

# Board and Batten Weatherboard Cavity System

## Installation Specifications

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# Board and Batten Weatherboard Cavity System

## Installation Specifications

### 1.0 General Information

#### 1.1 Introduction

The Hermpac Board and Batten 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 vertically fixed Hermpac Board and Batten weatherboards and battens installed over ventilated cavity battens, flashings and accessories and is finished with a premium penetrating oil stain or paint finish to Hermpac 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 18-45mm drained cavity.

#### 1.2 BRANZ Appraisal

The Hermpac Board and Batten Cavity System has been appraised by BRANZ. Refer to Appraisal No. 828 (2015).

#### 1.3 Hermpac Board and Batten Weatherboards

Hermpac Board and Batten weatherboards are manufactured from Canadian Coastal Western Red Cedar. Selected Board and Batten weatherboard profiles are manufactured from Duralarch (oil/stain or paint finish) and Ashin-Dura (paint finish only).

The weatherboard profiles are in accordance with NZS 3617 and BRANZ Bulletin 411. The weatherboards are minimum 18.5mm thick and are available in a range of widths. The standard battens are minimum 65mm wide and minimum 18.5mm thick and also available in a range of sizes. Custom battens are also available.

Weatherboards and battens are supplied as a random length supply. Select lengths are outside of the general specification and available by special contract.

#### 1.4 Cavity Battens

The Board and Batten Cavity System uses 20, 40 or 45mm thick Vertibat timber cavity battens, or 18mm thick Cavibat polypropylene cavity battens to separate the weatherboards from the wall frame and form the cavity. The 20, 40 and 45 mm Vertibat batten and Cavibat batten are installed horizontally over noggs/dwangs to provide support for the weatherboards at fixings points. The 40 or 45mm thick Vertibat batten can be installed horizontally across the studs and the weatherboards are fixed into the batten only.

Vertibat cavity battens are 45 x 20mm (V1), 45 x 40mm (V3), 45 x 45mm (V5), 70 x 20mm (V2), 70 x 40mm (V4), 70 x 45mm (V6) thick Radiata pine treated to minimum Hazard Class H3.1. The top and bottom edges are bevelled with a slope. The front and back face of the batten is grooved with 20mm wide x 5mm deep rebates at 95mm centres. The grooves are offset on each face.

Refer to [www.cavibat.co.nz](http://www.cavibat.co.nz) and BRANZ Appraisal No. 524 (2012) for full specifications for the Cavibat Cavity Battens.

#### 1.5 Accessories

Accessories supplied by Hermpac for use with the Hermpac Board and Batten Cavity System include:

- Hermpac cover battens – HP201 (69 x 18mm) and HP202 (90 x 18mm).
- Hermpac cover batten fixings – 50 x 2.8mm silicon bronze, Grade 316 stainless steel annular grooved Hermpac Crown Head, Rose Head or Flat Head nails.
- Hermpac eaves moulding – HP32 (40 x 27mm), HP 33 (26 x 15mm) and HP7 (30 x 18mm) bevelled profile.
- Screw fixings for 40-45mm thick Vertibat cavity batten fixed to studs only – 12 gauge x 65-75mm long Grade 304 stainless steel screws. Minimum 25mm penetration into frame required.

- Nail fixings for weatherboards - selection options:
- For oil/stain finish for 18-20mm Cavibat or Vertibat battens fixed to noggs/dwangs) – silicon bronze or Grade 316 stainless steel annular grooved Hermpac Crown Head, Rose Head or Flat Head nails. Nail shank minimum 3.25mm diameter and length to allow 30mm minimum penetration of the wall frame.
- For CedarOne or paint finish for 18-20mm Cavibat or Vertibat battens fixed to noggs/dwangs – Grade 316 stainless steel annular grooved Hermpac Jolt Head nails. Nail shank must be minimum 3.25mm diameter and the length to allow 35mm minimum penetration of the wall frame.
- For oil/stain finish for 40-45mm Vertibat battens fixed to noggs/dwangs only – silicon bronze or Grade 316 stainless steel annular grooved Hermpac Crown Head, Rose Head or Flat Head nails. Nail shank must be minimum 3.25mm diameter and the length to allow 30mm minimum penetration of the wall frame
- For CedarOne or paint for 40-45mm Vertibat battens fixed to noggs/dwangs only – Grade 316 stainless steel annular grooved Hermpac Jolt Head nails. Nail shank must be minimum 3.25mm diameter and the length must allow 35mm minimum penetration of the wall frame
- For oil/stain for structurally fixed 40-45mm Vertibat battens fixed to studs only – ref: HC-SHIP40-410A – silicon bronze or Grade 316 stainless steel annular grooved Hermpac Crown Head, Rose Head or Flat Head nails. Nail shank must be minimum 2.8mm diameter and the length must allow 30mm minimum penetration of the Vertibat V3-V6 cavity batten.
- For CedarOne or paint for structurally fixed 40 or 45mm Vertibat battens fixed to studs only – ref: HC-SHIP40-411A – Grade 316 stainless steel annular grooved Hermpac Jolt Head nails. Nail shank must be minimum 3.25mm diameter and the length must allow 35mm minimum penetration of the Vertibat V3-V6 cavity batten.
- Hermpac aluminium flashings – widths to suit specified corners – 2.4m or 3.0m lengths.
- Hermpac aluminium Cavity Closure – 20mm or 40mm, 2.4m or 3.0m lengths.

#### 1.6 Handling and Storage

Hermpac Board and Batten weatherboards must be stacked flat and true, clear of the ground by a minimum of 150mm and supported on dry and clean timber bearers at maximum 900mm 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. Water must not be allowed to enter the stack.

### 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

The use of the Board and Batten Cavity System as an external vertically fixed wall cladding system for buildings within the following scope:

Stain finished weatherboards with crown/rose/flat head nails. Paint finished DuraLarch and Ashin-Dura weatherboards fixed with annular grooved jolt/crown/

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rose/flat head nails. Paint finished Western Red Cedar weatherboards fixed with annular grooved crown/rose/flat head nails:

- 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'.

Any stain or paint finished weatherboards, if fixed with annular grooved flat/crown/rose head nails only, 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 complying with the NZBC; and,
- situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5 kPa.

CedarOne or other paint finished Western Red Cedar weatherboards if fixed with annular grooved jolt head nails:

- 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 Medium when dwangs or structural Vertibat cavity battens are at maximum 480mm centres, and NZS 3604 Wind Zones up to, and including Very High when dwangs or structural Vertibat cavity battens are at maximum 400mm centres.

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.

Hermpac recommends that professional design advice is sought in these circumstances.

### 2.3 Building Regulations

The Hermpac Board and Batten Cavity System if designed, used and installed in accordance with the statements and conditions of this literature, 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 Board and Batten 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 35mm.

### 2.5 Structure & Framing

Timber wall framing behind the Hermpac Board and Batten 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 600mm centres. Where Vertibat or Cavibat cavity battens are fixed to noggs/dwangs, the noggs/dwangs must be fitted flush between the studs at maximum 480mm centres. Where 40-45mm thick Vertibat cavity battens are fixed to studs only, noggs/dwangs must be fitted flush between the studs at maximum 800mm centres.

**Note:** For CedarOne or painted cedar weatherboards fixed with annular grooved Grade 316 stainless steel Jolt Head nails, noggs/dwangs or structurally fixed Vertibat cavity battens must be at a maximum 480mm centres for NZS 3604 Wind Zones up to, and including Medium and at a maximum 400mm centres 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 Board and Batten 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 closure strip must be in accordance with NZBC Acceptable Solution E2/AS1 Paragraph 9.1.8.3. The closure strip must be manufactured from uPVC, aluminium or stainless steel, and be punched with 3-5mm holes or slots which provide a minimum ventilation opening area of 1000mm<sup>2</sup> per lineal metre of wall.

### 2.8 Wall Underlay

The Hermpac Board and Batten 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 Board and Batten Weatherboards

Hermpac Board and Batten weatherboards shall be fixed with an approximate 7mm vertical expansion gap

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between boards. Hermpac Board and Batten profiles are all manufactured in accordance with BRANZ Bulletin 411 and NZS 3617 (1979).

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

Pre-finished Board and Batten 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 and battens shall be fixed to nogs/dwangs or structurally fixed 40 or 45mm Vertibat cavity battens at 400mm to 480mm centres using Hermpac Board and Batten weatherboard and batten fixings (refer to Section 1.5 of this specification).

External corners shall be weatherproofed by the use of corrosion resistant corner flashings behind the weatherboards and corner facings, e.g. Hermpac proprietary cover batten profiles HP201 and HP202.

Internal corners shall be weatherproofed by the use of corrosion resistant internal corner flashings along with internal mouldings eg. HP41 or HP201 and HP202.

### 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 Board and Batten 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.

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

There are several options available for the installation of cavity battens as outlined below.

##### Vertibat Cavity Battens to Nogs/Dwangs

Vertibat cavity battens must be installed horizontally over the building underlay to the wall framing (nogs/dwangs) at 400-480mm maximum centres. The battens must be installed with the top edge sloping away from the wall underlay towards the back of the weatherboards. The cavity battens must be fixed in place with 40 x 2.5mm flat head hot-dipped galvanised nails or 50 x 2.8mm hot-dipped galvanised gun nails (for 20mm thick battens), or 60 x 2.8mm flat head hot-dipped galvanised nails or 60 x 2.8mm hot-dipped galvanised gun nails (for 40 or 45mm thick battens) to temporarily fix the battens in place prior to installation of the cladding.

##### Cavibat Cavity Battens to Nogs/Dwangs

The Cavibat cavity battens must be installed horizontally over the building underlay to the wall framing (nogs/dwangs)

at 400-480mm maximum centres. The cavity battens must be fixed in place with 40 x 2.5mm hot-dip galvanised flat head nails or galvanised or stainless steel finishing brads at 400mm centres. Refer to BRANZ Appraisal Number 524 (2012) for further information.

##### 40 or 45mm thick structurally fixed Vertibat Cavity Battens to Studs

40 or 45mm thick Vertibat cavity battens must be installed horizontally over the building underlay to the wall framing (studs) at maximum 400-480mm maximum centres. The battens must be installed with the top edge sloping away from the wall underlay towards the back of the weatherboards. The cavity battens must be fixed in place with one 12 gauge x 65mm long (for V3 or V4) or 12 gauge x 75mm long (for V5 or V6) Grade 316 stainless steel screw at each stud crossing (maximum 600mm centres). A 25mm minimum penetration of the framing is required.

#### 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 - 10mm 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 Board & Batten Weatherboard and Batten Installation

Hermpac Board and Batten weatherboards must not be wet prior to installation. Prior to installation, all faces and edges of the Hermpac Board and Batten 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.

Hermpac Board and Batten weatherboards must be installed starting at the corner of the wall section being clad. The first weatherboard must be installed plumb to assist with the installation of subsequent weatherboards. The weatherboards must overhang the bottom plate by a minimum of 50mm.

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.

Hermpac Board and Batten weatherboards and battens 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 and batten with one nail per board, in the centre of the board, at every cavity batten.

The fixing must be located in the centre of the weatherboard and batten, be located no closer than 32mm from the end of the board and batten, and must finish flush onto the surface of the weatherboard and batten, not into or below the surface.

For best practice use the Hermpac clinch nail (50x2.0mm) to restrain the edges of the weatherboard.

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

##### For oil/stain finished weatherboards:

Weatherboard fixing must be carried out using silicon bronze or Grade 316 stainless steel annular grooved Hermpac Crown Head, Rose Head or Flat Head nails.

- For 18mm Cavibat or 20, 40 or 45mm Vertibat fixed to nogs/dwangs, the nail shank must be minimum 3.25mm diameter and the length must allow minimum 30mm penetration of the wall frame.

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- For structurally fixed 40-45mm Vertibat battens fixed to studs only, the nail shank must be minimum 2.8mm diameter and the length must allow minimum 30mm penetration of the batten.

### For CedarOne and paint finished weatherboards:

Weatherboard fixing must be carried out using Grade 316 stainless steel annular grooved Hermpac Jolt Head nails.

Punch nails 2mm below the weatherboard surface, prime nail holes and fill prior to sanding and finishing.

- For 18mm Cavibat or 20, 40 or 45mm Vertibat fixed to nogs/dwangs, the nail shank must be minimum 3.25mm diameter and the length must allow minimum 35mm penetration of the wall frame.
- For structurally fixed 40-45mm Vertibat battens fixed to studs only, the nail shank must be minimum 3.25mm diameter and the length must allow minimum 35mm penetration of the batten.

### 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 Board and Batten weatherboards to protect the weatherboards and battens 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. Hermpac 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.

To ensure a top quality paint finish:

1. Any sharp edges should be removed to provide a radius to aid in uniform paint film coverage.
2. Use a premium alkyd oil or acrylic based primer to envelope prime all cut ends and bare timber surfaces twice.
3. Punch nail holes and prime promptly after punching.
4. Fill holes with a suitable filler and allow to dry.
5. When filler is fully dry and cured, sand area smooth.
6. Apply one coat of an alkyd oil or acrylic based primer to sanded area and allow to fully dry before sanding lightly.
7. Ensure surface is clean and free from any chalking, dirt, dust, mould or other contaminants prior to painting top coats.
8. Apply two coats of premium high quality 100% exterior grade acrylic to surface allowing adequate time for drying between coats.

Timber is a natural product and for best results use a colour with a LRV of 40-45 or above. Please consult with us for a specific recommendation minimum for your chosen timber.

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 Board and Batten 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 or at least 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 batten edges are well covered and penetrated with the stain.

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 Hermpac Board and Batten weatherboards must be carried out in well ventilated areas and dust masks, eye and hearing protection must be worn.



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