on the drawings.

Exterior floor tiling shall be waterproof and weathertight, and where necessary installed over a waterproof membrane as shown on the drawings.

As recommended by the tile manufacturer, use only an approved adhesive that is compatible with the specified tile, its substrate and its application/use.

Where necessary, delay tiling to allow maximum curing and settling and initial creep of the substrates, particularly to load bearing structural elements.

Do not cover or bridge movement control joints with tiles and tile underlay.

Tiling shall not be undertaken when the ambient and surface temperatures are outside the specified product manufacturer's permissible temperature range.

Where necessary, mask off and protect from contamination adjacent surfaces, joinery, fixtures and finished work before commencing.

Exterior tiling shall not be undertaken during inclement weather. As necessary and in accordance with the manufacturer's requirements, protect exterior tiling from rain, hot dry winds and direct sunlight to aid proper drying and curing.

Leave all tiled surfaces clean, sound, and free from blemishes of any kind.

14.3.20 Delivery & Handling

Upon delivery to site, inspect the tile packs and reject those items that are found to be damaged, defective or contaminated. Contact the supplier for replacement of rejected items at time of delivery to site.

Do not use damaged, defective or contaminated materials, or products that are beyond their designated shelf life.

Store all tiling materials undercover, in a weatherproof environment, off the floor, on a flat, even and level surface in accordance with the manufacturer's requirements. Keep products and materials dry, out of direct sunlight and protected from damage, moisture and contamination at all times.

Handle tiling materials in accordance with the manufacturer's requirements and in a manner that prevents damage to and contamination of the materials and works.

Installers shall be familiar with and comply with all associated product Safety Data Sheet precautions for use, and use appropriate safety gear when handling materials.

Installers shall conform with all relevant WorkSafe NZ Guidelines and Codes of Practice - including General risk and workplace management - part 1.

14.3.21 Preparation

14.3.21.1 General

All substrates to be tiled shall be structurally sound, even and smooth, clean, dry, and free from dirt, dust, grease, oil, wax, paint residue, loose plaster and laitance, curing compounds and other materials and contaminants likely to affect the bonding and performance of the specified tile adhesive and grout.

Carry out all necessary moisture readings of substrates. Do not commence installation until the moisture readings for the whole area are below the required level.

Carry out all necessary substrate inspections and preparatory work in accordance with the relevant product manufacturer's recommendations prior to application.

Check that the substrate is free of voids and depressions, and is in correct alignment - true to line, level and/or plumb, and to the falls indicated on the drawings.

Check that all fixtures, fittings and embedded items are correctly installed, and that all substrate edges are completed as detailed.

Confirm the location of any movement control or crack control joints prior to commencement of the works, and ensure that they are appropriately trimmed. Do not cover or bridge movement control joints with tiles, adhesive and grout.

Allow self-levelling underlayments and mortar screeds to properly cure in accordance with the manufacturer's recommendations before commencing tiling.

Allow new concrete substrates to cure for at least four weeks prior to tiling.

Ensure that the back of each tile is clean and free from dust or other contaminants prior to laying.

The commencement of work on each section/area shall be deemed to indicate full acceptance by the Tiler that all preparatory works by other trades are appropriate to achieve the required finished results.

14.3.21.2 Under-floor Heating Systems

Turn off working in-slab under-floor heating systems at least 48 hours prior to installation. Underfloor heating must remain off during installation and for at least 48 hours, or in accordance with the adhesive manufacturer's requirements, after installation.

14.3.21.3 New Concrete Floor

New Concrete Floor - check all aspects of preparatory works, including but not limited to:
- Check that the concrete slab has been formed and finished to the levels and falls indicated on the drawings, including any tanking or waterproofing requirements.
- New concrete floors must have aged for a minimum of 28 days, and have dried over the entire area to a relative humidity of 75% or less.
- Grind off any high spots, and using a proprietary levelling compound repair flush with

feathered edges any low spots or damaged areas, then grind smooth.
- Mechanically grind or acid etch very dense concrete surfaces and any surface that is glazed to the extent that may compromise adhesion.
- Leave the surface clean, free of dust and surface contaminants.
- Check that any protruding or exposed bare metal has been treated with a suitable corrosion-inhibiting primer.

14.3.21.4 New Cement Floor Screed

New Cement Floor Screed - check all aspects of preparatory works, including but not limited to:
- New cement screeds must have aged for a minimum of 28 days, and have dried over the entire area to a relative humidity of 75% or less.
- Grind off any high spots, and using a proprietary levelling compound repair flush with feathered edges any low spots or damaged areas, then grind smooth.
- Mechanically grind or acid etch very dense concrete surfaces and any surface that is glazed to the extent that may compromise adhesion.
- Leave the surface clean, free of dust and surface contaminants.
- Check that any protruding or exposed bare metal has been treated with a suitable corrosion-inhibiting primer.

14.3.21.5 New Plywood Floor

New Plywood Floor - check all aspects of preparatory works, including but not limited to:
- Check that the plywood is CD grade (C face up), and the sheets have been installed, jointed and fixed in accordance with the manufacturer's requirements and indicated on the drawings, and that all sheet edges are fully supported.
- Check that the sheet joints are flush and even, and that all fixings are countersunk and filled with a compatible filler.
- Using a proprietary levelling compound, repair flush with smooth, feathered edges any damaged areas in the floor surface.
- Mechanically sand to remove all surface irregularities and contaminants likely to affect adhesion.
- Leave the surface completely clean and free of dust and contaminants, then fully prime the substrate with an appropriate primer in accordance with the plywood manufacturer's recommendations.

14.3.21.6 New Particle Board Floor

New Particle Board Floor - check all aspects of preparatory works, including but not limited to:
- Check that the sheets have been installed, jointed and fixed in accordance with the manufacturer's requirements and indicated on the drawings, and that all sheet edges are fully supported.
- Check that the sheet joints are flush and even, and that all fixings are countersunk and filled with a compatible filler.
- Using a proprietary levelling compound, repair flush with smooth, feathered edges any damaged areas in the floor surface.
- Mechanically sand to remove all surface irregularities and contaminants likely to affect adhesion.
- Leave the surface completely clean and free of dust and contaminants, then fully prime the

substrate with an appropriate primer in accordance with the particle board manufacturer's recommendations.

14.3.21.7 New Compressed Fibre Cement Sheet Floor

New Compressed Fibre Cement Sheet Floor - check all aspects of preparatory works, including but not limited to:
- Check that the sheets have been installed, jointed and fixed in accordance with the manufacturer's requirements and indicated on the drawings, and that all sheet edges are fully supported.
- Check that the sheet joints are flush and even, and that all fixings are countersunk and filled with a compatible filler.
- Using a proprietary levelling compound, repair flush with smooth, feathered edges any damaged areas in the floor surface.
- Mechanically sand to remove all surface irregularities and contaminants likely to affect adhesion.
- Leave the surface completely clean and free of dust and contaminants.

14.3.21.8 Existing Concrete Floor

Existing Concrete Floor - check all aspects of preparatory works, including but not limited to:
- Remove any existing floor covering and adhesive and surface contaminants.
- Grind off any high spots, and using a proprietary levelling compound repair flush with feathered edges any low spots or damaged areas, then grind smooth.
- Mechanically grind or acid etch very dense concrete surfaces and any surface that is glazed to the extent that may compromise adhesion.
- Leave the surface clean, free of dust and surface contaminants.
- Check that any protruding or exposed bare metal has been treated with a suitable corrosion-inhibiting primer.

14.3.21.9 Existing Plywood Floor

Existing Plywood Floor - check all aspects of preparatory works, including but not limited to:
- Strip off any remaining existing floor coverings, adhesive and surface contaminants.
- Using a proprietary levelling compound, repair flush with smooth, feathered edges any damaged areas in the floor surface.
- Mechanically sand to remove all surface irregularities.
- Leave the surface clean, free of dust and surface contaminants in preparation for installing fibre cement underlay sheets.

14.3.21.10 Existing Particle Board Floor

Existing Particle Board Floor - check all aspects of preparatory works, including but not limited to:
- Strip off any remaining existing floor coverings, adhesive and surface contaminants.
- Using a proprietary levelling compound, repair flush with smooth, feathered edges any damaged areas in the floor surface.
- Mechanically sand to remove all surface irregularities.
- Leave the surface clean, free of dust and surface contaminants in preparation for installing fibre cement underlay sheets.

14.3.21.11 Existing T&G Timber Strip Floor

Existing Solid Timber T&G Floor - check all aspects of preparatory works, including but not limited to:
- Strip off any remaining existing floor coverings, adhesive and contaminants.
- Have any damaged timber floor boards repaired.
- Mechanically sand to remove all surface irregularities.
- Leave the surface clean, free of dust and surface contaminants in preparation for installing fibre cement underlay sheets.

14.3.21.12 Concrete Masonry Walls

Concrete Block Walls - check all aspects of preparatory works, including but not limited to:
- Check that the concrete blockwork has been installed and detailed as shown on the drawings, including any tanking or waterproofing requirements.
- Check that the mortar joints have been struck flush with the concrete blocks and tooled tight.
- Check that the substrate is dry.
- Remove any grout slurry, excess mortar, loose material and surface projections.
- Check junctions with all other substrates and elements, ensuring that all necessary works have been completed as detailed.
- Check that any protruding or exposed bare metal has been treated with a suitable corrosion-inhibiting primer.

14.3.21.13 Precast & Tilt-up Concrete Walls

Precast & Tilt-Up Concrete Walls - check all aspects of preparatory works, including but not limited to:
- Check that the concrete panels have been formed and finished as indicated on the drawings, including any tanking or waterproofing requirements.
- Check that the surface for damage - have any surface damage, cracks and blowholes appropriately remedied.
- Check that the concrete is fully cured and dry.
- Check that the panel joints have been sealed and finished as detailed.
- Check junctions with all other substrates and elements, ensuring that all necessary works have been completed as detailed.
- Check that any protruding or exposed bare metal has been treated with a suitable corrosion-inhibiting primer.

14.3.21.14 Insitu Concrete Walls

Insitu Concrete Walls - check all aspects of preparatory works, including but not limited to:
- Check that insitu concrete has been formed and finished as shown on the drawings, including any tanking or waterproofing requirements.
- New concrete must be allowed to cure for at least 28 days prior to tiling.
- Old concrete must be thoroughly cleaned and washed and allowed to dry.
- Check that the surface for damage - have any surface damage, cracks and blowholes appropriately remedied.
- Check that the concrete is fully cured and dry.
- Check junctions with all other substrates and elements, ensuring that all necessary works have been completed as detailed.

- Check that any protruding or exposed bare metal has been treated with a suitable corrosion-inhibiting primer.

14.3.21.15 Fibre Cement Sheet Wall Lining

Fibre Cement Sheet Wall Lining - check all aspects of preparatory works, including but not limited to:
- Check that the fibre cement sheets have been installed, jointed and fixed in accordance with the manufacturer's requirements and as indicated on the drawings, and that all sheet edges are fully supported.
- Check junctions with all other substrates and elements, ensuring that all necessary works have been completed as detailed.
- Check that all apertures, openings, edges and expansion and movement control joints are completed as detailed.

14.3.21.16 Plasterboard Wall Lining

Plasterboard Lining - check all aspects of preparatory works, including but not limited to:
- Check that the plasterboard sheets have been installed in accordance with the manufacturer's requirements, are supported on all edges on framing, are securely fastened, and that all joints and junctions have been stopped flush with reinforcing tape embedded in the jointing compound.
- Check junctions with all other substrates and elements, ensuring that all necessary works have been completed as detailed.
- Check that all apertures, openings, edges and expansion and movement control joints are completed as detailed.

14.3.22 Installation

14.3.22.1 Fibre Cement Sheet Underlay

Fibre Cement Sheet Underlay: Allow the underlay sheets to condition before installation in accordance with the manufacturer's requirements.
Ensure that timber/wood-based subfloor substrates have been pre-primed with the appropriate primer as outlined in the manufacturer's specification requirements.

Install underlay sheets closely, in a staggered (brick) pattern, at right angles to the direction of the subfloor. Joins in the underlayment sheets shall not coincide with joints in the timber or sheet subfloor. Sheet edges shall be accurately cut to the shape of adjacent walls with a 5mm gap between and sealed with flexible sealant.

Fix sheet with nails or staples in accordance with the manufacturer's requirements. Underlay sheets installed over an existing plywood or particle board subfloor shall be fixed with a compatible adhesive in conjunction with staples. Set nail or staple heads below the sheet surface, sand all sheet joints flush and even, and vacuum clean to remove all dust.

As necessary, protect installed underlay from foot traffic and damage and contamination until the tiling installation is complete.

14.3.22.2 Acoustic Underlay

Acoustic Underlayment - Impact Sound Reduction System. Prime porous substrates and lay acoustic underlayment matting or sheeting in accordance with the manufacturer's requirements.

Ensure any gaps between acoustic mats/sheets and along adjoining walls and columns are filled with neutral cure silicone.

Do not commence tiling installation until the acoustic underlay adhesive has set according to the adhesive manufacturer's requirements.

As necessary, protect installed acoustic underlay from foot traffic and damage and contamination until the tiling installation is complete.

14.3.22.3 Decoupling Layer

Decoupling Layer. Install the decoupling layer in accordance with the manufacturer's requirements. Do not allow the decoupling layer to bridge movement control joints. As necessary, protect installed decoupling layer from foot traffic and damage and contamination until the tiling installation is complete.

14.3.22.4 Undertile Waterproofing System - Interior Wet Area

Undertile Waterproofing System - Interior Wet Area. Install the specified undertile, liquid-applied waterproofing membrane in accordance with the manufacturer's instructions, to properly prepared, clean, dry substrates, and at the specified coverage rate and to the required dry film thickness.

Where required by the membrane manufacturer, prime substrates with a manufacturer-approved primer/sealer in accordance with the primer manufacturer's instructions.

Reinforce all junctions of the waterproofing membrane in accordance with the manufacturer's instructions, including floor/wall junctions, internal and external corner junctions, movement control joints, floor waste and drain outlets, pipe penetrations, etc.

Eliminate any pin holes, surface imperfections and defects as the work proceeds. Apply the required number of coats, with each successive coat at right angles to the previous coat.

Complete the installation to the required standard and leave waterproof and leak free. Allow the finished membrane to dry as recommended by the membrane manufacturer before flood testing and/or tiling.

Unless indicated otherwise on the drawings, interior wet-area undertile waterproofing membranes shall be installed to cover the following minimum dimensions:
For an Unenclosed Shower:
- Walls: extending to 1800mm above the floor, and 300mm above the shower rose, and horizontally 1500mm from the shower rose.
- Floor: extending to a 1500mm horizontal radius from the shower rose.

For a Bath with a Shower over and no Shower Screen:
- Walls: extending to 1800mm height above base of the bath, and horizontally 1500mm from the shower rose.
- Floor: extending to a 1500mm horizontal radius from the shower rose.

For a Bath with a Shower over and a Shower Screen:
- Walls: extending to 1800mm height above the base of the bath along its sides.

For a Bath:
- Walls: extending to 150mm height above the sides of the bath, and 150mm horizontally along walls.

For a vanity Splashback:
- Wall: to 300mm height above the vanity top behind the vanity.
- Floor: extending to twice the width (front-to-back) of the vanity, and to 500mm beyond the ends of the vanity.

14.3.22.5 Undertile Waterproofing System - Exterior Deck, Balcony, Terrace

Undertile Waterproofing System - Exterior Suspended Deck, Balcony, Terrace, Concrete Slab. Install the specified undertile waterproofing membrane in accordance with the manufacturer's instructions to properly prepared, clean, dry substrates, and at the specified coverage rate and to the required dry film thickness.

Where required by the membrane manufacturer, prime substrates with a manufacturer-approved primer/sealer in accordance with the primer manufacturer's instructions.

Reinforce the waterproofing membrane and all membrane junctions in accordance with the manufacturer's instructions, including floor/wall junctions, internal and external corner junctions, movement control joints, drain outlets, etc.

Eliminate any pin holes, surface imperfections and defects as the work proceeds. Apply the required number of coats, with each successive coat at right angles to the previous coat.

Complete the installation to the required standard and leave waterproof and leak free. Allow the finished membrane to dry as recommended by the membrane manufacturer before flood testing and/or tiling.

Unless indicated otherwise on the approved drawings, exterior suspended deck/balcony/terrace/slab undertile waterproofing membranes shall be installed to cover the following minimum dimensions:
- Walls: extending a minimum 150mm in height above the finished tiled surface.
- Stepped Thresholds (without a full-width external channel drain): extending a minimum 100mm in height above the finished tiled surface into the threshold, and extending minimum 100mm up each side of the trimmed opening.

14.3.22.6 Undertile Waterproofing System - Continuously Immersed Tiles

Undertile Waterproofing System - Continuously Immersed Tiles. Install the specified undertile waterproofing membrane system, complete with system components and accessories

required for proper installation and performance, in accordance with the manufacturer's instructions to properly prepared, clean, dry substrates, and at the specified coverage rate and to the required dry film thickness.

Where required by the membrane manufacturer, prime substrates with a manufacturer-approved primer/sealer in accordance with the primer manufacturer's instructions.

Reinforce the waterproofing membrane and all membrane junctions in accordance with the manufacturer's instructions, including floor/wall junctions, internal and external corner junctions, movement control joints, drain outlets, etc.

Eliminate any pin holes, surface imperfections and defects as the work proceeds. Apply the required number of coats, with each successive coat at right angles to the previous coat.

Complete the installation to the required standard and leave the finished membrane completely waterproof and leak free. Allow the finished membrane to dry as recommended by the membrane manufacturer before flood testing and tiling.

14.3.22.7 Undertile Heating System

Undertile Heating System. Install the specified undertile heating system in strict accordance with the manufacturer's installation requirements.

Lay the heating element cable to the required design configuration in accordance with the manufacturer's installation requirements. Temporarily tack the cable in place with tape as it is laid. Do not cut the heating element cable.

Terminate cable tail ends at the required position according to the design requirements, and make all necessary connections to the system controls.

Apply protective self-levelling compound over the entire heated floor area to the required thickness. Allow to cure before tiling over.

14.3.22.8 Floor Tiles

Floor Tiles. Install floor tiles by direct-stick method to clean, dry and properly prepared substrates in accordance with AS 3958.1 and the adhesive manufacturer's instructions. Accurately set-out and lay tiles to the layout and details shown on the drawings. Confirm the floor tile layout and pattern requirements prior to installation.

As required by the adhesive manufacturer, seal or prime porous substrates or substrates where dusting or powdering exists. The use and application of adhesive shall be exactly to the adhesive manufacturer's instructions.

All tile cutting, boring and shaping shall be carried out using appropriate tools and equipment and methods suitable for the tile type and in accordance with the tile manufacturer's recommendations. Only install cut tiles that have smooth, uniform cut edges - do not use tiles with jagged or flaked edges.

Mechanically mix powdered adhesive at the recommended ratio with clean potable water to a smooth, lump-free paste in accordance with the manufacturer's requirements. Do not mix more than can be used within the specified open time.

Apply tile adhesive evenly using a suitably notched trowel to properly prepared substrates in accordance with the manufacturer's instruction.
- Do not apply more adhesive than can be covered within the specified open time.
- Do not over spread the adhesive, and avoid surface skinning - particularly when used in unfavourable conditions such as direct sunlight, wind and/or high temperatures.
- Ensue to follow the adhesive manufacturer's recommended setting and curing periods.

Lay floor tiles into adhesive to achieve maximum contact and bonding before skinning occurs. Re-trowel any adhesive that has skinned - do not apply water to skinned adhesive. Where necessary, back-butter tiles with adhesive to ensure maximum contact and bonding - do not spot-fix floor tiles.

Floor tiles shall be laid so that the finished surface and edges are true and even, level and/or to the falls shown on the drawings, and finished flush with adjoining finished work as appropriate or as detailed.

Tile joints shall be to the required layout, uniform, accurately aligned, straight and true to line, and set even and parallel to the specified joint width.

Where indicated on the drawings, return floor tiles along walls, upstands, toe spaces, etc., to the height and details shown on the drawings.

Remove excess adhesive from tile joints as each tile is laid to ensure full depth grouting can be achieved, and leave the tile surface completely clean.

14.3.22.9 Wall Tiles

Wall Tiles: Install wall tiles by direct-stick method to clean, dry and properly prepared substrates in accordance with AS 3958.1 and the adhesive manufacturer's instructions. Accurately set-out and lay tiles to the layout and details shown on the drawings. Confirm the wall tile layout and pattern requirements prior to installation.

As required by the adhesive manufacturer, seal or prime porous substrates or substrates where dusting or powdering exists. The use and application of adhesive shall be exactly to the adhesive manufacturer's instructions.

All tile cutting, boring and shaping shall be carried out using appropriate tools and equipment and methods suitable for the tile type and in accordance with the tile manufacturer's recommendations. Only install cut tiles that have smooth, uniform cut edges - do not use tiles with jagged or flaked edges.

Mechanically mix powdered adhesive at the recommended ratio with clean potable water to a smooth, lump-free paste in accordance with the manufacturer's requirements. Do not mix more than can be used within the specified open time.

Apply tile adhesive evenly using a suitably notched trowel to properly prepared substrates in accordance with the manufacturer's instruction.
- Do not apply more adhesive than can be covered within the specified open time.
- Do not over spread the adhesive, and avoid surface skinning - particularly when used in unfavourable conditions such as direct sunlight, wind and/or high temperatures.
- Ensue to follow the adhesive manufacturer's recommended setting and curing periods.

Press wall tiles into adhesive to achieve maximum contact and bonding before skinning occurs. Re-trowel any adhesive that has skinned - do not apply water to skinned adhesive. Where necessary, back-butter tiles with adhesive to ensure maximum contact and bonding - do not spot-fix wall tiles.

Wall tiles shall be installed so that the finished surface and edges are true and even, level, and finished flush with adjoining work as appropriate or as detailed.

Tile joints shall be to the required layout, uniform, accurately aligned, straight and true to line, level and plumb, and set even and parallel to the specified joint width. Use proprietary tile spacers, sized for the specified joint width, to ensure accurate jointing.

Form internal and external wall corner junctions true and plumb and with tile joints continued around corners level and true.

Remove excess adhesive from tile joints as each tile is laid to ensure full depth grouting can be achieved, and leave the tile surface completely clean.

14.3.22.10 Edge Trim

Edge Trim. As required and indicated on the drawings, install all necessary tiling edge trim - including edge cappings, corner mouldings, transition strips, etc., - all neatly finished, accurately aligned and true, to the required layout and as detailed on the drawings.

14.3.22.11 Stairs & Steps

Stairs & Steps. Accurately lay tiles to steps and stair treads, risers and landings as detailed on the drawings. Finish tiles neatly along tread/riser junctions and against trim. Ensure that the tile joints on treads and risers are aligned, straight and true along each stair flight. As indicated on the drawings, install nosing tiles or proprietary stair-nosings to treads.

14.3.22.12 Movement Control Joints

Movement Control Joints. Form movement control joints in tiling to the locations and details shown on the drawings and in accordance with AS 3958.1.

Movement control joints in tiling shall coincide with control joints in the substrate and structure, and at junctions between dissimilar substrates and other surface finish materials in the same plane.

Ensure to carry movement control joints through tiling from the substrate. Do not bridge movement control joints with underlayment, membranes, adhesive or tiles.

Seal movement control joints after grouting with the specified flexible sealant in accordance with the sealant manufacturer's instructions and as detailed.

Proprietary movement control joints shall be installed in strict accordance with the manufacturer's instructions and to the layout and details shown on the drawings. Finish tiling against proprietary movement control joints as detailed.

14.3.22.13 Grouting

Grouting. Grouting shall be in accordance with the grout manufacturer's requirements and recommendations. Coloured grout shall be to the colour specified.

Prior to grouting, ensure that the tile adhesive has completely set, and that the tile joints are clean, dry and free from excess adhesive and any foreign material. Rake out any excess adhesive from joints to ensure a maximum, uniform grout joint is achieved. Tile spacers must be removed prior to grouting.

Mechanically mix powdered tile grout with clean water at the required ratio to a smooth, lump-free paste in accordance with the manufacturer's requirements. Do not mix more than can be used within the manufacturer's specified open time. Ensue to follow the manufacturer's recommended drying and curing periods.

Apply tile grout evenly with a rubber squeegee or grouting float, ensuring that the tile joints are completely filled and smoothed to a dense, uniform surface. Do not spread more grout than can be cleaned within the specified open time. Remove excess grout immediately. In hot or windy conditions, dampen the joints to prevent the grout from drying out too quickly.

Clean the tiles with a damp sponge when the grout joints have firmed, making sure not to wash-out the joints. Finish grout joints to a smooth, uniform effect and leave grout free of pin holes and blemishes.

Allow grout joints to dry before cleaning with a clean, dry, soft cloth, to completely remove any grout haze and residue from the surface of the tiles.

14.3.22.14 Protection

Protection. Take all necessary measures to protect exterior tiling from the extremes of weather and climate during the fixing and grouting operation and for as long as possible thereafter.

Keep the working area cordoned off during the whole tiling installation. Protect completed tiling from excessive loads, damage and contamination until hand-over or as directed.

Restrict foot traffic from completed floor tiling in accordance with the tile manufacturer's time frames for 'set-to-light-foot-traffic' and 'ready-for-service-use'.

Where necessary, cover completed floor tiling with a heavy-duty temporary floor protection such as Ovaboard, Ram Board, Buffalo Board; laid in accordance with the manufacturer's requirements.

Protect exterior tiling, immediately after laying and grouting, from rain and moisture for at least 24 hours, and from frost and strong sunlight after laying in accordance with the tile adhesive and grout technical specifications.

14.3.22.15 Deck Jack Floating Tiles

Installation of Deck Jack Floating Tiles - generally as follows:

Ensure that the substrate surface has been properly prepared and completed as specified and as shown on the drawings before installation.

Install the deck jack floating tile support system in strict accordance with the manufacturer's requirements, to the tile module layout and the finished paving level shown on the approved drawings.

Floating tiles shall be installed true to line and level, with all tile joints uniform in width, parallel and straight, and with adjoining tile edges flush and even - without any abrupt change in height.

Lay the tiles onto the deck jack supports, and adjust pedestal heights until the tile is at the required height, is level in both directions and is stable.
Repeat the tile installation process in all directions leaving only the perimeter edges to complete.

When perimeter tiles are to be site-cut to fit the remaining edge space, accurately cut the perimeter tiles 10mm smaller than the measured dimension to create a 10mm wide drainage gap along perimeter wall edges.

Brace perimeter tiles against adjacent wall structure or cladding, to stabilise the floating tile installation, in accordance with the manufacturer's requirements and as detailed on the approved drawings - failure to do this could result in the tiles becoming loose and unstable.

14.3.23 Reserve Material

14.3.23.1 Interior Dry Area Tiles - Floor Tile

Reserve Material (spares) - Interior Dry Area Tiles - Floor Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.2 Interior Dry Area Tiles - Wall Tile

Reserve Material (spares) - Interior Dry Area Tiles - Wall Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.3 Interior Dry Area Tiles - Trimming Tile

Reserve Material (spares) - Interior Dry Area Tiles - Trimming Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.4 Interior Dry Area Tiles - Stair/Step Nosing Tile

Reserve Material (spares) - Interior Dry Area Tiles - Stair/Step Nosing Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.5 Interior Wet Area Tiles - Floor Tile

Reserve Material (spares) - Interior Wet Area Tiles - Floor Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.6 Interior Wet Area Tiles - Wall Tile

Reserve Material (spares) - Interior Wet Area Tiles - Wall Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.7 Interior Wet Area Tiles - Trimming Tile

Reserve Material (spares) - Interior Wet Area Tiles - Trimming Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.8 Interior Wet Area Tiles - Stair/Step Nosing Tile

Reserve Material (spares) - Interior Wet Area Tiles - Stair/Step Nosing Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.9 Exterior Tiles - Floor Tile

Reserve Material (spares) - Exterior Tiles - Floor Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.10 Exterior Tiles - Wall Tile

Reserve Material (spares) - Exterior Tiles - Wall Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.11 Exterior Tiles - Trimming Tile

Reserve Material (spares) - Exterior Tiles - Trimming Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.12 Exterior Tiles - Stair/Step Nosing Tile

Reserve Material (spares) - Exterior Tiles - Stair/Step Nosing Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.13 Continuously Immersed Tiles - Floor Tile

Reserve Material (spares) - Continuously Immersed Tiles - Floor Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.14 Continuously Immersed Tiles - Wall Tile

Reserve Material (spares) - Continuously Immersed Tiles - Wall Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.15 Continuously Immersed Tiles - Trimming Tile

Reserve Material (spares) - Continuously Immersed Tiles - Trimming Tiles. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.16 Continuously Immersed Tiles - Stair/Step Nosing Tile

Reserve Material (spares) - Continuously Immersed Tiles - Stair/Step Nosing Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.23.17 Deck Jack Floating Tiles

Reserve Material (spares) - Deck Jack Floating Tile. Upon completion of the Tiling works, supply and deliver to the Principal the specified quantity of unopened packs of each tile specified.

Quantity:

14.3.24 Completion

Check that all Tiling work has been correctly installed to the required layout, and that all tile joints, edge-trimming and other detailing is correctly finished, grouted and sealed.

Check all Tiling installations for damage, marks and defects - repair or replace as necessary. Carry out any repairs to the required standard.

Thoroughly clean tiled surfaces in accordance with the manufacturer's recommended procedures and techniques. Lightly buff where appropriate.

Leave this work complete and to the required standard, and in accordance with the associated warranty requirements.

Clean up thoroughly, and leave adjacent surfaces and finished work clean and free of damage and contamination. Remove all associated rubbish from site.

Protect the completed installation from damage, trafficable dirt and grime, and stains as necessary until hand-over as scheduled or directed.

Issue to the Owner a copy of all relevant product manufacturers' maintenance requirements, and a copy of relevant manufacturer Product Warranties and the installer/applicator Installation Warranty for the installed products and completed works.

15 FLOOR COVERINGS

15.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

15.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

1884:2013(NZS AS)	Floor coverings - Resilient sheet and tiles - Installation practices
2455.2:2007(AS/NZS)	Textile floor coverings - Installation practice - Carpet tiles
3661.2:1994(AS/NZS)	Slip resistance of pedestrian surfaces - Part 2: Guide to the reduction of slip hazards
4586:2004(AS/NZS)	Slip resistance classification of new pedestrian surface materials
NZBC D1	Access Routes

15.3 Carpet & Resilient Floor Coverings

15.3.1 Scope

Supply and install the specified Floor Coverings and flooring products to the areas and surfaces, layouts and details shown on the drawings, complete with all accessories. All aspects of this work shall be in accordance with the specified floor covering manufacturers' technical literature and installation requirements, relevant Standards and Code requirements, other relevant product manufacturers' recommendations, and as shown on the drawings.

No substitutions are permitted for the specified Floor Coverings and flooring products.

15.3.2 Floor Coverings

15.3.2.1 Carpet

Carpet flooring; to the specified product, pile style and content, and colour and pattern. Installed in accordance with the manufacturer's requirements and AS/NZS 2455.1 to the locations and layout shown on the drawings.

Manufacturer, brand name & range:
Pile style:
Pile content/fibre:
Pile thickness:
Construction:
Colour/Pattern code:

Grading:
Location:

15.3.3 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings.
Co-ordinate with other trades as required to install the specified floor coverings and accessories.

15.3.4 Workmanship

All installation work shall be carried out by experienced and competent floor layers, familiar with the products specified and installation techniques, under the direct supervision of a Registered National Flooring Association (NFA) Member, in accordance with the manufacturer's installation requirements, NZS/AS 1884, AS/NZS 2455.1, AS/NZS 2455.2 and AS/NZS 4586 as relevant, and as noted and detailed on the drawings.
Use only approved adhesives that are compatible with the specified floor covering product and the substrate as recommended by the floor covering manufacturer.
The building must be fully enclosed and weathertight with all doors and necessary fittings and trim installed prior to laying floor coverings.

15.3.5 Delivery & Handling

Store and handle all floor covering products and accessories in accordance with the manufacturer's recommendations. Store products and accessories under cover and out of direct sunlight on a flat and level surface; keep dry and protect from damage and contamination at all times.
Do not use damaged or defective flooring products or accessories, or products that are beyond their designated shelf life. Do not damage or mark or distort flooring products and accessories during handling.
Allow floor coverings and accessories to properly condition for a minimum of 24 hours, or as recommended by the manufacturer, prior to laying in accordance with the manufacturer's requirements. Unless recommended otherwise by the manufacturer, do not lay floor coverings below 15ºC room temperature.

15.3.6 Substrate Preparation

15.3.6.1 General

Ensure the substrate surface is free of oil, grease and other contaminants, then sweep or vacuum as required to ensure it is absolutely clean. Ensure that any expansion or crack control joints are appropriately trimmed - do not install floor coverings over them.
The commencement of work on each section of floor shall be deemed to indicate a full acceptance by the relevant Flooring Subcontractor that all preparatory works by other trades are appropriate to achieve the required finished results.

15.3.6.2 New Concrete Floors

New concrete substrates must be compliant with NZS 3114 'U3 Surface Finish' and with the floor covering manufacturer's requirements and must have aged for a minimum of 28 days prior to laying the floor coverings. Check for moisture content by hygrometer reading to

BRANZ BU330 - do not commence laying floor coverings until the substrate is surface-dry and the moisture readings are less than 75% relative humidity over the entire surface.
Grind off any high spots on the concrete slab, and using the specified proprietary levelling compound repair flush with feathered edges any low spots or damaged areas then grind smooth.
Lightly grind or shot blast any surface that is glazed to the extent that may compromise the adhesive bond. Leave the surface clean and free of dust and contaminants etc.

Location:

15.3.6.3 Existing Concrete Floors

Strip off any remaining existing floor coverings, adhesive and other surface contaminants.
Existing concrete substrates must be compliant with NZS 3114 'U3 Surface Finish' and with the floor covering manufacturer's requirements. Check for moisture content by hygrometer reading to BRANZ BU330 - do not commence laying floor coverings until the substrate is surface-dry and the moisture readings are less than 75% relative humidity over the entire surface.
Grind off any high spots on the concrete slab, and using the specified proprietary levelling compound repair flush with feathered edges any low spots or damaged areas then grind smooth.
Lightly grind or shot blast any surface that is glazed to the extent that may compromise the adhesive bond. Leave the entire surface clean and free of dust and contaminants etc.

Location:

15.3.6.4 New Particle Board Floors

Check that the particle board sheets have been laid with staggered joints, with joints gapped 1mm - 2mm and supported on all edges on framing members or unsupported T&G jointed long-edges, and is fixed exactly to the particle board manufacturer's recommendations.
Using the specified proprietary levelling compound, repair flush with feathered edges any damaged areas of the particle board floor. Mechanically sand to remove all surface irregularities and contaminants likely to effect the floor covering adhesion. Vacuum clean leaving the surface clean and free of dust and contaminants etc.
Check that all particle board sheet joints are flush and even, and that all fixings are countersunk and filled with a compatible filler.
Check to ensure the particle board moisture content is below 12% for air-conditioned spaces, 14% for intermittently heated spaces, and 16% for unheated spaces - do not commence laying floor coverings until the particle board is surface-dry and the moisture readings are less than the required moisture level over the entire area.

Location:

15.3.7 Installation

15.3.7.1 Carpet Floor Coverings - Direct Stick

Install by direct stick method carpet floor coverings and accessories, including all jointing, in accordance with the manufacturers' recommendations, procedures and techniques, AS/NZS 2455.1, and as shown on the drawings.

Allow carpet floor coverings to properly condition in accordance with the manufacturer's recommendations prior to laying. Turn underfloor heating systems off 48 hours prior to installation and leave off during installation and for a minimum of 48 hours after completion. Thoroughly clean each area before commencing work. Seal or prime as necessary any porous surface receiving floor covering adhesive, and apply adhesive exactly to the manufacturer's recommendations.

Confirm the location of all carpet joints and seams prior to laying. Install carpet rolls in consecutive sequence and in the same direction. Do not install carpet floor coverings over expansion joints - use only the specified expansion joint cover strip and neatly finish carpet flooring in accordance with the cover strip manufacturer's requirements.

Carpet flooring accurately laid, fitted and jointed and fully bonded to the substrate. All seams and cross joins to be close-fitting and fused together with a low profile heat bond tape. Cut and properly prepare cross joins to ensure accurate pattern alignment. Roll carpet flooring with a suitably weighted roller as recommended by the manufacturer to ensure maximum adhesion.
Accurately install stair tread nosings and lay pre-cut carpet pieces to each stair tread and riser and finish neatly into or under the nosing edge as necessary.
Install any required carpet skirting, capping and edge trim, transition strips and naplock bars, as noted and detailed on the drawings; all finished straight and level and true to line.

Keep the working area cordoned off and protected during installation and protect completed installation work from damage and contamination until hand over of the works as programmed/scheduled.

15.3.8 Completion

Ensure that the specified floor coverings have been installed correctly, and that all seams, joints and accessories have been and completed correctly. Check for damage and defects and repair or replace as necessary.
Thoroughly clean the installed floor coverings in accordance with the manufacturers' recommended techniques and procedures.
Carry out any product specific finishing/polishing applications as recommended only by the floor covering manufacturer.
Leave the works area clean and remove all rubbish and waste material from the site.

Protect the completed works from damage, trafficable dirt and grime, and stains as necessary while other works are in progress.

Issue to the Owner a copy of the Manufacturers' maintenance requirements and a copy of the Manufacturers' Materials Warranties and the Applicators' Installation Warranties for all of the installed floor coverings.

16 GAS

16.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

16.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

1596:2014(AS/NZS)	The storage and handling of LP Gas
5601.1:2013(AS|NZS)	Gas installations - Part 1: General installations
Gas Regulations	Gas (Safety and Measurement) Regulations 2010
LPG Association of New Zealand	LPGA CoP No 2 - Installation and maintenance of twin 45kg LPG cylinder systems
NZBC G10	Piped Services
NZBC G11	Gas as an Energy Source

16.3 Gas System - LPG Cylinders (LPGA CoP No.2)

16.3.1 Scope

Supply, install, test and commission the Gas System LPG Cylinders to the locations and layout shown on the drawings, complete with all system components and accessories required for proper performance and functionality, and compliance. Carry out the works to comply with the requirements of the LPGA CoP No.2: 'Installation and maintenance of twin 45kg LPG cylinder systems', AS/NZS 5601.1 and the NZ Building Code, and with all relevant Regulations and Acts, and the requirements of the controlling Regulatory Authorities.

For the purpose of this specification, the following definitions apply:
- EPA: Meaning the ‘Environmental Protection Authority’.
- Excess Flow Valve: A normally open valve that closes automatically when a predetermined flow rate in a particular direction has been exceeded.
- HSNO: Hazardous Substances and New Organisms Act 1996.
- LAB Number: The number allocated by EPA when a cylinder is approved.
- LPGA: LPG Association of New Zealand Inc.
- POL Fitting (Prest-O-Lite): The common name given for a standard union with left hand thread, used for connection to a 45kg cylinder.
- Pigtail: A short length of flexible tube or copper pipe completed with end couplings. Use for connecting the cylinder to the manifold or the changeover valve.
- Twin Cylinder Installation: A cylinder installation where the cylinders are connected separately to the system. Each cylinder is connected to a change over valve that can be operated manually or automatically, to change over the cylinder which is supplying LPG to the installation. Connection may be made using flexible rubber or copper pigtails, or pipe fittings.

16.3.2 Requirements

16.3.2.1 Compliance

Installation of the LPG service shall comply with the Gas Act 1992, the Gas (Safety & Measurement) Regulations 2010, and the NZ Building Code. Obtain all necessary permits, pay all fees and give all notices, and complete the works to the approval of the Territorial Authority.

16.3.2.2 Gas Compliance Certificates

In accordance with the Gas (Safety and Measurement) Regulations 2010, complete and issue to the relevant parties the following documents for the LPG service installation:
- Gasfitting Certificate of Compliance (CoC).
- Gas Safety Certificate (GSC).

16.3.2.3 Record Keeping

Maintain a complete and up-to-date record of the location of the LPG service, and of the equipment and materials used in its assembly and installation. The record shall include, but be limited to:
- A dimensioned, scaled plan of the location of LPG cylinders, and the installed layout of the LPG piping and system components.
- Details of the pipe diameters and pipe types used.
- The locations and types of mechanical joints used, with the locations clearly marked on the plan.
- Full details and exact location of valves fitted to the distribution system, giving the number of turns required to operate the valve and the direction of rotation.
- Full details of the LPG service operation and maintenance requirements.

16.3.2.4 As-Built Documents

Provide all required As-Built documentation and records. Prepare and submit As-Built drawings of the LPG service installation, based on the approved contract drawings, that accurately record the location of LPG cylinders, gas pipe runs, pipe sizes, and the locations and types of componentry and fittings.

16.3.2.5 Corrosion Control

Take all reasonable attempts to limit corrosion of the LPG service installation. Separate dissimilar metals by a 5mm air gap or by an appropriate 2mm thick isolating material. As necessary provide suitable protection from other materials with corrosion resistant coatings, by insulating joints or by sleeving. Use proprietary pipe clamps, clips, brackets and hanger supports, and fastenings and anchors appropriate for the installation and support of the piped gas system components and equipment and suitable for the environmental conditions.

16.3.2.6 Openings & Penetrations

Form openings and penetrations through walls, floors and structural elements, as required and as shown on the drawings. Provide pipe sleeves for LPG pipe penetrations through concrete foundation walls, floor slabs and concrete and/or masonry walls.

Provide proprietary intumescent fire collars around pipes that pass through a fire separation element (fire-rated wall, floor, duct or riser, or other as shown on the drawings) in accordance with the fire collar manufacturer's requirements and as shown on the drawings.

16.3.2.7 Support & Seismic Restraint

Supply and install all necessary pipe support clamps, clips, brackets, hangers, etc., required to properly support and anchor surface-mounted and suspended pipework.

Components shall be adequately fastened and restrained for both normal loadings and earthquake loadings (NZS 4219).

16.3.2.8 LPG Pipe Identification

In-ground LPG pipes shall have warning tape placed in the trench directly above the gas pipe and between 150mm and 300mm below the finished surface level.

Above-ground LPG pipes shall be identified by colours and letters within 1m of every valve and in every space/area that the pipe is run, at maximum 6m intervals. Coloured marker bands shall be minimum 50mm wide, and identifying letters shall be minimum 25mm high.

Where required, LPG pipes shall have indicating arrows, minimum 100mm long, showing the direction of flow. Colours, letters, arrows and tags shall be plainly visible from the direction the pipes are most likely to be viewed from.

Where LPG pipes are to be painted, the final coat shall be the appropriate identification colour in accordance with NZS 5807.

Identify all valves with a numbered brass label showing the normal valve position; number as shown on the drawings.

16.3.2.9 Enclosed Pipework

Where pipework is installed in an enclosed space, the enclosed space shall be ventilated in accordance with NZBC E2/AS1. Pipework installed under floor spaces shall be suspended clear of the ground by a minimum of 100mm. Pipework installed in unventilated and/or inaccessible spaces shall be installed without joints - where joints are unavoidable in unventilated and/or enclosed spaces, each joint shall be inspected, tested and proved sound before the pipework is concealed. Do not install pipework in lift wells, air ducts, plenum ceilings, air handling plena, laundry/clothes chutes, rubbish chutes, ventilating ducts, fire hydrant cupboards or fire isolated stairways.

16.3.3 LPG Cylinders

16.3.3.1 Exchange Cylinders

Exchange LPG cylinders. The number of cylinders supplied shall meet the design capacity of the LPG service. Cylinders shall be full 45kg (nominal 108 litre) cylinders supplied by the LPG supplier.

LPG cylinders shall comply with the Hazardous Substances (Compressed Gases) Regulations and the Environmental Protection Authority (EPA) Guide to Gas Cylinders. Cylinders shall be stamped with a LAB number and a current test date.

Exchange cylinders shall be located and installed such that the delivery of gas can be made safely by one person without excessive manual handling or risk of damage to property.

LPG Supplier:

16.3.3.2 Insitu-Fill Cylinders

Insitu-fill LPG cylinders. The number of cylinders supplied shall meet the design capacity of the LPG service. Cylinders shall be full 45kg (108 litres approx) cylinders supplied by the LPG supplier.

LPG cylinders shall comply with the Hazardous Substances (Compressed Gases) Regulations and the Environmental Protection Authority (EPA) Guide to Gas Cylinders. Cylinders shall be stamped with a LAB number and a current test date.

LPG Supplier:

16.3.3.3 Location of Cylinders

Except where permitted by AS/NZS 1596, all LPG cylinders and associated equipment shall be installed to the exterior of the building in accordance with the requirements AS/NZS 5601.1: Section J3.

Where the LPG storage capacity does not exceed 100 kg, the minimum clearance and separation distances around the cylinder installation shall be in strict accordance with AS/NZS 5601.1: Section J5 (for New Zealand).

Where the LPG storage capacity is between 100kg to 300kg, the cylinder installation shall comply with the Environmental Protection Authority Approved Code of Practice HSNOCOP 50.

Install LPG cylinders to the specified location indicated on the approved drawings. Should a conflict arise between the specified location and the requirements of AS/NZS 5601.1: Section J3, seek advice from the Architect/Designer before proceeding.

Installed Location:

16.3.3.4 Base Support

Cylinders shall not be supported by other cylinders. Cylinders shall be installed on a supporting base that is firm, level, of non-combustible material, and with a finished surface that is drained and at least 50mm above the surrounding surface. Cylinders shall not rest on soil.

16.3.3.5 Seismic Restraint

LPG cylinders shall be restrained against seismic activity by hot-dip galvanised steel or Grade 316 stainless steel chains, brackets and fasteners. The brackets shall be fastened to a wall

or similar structural support. Fasteners used to secure chains and brackets shall be capable of withstanding applied loads at least four times the weight of the filled cylinder.

16.3.3.6 Cylinder Connection

Cylinders shall be connected directly to the changeover valve assembly by copper or flexible rubber pigtails.

An excess flow valve shall be fitted immediately upstream of the piping or hose assembly (the excess flow valve may be an integral part of the POL fitting).

Pigtails connecting cylinders to changeover valves or manifolds should not exceed 1.0m in length.

A non-return valve must be fitted in the supply between each cylinder and the changeover valve, or in a manifold system , between each cylinder and its manifold connection.

16.3.3.7 Test Points

A pressure test point should be installed immediately downstream of each second-stage regulator. The test point may be an integral part of the regulator.

16.3.4 Changeover Valves

16.3.4.1 Automatic Changeover Valve

Changeover valves shall be to the requirements of AS/NZS 5601.1 and comply with the requirements of HSNO. Changeover valves may be comprised of a first and second stage regulator system in a single body, or as a combination of separate component items.

Supply and install automatic changeover valves with a non-return valve on each pigtail connection, complete with all necessary components required for the proper operation of the LPG cylinder system, including pigtails, regulators, condensation trap, over pressure shut off, excess flow valves.

16.3.5 Copper Piping

16.3.5.1 Copper Piping

Copper tube shall be in accordance with NZS 3501 or AS 1432.

Copper and copper alloy capillary fittings shall be in accordance with AS 3688. Copper alloy compression fittings shall be in accordance with AS 3688 or AS D26.

The use of copper tube and fittings shall be in accordance with the conditions and limitations of AS/NZS 5601.1: Section 4 - in particular Table 4.1.

Copper tube shall be free of burrs, scale, damage and defects. Clean thoroughly with a solvent to remove oil and dirt prior to installation.

Pipework shall follow wall lines, and be straight and true to line, plumb and level, parallel with adjacent pipes, and have the minimum number of bends. Avoid diagonal pipe runs. Arrange

pipework for easy dismantling of plant components and valves. Minimise pipe cross-overs. Grade all pipework as necessary to ensure proper venting and drainage. Install tailpipes in accordance with AS/NZS 5601.1.

Support pipework in accordance with AS/NZS 5601.1. Ensure pipework in under floor spaces is supported clear of the ground by as minimum of 100mm. Support pipe risers with suitable fixings and attachments that are capable of supporting the total weight of the riser and allow for differential expansion.

Provide pipe sleeves where pipes pass through walls, floors and ceilings to accommodate movement of the pipes. Do not joint pipes at sleeved locations. Unless shown otherwise, finish pipe sleeves flush with the finished surface. In plant rooms and wet areas, provide steel sleeves that extend above the floor level. Avoid concealed pipe joints; where essential, weld each joint and test hydraulically before embedding or covering the pipe.

Allow for movement due to expansion and contraction, either by loops, deviations in the pipework, or by fitting expansion joints as shown on the drawings. Arrange pipe supports so that the expansion is taken up by the provisions of the expansion design.

Ensure pipes are separated by a minimum of 25mm from any metallic electrical conduit, or metal armoured or metal sheathed electrical wire.

Plug open pipe ends as the works progress to ensure the pipe bore is kept clean and free of contamination.

16.3.6 Steel Piping

16.3.6.1 Steel Pipe

Steel pipe shall be in accordance with NZS/BS 1387, NZS/BS 3601, ASTM A53, ASTM A106, or API Specification 5L. Galvanised steel pipe and black steel pipe are not permitted in the ground beneath a building.

The use of galvanised steel or black steel pipe and fittings shall be in accordance with the conditions and limitations of AS/NZS 5601.1: Section 4 - in particular Table 4.1.

Black steel pipe is not permitted for in-ground use unless coated with a high-density polyethylene complying with AS/NZS 1518. Black steel pipe shall be suitably painted or coated, or wrapped with an anti-corrosive wrapping, when installed above ground. All steel pipework joints located in ground shall be externally protected against corrosion.

Steel pipe shall be free of burrs, rust, scale, damage and defects. Clean thoroughly with a solvent to remove oil and dirt, and paint with an appropriate primer prior to installation.

Pipework shall follow wall lines, and be straight and true to line, plumb and level, parallel with adjacent pipes, and have the minimum number of bends. Avoid diagonal pipe runs. Arrange pipework for easy dismantling of plant components and valves. Minimise pipe cross-overs. Grade all pipework as necessary to ensure proper venting and drainage. Install tailpipes in accordance with AS/NZS 5601.1.

Support pipework in accordance with AS/NZS 5601.1. Ensure pipework in under floor spaces is supported clear of the ground by as minimum of 100mm. Support pipe risers with suitable fixings and attachments that are capable of supporting the total weight of the riser and allow for differential expansion.

Provide pipe sleeves where pipes pass through walls, floors and ceilings to accommodate movement of the pipes. Do not joint pipes at sleeved locations. Unless shown otherwise, finish pipe sleeves flush with the finished surface. In plant rooms and wet areas, provide steel sleeves that extend above the floor level. Avoid concealed pipe joints; where essential, weld each joint and test hydraulically before embedding or covering the pipe.

Allow for movement due to expansion and contraction, either by loops, deviations in the pipework, or by fitting expansion joints as shown on the drawings. Arrange pipe supports so that the expansion is taken up by the provisions of the expansion design.

Ensure pipes are separated by a minimum of 25mm from any metallic electrical conduit, or metal armoured or metal sheathed electrical wire.

Plug open pipe ends as the works progress to ensure the pipe bore is kept clean and free of contamination.

16.3.6.2 Jointing & Fittings

Threaded malleable iron pipe fittings shall be in accordance with BS 143 and 1256, or ANSI B16.3. Threaded wrought iron pipe fittings shall be in accordance with BS EN 10241 or ANSI B16.11. Pressure-tight screw joints shall be in accordance with NZS/BS 21.

Formed bends shall have a radius of not less than 3 x the pipe diameter without deforming, cracking or damaging the pipe section. Pipes 50mm diameter and larger shall be bent hot. Bend fittings shall have a radius of approximately 1.5 times the pipe bore. All changes of direction other than tees shall be suitably radiused. Where tees are radiused on the drawings, use branch connections swept in the direction of flow, otherwise use square or angled branch connections. Only changes of pipe sizes as shown on the drawings is permitted. Changes of size on horizontal pipes shall be eccentric (flush) with the bottom or top invert level, as appropriate for venting or draining.

Flanged joints may only be used when other jointing methods are impracticable. Flanges and flanged fittings shall comply with AS/NZS 4331, BS 10, ANSI B16.1 and ANSI B16.5. Welding flanges shall be welded in the neck and bore.

All valves shall be readily accessible and neatly aligned. Castings shall be clean, smooth and free from scale, blow-holes, and flaws. Valves, other than those noted or specified, shall comply with specifications approved by the Designer/Engineer.

16.3.7 Composite Piping

16.3.7.1 Composite Piping

Composite pipe, including polyethylene/aluminium/polyethylene (PE/AL/PE) and cross-linked-polyethylene/aluminium/cross-linked-polyethylene (PE-X/AL/PE-X) multilayer pipe, shall

comply with AS 4176.8. Composite pipe and associated fittings shall be a branded proprietary consumer pipe system. Joints shall be formed using the methods and tools in accordance with the manufacturer's specifications. As necessary, protect composite piping against UV degradation.

Fittings used with composite pipe shall comply with AS 4176.8. Fittings shall be proprietary components of the composite pipe manufacturer's consumer pipe system. Fittings are not permitted in the ground beneath a building.

The use of composite pipe and fittings shall be in accordance with the conditions and limitations of AS/NZS 5601.1: Section 4 - in particular Table 4.1.

Pipework shall follow wall lines, and be straight and true to line, plumb and level, parallel with adjacent pipes, and have the minimum number of bends. Avoid diagonal pipe runs. Arrange pipework for easy dismantling of plant components and valves. Minimise pipe cross-overs. Grade all pipework as necessary to ensure proper venting and drainage. Install tailpipes in accordance with AS/NZS 5601.1.

Support pipework in accordance with AS/NZS 5601.1. Ensure pipework in under floor spaces is supported clear of the ground by as minimum of 100mm. Support pipe risers with suitable fixings and attachments that are capable of supporting the total weight of the riser and allow for differential expansion.

Provide pipe sleeves where pipes pass through walls, floors and ceilings to accommodate movement of the pipes. Do not joint pipes at sleeved locations. Unless shown otherwise, finish pipe sleeves flush with the finished surface. In plant rooms and wet areas, provide steel sleeves that extend above the floor level. Avoid concealed pipe joints; where essential, weld each joint and test hydraulically before embedding or covering the pipe.

Allow for movement due to expansion and contraction, either by loops, deviations in the pipework, or by fitting expansion joints. Arrange pipe supports so that the expansion is taken up by the provisions of the expansion design.

Ensure pipes are separated by a minimum of 25mm from any metallic electrical conduit, or metal armoured or metal sheathed electrical wire.

Plug open pipe ends as the works progress to ensure the pipe bore is kept clean and free of contamination.

16.3.8 Polyethylene Piping

16.3.8.1 Polyethylene Piping

Polyethylene (PE) pipe shall comply with AS/NZS 4130; Series 2 Pipes - Gas, or AS/NZS 4130 Series 3 Pipes - Gas. Polyethylene pipe is permitted for in-ground use only, and is not permitted for use beneath a building. Jointing shall be by electrofusion, butt-fusion or mechanical joints complying with AS/NZS 4645.3.

The use of polyethylene pipe and fittings shall be in accordance with the conditions and limitations of AS/NZS 5601.1: Section 4 - in particular Table 4.1.

Inspect polyethylene pipes and fittings for damage, cuts and deep scratches prior to use, and discard if deemed defective.

Pipework shall follow wall lines, and be straight and true to line, plumb and level, parallel with adjacent pipes, and have the minimum number of bends. Avoid diagonal pipe runs. Arrange pipework for easy dismantling of plant components and valves. Minimise pipe cross-overs. Grade all pipework as necessary to ensure proper venting and drainage. Install tailpipes in accordance with AS/NZS 5601.1.

Support pipework in accordance with AS/NZS 5601.1. Ensure pipework in under floor spaces is supported clear of the ground by as minimum of 100mm. Support pipe risers with suitable fixings and attachments that are capable of supporting the total weight of the riser and allow for differential expansion.

Provide pipe sleeves where pipes pass through walls, floors and ceilings to accommodate movement of the pipes. Do not joint pipes at sleeved locations. Unless shown otherwise, finish pipe sleeves flush with the finished surface. In plant rooms and wet areas, provide steel sleeves that extend above the floor level. Avoid concealed pipe joints; where essential, weld each joint and test hydraulically before embedding or covering the pipe.

Allow for movement due to expansion and contraction, either by loops, deviations in the pipework, or by fitting expansion joints. Arrange pipe supports so that the expansion is taken up by the provisions of the expansion design.

Ensure pipes are separated by a minimum of 25mm from any metallic electrical conduit, or metal armoured or metal sheathed electrical wire.

Plug open pipe ends as the works progress to ensure the pipe bore is kept clean and free of contamination.

16.3.9 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings prior to installation.

Co-ordinate with other trades as necessary to install the LPG service to the required locations and layouts, tolerances and standards - in particular with electrical installations to ensure that minimum clearances are maintained.

The LPG service layout drawings and schematics are indicative only, and indicate the main routes and positions for the LPG service installation and equipment in relation to the building and other services.

Should an alternative LPG pipe route to that shown on the drawings be proposed, submit all necessary details to the Architect/Designer for review and approval before proceeding.

Alternative routes for pipework are not permitted without written instruction from the Architect/Designer.

16.3.10 Workmanship

Installation work shall be carried out by qualified and experienced tradesmen, under the direct supervision of a NZ certified Registered Gasfitter authorised to undertake the work under the Plumbers, Gasfitters, and Drainlayers Act 2006, to the requirements of AS/NZS 5601.1, NZBC G10 and NZBC G11, and with all regulatory requirements.

All pipe cutting, jointing, and supporting techniques shall be exactly as recommended by the manufacturer. Pipes, fittings and accessories shall be handled and installed in such a manner that prevents any damage, deterioration or contamination to the product.

All work shall be such as to leave a neat, efficient, robust and gastight installation.□□

Carry out all necessary inspections during installation, and complete all necessary commissioning tests and reports. Complete checklists for Gas Safety Certificate (GSC) and for Certificate of Compliance (CoC) - Gas.

16.3.11 Delivery & Handling

Store materials undercover, off the ground on a flat, level surface in accordance with the manufacturer's requirements. Keep materials and equipment dry, and protect from damage and contamination while stored and as necessary during installation.

Do not use damaged, defective or contaminated pipes, fittings and accessories.

Handle materials in accordance with the manufacturer's requirements.

Installers shall be familiar with and comply with the manufacturer's Material Safety Data Sheet precautions for use, and use appropriate safety gear when handling materials.

Installers shall conform with all relevant WorkSafe NZ Guidelines and Codes of Practice - including General risk and workplace management - part 1.

16.3.12 Commission

16.3.12.1 Commission

Carry out final inspections and testing. Carry out pressure testing of pipework and LPG installation for gastightness (leakage) to the requirements of AS/NZS 5601.1. Remedy any leaks and defects found in the LPG service installation to the specified standard.

Ensure that the Gasfitting Certificate of Compliance and the Gas Safety Certificate have been completed.

16.3.13 Completion

Check that the LPG service installation has been installed correctly in accordance with AS/NZS 5601.1 in compliance with the Gas (Measurement and Safety) Regulations, and that

the installation has been purged, tested and commissioned in accordance with the required procedures.

Check for faults and defective work - repair/replace as necessary to the required standard.

Leave this work complete and in full working order, gastight and leak-free, to the required standard and operation.

Leave the surrounding surfaces clean and free of rubbish and debris. Remove all rubbish and excess material from the site.

Issue to the Owner a copy of the operation and maintenance requirements, and a copy of the associated warranties for the LPG installation, components and appliances.

Issue all required As-Built Documentation, the Gasfitting Certificate of Compliance, and the Gas Safety Certificate to the relevant parties.

17 DRAINAGE

17.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

17.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

1254:2010(AS/NZS)	PVC-U pipes and fittings for stormwater and surface water applications
1260:2017(AS|NZS)	PVC-U pipes and fittings for drain, waste and vent applications
1546.1:2008(AS/NZS)	On-site domestic wastewater treatment units - Septic tanks
1547:2012(AS/NZS)	On-site domestic wastewater management
2032:2006(AS/NZS)	Installation of PVC pipe systems
3500.2:2018(AS|NZS)	Plumbing and drainage Part 2: Sanitary plumbing and drainage
3500.3:2018(AS|NZS)	Plumbing and drainage Part 3: Stormwater drainage
7643:1979(NZS)	Code of practice for the installation of unplasticized PVC pipe systems

17.3 General

Carry out all required works to leave the sewer and stormwater systems shown on the drawings in correct working order complete with all normal incidentals.

Comply with Local Authority By-laws and Health Department Regulations as appropriate. Obtain all necessary permits and consents, serve all necessary notices, arrange all tests and pay all fees and customary charges in connection with the works.

17.4 Workmanship

17.4.1 General

Carry out all required works to leave the sewer and stormwater systems shown on the drawings in correct working order complete with all normal incidentals. Comply with Local Authority By-laws and Health Department Regulations as appropriate. Obtain all necessary permits and consents, serve all necessary notices, arrange all tests and pay all fees and customary charges in connection with the works.

17.4.2 Co-operation

Cooperate with all trades and attend upon the Concretor and Plumber to set out exact pipe runs before any adjacent work is put in hand and ensure that all sleeves etc. are correctly incorporated as work proceeds.

17.4.3 Materials

All pipes and other materials shall comply with the appropriate Standards, and shall be protected from damage of any kind until installation is complete. All incidentals appropriate for the applications involved. Concrete shall be 17.5MPa and as specified under Concretor, Mortar shall be as specified in Blocklayer.

17.4.4 Workmanship

All drainlaying shall be carried out by, or under direct control of, properly qualified tradesmen, and shall be to recognised high standards. Ensure cast-in items are installed when required so that no delay is caused by this trade. Adequately protect all adjacent surfaces - clean down to remove dirt etc., and any damage shall be made good by the appropriate trade at the Drainlayer's expense.

On completion of drainlaying clean up full area affected by this trade to the condition it was in before drainlaying commenced.

Site is to be returned as close as possible to its present condition on completion of the contract.

17.4.5 Excavation

As required for sewer and stormwater. Check for other service lines before excavation - the Drainlayer is responsible for making good any damage. Trenches true to line and with even gradients between gullies, soil stack terminations or downpipes, etc.

Keep the bottom of trenches clear of loose material. All pipes shall be laid in appropriate bedding material, compacted as required. Shore trenches if required to suit ground conditions. Backfilling shall be by this trade, to the standards required in Siteworks.

18 ELECTRICAL

18.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

18.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

2053.1:2001(AS/NZS)	Conduits and fittings for electrical installations - General requirements
2201.1:2007(AS/NZS)	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
2293.2:2019(AS|NZS)	Emergency lighting and exit signs for buildings - Part 2: Routine service and maintenance
3000:2018(AS|NZS)	Electrical installations - Known as the Australian/New Zealand Wiring Rules
3100:2009(AS/NZS)	Approval and test specification - General requirements for electrical equipment
3112:2011(AS/NZS)	Approval and test specification - Plugs and socket-outlets
5000.1:2005(AS/NZS)	Electric cables - Polymeric insulated - For working voltages up to and including 0.6/1 (1.2) kV
60335.2.30:2015(AS|NZS)	Household and similar electrical appliances - Safety - Part 2.30: Particular requirements for room heaters
60335.2.30:2015(AS|NZS)INCIEC	Household and similar electrical appliances - Safety - Part 2.30: Particular requirements for room heaters
60335.2.35:2013(AS/NZS)	Household and similar electrical appliances - Safety - Part 2.35: Particular requirements for instantaneous water heaters
60598.2.2:2016(AS|NZS)	Luminaires - Part 2.2: Particular requirements - Recessed luminaires
6104:1981(NZS)	Specification for emergency electricity supply in buildings

18.3 Workmanship

18.3.1 General

Supply and install all materials, including all necessary minor and incidental items, for proper completion of all of the electrical services specified or shown on the drawings. The contract will not be deemed to be complete until the Electrician has provided an Electrical Certificate of Compliance (made available to the Contractor in time for the Code Compliance Certificate application).

Obtain all necessary permits and consents, serve all notices and pay all fees in and customary charges connection with the works.

The position of switches, light and power outlets and other fittings, although shown specifically in some instances, are in general only shown diagrammatically. The exact location of each of these items will be as directed on site by the Architect/Designer; the Electrician shall give reasonable notice of when this information is required. Items positioned in contravention of this shall be repositioned if directed, including rewiring if necessary, all at the Electrician's expense.

Unless drawn (on 1:20 wall elevations) or specified otherwise the mounting height to the centreline of the following items above the floor shall be:

-1000mm for lighting switches;
-2000mm for wall mounted lights;
-2100mm for the bayonet of pendant lights;
-300mm for power points, except at benches.

(Notify the Architect/Designer if either the actual fitting or mounting position seem to make the mounting height noted above inappropriate).

Warranty cards and manufacturers guarantees for items supplied and installed by this trade shall be filled in correctly and handed over at Practical Completion. Arrange all circuits to obtain an optimum balance of the system, and check and reconnect where necessary to achieve this on completion. Leave the works clean and tidy and in full operational order.

18.3.2 Co-operation

Co-operate with all other trades and attend upon the Concretor and Carpenter to set out all required penetrations and to ensure that all wiring and fittings are correctly incorporated as work proceeds. The Carpenter will provide and fix all necessary dwangs and timber supports in locations determined by the Electrician.

18.3.3 Workmanship

All electrical work shall be carried out by, or under the direct control of, registered tradesmen, and shall be to recognized high standards. All work shall be such as to leave a neat, efficient and robust installation. Neatly label switchboards to identify each circuit.

The cutting away and checking of timbers shall be limited to such dimensions as will not prejudice the purpose for which the timber is used; observe NZS 3604: 2011 restrictions on the holing and checking of joists and beams. Chasing and checking of other materials shall be only to approval.

Adequately protect all surfaces. Any damage to fittings or surfaces made good by the appropriate trade at the Electrician's expense.

18.3.4 Wiring

Joints within cable runs will not normally be accepted. TPS cable shall be adequately supported, and clipped at regular intervals. At terminations all strands of conductors shall be fully secured in a terminal block or clamped under a screw head washer; do not cut away any strands. Wiring which terminates in enclosed fittings and/or where subject to heat liable to

cause deterioration, shall be high temperature type, with the tails made off with heat resisting sleeves, to protect the permanent wiring.

Wire lights in 1.5mm 3 core - 7.5 amps loading max per circuit (allow for 100w to all light fittings unless identified otherwise).
Wire power outlets in 2.5mm 3 core - 7 maximum GPO singles or doubles per circuit. Assess power outlets for specific equipment and allow accordingly.

Conceal all wiring except as noted on drawings or below. All wiring cast into concrete shall be run in conduit pipes. All cables shall be stranded (single core is unacceptable).

Wire more or less parallel to and at right angles to the structural elements - avoid any diagonal wiring. Layout of the principal distribution wiring shall be to approval. Position all wires to minimise the risk of damage from subsequent nailing of linings etc.

Generally, do not run TPS horizontally within timber walls except in the area up to 300mm above floor. Wire in the ceiling framing and drop vertically to outlets and switches.

Do not run TPS horizontally within partitions except in the area up to 300mm above floor. Wire in the ceiling void and drop vertically to outlets and switches. Principal wiring in the ceiling void shall be supported on adequate catenaries.

Wire exterior lighting in screened cable.

Low voltage 2 core wire in parallel from the vacuum system outlets back to the vacuum unit position. (Vacuum unit has transformer).

Where cables pass through fire rated walls or floors use a fire barrier or fire rated sealing compound to seal the space after installation of the cables.

19 FIRE PROTECTION

19.1 Preliminary

Refer to General Conditions of Contract and the Special Conditions in this Specification as appropriate. Read this section in conjunction with all other trade sections.

19.2 Compliance

Comply with the New Zealand Building Code 1992 including all revisions and amendments, Verification Methods where appropriate, and construction principles that are embodied in the Acceptable Solutions.

Comply with all relevant provisions and recommendations of:

4512:2010(NZS)	Fire detection and alarm systems in buildings
4514:2009(NZS)	Interconnected smoke alarms for houses
4514:2021(NZS)	Interconnected smoke alarms for houses

19.3 Interconnected Smoke Alarms

19.3.1 Scope

Supply, install, and commission Interconnected Smoke Alarms to the locations and layout shown on the drawings, complete with accessories. All aspects of this work shall be in accordance with the smoke alarm manufacturer's product specification and installation requirements, other product manufacturers' recommendations, the electrical specification, and as shown on the drawings.

19.3.2 Co-operation

Co-operate with other trades to ensure that all preliminary and preparatory works are completed to specification and as shown on the drawings.
Co-ordinate with other trades to install Interconnected Smoke Alarms as required.

19.3.3 Workmanship

All work shall be carried out by experienced and competent tradesmen in accordance with the manufacturer's requirements, the electrical specification and drawings, and the related standards, electrical regulations and code requirements.
All work shall be such as to leave a neat, efficient and robust installation.

19.3.4 Power Supply

Interconnected smoke alarms shall be powered from a permanently energised 230 v a.c. mains power supplied from the unswitched side of a commonly used circuit, and shall include either a long-life battery backup or long life (10yr minimum) built-in rechargeable energy storage device.

Interconnected smoke alarms shall be powered from an external d.c. power supply continuously maintained from a 230 v a.c. mains supply, with battery backup, compliant with NZS 4512 or AS/NZS 2201.1.

19.3.5 Alarm Type

Install interconnected Ionisation type smoke alarms.

Manufacturer, brand name & type:

Install interconnected Photoelectric type smoke alarms.

Manufacturer, brand name & type:

Install interconnected Multi-sensor type smoke alarms.

Manufacturer, brand name & type:

19.3.6 Heat Alarms & Heat Detectors

In addition to installing interconnected smoke alarms; install heat alarms or heat detectors, interconnected to the smoke alarms, to the locations shown on the drawings.

Manufacturer, brand name & type:

19.3.7 Installation

Install the interconnected smoke alarms on ceilings, or as shown otherwise, to the layout shown on the drawings in strict accordance with the manufacturer's instructions. Do not install smoke alarms in dead air spaces or obstructions where dead air spaces may be created.

Install smoke alarms to sloping ceilings at the high end of the ceiling slope.

Do not install smoke alarms to exposed bulkheads, beams, joists or purlins greater than 300mm deep.

Do not install smoke alarms closer than 400mm to any forced-air supply opening or to any blade of a ceiling fan.

19.3.8 Completion

Check that the smoke alarms have been correctly installed and wired.
Commission smoke alarms to the required operation in accordance with the manufacturer's instructions. Test alarms to ensure that the warning signal is heard in all bedrooms when all doors between the alarm and bedrooms are closed.
Check for faults and damage, repair/replace as necessary.

Issue to the Owner a copy of the manufacturer's testing and maintenance requirements and product warranty.

1. BRANZ 1054 (2024) Amended 1 Sept 2026 MAXRaft Concrete Slab Floor System
2. CodeMark Certificate of Conformity - Thermakraft Covertek 403 Plus Roof Underlay
3. CodeMark Product Certificate - Thermakraft Covertek 405 Synthetic Roof and Wall Underlay
4. CodeMark Certificate of Conformity - Watergate Plus Wall Underlay
5. BRANZ Appraisal No.651 - Thermakraft Covertek 407 Roof and Wall Underlay
6. CodeMark Product Certificate - Thermakraft Covertek 407 Synthetic Roof and Wall Underlay
7. Covertek 407 Install Guide
8. Covertek 407 Data Sheet
9. BRANZ Appraisal No.329 - Supercourse 500 Damp-Proof Course & Concealed Flashing
10. Thermakraft Corner Moulds Datasheet & Installation
11. BRANZ Appraisal No.1122 - Thermaflash Flashing Tape
12. Thermaflash Install Guide
13. Thermaflash Data Sheet
14. Kingspan Thermakraft Product Warranty Statement
15. BRANZ Appraisal No.394 - GIB Noise Control Systems
16. BRANZ Appraisal No.394 - GIB Noise Control Systems 2025
17. BRANZ Appraisal 650
18. CODEMARK CMNZ30036
19. Product Technical Statement - Vertical Shiplap Cavity
20. Installation Specifications - Vertical Shiplap - Direct Fixed
21. HermPac -Vertical Shiplap PTS
22. Product installation Check List
23. BRANZ Appraisal 828 – Board & Batten
24. Product Technical Statement – Board & Batten
25. Product installation Check List – Board & Batten
26. Installation Specifications - Board & Batten Cavity Fixed
27. BRANZ Appraisal 1181 – Vertical Shiplap
28. CODEMARK CMNZ30138 Vertical Shiplap
29. Installation Specifications - Vertical Shiplap Cavity Fixed
30. Product installation Check List
31. Brick Veneer Best Practice Guide
32. BRANZ Appraisal No.632 - Pink Batts Snugfloor Insulation
33. BRANZ Appraisal No.767 - Pink® Batts® Skillion Roof Insulation
34. BRANZ Appraisal No.238 - Pink® Batts® Insulation
35. Pink Batts Acoustic Silencer Product Sheet
36. Pink® Batts® SnugFloor®
37. Pink® Batts® Wall Installation
38. Pink® Batts® Ceiling - General Suspended Ceiling
39. Pink® Batts® BIB - Wall
40. Pink® Batts® Skillion Roof Installation
41. Pink® Batts® Silencer® Wall
42. BRANZ Appraisal No. 238 PINK® BATTS® INSULATION
43. MAXRaft Product Guide Dec 2024
44. MAXRaft Onsite Guide V62018
45. BRANZ Appraisal No.917 - Thermakraft Covertek 403 Roof and Wall Underlay

46. Covertek 403 Install Guide
47. Covertek 403 Data Sheet
48. BRANZ Appraisal No.743 - Thermakraft Covertek 405 Roof and Wall Underlay
49. Covertek 405 Install Guide
50. Covertek 405 Data Sheet
51. Thermabar 344 Installation Guide
52. Thermabar 344 Data Sheet
53. BRANZ Appraisal No.695 - Watergate-Plus Wall Underlay
54. Watergate Plus Install Guide
55. Watergate Plus Data Sheet
56. BRANZ Appraisal No.912 - Thermakraft 220 Wall Underlay
57. Thermakraft 220 Install Guide
58. Thermakraft 220 Data Sheet
59. BRANZ Appraisal No. 1277 – RAINARMOR Self Adhesive Roof and Wall Underlay
60. RainArmor Self Adhesive Install Guide
61. RainArmor Self Adhesive Data Sheet
62. BRANZ Appraisal No.1229 - Covertek 215 Roof Underlay
63. Covertek 215 Install Guide
64. Covertek 215 Data Sheet
65. BRANZ Appraisal No.917 - Thermakraft Covertek 403 Roof and Wall Underlay
66. Covertek 403 Install Guide
67. Covertek 403 Data Sheet
68. BRANZ Appraisal No.743 - Thermakraft Covertek 405 Roof and Wall Underlay
69. Covertek 405 Install Guide
70. Covertek 405 Data Sheet
71. Thermabar 344 Installation Guide
72. Thermabar 344 Data Sheet
73. BRANZ Appraisal No.1000 - Thermakraft Thermabar 397 Light Diffusing Reflective Underlay
74. Thermabar 397 Installation Guide
75. Thermabar 397 Data Sheet
76. BRANZ Appraisal No.943 - Covertek 401 Roof and Wall Underlay
77. Covertek 401 Install Guide
78. Covertek 401 Data Sheet
79. BRANZ Appraisal No.1229 - Covertek 215 Roof Underlay
80. Covertek 215 Install Guide
81. Covertek 215 Data Sheet
82. BRANZ Appraisal No. 1277 – RAINARMOR Self Adhesive Roof and Wall Underlay
83. RainArmor Self Adhesive Install Guide
84. RainArmor Self Adhesive Data Sheet:
85. Thermathene Black Install Guide
86. Thermathene Black Data Sheet
87. Thermakraft White GP Tape Data Sheet
88. BRANZ Appraisal No. 1104 - Thermathene Orange Concrete Underlay
89. Thermathene Orange Install Guide
90. Thermakraft White GP Tape Data Sheet
91. Thermathene Orange Data Sheet

92. Thermakraft Aluband Data Sheet
93. Supercourse 500 DPC Install Guide
94. Supercourse 500 DPC Data Sheet
95. Perimeter DPC Install Guide
96. Perimeter DPC Data Sheet
97. BRANZ Appraisal No.912 - Thermakraft 220 Synthetic Wall Underlay
98. Thermakraft 220 Installation Guide
99. Thermakraft 220 Data Sheet
100. BRANZ Appraisal No.912 - Thermakraft 220 Wall Underlay
101. Thermakraft 220 Installation Guide
102. Thermakraft 220 Data Sheet
103. Stud Strap and Thermastrap Installation Guide and Data Sheet
104. Ausmesh Install Guide
105. Ausmesh Data Sheet
106. Stud Strap and Thermastrap Installation Guide and Data Sheet
107. BRANZ Appraisal No.1029 - Thermakraft AUSNET Hexagonal Wire Mesh
108. AUSNET Wire Mesh Install Guide
109. AUSNET Wire Mesh Data Sheet
110. BRANZ Appraisal No.878 - Thermakraft Aluband Window Flashing Tape
111. Aluband Install Guide
112. Aluband Data Sheet
113. BRANZ Appraisal No.962 - Thermakraft One Wrap System
114. BRANZ Appraisal No.942 - ONESEAL MULTI-FIT PIPE AND CABLE PENETRATION SEALS
115. OneSeal Install Guide
116. OneSeal Data Sheet
117. Thermakraft White GP Tape Data Sheet
118. Thermakraft Vapour Shield Install Guide
119. Thermakraft Vapour Shield Data Sheet
120. Thermakraft Premium Joining Tape Install Guide
121. Thermakraft Premium Joining Tape Data Sheet
122. Thermakraft White General Purpose Tape Data Sheet and Install Guide
123. BRANZ Appraisal No.940 - GIB® Intertenancy Barrier Systems for Terrace Homes
124. BRANZ Appraisal No.928 - GIB EzyBrace Systems
125. BRANZ Appraisal No.427 (2021) - GIB Aqualine Wet Area Systems
126. BRANZ Appraisal No.289 - GIB Fire Rated Systems
127. GIB® Fire Rated Systems Specification and Installation Manual
128. BRANZ Appraisal No.928 - GIB EzyBrace Systems
129. BRANZ Appraisal No.427 (2021) - GIB Aqualine Wet Area Systems