

## Durasheet™

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### Cover photographs:

1. BGC Durabacker coated with Mineral Plaster Technology Limited - Liteclad Plaster System
2. Nuline 175mm Square
3. Nuline 175 Square and Eldorado Stone (fixed on BGC Stonesheet)

## Product Information

BGC fibre cement sheets are manufactured to conform to the requirements of NZS/AS2908.2 Cellulose-Cement Products and are classified as Type A Category 2 sheet for external use.

## Quality Systems

BGC Fibre Cement manufactures all products under the rigorous Quality Management System of the International Standard ISO 9002:1994 and is the holder of Licence Agreement number QEC2955/13.

## Fire Resistance

The early fire indices of BGC fibre cement sheets as tested by the CSIRO - Building, Construction and Engineering Division, (report number FNE7528) in accordance to Australian Standard AS1530.3 - 1989, are:-

- Ignitability Index 0
- Heat Evolved Index 0
- Spread of Flame Index 0
- Smoke Developed Index 0-1

## Handling and Storage

BGC fibre cement sheets must be stacked flat, up off the ground and supported on level bearers.

The sheets must be kept dry, preferably by being stored inside a building. When stored outdoors they must be protected from the weather.

Care should be taken to avoid damage to the ends, edges and surfaces.

Sheets must be dry prior to being fixed, jointed or coated. Sheets must be carried on edge.

## Health and Safety

BGC fibre cement is manufactured from New Zealand cellulose fibre, finely ground sand, Portland cement and additives. As manufactured the product will not release airborne dust, but during drilling, cutting and sanding operations, cellulose fibres, silica and calcium silicate dust may be released.

Breathing in fine silica dust is hazardous, prolonged exposure (usually over several years) may cause bronchitis, silicosis or cancer.

When cutting sheets, work in a well ventilated area and use the methods recommended in this literature to minimise dust generation. If using power tools wear an approved (P1 or P2) dust mask and safety glasses.

These precautions are not necessary when stacking, unloading or handling fibre cement products.

For further information or a Material Safety Data Sheet contact BGC Fibre Cement.

## New Zealand Building Code Compliance (NZBC)

BGC fibre cement sheets must be used, installed and maintained in accordance with this Technical Literature to meet the following provisions of the New Zealand Building Code (NZBC).

### Clause B1 Structure

BGC fibre cement sheets will meet performance B1.3.1, B1.3.2 and B1.3.4. Relevant information on the physical conditions pertaining to B1.3.3 is included in this literature.

### Bracing

BGC fibre cement sheets can be used to provide racking resistance to timber framed walls against wind and earthquake loads in accordance with NZBC, when applied directly to studs. Cavity battens and an additional fibre cement outer cladding is required.

### Clause B2 Durability

When used as an external substrate for an applied coating system BGC fibre cement will meet the following provisions of the NZBC.

- B2.3.1(a) - 50 years for structural (bracing) applications. Stainless steel fixings must be used for all bracing sheets.
- B2.3.2(b) - 15 years for general applications. Stainless steel fixings must be used in corrosive conditions such as geothermal hot spots or coastal zones (within 500m of the sea).

Coating systems, seals and flashings must be maintained to ensure moisture does not penetrate the cladding system and sheets and that fixings remain dry at all times.

The homeowner should follow the BRANZ Homeowner's Manual to maintain their dwelling. This manual provides a recommended maintenance check list.

BGC fibre cement is expected to have the service life of at least 50 years.

### Clause E2 External Moisture

BGC fibre cement when used in conjunction with an external applied finishing system (jointing and coating) that meets NZBC B2, E2 and F2, will meet performance E2.3.2.

Head flashings and sill trays must be used at all joinery penetrations, and jambs must be sealed as per the relevant instructions in Acceptable Solution E2/AS1 third edition.

### Clause F2 Hazardous Building Materials

BGC fibre cement is not considered a health hazard to people and therefore meet the performance F2.3.1.

### Sheet Cutting and Preparation

BGC fibre cement sheets may be cut to size on site. If using power tools for cutting, drilling or sanding they must be fitted with appropriate dust collection devices or alternatively an approved (P1 or P2) dust mask shall be worn.

It is recommended that work always be carried out in a well-ventilated location. If a cut edge is to be flush-joined it must be prepared with a recessed edge.

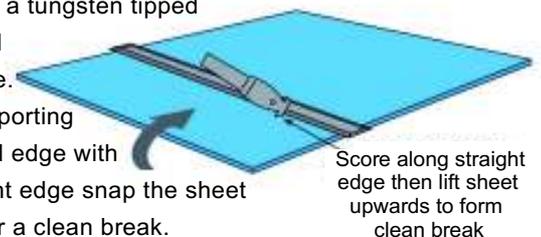
### Cutting

The most suitable cutting methods are:

#### ■ Score and snap

Using a straight edge, score the sheet face 4 or 5 times with a tungsten tipped 'score and snap' knife.

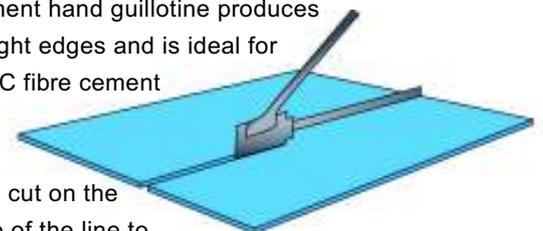
While supporting the scored edge with the straight edge snap the sheet upward for a clean break.



#### ■ Hand Guillotine

A fibre cement hand guillotine produces clean straight edges and is ideal for cutting BGC fibre cement sheets.

Make the guillotining cut on the off-cut side of the line to allow for the blade thickness.



#### ■ Notching

Notches can be made by cutting two sides of the notch with a hand saw or guillotine. Score along the third side with a 'score and snap' knife, then snap upwards while supporting the scored edge to remove the notch.

## ■ Hand Sawing

Hand sawing is suitable for general cutting operations, small cuts, notches and small penetrations.

For accuracy and neatness, mark out the cut lines on



the face side of the sheet prior to sawing.

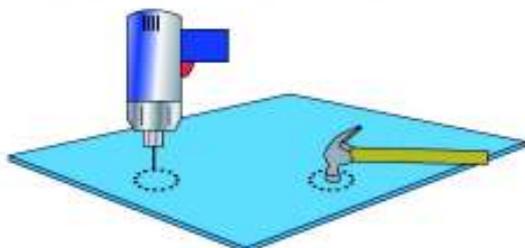
When sawing, the back of the sheet should be

supported close to the cut. A fine toothed saw can be used. A quick jabbing action gives best results.

## Holes and Penetrations

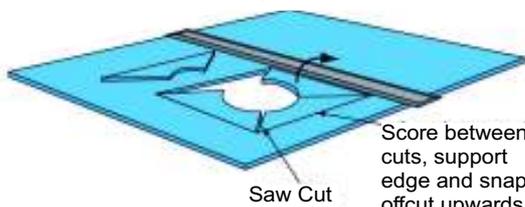
### ■ Drilling

BGC fibre cement sheets can be drilled using normal high-speed drill bits, do not use the drill's hammer function.



Small rectangular or circular penetrations can be made by drilling a series of small holes around the perimeter of

the cut out, then tapping out the waste piece from the sheet face. Tap carefully with a hammer while supporting the underside of the opening to avoid damage. Clean up any rough edges with a rasp if necessary.



Large rectangular openings such as for air conditioners, are formed by deeply scoring

the perimeter of the opening with a 'score and snap' knife. Next form a hole in the centre of the opening (see method above) then saw cut from the hole to the corners of the opening.

Finally snap out the four triangular segments to form the opening. Clean rough edges with a rasp if necessary.

## Fixing Instructions

BGC fibre cement sheets must be dry before fixing to the framing structure. Sheet edges must be joined over a stud or continuous line of nogging. Sheet cuts, which are to be flush jointed, must be recessed on site. The Hitachi 'Easy Bevel' (Model EBCOMBO) is specifically designed for this purpose.

## Framing

- Framing must be constructed to comply with the New Zealand Building Code (NZBC). Compliance with the NZBC can be met by timber framing designed and constructed in accordance with NZS 3604 for non-specific design, or in accordance with NZS 3603 and NZS 4203/4251 for specific design.
- The framing must be set to a true plane to ensure a straight finish to the wall.
- The moisture content of timber framing must be less than 16% when the cladding sheets are fixed. If sheets are fixed to 'wet' framing problems may occur at a later date due to excessive timber shrinkage. It is strongly recommended that kiln dried framing is used.
- Timber framing, for sheet joints, must have a minimum face width of 45 mm (nominal 50 mm).
- Intermediate studs with a minimum face width of 35 mm (nominal 40 mm) may be used.
- Studs must be spaced at maximum 600 mm centres. Noggings need to align with sheet joints when used for horizontal fixing. BGC fibre cement sheets must not be joined off the framing.

## Control Joints

Refer to Acceptable Solution E2/AS1 Third edition, Clause 9.7.4.2. Figures 103-113 and Table 19.

## Fixings

Refer to Acceptable Solution E2/AS1 Third edition, Table 24

## Impact Resistance

BGC Fibre Cement has good resistance to hard and soft body impacts likely to occur in residential and light commercial use. When used in commercial or industrial situations, or other high impact situations, the designer should consider protection measures such as the installation of barriers or bollards to vulnerable areas.

## Wind Face Loads

BGC Fibre Cement sheets may be used in all Building Wind Zones of NZS 3604, including Very High.

## Sheet Layout

BGC fibre cement sheets must be joined over a stud or continuous line of noggings. Leave a 2-3 mm gap for vertical joints and 1-2 mm gap for horizontal joints.

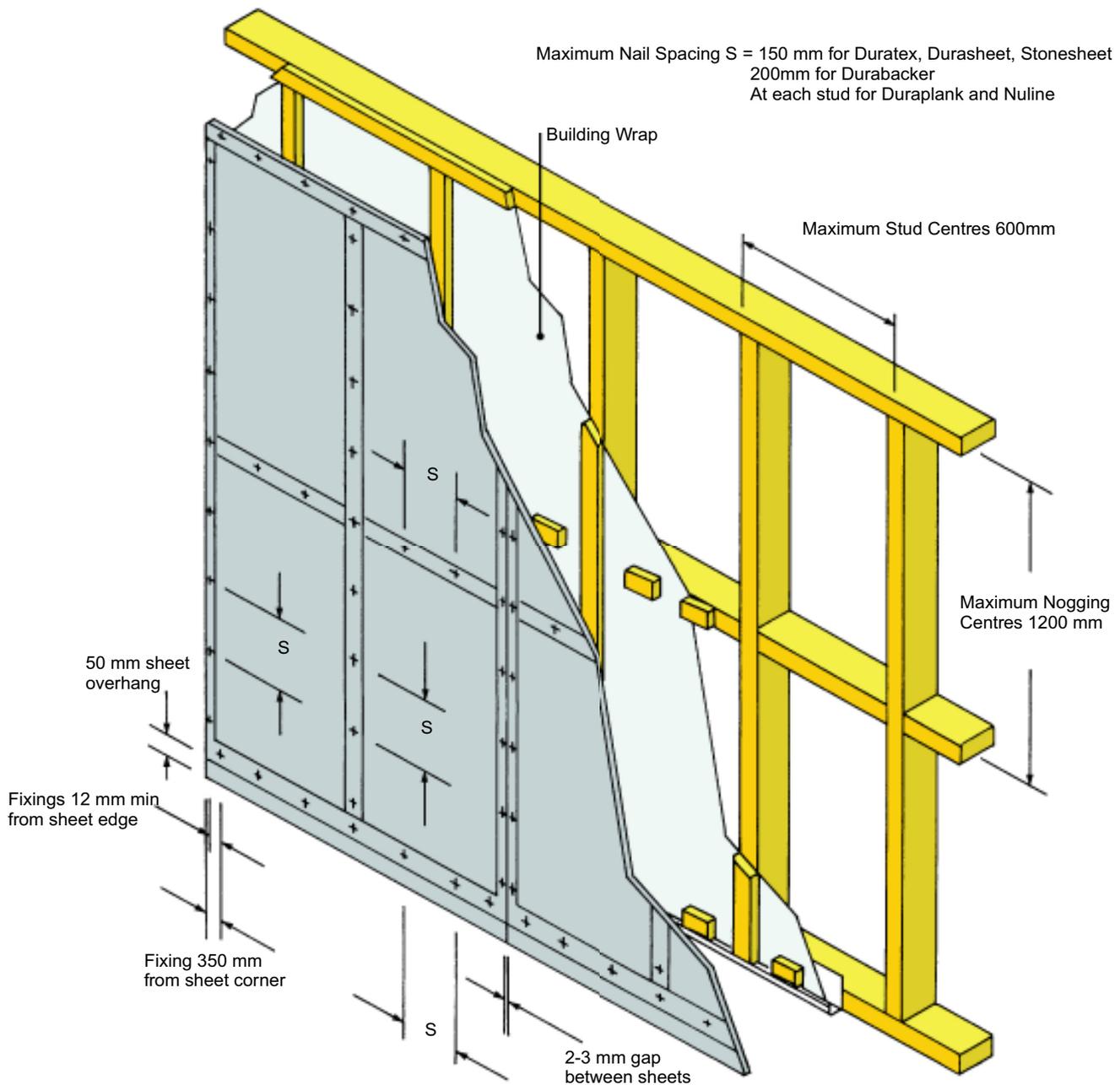
### Do not butt sheets tightly together.

Horizontal fixing of sheets is permissible. When fixing more than one sheet high vertical joints must be offset (staggered).

## General

The selected joint and coating system complying with NZS 4251 must be applied to dry, clean sheets only. Application must be completed within 3 months of the sheets being fixed on site.

It is strongly recommended that dark colours be avoided “and colour with a minimum Light Reflective Value (LRV) of 40% be used” as “dark colours” may cause high temperature variations within the substrate leading to excessive thermal movement.



## Product Description

BGC Stonesheet™ is a purpose designed fibre cement sheet for external applications. It is recommended as a stone slip substrate and background for true masonry on timber framed buildings.

Stonesheet™ is a smooth flat square-edged sheet and is manufactured in nominal thickness of 6.0 mm, 7.5 mm and 9.0 mm.

## Mass

The approximate weight of Stonesheet™ at equilibrium moisture content (7% moisture) is as tabulated.

Nominal Thickness	Approx. Weight (kg/m <sup>2</sup> )
6.0	9.5
7.5	11.8
9.0	14.27

## Sheet Sizes

Durasheet™ is available in the following sizes:

Thickness (mm)	Length (mm)	Width (mm)
6.0	3000	1200
7.5	3000	1200
9.0	3000	1200

## Framing

Refer to page 4.

## Fixing Guide

Slip Weight	Wall Height	Stonesheet Type	Extra Requirements
20 - 40 kg m <sup>2</sup>	Up to 2.7m	6.0mm	None - as per E2/AS1 See Note 1 See Note 1
	2.7 to 4m	6.0mm	
	Above 4m	7.5mm	
40 - 50 kg m <sup>2</sup>	Up to 2.7m	6.0mm	See Note 1 See Note 1 Sheet Screw Fixed - see note 2
	2.7 to 4m	7.5mm	
	Above 4m	7.5mm	
50 - 60 kg m <sup>2</sup>	Up to 2.7m	7.5mm	Sheet Screw Fixed - see note 2
	2.7 to 4m	7.5mm	
	Above 4m	9.0mm	

Note 2. Replace nails with screws and washers as per type below.

Screw Type - MSL Fortress Fasteners 10g x 65mm  
Surefast Stainless Steel Screws

Washer Type - MSL Fortress Fasteners - m6 x 19mm x 1.6mm Stainless Steel Washer

Acceptable Solution E2/AS1 fixing requirements - table 24 - 60 x 3.15 Fibre Cement nail - 150mm centres to sides and 300mm Centres in middle.

## Sheet Layout

Refer to page 5 and jointing to Acceptable Solution E2/AS1, vertical sealant joints for fibre cement sheets figure 106

Horizontal fixing of sheets is permissible when height does not exceed 1200mm.

Refer to Acceptable Solution E2/AS horizontal joints for fibre cement sheets on cavity figure 108.

**Do not butt sheets tightly together.**

For further details regarding Stonesheet™, please contact B.G.C.

Note: Stonesheet™ is a non-structural substrate. B.C. does not accept any responsibility for the selection and design of mechanical fixings and adhesives used. Installation instructions and recommended kg/m<sup>2</sup> are supplied as a guide only (BGC Stonesheet™ Fixing Guide 1 June 2007).

Refer to your Stone veneer supplier for details of mechanical and adhesive fixing requirements.

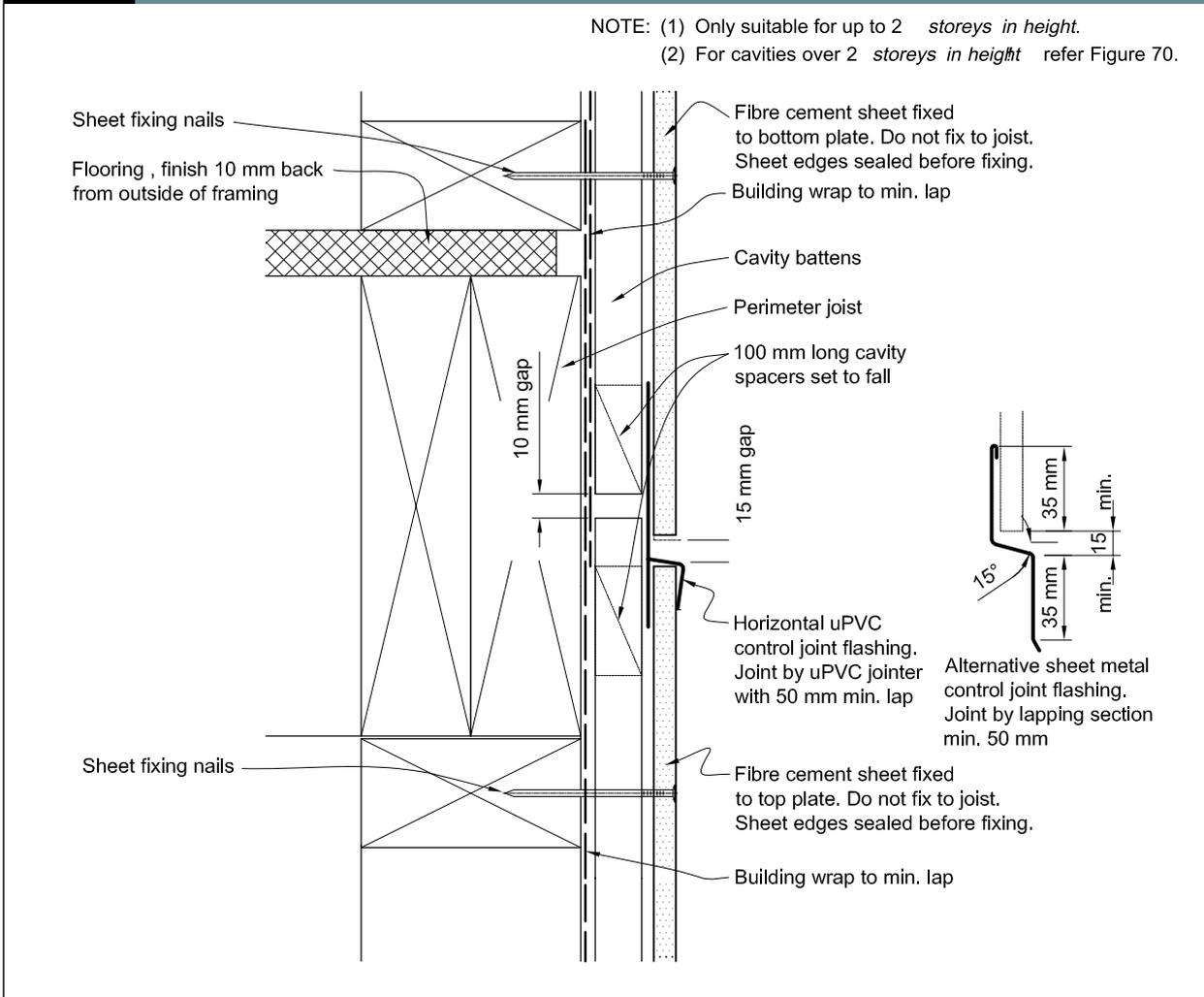
← Use this table for Eldorado Stone

Note 1. Fixing as per Acceptable Solution E2/AS1 plus replace nails on second nog line with screws and washers as per type below at 150mm centres

# New Zealand Building Code

## E2 External Moisture

**Figure 108:** Horizontal joints for fibre cement sheet on cavity  
Paragraph 9.7.4.2 c)

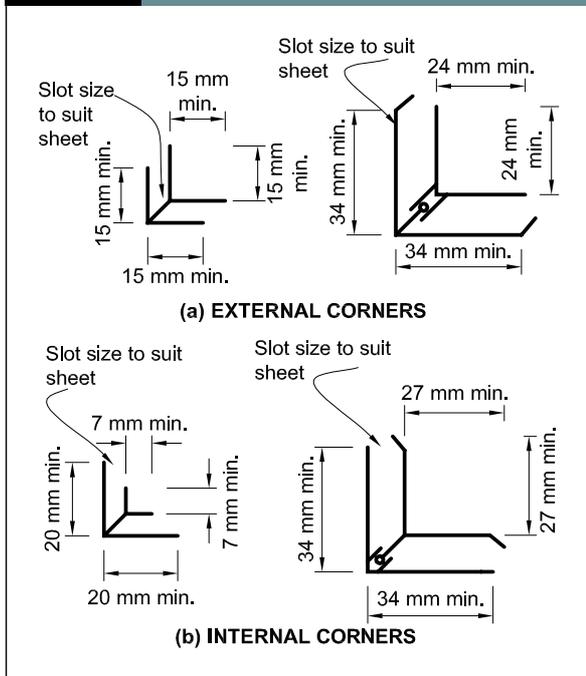


Detail drawings have been taken from;

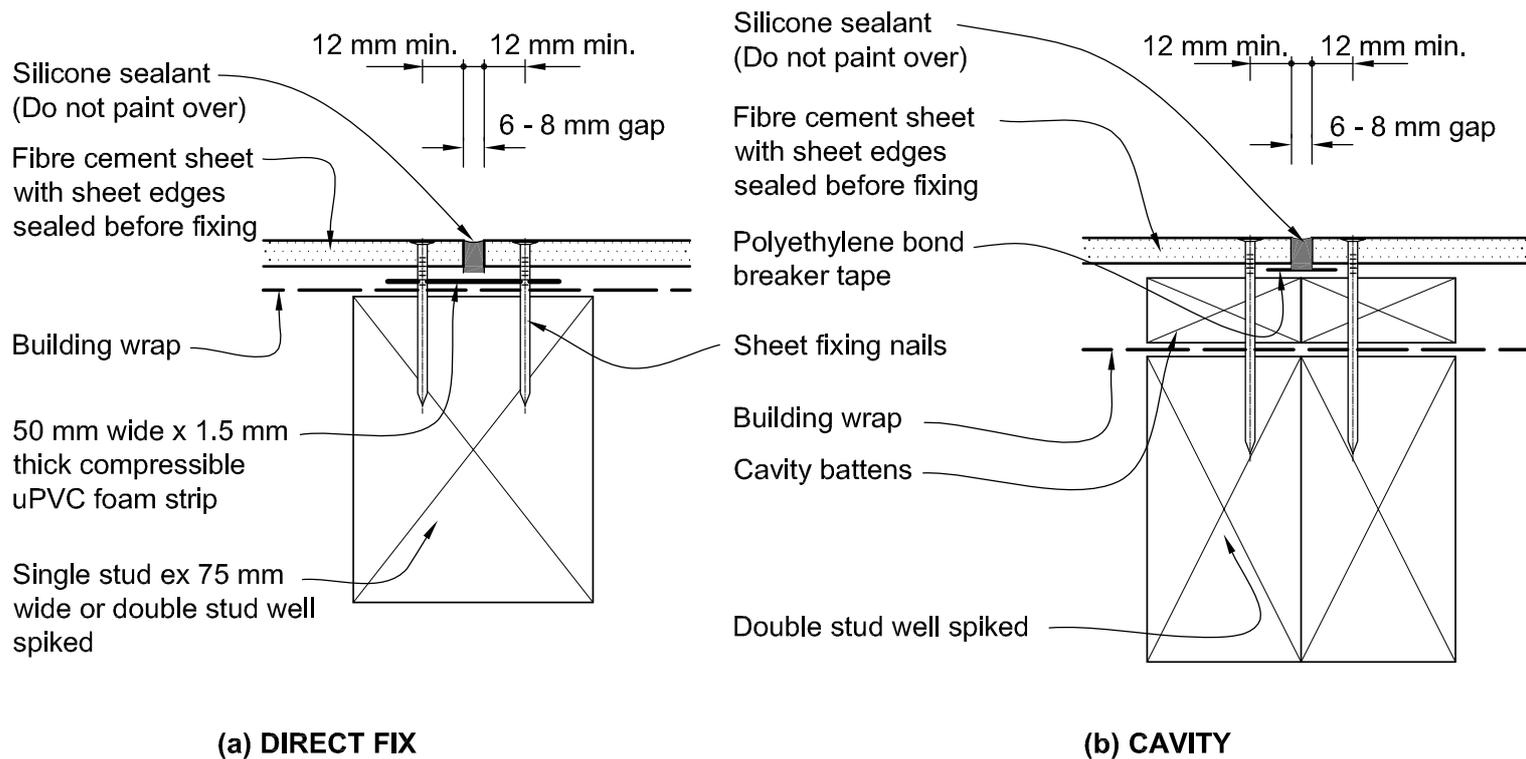
Department of Building and Housing#Compliance  
 Document for New Zealand Building Code, Clause E2  
 External Moisture \$

<http://www.dbh.govt.nz/building-code-compliance-documents#free-download>

**Figure 109:** uPVC corners for fibre cement  
Paragraphs 9.7.5.1 a) and b)



**Figure 106:** Vertical sealant joints for fibre cement sheet  
Paragraph 9.7.4.2 a)



**Figure 104:** Vertical uPVC joints for fibre cement sheet  
Paragraph 9.7.4.2 a)

