

# ***ARCHITECTURAL SPECIFICATION***



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## **PRELIMINARIES AND GENERAL**

### **THE PROJECT**

The works are as described in this specification and as shown on the drawings.

### **SITE**

The site of the works, the site address and the legal description are shown on the drawings. Confine access and work to the area of site indicated on the drawings.

### **BUILDING CONSENT COMPLIANCE**

It is an offence under the Building Act 2004 to carry out any work not in accordance with the building consent. Refer the resolution of matters concerning compliance to the main contractor for direction. Where building consent approval is affected refer any change to the territorial authority.

### **STATUTORY OBLIGATIONS**

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

### **BUILDING CONSENT**

Obtain the original or copies of the building consent form and documents from the main contractor and keep on site. Liaise with the territorial authority for all notices to be given and all inspections required during construction to ensure compliance. Return the consent form and documents to the owner on completion.

### **PRODUCER STATEMENTS**

When producer statements verifying construction are required, provide copies to both the territorial authority and the owner. Producer statements to be in the form required by the Territorial Authority to comply with the Building Act.

### **SET-OUT AND DATUM**

Set out the works to conform with the drawings. Establish a permanent site datum to confirm the proposed building ground floor level and its relationship to all other existing and new building levels.

## **CONSTRUCTION SCHEDULE**

### **SINGLE STOREY**

These drawings to be read in conjunction with any supplementary engineer's documentation (i.e. Truss design, floor framing layout and foundation design).

All construction to comply with NZS 3604, NZBC & local council policy.

All timber treatment to comply with NZS 3602.

### **FOUNDATION:**

Refer to Structural Engineer's documents for drawings and specification.

### **FRAMING**

**All Framing:** (unless stated otherwise on the drawings) VSG8-MSG8 Douglas Fir

**Exterior walls:** H1.2, Bottom plate - 90x45 & Double top plate - 90x45 + 140x35 or 140x45 & top plate 140x45

**Interior walls:** Untreated with H1.2 bottom plate, Bottom plate & Top Plate - 90x45, refer to ceilings for double top plate requirements.

**Bottom plate fixings:** Lumberlok Bottom Plate Fixing Anchors as per manufacturer's specifications @ 900mm crs on all external walls and within 150mm of each end of the plate. 75mmx3.8mmØ shot fired fasteners @ 900mm crs and within 150mm of each end of the bottom plate to interior load bearing walls.

DPC between bottom plate & floor slab (Refer to MiTek specification attached for specific bottom plate fixing details required for bracing & lintels).

### **WALL FRAMING:**

**Exterior & Interior Loadbearing wall:** 90x45mm or 140x45mm studs @ 600 crs, refer Architectural drawings for fire rated wall studs and spacings.

**Dwangs Exterior:** 90x45 or 140x45 @ 800crs

**Non loadbearing:** 90x45mm studs @ 600mm crs

**Dwangs Interior:** 90x45mm @ 800mm crs

**Lintels:** Lintels are shown on the Truss design. (All Lintels SG8 unless stated otherwise).

**Building Wrap:** 6mm Rab Board, 7mm Ecoply Barrier or Fastwrap building wrap with Aluband flexible flashing tape Building wrap to be strapped @ 300crs maximum between dwangs. Building wrap for fire rated wall to be fire retardant building paper.

### **INSULATION, ENERGY EFFICIENCY:**

**Exterior Walls:** Pink Batts - Refer to H1 Schedule, Energy Efficiency Calculations

**Ceilings:** Pink Batts - Refer to H1 Schedule, Energy Efficiency Calculations

**Glazing:** Double glazing with *low emissivity clear* to all windows, excluding garage

**Air Seals:** PEF Rod & Low expansion foam.

**Lighting:** All lighting recessed into ceilings to be closed and abutted type.

**TRUSSED ROOF AREA:** (A as-built truss design will be provided at time of manufacturing)

### **Corrugated profile/Longrun roof**

**Purlins:** 70x45 SG6 @ 900crs, spacing for end purlins at max 2/3 of intermediate span

**Purlin fixings:** Fixing type T, 1 / 10g self-drilling screw, 80mm long (NZS3604:2011 Table 10.10)

**Trusses:** @ 900crs, refer to truss design (H1.2 unless otherwise stated on Timber Treatment Plan)

**Fascia & Gutter system:** Metelcraft Metalline fascia 185mm and Metelcraft gutter, refer to roof plan.

**Down pipes:** 75x55mm rectangular downpipe.

**Soffits:** 4.5mm Hardiflex to Ribbon boards, sprockets & packers ex50. Provide 6mm Hardiflex for fire wall.

### **CEILINGS:**

**Interior Walls:** Walls running parallel to battens to be double top plate - 90x45 + 140x35 or 140x45

**Battens:** 70x35 timber battens at 600 crs & 13mm Gib board to ceiling.

**Flat Ceilings:** 13mm Gib board throughout unless specified different on the plans & Level 4 finish to all rooms in flat ceiling areas.

### FLOOR FINISHES

**Note:** Floor surfaces of any space containing “*sanitary fixtures or sanitary appliances must be impervious and easily cleaned.*”

**Carpet:** Non-slip and have a slip (wet) coefficient value of 0.55-0.70 for tufted or loop pile. (NZBC D1/AS1 Table 2) Floors to be carpet unless stated otherwise on plan, not including the garage.

**Floor Tiles:** Non-slip and have a slip (wet) coefficient value of 0.35-0.65 for grit finished ceramic tiles. (NZBC D1/AS1 Table 2).

Entry through external doors to have a max step of 190mm (Riser height and tread depth for all steps in one flight, shall be uniform within the tolerance of  $\pm 5$  mm measured at the centreline on straight flights and at the pitch line on curved and spiral flights.)

With outward opening doors, a landing shall be provided with a clear space of at least 400mm from the leading of the door and the full width of the landing.

Build up this area with AP40 and compact, to have a cross fall of no less than 1:100 and fall away from building. (By Others, Coefficient of friction, wet - 0.6 - 0.9)

### WET AREAS

**Lining:** Aqualine Gib with Enamel paint finish, refer to details attached.

**Floor:** Flooring to all first floor wet areas and bath plinths to be sealed with: ‘ARDEX’ waterproofing system, BRANZ appraised

### KITCHEN JOINERY

**Bench top** – Engineering Stone with impervious surface, **Cupboards** – Melteca/Melamine

#### **Bathroom Joinery**

Top – Vitreous China, Cupboards – Polyurethane coated

### SINKS

#### **Minimum Requirements for sinks:**

Kitchen Sink: 300mm dia min X 125mm min depth. (As per NZBC G3/AS1)

Laundry tub: No less than 35 litres. (As per NZBC G2/AS1)

### VENTILATION:

Mechanical ventilation to be discharged outside via the soffit to comply with NZBC G4/AS1. Mechanical ventilation to be discharged outside via the soffit to comply with NZBC G4/AS1. Recommended Manrose Pro Series fan system or similar with min 25 litres per second, provide Manrose Pro Series MIXFLO shower fan MFLP150S (150mm) to bathroom, toilet or laundry which is not located to external wall.

**SMOKE ALARMS** (Hush type) To comply with NZBC F7/AS1 and to be installed to AS1670.6. Smoke detectors to be fitted within 3.0m of sleeping areas and on Escape routes, as indicated on plan. (Additional information – smoke alarms shall comply one of the following standards, UL217, ULCS531, AS3786 and BS5446 pt1 - Proof of compliance will be required for final inspection and issue of Code Compliance Certificate).

### WATER PIPES

Water pipe from hot water heater to be 15mmØ with no more than 2 litres total volume (as per NZBC G12/AS1 Table 4 and NZS 4305 cl. 3.2.1 and Table 5) and closed cell foam polymer insulation which is preformed to the shape of the pipe and not less than 13 mm thick, is acceptable material for preventing pipes less than or equal to 40 mm diameter from freezing (as per NZBC G12/AS1).

Acceptable pipe lengths as per NZS 4305 table 5

10mmØ = 78ml/m (25m max, total)

15mmØ = 176ml/m (12m max, total)

20mmØ = 214ml/m (7m max, total)

NZBC 7.5 Watertightness

7.5.1 The water supply system shall be tested to ensure watertightness.

An acceptable testing method is to:

- a) Subject the hot and cold system to a pressure of 1500 kPa for a period of not less than 15 minutes, and
- b) Inspect the system to ensure that there are no leaks.

#### RAINFALL CATCHMENT AREA CALCULATION

Rainfall Intensity: 50mm/hr (as per Appendix A E1/AS1)

Gutter Type & Downpipe Size: As noted above in "Truss Roof area" note in Construction Schedule.

Cross Sectional Area: Refer to manufacturers specification attached

Roof Pitch: As noted in the project information on the plan.

Maximum Catchment Area: 25<sup>o</sup>-34<sup>o</sup> = 70m<sup>2</sup> as per NZBC E1/AS1 Table 5

## **CARPENTRY**

### **DOCUMENTS**

Documents referred to in this section are:

AS/NZS 1748	Mechanically stress-graded timber
AS/NZS 1859	Reconstituted wood based panels, 1859.1: Particleboard
AS/NZS 2269	Plywood - Structural
NZS 3602	Timber and wood-based products for use in building
NZS 3603	Timber structures standard
NZS 3604	Timber framed buildings
AS/NZS 1328 1&2	Glued laminated structural timber
NZS 3631	New Zealand national timber grading rules

### **TIMBER FRAMING, FOR INTERIOR USE**

Timber treatment as per "Framing" section from construction schedule, machine stress graded timber to AS/NZS 1748, with moisture content at supply of 16% or less.

### **TIMBER FRAMING, FOR EXTERIOR USE**

Timber treatment as per "Framing" section from construction schedule, machine stress graded timber to NZS 3631 and to NZS 3602, table 1 with moisture content to NZS 3602 table 4.

### **CEILING BATTENS**

GIB® Rondo™ galvanised steel ceiling battens or timber battens, refer to "Ceilings" section from construction schedule.

### **TIMBER TRUSSES**

Moisture content at supply: 16%.

### **DAMPPROOF COURSE**

2-ply/3-ply Kraft felt strip saturated and coated with bitumen.

### **NAILS**

Steel, stainless steel and galvanised steel of pattern to suit the location.

Type to NZS 3604 section 4 Durability, and of the size and number for each particular types of joint as laid down in the nailing schedules of NZS 3604 sections, 6 Foundations, 7 Floors, 8 Walls, 9 Posts, 10 Roof framing and 15 1.5 kPa and 2 kPa snow loading. Except that when hand driving nails into Timber the nail lengths and diameters should be generally as for power driven nails.

### **BOLTS AND SCREWS**

Steel, stainless steel and galvanised steel of pattern to suit the location.

### **NAIL PLATES**

Stainless steel and/or galvanised steel toothed or nailed plates to the plate manufacturer's design for the particular locations as shown on the drawings.

### **CONNECTORS**

Galvanised steel connectors and structural brackets to the connector manufacturer's design for particular locations shown on drawings.

### **MOISTURE CONTENT**

Maximum allowable equilibrium moisture content (EMC) for framing supporting interior linings 16%.

## FRAMING WALLS

Frame to required loading and bracing complete with lintels, sills and nogs, all fabricated and fastened to NZS 3604 sections 8 & 15.

## FRAMING ROOFS

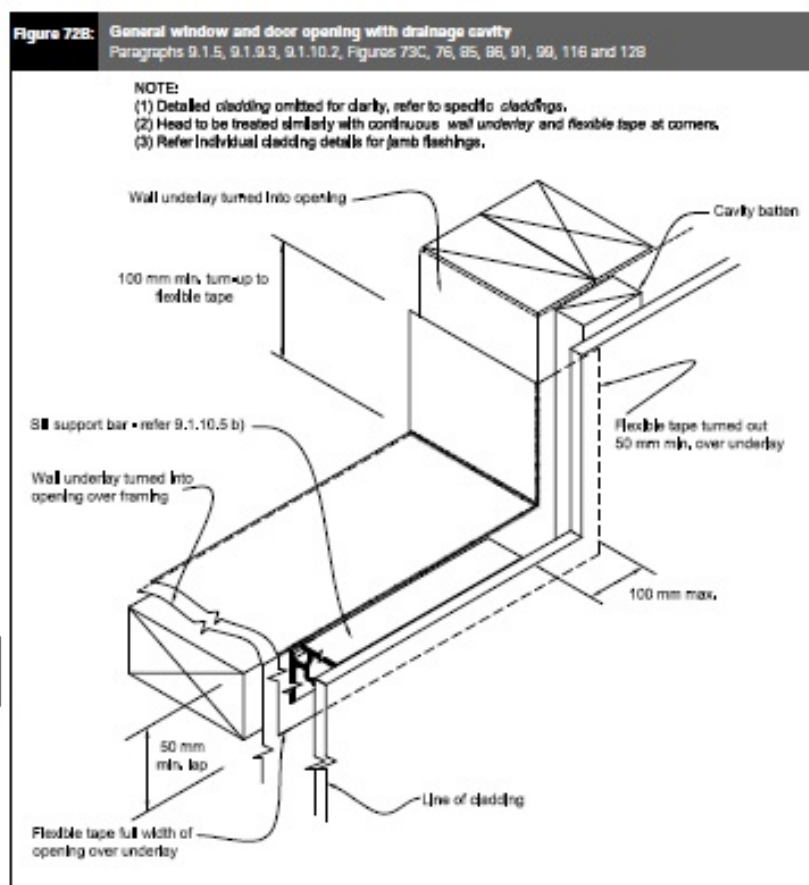
Frame to required loading and bracing complete with valley boards, ridge boards and purlins/battens. Design and fit roof trusses complete with anchorage. All fabricated and fastened to NZS 3604 sections, 9 Posts, 10 Roof framing and 15 1.5 kPa and 2 kPa snow loading.

## INSTALLING CEILING BATTENS

Fabricate and fasten to as per manufacturers recommendation.

Acceptable Solution E2/AS1

EXTERNAL MOISTURE



## **4221HH HERMAN PACIFIC HORIZONTAL CEDAR CLADDING SYSTEM**

### **1 GENERAL**

This section relates to the supply and fixing of Herman Pacific (Hermpac) cedar cladding:

- Rusticated weatherboards
- Splaycut weatherboards
- Cavity batten systems
- Fascia
- Mouldings
- Fixings
- Proprietary flashing systems

#### **1.1 RELATED WORK**

Refer to painting sections for finishes to weatherboard cladding.

#### **1.2 DOCUMENTS**

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

<a href="#">NZBC B2/AS1</a>	Durability
<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">NZS 3602</a>	Timber and wood-based products for use in building
<a href="#">NZS 3604</a>	Timber-framed buildings
<a href="#">NZS 3617</a>	Profiles of weatherboards, fascia boards and flooring
BRANZ BU 582	Structurally fix cavity battens

#### **1.3 MANUFACTURER/SUPPLIER DOCUMENTS**

[BRANZ Appraisal 524](#) - Cavity Batten System

[BRANZ Appraisal 658](#) - Rusticated and Splaycut Weatherboard Cavity System

Manufacturer/supplier contact details

Company: Herman Pacific Ltd

Contacts: Dan Cooper - 027 229 9046, [dan.cooper@hermpac.co.nz](mailto:dan.cooper@hermpac.co.nz)

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

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

[information@hermpac.co.nz](mailto:information@hermpac.co.nz)

Telephone: 03 341 2163 Christchurch

Facsimile: 0800 329 423

#### **1.4 FIXINGS, WIND**

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

#### **1.5 PERFORMANCE**

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



## 2 PRODUCTS

### 2.1 TIMBER SPECIES

Western Red Cedar:

**Herman Pacific** Canadian Western Red Cedar (*Thuja plicata*) harvested from the sustainable managed forests of British Columbia, Canada. Herman Pacific Western Red Cedar is supplied from forest sources, certified legal and sustainable under one or more independent third party verified certification systems (PEFC, CSA, SFI or FSC).

Refer to website for Herman Pacific's policy on sustainability and for links to suppliers websites and forest management goals and policies.

Yellow Cedar:

**Herman Pacific** Canadian Yellow Cedar (*Chamaecyparis nootkatensis*) harvested from the sustainable managed forests of British Columbia, Canada. Herman Pacific Yellow Cedar is supplied from forest sources, certified legal and sustainable under one or more independent third party verified certification systems (PEFC, CSA, SFI or FSC).

Refer to website for Herman Pacific's policy on sustainability and for links to suppliers websites and forest management goals and policies.

### 2.2 WEATHERBOARDS

Western Red Cedar & Yellow Cedar weatherboards to **Herman Pacific** (Hermpac) profiles, Lap and Rebate details to BRANZ BU 411 and general design to [NZS 3617](#), species and grading to [NZS 3602](#), table 2, reference 2A.1, Requirements for wood-based building components to achieve a 15-year durability performance.

Weatherboards in lengths relevant to profile selection and application, with all unsound and open split knots excluded by cross cut removal prior to fixing into position.

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

- Horizontal Rusticated and Hermpac Custom Profiles
- Horizontal Splaycut and Hermpac Custom Profiles

A selection of the above profiles are also available in Western Red Cedar Finger-Joint (CEDARONE & CEDARLINE) Pre-Primed and Undercoated, Sanded and/or de-nibbed between coats.

### 2.3 COVER BOARDS, MOULDINGS AND SCRIBERS

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

### 2.4 WALL UNDERLAYS

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

## 2.5 EXTERIOR CAVITY WALL BATTENS

Non-Structural Fixing Options:

Radiata pine H3.1 or H3.2 battens, minimum 20mm thickness. Temporary fix battens before being fixed into the framing with the cladding fixings.

Cavibat, Non-Structural 40mm x 18mm fluted Polypropylene Cavity Batten System. Temporary fix battens before being fixed into the framing with the cladding fixings. Refer to [BRANZ Appraisal 524](#).

Vertibat Radiata Pine H3.1 or H3.2 castellated and bevelled battens, minimum 20mm thickness. Temporary fix battens before being fixed into the framing with the cladding fixings.

Structural Fixing Options:

Radiata pine H3.1 or H3.2 battens, minimum 20mm thickness. Structurally fix Radiata Pine cavity battens as per BRANZ BU 582, part 4.2.

Vertibat Radiata Pine H3.1 or H3.2 castellated beveled battens, minimum 20mm thickness.

- **NOTE: Vertibat and Radiata Pine Batten** - Treatment to [NZBC B2/AS1](#) and [NZS 3602](#), table 1, reference 1D.10, **Requirements for wood-based building components to achieve a 50-year durability performance.**

## 2.6 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING

Aluminium with upstands. Upright one side 10mm and the other 75mm. Length and width to suit cavity. To [NZBC E2/AS1](#): clause 9.1.8.3 and figure 66.

### Components

## 2.7 NAILS, SILICON BRONZE

Hermipac Crown, Rose or Flat Head, Annular Grooved Shank Silicon bronze fixings to [NZBC E2/AS1](#) Table 24. Refer to **Herman Pacific** construction details for fixing details and to SELECTIONS clause for fixing sizes.

## 2.8 NAILS, STAINLESS STEEL

Hermipac Crown, Rose, Flat or Jolt Head, Annular Grooved Shank Grade 316 Stainless steel fixings to [NZBC E2/AS1](#) Table 24. Refer to **Herman Pacific** construction details for fixing details and to SELECTIONS clause for fixing sizes.

## 2.9 CLINCH NAILS, STAINLESS STEEL

Hermipac Proprietary 40 x 2.0mm and 50 x 2.0mm Clinch Nail, Annular Grooved Shank Grade 316 Stainless steel.

## 2.10 FLASHINGS

To [NZBC E2/AS1](#), 4.0 **Flashings**. Material, grade and colour as detailed and scheduled and to [NZBC E2/AS1](#); Table 21: **Compatibility of materials in contact**

and Table 22: **Compatibility of materials subject to run-off**. Ensure that materials used for flashings are compatible with the window frame materials and fixings and cladding materials and fixings.

## 2.11 **SOAKERS, STAINLESS STEEL / COLORSTEEL ZINCALUME / ALUMINIUM**

To [NZBC E2/AS1, 4.0 Flashings](#). Machine folded stainless steel/zinc coated steel sheet to profile of weatherboard and mitred corner joints. To [NZBC E2/AS1](#); Table 21: **Compatibility of materials in contact** and Table 22: **Compatibility of materials subject to run-off**. Ensure that materials used for soakers are compatible with adjacent materials and fixings, cladding materials and fixings.

## 2.12 **SOAKERS, COPPER**

To [NZBC E2/AS1, 4.0 Flashings](#). Machine folded half-hard copper sheet to profile of weatherboard and mitred corner joints. To [NZBC E2/AS1](#); Table 21: **Compatibility of materials in contact** and table 22: **Compatibility of materials subject to run-off**. Ensure that materials used for Soakers are compatible with adjacent materials and fixings and cladding materials and fixings.

## 2.13 **FACTORY PRE-FINISHING - MACHINECOAT (NZ) - FLOOD COAT INUNDATION**

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

Refer to: Machinecoat (NZ) - Flood Coat Inundation versus Spray Application, and Maintenance Of Selected Oil Stain Finishes.

**Resene:** Machinecoat (NZ) Waterborne Woodsman oil stain - exclusive pigment and fungicide enriched factory formulation.

**Wood-X:** Penetrating wood oil - exclusive Machinecoat (NZ) factory formulation, standard and custom colour range.

Site applications to coating manufacturer's specifications. All Hermpac Weatherboards and Mouldings must be coated all 6 sides prior to installation. All cut ends require double coating.

## 2.14 **FACTORY PRE-FINISHING - MACHINECOAT (NZ) - SURFACE SPRAY APPLICATION**

**Premium Acrylic Primer, Premium Alkyd Undercoat, Premium Acrylic base Top coat (Air Dried Timber):**

Factory spray application of selected solvent based oil primer and undercoat starter coats and / or acrylic base finish coat on to timber surface.

Refer to: Hermpac Coating instructions

Primer Colour: Hermpac Off White or as specified by special contract.

Undercoat Colour: Hermpac Off White or as specified by special contract.

Factory applied Starter coats: Primary coat - Primer.

Secondary coat - Undercoat.

Factory applied Finish coats: Refer to SELECTIONS.

Site applications to coating manufacturer's specifications. All Hermpac Weatherboards and Mouldings must be coated all 6 sides prior to installation. All cut ends require double coating.

**Premium Alkyd Primer and Undercoat, Premium Acrylic base Top coat (Kiln Dried Timber):**

Factory spray application of selected solvent based oil primer and undercoat starter coats and / or acrylic base finish coat on to timber surface.

Refer to: Hermpac Coating instructions

Primer Colour: Hermpac Off White or as specified by special contract.

Undercoat Colour: Hermpac Off White or as specified by special contract.

Factory applied Starter coats: Primary coat - Primer.

Secondary coat - Undercoat.

Factory applied Finish coats: Refer to SELECTIONS.

Site applications to coating manufacturer's specifications. All Hermpac Weatherboards and Mouldings must be coated all 6 sides prior to installation. All cut ends require double coating.

### 3 EXECUTION

#### 3.1 GENERALLY

Execution to [NZBC E2/AS1: 3.0 Weather tightness risk factors](#), and [9.0 Wall claddings](#), [9.1.8 Drained cavities](#) and [9.4 Timber weatherboards](#).

#### 3.2 STORAGE

Take delivery of **Herman Pacific** timber products, dry, unmarked and undamaged from freight and handling (Grade characteristics excluded). Store on site, under cover, laid flat and true, clear of the ground by a minimum of 150mm and supported on dry and clean timber bearers at maximum 900mm centres.

#### 3.3 SUBSTRATE

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

#### 3.4 VERTIBAT DRAINED CAVITY / NON STRUCTURAL

Install 20mm minimum thickness drained cavity to [NZBC E2/AS1: 9.0 Wall claddings](#), where required. The Vertibat battens are temporarily fixed using galvanized nails and then fixed by the cladding fixings which will penetrate the wall framing studs over the wall underlay.

Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc.). Do

not use horizontal cavity battens. Use cavity spacers where fixing is required between cavity battens.

### ~~3.5 CAVIBAT DRAINED CAVITY / NON STRUCTURAL~~

~~Install Cavibat 18mm drained cavity. Wall framing studs lined with Cavibat, Non-Structural 18mm x 40mm fluted Polypropylene Cavity Batten System. Refer to [BRANZ Appraisal 524](#). The CAVIBAT battens are temporarily fixed using galvanized nails and then fixed by the cladding fixings which will penetrate the wall framing studs over the wall underlay.~~

~~Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc.). Do not use horizontal cavity battens. Use cavity spacers where fixing is required between cavity battens.~~

### 3.6 BATTENS DRAINED CAVITY / NON STRUCTURAL

Install 20mm minimum thickness battens drained cavity to [NZBC E2/AS1: 9.0 Wall claddings](#), where required. The battens are temporarily fixed using galvanized nails and then fixed by the cladding fixings which will penetrate the wall framing studs over the wall underlay.

Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc.). Do not use horizontal cavity battens. Use cavity spacers where fixing is required between cavity battens.

### 3.7 VERTIBAT DRAINED CAVITY / STRUCTURAL

Install 20mm minimum thickness Vertibat drained cavity to [NZBC E2/AS1: 9.0 Wall claddings](#), where required. Permanently fix battens onto the framing, over underlay, using Grade 304 Hermpac Stainless Steel Hex Head Screws ensuring minimum 25mm penetration into framing. (Refer Hermpac construction drawings and installation guide for detailed structural fixing)

Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc.). Do not use horizontal cavity battens. Use cavity spacers where fixing is required between cavity battens.

### 3.8 BATTENS DRAINED CAVITY / STRUCTURAL

Install 20mm minimum thickness battens drained cavity to [NZBC E2/AS1: 9.0 Wall claddings](#), where required. Permanently fix battens onto the framing, over underlay, using Grade 304 Hermpac Stainless Steel Hex Head Screws ensuring minimum 25mm penetration into framing. (Refer Hermpac construction drawings and installation guide for detailed structural fixing)

Seal the top of the cavity and install cavity closer/vermin-proofing at base of walls, open horizontal (or raking) junctions, over openings (windows, meters etc.). Do not use horizontal cavity battens. Use cavity spacers where fixing is required between cavity battens.

### 3.9 PENETRATIONS

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

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

### 3.10 SET-OUT

Using laser or mechanical devices set-out the overlap boards to ensure dimension to exposed face in line of weather is constant and that boards remain horizontal/vertical. Use a string line to set out all nailing that will be visible in the finished work. Align all nailing accurately in straight lines. Use the appropriate **Herman Pacific** proprietary weatherboard set-out tools to establish correct angle of nail and consistent, accurate placement relative to visible edge of board.

### 3.11 FIXING - PAINT FINISH

Install level, true to line and face, to [NZBC E2/AS1: 9.4 Timber weatherboards](#). Prime all cut ends before fixing.

Pilot drill all fixings slightly smaller than gauge of fixing to ensure a snug fit and to minimise risk of moisture entry. Punch all fixings and prime all raw, exposed timber surfaces. Using an appropriate filler, fill all nail holes flush with board surface.

### 3.12 FIXING - OIL STAIN FINISH

Install level, true to line and face, to [NZBC E2/AS1: 9.4 Timber weatherboards](#).

Double coat all cut ends before fixing. Pilot drill all fixings slightly smaller than gauge of fixing to ensure a snug fit and to minimise risk of moisture entry. Finish the heads of Herman Pacific Crown, Rose and Flat head nails flush onto and not into the board surface. Do not 'over drive' the nail head and crush the timber surface beneath and surrounding the nail.

### 3.13 FIXING RUSTICATED / SPLAYCUT WEATHERBOARDS

Install level, true to line and face, to [NZBC E2/AS1: 9.4 Timber weatherboards](#).

Single nail weatherboards to every fixing point, just clear of the lapped board below. Pilot drill all fixing holes on an upward slope slightly smaller than the gauge of fixing to ensure a snug fit and to minimise risk of moisture entry. Refer to **Herman Pacific** website for accurate weatherboard fixing information

Using a **Herman Pacific** 40 x 2.0mm specialty clinch nail, restrain the upper, hidden lap tongue by driving the clinch nail, positioned hard up against but not into the top edge of the board at every fixing point, into the frame and so that the clinch head settles flush into the timber surface, prior to the next row of boards being fixed above. The clinch nail head must not sit proud of the timber surface nor prevent the correct separation of each adjacent row of boards.

**3.14 INSTALL FLASHINGS**

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

**3.15 COMPLETE**

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

**3.16 REPLACE**

Replace all damaged or marked elements.

**3.17 LEAVE**

Leave work to the standard required for following procedures.

**3.18 REMOVE**

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

**4 SELECTIONS****4.1 HERMAN PACIFIC WEATHERBOARDS - HORIZONTAL**

Location:	Refer to drawings
Species:	HERMPAC Western Red Cedar
Grade:	HERMPAC Premium Clears No.1 (PC1)
Profile:	Rusticated
Profile type:	CP835
Cover dimensions:	111mm
Thickness:	18.5mm
Surface finish:	Band Sawn Face (BSF)
Fixing system:	Bandsaw Finish or Dressed Finish (to be confirmed)
External corner battens:	to be confirmed
Internal corner battens:	to be confirmed

**4.2 HERMAN PACIFIC COVER BOARDS, BOXED CORNERS AND SCRIBERS**

Location:	Refer to drawings
Species:	HERMPAC Western Red Cedar
Grade:	HERMPAC Premium Clears No.1 (PC1)
Cover boards:	to be confirmed
Scriber:	to be confirmed
Surface finish:	Band Sawn Face (BSF)

**4.3 FASTENINGS**

Nails: 50mm Silicon Bronze Crown Head

Size:

#### 4.4 CAVITY BATTENS

Timber species: V1 Cavity Batten 45mm x 20mm (to be confirmed)

Timber grade: Radiata Pine FJ LOSP

Treatment: H3.1

#### 4.5 SIGMA CAVITY CLOSER/VERMIN-PROOFING

Brand/type: Sigma cavity closure

Material: Aluminium

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

Material: Hermpac aluminium mill finish flashing

Size: HP42 & HP370 to be confirmed

#### 4.7 FACTORY FINISH COAT - OIL STAIN - FLOOD COAT INUNDATION

Brand: Machinecoat (NZ) Ltd

Surface coating type: Resene / Machinecoat (NZ) Factory formulation Waterborne Woodsman Oil Stain

Coating process: Machinecoat (NZ) Ltd. Flood Coat Inundation

Colour: Refer to elevations.





**RUSTICATED AND SPLAYCUT WEATHERBOARD  
CAVITY SYSTEM  
INSTALLATION SPECIFICATION**

## Contents

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## 1.0 General Information

### 1.1 Introduction

The Hermpac Rusticated and Splaycut Weatherboard Cavity System is a cavity-based external wall cladding system for residential and light commercial type buildings where domestic construction techniques are used.

The cladding system consists of horizontally fixed Hermpac Rusticated and Splaycut cedar weatherboards installed over cavity battens, flashings and accessories and is finished with a premium penetrating oil stain or paint finish to Herman Pacific Limited specifications.

The system incorporates a primary and secondary means of weather resistance (first and second line of defence) against water penetration by separating the cladding from the external wall frame with an 18-20 mm drained cavity.

### 1.2 BRANZ Appraisal

The Hermpac Rusticated and Splaycut Weatherboard Cavity System has been appraised by BRANZ. Refer to Appraisal No. 658 (2014).

The Hermpac CedarOne Bevelback and Rusticated Weatherboard Cavity System has been appraised by BRANZ. Refer to Appraisal No. 766 (2015).

### 1.3 Hermpac Rusticated and Splaycut Weatherboards

Hermpac Rusticated and Splaycut weatherboards are manufactured from Canadian Coastal Western Red Cedar (*Thuja plicata*) and Canadian Coastal Yellow Cedar (*Chamaecyparis nootkatensis*).

The weatherboard lap and rebate profiles are in accordance with NZS 3617 and BRANZ Bulletin 411. The weatherboards are minimum 18.5 mm thick and are available in a range of widths and face profiles, supplied as a random length supply. Selected lengths are outside the general specification and are available by special contract.

### 1.4 Cavity Battens

The Hermpac Rusticated and Splaycut Weatherboard Cavity System uses either treated timber cavity battens or Cavibat polypropylene cavity battens to separate the weatherboards from the wall frame and form the cavity. Cavibat cavity battens can be installed vertically over the wall framing to provide support for the weatherboards at fixing points, e.g. at window openings. Refer to [www.cavibat.co.nz](http://www.cavibat.co.nz) and BRANZ Appraisal No. 524 (2012) for full specifications.

## 1.5 Accessories

Accessories supplied by Herman Pacific Limited for use with the Hermpac Rusticated and Splaycut Cavity System include:

- Hermpac external corner mouldings – HP40 (40 x 40 mm) and HP42 (42 x 42 mm) and the Hermpac 'Smart Corner' series, profiled external corner moulds.
- Hermpac internal corner moulds – HP41 (18.5 x 18.5 mm) and the Hermpac 'Smart Corner' series.
- Hermpac cover battens – 18 mm thick boards in widths of 69 mm (HP201) and 90 mm (HP202). Hermpac eaves moulding – HP32 (40 x 27 mm), HP33 (26 x 15 mm) and HP 7 (30 x 18 mm) bevelled profile.
- Hermpac Rustic plugs – HP44 (40 x 9.25 mm) and HP43 (25 x 9.25 mm) profiled to suit the weatherboard profile. The plugs are supplied in 10 m bundles.
- Hermpac scribes – HP11 - HP18, with bevelled or radiused edges (cut to suit as required).
- Hermpac weatherboard fixings – (oil stain finish) - silicon bronze, Grade 316 stainless steel annular grooved Hermpac Crown Head, Rose Head or Flat Head nails. The nail shank must be minimum 3.25 mm diameter and the length must allow minimum 30 mm penetration of the wall frame.
- Hermpac weatherboard fixings – (paint finish) - silicon bronze, Grade 316 stainless steel annular grooved Hermpac Jolt Head nails. The nail shank must be minimum 3.25 mm diameter and the length must allow minimum 35 mm penetration of the wall frame.
- Hermpac clinch nails – 40 x 2.0 mm or 50 x 2.0 mm Grade 316 stainless steel annular grooved nails with an off-set flat head.
- Hermpac cover batten fixings – 50 x 2.8 mm silicon bronze, Grade 316 stainless steel annular grooved Hermpac Crown Head, Rose Head or Flat Head nails for stain finish or Grade 316 stainless steel annular grooved Jolt Head nails for paint finish.
- Hermpac scribe fixings – length to suit scribe size (minimum 50 x 2.8 mm) stainless steel annular grooved Hermpac Crown Head, Rose Head or Flat Head nails for stain finish or Jolt Head nails for paint finish.
- Hermpac flat and corner soakers – 90° soakers available in copper, stainless steel, powder coated Zinalume or etch primed aluminium.
- Hermpac soaker fixings – 19 x 1.6 mm silicon bronze or stainless steel Rose Head or Flat Head nails.
- Hermpac aluminium flashings – widths to suit specified corners.

## 1.6 Handling and Storage

Hermpac Rusticated and Splaycut weatherboards must be stacked flat and true, clear of the ground by a minimum of 150 mm and supported on dry and clean timber bearers at maximum 900 mm centres.

The weatherboards must be kept dry at all times either by storing within an enclosed building or when stored externally an additional secondary cover to the plastic wrapping is required. Care must be taken to avoid damage to edges, ends and the weatherboard surfaces.

## 2.0 Design Information

### 2.1 Design Responsibility

The Specifier for the project must ensure that the details in this literature are suitable for the intended application and that additional detailing is provided for specific design or any areas that fall outside the scope and specifications of this literature.

### 2.2 Scope

This specification covers the use of the Hermpac Rusticated and Splaycut Weatherboard Cavity System as an external horizontally fixed wall cladding system for buildings within the following scope:

- the scope limitations of NZBC Acceptable System E2/AS1, Paragraph 1.1; and,
- constructed with timber framing complying with the NZBC; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- situated in NZS 3604 Wind Zones up to, and including Extra High.

CedarOne, CedarLine or painted weatherboards fixed with annular grooved Grade 316 stainless steel Jolt Head nails are limited to use in NZ 3604 Wind Zones up to, and including Medium where studs are at 600 mm centres maximum, and NZS 3604 Wind Zones High and Very High where studs are at 400 mm centres maximum.

This specification also covers the use of the Hermpac Rusticated and Splaycut Weatherboard Cavity System (stain finish only) as an external horizontally fixed wall cladding system for weathertightness and structural wind loading for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- constructed with timber framing subject to specific engineering design; and,
- situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5 kPa.

For applications which are outside the scope of this literature and details which are not in this literature the specifier must ensure that the design meets the relevant performance requirements of the NZBC.



Herman Pacific Limited recommends that professional design advice is sought in these circumstances.

## 2.3 Building Regulations

The Hermpac Rusticated and Splaycut Weatherboard Cavity System if designed, used and installed in accordance with the statements and conditions of this literature and the supporting BRANZ Appraisal, will meet the following provisions of the New Zealand Building Code:

- Clause B1 Structure
- Clause B2 Durability
- Clause E2 External Moisture
- Clause F2 Hazardous Building Materials

## 2.4 Ground Clearances

The finished floor level must have a minimum clearance to paved or unprotected ground as required by NZS 3604:2011.

Hermpac weatherboards must overhang the bottom plate on a concrete slab by a minimum of 50 mm as required by NZBC Acceptable Solution E2/AS1, Table 18.

The bottom edge of the Hermpac Rusticated and Splaycut Weatherboard Cavity System must finish a minimum of 100 mm above paved surfaces or 175 mm above unprotected ground.

At deck or low pitch roof/wall junctions, the bottom edge of the Hermpac weatherboards must be kept clear of any adjacent surface, or above the top surface of any adjacent roof flashing by a minimum of 35 mm.

## 2.5 Structure & Framing

Timber wall framing behind the Hermpac Rusticated and Splaycut Weatherboard Cavity System must be treated as required by NZBC Acceptable Solution B2/AS1.

Timber framing must comply with NZS 3604 for buildings or parts of buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170. Where specific design is required, the framing must be of at least equivalent stiffness to the framing provisions of NZS 3604. Use of timber framing must be in accordance with framing manufacturer's specifications.

In all cases studs must be at maximum 600 mm centres, with dwangs fitted flush between the studs at maximum 800 mm centres. Note: For CedarOne, CedarLine or painted weatherboards fixed with annular grooved Grade 316 stainless steel Jolt Head nails, studs must be at a maximum 600 mm centres for NZS 3604 Wind Zones up to, and including Medium, and 400 mm centres maximum for NZS 3604 Wind Zones High and Very High.

## 2.6 Framing Tolerances

In order to achieve an acceptable wall finish, it is imperative that framing is straight and true. Framing tolerances must comply with the requirements of NZS 3604:2011.

## 2.7 Cavity Closure Strip

The Hermpac Rusticated and Splaycut Weatherboard Cavity System must incorporate a cavity closure strip to close off the bottom of the cavity and provide resistance against the penetration of vermin. The cavity closure strip must be in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3.

The cavity closure strip must be manufactured from PVC, aluminium or stainless steel, and be punched with 3 - 5 mm holes or slots which provide a minimum ventilation opening area of 1000 mm<sup>2</sup> per lineal metre of wall.

## 2.8 Wall Underlay

The Hermpac Rusticated and Splaycut Weatherboard Cavity System must be installed over wall underlay complying with NZBC Acceptable Solution E2/AS1, Table 23, or wall underlays covered by a valid BRANZ Appraisal.

All external walls of buildings must have barriers to airflow in the form of interior linings with all joints stopped for wind zones up to and including Very High, and rigid underlays for buildings in the Extra High wind zone and specifically designed buildings up to 2.5 kPa design differential ULS wind pressure. Unlined gables and walls must incorporate a rigid sheathing or an air barrier which meets the requirements of NZBC Acceptable Solution E2/AS1, Table 23. For attached garages, wall underlays must be selected in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. Where rigid underlays are used, the weatherboard fixing lengths must be increased by a minimum of the thickness of the underlay.

## 2.9 Inter-storey Junctions

Inter-storey drained joints must be constructed in accordance with the Technical Literature. Inter-storey drained joints must be provided to limit continuous cavities to the lesser of 2-storeys or 7 metres in height, in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.9.4(b).

## 2.10 Hermpac Rusticated and Splaycut Weatherboards

Hermpac Rusticated and Splaycut weatherboards shall be fixed with an approximate 2mm vertical expansion gap at the overlap between boards. Hermpac Rusticated and Splaycut profiles are all manufactured in accordance with BRANZ Bulletin 411 (Refer to E2/AS1 page 121, paragraph 9.4.1.1) and have a 27mm rebate for a 25mm lap.

The weatherboards shall be pre-coated with the selected coating (prior to site delivery and installation) by Herman Pacific Limited associate Machinecoat (NZ) Ltd, by the flood coat inundation method or in-line spray coat system (subject to coating type selected).

Pre-finished Rusticated and Splaycut weatherboards shall be over-coated and maintained in accordance with the coating manufacturer's specification. All cut ends and/or uncoated surfaces shall be double coated during installation to protect against the penetration of moisture, post installation.

The weatherboards shall be fixed through the cavity battens to the studs at maximum 600mm centres using Hermpac weatherboard fixings (refer to Section 1.5 of this specification).

External corners shall be weatherproofed by the use of corrosion resistant corner flashings and corner facings, e.g. Herman Pacific Limited proprietary profiles HP 40, HP 42, the Herman Pacific 'Smart Corner' series, or cover battens HP 201 and HP 202 with Hermpac rustic plugs or scribes.

Internal corners shall be weatherproofed by the use of corrosion resistant internal corner flashings along with internal mouldings, e.g. Herman Pacific Limited profile HP 41 or the Herman Pacific 'Smart Corner' series.

## 3.0 Installation Information

### 3.1 System Installation

This section of the literature should be read in conjunction with the installation details.



The selected wall underlay and flexible sill and jamb tape system must be installed by the building contractor in accordance with the underlay and tape manufacturer's instructions prior to the installation of the cavity battens and the rest of the Hermpac Rusticated and Splaycut Weatherboard Cavity System. Flexible building underlay must be installed horizontally and be continuous around corners. Underlay must be lapped 75mm minimum at horizontal joints and 150mm minimum over studs at vertical joints.

Generic rigid sheathing materials must be installed in accordance with NZBC Acceptable Solution E2/AS1 and be overlaid with a flexible wall underlay. Proprietary systems shall be installed in accordance with the manufacturer's instructions. Particular attention must be paid to the installation of the building underlay and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed wall framing in the opening is protected. All penetrations through the wall underlay must be sealed and joints sealed or lapped 150 mm.

The selected cavity closure strip must be installed so a minimum 15 mm drip edge to the bottom of the weatherboards is maintained at all times.

Cavity battens must be installed over the wall underlay to the wall framing at a maximum of 600 mm centres where the studs are at 600 mm centres, or at 400 mm centres when studs are at 400 mm centres. Cavibat cavity battens must be fixed in place with 40 x 2.8 mm hot-dip galvanised flat head nails or galvanised or stainless steel finishing brads at 400 mm centres. Refer to [www.cavibat.co.nz](http://www.cavibat.co.nz) and BRANZ Appraisal Number 524 (2012) for further information. Timber cavity battens must be fixed in place with 40 x 2.8 mm hot-dip galvanised flat-head nails at maximum 800 mm centres.

Where the studs are at greater than 450 mm centres, a wall underlay support, e.g. polypropylene strap, 75 mm galvanised mesh, galvanised wire, or additional vertical battens must be installed over the wall underlay between the cavity battens at maximum 300 mm centres to prevent the wall underlay from bulging into the drainage cavity.

### 3.1.1 Aluminium Joinery Installation

Aluminium joinery and associated head flashings must be installed in accordance with the window manufacturer's instructions. A 7.5 - 10 mm nominal gap must be left between the joinery reveal and the wall framing so a PEF rod and air seal can be installed in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.6 after the joinery has been secured in place.

### 3.1.2 Hermpac Rusticated and Splaycut Cedar Weatherboard Installation

Hermpac Rusticated and Splaycut weatherboards must not be wet prior to installation. Prior to installation, the back, face and edges of the Hermpac Rusticated and Splaycut weatherboards must be sealed with an exterior grade oil-based penetrating oil stain or paint. During installation, cut ends and edges and all fresh cuts or exposed timber must be double sealed with an exterior grade oil-based penetrating oil stain or paint.

Before the weatherboards are installed, the corner detail must be prepared to suit the selected option, e.g. external box corner/corner moulding etc. The necessary flashings must be installed before commencing weatherboard fixing and the cavity closure must be installed continuously around the bottom of the cavity.

Immediately prior to installing the weatherboards over the internal and external corner flashings, a continuous bead of sealant must be applied to the face of the flashing along the fixing line.

The first course of weatherboards must be full length, and commence from an external corner. The first weatherboard must be installed level to assist with the installation of subsequent weatherboards. The weatherboards must overhang the bottom plate by a minimum of 50 mm.

Hermpac Rusticated and Splaycut weatherboards must be overlapped a minimum of 25 mm with an expansion gap of 2 mm at the overlap. The top of the weatherboard lap must be restrained using the Hermpac clinch nail at every cavity batten.

Hermpac Rusticated and Splaycut weatherboards must be pre-drilled on a slight up-slope, with a hole slightly smaller than that of the nail, to reduce the risk of moisture entry. Fix each weatherboard with one nail per board at every cavity batten. Fixing must be carried out using silicon bronze or Grade 316 stainless annular grooved Hermpac Crown Head, Rose Head or Flat Head nails. The nail shank must be minimum 3.25 mm diameter and the length must allow minimum 30 mm penetration of the wall frame.

Note: For CedarOne, CedarLine or painted weatherboards, use Grade 316 Stainless Steel annular grooved Jolt Head nails and allow minimum 35mm penetration of the wall frame. Punch nails 2mm below the weatherboard surface, prime nail holes and fill prior to sanding and finishing.

The fixing must be located 30-35 mm above the bottom of the weatherboard, be located no closer than 32 mm from the end of the board, and must finish flush onto the surface of the weatherboard, not into or below the surface.

Fix weatherboards in full lengths where possible. Where joints are unavoidable, scarf the weatherboard at 30° over a cavity batten and fix as per drawn detail 'HC-RUST-413'.

### 3.1.3 Boxed Corners, Cover Battens and Mouldings

External and internal corners must be finished in accordance with the installation detailing.

### 3.1.4 Finishing

At least two coats of an exterior grade quality oil-based penetrating stain must be used over the front face of the Hermpac Rusticated and Splaycut weatherboards to protect the weatherboards and give the desired finish colour to the exterior walls. The stain must be

recommended for use as a wall cladding stain by the manufacturer and must be brush or Machinecoat NZ Ltd applied. Herman Pacific Limited recommends the use of oil based stains manufactured by Wood-X and Resene.

Follow the stain manufacturer's instructions at all times for application of the stain finish.

For paint finish the paint must be recommended for use as a wall cladding paint by the manufacturer and must be brush or Machinecoat NZ Ltd applied.

To ensure a top quality paint finish:

1. Envelope prime all cut ends and bare timber surfaces twice with a premium oil based primer.
2. Punch nail holes and prime promptly after punching with a premium oil based primer.
3. Fill holes with a suitable filler, allow to dry and sand area smooth.
4. Apply one coat of a premium oil based primer to sanded area and allow to dry before sanding lightly.
5. Ensure surface is free from dirt prior to painting top coats. Wash or lightly sand areas where dirt/film build up has occurred.
6. Apply two coats of premium high quality 100% acrylic to surface allowing adequate time for drying between coats.

Follow the paint manufacturer's instructions at all times for application of the paint finish.

Refer to Section 4.0 for maintenance requirements.

## 4.0 Maintenance

Building owners are responsible for the maintenance of the Hermpac Rusticated and Splaycut Weatherboard Cavity System. Annual inspections must be made to ensure that all aspects of the cladding system, including flashings remain in a weatherproof condition. Any damaged areas or areas showing signs of deterioration which would allow water ingress, must be repaired immediately. Sealant, coatings, flashings or the weatherboards must be repaired in accordance with the relevant manufacturer's instructions.

Regular cleaning (at least annually) of the surface finish with water and a mild detergent is recommended to remove grime, dirt and organic growth, to maximise the life and appearance of the cladding.

Recoating of the stain finish will be necessary throughout the life of the cladding system. Re-staining must be carried out every 2-3 years in accordance with the stain manufacturer's instructions. Re-staining will be required more frequently on exposed northern and western facing walls. When re-staining, care must be taken to ensure bottom edges and shiplap edges are well covered and penetrated with the stain.



## RUSTICATED AND SPLAYCUT WEATHERBOARD CAVITY SYSTEM

Recoating of the paint finish will be necessary throughout the life of the cladding system. Re-coating must be carried out every 7-10 years in accordance with the paint manufacturer's instructions. When re-coating, care must be taken to ensure bottom edges are well covered and penetrated with the paint.

### 5.0 Health & Safety

Cutting of Hermipac Rusticated and Splaycut weatherboards must be carried out in well ventilated areas and dust masks, eye and hearing protection must be worn.

## **4311M METALCRAFT PROFILED ROOFING**

- 1. GENERAL** This section relates to the supply and fixing of Metalcraft Roofing profiled roofing complete with accessories.

It includes:

- Trough section roofing profiles
- Asymmetrical rib roofing profiles
- Corrugated roofing profile
- Translucent roofing

### **1.1 RELATED WORK**

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

### **1.2 ABBREVIATIONS AND DEFINITIONS**

The following abbreviations apply specifically to this section:

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

#### **Documents**

### **1.3 DOCUMENTS**

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

<a href="#">NZBC E2/AS1</a>	External moisture
<a href="#">NZBC G12/AS1</a>	Water supplies
<a href="#">AS/NZS 1170.2</a>	Structural design actions - Wind actions
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 3566	Self-drilling screws for the building and construction industries
<a href="#">NZS 3604</a>	Timber-framed buildings
ISO 9223	Corrosion of metals and alloys - Corrosivity of atmosphere - Classification determination and estimation
<a href="#">NZMRM CoP</a>	NZ metal roof and wall cladding Code of Practice (CoP)

### **1.4 MANUFACTURER/SUPPLIER DOCUMENTS**

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

Metalcraft Roofing Metdek400 product literature  
 Metalcraft Roofing Metdek500 product literature  
 Metalcraft Roofing Metdek855 product literature  
 Metalcraft Roofing Metrib750 product literature  
 Metalcraft Roofing Metrib760 product literature  
 Metalcraft Roofing MC700 product literature  
 Metalcraft Roofing MC770 product literature  
 Metalcraft Roofing MC760 product literature  
 Metalcraft Roofing T-Rib product literature  
 Metalcraft Roofing MC1000 product literature  
 Metalcraft Roofing Metcom7 product literature  
 Metalcraft Roofing Metcom930 product literature



Metalcraft Roofing Corrugate 760 product literature  
Metalcraft Roofing Alsynite Topglass® product literature

Manufacturer/supplier contact details

Company: **Metalcraft Roofing**  
Web: [www.metalcraftroofing.co.nz](http://www.metalcraftroofing.co.nz)  
Email: frances.charles@unitedindustries.co.nz  
Telephone: 09 274 0408

## 1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years for workmanship

- Provide this warranty on the material manufacturers standard warranty form.
- Commence the warranty from the date of practical completion of the contract works.

Include a copy of the Metalcraft Roofing maintenance requirements with the warranty.

Refer to the general section 1237 WARRANTIES for additional requirements.

## 1.7 NO SUBSTITUTIONS

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

## 1.8 QUALIFICATIONS

Roof Installers shall be experienced, competent roofers familiar with Metalcraft products. And for Restricted Building Work shall also be, an LBP or supervised by an LBP.

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

## 1.9 WIND - NON SPECIFIC DESIGN

Building wind zone:

Refer to drawings and [NZS 3604](#), table 5.4

Refer to Metacraft for "Wind Load Span Design Graphs" for load parameters.

Low /0.65kPa: 32 m/s

Medium /0.85kPa: 37 m/s

High /1.20kPa: 44 m/s

Very High /1.55kPa: 50 m/s

Extra High /1.62kPa: 55 m/s

## 1.11 FIXINGS, WIND

Design and use the fixings/fixing pattern appropriate for the wind design parameters and [NZMRM CoP](#) NZ metal roof and wall cladding Code of Practice. Refer to Metalcraft profiled roofing product literature for profile details. Allow for specific loadings at corners and the periphery of the roof, where localised pressure factors apply. Fixing pattern to also take into account fixing method and purlin spacings.

**Performance - General**

## 1.12 PERFORMANCE

Install roofing materials in accordance with the [NZMRM CoP](#) NZ metal roof and wall cladding Code of Practice, and Metalcraft profiled roofing product literature, to form a weather-tight performance for the completed roofing system, including all penetrations through the roof and junctions with walls and parapets.

## 1.13 DRINKING WATER

Roofing for collecting potable water to [NZBC G12](#)/AS1.

## 1.14 CO-ORDINATE

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

# 2. PRODUCTS

## Materials

## 2.1 PRE-FINISHED HOT-DIPPED ALUMINIUM/ZINC COATED STEEL

Formability steel sheet, G550 for roll forming or G300 for flashings, coated to AS 1397.

## 2.2 HOT-DIPPED ALUMINIUM/ZINC/MAGNESIUM COATED STEEL, UNPAINTED

Formability steel sheet, G550 for roll forming or G300 for flashings, coated to AS 1397.

## Fixings

## 2.3 FASTENERS GENERALLY

Fixings and fasteners are to be compatible with all materials, the environment and meeting the requirements of the NZ Building Code. Installation is to be in accordance with E2/AS1 and/or the NZ Metal Roof and Wall Cladding - Code of Practice and Metalcraft profiled roofing product literature.

For fixing patterns refer to Metalcraft product literature for roofing profile.

## 2.4 FIXING SCREWS

To AS 3566. Screws appropriate to the roofing material and the supporting structure, as required by Metalcraft and with a Class 4 or 5 durability and not less than the material being fixed. Screws into timber to penetrate by minimum 30mm. Screw fasteners to be head stamped identifying the manufacturer and class. Refer to SELECTIONS.

## 2.5 RIVETS

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

## 2.6 FLASHINGS GENERALLY

Formable grade 0.55 BMT for galvanized, aluminium/zinc, aluminium/zinc/magnesium - coated and pre-painted steel and for Metdek500 (only) 0.70 BMT aluminium (or 0.7mm for small aluminium flashings) to the same standards as the profiled sheets, notched where across profile or provided with a soft edge.

## Components

## 2.7 FLASHINGS TO VERGE, RIDGE AND HIP

To [NZBC E2](#)/AS1, 4.0, Flashings.

Supplied by the roofing manufacturer to match or to suit the roofing.

### **Accessories**

#### **2.8 WIRE NETTING AND SAFETY MESH**

Refer to 4161 UNDERLAYS, FOIL AND DPC.

#### **2.9 UNDERLAY AND REFLECTIVE FOIL**

Refer to 4161 UNDERLAYS, FOIL AND DPC.

#### **2.10 SEALANT**

Neutral curing silicone or polymer sealant as required by Metalcraft and used as directed.

#### **2.11 CLOSURE STRIPS**

Polyurethane profiled closed cell foam strips to fit the sheet profile.

Brand: Ecofoam

Profile: To suit selected cladding profile

### **3. EXECUTION**

#### **Conditions**

#### **3.1 INSPECTION**

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

#### **3.2 FRAMING TIMBER MOISTURE**

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

#### **3.3 STORAGE**

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

#### **3.4 HANDLING**

Do not drag sheets across each other or other materials. Avoid distortion and contact with damaging substances, including cement. Long lengths of roofing should be lifted onto the roof using an approved load spreading beam. Protect edges and surface finishes from damage, keep under cover and remove as the product is being installed. Use soft, flat sole shoes when fixing and for all other work on the roof. Walk along the purlin line whenever possible.



### 3.5 SEPARATION

Isolate dissimilar materials (metals and non-metals) in close proximity as necessary by painting the surfaces or fitting separator strips of compatible materials. Place isolators between metals and treated timber and cement based materials. Do not use lead sheet or copper in contact with or allow water run-off onto galvanized or aluminium/zinc coated steel.

#### Application

### 3.6 FIX INSULATION

Refer to thermal insulation sections.

### 3.7 SET-OUT

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

### 3.8 END LAPS

End laps are not recommended, except where specifically detailed.

### 3.9 THERMAL MOVEMENT

Fix for Thermal Movement to Metalcraft requirements for thermal movement.

### 3.10 FIXING GENERALLY

Install and fix in accordance with the [NZMRM CoP](#) recommendations, and to Metalcraft required fixing patterns and details for each area of the building roofing. Use only screws as required by Metalcraft. Paint colour matched fixings and accessories before installation.

### 3.11 MARKING AND CUTTING

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

### 3.12 STOP ENDS AND DOWNTURNS

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

### 3.13 INSTALL FLASHINGS

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

### 3.14 USE OF SEALANTS

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

### 3.15 FLASHING PENETRATIONS

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

#### Completion

### 3.16 REPLACE

Replace damaged or marked elements. Do not attempt to repair coatings by applying colour match paint to pre-finished surfaces.

### 3.17 LEAVE

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

### 3.18 REMOVE

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

## 4. SELECTIONS

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

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

#### Coating system

### 4.1 COATING SYSTEM - EXPOSURE ZONE B-C (CAT 1-3)

Project Exposure Zone B-C to [NZS 3604](#), C 1-3 to ISO 9223.

Base material: Colorsteel Endura or ~~Colorsteel Maxx~~

Paint colour: refer to drawings

#### Roofing - corrugate profile

### 4.4 CORRUGATE PROFILE ROOFING

Manufacturer: Metalcraft Roofing

Profile: Corrugate

Dimensions: Sheet width 851mm, cover 760mm, rib height 18mm, and roll formed to any length

Roof pitch: refer to drawings

BMT/material: 0.40mm Steel, ~~0.55mm Steel~~

Purlin material: Timber or Steel (steel thickness; up to 1.5mm, 1.5-4.5mm or ~~4.5-12mm~~)

Fixings: refer to drawings

#### **4.6 FLASHINGS - GENERALLY**

BMT/material:	metal
Coating system:	To match roofing colour
Paint colour:	To match roofing colour

## **METALCRAFT RAINWATER SYSTEMS**

The following branded section has been prepared by Construction Information Ltd (Masterspec) in conjunction with the product manufacturer. The downloading and/or use of this section are subject to the following terms and conditions:

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Users acknowledge that neither Construction Information Limited nor the manufacturer of the products and systems described in the text are in any way liable in respect of any particular use or application of the material provided.

### **1. GENERAL**

This section relates to Metalcraft rainwater disposal systems including gutters fascias and downpipes.

#### **Related work**

#### **1.1 RELATED SECTIONS**

Refer to drawings for rainwater disposal systems.

#### **Documents**

#### **1.2 DOCUMENTS REFERRED TO**

Documents referred to in this section are:

NZBC E1/AS1 Surface water

NZMRM NZ Metal roof and wall cladding - Code of practice

Documents listed above and cited in the clauses that follow are part of this specification.

However this specification takes precedence in the event of it being at variance with the cited document.

#### **RELATED DOCUMENTS**

Refer to the following related documents when preparing this section:

NZBC E1/AS1 Surface Water

4.0 Downpipes

5.0 Roof gutters

AS/NZS 2179 Rainwater goods, accessories and fasteners

BRANZ BU 332 Claddings in corrosive environments

BRANZ BU 350 Sizing gutters and downpipes

#### **1.3 MANUFACTURER'S DOCUMENTS**

Manufacturer's and supplier's documents relating to work in this section are available on the website or by contacting Metalcraft Industries Ltd.

For technical assistance contact Metalcraft Industries Ltd

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

#### **1.4 ABBREVIATIONS AND TERMS**

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

BMT	Base metal thickness
NZMRM	New Zealand Metal Roofing Manufacturers Inc
Gutter	In this section includes spouting

## Requirements

### 1.5 NO SUBSTITUTIONS

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

### 1.6 QUALIFICATIONS

Installers to be experienced competent gutter installers, familiar with the Metalcraft materials and the techniques specified.

### 1.7 MAINTENANCE INSTRUCTIONS

Provide one bound copy of all relevant Metalcraft maintenance information on completion of the roofing work.

## Warranties

### 1.8 MANUFACTURER'S WARRANTY

Warrant this work under normal environmental and use conditions against:

10 years:	Failure of coating adhesion (manufacturer's standard warranty)
10 years:	Weatherproofing failure caused by material penetration as a result of corrosion (manufacturer's standard warranty)
3 years:	Weatherproofing failure caused by substandard workmanship
From:	Date of completion of installation

## Performance

### 1.9 TEST

Test the completed rainwater disposal system with water to ensure gutters are laid to correct falls, that both spouting and downpipes are unobstructed and that no ponding occurs in gutters. Comply with E1/AS1.

## 2. PRODUCTS

### Materials

#### 2.1 GUTTERS

Complete with matching brackets with fixing screws to suit the gutter / fascia. Refer to SELECTIONS for type.

#### 2.2 DOWNPIPES

To AS 1273 Unplasticised PVC (uPVC) downpipe and fittings for rainwater. Complete with stand-off brackets, galvanized screw fixed. Refer to SELECTIONS for type.

### Components

#### 2.3 DROPPERS

Steel or plastic droppers, sized to fit inside the downpipe.

## 2.4 DOMES

Wire mesh in round form with legs to clip inside the outlet opening to the downpipe.

## 2.5 GUTTER MESH

Flexible plastic mesh fitted into the gutter to the mesh manufacturer's requirements.

## 3. EXECUTION

### Conditions

### 3.1 HANDLE AND STORE

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

### 3.2 SUBSTRATE

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

### 3.3 THERMAL MOVEMENT

Make adequate provision in the fixing and jointing of the spouting for thermal movement in the length of the spouting. Provide an expansion joint in spouting over 12 metres in length for steel gutter.

### 3.4 CORROSION

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

### Application - metal

### 3.5 INSTALL METAL GUTTER AND FASCIA

Establish minimum falls necessary (minimum 1:500) to outlets to prevent ponding and screw fix brackets true-to-line at 900 mm centres maximum. In areas where snow fall is possible and or high wind areas, the centres should be reduced to 600 mm. Lap spouting joints in direction of flow, a minimum of 40 mm to seal between and over the top of joint and seal with silicone sealant and fix with rivets. Ensure the joint is fixed over its full girth.

Cut out neatly for and fit the pre-formed downpipe dropper and rivet and seal around the joint. All installation to Metalcraft details and NZMRM NZ Metal roof and wall cladding - Code of practice recommendations.  
Snow fall areas will require snow straps.

### 3.6 INSTALL PVC DOWNPIPES

Install downpipes complete with 115 degree angle bends as needed with all joints lapped and glued. Galvanize screw fix with PVC pipe clips to rigidly stand 40 mm off the wall plumb and discharging into stormwater gully or inlet pipe. All installation to

Metalcraft details and NZMRM NZ Metal roof and wall cladding - Code of practice recommendations.

### 3.7 INSTALL RAINWATER HEADS

Install using rivets where required to detail as shown on drawings. Ensure colour matched blind aluminium rivets are used when joining metal surfaces.

### 3.8 INSTALL OVERFLOWS

Install as close as practical to downpipe locations, at a height allowing water to discharge to the outside and not into the building.

Even an exposed, external rainwater disposal system can require overflows, to avoid problems occurring due to blockages in gutters or downpipes. Provide details here, or add further detail to earlier clauses.

### 3.9 INSTALL PROTECTION

Fit wire mesh domes to downpipe outlets and plastic mesh to spouting to the spouting manufacturer's requirements.

## Completion

### 3.10 REPLACE

Replace damaged or marked elements.

### 3.11 LEAVE

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

### 3.12 REMOVE

Remove debris, unused materials and elements from the site.

## 4. SELECTIONS

Refer to E1/AS1 for size and material requirements.

### 4.1 METALCRAFT GUTTER SYSTEMS/FASCIA SYSTEM

Profile: **Box Gutter 125**, comes complete with 185mm high coloursteel fascia fixed behind gutter.

Base material: Steel

BMT: 0.55 mm

Cross section: 8435mm<sup>2</sup>

Coating system: Coloursteel® Endura™

Colour: To be confirmed by client/contractor

### 4.2 COLOURSTEEL DOWNPIPES

Profile: Rectangular

Size: 80mm diameter

Coating system: Coloursteel® Endura™

Colour: To be confirmed by client/contractor

## **ALUMINIUM WINDOWS AND DOORS**

### **DOCUMENTS**

Documents referred to in this section are:

NZS 3604	Timber framed buildings
NZS4211	Specification for Performance of Windows
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications

### **WINDOW AND DOOR SECTIONS**

Form all aluminium members from extruded sections. Folded sections are restricted to flashings and concealed members only.

### **FLASHINGS GENERALLY**

Material, grade and colour of head flashings to match the window frames. Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

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

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

Except where window/door frames are recessed, ensure that head flashings over-sail jamb facings by 20 mm at each end.

### **FIXINGS**

Ensure all fixings and bracketing are compatible with aluminium. Do not use electroplated zinc fasteners or brass fastenings.

### **CONFIRM PREPARATION OF WALL OPENINGS**

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

Required preparatory work includes the following:

- wall cladding building wrap to openings finished and dressed off ready for the installation of window and door frames
- claddings neatly finished off to all sides of openings
- interior linings neatly trimmed ready for installation of jamb liners and completion of air seals to all sides of openings
- installation of flashings (those which are required to be installed prior to frames, including Flexible flashing tape).



**FIX FRAMES**

Fix frames rigidly in place without distortion, to the window manufacturer's and Wanz Aluminium window handbook requirements, plumb, true to line and face, weathertight and with all openings operating freely.

**COMPLETE AIR SEAL**

Form an air-tight seal by means of proprietary expanding foam, compressible foam strips, or sealants used with backing rods, applied deep within the reveal to completely fill the gap between joinery and structural framing. Ensure that in combination with the internal linings a complete air seal is created.

**WINDOWS AND DOORS TYPE**

Manufacturer: First Aluminium (ChCh) (to be confirmed by contractor)  
 Type/model: First Aluminium Extrusion, Metro Series (to be confirmed by contractor)

**WINDOW AND DOOR JAMB LINERS, TIMBER**

Timber species: Pine  
 Grade/treatment: Finger jointed H1.2  
 Thickness: ex40mm  
 Finish: Paint grade

**ORGANIC POWDER COATING FINISH**

Minimum thickness: 40 microns

## **GLAZING**

### **DOCUMENTS**

Documents referred to in this section are:

NZBC B1/AS1	Structure, 7.0 Glazing
NZBC F2/AS1	Hazardous building materials, 1.0 Glazing
NZBC F4/AS1	Safety from falling, 1.0 Barriers in buildings
AS/NZS 2208	Safety glazing materials in building
NZS 3604	Timber framed buildings
NZS 4223	Glazing in buildings
Part 1:	The selection and installation of glass in buildings
Part 3: 2016	Human impact safety requirements
Part 4:	Dead, wind and snow loading
NZS 4211	Performance of windows
AS/NZS 4666	Insulating glass units
AS/NZS 4667	Quality requirements for cut-to-size and processed glass

### **GLASS**

Processed glass to AS/NZS 4667, thickness to NZS 4223 parts 1, 3 and 4 unless otherwise specified:

- Clear float glass: Clear annealed transparent float glass
- Patterned glass: Translucent, annealed, rolled glass with a decorative pattern on one surface.
- Laminated glass: Grade A safety glazing material to AS/NZS 2208 with PVB or CIP resin interlayer.
- Toughened glass: Grade A safety glazing material to AS/NZS 2208.

### **SAFETY GLASS**

All windows noted with “SG” on the elevations require Grade A safety glass.

- All glazing in bathrooms <2m requires Grade A safety glass
- Safety glazing required to all low level glazing within 800mm of floor level where the pane height is greater than 1.0m and pane width is greater than 500mm

### **MIRROR GLASS**

Float mirror glass to NZS 4223, part 1, clause 101.2.2.2: Silvering quality (selection S), with silver and copper plating and 2 coats of protective paint.

### **GLASS SCREENS**

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

### **GLAZING TAPE AND GASKETS**

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

### **SETTING BLOCKS**

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

## **MIRROR ADHESIVE**

Adhesive mirror-mastic and double-sided adhesive tape.

## **INSTALL GLASS SCREENS**

Install shower and bath screens and doors to manufacturer's requirements. Fix wall channel with silicone sealant.

## **INSULATION**

### **DOCUMENTS**

Documents referred to in this section are:

- NZBC H1/AS1 Energy efficiency, 2.0 Building thermal envelope
- NZS 4214 Methods of Determining the total thermal resistance of parts of buildings
- NZS 4218 Energy efficiency – Small building envelope
- NZS 4243 Energy efficiency – Large buildings

### **FIT THERMAL INSULATION**

Lay, install, fit and fix insulation to NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope. Install in housing to NZS 4218 and in large buildings to NZS 4243.

Friction fit insulation in place to completely fill the whole of the cavities with no gaps and with no folds. Slightly oversize length for friction fit and cut across pad and fill cavity. Cut smaller pieces for smaller spaces and around penetrations. Leave no gaps between, and maintain full thickness of the insulating segments over the whole of the installation. Do not cover vents. No clearance required to CA type lighting fixtures.

### **THERMAL INSULATION, WALLS**

- Location: Exterior walls (excluding garage)
- Brand: **Pink Batts**
- R Value: Refer to H1 Schedule, Energy Efficiency Calculations

### **THERMAL INSULATION, CEILING**

- Location: Ceilings
- Brand: **Pink Batts**
- R Value: Refer to H1 Schedule, Energy Efficiency Calculations

## **GIB® PLASTERBOARD LININGS**

Refer to GIB® EzyBrace™ Systems installation information attached to specification.

### **DOCUMENTS**

Documents referred to in this section are:

AS/NZS 2588 Gypsum linings in residential and light commercial construction - Application and finishing,

Part 1: Gypsum plasterboard

BRANZ technical paper P21: A wall bracing test and evaluation procedure

### **MANUFACTURER'S DOCUMENTS**

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

General: GIB® Site Guide

Wet area: GIB® Wet Area Systems

Bracing: GIB® EzyBrace™ Systems

Ceilings: GIB® Rondo™ Metal Ceiling Batten Systems

### **GIB® PLASTERBOARD**

Gypsum plaster core encased in a face and backing paper formed for standard and water resistance use to AS 2588.

### **CEILING BATTENS**

GIB® Rondo™ galvanised steel ceiling battens and perimeter channel and GIB® Direct Fix Clip. Install in accordance with GIB® Rondo™ Metal Ceiling Batten Systems.

### **SCREWS**

GIB® Grabber™ drywall screws.

### **NAILS**

GIB® Nails (gold passivated).

### **TAPE ON TRIMS AND EDGES**

GIB® Goldline™ tape-on paper tape and galvanised steel trims and edges and/or GIB® UltraFlex high impact corner mould.

### **ADHESIVE**

GIBFix® All Bond wallboard adhesive.

### **JOINTING COMPOUND**

Bedding compound: GIB Tradeset®, GIB® Lite Blue and GIB ProMix® Taping compound

Finishing compound: GIB ProMix® GIB ProMix®, Lite, GIB® All Purpose and GIB Plus 4®

### **JOINTING TAPE**

GIB® paper jointing tape.

**CHECK SUBSTRATE**

Do not commence work until the substrate is plumb, level and to the standard required by the sheet manufacturer's requirements. Moisture levels not to exceed 16% at the time of lining.

**MOISTURE CONTENT**

Maximum allowable moisture content in accordance with AS/NZS 2589.1 for:

Framing at lining: 12 - 16% for plasterboard linings

**PROTECT**

Protect all surfaces, cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage.

**LEVELS OF FINISH**

Provide the scheduled plasterboard surfaces to the levels of finish specified in AS/NZS 2589

Before commencing work, agree in writing upon the expectation for the final quality of finish. The specified level of finish for each area should be appropriate for the type of decoration and the type and angle of the primary source of illumination specified in that area.

## **TILING**

### **DOCUMENTS**

Documents referred to in this section are:

NZBC D1/AS1: Slip resistance

AS 2358: Adhesives - For fixing ceramic tiles

AS 3740: Waterproofing of wet areas within residential buildings

AS 3958: Ceramic tiles, 3958.1: Guide to the installation of ceramic tiles

BS 6431: Ceramic floor and wall tiles

BRANZ: Good practice guide: Tiling

### **QUALIFICATIONS**

Carry out tiling work using competent tilers, experienced with the materials and techniques specified.

### **TEMPERATURE**

Do not carry out tiling where the ambient temperature is below 5°C, or onto a substrate with a temperature higher than 40°C.

### **SUBSTRATE**

Ensure that all services and accessories are in place and located to suit the tile layout, with the substrate required for tiling work. Commencement of the work means the substrate and environment are accepted by the tile layer as satisfactory.

### **CONCRETE FLOORS PREPARATION**

Remove from the surfaces all contaminants such as paints, oils, release and curing compounds. Remove all projections, unevenness and loose material to leave a clean, dust and dirt-free surface. Remove all existing finishes down to the concrete & prepare surfaces and carry out the tiling work in accordance with AS 3958.1, as modified by BRANZ Good practice guide: Tiling.

### **LIQUID WATERPROOFING MEMBRANE – ARDEX waterproofing system**

To AS 3740.

Install waterproofing membrane between the tile adhesive and the substrate. Reinforce all junctions of the waterproofing membrane as per the manufacturer's recommendations.

Install waterproof membranes as follows: -

To walls behind bath - Two tiles high

Clean thoroughly and prepare as for tiling. Remove any paint overspray and plaster spills. Ensure that waterproofing has been completed. Install electric undertile heating system to manufacturers requirements with the element connected to a continuity tester during installation. Leave ready for tiling and connection to the electrical system.

### **CEMENT BASED SCREED**

Mix of 3:1 Portland cement, wash-mix sand, gauged with liquid polymer additive to the tile manufacturer's requirements.

Apply a proprietary cement slurry bond coat over the whole of the floor to the tile manufacturer's requirements. Mix and place a 40 mm thick mortar bed over the bond coat and firmly tamp, screed and compact to the required level. Form screeds with a deviation from plane of not more than 5 mm over 3 metres.

In waterproofed areas where the cement screed has been laid over the waterproofing membrane, prepare the screed surface by applying a further waterproof coating before laying tiles.

Form screeds in areas where water is used in significant amounts with a deviation from plane of not more than 5 mm over 3 metres. Unless otherwise specified form screeds at 1: 40 minimum.

## **TILE ADHESIVE**

To BS 6431, parts 1 to 23 inclusive & AS 2358.

Adhesives selected for use on proprietary substrates or waterproof membranes to have documented compatibility approval from the respective manufacturers.

Apply and float thick bed cement-based adhesive to a maximum 6 mm bed thickness to the tile manufacturer's requirements. Rib surface with a notched trowel, press tiles and beat it into place with 3 mm joints, and to obtain required coverage of adhesive on the back of each tile.

## **GROUT**

Cement based, compressible and to suit the particular location and use.

Remove spacers. Prepare joints, mix and apply proprietary grout and finish off to the grout manufacturer's requirements. Grout to finish uniform in colour, smooth and without voids, pinholes or low spots.

## **MOVEMENT CONTROL JOINT SEALANT**

To BRANZ Good practice guide: Tiling, section 5.0.



## **CARPETING**

### **DOCUMENTS**

Documents referred to in this section are:

AS/NZS 2455.1 Textile floor coverings - Installation practice, Part 1: General

The New Zealand Carpet Manufacturers' Association Conditions of Warranty and installation guide

### **QUALIFICATIONS**

Carpet layers to be experienced competent workers, familiar with the materials and the techniques specified and with AS/NZS 2455.

### **EDGE GRIPPER, TAPES, FIXING BARS**

To AS/NZS 2455.

### **BINDER BARS**

Anodised aluminium section with a fluted face.

### **SUBSTRATE**

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

### **PROTECTION**

Protect adjoining work surfaces and finishes during installation and make good any damage to same.

### **TAPE**

Tape for binding and seaming to be the type and width required by AS/NZS 2455 to suit the specified carpet and the standard of performance required.

### **LAYOUT**

Plan the carpet layout so that seams run lengthways, traffic runs along the seam, light from windows is not across the seam and pile faces away from the main natural light source.

### **TEMPERATURE**

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

### **PREPARE FLOOR SURFACE**

Prepare floors for laying to AS/NZS 2455 requirements.

### **INSTALLATION, UNDERLAY**

Installation to AS/NZS 2455 Lay at right angles to the carpet direction.

### **INSTALLATION, TAPED JOINTS**

Tape carpet joints, fix grippers to floor, install underlay and carpet, to AS/NZS 2455.

**FIX TRIMS**

Fix binder bars, carpet to carpet bars, and trims to all junctions with other materials and to carpet edges, to

AS/NZS 2455. Ensure that all junctions with other materials are neatly formed, with bars and trims securely fastened to the substrate, 20 mm from each end and at maximum 100 mm centres.

## **HOT AND COLD WATER SYSTEM**

### **DOCUMENTS**

Documents referred to in this section are:

NZBC G12/AS1	Water supplies
AS/NZS 2642	Polybutylene pipe fittings
NZS 3501	Specification for copper tubes for water, gas and sanitation
NZS 4606	Storage water heaters
NZS 4607	Installation of thermal storage electric water heaters
NZS 4617	Tempering (3-port mixing) valves
DIN 8077	Polypropylene (PP) Pipe dimensions
DIN 8078	Polypropylene (PP) Pipes Types 1, 2 & 3, General Quality
Plumbers, Gasfitters and Drainlayers Act 1976	

Note: Floor surfaces of any space containing sanitary fixtures or sanitary appliances must be impervious and easily cleaned. (Seal floor when Laundry is in garage)

### **QUALIFICATIONS**

Plumbers to be experienced competent craftsman plumbers, or registered plumbers working under the direction of a craftsman plumber, familiar with the materials and techniques specified.

### **WATER MAIN POLYETHYLENE**

High density polyethylene 32 mm OD (minimum 25 mm internal diameter) pipe complete with rubber ring compression type fittings.

### **POLYBUTYLENE WATER PIPE**

Polybutylene tubing to AS/NZS 2642.2 and AS/NZS 2642.3 complete with fittings and accessories brand-matched.

### **POLYETHYLENE WATER PIPE**

Proprietary high-density cross-linked polyethylene composite pipe and fittings to BS 7291.3.

### **EXPOSED PIPES**

Chrome plated copper pipe with chrome plated brass nuts and fittings.

Faucet hoses covered with stainless steel braid and fitted with stainless steel nuts.

White polyethylene composite pipe with white nuts and accessories.

Selected pipework finish to include escutcheon plates and bends and elbows protruding from walls or fittings.

### **POLYBUTYLENE/POLYETHYLENE WATER SUPPLY**

Size the piping layout to eliminate loss of pressure at any point by simultaneous draw-off.

Run pipes complete with all fittings, support and fixing, and jointed to the pipe manufacturer's specifications, all to NZBC G12/AS1. Conceal pipework and pressure test before the wall linings are fixed.

### **INSTALLING HOT WATER PIPE INSULATION**

Insulate all hot water pipes in accordance with the insulation manufacturer's instructions.

Cut insulation sections tight between timber framing and tight between the webs of studs.

Where hair felt is used, wrap around pipes in two layers in opposite directions and secure with galvanised steel wire ties.

### **INSTALL TAPS AND FAUCETS**

Install taps and faucets in accordance with the tap manufacturer's requirements. Flush out on completion. Check that washers or ceramic discs are operating correctly.

### **TESTING OF PLUMBING**

NZBC G12/AS1 7.5 Watertightness

7.5.1 The water supply system shall be tested to ensure watertightness. An acceptable testing method is to:

- a) Subject the hot and cold system to a pressure of 1500 kPa for a period of not less than 15 minutes, and
- b) Inspect the system to ensure that there are no leaks.

### **WATER MAIN**

Pressure: High pressure  
Internal diameter: (ID)20mm/ (OD)25mm

### **WATER PIPE**

Brand/type: Blueline  
Material: Alkerathine  
Nominal bore: (ID)20mm/ (OD)25mm

### **INSULATION FOR HOT WATER PIPES**

Brand/type: Euro lagging  
Inside diameter: 16/22 mm

### **ELECTRIC WATER HEATER**

Brand/model number: Rheem main pressure Electric water Heater – Model 312300

### **HOT WATER SUPPLY SYSTEM**

Mains pressure storage water heater system (unvented), See Figure 8 below (NZBC G12/AS1 Fig 8).

### **Additional Information From Acceptable Solution G12/AS1**

#### **6.7.4 Water heaters located where freezing is likely**

Additional requirements for relief valve drains are (see Figure 12):

- a) Relieve one valve only, and
- b) Comply with Paragraph 6.7.5 when freezing of the drain is likely.

#### **Comment:**

This paragraph applies to water heaters that are installed outside the building's thermal envelope in cold climates.

#### **6.7.5 Relief drains located where freezing is likely**

Additional requirements for relief drains located where freezing is likely (see Figure 12) are that:

- a) Relief valve drain pipes shall discharge over a tundish with a 25 mm air break before the drain pipe enters a zone where freezing is likely, and

b) Relief valve drains from a tundish shall be one size larger than the outlet diameter of the relief valve.

## 7.2 Protection from freezing

**7.2.1** Where there is the likelihood of freezing, hot and cold water supply systems shall be protected in the following manner:

- a) Piping outside of the building thermal envelope shall be insulated.
- b) Piping buried in the ground shall be insulated or installed below a level affected by freezing.

**Table 7:** Water Supply Pipework Support Spacing  
Paragraph 7.1.3

Pipe material	Pipe diameter (mm)	Maximum distance between supports (m)	
		Vertical pipe	Graded and horizontal pipe
Copper	10 – 15	1.5	1.2
	20 – 25	2.0	1.5
Galvanised steel	15 – 20	2.0	1.5
	25	3.0	2.5
uPVC	15 – 20	2.0	1.0
	25	2.4	1.2
Polyethylene and polybutylene (cold water supply)	15 – 20	1.5	0.75
	25	1.8	0.9
Polybutylene (hot water supply)	15 – 18	1.0	0.6
	20 – 22	1.4	0.7

Note:

The spacing for these pipe materials is based on the pipes being located within the *building* structure.

## Water Supply Pipework Support Spacing (NZBC G12/AS1)

**Table 4:** Tempering Valve and Nominal Pipe Diameters  
Paragraphs 5.3.1 and 6.12.1

	Low pressure (i.e. header tank supply or low pressure)	Low and medium pressure unvented (valve vented) and open vented	Mains pressure
Pressure of water at tempering valve (kPa)	20 – 30	30 – 120	over 300
Metres head (m)	2 – 3	>3 – 12	over 30
Minimum tempering valve size	25 mm	20 mm	15 mm
Pipes to tempering valve	25 mm (see <b>Note 3</b> )	20 mm	20 mm (15 mm optional) (see <b>Note 1</b> )
Pipes to shower	20 mm	20 mm (see <b>Note 4</b> )	20 mm (see <b>Note 5</b> ) (15 mm optional) (see <b>Note 1</b> )
Pipes to sink/laundry (see <b>Note 2</b> )	20 mm	20 mm	15 mm
Pipes to bath (see <b>Note 2</b> )	20 mm	20 mm	15 mm
Pipes to basins (see <b>Note 2</b> )	15 mm	15 mm	10 mm

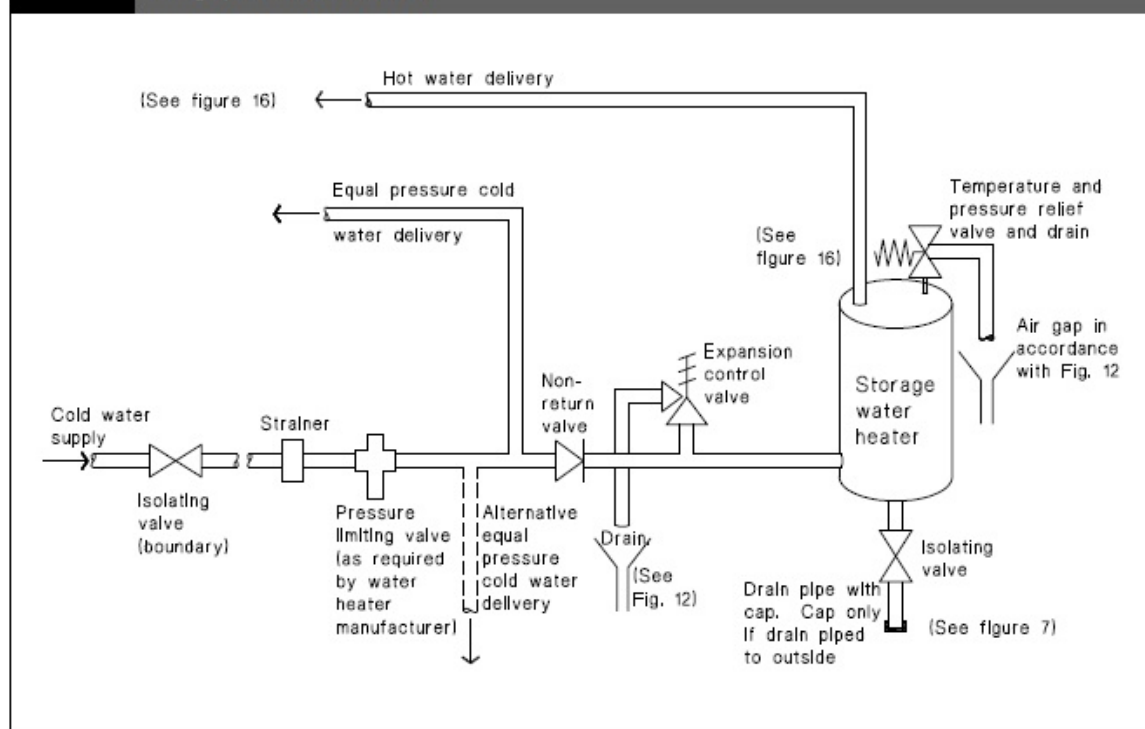
Notes:

1. If supplied by separate pipe from *storage water heater* to a single outlet.
2. This table is based on maximum pipe lengths of 20 metres.
3. 2 m maximum length from *water heater* outlet to tempering valve.
4. 15 mm if dedicated line to shower.
5. 10 mm if dedicated line to shower.
6. Table 3 pipe sizes have been calculated to deliver water simultaneously to the kitchen sink and one other *fixture*.

Amend 5  
Feb 2004

## Hot and Cold Water Service Pipe Size (NZBC G12/AS1)

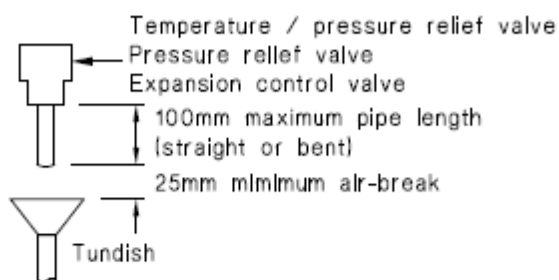
**Figure 8: Mains Pressure Storage Water Heater System (unvented)**  
Paragraphs 6.1.2 and 6.2.1 b)



**Mains Pressure Storage Water Heater System - Unvented (NZBC G12/AS1 Fig 8)**

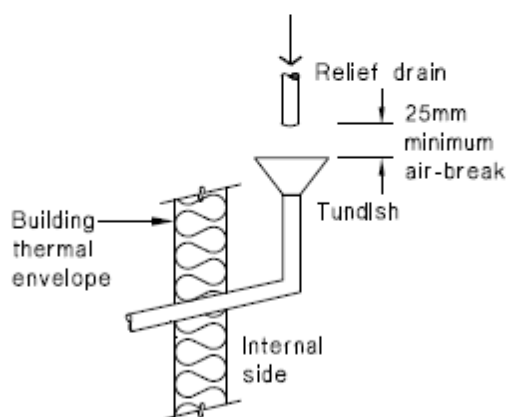
Amend 5  
Feb 2004

**Figure 12: Relief Valve Drains – Freezing Protection**  
Paragraphs 6.7.1, 6.7.4 and 6.7.5



**(a) Storage water heater located where freezing likely**

e.g. External to building thermal envelope in cold climates



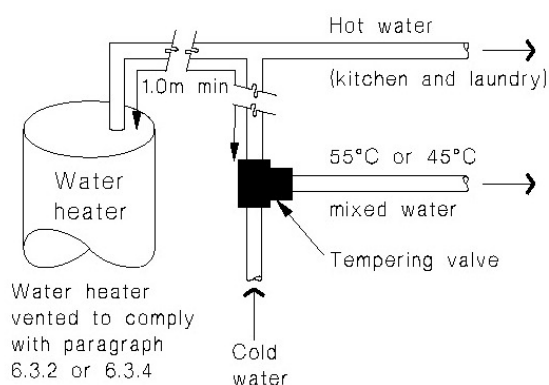
**(b) Relief drain located where freezing likely**

e.g. Internal storage water heater with drain discharging externally (See figure 13 also)

**Relief Valve Drains – Freezing Protection (NZBC G12/AS1 Fig 12)**

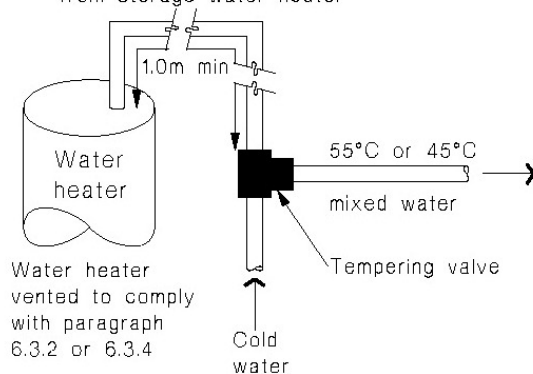


**Figure 16: Tempering Valve Installation**  
Paragraph 6.14.2 a)



**(a) With untempered water to laundry and kitchen fixtures and appliances**

1.0m minimum copper pipe length from storage water heater



**(b) Where all hot water is tempered**

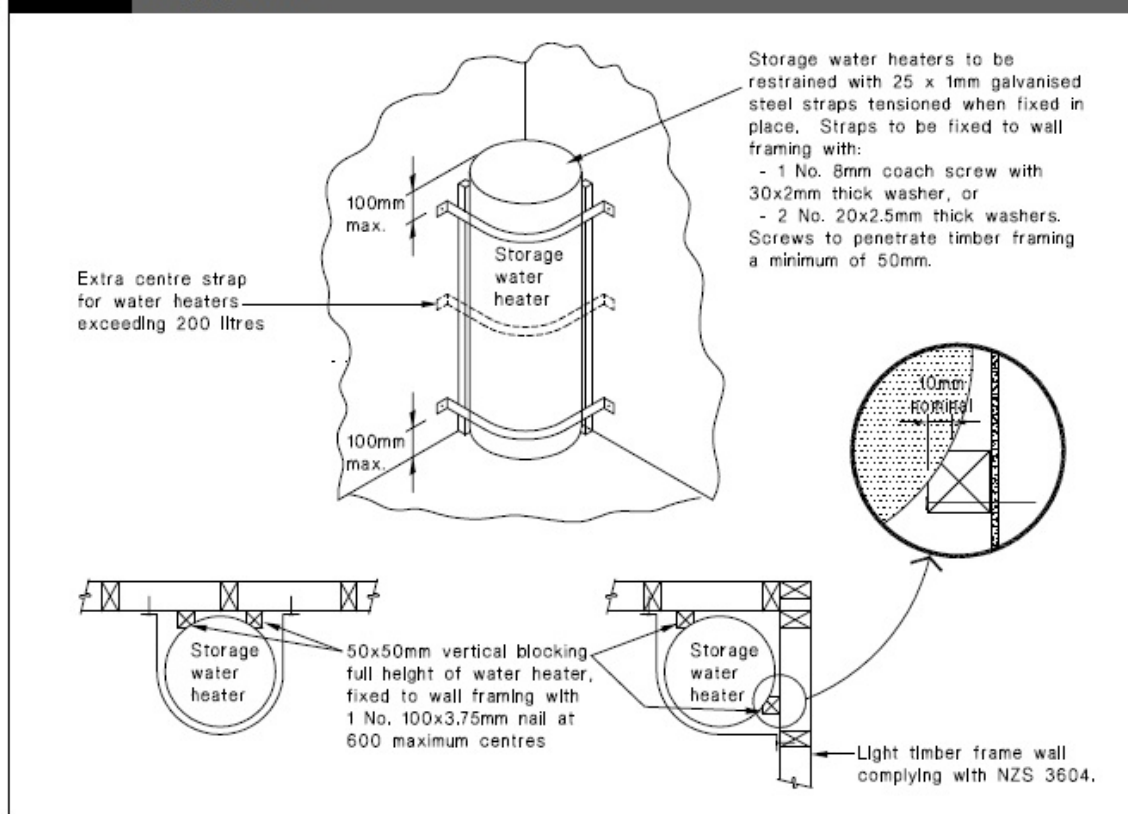
Note:

1. For optimum system efficiency the tempering valve, for other than a mains pressure system, may be located as low as practicable to achieve the manufacturer's recommended head, at the tempering valve.
2. 1.0m minimum copper pipe length from storage water heater.

**Tempering Valve Installation (NZBC G12/AS1 Fig 16)**

Amend 5  
Feb 2004

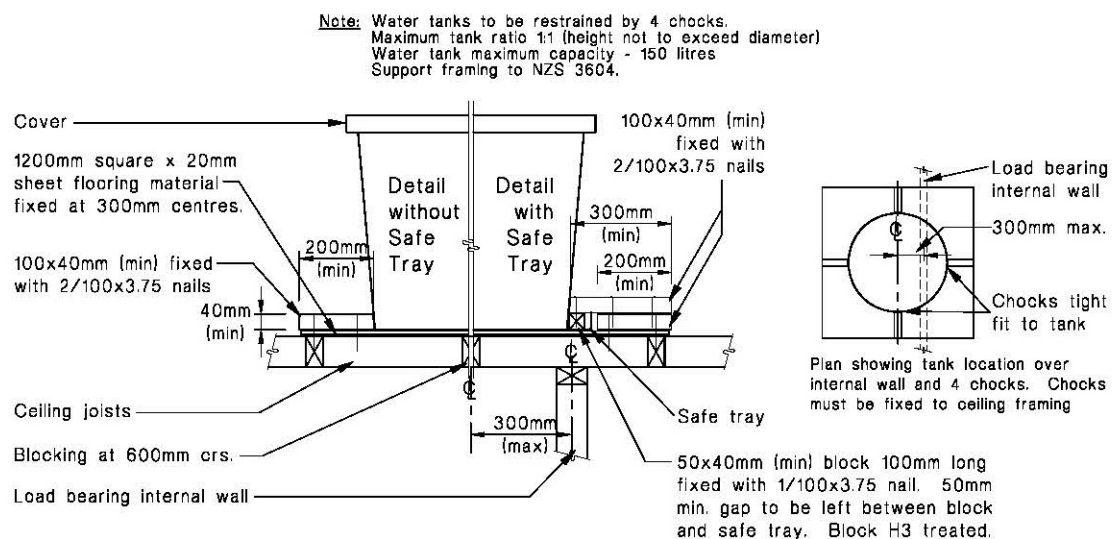
**Figure 14:** Seismic Restraint of Storage Water Heaters 90 – 360 litres  
Paragraph 6.11.4



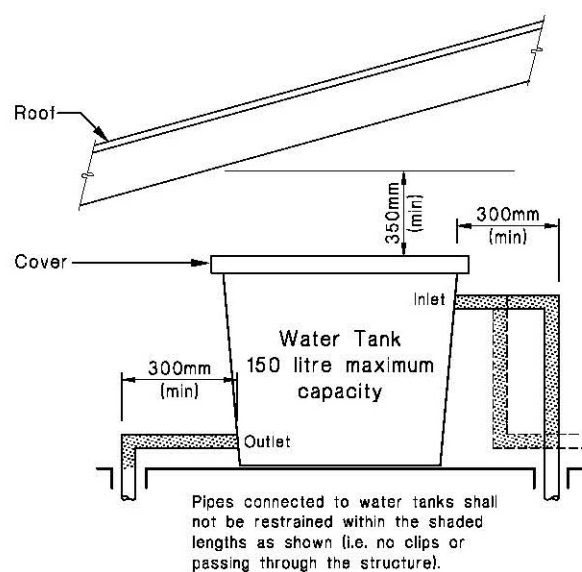
**Seismic Restraint of Storage Water Heaters (NZBC G12/AS1 Fig 14)**

**G12/AS1 clause 6.11.3 Storage water heaters shall have: (a) Safe trays complying with clause 5.2.3**

**Figure 4: Structural Support for Water Tanks (150 litre maximum capacity)**  
Paragraphs 5.2.1, 5.2.3 and 5.2.7



**(a) Structural support**



**(b) Pipe connections**

## **PLUMBING / HARDWARE**

- Hot water cylinder to be A-grade 250 Lt Mains Pressure complete with tempering valve. Note: Mains pressure cylinders incorporate a pressure relief pipe which protrudes from foundation, location to be determined by plumber.

### **PRELIMINARY AND GENERAL**

As specified on the plans the plumbing will comply with G13/AS1 – Sanitary Plumbing, G13/AS2 Drainage or alternatively AS/NZS 3500 Plumbing and Drainage

All plumbing work to comply with the requirements of the NZBC, refer to sections E3, G10-G15.

AS/NZS1260 - PVC pipes and fittings for drain, waste and vent applications

NZS7641-Unplasticised PVC waste and ventilating pipes, fittings and accessories 32-50mm

AS/NZ4858 - Wet Area Membranes

E3/AS1- Internal Moisture

Plumbers, Gasfitters and Drainlayers Act 2006

### **EXTENT OF WORK –**

Provide for all materials and execution of all works necessary for the proper completion of the plumbing work. All work is to be carried out by tradesmen registered as required by the plumbing and drainage regulations and relevant standard and in accordance with the NZBC and Territorial Authority requirements. All pipe work is to be concealed where possible within wall spaces, or as indicated on the drawings. The carpenter is responsible for provision of all framing, blocking etc for the support of fittings. Co-operate with all other trades for the provision of ducts, trenches, cut-outs in foundation and slab and the laying of pipe work. Holes for pipes through framing members shall be of minimum size and shall be positioned to ensure structural integrity of framing members are not compromised.

Note requirements for any penetrations in wall framing from NZS3604 sections 8.5.1.6 & 8.7.5.

### **PERMIT, FEES –**

Give all notices, and arrange for the inspection of the work and materials.

### **MATERIALS –**

Provide all the materials, labour and plant necessary to complete work in accordance with the drawings and provide specifications, NZBC approved documents as specified in B1/1, E1, G1, G2, G13/1 & G13/2.

All internal pipes shall be polybutylene to DIN8077 and DIN8078 complete with fittings and accessories brand matched. Pressure test all fittings and pipe work and ensure there are no leaks and all fittings are in good working order.

## FLASHINGS –

Generally provide all flashings required by all other trades to make the building weather tight. Flash and counter flash all pipes, vents and exhausts with 1.0mm min Butynol or EPDM (or 0.7mm aluminium / 0.55mm BMT galvanised or Aluminium zinc coated flashings or 1.0mm min Butynol for zincalume roofing) neatly capped to roofing or flash with approved paint-on membrane system and paint to match roofing colour.

## WATER SUPPLY –

Water is from a municipal supply.

- a) Cold water can be obtained from the existing site connection via a mains pressure system providing adequate water pressure and volume; so avoiding the need for a cold water supply tank in or on the roof. Provide a high pressure mains system.
- b) Water heating is to be by means of a high pressure system; with cold water feed through a pressure reducing valve and separate non-return valve and complete with tempering valve set to maximum delivery temperature of 55° C.

The installation will comply with:

NZBC G12/AS1 Water Supplies  
AS2642 Polybutylene pipe fittings  
Plumbers, Gasfitters and Drainlayers Act 2006

## COLD WATER SUPPLY –

Tap off from mains service lateral with 25mm ID polybutylene pipe and rubber ring compression fittings unless otherwise specified. Excavate trench, lay pipe and back fill to appropriate NZBC and NZS standards. Connect to building reticulation system. Provide a gate valve at the building.

Pipe laid in a trench a minimum of 500mm below finished ground level marker tape laid above backfill. Provide pipe to two hose taps, in positions at front and rear of building and to all fittings including hot water cylinder and washing machine. All branches to be short, straight and at as even gradient as possible with easybends used throughout. Use only approved connections throughout. All pipes are to be adequately supported, well secured and where possible concealed. Plumber to discuss with electrician and provide means of electrical earthing, when using any form of metal piping.

## HOT WATER SUPPLY –

Provide polypropylene fusion welded joint system hot water supply pipes and branches to all fittings. Drain from HWC to be copper to drain to the outside of the building above ground over gardens or a gully trap. Installation shall be complete with seismic restraints and anti-scald device as per NZBC G12/AS1.

All hot water pipes to be insulated along with their length with 22mm wall thickness *Insultube* in roof space. The hot water pipe to the kitchen sink shall be insulated from the hot water heater to the sink (NZS4607:1989 601.2 & NZS4305:1996 3.7.2).

Maximum pipe length and nominal pipe size is

Nominal pipe size (mm)	10	15	20
Length (m)	25	12	7

#### PIPE SUPPORTS –

Pipe and their supports shall be electrochemically compatible.

Except where anchor points are necessary, the pipes shall be supported in a way that permits free movement of the pipe along its length. Acceptable methods include lagging the pipe at the support with *Insultube*.

#### Support spacing

Above ground water supply shall be securely supported at centres of no greater than those in Table 7 of NZBC G12/AS1 7.0.

#### Movement in concrete or masonry

Pipes penetrating or installed in concrete or masonry wall or floors shall pass through a sleeve, to permit free movement for expansion and contraction.

#### Anchor points

Anchor points shall be provided where:

- a) Seal ring joints are used and
- b) The joint is not able to resist the thrust imposed by water pressure.

#### Protection from frosts

Water supply pipework shall be insulated where water is likely to become frozen, to appropriate levels for this frost prone area.

#### Comment

*Locations where the water supply pipe work is likely to become frozen includes pipes concealed in exterior walls, ceiling spaces above ceiling insulation, or basements fixed to the outside of buildings.*

#### SANITARY FITTINGS –

Allow to fix fittings as indicated on the plans for the following. Builder via the plumber to provide fittings. Carefully note dimensions and install where shown.

#### TAPS, FAUCETS AND VALVES –

Fix all taps, faucets and mixing valves, as supplied by the Builder via the plumber. Fix all other water supply fittings as necessary.

#### VENTS, SOIL STACKS –

To comply with NZBC G13/AS1 and G13/AS2

The above shall be PVC extended up through the roof and flashed with approved flashing material. Terminal vent is to be of an approved size to pass up exterior wall, through eave if required and through roof.



## **ELECTRICAL**

### **DOCUMENTS**

Documents referred to in this section are:

NZBC F7/AS1	Warning systems, 3.1 Domestic smoke alarms
NZBC G8	Artificial Light - Illuminance
NZBC G9/AS1	Electricity, 1.0 Electrical Installations within domestic dwellings
AS 1670	Part 6: Smoke Alarms
AS/NZS 3000	Wiring Rules
AS/NZS 3008	Electrical installations - Selection of cables 3008.1.2: Typical New Zealand installation conditions
AS/NZS 5000.2	Electric cables - Polymeric insulated - For working voltages up to and including 450/750 V
NZECF 51:2004	New Zealand Electrical Code of Practice for Homeowner/Occupier's Electrical Wiring Work in Domestic Installations

PVC-insulated cables for electric power and lighting

Electricity Regulations

New Zealand electrical codes of practice (ECP)

Illuminance at floor level shall be no less than 20 lux as per NZBC G8.3 - Performance requirement.

Minimum requirement: 1 standard lighting fixture per 10m<sup>2</sup> minimum. (per room) Hallway requires 1 lighting fixture per 4.7 lineal meters minimum. Lighting areas based on 100w closed abutted (CA) down light, 100w batten holder & 100w ceiling pan. (Where energy efficient bulbs are used they shall have an equivalent wattage to the minimum stated)

### **LIGHTING SCHEDULE (Minimum per area/room)**

2 LF/room Living, kitchen, dining, family, activity, media, lounge & bedroom.

1 LF Hall (1 LF per 4.5 lineal metres min.)

1 LF/bay Garage

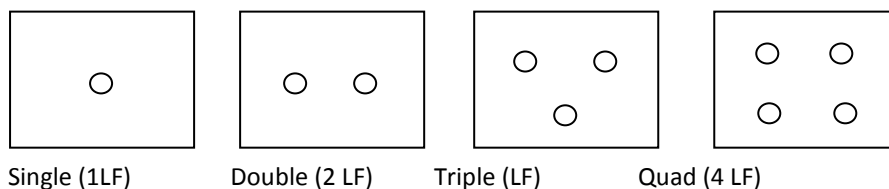
1 LF Entry, toilet, bathroom, laundry, WIR, store.

1 LF Other rooms (1 LF per 10m<sup>2</sup> min.)

### **KEY**

LF Standard Lighting Fixture – Downlight ICF-F rated LED

### **LIGHTING LAYOUT EXAMPLES**



Lighting to be spaced out evenly.

Note: The above lighting schedule is the minimum requirement. The final layout is by owner on site but will not be less than the above schedule.

**COMPLY**

Comply with the referenced Electricity Regulations, Standards and the New Zealand electrical codes of practice for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection.

**QUALIFICATIONS**

Carry out work by or under the direct supervision of a holder of a practising certificate under the Electricity Regulations.

**CERTIFICATE OF COMPLIANCE**

Supply a certificate of compliance to the owner, as required by the Electricity Regulations, and in particular, clauses 16, 34 and 35. Allow the network utility operator to test before the meter installation, listed work in spection, polarity check and livening of supply.

**MAINS SUPPLY, SINGLE PHASE**

Tough plastic sheathed neutral screened cable to AS/NZS 5000.2 and AS/NZS 3008.1.2, with a minimum rating of 60 amps per phase. Include pilot cable where required by network utility company.

**MAIN EARTH** - Provide a plastic toby box or UPVC tube to contain and protect the earth pin. Fix the connecting earth wiring closely and securely against wall surfaces.

**RCD** protection to AS/NZS 3000

Bond together and to earth all plumbing fittings not adequately isolated, to the Electricity Regulations and to the fitting manufacturer's requirements.

**CABLES**

Tough plastic sheathed copper conductors to AS/NZS 5000.2, stranded above 1.0 mm<sup>2</sup>, and to AS/NZS 3008.1.2. Minimum sizes. Increase sizes if the method of installation, thermal insulation, cable length or load will reduce the cable rating below that of the connected load, or produce an excessive voltage drop.

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

**METER BOX**

Proprietary manufactured, zinc plated powder coated metal case, weatherproof if mounted outdoors, and complete with meter mounting, main switch and fuse.

**DISTRIBUTION BOARD**

Proprietary manufactured heavy duty plastic fire resistant enclosed construction, complete with neutral and earth busbars, MCBs, 30 mA RCDs and 60 amp main switch, complete with 20% spare capacity to AS/NZS 3000. All protective devices: 6kA MCBs of the appropriate rating.

**MINIATURE CIRCUIT BREAKERS**

Miniature moulded case circuit breakers

## **WALL BOXES**

Standard size in plastic, with 2 or more gang size, all screw fixed.

## **SWITCH UNITS**

Sixteen amp minimum rated, 230 volt polycarbonate flush plate units.

Fit all single and double switch units and socket at the following heights (to the centre of the unit) unless shown otherwise on the drawings.

Switch Units: 1000 mm & at least 500mm from corners.

Socket Units: 150 mm above work benches,

Mount switches vertically and socket units horizontally. Label all switch units that control electrical equipment by colour filled engraving on the switch plate.

## **HOT WATER SYSTEM SWITCH**

One way 20 amp switch complete with cable clamp for flexible PVC conduit to element enclosure.

## **SWITCHED SOCKET UNITS**

Ten amp, 230 volt polycarbonate flush plate 3 pin flat NZS combination switch units, single or multi gang.

## **SMOKE ALARMS**

To AS 1670 & Smoke alarms shall be installed on or near the ceiling in accordance with AS 1670.6 and the manufacturer's instructions.

## **GARAGE DOOR CONTROLLERS**

Provide single switched socket outlet for the door controller to plug into.

## **LIGHT FITTINGS**

All fittings complete with lamps, install light fittings in locations as directed by the owner, and in accordance with the fitting manufacturer's requirements and no less than the lighting schedule.

All downlights to be closed and abutted, downlights to have factory heat shields.

All downlight to be ICF-F rated LED. Luminaire can be abutted with insulation and some (IC) may be covered, providing the insulation is also suitable for such use to comply with C/AS1 7.4 (December 2013)

## **CIRCUIT PROTECTION**

Install MCBs to protect each final sub circuit sized for circuit maximum loading.

Domestic

Install RCD protection at the switchboard of final sub circuits controlling socket outlets and lighting except for:

- Fixed cooking equipment, heating, HWC and A/C units

## **SET-OUT**

Unless specifically detailed, confirm on site the exact location, disposition and mounting heights of all outlets, fittings, equipment, penetrations, and use of exposed wiring with the owner. Fix outlet items level, plumb and in line.

### **CABLING**

Install with a maximum of 17 light outlet units or 6 double or single switched socket units on any circuit. Minimum 2 lighting circuits per installation. Separate circuits for all electric heating appliances. All cabling run concealed. No TPS cable laid directly in concrete. Locate holes in timber framing for the passage of cables at the centre line of the timber member. Install cable in conduits where required to pass through concrete or underground.

Complete all labelling in clear machine printed permanent manner. Include label under each controller, switch and circuit breaker on distribution boards. Include a warning notice if light dimmers are used in the installation. List the rating of each circuit.

### **WALL BOXES**

Flush mounted in cavity construction.

### **EXTRA LOW VOLTAGE LIGHTING**

Where remote transformers are used for ELV lamps, connect from transformer to lamp with minimum 2.5 mm<sup>2</sup> conductor, to ensure voltage drop in transformer and conductor does not exceed 0.8 volts. Connect lamps 50 watt or greater matched to no more than one per transformer, located as close as practicable to the lamp. Ensure transformers and rear of light fittings are adequately ventilated and clear of any thermal insulation.

### **COMPLETION**

Leave work operating correctly, with equipment clean and all lamps operational.

## **MANAGEMENT OF SITE SAFETY**

The main contractor to undertake best practice systems to manage health and site safety. Building supervisors are all site safe qualified. The contractors are inducted on our Health and Safety policy and also provide the main contractor with documentation on their Health and Safety Management systems and also fill out a health and safety questionnaire.

The main contractor (Noted on specifications cover sheet) undertakes to manage hazards by elimination, isolation or minimisation in that order.

There is a Hazard Register posted on site at all times and all sub trades and suppliers required to record any potential hazards introduced onto site.

Earthworks and trenching will generally be back filled on same day but if this is not possible, barriers will be erected to minimise hazard.

To ensure site is clear, work areas are to be kept clean and tidy with receptacles provided and areas allocated areas for waste and refuse.

Chemicals and paints will be stored in original containers in a secure and well ventilated place appropriate to the product.

Building materials stored on site will be stacked so they cannot fall or protrude dangerously.

Public visiting site are instructed to report to site foreman who will ensure public are provided with a high visibility vest which must be worn on site at all times. Site foreman to ensure public are detoured from hazardous areas.

Fencing to keep out unauthorised personnel. Under NZBC F5 – Construction and Demolition Hazards Clause 1.1.1, a 2.0 metre fence is required for protection of public.

### **Non-work Periods**

The main contractor and sub contractors have responsibility to ensure public is not endangered in any way and site is safe during non-work periods

All sites have sign posted at entry stating 'Authorised personnel access only and please report to site fore man.

Tools locked away at end of day.

## **EROSION AND SEDIMENT CONTROL PLAN**

The main contractor will use the relevant erosion and sediment control measures to meet the requirements for this site.

Provide protection for neighbouring sites from rubbish or sediment contamination.

### **EROSION CONTROL**

- Minimum existing vegetation and soil will be removed from the site.
- Sediment Control measures will be in place before earthworks begin.
- Earthworks will keep to a minimum.
- Stockpiles will be delivered as late as possible, located within the sediment control zone, and protected from runoff and covered where necessary.
- Trenching will where possible be done at one time for all services. Contractors will be requested to set out, dig, and backfill trenches in a such as way as to minimise erosion and runoff.
- Hard wastes will be placed in the bins provided by the Company.
- Clients will be encouraged to landscape and cover exposed soil on their site as soon as possible.

### **SEDIMENT AND RUN-OFF CONTROL**

- Upslope water will be diverted from the site where possible.
- Sediment controls will be placed at the bottom of the site to minimise runoff leaving the site. These may involve sediment fencing, supplemented with straw bales on steep areas.
- Existing vegetation will be used where possible to minimise runoff.
- Sump inlets will be protected from sediment runoff.
- Storm water down pipes will be connected as soon as practicable to the permanent Storm water system once the roof is laid.
- Contractors will be required to comply with these control measures.
- Wash down and wet trade runoff will be trapped and controlled on site
- Sediment control measures will be regularly inspected and maintained.

### **SITE ACCESS**

- Stabilised access from the road to the platform will be provided.
- A runoff diversion bund will be included in the site access way if required.
- Sediment on footpaths and roads will be removed as soon as practicable.