



THE DURAGRID™ FACADE
SYSTEM UTILISES BGC FIBRE
CEMENT SHEETING, OFFERING
THE IDEAL SOLUTION FOR
CLADDING THE EXTERIOR OF
LOW TO MEDIUM RISE BUILDINGS.
DURAGRID™ GIVES BUILDINGS
A MODERN AND EXTREMELY
DURABLE FINISH.

DURAGRID™SHEETING HAS A SMOOTH, FLAT SURFACE AND SQUARE EDGE FINISH WHICH IS SUITABLE FOR EXPRESSED JOINTING AND PROVIDES A FACADE SUITABLE FOR A NUMBER OF FINISHES - FROM PAINTED TO TEXTURED COATINGS.

THE DURAGRID™ FACADE SYSTEM:

- / IS LIGHTWEIGHT
- / IS HIGHLY DURABLE
- / PANELS WILL NOT ROT, BURN OR CORRODE
- / PANELS ARE NOT AFFECTED BY TERMITES, AIR, STEAM, SALT OR SUNLIGHT
- / CAN BE EASILY DECORATED IN A NUMBER OF DESIGN FINISHES
- / QUICK AND SIMPLE TO INSTALL USING SCREW FIXING



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APPLICATIONS

Duragrid™ Facade System utilises BGC Fibre Cement panels and graded, primed timber or steel battens to form a strong and durable facade cladding system.

Duragrid™ is ideally suited for versatile architectural applications in light commercial applications where high impact resistance is not required. If high impact resistance is required BGC recommend the use of the Duracom™ compressed fibre cement facade system.

Duragrid $^{\text{TM}}$ panels are designed for installation in a variety of patterns, including vertical, horizontal, and brick-bond.

Duragrid[™] panels are available in 9mm thickness and may be finished with site applied acrylic paint systems or a factory applied high quality polyurethane plain finish. These may need alternative fixing methods. Please contact your local BGC office for advice.

NOTE: The fitting of the Duragrid™ Facade System should only be attempted by a professional contractor. Your local BGC Fibre Cement office can provide you with a list of recommended Duragrid™ installers.

ADVANTAGES

- / Lightweight cladding system
- / Readily accepts many forms of decorative finish
- / Highly durable product
- / Dynamic architectural style
- / Face sealed for paint application

ENERGY EFFICIENCY CONSIDERATIONS

Energy efficiency requirements have been introduced into the Building Code of Australia (BCA) for both commercial and residential buildings. Thermal heat transfer into and out of the building envelope will effect the running cost of the building and careful consideration of thermal heat transfer needs to be addressed by the architects, engineers and building designers. Thermal bridging through steel framing will diminish the total R-Value; thermal conductance, of the wall. Thermal breaks are required for steel framed buildings. Thermal break tapes should have a minimum R-Value of 0.2.

PRODUCT INFORMATION

Duragrid[™] panels are an autoclaved, cellulose fibre reinforced silica/cement panel, specially formulated and prepared to meet the requirements for use in exterior applications. Duragrid[™] panels have a smooth flat surface and a neat square edged finish, for enhanced expressed joint facades.

BGC Fibre Cement products are manufactured to the Australian / New Zealand Standard AS/NZS 2908.2-2000 Cellulose-Cement Products, Part 2: Flat sheets and Duragrid™ is classified as Type A-Category 3.

SHEET TOLERANCES

Duragrid™ complies with the requirements of AS2908.2.

FIRE RESISTANCE

BGC Fibre Cement 9mm has been tested for and passed the Early Fire Hazard Property criteria in compliance with AS/NZS 1530.3 and AS/NZS 3837 and is deemed a Group 1 Material in accordance with the Building Code of Australia (BCA), Volume 1, Specification A2.4; Fire Hazard Properties. AS/NZS 1530.3; Early Fire Hazard Properties.

/	Ignition Index	0
/	Spread of Flame Index	0
/	Heat Evolved Index	0
/	Smoke Developed Index	0-1

DURABILITY

Duragrid™ physical properties ensure it's durability in exposed applications.

- / Duragrid™ panels are immune to permanent water damage in both short and long-term exposure.
- / Duragrid™ panels will not rot or burn and are unaffected by termites, air, steam, salt and sunlight.
- / Duragrid™ panels are not adversely affected over a temperature range of 0°C to 95°C.

Vapour permeable sarking must be installed under the timber or steel batten in accordance with the AS/NZS 4200.2 – 'Pliable building membranes and underlays – Installation' and the sarking manufacturer's guidelines. The sarking should have the following properties:

- / Vapour barrier low or medium
- / Water barrier high

Vapour permeable sarking is used to prevent moisture ingress by acting as a drainage plane whilst enabling water vapour build up from inside the frame space.

To ensure the durability of the Durabatten apply a film of polyurethane over the exposed face at the expressed joint.

THERMAL CONDUCTIVITY

DuragridTM panels have relatively low thermal conductivity: R-value. At Equilibrium Moisture content the approximate R-Value of DuragridTM is;- 0.55 W/m°C.

WEATHER RESISTANCE / FREEZE THAW

The Duragrid[™] Facade System conforms to the Building Code of Australia (BCA) requirements for external wall applications. Duragrid[™] Facade System has been tested to AS/NZS 4284 Testing of Building Facades.

Duragrid[™] subject to freeze/thaw conditions must be painted. Duragrid[™] should not be used in situations where it will be in direct contact with snow or ice for prolonged periods.

SHEET SIZES AND WEIGHT

Duragrid [™] panels are available in the following sizes.						
THICKNESS mm	MASS KG/M ²	WIDTH mm	LENGTH mm			
			1190	1790	2390	2990
	13.5	590			✓	
9		890		✓		
		1190	/			/





HANDLING AND STORAGE

Duragrid™ must be stacked flat, up off the ground and supported on equally spaced (max 400mm) level gluts. Care should be taken to avoid damage to the ends, edges and surfaces.

Sheets must be kept dry. When stored outdoors it must be protected from the weather. Sheets must be dry prior to fixing, jointing or finishing.

COASTAL AREAS

The durability of galvanised nails and screws used for exterior cladding in coastal or similar corrosive environments, including very heavy industrial areas can be as low as 10 years.

For this reason BGC recommend the use of Stainless Steel fasteners within 1km of the coast or other large expanses of salt water.

ACCESSORIES AVAILABLE FROM BGC

DURABATTEN - STEEL	35 x 70 x 3000mm	BGC Product Code 496	
DOLVES WILLY GILLE	19 x 70 x 3000mm	BGC Product Code 495	
HORIZONTAL BACKING STRIP	1190mm	BGC Product Code 839	
	2390mm	BGC Product Code 841	
	2990mm	BGC Product Code 843	
CAVITY VENT STRIP	19 x 2700mm	BGC Product Code 480	
SEALANT / ADHESIVE	Sikaflex 300ml 11FC or similar	BGC Product Code 485	
OLALAIVI / ADITLOIVE	Sikaflex 600ml 11FC or similar	BGC Product Code 486	
COUNTERSINKER	Countersinking Tool	BGC Product Code 855	

FASTENERS

DURABATTEN TO FRAME

DURABATTEN TIMBER TO STEEL FRAME

Builders Class 3, 8 x 35mm Wingtek Self Embedding Head Screw, 8 x 40mm Wingtek Self Embedding Head Screw





DURABATTEN STEEL TO STEEL FRAME

Class 3 Hex Head Screw, 12-14 x 20mm





DURABATTEN TIMBER TO TIMBER FRAME

Class 3 Corrosion resistant Ring Shank Nail – 2.8 x 65mm



DURAGRID™ TO DURABATTEN

DURAGRID™ TO DURABATTEN STEEL No.8 x 30mm Countersunk Self Drilling





DURAGRID™ DURABATTEN TIMBER

C25 304 Stainless Steel Brads



2.8 x 30mm Fibre Cement Nail



8 x 10 x 25mm Class 3 Countersunk Wood Screw







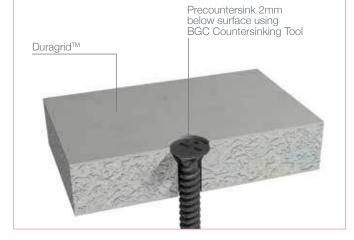
Select fasteners with suitable durability for the prevailing conditions. Please consult your supplier for:

- Minimum requirements Class 3.
- / Stainless Steel may be required in some applications.

All screw holes must be filled with an epoxy filler such as Megapoxy P1, Hilti CA125 or Hilti CA273 and sanded flush to provide a flat surface for finish coating. When sanding, only sand the screw holes, not the entire sheet surface.

FIGURE 1 / PRE COUNTERSINK

When using screws to fasten Duragrid™, pre countersinking is required so that the fastener is 2mm under the sheet surface for filling with epoxy filler and then finished with BGC Exterior and Wet Area Top Coat.



DESIGN CONSIDERATIONS

The designer should determine the wind pressure for the project and specify the layout, spacing and fixing of the Durabatten to the structure.

The deflection of the supporting structure should be limited to span/250 for Serviceability Wind Load, or as limited by AS/ NZS1170.

In areas where there is a probability of wind loading, care should be taken in the design detailing, especially around all openings, corners and other junctions, to ensure the weather resistance of the total system.

Before the Duragrid™ panels and the supporting substructure is installed and fixed, particular care should be taken that all flashing and waterproofing work is complete, including all vapour permeable building wraps and damp proof coursing.

CONTROL JOINTS

In many cases, control joints will not be required as typical expressed joints permit some differential movement of the Duragrid™ panels and the sub-framing.

It is recommended that the designer consider the need for control joints in the following cases:

- At a change in the structural substrate; eg masonry Where Duragrid™ crosses a building control joint.

 "Italihood of movement in the sub-f
- Where there is likelihood of movement in the sub-framing.
- Continuous lengths greater than 8 metres.

Structural movement vertical and horizontal control joints are required to match existing structural control joints and should continue through the facade.





PANEL PREPARATION

For insitu paint finish applications, Duragrid™ panels are supplied sealed with a proprietary sealer applied during manufacture for durability.

Where it is necessary to cut sheets, cutting tools should have a dust extraction system.

Cut edges must be sealed with BGC Edge Sealer or an acrylic coating to eliminate moisture absorption.

A saw blade such as BGC Durablade with a poly crystalline diamond tip specifically designed to cut fibre cement sheets is recommended.

Ensure work area is well ventilated and wear an approved dust mask (AS/NZS1715 and AS/NZS1716) and safety glasses (AS/NZS1337).



Duragrid™

BACKING STRIP INSTALLATION & SEALING

At the horizontal joints between the Duragrid™ panels, the Horizontal Backing Strip should be bonded to the back of the Duragrid™ panel to form a socket to which the Duragrid™ panels above are fixed over.

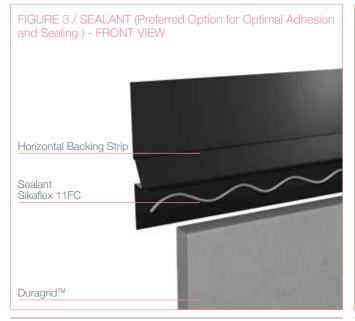
Set the backing strip 2mm from the edge of the Duragrid™ panel. Seal the cut edge with BGC Edge Sealer.

The backing strip can be fixed using:

- / Sikaflex 11FC. Ensure that the sealant has cured fully before panel installation.
- / 3M 12.7mm VHB4991 or 3M VHB4941 double sided tape. The contact surfaces to be cleaned with 3M HIPA 300 Adhesive cleaner.

NOTE: Sikaflex 11FC is the preferred option for fixing the backing strip.

NOTE: Ensure the sealant fills the void in the back of the Horizontal Backing Strip to prevent moisture ingress.



Horizontal Strip Double sided tape VHB4901

FIGURE 4 / BACKING STRIP TAPE - FRONT VIEW





FASTENER SPACING -LIGHT COMMERCIAL

FIXING DURAGRID™ TO STEEL BATTENS

Fix cladding to steel batten via a continuous 6mm bead of Sikaflex 11FC polyurethane sealant/adhesive to all contact surfaces and N° 8 x 30mm Countersunk Self Drilling along all support edges, refer to Duragrid™ design table for maximum fixing centres.

FIXING STEEL BATTENS TO STEEL WALL FRAMES

Steel battens to be 0.75mm BMT and grade 300 steel:

BATTEN SIZE:

N1-N3, C1: TH19x70x0.75 batten C2-C3: TH35 x70x0.75 batten

Steel battens can only be installed OFF stud (batten fixed to noggin) due to the profile of the steel batten.

Maximum batten span, (i.e. noggin spacing), is to be as per Duragrid™ design tables.

Batten spans (i.e. noggin spacing) should be approximately equal (within 25%)

Fix steel batten to steel wall frames with:

N1-N3: (max 1.215kN pullout load)

Fix steel battens to noggins with: Class 3 Hex Head Screws.

C1-C2: (max 1.81kN pullout load)

Fix steel battens to noggins with: Class 3 Hex Head Screw.

Alternatively, steel battens may be fixed to timber wall frames by substituting 8- 18×20 mm Tek Screws with 8- 15×40 mm screws.

FIXING STEEL NOGGINS TO STEEL STUDS

Where noggins support battens, noggins must be securely fixed to studs.

Noggins should not span more than 600mm.

Noggins to be fixed to studs via one of the following:

- -Minimum 30mm weld each end, evenly spread over both sides of stud.
- $-2N^{\circ}$ 6 x 20 Wafer Head Tek Screws each end of noggin.
- -2N° Henrob Rivets or equivalent each end of noggin.

NOTES

All calculations include full internal pressurization as per AS4055. Stack bond (no overlap).

Deflection of battens limited to a maximum of span of 200mm. All steel framed walls to be constructed to relevant standard.

BATTEN SPAN/WIND PRESSURE LOAD

AS4055 Wind Classification	Stud & Durabatten	TH19x70x0.75 Batten Span	TH35x70x0.75 Batten Span	Duragrid™ Fixing
Non Cyclonic	Spacing (mm)	(max)	(max)	Centres
N1, N2, N3	600	900	900	200
N4, N5	450	n/a	n/a	200
N6	300	n/a	n/a	150
C1	450	900	900	200
C2	450	n/a	900	200
C3	450	n/a	800	200
C4	300	n/a	850	150

Contact your local BGC Fibre Cement office for further advice if required.

FRAMING

Ensure that the frame is square and work from a central datum line. The frame must be straight and true to provide a flush face to receive the panels.

BGC recommend a maximum tolerance of 3mm-4mm in any 3000mm length of frame. Duragrid™ will not straighten excessively warped or distorted frames and any warping may still be visible after Duragrid™ is applied. Warped framing will require remedial action.



The steel Durabatten should be fixed off stud – Refer to Span Table. Off stud fixing is restricted to low wind areas and noggings are required at maximum 800mm centres – Refer to Span Table in all instances.

The vertical expressed joins must coincide with the centre line of the Durabatten. Stud centres may have to be designed to facilitate express joins.

STEEL FRAME

Use of steel frame must be in accordance with AS4600 – Cold Formed Steel Structures and the framing manufacturer's specifications.

Framing members must have a Base Metal Thickness (BMT) between 0.55 to 1.6mm. The steel framing must have the appropriate level of durability required to prevent corrosion.

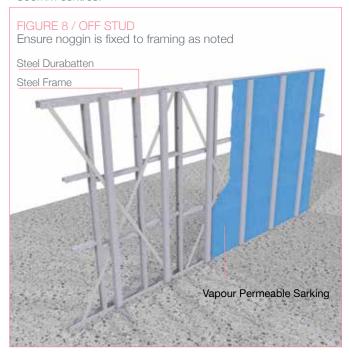
Stud framing members must be a minimum of 64 x 35mm.



DURABATTEN INSTALLATION

STEEL DURABATTEN

Can only be fixed off stud. Refer to Span Table for stud/batten fastener spacings. Note: Off stud max span (noggin spacing) 800mm centres.



BATTEN JOINING



INSTALLATION DETAILS

The architectural intent and details of buildings vary from one designer to the next, and the variety of details would be impossible to catalogue.

The detail diagrams following are intended to assist the designer in achieving a high quality weather resistant facade.

The designer should not digress from the specification set out in this manual.



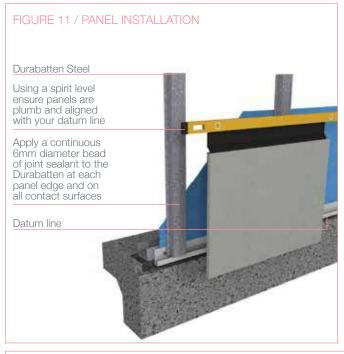
Use the backing strip as a temporary gauge to space the vertical joint of successive boards ensuring a uniform 10mm space between successive panels. Use the backing strip to space vertical panel joints.

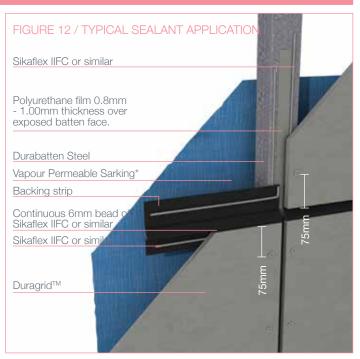
* Components not supplied by BGC

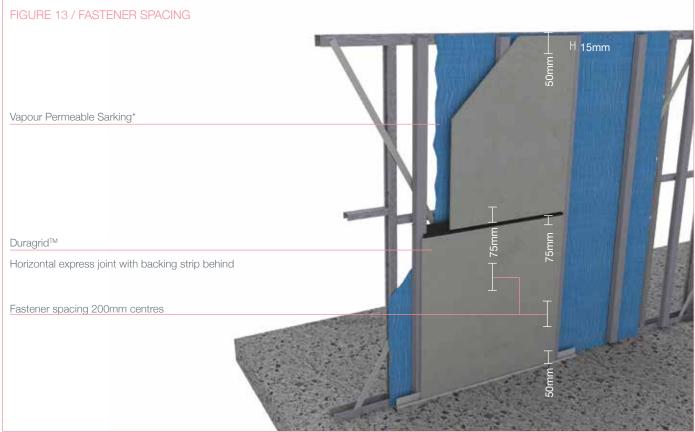




INSTALLATION DETAILS







Duragrid™ panels are to be fixed with a continuous 6mm bead of Sikaflex11FC or similar polyurethane sealant/adhesive to all contact surfaces with required fasteners at specific centres. Cover the exposed face of battens with a layer of polyurethane sealant to ensure durability of the Durabatten.

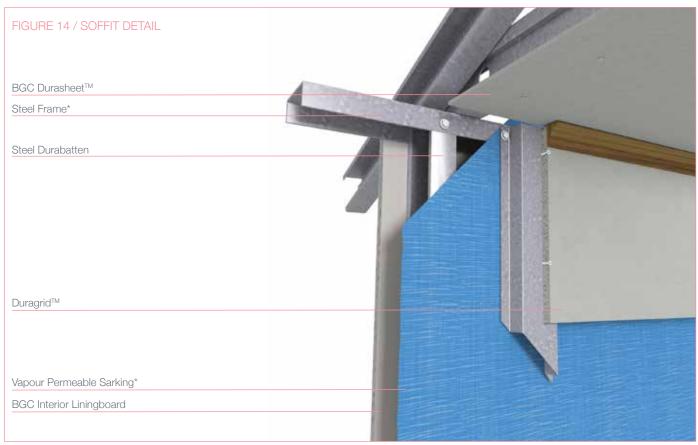
Duragrid™ panels should be sealed and fixed one panel at a time. Only apply sealant to the contact surface of the next panel to be fixed.

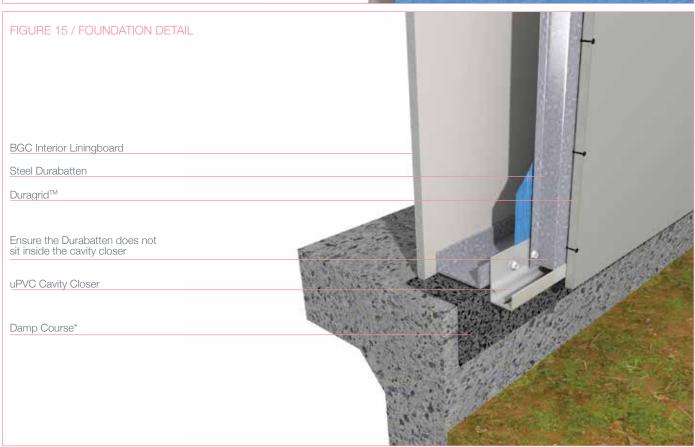
^{*} Components not supplied by BGC





INSTALLATION DETAILS



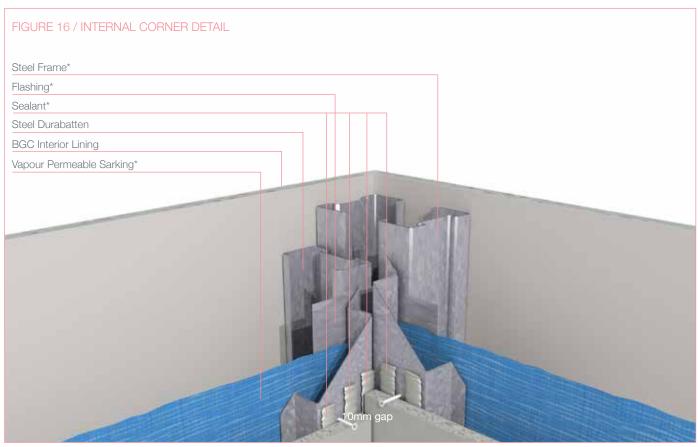


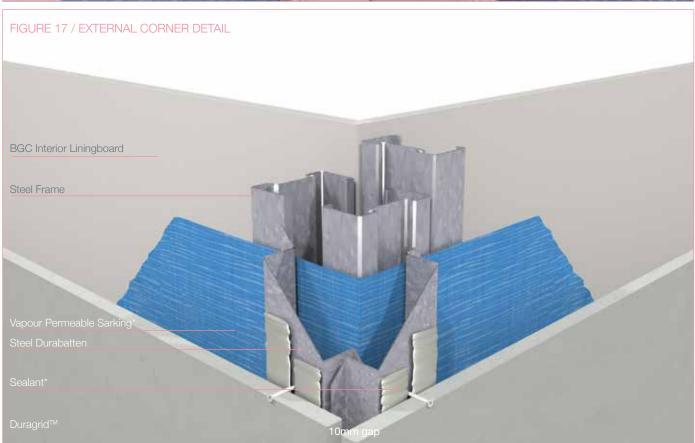
* Components not supplied by BGC





INSTALLATION DETAILS





^{*} Components not supplied by BGC





INSTALL ATION DETAILS



^{*} Components not supplied by BGC



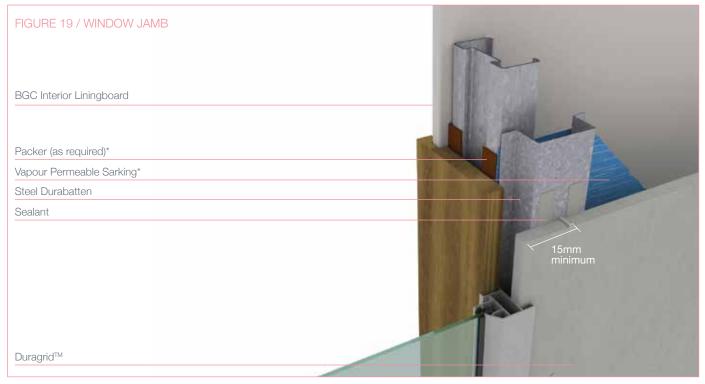


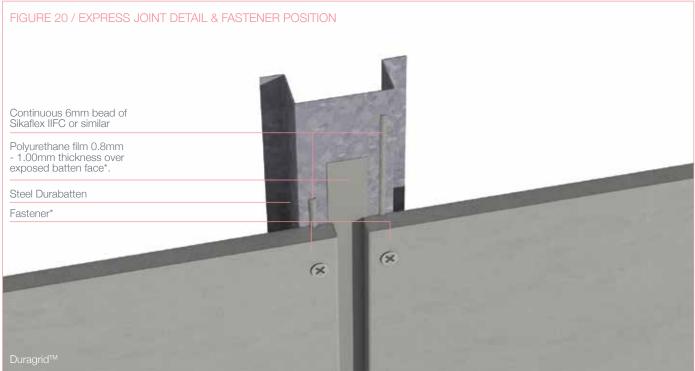
PENETRATIONS. WINDOW & DOOR OPENINGS

There are numerous varieties of penetrations, openings, and window and door treatments available. Each weather proofing detail will be dependent on the material, style and manufacturer's specifications.

Adequate weather proofing must be considered by the building designer, in conjunction with the penetration, window or door manufacturer.

The following diagrams below are a guide only and the designer should consult with the appropriate manufacturers for the detail design to ensure adequate weather proofing.



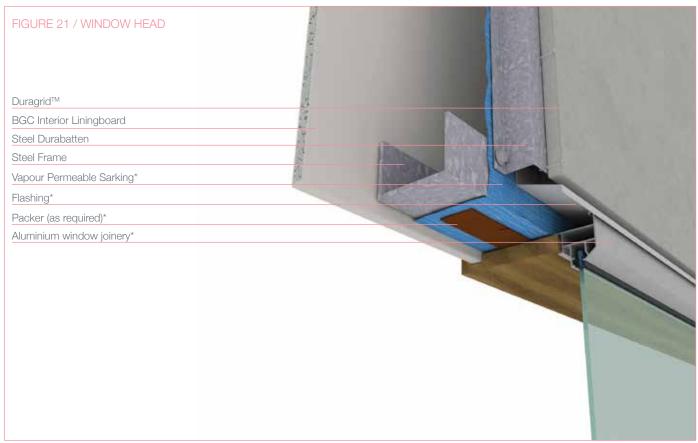


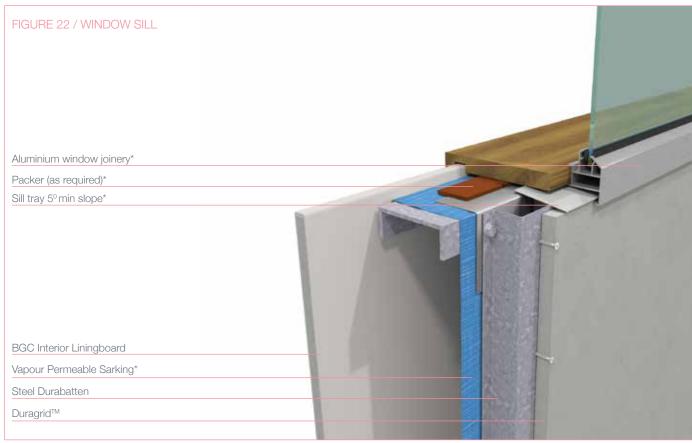
^{*} Components not supplied by BGC





PENETRATIONS, WINDOW & DOOR OPENINGS





^{*} Components not supplied by BGC





THERMAL BREAKS

Thermal breaks are required for steel framed buildings, in walls enclosing habitable and or usable spaces. Careful consideration of thermal heat transfer and the position of thermal breaks need to be addressed by the architects, engineers and building designers.

Balustrades, parapets, and other non-enclosing wall elements may not require thermal bridging, except where the possibility of high thermal heat transfer exists through the steel CFS sections to the main structural steel element of the building.

As part of the BGC Fibre Cement range EPDM Foam Gasket is able to act as a thermal break and is required to prevent moisture ingress at sheet joins.

EPDM Foam Gasket can also be used as a Thermal Break Tape and provides an R value of R 0.2 in accordance with the Building Code of Australia.

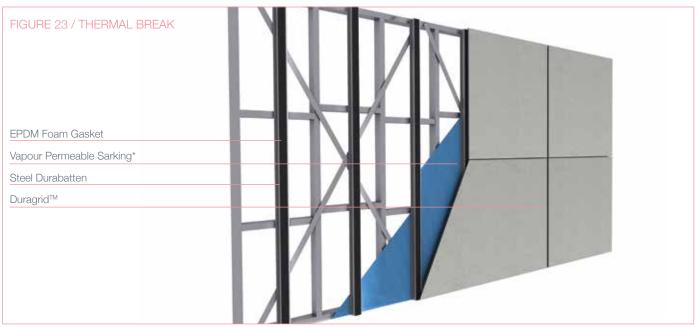
The EPDM Foam Gasket should be placed on all vertical Top Hats.

NOTES

Thermal breaks (BGC EPDM Foam Gasket) is a self adhesive foam gasket/tape.

Leave a small gap between the vertical gasket to allow any moisture to escape.

THERMAL BREAKS





* Components not supplied by BGC





DEEMED TO COMPLY

For an up to date and complete list of BGC Products that are 'Deemed to Comply' please refer to www.ntlis.nt.gov.au/deemedtocomply

WARRANTY

We warrant that our products are free from defects caused by faulty manufacture or materials for a period of 15 years from the date of purchase. If you acquire any defective products, we will repair or replace them, supply equivalent replacement products or refund the purchase price within 30 days of receiving a valid claim subject to product inspection and confirmation of the existence of a defect by BGC. We will bear the cost of any such repair, replacement or refund.

This warranty is given by: BGC Fibre Cement Pty Ltd 121 Bannister Rd Canningvale WA 6155 Phone 08 9334 4900 Fax 08 9334 4749

To claim under this warranty, you must provide proof of purchase as a consumer and make a written claim (including any costs of claiming) to us at the address specified above within 30 days after the defect was reasonably apparent, or if the defect was reasonably apparent prior to installation, the claim must be made prior to installation. You may not claim under this warranty for loss or damage caused by:

- faulty or incorrect installation by non-BGC installers (BGC's installation procedures are at www.bgcinnovadesign.com.au;
- failure to comply with the Building Code of Australia or any applicable legislation, regulations approvals and standards;
- products not made or supplied by BGC;
- abnormal use of the product; or
- normal wear and tear.

The benefits available under this warranty are in addition to other rights and remedies of the consumer under the law. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.







TO CONTACT YOUR NEAREST BGC STOCKIST, PLEASE CALL:

ADELAIDE TELEPHONE 08 8250 4962

BRISBANE TELEPHONE 07 3271 1711

MELBOURNE TELEPHONE 03 9392 9444

PERTH TELEPHONE 08 9334 4900

SYDNEY TELEPHONE 02 9771 9660

NEW ZEALAND TELEPHONE 0011 64 9273 1457

TECHNICAL HELP LINE 1300 652 242



Fibre Cement



BGC FIBRE CEMENT IS A PROUD AUSTRALIAN OWNED MANUFACTURER OF FIBRE CEMENT PRODUCTS.

BGC FIBRE CEMENT PROVIDES BUILDERS, DEVELOPERS AND ARCHITECTS WITH A RANGE OF DESIGN ALTERNATIVES AND INNOVATIVE PRODUCTS, SUCH AS:

EXTERIOR PRODUCTS AND APPLICATIONS INNOVA RANGE OF PRODUCTS

DURACOM™ / A compressed fibre cement facade system.

DURAFLOOR™ / Is the ultimate flooring product that can be used in both interior and exterior applications.

DURAGRIDTM RESIDENTIAL & DURAGRIDTM LIGHT COMMERCIAL A light weight facade giving a modern and durable finish.

DURAGROOVE™ / A vertically grooved exterior facade panel.

DURASCAPE™ / A lightweight exterior facade base sheet with a subtle vertical shadow line.

NULINE™ PLUS / A weatherboard style cladding system.

STONESHEET™ / Purpose designed substrate for stone tile facade.

STRATUM™ / Is a trio of plank products, each of which can be used as stand alone products or used together to create a striking exterior cladding solution.

EXTERIOR PRODUCTS AND APPLICATIONS BGC FIBRE CEMENT RANGE OF PRODUCTS

DURASHEET™ / Ideal for the cladding of gables and lining of eaves. Can also be used on commercial soffits and cladding on non impact areas.

DURAPLANK™ / Available in Smooth, Woodgrain and Rusticated finishes, Duraplank™ is ideal for exterior cladding of upper storey conversions or ground level extensions.

DURATEX™ / A base sheet used for textured coatings on exterior wall applications.

DURALATTICE™ / Square or diamond patterned lattice, suitable for screens, pergolas and fences.

COMPRESSED / Used for domestic, commercial sheet for wet areas, flooring, partitions, exterior decking, fascia and facade cladding.

DURALUX™ PLUS / Suitable for exterior applications where it will be sheltered from direct weather.

INTERIOR PRODUCTS AND APPLICATIONS BGO FIBRE CEMENT RANGE OF PRODUCTS

DURALUX™ PLUS / An interior lining board suitable for ceilings and soffits.

DURALINER™ PLUS / An interior lining board, this is the perfect substrate for tiles and is ideal for wet areas.

CERAMIC TILE UNDERLAY / A substrate for ceramic and slate floor tiles

VINYL CORK FLOOR COVERINGS / A substrate for vinyl floors.