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Warranty

BGC warrants its products to be free from defects caused by faulty manufacture or materials. If any of its products are so defective the Company will at its option, repair or replace them, supply equivalent replacement products or reimburse the purchase price.

This warranty shall not apply to any loss or consequential loss suffered through or resulting from defects caused by faulty manufacture or materials.

Fittings or accessories supplied by third parties is beyond the control of BGC and as such is not warranted by BGC.

ISO 9002
QEC 2955/13

PP1204

Build it better with BGC

Compressed Fibre Cement Sheeting

For Wet Area Floors & Decking

Build it better with BGC

BGC (Australia) Pty Ltd

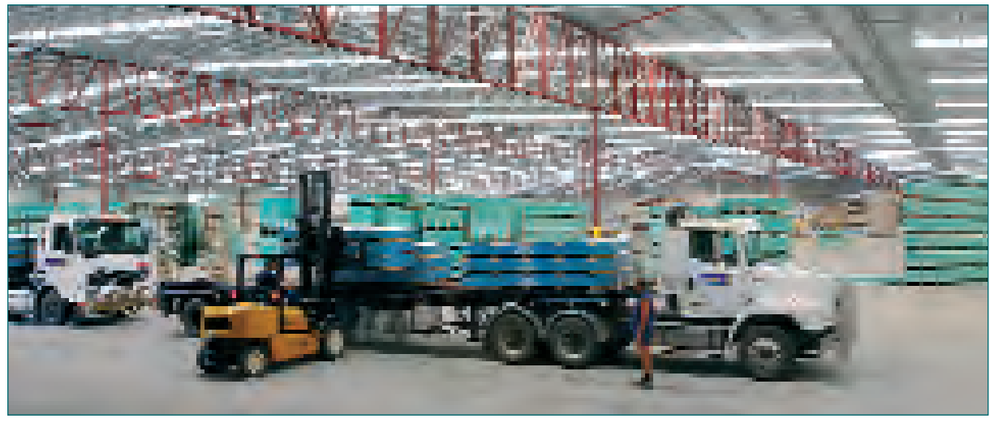
BGC (Buckeridge Group of Companies), has developed into a diversified industrial group with an annual turnover that makes it one of Australia's largest, privately - owned companies.

Its wide range of operations includes manufacturing, residential and commercial building, property ownership and management, contract mining, bulk haulage, quarrying and insurance. It is the largest residential building company in Western Australia, and one of the biggest in the nation.

A decentralised management structure allows each of the autonomous business units the flexibility to make individual business decisions, along with the knowledge and backing of sound corporate experience.

The West Australian - based group has operations in each of Australia's mainland states with an international reach that extends to New Zealand and South East Asia. BGC is also exporting its products to growing markets in both Singapore and Hong Kong.

BGC stands by its quality, commitment and capacity to provide outstanding results for any building activity.



Sheet Layout

The visual impact of control joints should be considered when laying out the BGC Compressed Fibre Cement sheeting.

Checking the tile size and taking this into account before setting out the framing will reduce the tile cutting and wastage.

Low Level Deck

This system is suitable for low-level decks including above ground pool surrounds.

Timber framing must be protected from rot by installing flashing over all members. Good under deck ventilation is also necessary.

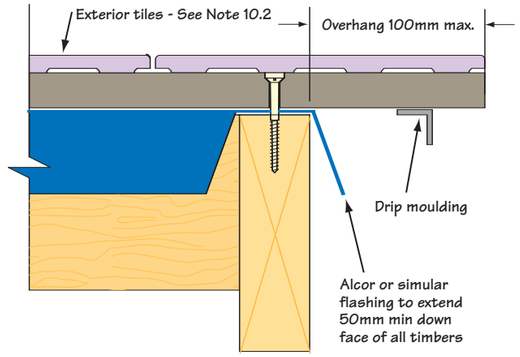
Steel framing does not require flashing although good ventilation is still recommended.

Figure 10 - External Decking Low Level

Joint Detail

Note 10.1

Control joints must coincide with all joints in the BGC Compressed Fibre Cement sheeting.



Edge Detail

Note 10.2

Tiles or other applied finishes must be suitable for exterior use.

Follow the manufactures installation instructions.

BGC Fibre Cement

As a division of the Buckeridge Group of Companies, the BGC Fibre Cement operation is situated in Perth, Western Australia and forms an integral part of the groups impressive manufacturing complex.

The company relentlessly pursues excellence in all its manufacturing processes, which ultimately provides customers with products of superior quality.

Through constant dedication to quality, BGC Fibre Cement has established a reputation for both product and service.

Raised Decks: Habitable Area Below

This system utilises a proprietary membrane fixed over the BGC Compressed Fibre Cement sheeting to provide waterproofing. A slip-sheet and reinforced mortar bed is installed above the membrane. Finally the tiling or a similar surface finish is installed on top of the mortar bed.

The slip-sheet and mortar bed isolate the tiling from any movement in the framing and BGC Compressed Fibre Cement sheeting. Control joint requirements for the tiling are therefore independent of the sheet layout.

The membrane must be installed to the supplier's specifications.

Sheet Membrane

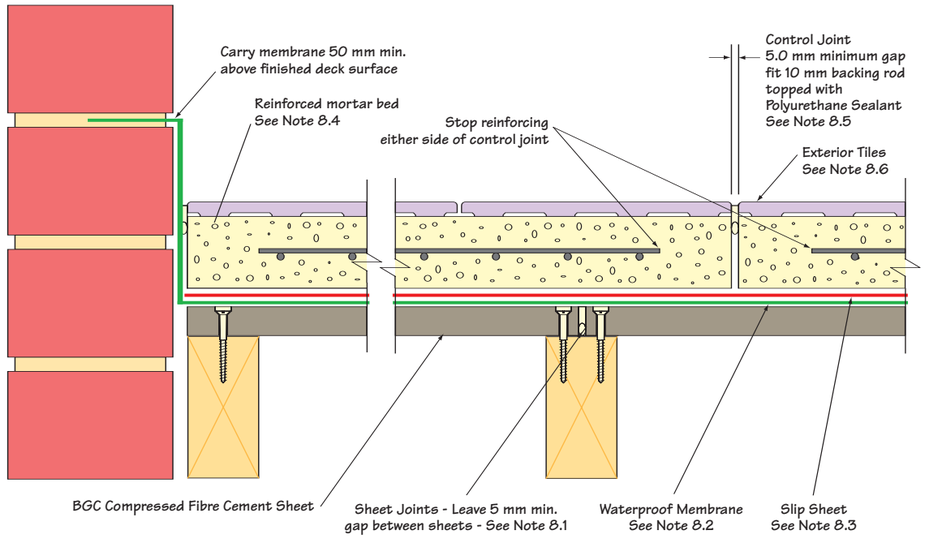
A sheet membrane should be used if the deck width exceeds 3 metres.

A movement control joint is required in the tiling whenever a continuous run exceeds 4.5 metres. Figure 8

Slip Sheet

The slip-sheet typically consists of two layers, a sheet of 330 g/m2 geotextile fabric followed by a sheet of thick plastic sheeting such as Fortecon or equivalent.

Figure 8 - External Deck (Typical) Habitable Area Below



Note 8.1 *BGC Compressed Fibre Cement sheet joint details, see Figure 1.*

Note 8.2 *A waterproof membrane must be applied over the BGC Compressed Fibre Cement sheets and extend up any adjacent walls to 50mm above the finished level of the deck or a sheet membrane such as Bitkoat No.3 or Duraseal.*

The waterproof membrane must be installed in accordance with the supplier's recommendations.

Note 8.3 *A slip-sheet is placed over the BGC Compressed Fibre Cement sheets to allow the mortar bed and tiling to move independently.*

Plastic sheetings such as Polyfill Fortecon or builders film is ideal.

Note 8.4 *A reinforced mortar bed (minimum thickness 25mm) is placed over the slip-sheet.*

Typically reinforcing should be 75 x 25 x 2.5mm galvanised weld mesh or equivalent.

The mortar bed must be allowed to cure before tilling or applying other finishes

Note 8.5 *Control joints are required in the mortar bed and tiles whenever a continuous run exceeds 4.5m.*

These joints need not coincide with joints in the BGC Compressed Fibre Cement sheets.

Note 8.6 *Tiles or other applied finishes must be suitable for exterior use.*

Follow the manufactures installation instructions.

CONTENTS

Product Description

BGC Compressed Fibre Cement sheeting is a high density fibre cement sheet ideally suited as the substrate for floors in wet areas of framed constructions; including upper stories and transportable buildings.

It is equally suited for use in the cladding of external decks.

Product Information

BGC Compressed Fibre Cement sheeting is manufactured from Portland cement, finely ground silica, cellulose fibres and water. After forming it is compressed to a high density then cured in a high-pressure steam autoclave to create a durable, dimensionally stable product.

BGC Compressed Fibre Cement sheeting is immune to permanent damage from water. It is impact resistant, immune to termite attack, non combustible and easy to work.

BGC Compressed Fibre Cement sheeting is manufactured to conform to the requirements of AS2908.2000 Cellulose Cement Products, and is classified as Type A Category 5 for external use.

Mass

Based on Equilibrium Moisture content the approximate mass of BGC Compressed Fibre Cement sheeting is:

Sheet Thickness (mm)	Approx. Mass (kg/m²)
15	28
18	33

Sheet Properties

Property	at EMC*
Density	1700 kg/m³
Modulus of Elasticity	10 GPa
Flexural Strength (characteristic)	
Parallel to sheet length	
- ultimate	25 MPa
- yield	20 MPa
Parallel to sheet width	
- ultimate	20 MPa
- yield	16 MPa
Thermal Expansion	
Co-Efficient	10 x 10^{-6}/k^{0} (est. average)
Mositure Movement	
- from EMC* to saturated	Approx. 700 Microstrains (expansion)
- from 30 to 90% RH	Approx. 500 Microstrains (expansion)

NOTE: The environmental conditions for *Equilibrium Moisture Content (EMC) values is nominally 23°C and 50% relative humidity.

Sheet Tolerances

Width	+0/-1 mm
Length	+0/-2 mm
Thickness	+10%/-0%
Diagonals difference (max)	2 mm
Edge straightness deviation (max)	1 mm

Sheet Sizes

Thickness (mm)	Length (mm)	Width (mm)	
		900	1200
15.0	1500	✓	✓
	1800	✓	✓
	2100	✓	✓
	2400	✓	✓
	2700	✓	✓
	3000	✓	✓
18.0	1500	✓	✓
	1800	✓	✓
	2100		✓
	2400	✓	✓
	3000	✓	✓

Fire Resistance

Under the Building Code of Australia BGC Compressed Fibre Cement sheeting is deemed to be non-combustible.

When tested in accordance with Australian Standard AS 1530.3 – 1989 the Early Fire Hazard Indices are as follows:

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

Handling and Storage

BGC Compressed Fibre Cement sheeting must be stacked flat, up off the ground and supported on equally spaced level bearers.

BGC Compressed Fibre Cement sheeting must be kept dry, preferably by being stored inside a building. When stored outdoors it must be protected from the weather.

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

BGC Compressed Fibre Cement sheeting must be dry prior to fixing, jointing or finishing.

Quality Systems

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

Cutting and Drilling

BGC Compressed Fibre Cement sheeting can be cut to size on site.

Because of the high density of BGC Compressed Fibre Cement sheeting either Tungsten Carbide or Diamond tipped tools are generally required.

Cutting

For straight cuts BGC recommend the use of a wet saw or a diamond blade dry saw, with a full dust extraction system.

Holes

For small holes a well-sharpened tungsten carbide masonry drill is recommended. Use a slow drill speed.

Do not use the drills hammer function.

For larger circular holes such as waste holes a tungsten carbide or diamond tipped hole saw is recommended.

Alternatively drill a series of small holes around the perimeter of the cut out, and then gently tap out the waste piece while supporting the underside of the opening to avoid damage. Clean up any rough edges with a rasp.

Health and Safety

BGC Compressed Fibre Cement sheeting is manufactured from 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.

Avoid inhaling dust

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 for cutting drilling or sanding they must be fitted with appropriate dust collection devices or alternatively use an approved (P1 or P2) dust mask and wear 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 the nearest BGC Sales Office.

Figure 6 - Preformed Shower Base Detail

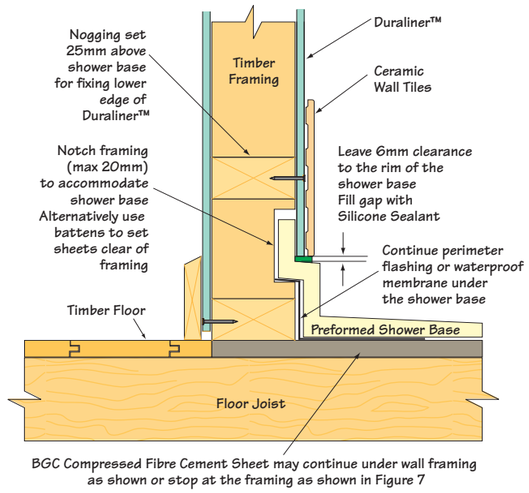
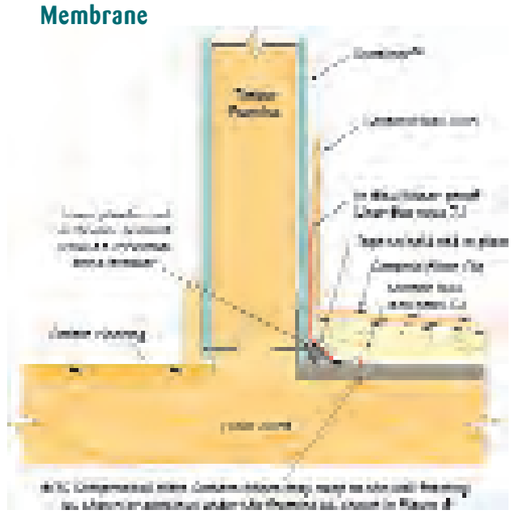


Figure 7 - Detail Using Waterproof Membrane



Note 7.1

The waterproof lining must extend 150mm min up the walls or 25mm above any hobs (whichever is greatest).

Note 7.2

Lay a mortar bed (screed) over the BGC Compressed Fibre Cement flooring to produce a 1:60 fall to the waste drain.

Internal Tiled Floors

In areas where floor waste drains are not required, for example kitchens, ceramic floor tiles may be fixed directly to the BGC Compressed Fibre Cement sheeting.

BGC Compressed Fibre Cement sheeting should be laid across the floor joists and the joints sealed using HydrEpoxy 501, Hydraband 501 or similar.

Thoroughly clean the edges to be joined using a wire brush. Butter the edge of the fixed sheet with the epoxy resin then slide the next sheet into position ensuring an adequate film of adhesive fills the joint.

Do not fix adjacent sheets and then attempt to fill the joint in situ.

Expansion control joints are required when a continuous run of flooring exceeds 4.5 metres, at changes of direction, and at openings such a doorways. Control joints must continue through the BGC Compressed Fibre Cement sheeting and the tiling as shown in Figures 8 & 10.

External Decking

BGC Compressed Fibre Cement sheeting can be used as the substrate for a variety of external decking applications such as above ground pool surrounds, verandas and sun decks.

The basic requirements of three systems are covered in this brochure.

General Requirements

All decks shall have a fall of at least 1:100 to an outside edge. The use of internal sumps in decking is not recommended.

A step down, of at least 50mm should be provided at any doorways onto the deck.

Framing is required to support all sheet edges. The exception being the outer edge of decks with a drip mould is installed – see Figure 9.

A minimum gap of 5mm is required between sheets. A 10mm foam-backing rod is placed in the gap, which is then sealed with a polyurethane sealant.

This gap needs to be taken into account when setting out the framing. For example for 1200mm wide sheets at a nominal 600mm framing centres the actual framing centres will be:

1205 / 2 = 602.5mm. (round to 603mm and leave 6mm gap between sheets)

Shower Recesses

Particular attention is required to the sealing of shower alcoves or recesses.

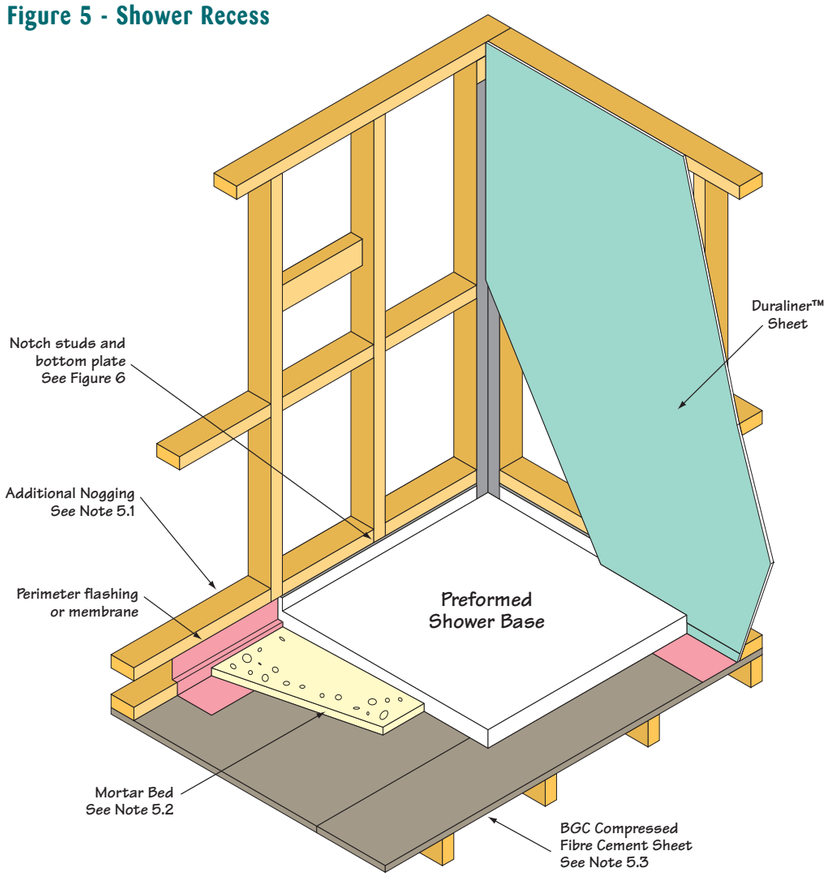
As with all wet area applications strict adherence to the Building Code of Australia, AS 3740-2004 and local building regulations is essential.

Two basic systems are presented to illustrate the general principals involved.

Figures 5 & 6 depict a preformed plastic shower base.

Figure 7 depicts a waterproof membrane, which may be either preformed or in situ.

Figure 5 - Shower Recess



Note 5.1

A nogging is required 25mm above the top of the shower tray to nail the Duraliner™ sheet to without penetrating the perimeter flashing.

Note 5.2

Lay a mortar bed over the BGC Compressed Fibre Cement flooring to produce a 1:60 fall away from the shower base toward the waste drain.

Note 5.3

The BGC Compressed Fibre Cement sheets is to be laid across the floor joists as shown.

All sheet joints must be sealed with HydrEpoxy 501, Hydraband 501 or equivalent.

Framing

Timber or hot dipped galvanised steel joists are suitable framing member for BGC Compressed Fibre Cement Floor Sheeting.

For external application the joist face width must be no less than 45 mm min. For internal applications joist and trimmer face width must be no less than 38 mm min. Joists must be spaced at 450 mm max. for 15 mm thick sheets and 600 mm max for 18 mm thick sheets.

Fixing

Lay the sheets with long edges across the joists, with the ends of sheet supported on the centre line of the joist, as shown in Figure 2.

For internal applications the BGC Compressed Fibre Cement sheets should be bonded together using HydrEpoxy 501, Hydraband 501 or equivalent. (See Figure 1).

For external decking applications leave a 5 mm gap between sheets to allow for movement. Insert a 10 mm backing rod into the gap and seal with a Polyurethane flexible sealant. (See Figure 1).

Figure 1

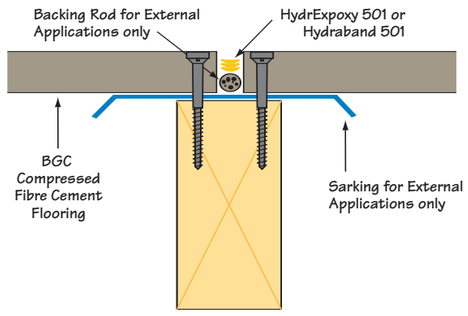
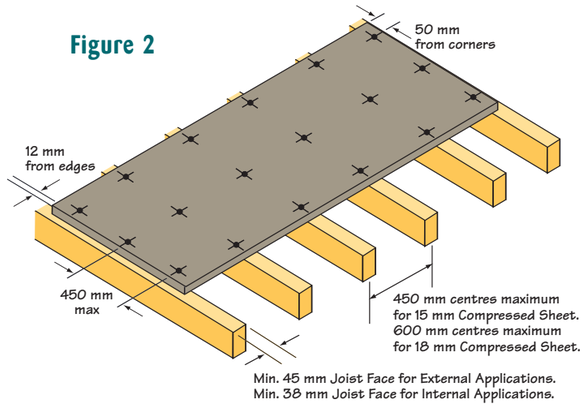


Figure 2



Fasteners

BGC Compressed Fibre Cement sheeting can be fixed to either timber or lightweight steel framing.

Timber Framing

No 10 Hot dipped galvanised steel or brass countersunk head wood screw or equivalent can be used.

	Recommended Screw Length (mm)	
Sheet Thickness (mm)	Internal Applications Including Wet Areas	External Decking
15	40	50
18		

Lightweight Steel Framing

No 10 x 30mm zinc plated or galvanised countersunk head Tek screws or equivalent, which comply with AS 3566-2002.

Sheet Preparation

Screw holes should be drilled prior to fixing the sheets to the framework.

Use a sharp tungsten carbide tipped masonry drill with a diameter 1mm greater than the screw diameter to allow sheet movement.

Countersink the screw holes to a depth of 3mm using a drill that is 1mm greater in diameter than the screw head.

Screws must not be located closer than 12mm from the sheet edge or closer than 50mm from the sheet corner.

Sealing

After fixing, the screw holes should be sealed using a polyurethane sealant to prevent ingress of water into the framing.

Hint: *Before drilling the holes, place a piece of masking tape over each hole location. Leave the tape in place until the hole is drilled, the screw fixed and sealant applied. Removing the tape immediately after sealing will leave the area clear of sealant and scuffmarks.*

Wet Area Tiled Floors

BGC Compressed Fibre Cement sheeting is ideally suited as a substrate for ceramic tiled floors in the wet areas such as bathrooms and laundries.

General

Satisfactory performance of wet area systems depends on strict adherence to the Building Code of Australia and the Australian Standard AS 3740-2004 "Waterproofing of wet areas within residential buildings".

Framing

BGC Compressed Fibre Cement sheeting can be fixed to either timber or lightweight steel framing.

Timber framing must comply with AS 1684-1999 "Residential Timber Frame Construction". Unseasoned timber **must not** be used.

Metal framing must comply with AS3623-1993 "Domestic Metal Framing".

Floor joists are required as follows:

BGC Compressed Fibre Cement sheeting Sheet Thickness (mm)	Maximum Joist Centres (mm)
15	450
18	600

BGC recommend sheets to be laid with the long edge across the joists. (Figures 2 & 4)

When sheets are laid with the long edge parallel to the joists; trimmers must be added so that all sheet edges and joints are supported.

In all cases a floor joist or trimmer must support the sheet end.

Sheets shall be fixed to support framing at 450mm maximum centres, where sheets run along the joists.

Sheet Joints

Sheet joints must be sealed using HydrEpoxy 501, Hydraband 501 or similar.

Thoroughly clean the edges to be joined using a wire brush. Butter the edge of the fixed sheet with the epoxy resin then slide the next sheet into position ensuring an adequate film of adhesive fills the joint.

Do not fix adjacent sheets and then attempt to fill the joint in situ.

Hint: *Placing a strip of masking tape along each sheet edge before jointing will reduce clean up.*

Removing the tape immediately after sealing will leave the area clear of sealant and scuffmarks.

Floor Drainage

In wet areas lay mortar bed (screed) over the BGC Compressed Fibre Cement sheeting to produce a minimum 1:60 fall to the waste drain.

The mortar bed must be reinforced with a 150mm wide strip of 20 x 20 x 1mm diameter galvanised wire mesh over all joints in the BGC Compressed Sheeting to prevent movement or cracking. The mesh is to be centralised in the mortar bed, see Figure 4.

Figure 3 depicts a typical floor waste installation showing the waterproof membrane carried down into the fitting. The inner pipe is slotted to allow drainage of the mortar bed (screed).

Figure 3 - Floor Waste Detail

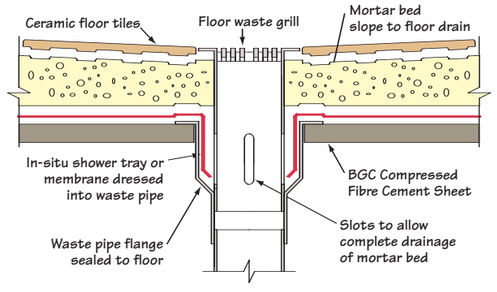
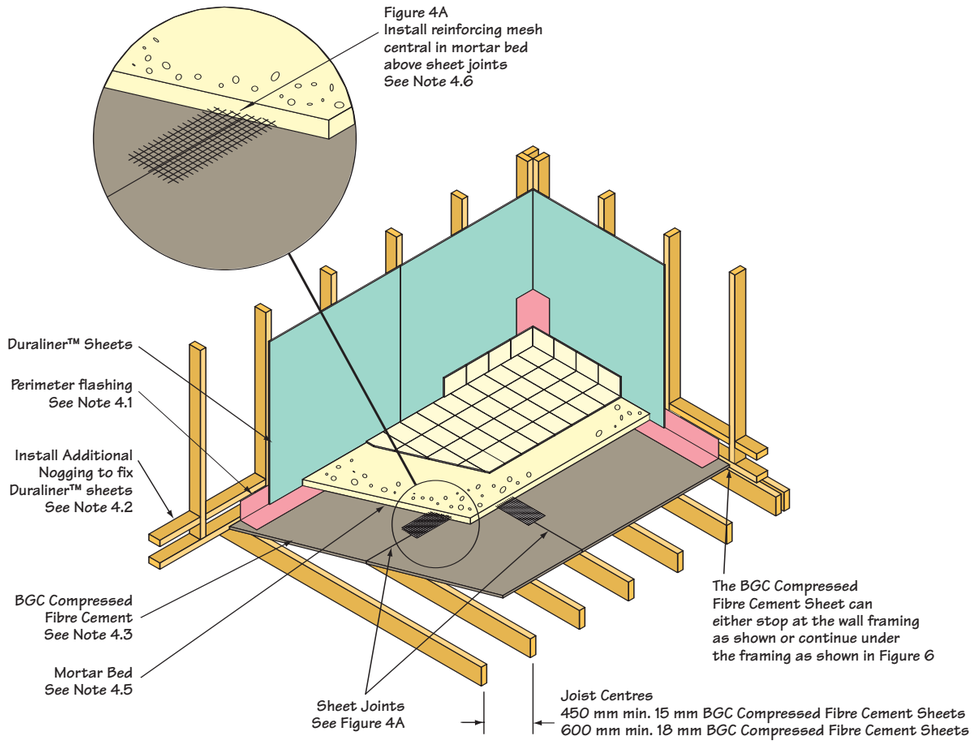


Figure 4 - Wet Area Details



Note 4.1

Perimeter flashing or in-situ membrane bonded to BGC Compressed Fibre Cement flooring, using a two-part flexible epoxy resin eg. HydrExpoxy 501, Hydraband 501 or equivalent.

The perimeter flashing may be a preformed PVC angle or a waterproof flashing strip such as Hypalon.

It must extend 80mm minimum up the wall and 50mm across the floor. The corner detail must be waterproof.

The flashing or membrane must not be bonded to the wall studs

Note 4.2

An additional wall nogging must be installed so that the bottom of the Duraliner™ is nailed above the flashing

Note 4.3

The BGC Compressed Fibre Cement sheets should be laid across the floor joists as shown.

All sheet joints must be sealed with HydrEpoxy 501, Hydraband 501 or equivalent.

Note 4.4

Lay waterproof membrane over compressed sheets at a minimum of 75 mm upstand of the perimeter flashing.

The membrane must be dressed into the floor waste. (See figure 3).

Note 4.5

Lay a mortar bed (screed) over the BGC Compressed Fibre Cement flooring to produce a 1:60 fall to the waste drain.

Note 4.6

The mortar bed (screed) must be reinforced with a 150mm wide strip of 20 x 20 x 1mm diameter galvanised wire mesh over all joints in the BGC Compressed Fibre Cement flooring.