



FOR UP-TO-THE-MINUTE EXTERIORS OR INTERIORS, CHOOSE BGC DURAGROOVE™ CLADDING. A PEERLESSLY ADAPTABLE, VERTICALLY-GROOVED PANEL AVAILABLE IN DIFFERENT PROFILES AND SPACING, DURAGROOVE™ HAS A SHIPLAP JOIN TO EASE AND SPEED YOUR INSTALLATION.

SPECIFY DURAGROOVE™ FOR SINGLE-STOREY AND MEDIUM-HEIGHT PROJECTS. DURAGROOVE™ COMES IN THREE VARIANTS: SMOOTH WIDE (150MM); SMOOTH NARROW (100MM); AND WOODGRAIN WIDE (150MM).

DURAGROOVE™ FACADE SYSTEM

- / VERTICAL GROOVES EXCITINGLY CONTEMPORARY ALTERNATIVE TO TRADITIONAL WEATHERBOARD
- / LIGHTWEIGHT AND DURABLE
- / ACRYLIC SEALED PANELS AID PAINT APPLICATION
- / QUICK TO INSTALL NO NEED FOR TAPED AND FILLED JOINTS
- / PANELS RESISTANT TO TERMITES, AIR, STEAM, SALT AND SUNLIGHT





CONTENTS

APPLICATIONS	/ 5
ADVANTAGES	/ 5
ENERGY EFFICIENCY CONSIDERATIONS	/ 5
PRODUCT INFORMATION	/ 5
FIRE RESISTANCE	/ 5
DURABILITY	/ 5
THERMAL CONDUCTIVITY	/ 5
PANEL SIZES AND MASS	/ 5
SHEET TOLERANCES	/5
HEALTH AND SAFETY	/6
CUTTING AND DRILLING	/6
PAINTING	/6
MAINTENANCE	/ 6
HANDLING AND STORAGE	/ 6
COASTAL AREAS	/ 6
ACCESSORIES AVAILABLE FROM BGC	/7
FASTENERS	/ 7
CONSTRUCTION DETAILS	/8
INSTALLATION DETAILS	/ 9-19
BUSHFIRE/BOUNDARY WALL	/ 20
WARRANTY	/ 21



APPLICATIONS

Duragroove[™] is a strong and durable cladding which has distinctive vertical grooves and is suitable for finishing with a textured paint, creating a rendered look.

DuragrooveTM is suitable for low to medium rise buildings and can be used on both timber and steel framed buildings. It is also ideal for renovations and alterations to existing dwellings. In smaller areas it provides a distinctive looking feature wall and can be used either in interior or exterior applications.

ADVANTAGES

- / A choice of groove widths and finishes available
- / Has a shiplap join to ease installation
- / Is lightweight and durable
- Quick to install because it eliminates the need for taped and filled joints
- / Panels are not affected by termites, air, steam, salt or sunlight

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 and should be installed between the steel framing and the Duragroove™ panels. Thermal breaks should have a minimum R-Value of 0.2.

PRODUCT INFORMATION

Duragroove™ panels are manufactured from Portland cement, finely ground silica, cellulose fibres and water. Panels are cured in a high-pressure steam autoclave to create a durable, dimensionally stable product.

Duragroove[™] panels are manufactured to the Australian / New Zealand Standard AS/NZS 2908.2-2000 Cellulose-Cement Products, Part 2: Flat sheets and Duragroove[™] is classified as Type A-Category 2.

FIRE RESISTANCE

BGC Fibre Cement products have been tested in accordance to Australian Standard AS1530.3.

These tests deemed the following Early Fire Hazard Indices:

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

DURABILITY

durable product.

Duragroove™ physical properties make it a very

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

Vapour permeable sarking must be installed in accordance with the AS/NZS 4200.2 – 'Pliable building membranes and underlays – Installation' and the sarking manufacturers' 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 to escape.

THERMAL CONDUCTIVITY

Duragroove[™] panels have relatively low thermal conductivity. At Equilibrium Moisture content the approximate thermal conductivity of Duragroove[™] is; - 0.036 W/m°C.

WEATHER RESISTANCE / FREEZE THAW

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

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

PANEL SIZES AND MASS-TABLE 1

THICKNESS			WIDTH	LENGTH mm				
mm	LINIOLI	KG/M ²		2450	2750	3000		
	Smooth Narrow					√	√	√
9	Smooth Wide	12.5	1200	√	✓	✓		
	Woodgrain			/	/	/		

Duragroove™ Smooth Narrow

100mm between grooves. 4.5mm width of groove

Duragroove™ Smooth Wide

150mm between grooves. 4.5mm width of groove

Duragroove™ Woodgrain

150mm between grooves. 4.5mm width of groove

SHEET TOLERANCES

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





HEALTH AND SAFETY

Duragroove[™] 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 and prolonged exposure (usually over several years) may cause bronchitis, silicosis or cancer.

AVOID DUST INHALATION

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 the nearest BGC Sales Office or go to www.bgcinnovadesign.com.au

CUTTING AND DRILLING

Duragroove[™] 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 and safety glasses shall be worn. It is recommended that work always be carried out in a well ventilated location.

The most suitable cutting methods are:

/ DURABLADE

180mm Diameter.
This unique cutting blade
is ideal for cutting Fibre
Cement. Can be fitted to
a 185mm circular saw,
ie Makita or similar. Please
ensure safe working practices
when using.



/ NOTCHING

Notches can be made by cutting the two sides of the notch. Score along the back edge then snap upwards to remove the notch.

/ DRILLING

Use normal high-speed masonry drill bits. Do not use the drill's hammer function. For small round holes, the use of a hole-saw is recommended. For small rectangular or circular penetrations, drill a series of small holes around the perimeter of the cut out. Tap out the waste piece from the sheet face while supporting the underside of the opening to avoid damage. Clean rough edges with a rasp.

Large rectangular openings are formed by deeply scoring the perimeter of the opening. Next, form a hole in the centre of the opening (refer method above) then saw cut from the hole to the corners of the opening. Snap out the four triangular segments. Clean rough edges with a rasp. (see method above) then saw cut from the hole to the corners of the opening. Snap out the four triangular segments. Clean rough edges with a rasp.

PAINTING

To enhance both the appearance and performance of Duragroove™, BGC recommend that at least two coats of 100% acrylic exterior grade paint be applied. The paint manufacturer's recommendation on application and maintenance of the paint system should be followed.

It is recommended that Duragroove $^{\text{TM}}$ is painted according to the paint manufacturer's instructions within three months following delivery to site.

Should DuragrooveTM be exposed to the elements for a period beyond the initial three months to achieve an optimum finish an additional priming coat is recommended prior to the top finishing coats being applied.

Ensure that $Duragroove^{TM}$ is dry and clean prior to applying a quality exterior paint system.

Note: BGC recommend the use of a roller or brush application for best results.

MAINTENANCE

Duragroove[™] when used in accordance with this literature requires no direct maintenance.

To guard against water penetrating the structure and damaging the framework, annual inspections of the cladding system should be carried out. Check flashing, sealant joints and paint work.

Flashing and sealants must continue to perform their design function.

Damaged sheets should be replaced as originally installed. Paintwork should be maintained in accordance with the manufacturer's instructions.

HANDLING AND STORAGE

Duragroove[™] 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.

EXTRA CARE MUST BE TAKEN AT THE SHEET EDGES TO PREVENT CRACKING OF THE SHIPLAP JOIN.

COASTAL AREAS

The durability of galvanised nails and screws used for exterior cladding in coastal or similar corrosive environments 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

EPDM FOAM GASKET (Used to prevent moisture ingress at sheet joins).	25m	BGC PRODUCT CODE 845	
ALUMINIUM INTERNAL CORNER	3000mm	BGC PRODUCT CODE INTCNR12	
ALUMINIUM EXTERNAL CORNER	3000mm	BGC PRODUCT CODE EXTCNR12	
ALUMINIUM HORIZONTAL FLASHING	3000mm	BGC PRODUCT CODE HORIZ9	

FASTENERS - SUPPLIED BY OTHERS

DURAGROOVE™ TO TIMBER FRAME

2.8 x 30mm Fibre Cement Nail (minimum Class 3 corrosion resistant)



2.8 x 40mm Gun Nail (minimum Class 3 corrosion resistant)



- / Screws should be countersunk 1.5mm and filled with BGC Exterior Finishing Compound or Epoxy sealer such as Megapoxy P1, Hilti CA125 or Hilti CA273 and sanded flush to provide a flat surface for finish coating.
- / Nails must be driven flush to the panel surface.

DURAGROOVE™ TO STEEL FRAME

To Steel – 0.75BMT No 8 x 30mm Countersunk Self Drilling (minimum Class 3 corrosion resistant)





To Steel - 0.8-1.6BMT 8 x 40mm Wingtek Self Embedding Head Screw (minimum Class 3 corrosion resistant)





PRE COUNTERSINK When using screws to fasten DuragrooveTM, pre countersinking is suggested so that the fastener is 2mm under the sheet surface for filling with epoxy filler and BGC Exterior Finishing Compounds. Precountersink 1.5mm below surface using BGC Countersinking Tool DuragrooveTM











CONSTRUCTION DETAILS

FRAMING

Duragroove[™] panels can be installed vertically to both timber and lightweight steel frames.

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.

Duragroove[™] will not straighten excessively warped or distorted frames and any warping may still be visible after Duragroove[™] is applied. Warped framing will require remedial action.



TIMBER FRAMES

Use of a timber frame must be in accordance with AS1684 – Residential timber-framed construction and the framing manufacturers' specifications.

Use only seasoned timber. Do not use unseasoned timber as it is prone to shrinkage and can cause sheets and frames to move up.

"Timber used for house construction must have the level of durability appropriate for the relevant climate and expected service life conditions including exposure to insect attacks or to moisture which could cause decay" – Reference AS1684.2

THE FRAMING WIDTH AT SHEET JOINTS MUST BE A MINIMUM OF 45MM. THE INTERMEDIATE SUPPORT STUDS SHOULD BE A MINIMUM OF 70 X 35MM.

LIGHTWEIGHT STEEL FRAMES

Use of steel frame must be in accordance with AS3623 – Domestic metal framing and the framing manufacturers' specifications.

Framing members must have a Base Metal Thickness (BMT) between 0.50 to 1.6mm. The steel framing must have the appropriate level of durability required to prevent corrosion.

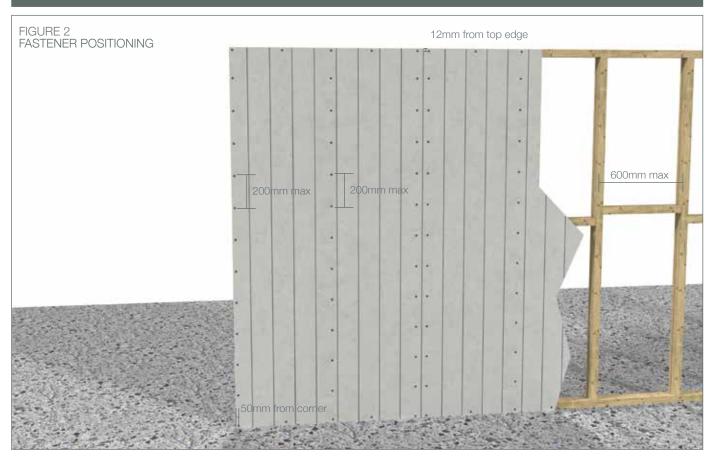
The framing width at sheet joints must be a minimum of 50mm. The intermediate support studs should be a minimum of 64 x 35mm.

MAXIMUM STUD & FASTENER SPACING TABLE 2

		GENERAL AREAS OF WALLS (MM)		200MM OF EDGES (MM)
Wind Classification AS4005	Stud Spacing (mm)	Fastener Spacing	Stud Spacing	Fastener Spacing
N1,N2,N3,N4	600	200	600	200
N5	450	200	300	150
N6	450	150	300	125
C1, C2	600	200	600	200
C3	450	200	300	150
C4	450	150	300	125

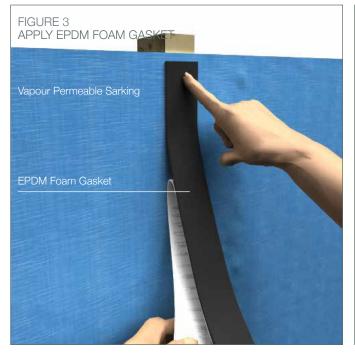




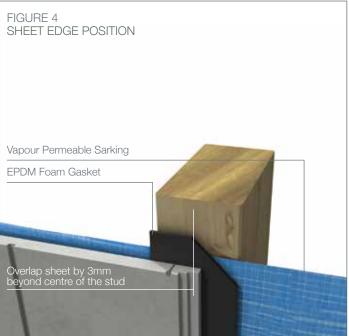


Duragroove[™] panels should be installed vertically with all sheet edges fully supported. The centre joints must coincide with the

centre lines of the framing member and all sheets should be installed in one direction.



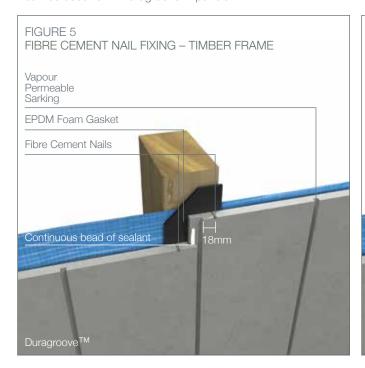
At every vertical joint, fix a continuous strip of EPDM Foam Gasket to the vapour permeable sarking along the stud. This assists to prevent the ingress of moisture at the sheet joins.



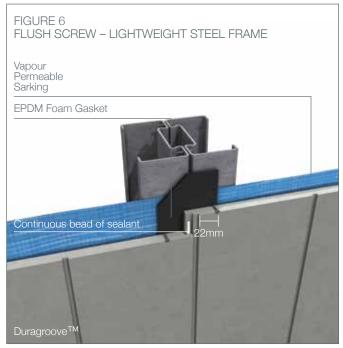
Position the underlap sheet on every stud 3mm past the centre of the stud to ensure the fasteners fixed at the edge of the sheet have adequate distance into the stud.



As detailed on p7, there are several different fasteners that can be used to fix $Duragroove^{TM}$ panels.











To fix the first sheet, set in place ensuring the required edge distances are maintained.

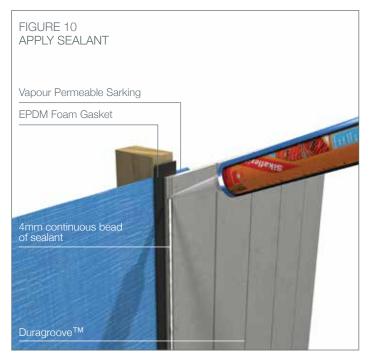
FIGURE 8
FIX FIRST SHEET

Vapour Permeable Sarking

EPDM Foam Gasket

DuragrooveTM

Apply a continuous 4mm bead of sealant to the edge of the shiplap join.



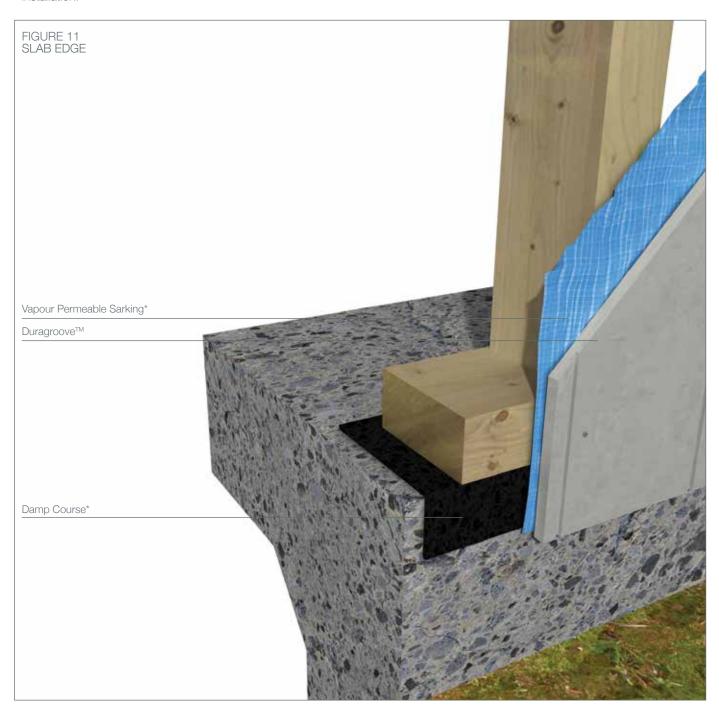


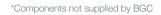
Once both sheets are fixed, check the joint for gaps and fill with additional sealant if required.

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

The detail diagrams following are intended to assist the designer in achieving a high quality weather resistant Duragroove $^{\text{TM}}$ installation.

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

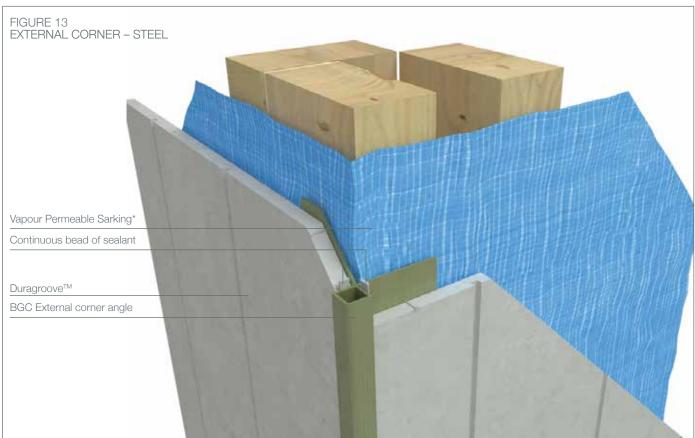






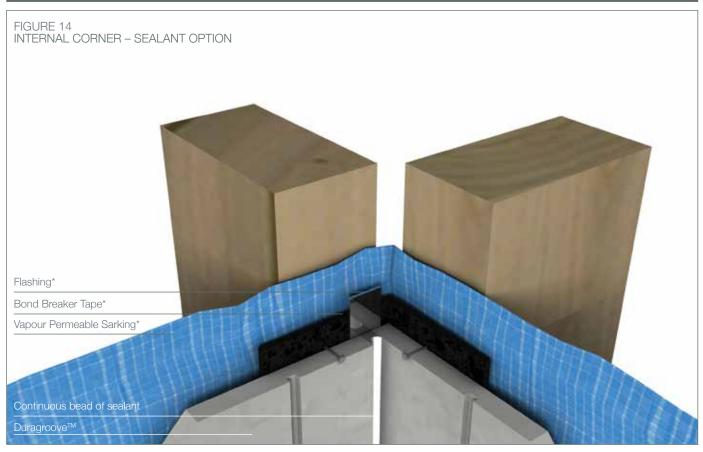


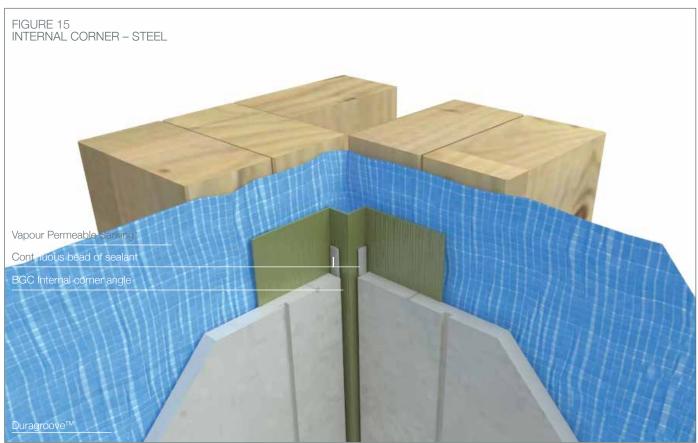






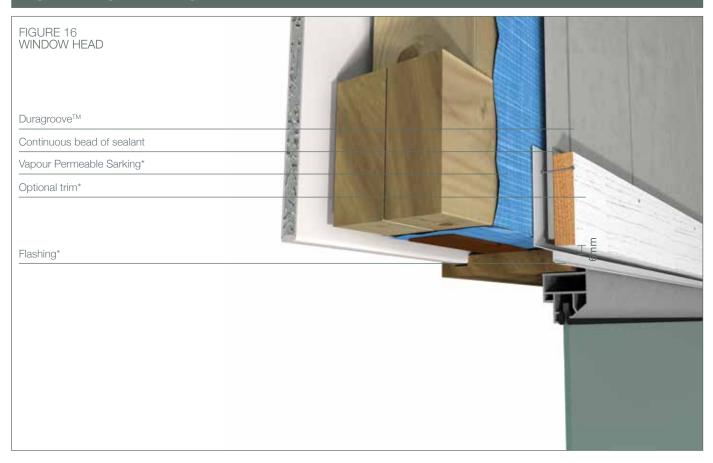


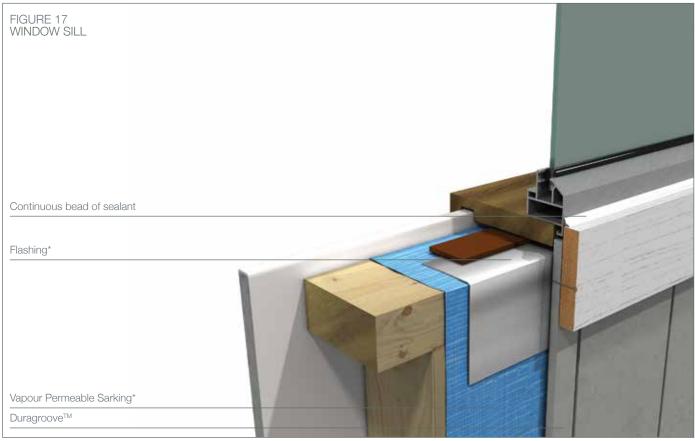






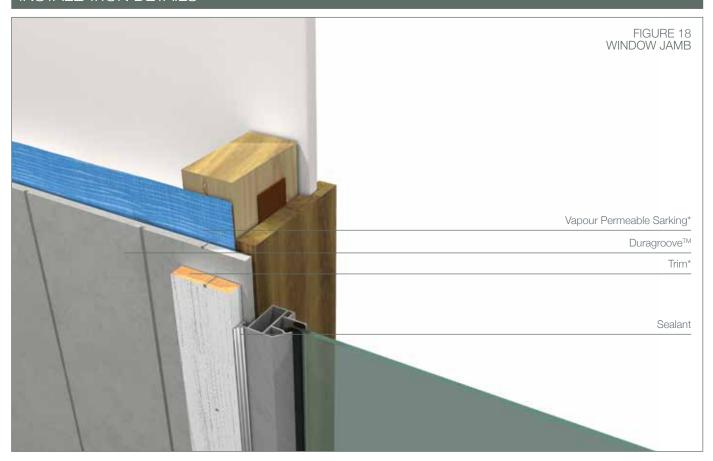


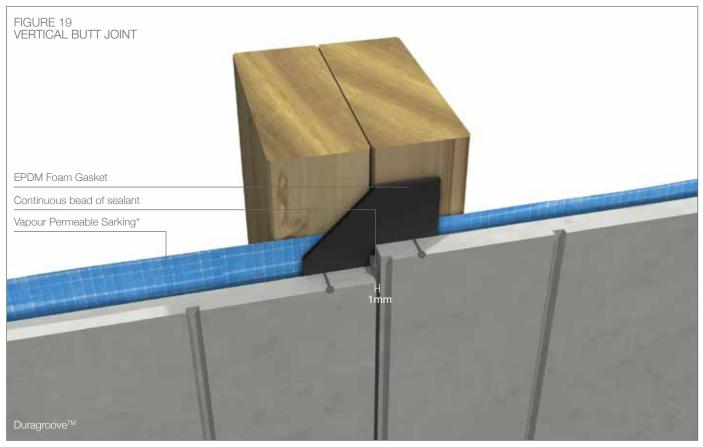






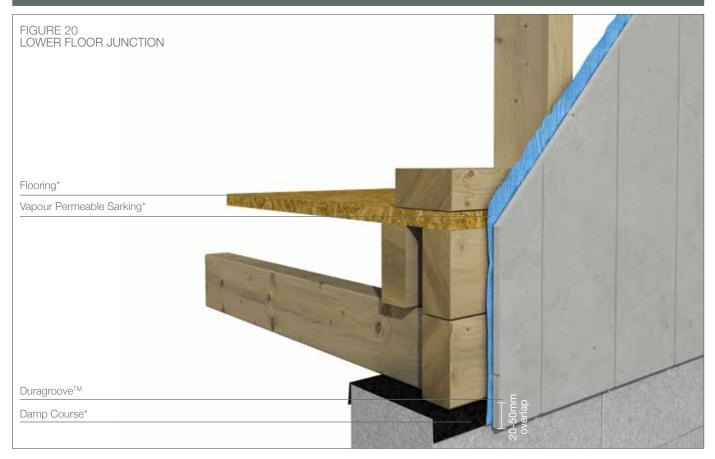


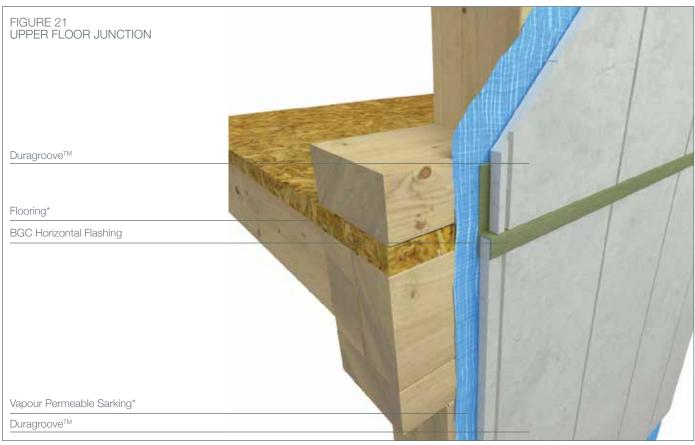






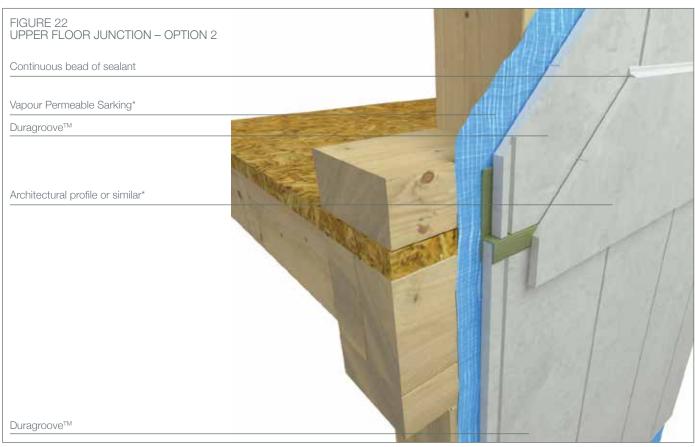


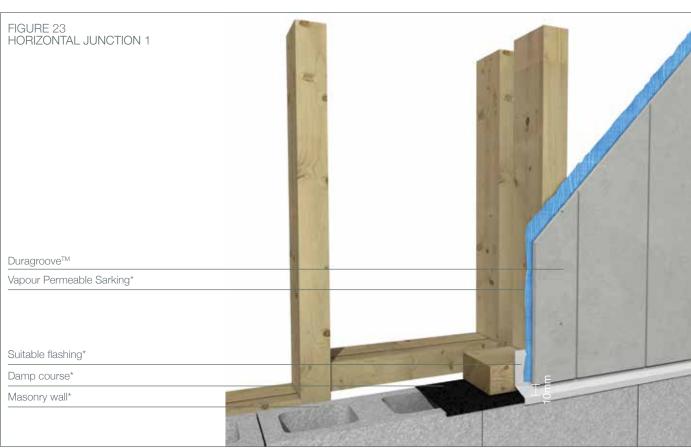






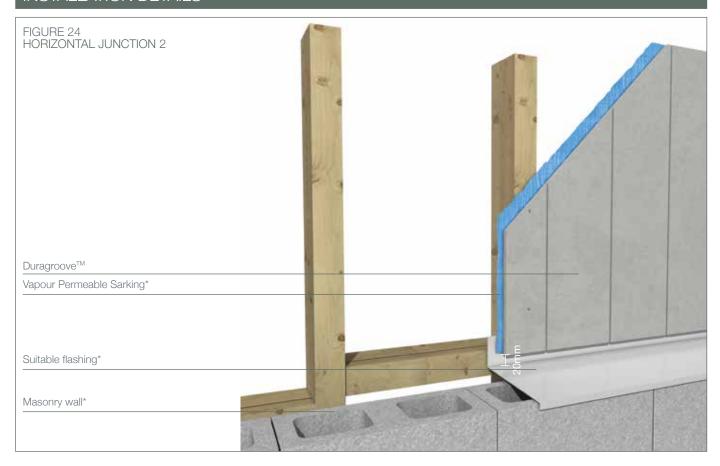












THERMAL BREAKS

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 compliance, except where the possibility of high thermal heat transfer exists through the steel CFS sections to the main structural steel element of the building.

MOISTURE MANAGEMENT

Designers, specifiers and builders have a duty of care to identify moisture-associated risks with any individual building design.

Wall construction design should consider both the interior and exterior environments of the building to effectively manage moisture. Special consideration should be given to buildings that are in extreme climates or at higher risk of wind driven rain.

In addition, all wall openings, penetrations, junctions, connections, window heads, sills and jambs must incorporate appropriate flashing for waterproofing. All other components, materials and installation methods used to manage moisture in walls should comply with the relevant standards of the Building Code of Australia (BCA).





BUSHFIRE AND BOUNDARY WALL AREAS

Duragroove[™] is eminently suited for both bushfire and boundary wall applications in residential and multi residential buildings.

Duragroove[™] may be used by itself to achieve up to BAL 40 when fixed direct to frame as per the fixing instructions in this manual.

Duragroove[™] when used in conjunction with BGC 16mm Wet Area Fireboard will comply with the requirements of AS3959:2009 and AS1530.4 to achieve BAL FZ>10 as well as 60 minute and 90 minute boundary wall systems.

BUSHFIRE AS3959:2009 APPLICATIONS.

AS3959:2009 sets out a series of Bushfire threat levels to buildings described as BAL (Bushfire Attack Levels) as follows: BAL-Low, BAL-12.5, BAL-19, BAL-29, BAL-40 or BAL-FZ (Flamezone).

Duragroove[™] may be used by itself to achieve a BAL-40 or BAL-FZ>10 when used in conjunction with 16mm Wet Area Fireboard.

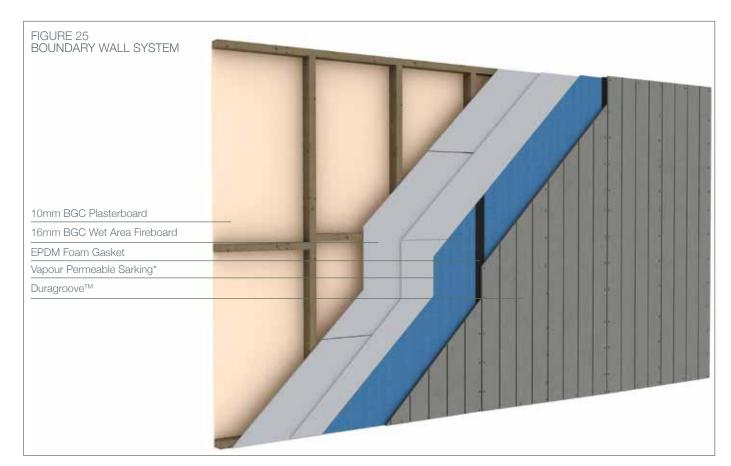
BOUNDARY/EXTERIOR WALLS

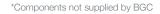
Duragroove™ in conjunction with BGC 16mm Wet Area Fireboard can achieve both 60/60/60 and 90/90/90 FRL fire ratings from the outside as required by the BCA.

Where an exterior wall is required to achieve 60/60/60 FRL (Fire Resistance Level) from the outside, 1 layer of 16mm BGC Wet Area Fireboard installed with Duragroove™ over the Wet Area Fireboard will meet minimum BCA requirements. Similarly 2 layers of 16mm BGC Wet Area Fireboard used in conjunction with Duragroove™ will achieve 90/90/90 from the outside.

NOTE: All exterior walls must have sarking beneath the Duragroove™. No adhesives are to be used when installing Wet Area Fireboard and the BGC Duragroove™. Nails or screws must be used.

For more information please contact your nearest BGC Fibre Cement office.









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 bgc.com.au/FibreCement);
 failure to comply with the Building Code of Australia
- 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.



NOTES

·····	
·····	
·····	
·····	
·····	





NOTES





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 9264 1457

TECHNICAL HELP LINE 1300 652 242



Fibre Cement



ISO 9001

SAI GLOBAL

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.

 $\mathsf{DURAFLOOR}^\mathsf{TM}$ / Is the ultimate flooring product that can be used in both interior and exterior applications.

DURAGRID™ RESIDENTIAL & DURAGRID™ 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™ / Suitable for exterior applications where it will be sheltered from direct weather.

INTERIOR PRODUCTS AND APPLICATIONS BGC FIBRE CEMENT RANGE OF PRODUCTS

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

DURALINERTM/ 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.