

# **CRAFTSTONE FCB FOR STONE AND BRICK SLIP INSTALLATION**

# Craftstone FCB Sheeting for stone and Brick-Slips

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# CRITERIA FOR A CRAFTSTONE APPROVED FCB

BRANZ Appraisal 793(2019) referring to the CRAFTSTONE REAL STONE VENEER SYSTEM, requires the use of a fibre cement sheet that complies with AS/NZS 2908.2 and that is approved for use by Petros Holdings Limited, owners of the Craftstone brand. All brands of FCB specified by Petros Holdings Limited are certified as AS/NZS 2908.2 compliant and are approved for use as a stone substrate by Petros Holdings Limited. The criteria we apply when approving a fibre cement board for use with our BRANZ Appraised system are as follows-

- A minimum faceload rating of 80kg/m<sup>2</sup>.
- Warranted by the supplier when installed with the rough side facing out.
- Certified as AS/NZS 2908.2 2000 compliant.
- 9mm thickness
- Ideally manufactured using flow-on technology or at least autoclaved with Hatchett Technology.

## GENERAL INFORMATION

### 1.0 Introduction

The following installation guide covers the use of Craftstone FCB as an internal/external substrate for stone & brick slip installations on residential and light commercial construction. Conditions of installation include:

- Installation over a minimum 18 mm cavity.
- Installation over studs at 400 mm maximum centres and nogs fitted flush between the studs at 800 mm maximum centres.
- Installation in all wind zones, up to and including (ULS) Extra-High
- Installations limited to medium weight stone & brick slips, i.e., under 80 kgs/psm

## DESIGN INFORMATION

### 2. Design Responsibility

Project Specifiers must ensure 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 outlined in this literature.

All design and construction must comply with the appropriate Clauses of the New Zealand Building Code (NZBC) and other applicable standards and regulations.

#### 2.1 Scope

This literature covers the use of the Craftstone FCB sheets when installed as an external wall cladding for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution 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/ASI, Table 2; and,
- situated in NZS 3604 Building Wind Zones up to, and including (ULS) Extra High, when the sheets are installed on timber buildings subject to specific design up to a differential design ultimate limit state wind pressure of 2.5 kPa.

The Craftstone FCB sheets must only be installed on vertical surfaces (except for tops of parapets, sills and balustrades, which must have a minimum 5° slope) and be waterproofed in accordance with the technical literature of the supplier or manufacturer of the finishing product.

## **2.2 Building Regulations**

If designed, used and installed in accordance with the statements and conditions of this literature, Craftstone FCB sheets will meet the following provisions of the New Zealand Building Code:

- Clause B2 Durability
- Clause E2 External Moisture
- Clause F1 Hazardous Building Materials

## **2.3 Ground Clearances**

The finished floor level must have a minimum clearance to paved or unprotected ground as required by NZBC Acceptable Solution E2/ASI 9.1.3

Craftstone FCB sheets must overhang the bottom plate on a concrete slab by a minimum of 50mm as required by NZBC Acceptable Solution E2/ASI, Table 18.

The bottom edge of the Craftstone FCB sheet must finish a minimum of 100 mm above paved surfaces or 175 mm above natural ground.

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

## **2.4 Craftstone FCB Sheets**

Craftstone FCB sheets are non-structural 9.0 mm thick autoclaved cellulose fibre-reinforced cement sheets manufactured in accordance with the requirements of **AS/NZS 2908.2:2000 (Cellulose-Cement Products, Part 2: Flat Sheets)** and NZBC Acceptable Solution E2/AS 1, Paragraph 9.7.2

Craftstone FCB sheets are classified Type A, Category 3, in accordance with AS/NZS 2908.2 'Cellulose Cement Products'.

Craftstone FCB sheets are manufactured from Portland cement, cellulose fibre, finely ground sand and water.

The sheets have square edges and are available in sizes of 1200 mm wide by 2400, 2700 and 3000 mm long.

For Material Safety Data Sheets (MSDS) contact Petros Holdings Limited.

## **2.5 Sheet Fixings**

Craftstone FCB sheets must be fixed through the cavity battens and spacers to the wall framing at maximum 150 mm centres around the sheet edges and maximum 150 mm vertical centres in the body of the sheet. The fixings must be positioned a minimum of 12mm from all sheet edges and a minimum of 50 mm vertically and 100 mm horizontally from sheet corner edges.

**\*Sheet fixings are to be CSK, 10G X 65 mm, S/S Screws, with square-drive head (T-17 cutting tip recommended).** These can be acquired from us directly.

Craftstone FCB must be installed with rough side facing outward to provide a better keying surface for adhesion

## **2.6 Durability**

Craftstone FCB sheets, when installed and maintained in accordance with this specification, will meet the durability requirements for claddings as required in the NZBC Approved Document B2 'Durability'.

Craftstone FCB has been subjected to tests for resistance to prolonged moisture exposure that could lead to premature system failure. The following tests have been conducted in accordance with the requirements of AS/NZS 2908.2:

- Water permeability (Clause 8.2.2)
- Frost resistance (Clause 8.2.3)
- Warm water (Clause 8.2.4)
- Heat-rain (Clause 6.5)
- Soak-dry (Clause 8.2.5)

## **2.7 Waterproofing**

Craftstone FCB sheets must be sealed and water-proofed prior to installation of the stone or brick slip finishes in accordance with the waterproofing requirements of Petros Holdings Limited using the Craftstone silane-siloxane penetrating sealer and not a membrane sealer.

All sheet joints, including external and internal corners, must be waterproofed with a mortar compatible flexible flashing tape.

## **2.8 Cavity Battens**

Craftstone FCB sheets must be installed on a cavity as required by NZBC Acceptable Solution 'E2/AS1 Table 2.

Cavity battens can be either:

- Timber (treated to Hazard Class H3.1), or;
- Composite material.

Timber battens to be nominal 50 mm wide x 20 mm thick (minimum finished size of 45

mm wide x 18 mm thick) and temporarily fixed with 40 x 2.5 mm hot-dip galvanised flat head nails at maximum 800 mm centres. When fixed to nogs or dwangs, typical timber battens (packers) must be maximum 100 mm long and tilted to minimum 5<sup>0</sup> angle.

Timber battens must be minimum H3.1 treated in accordance with NZS 3640 (Chemical preservation of rough and sawn timber) to comply with the durability requirements of B2/AS1.

\*Note: If a deeper cavity is required, i.e., over timber or masonry structures, the sheets can be direct fixed to a structural batten system. The battens are typically 40 mm - 45mm thick, treated to H3.1 minimum and fixed at 300 mm - 400 mm centres depending on design-specific engineering calculations based on the weight of the stone or brick-slips, and applicable wind zone. Batten fixings on timber studs are generally 75 mm x 3.15 mm flathead hot-dip galvanised nails, and for masonry structures the screw or plug lengths must accommodate the batten thickness as well as minimum 30 mm penetration into the masonry. This would allow the Craftstone FCB sheets to be direct fixed to the battens in accordance with the fixing requirements of Acceptable Solution E2/AS1 Clause 9.1.8.4.

## **2.9 Cavity Vent Strip**

The cavity must incorporate a cavity vent strip to close off the bottom of the cavity and prevent penetration of vermin. The vermin strip must be in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3, manufactured from PVC, aluminium, or stainless steel and be punched with 3 — 5 mm holes or slots to provide a minimum ventilation opening area of 1000 mm<sup>2</sup> per lineal wall metre. These are available from Petros Holdings Limited.

## **2.10 Structure & Framing**

Timber framing supporting the Craftstone FCB sheet must be timber-treated as required by NZS 3602:2003 'Timber and Wood-based Products for Use in Building'.

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. In all cases studs must be at 400 mm centres. Use of timber framing must be in accordance with the framing manufacturer's specification.

Timber wall framing behind cavity battens where sheets are joined must be a nominal 50 mm thickness (i.e. 45 mm minimum finished thickness)

In all cases studs must be at maximum 400 mm centres, with nogs fitted flush between the studs at maximum 800 mm centres.

## **2.11 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, Table 2.1.

## **2.12 Sheet Set Out**

Craftstone FCB sheets must be installed vertically. All vertical sheet edges must be supported and fixed through the cavity battens to the wall framing with a gap of 2 mm — 3 mm between sheets in the body of the wall. Horizontal sheet edges must be supported at fixing locations with cavity spacers in accordance with the requirements of NZBC Acceptable Solution

E2/AS1, Paragraph 9.1.8.2(f). At the base of the wall, the sheets must hang 50 mm below the supporting framing.

## **2.13 Building Wrap**

When installed over timber framing the Craftstone FCB sheet must be installed over a cavity fixed over building paper or wrap complying with NZBC Acceptable Solution E2/AS1, Table 23.

Unlined gables and walls must incorporate a rigid sheathing or an air barrier fixed to the framing, which meets the requirements of NZBC Acceptable Solution E2/AS1, Table 23. Where rigid sheathings are used, the fixing length must be increased by a minimum of the thickness of the sheathing.

## **2.14 Flexible Flashing Tape**

Flexible sill and jamb flashing tapes complying with NZBC Acceptable Solution E2/AS1 Paragraph 4.3.11, shall be used around window and door joinery and other wall penetration openings. The flexible flashing tape must be compatible with the selected building wrap.

## **2.15 Inter-storey Junctions**

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).

## **2.16 Control Joints**

Control joints for Craftstone FCB sheets must be provided as follows:

- Horizontal control joints — at maximum 5.4 m centres and at inter-story floor levels.
- Vertical control joints — at maximum 5.4 m centres; aligned with any control joint in the structural framing, or where the sheet abuts different cladding types.

(Note: Horizontal and vertical control joints must be located over structural supports. The technical literature provided by suppliers of stone and brick-slip systems will provide some guidance for the design of vertical control joints where the system abuts different cladding types, however, designers must detail junctions to meet their own requirements and the performance requirements of the NZBC.)

## **2.17 Control of External Fire Spread**

Craftstone FCB sheets are rated as 'Non-Combustible Material and suitable for use as an external cladding and comply with Performance C3.7 of the NZBC Clause C3 Fire Affecting Areas Beyond the Fire Source.

## **2.18 Handling and Storage**

Craftstone FCB sheets must be stacked flat, off the ground and supported on a level platform. They must be kept dry at all times either by storing under cover or by providing waterproof covers to the stack. Care must be taken to avoid damage to edges, ends and surfaces. Do not carry sheets on the flat; always carry in the vertical orientation to avoid excessive bending. Cavity battens and other accessories must be stored so they are kept clean, dry and undamaged.

# **3 INSTALLATION INFORMATION**

## **3.1 Sheet Installation**

This section of the literature should be read in conjunction with the installation details. The selected building wrap and flexible sill and jamb tape system must be installed in accordance with the manufacturer's instructions prior to the installation of the cavity battens. The building wrap must be installed horizontally and be continuous around corners. Wrap must be lapped 75 mm minimum at horizontal joints and 150 mm minimum over studs at vertical joints. Particular attention must be paid to the installation of the building wrap and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed timber wall framing in the opening is protected. All penetrations through the building wrap must be sealed and joints sealed or lapped 150 mm.

The selected cavity vent strip must be installed with the bottom of the vent strip flush with the underside of the cavity battens. *Note. A minimum 15 mm drip edge to the bottom of the Craftstone FCB sheet must be maintained at all times.* Cavity battens must be installed over the building wrap to the wall framing. The battens must be fixed in place with 40 x 2.5 mm hot-dip galvanised flat head nails.

## **3.2 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.

## **3.3 Craftstone FCB Sheet Installation**

Sheets must be dry prior to installation. Before fixing, the vertical and horizontal edges of the sheet must be sealed.



Prior to installation of the Craftstone FCB sheets, a check must be made to ensure all vertical sheet joints will be continually supported by framing. A check should also be made to ensure each sheet is installed plumb. Sheets must be fixed through the cavity battens and cavity spacers to the timber wall framing with S/S 10G X 65 mm CSK screws with square-drive heads fixed at 150 mm centres.

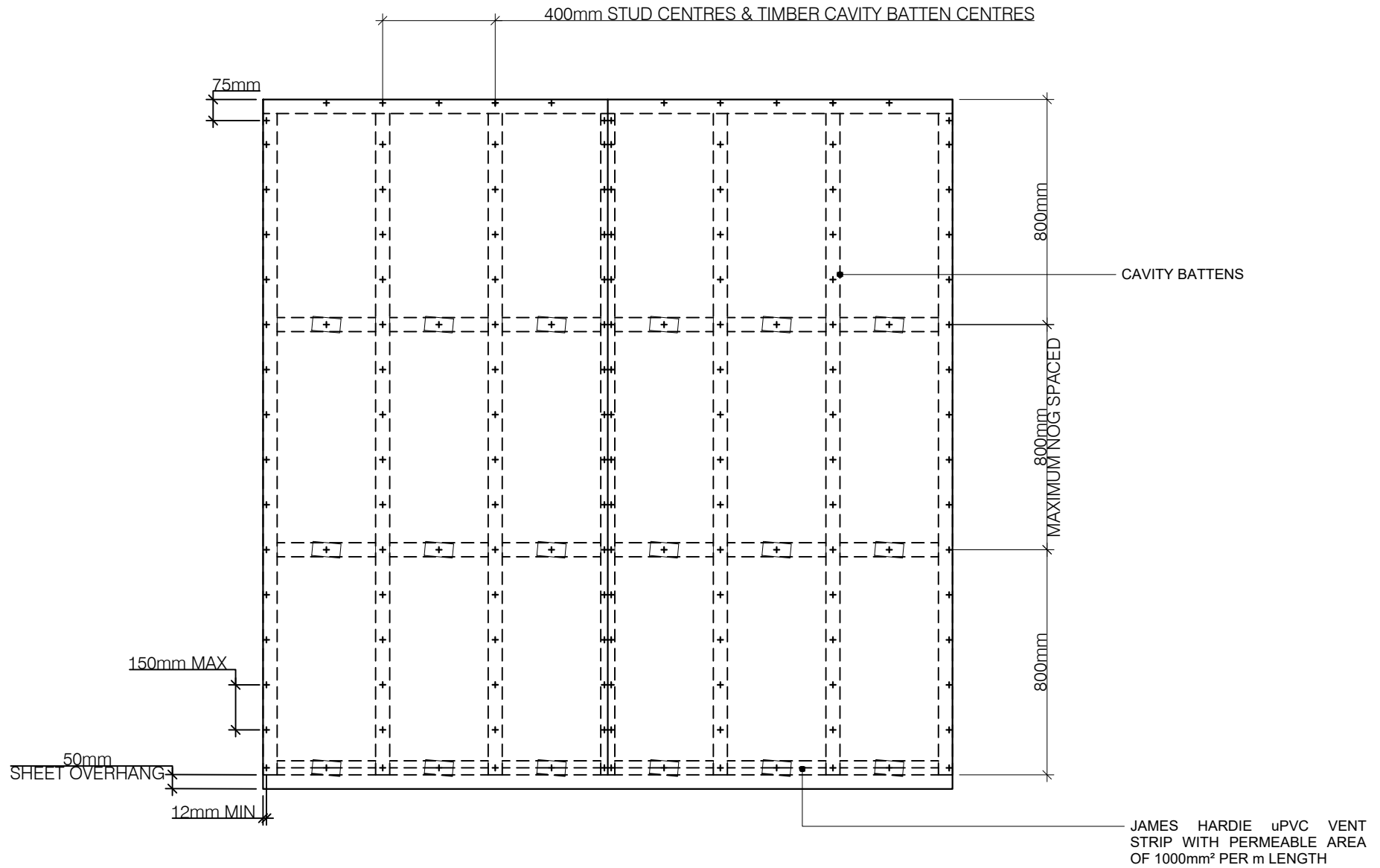
At inter-storey level, sheets must not be fixed to inter-storey joists or blocking. At horizontal joints, there must be a 15 mm gap between sheet edges to allow for shrinkage of the framing. This gap must be flashed with a horizontal control joint flashing to prevent moisture entry.

## **4 HEALTH & SAFETY**

Craftstone FCB sheets must be cut in well ventilated areas or by using scissor type FCB cutters. Breathing in fine silica dust over time, may cause bronchitis, silicosis and/or lung cancer. Protective clothing, eye protection (conforming to AS 1337), ear protection and respirators (P2 or P3) must be worn. Alternatively, vacuum assisted saws may be used.



# 9mm CRAFTSTONE FCB FRAMING & BATTEN LAYOUT



# 9mm CRAFTSTONE FCB FIXINGS PATTERN