USG Boral Wet Area Systems are for the interior lining of timber and steel framed walls and ceilings in wet areas such as bathrooms, showers, laundries, sanitary compartments and kitchens where a water-resistant lining material is desirable.

Wet areas can be classified into two categories:

1. Splash areas – those areas which may be subject to water splash e.g. behind hand basins, laundry tubs and bath surrounds.

2. Shower spray areas – areas subject to spray from the shower rose, which includes enclosed or unenclosed showers, and showers over baths.

USG Boral Wet Area Systems are based on USG Boral MultiStop™ 4, and USG Boral Fiberock® Aqua-Tough™ water resistant linings.

USG Boral Wet Area Systems are for use as a wet area wall and ceiling lining in buildings within the following scope:

- on framed walls and ceilings within the scope limitations of NZS 3604; or,
- on timber and light gauge steel framed walls and ceilings subject to specific design; and
- for interior use only.

USG Boral Wet Area Systems comply with the requirements of E3/AS1 and are thus suitable for use in residential buildings and other buildings with a similar usage pattern.

When used in shower areas, the plasterboard must be protected by a suitable waterproof membrane. Refer to the Code of Practice for Internal Wet Area Membranes for details on the selection, design and installation of waterproofing membrane systems.
GENERAL INFORMATION

PREFACE

USG Boral Building Products is a plasterboard and ceilings joint venture between USG Corporation and Boral Limited and is one of the leading manufacturers in this field.

Operating throughout Asia, Australia, the Middle East and New Zealand USG Boral Building Products combines innovative building products and superior technology for the construction sector and provides products and systems that exceed the compliance requirements of each market.

USG Boral Building Products is well positioned to service the Australian and New Zealand markets with manufacturing and supply facilities in New South Wales, Queensland, Victoria and New Zealand.

INTRODUCTION

This manual is intended for use by specifiers, plasterboard contractors and builders. It outlines recommended methods for installation, jointing and finishing of USG Boral linings in wet areas.

TECASSIST®

For technical assistance please refer to www.usgboral.com or phone 0800 USGBORAL (0800 874-467)

WARRANTY

For more information on USG Boral Building Products warranty please refer to www.usgboral.com or phone 0800 USGBORAL (0800 874-467)

LIABILITY

USG Boral will not accept any liability for its wet area products and systems which are not correctly installed as stipulated in this manual.

ISO 9000 QUALITY ASSURANCE

USG Boral Building Products Pty Ltd is a certified ISO 9001 - 2008 manufacturer No. QEC 0400 by SAI Global.

LIMITATIONS OF USE

For use as a wet area wall and ceiling lining in buildings within the following scope:

- on framed walls and ceilings within the scope limitations of NZS 3604.2011; or,
- on timber and light gauge steel framed walls and ceilings subject to specific design
- for interior use only.
WHO MAY INSTALL USG BORAL WET AREA SYSTEMS

Where the building work has been identified as Restricted Building Work, installation of USG Boral Wet Areas Systems must be undertaken by or supervised by a Licensed Building Practitioner with the appropriate license category.

HEALTH & SAFETY

It is important to follow good site practice at all times and to ensure appropriate safety precautions are taken when installing the USG Boral Wet Area Systems and all supporting components.

COMPATIBILITY WITH ASSOCIATED PRODUCTS

The USG Boral Wet Area Systems and their components are compatible with most associated building products, however it is recommended that the installer seeks advice if in doubt.

BRANZ APPRAISAL

USG Boral Wet Area Systems have been assessed by BRANZ as meeting the relevant New Zealand Building Code (NZBC) performance clauses.

BUILDING CODE COMPLIANCE

USG Boral Wet Area Systems meet, or contribute to meeting, the following NZBC Clauses:

B1 Structure: Performance B1.3.1, B1.3.2 and B1.3.4 for loads arising from self-weight and impact [i.e. B1.3.3 (a) and (j)]

B2 Durability: Performance B2.3.1 (a) not less than 50 years, B2.3.1 (b) 15 years and B2.3.1 (c) 5 years.

C Protection From Fire: Performance C3.4(a).

E3 Internal Moisture: Performance E3.3.4, E3.3.5 and E3.3.6.

F2 Hazardous Building Materials: Performance F2.3.1.

STANDARDS

The following American, Australian and New Zealand Standards and other documents are referenced in this publication:


• AS 2753-1985 Adhesives - Mastic - For bonding gypsum plaster linings to wood and metal framing members

• AS/NZS 4858:2004 Wet area membranes

• ASTM C1278 Standard Specification for Fiber-Reinforced Gypsum Panel

WALLS

Walls in wet areas can be finished with a variety of finishes such as tiles, paints, pre-formed shower liners, and sheet vinyl. Areas subject to spray from the shower rose must be waterproofed with an appropriate waterproofing membrane. Shower spray areas include enclosed or unenclosed showers, and showers over baths.

Framing

Timber framing must be in accordance with NZS 3604:2011, or a specific design to NZS 3603 and AS/NZS 1170. Steel framing must be to a specific engineering design meeting the requirements of the NZBC. Studs must be at maximum 600mm centres.

To achieve an acceptable decorative finish on timber framing, the walls must not be lined unless the moisture content of the timber framing is less than 18%. USG Boral Building Products NZ recommend a moisture content of 8–12% where buildings are to be air conditioned or centrally heated.

Control Joints

In tiled areas, control joints must be provided at maximum 4m centres.

Internal corners

Internal corners in tiled areas must be reinforced with a 40x40mm galvanised steel angle prior to fixing the plasterboard linings.

Figure 1: Internal Corner
WATERPROOFING OF WET AREAS

Minimum waterproofing and water-resistance requirements for walls and floors in wet areas are outlined in NZBC Acceptable Solution E3/AS1.

The Code of Practice for Internal Wet Area Membranes (selection, design, installation), published by the Waterproofing Membrane Association (NZ) Incorporation sets out the selection of waterproofing membranes, general design principles and acceptable substrates. Water-resistant grade gypsum plasterboard that meets the requirements of AS/NZS 2588 is deemed a suitable substrate for wet area membranes. USG Boral MultiStop™ is manufactured in accordance with AS/NZS 2588 and is classified as water resistant grade plasterboard. Fiberock® Aqua-Tough™ is manufactured in accordance with ASTM C1278 and meets the water resistance and surface water absorption requirements of that standard.

Ceilings

As the NZBC does not require the use of water resistant ceiling linings over wet areas, SHEETROCK® brand plasterboard provides an adequate solution for this application. USG Boral MultiStop™ 4 and USG Boral Fiberock® Aqua-Tough™ can be used in wet area ceilings if water resistant linings are desirable.

USG Boral plasterboard sheets are fixed with screws at the sheet edges and along the centre line. Daubs of adhesive are placed at maximum 200 mm centres between the screws. USG Boral Fiberock® Aqua-Tough™ is to be fixed with the screws only fixing method.

NOTE: USG Boral recommends that ceiling paint in wet areas should be specified as suitable for wet areas by the paint supplier.

Ceiling fixing spans

The maximum fixing spans for ceilings used in wet areas are as indicated in the following table:

<table>
<thead>
<tr>
<th>Plasterboard Type and Thickness</th>
<th>Maximum fixing span (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 mm SHEETROCK®</td>
<td>600 mm</td>
</tr>
<tr>
<td>13 mm SHEETROCK®</td>
<td>600 mm</td>
</tr>
<tr>
<td>10 mm MultiStop™ 4</td>
<td>450 mm</td>
</tr>
<tr>
<td>13 mm MultiStop™ 4</td>
<td>600 mm</td>
</tr>
<tr>
<td>13 mm Fiberock® Aqua-Tough™</td>
<td>600 mm</td>
</tr>
<tr>
<td>16 mm Fiberock® Aqua-Tough™</td>
<td>600 mm</td>
</tr>
</tbody>
</table>
Plasterboard

Although plasterboard is not a waterproof material, USG Boral offers a number of lining products considered as moisture resistant under the NZBC requirements for domestic wet areas. These products include:

- 10mm / 13mm MultiStop™ 4
- 13mm / 16mm Fiberock® Aqua-Tough™

**USG Boral MultiStop™ 4 is:**
- manufactured with a moisture resistant core that stops water wicking up the board causing damage to the board itself and to the surface finish.
- manufactured with recessed edges for flush jointing within and outside of tiled areas.
- water resistant grade plasterboard manufactured in accordance with AS/NZS 2588.
- MultiStop™ 4 has a green face liner.

**USG Boral Fiberock® Aqua-Tough™** is a water resistant paperless gypsum fibre board offering additional benefits of mould resistance and high impact resistance. Fiberock® Aqua-Tough™ contains 95% recycled materials.

Manufactured with recessed edges for flush jointing, Fiberock® Aqua-Tough™ can be used as an alternative wall lining in USG Boral Wet Areas and can be installed using the same fixing, jointing and waterproofing materials as specified for USG Boral MultiStop™ 4.

Plasterboard size and availability

Standard sizes and availability of USG Boral wet area plasterboard products are shown in the following table:

<table>
<thead>
<tr>
<th>PLASTERBOARD TYPE</th>
<th>EDGE PROFILE</th>
<th>THICKNESS (mm)</th>
<th>WIDTH (mm)</th>
<th>LENGTH (m)</th>
<th>MASS (kg/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>1.2</td>
<td>4.8 3.6 3.0 2.7 2.4</td>
<td></td>
</tr>
<tr>
<td>MultiStop™ 4</td>
<td>RE/RE</td>
<td>10</td>
<td>1.2</td>
<td>✔ ✔ ✔ ✔ ✔ ✔</td>
<td>9.7</td>
</tr>
<tr>
<td></td>
<td>RE/SE</td>
<td>1.35</td>
<td>✔ ✔ ✔ ✔ ✔ ✔</td>
<td>9.7</td>
<td></td>
</tr>
<tr>
<td>MultiStop™ 4</td>
<td>RE/RE</td>
<td>13</td>
<td>1.2</td>
<td>✔ ✔ ✔ ✔ ✔ ✔</td>
<td>11.8</td>
</tr>
<tr>
<td>Fiberock® Aqua-Tough™</td>
<td>RE/RE</td>
<td>13</td>
<td>1.2</td>
<td>✔ ✔ ✔ ✔ ✔ ✔</td>
<td>12.0</td>
</tr>
<tr>
<td>Fiberock® Aqua-Tough™</td>
<td>RE/RE</td>
<td>16</td>
<td>1.2</td>
<td>✔ ✔ ✔ ✔ ✔ ✔</td>
<td>15.0</td>
</tr>
</tbody>
</table>
Fasteners (refer to page 13 for more details)

**Timber framing (Screws)**
- 10 mm thick sheets - Minimum 6g x 25 mm coarse threaded Gypsum screws
- 13 mm thick sheets - Minimum 6g x 30 mm coarse threaded Gypsum screws
- 16 mm thick sheets - Minimum 6g x 45 mm coarse threaded Gypsum screws

**Timber framing (Nails)**
- 10 mm thick sheets - 2.8mm x 40mm nails
- 13 mm thick sheets - 2.8mm x 40mm nails
- 16 mm thick sheets - 2.8mm x 50mm nails

**Steel framing (Screws)**
- 10 mm thick sheets - Minimum 6g x 25 mm fine threaded Gypsum screws
- 13 mm thick sheets - Minimum 6g x 25 mm fine threaded Gypsum screws
- 16 mm thick sheets - Minimum 6g x 25 mm fine threaded Gypsum screws

Note: Where USG Boral Wet Area Systems are used for bracing, the fixings specified in the relevant bracing system take precedence over those specified above.

**Adhesive and sealants**

Suitable drywall stud adhesive that complies with AS 2753. The adhesive must be compatible with the selected framing type i.e. timber or steel framing.

**Wet Area Sealant**
A wet area sealant is a flexible acrylic sealant suitable for waterproofing:

- Wall junctions and cutouts
- Bottom of sheets in shower bases or bath abutments
- Around plumbing fixtures and penetrations.

The selected wet area sealant must comply with requirements of E3/AS1 for waterproof materials.

**Corner Support Angle**
40mm x 40mm galvanised metal angle Rondo XD503600 is used to support internal corners in wet areas when using tiles.

**Waterproofing membranes**

Waterproofing membranes complying with AS/NZS 4858. Wet Area Membranes are deemed to be a waterproof material when used as part of a waterproofing systems as outlined in E3/AS1. A bond breaker must be installed at all wall/floor, hob/wall junctions and at movement joints where the waterproofing membrane is bonded to the substrate. Refer to the Code of Practice for Internal Wet Area Membranes for details on the selection, design and installation of waterproofing membrane systems. Always refer to manufacturers recommendations before applying waterproof membranes.
Preparation of Wet Areas

Check framing for layout and fixing of additional noggings to support wet area fittings such as screens and taps and the continuous support for USG Boral water resistant linings at the shower base and bath rims.

Provide adequate noggings 25mm (nominal) above bath, shower bases, tubs and sinks for fixing the edges of USG Boral water resistant linings.

Ensure that plumbing pipes and noggings do not protrude beyond the face of the studs.

Preformed shower bases and baths to be recessed into studs so that USG Boral water resistant linings can sit correctly in front of the shower base upstand. This will provide a natural flashing point.

The installation requirements for the Wet Area plasterboard varies depending on the final surface finish. Tiled walls require additional fixings to support the weight of the tiles. Refer relevant section below for fixing requirements.

General Screw and Nail Fixing

• Plasterboard sheets must be held firm against framing while driving fasteners.

• Screws and nails should be slightly overdriven to allow for stopping but should not break the face paper.

• Fasteners to be placed 18mm from sheet ends and cut edges and 12mm from sheet edges. Screws should be selected from Tables 4 and 5.

• Nails should be selected from Tables 6 and 7.

• Screws used for plasterboard fixing must comply with AS 3566 *Self-drilling screws for the building and construction industries. Part 2: Corrosion resistance requirements.*

• For bracing fixing, refer to USG Boral Plasterboard Bracing Manual - NZ for specific layouts and fastening requirements.

• Bracing sheets are permitted in general wet areas, but must not be used in the specific areas outlined in NZBC Clause E3/AS1 (prescribed areas around baths and showers etc.).

Tiles

USG Boral MultiStop™ 4 and USG Boral Fiberock® Aqua-Tough™ are suitable as substrates for tiling. These sheets must be screw fixed only when tiles are to be applied – adhesive fixing is not permitted. The maximum weight of tiling for each substrate board is as follows:

• 10 mm thick MultiStop™ 4 - 32 kg/m²
• 13 mm thick MultiStop™ 4 - 32 kg/m²
• 13 mm or 16 mm USG Boral Fiberock® Aqua-Tough™ - 50 kg/m²

• Ceramic and porcelain wall tiles typically have a mass less than 20kg/m².

For further information on tiling refer to the latest edition of the BRANZ Good Practice Guide – Tiling.
Installation in Tiled Areas

- USG Boral water resistant linings in tiled areas must be fixed using a full fastener system. Adhesive is not permitted.
- Space fasteners as per Table 3 and Figure 2.
- Sheets can be fixed horizontally or vertically with the bottom edge 6–10mm clear of the finished floor level or fixture.
- Lining sheets are best run the full length of the wall to avoid butt joints.
- Ensure sheets sit flat and firm against framing while driving fasteners.
- Neatly cut out penetrations and holes using hole saw and allowing approx 6mm gap for sealant.
- Fix 40mm x 40mm corner support angles where required leaving a 6mm gap at the bottom.
- Use screws as indicated in Tables 4 and 5 on page 12.
- Screws should be slightly overdriven but should not break the face paper.
- Fasteners to be placed 18mm from sheet ends and cut edges and 12mm from sheet edges.

### Table 3: Fastener Spacing in Tiled Areas

<table>
<thead>
<tr>
<th>Wall Tiles Weight (including tile adhesive)</th>
<th>Max Fastener Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermediate Studs</td>
</tr>
<tr>
<td>No greater than 12kg/m²</td>
<td>200mm</td>
</tr>
<tr>
<td>Greater than 12kg/m² and up to 32kg/m² max</td>
<td>100mm</td>
</tr>
<tr>
<td>Up to 50kg/m² max (Fiberock linings only)</td>
<td>100mm</td>
</tr>
</tbody>
</table>

![Figure 2: Plasterboard Fixing in Tiled Areas](image-url)
Plasterboard Fasteners

Screws

<table>
<thead>
<tr>
<th>Screw Type</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>Wood/timber only</td>
</tr>
<tr>
<td>S</td>
<td>Steel BMT* up to 0.75mm</td>
</tr>
<tr>
<td>D</td>
<td>Steel BMT* 0.75 - 2.00mm</td>
</tr>
<tr>
<td>L</td>
<td>Plasterboard laminating</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 5: Screw Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plasterboard Lining</strong></td>
</tr>
<tr>
<td>1x10mm</td>
</tr>
<tr>
<td>1x13mm</td>
</tr>
<tr>
<td>1x16mm</td>
</tr>
<tr>
<td>2x10mm</td>
</tr>
<tr>
<td>2x13mm</td>
</tr>
</tbody>
</table>

*Nail Length Table*

<table>
<thead>
<tr>
<th><strong>Table 6: Plasterboard Nails</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nail Type</strong></td>
</tr>
<tr>
<td>Gold Passivated LH Smooth Shank</td>
</tr>
<tr>
<td>Gold Passivated LH Ring Shank</td>
</tr>
<tr>
<td>Galvanised LH Smooth Shank</td>
</tr>
<tr>
<td>Galvanised LH Ring Shank</td>
</tr>
</tbody>
</table>

* BMT - Base Metal Thickness

USG Boral does not recommend nail fixing of ceiling linings

Nails

Installation in non-tiled areas

Wet area board in non-tiled areas may be fixed as per standard installation specifications (refer to Figures 3 and 4).

Fiberock® in non-tiled areas must be fixed using mechanical fasteners only, adhesive is not permitted.

Framed Walls

Fixing with Combination of Adhesive and Fasteners (Multistop™ 4 only)

- Space daubs at 300mm max centres along the studs.
- Space screws or nails at 300mm max centres at sheet ends (corners).
- Space nails at 150mm max centres or screws at 200mm max centres where butt joints are allowed on a framing member (Level 3 finish only).
- Refer to General Screw and Nail Fixing on Figure 3.
INSTALLATION

Temporary Fasteners

Under normal drying conditions, temporary fasteners (nails or screws driven through plasterboard blocks to hold sheets in place while adhesive cures) must be installed at every second stud and remain for at least 24 hours.

Fixing with Screws Only

• Space screws at 300mm max centres at internal and external corners and around door and window openings.
• Space screws at 200mm max centres where butt joints fall on a framing member (Level 3 finish only).
• Refer Table 8 and Figure 4 for wall fastener layout.
• Refer to General Screw and Nail Fixing on Figure 4.

Note: Continuous fastening around door and window penetrations is optional as differential movement of wall framing, plasterboard linings and architraves is recommended for maintenance reduction.

Table 8: Screw Fixing (only) Layout for Walls

<table>
<thead>
<tr>
<th>Sheet Width</th>
<th>Screw Points – Field</th>
<th>Screw Points – Sheet End</th>
</tr>
</thead>
<tbody>
<tr>
<td>900mm</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>1200mm</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>1350mm</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Note: Screw points should be equally spaced.

Figure 3: Combination adhesive and screw fixing on walls

Figure 4: Screw fixing to walls
Waterproofing of Joints and Junctions Within Wet Areas

Joints and junctions within wet areas must be waterproofed prior to installation of tiling or other approved surface materials.

Cut edges of gypsum linings at wall-floor junctions, preformed shower bases and over bath lip must be protected by sealing with Sealant.

**Waterproofing Wall Junctions**

Waterproof sheet edges above baths, shower bases, laundry tubs, etc by sealing with wet area sealant for the full depth of the board (refer Figure 5).

Waterproof floor and wall junctions by sealing with wet area sealant for the full depth of the board (refer Figure 6).

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*Figure 5: Seal Sheet Edges Over Baths, Shower Bases, Laundry Tubs*

*Figure 6: Seal Floor and Wall Junctions*
Jointing in Wet Areas

USG Boral recommends water resistant gypsum linings in tiled areas should be jointed using USG Boral setting compound and paper tape.

With a broad knife evenly fill joint recesses with USG Boral setting compound and also apply to both sides of internal and external corners.

Centre reinforcement paper tape over joints, internal and external corners and firmly bed into the USG Boral setting compound, ensuring there are no trapped air bubbles.

When the tape is embedded, immediately apply a skim coat of USG Boral setting compound with a broad knife ensuring the tape is completely covered, with no tape curling at the edges.

Cover fastener heads with a skim coat of USG Boral setting compound.

After the setting compound has dried (min 24 hours) apply a waterproofing membrane that complies with either AS/NZS 4858 or an approved CodeMark™ product to the whole face of wet area walls per Figures 7-9, in accordance with the Code of Practice for Internal Wet Area Membranes.

Notes: USG Boral base compounds can be used if a waterproofing membrane installed by a specialist contractor and complying with the requirements of AS/NZS 4858 Wet area membranes is applied over the whole face of wet area walls.
Wet areas – rigid acrylic shower linings

Where rigid acrylic shower linings are to be installed, the wet area linings must not be jointed, pre-sealed or painted and must be free of dust prior to the installation of the lining. This is to ensure good adhesion of the shower lining to the surface of the wet area lining. Installation of acrylic shower linings to be carried out as per the installation and specifications of the manufacturer/supplier.

Waterproofing of penetrations

Use hole saw to make penetrations for taps, shower nozzles and the like. Waterproof cut edges of gypsum linings at penetrations by sealing with a wet area sealant for the full depth of the board (refer Figure 8). Alternatively, plumbing penetrations can be waterproofed with proprietary waterproofing components (refer Figure 9).

For the treatment of fastener penetrations, refer to the Code of Practice for internal wet area membranes.
USG Boral aims to minimise the environmental impact of its operations and to make a positive difference to the environment and communities in which it operates. Plasterboard is manufactured from abundant natural gypsum resources and 100% recycled paper liner.

For information regarding the safe use of USG Boral Plasterboard products and accessories please refer to instructions on the product packaging or contact your local USG Boral Sales Office or TecASSIST® for a current copy of the Material Safety Data Sheet.

USG Boral provides technical advice to Builders, Architects, Contractors, Engineers, Regulators and Home Owners throughout New Zealand. Our friendly team can offer both practical and design input at all levels of the plasterboard industry. Get your next project off on the right track by contacting USG Boral weekdays 8.30am - 5.00pm on 0800 USGBORAL (0800 874 267).

Upper North Island (09) 930-9182
Lower North Island (04) 595-4307
South Island (03) 595-1542

USGBoral.com

This Technical Information Guide is intended to provide general information and should not be used as a substitute for professional advice. There are many variables that can influence construction projects which affect whether a particular construction technique is appropriate. Before proceeding with any project we recommend you obtain professional advice to ascertain the appropriate construction techniques to suit the particular circumstances of your project having regard to the contents of this Installation Manual. We recommend you use qualified tradespersons to install this system.

The technical information contained in this manual was correct at the time of printing. Building systems, details and product availability are subject to change. To ensure the information you are using is current, USG Boral recommends you review the latest building information available on the USG Boral website. For further information contact TecASSIST® or your nearest USG Boral Sales Office.