MAY 2010

innova™
INNOVATIVE FACADE SYSTEMS

STONESHEET™
SUBSTRATE FOR STONE FACADES

BGC Fibre Cement

AUSTRALIAN OWNED & MANUFACTURED
WW.BGC.COM.AU/FIBRECEMENT

MAY 2010

INTRODUCING INNOVA™

INNOVA™ IS A BRAND NEW RANGE OF FACADE AND FLOORING PRODUCTS WHICH WILL GIVE A NEW DIMENSION TO THE BGC PRODUCT RANGE. THE PRODUCTS WITHIN THE INNOVA RANGE HAVE BEEN DESIGNED TO INSPIRE YOU TO CREATE A NEW INNOVATIVE AND DYNAMIC FACADE OR FLOORING SYSTEM.

innova™
INNOVATIVE FACADE SYSTEMS

BGC STONESHEET™ IS RECOMMENDED AS A STONE TILE SUBSTRATE AND BACKGROUND FOR TRUE MASONRY ON TIMBER OR STEEL FRAMED BUILDINGS.

BGC STONESHEET™ IS FLAT, SQUARE EDGED SHEET AND IS MANUFACTURED IN 9MM THICK PANELS.

STONESHEET™ :

/ STONE TILE SUBSTRATE
/ EXTERNAL APPLICATIONS
/ NON STRUCTURAL SUBSTRATE
/ IS CLASSIFIED AS TYPE A CATEGORY 3 FOR EXTERNAL USE
/ IS DESIGNED TO TAKE A MAXIMUM STONE FACADE WEIGHT OF 40KG/M^2

CONTENTS

APPLICATIONS

Stonesheet™ has been specifically designed for use as a substrate for both internal and external stone tile facades. Stonesheet™ is a perfect alternative for use where other non-specifically designed substrates have traditionally been used.

Stonesheet™ is manufactured in standard industry sized sheets and in a thickness of 9mm.

ADVANTAGES

/ Specifically designed to hold stone tile facades
/ Highly durable
/ Can be used for internal and external applications

WEIGHT CAPACITY

The installation guidelines in this brochure are detailed to a maximum stone tile weight of 40kg per m^2. Any stone tile facades above this weight should be certified by a structural engineer or refer to the stone tile facade manufacturer for further details.

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.

PRODUCT INFORMATION

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

Stonesheet™ fibre cement sheets are manufactured to conform to the requirements of AS2908.2 Cellulose-Cement Products and are classified as Type A Category 3 sheet for external use.

FIRE RESISTANCE

Stonesheet™ has been tested by the CSIRO – Building, Construction and Engineering Division, in accordance to Australian Standard AS1530.3 – 1989. See report numbers FNE 6966 and FNE 7529.

These reports deemed the following Early Fire Hazard Indices:

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

QUALITY SYSTEMS

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

PANEL SIZES AND MASS

THICKNESS mm	MASS KG/M^2	WIDTH mm	LENGTH mm
9	13	1200	3000

SHEET TOLERANCES

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

HANDLING & STORAGE

Stonesheet™ must be stacked flat, up off the ground and supported on level bearers at 450mm centres.

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. Sheets must be carried on edge.

HEALTH & SAFETY

BGC Stonesheet™ as manufactured 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, use the methods recommended in this literature to minimise dust generation.

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

For further information or a Material Safety Data Sheet contact any BGC Sales Office or www.bgc.com.au

FREEZE THAW

Stonesheet™ should not be used in situations where it will be in direct contact with snow or ice for prolonged periods.

SHEET CUTTING & DRILLING

Stonesheet™ 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.

/ 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.

FASTENERS

LIGHTWEIGHT STEEL FRAMING

9.0mm Stonesheet™ is fixed to lightweight steel framing using No.10 self-embedding head screws. Screws should be driven just flush with the sheet face. Do not overdrive screws.

No.10 x 30mm Countersunk self drilling screw minimum class 3. BGC recommends to pre-drill & countersink the Stonesheet™ prior to fixing.

TIMBER FRAMING

9.0 Stonesheet™ is screw fixed to timber frame using a minimum Class 3, 10-12 x 40mm Countersunk wood screw suitable for timber.

BGC recommends to pre-drill & countersink the Stonesheet™ prior to fixing.

COASTAL AREAS

The durability of galvanised nails and screws used for external cladding in coastal or similar corrosive environments can be as low as 10 years.

For this reason BGC recommends the use of stainless steel fasteners within 1km of the coast or other large expanse of salt water.

SARKING

In wall cladding applications, the installation of a vapour permeable sarking between Stonesheet™ and the framing is recommended.

Under windy conditions the building's internal pressure will generally be less than the external air pressure, this will tend to draw water through flashing and seals if sarking is not used.

Use of a reflective sarking will enhance the insulation properties of the cladding system.

FIXING REQUIREMENTS

Sheets are to be fixed along all sheet edges over studs on wall cladding applications. Fixings centres must not exceed 200mm for wall cladding.

Do not place fixings closer than 12mm from sheet edges, or closer than 50mm from the sheet corners.

The sheet must be held firmly against the framing when fixing to ensure breakout does not occur on the back.

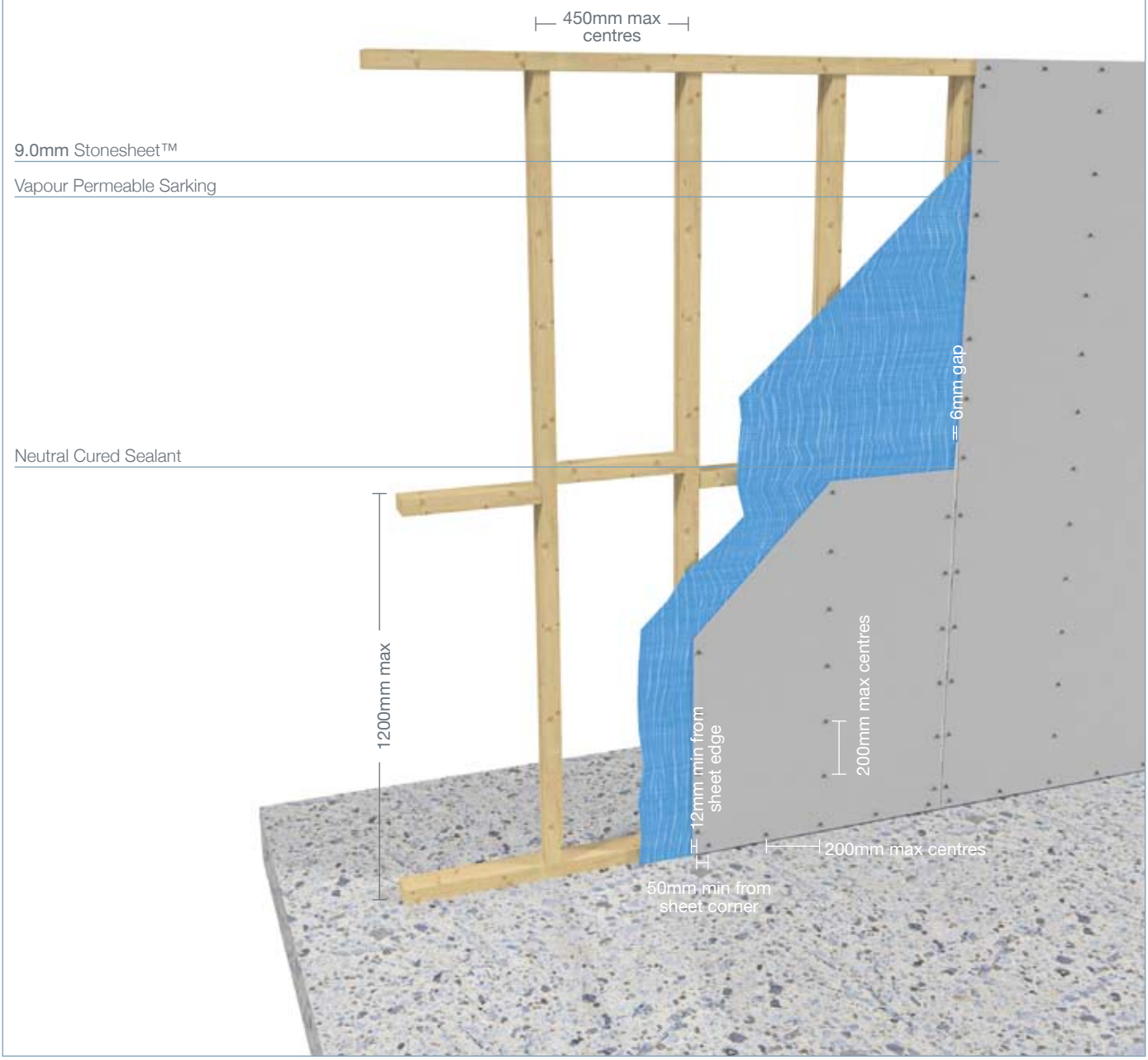
Coastal Areas – The durability of galvanised screws used for external cladding in coastal or similar corrosive environments can be as low as 10 years.

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

Fasteners are to be flush with sheet surfaces: Over driving fasteners must be avoided.

6mm gap between sheets should be caulked with a 'Neutral Cured' sealant prior to the waterproofing membrane being applied.

FIGURE 1 / SHEET FIXING



TILE PREPARATION

Stonesheet™ when used as an external tile substrate must be fixed to the frame with screws as set out previously in the fasteners section (adhesive fixing of the sheeting is not acceptable for tiled applications.

BGC recommends the application of a waterproofing membrane to the entire surface of the Stonesheet which is compatible with the tiling adhesive.

For fixing of tiles and the installation of the waterproofing membrane, follow the tile manufacturers instructions.

BGC recommend the use of a flexible tile adhesive complying with Part 1 of Australian Standard AS 2358 – 1990 “Adhesives – For Fixing Ceramic Tiles”. In some tropical regions flexible adhesives may not be suitable – check with the tile merchant or adhesive manufacturer for recommendations.

SUPPORT ANGLES

All tiled areas are to be supported by an appropriate steel angle starting at the bottom. Refer Figure 2 & 3.

The angle is fixed to the bottom section of the wall with Class 3 10g x 50mm Button head screws. Max fixing centres 450mm.

The bottom leg of the angle is to support at least one third of the tile thickness.

Support angles are to be installed at heights intervals of 600mm or less where wall heights exceed 3.0m and the tiled weight exceeds 32kg/m2

FIGURE 2 / SUPPORT ANGLES
0-32kg/m2

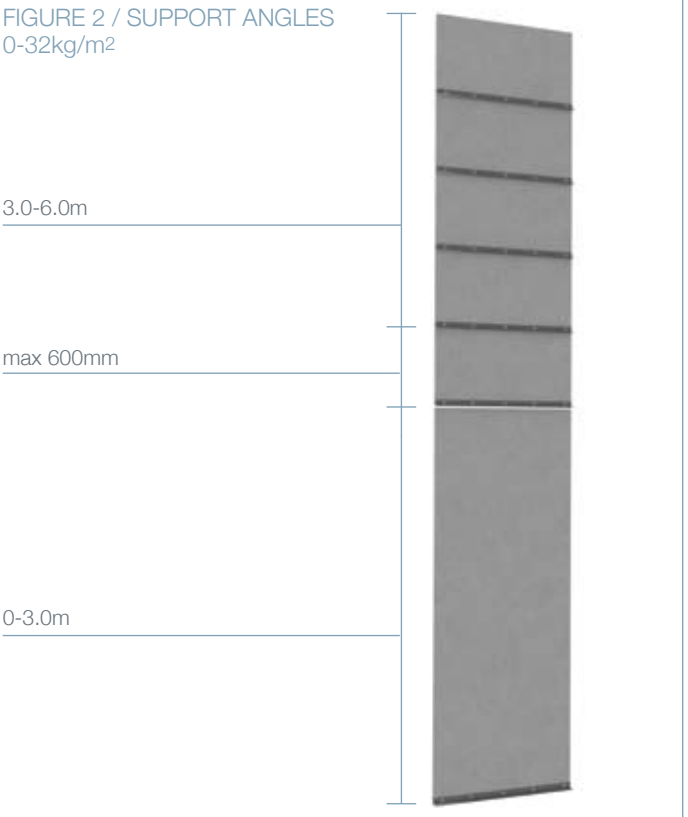


FIGURE 3 / SUPPORT ANGLES
32-40kg/m2

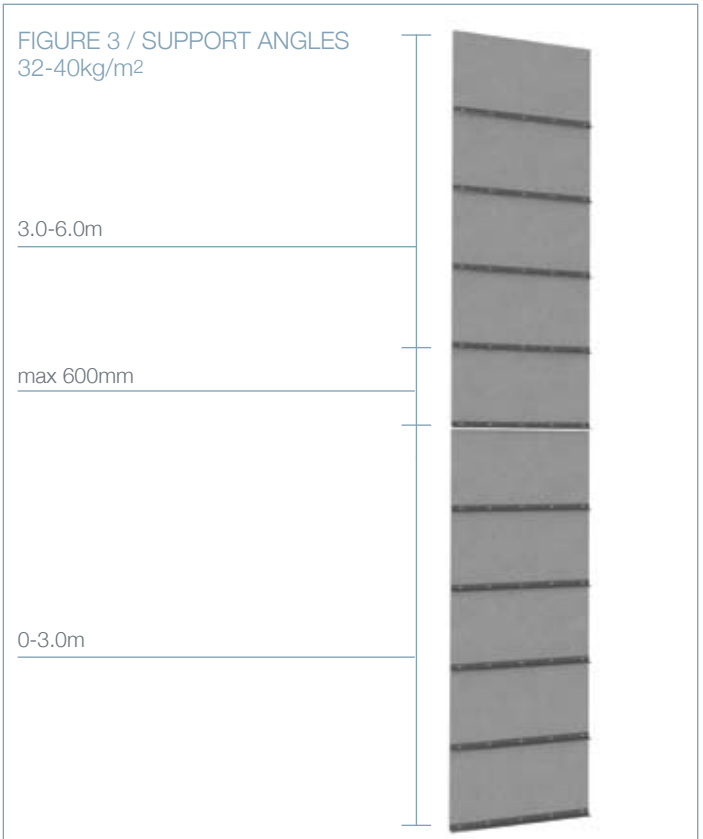


FIGURE 4 / INSTALLATION OF ANGLE BRACKET ON BGC STONESHEET™

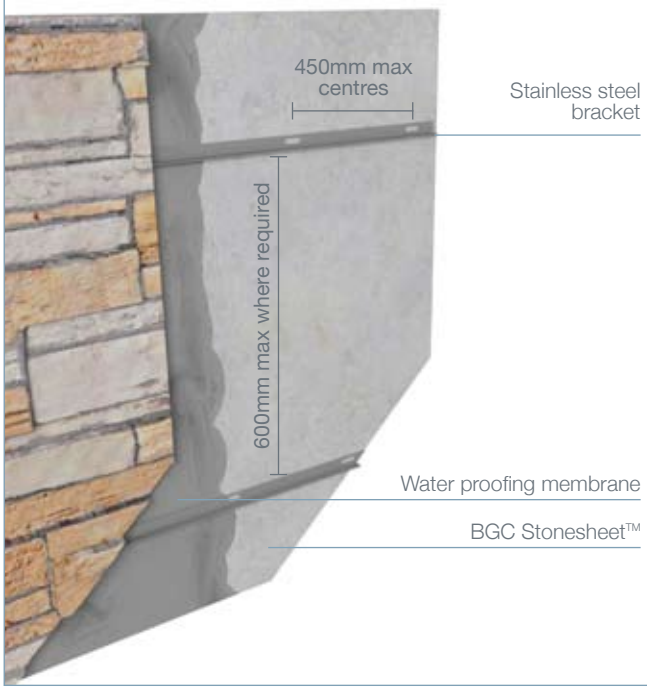
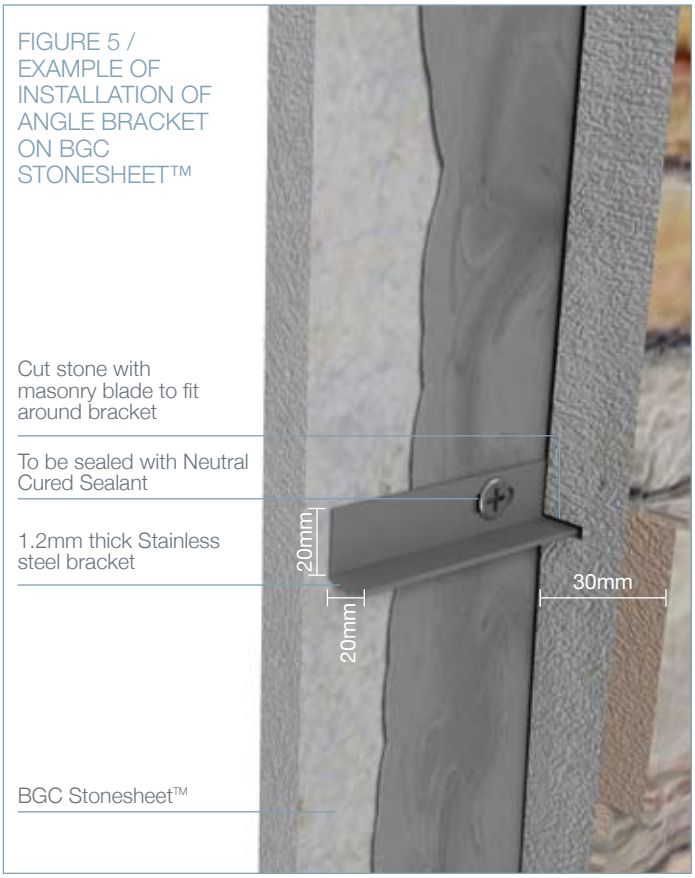


FIGURE 5 / EXAMPLE OF INSTALLATION OF ANGLE BRACKET ON BGC STONESHEET™



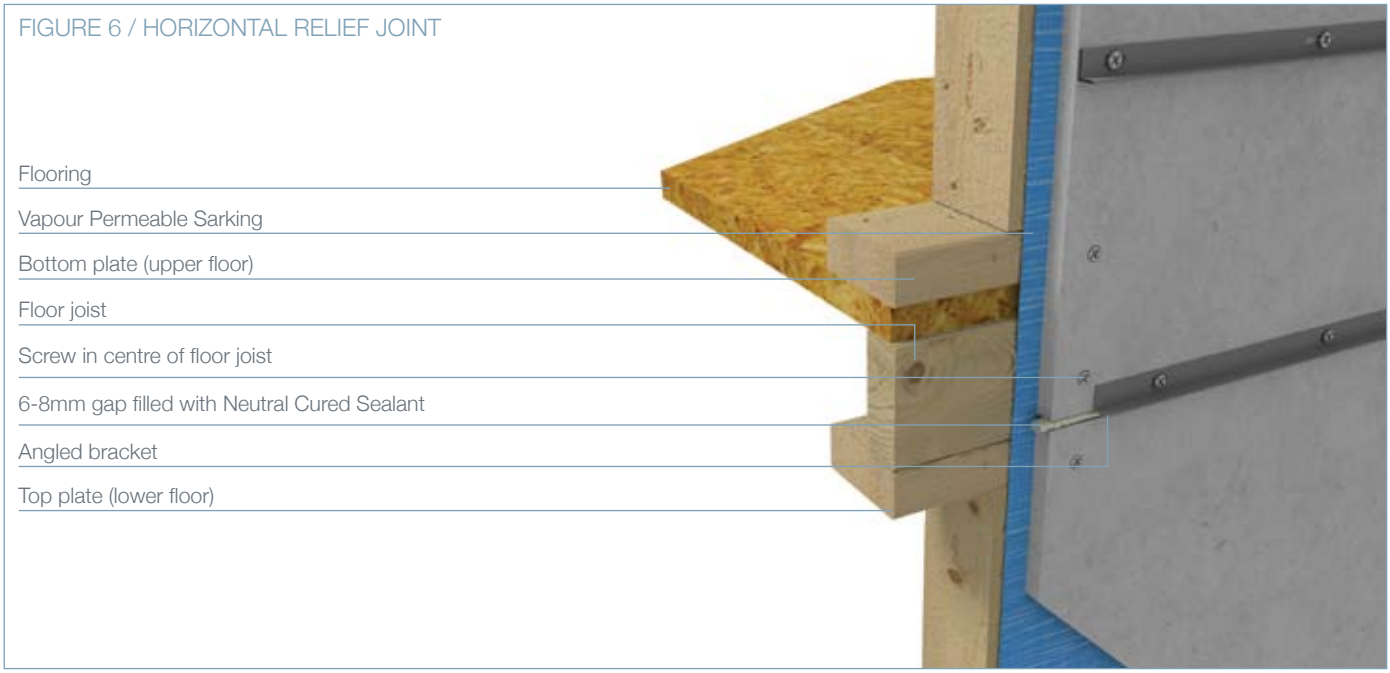
WALL HEIGHTS

Maximum wall heights are to be maximum of 6.0m
Refer diagrams for max wall heights and support angle spacing.

HORIZONTAL RELIEF JOINTS

Horizontal Relief Joints must be provided if the wall height exceeds 3000mm or wherever floor joists occur. (This is imperative if non-kiln dried timber floor joists or framing is used).

FIGURE 6 / HORIZONTAL RELIEF JOINT



FRAMING

Frame must be designed to be able to carry the additional load of 9mm Stonesheet™: Stone Adhesive: Applied stone. Total Mass not to exceed 56kg/mtr2.

/ Framing must be constructed to comply with the Building Code of Australia.

/ The framing must be set to a true plane to ensure a straight finish to the wall.

/ Studs must be spaced at a maximum of: 450 mm centres for 9.0 mm Stonesheet™

/ Noggings must be spaced at a maximum of 1200 mm centres. For horizontal sheet fixing noggings must support the sheet joints.

/ Maximum frame height 3000mm.

TIMBER FRAMING

Timber framing must comply with AS 1684.2 & .3 - 1999 National Timber Framing Code.

Stonesheet™ must not be fixed to wet framing. It is strongly recommended that kiln dried timber is used for framing.

If sheets are fixed to 'wet' framing problems may occur at a later date due to excessive timber shrinkage.

METAL FRAMING

Metal framing must comply with AS 3623 - 1993 Domestic Metal Framing.

Stonesheet™ may be fixed directly to lightweight metal framing. The metal framing must not exceed 1.6 mm in thickness.

DESIGN CONSIDERATION

/ If Stonesheet™ is used with rigid steel framing, it must be battened out with either timber or lightweight steel battens prior to fixing.

/ Timber battens must have a minimum thickness of 40 mm to allow adequate fastener penetration. Battens supporting sheet joints must have a minimum actual face width of 45 mm.

MOVEMENT CONTROL JOINTS

Movement control joints to be set out as per AS3958.1-2007 section 5.4.5.3. Refer to tile manufacturer for further information.

SHEET LAYOUT FOR CLADDING

Information in this publication is satisfactory for low-rise (up to two story) domestic and light commercial buildings in non-cyclonic regions.

9.0 mm Stonesheet™ cladding should be fixed vertically.

Framing must support all sheet joints.

Stonesheet™ is to be fixed along all sheet edges ie Top & Bottom plates and studs at 200 mm maximum fixings centres.

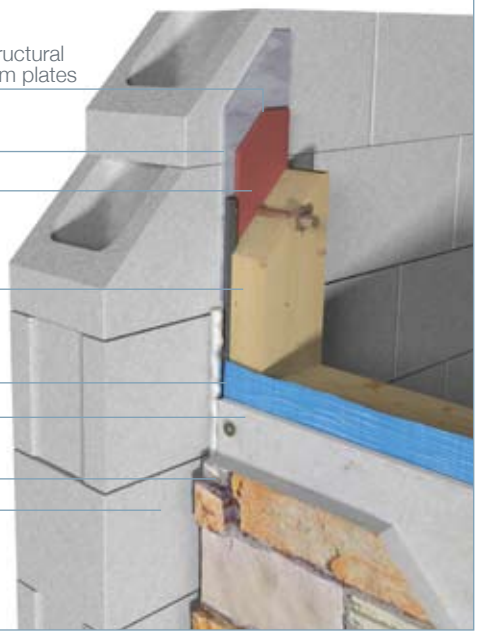
Do not place fixings closer than 12mm from sheet edges, or closer than 50mm from sheet corner.

WALL ABUTMENT

Control Joints must be employed when an addition is constructed onto an existing building or when a masonry wall adjoins a timber or steel framed construction.

Control Joints should be constructed using 9 mm diameter backing rod and polyurethane sealant on abutment to existing masonry walls. See figure 7.

FIGURE 7



Note: BGC recommend to apply a waterproofing membrane such as Ardex WPM002 to the entire surface of the Stonesheet™ prior to tiling. Tiling adhesive to be compatible with the membrane.

SHEET JOINTS

FIGURE 8 / SHEET JOINT LIGHT WEIGHT STEEL FRAMING

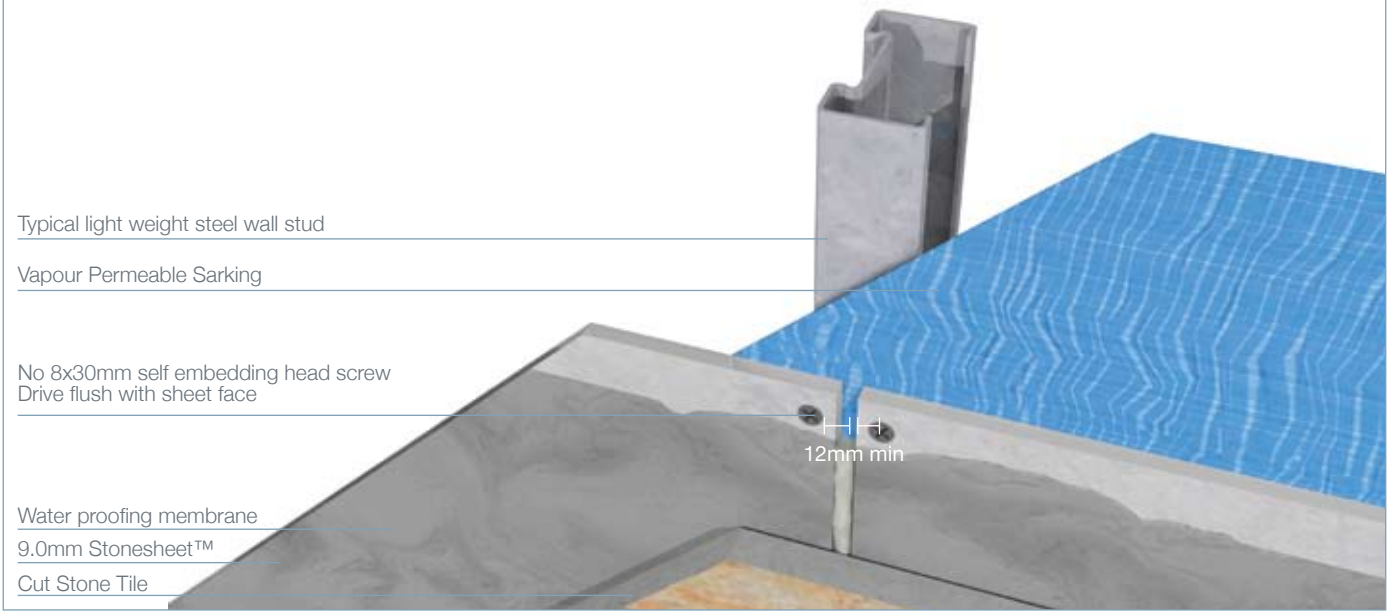
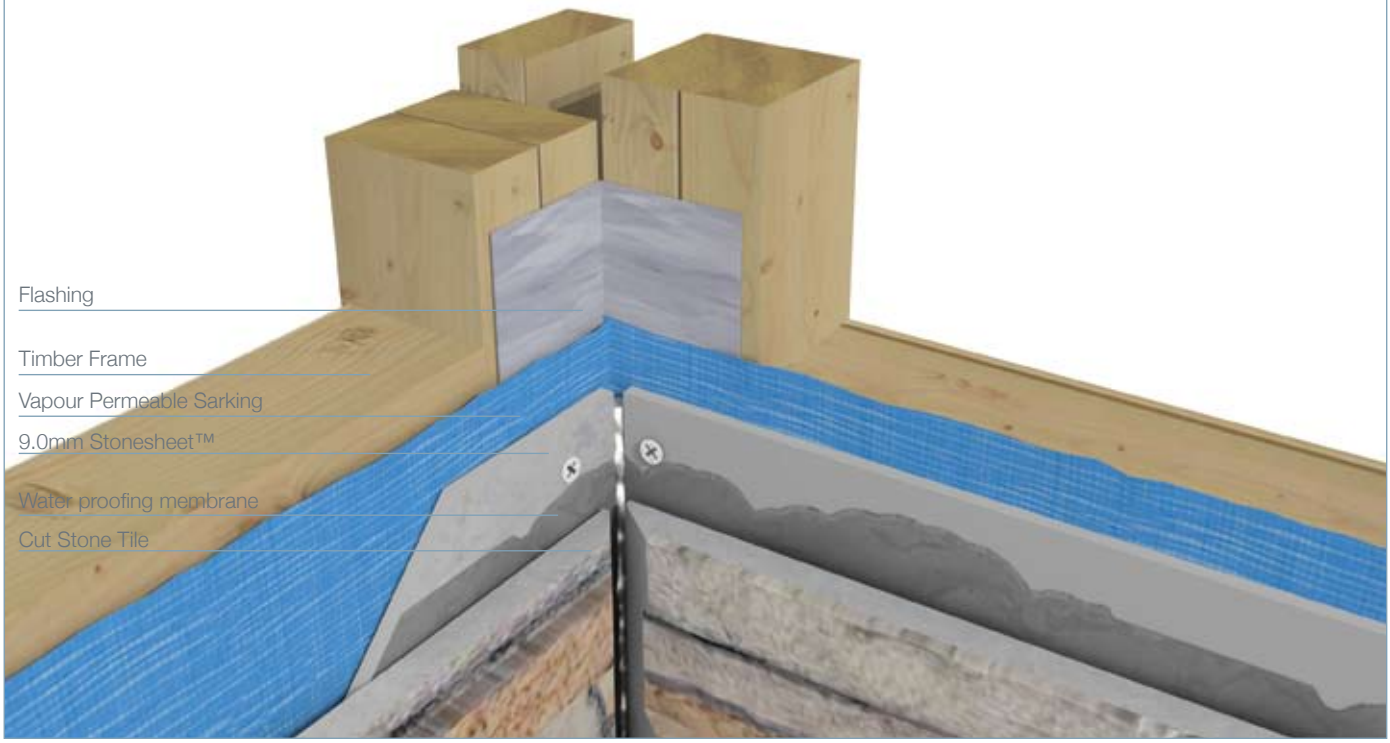
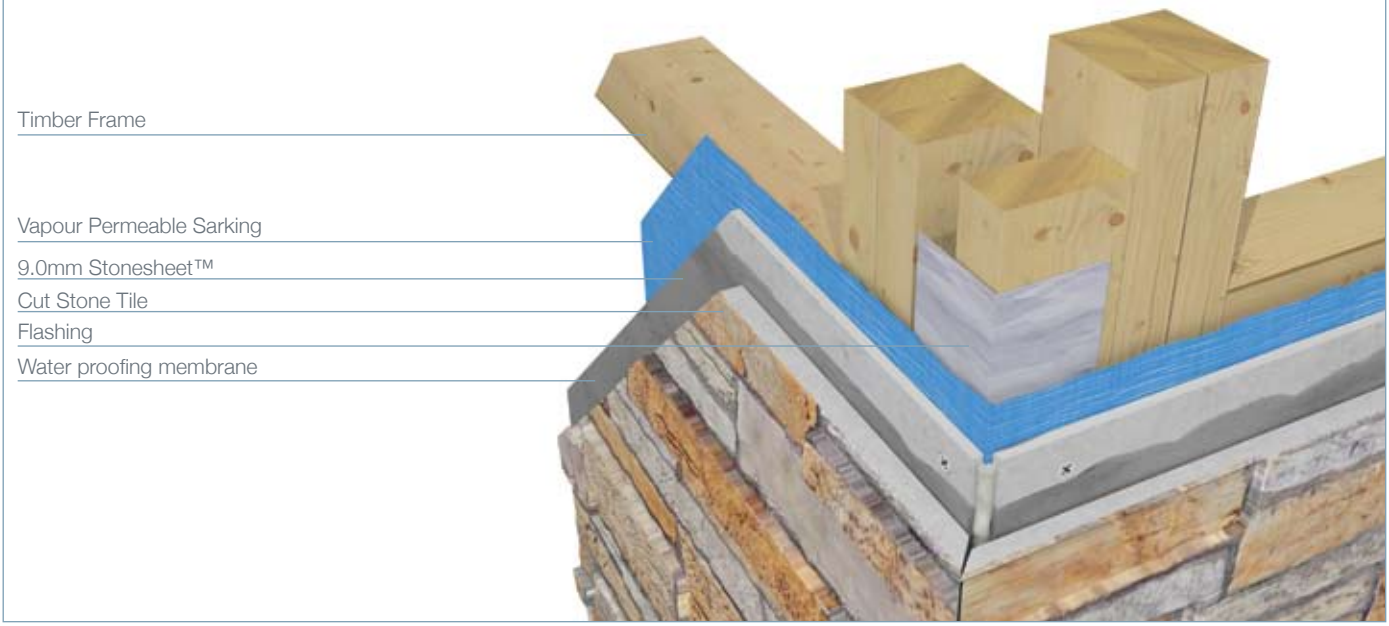


FIGURE 9 / INTERNAL CORNERS



SHEET JOINTS

FIGURE 10 / EXTERNAL CORNERS

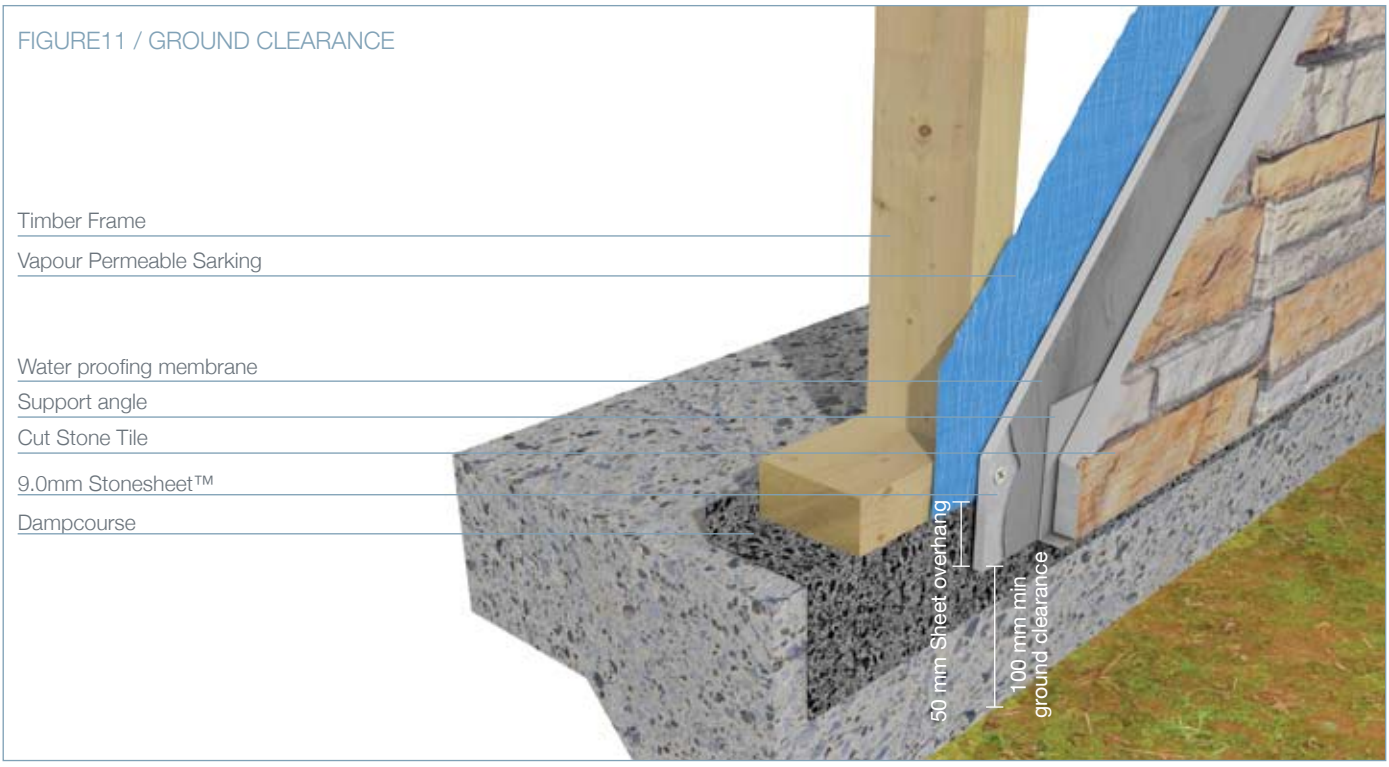


GROUND CLEARANCE

Stonesheet™ must not be used in situations where it will be below ground or where it will be buried in the ground.

A minimum of 100 mm must be maintained from the bottom edge of the sheet to the ground, see Figure 11.

FIGURE11 / GROUND CLEARANCE



BRACING

Please contact your state BGC Fibre Cement office for advice.

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CONTACT

TO CONTACT
YOUR NEAREST
BGC STOCKIST,
PLEASE CALL:

ADELAIDE
TELEPHONE
08 8347 0844

BRISBANE
TELEPHONE
07 3711 4744

MELBOURNE
TELEPHONE
03 9392 9444

PERTH
TELEPHONE
08 9334 4900

SYDNEY
TELEPHONE
02 9632 2100

NEW ZEALAND
TELEPHONE
0011 64 9264 1457

BGC Fibre Cement

Quality System
Quality Endorsed Company

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

BGC HAS STATE-OF-THE-ART MANUFACTURING FACILITIES IN PERTH AND DISTRIBUTION CENTRES IN ALL STATES OF AUSTRALIA & IN NEW ZEALAND.

OUR DISTRIBUTION NETWORK ENSURES THAT OUR ENTIRE PRODUCT RANGE IS READILY AVAILABLE IN ALL STATES OF AUSTRALIA. BGC HAS A TEAM OF TECHNICAL SPECIALISTS WHO CAN ASSIST WITH ALL SPECIFICATION AND DESIGN INFORMATION. BGC PROVIDES BUILDERS, DEVELOPERS AND ARCHITECTS WITH A RANGE OF DESIGN ALTERNATIVES AND INNOVATIVE PRODUCTS.

BGC FIBRE CEMENT PRODUCTS AND APPLICATIONS DISTRIBUTED BY BGC ARE:

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

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

DURACOM™ / Compressed fibre cement facade system

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

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

DURALUX™ / Internal lining board suitable for ceilings and soffits.

DURASHEET™ / Used for external applications. Durasheet is ideal for the cladding of gables and lining eaves, carports and verandahs. Can also be used for commercial soffits and external cladding on non impact areas.

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

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

NULINE™ / Weatherboard cladding system.

SILHOUETTE™ / A fibre cement plank and uPVC feature strip exterior cladding system.

STONESHEET™ / Purpose designed substrate for stone tile facade.

VINYL CORK FLOOR COVERINGS / A substrate for vinyl floors.

SAFE WORKING PRACTICES / Please wear a P1 or P2 mask and safety goggles (approved to AS/NZW1337 standards) whilst cutting or installing Stonesheet™. Stonesheet™ sheets can be safely handled during unloading or stacking without the use of these precautions. CLEANING UP / Always wet down your work area when cutting Stonesheet™, to ensure that dust is managed. Dispose of any vacuumed dust with care and using containment procedures.

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DESIGN
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