Introduction

With the Boral Plasterboard OutRWALL™ exterior wall system, new buildings can be constructed on or near the boundary and still satisfy the fire resistance requirements of the BCA.

Providing fire ratings of 1 or 1.5 hours, Boral Plasterboard OutRWALL™ exterior wall system provides effective resistance to the spread of fire from neighbouring buildings.

Perfect for extensions to existing buildings, OutRWALL™ exterior wall system is a cost-effective, labour-saving way to upgrade the fire resistance rating of a boundary wall to comply with the Building Code.

Benefits

- Lightweight Construction;
- Low-cost alternative to brick wall construction;
- Standard load bearing timber stud wall construction;
- Fire ratings of 1 or 1.5 hours to external load bearing timber framed walls; and
- Can extend existing buildings to boundary and meet BCA required fire resistance rating.

Description

This manual describes the Boral Plasterboard OutRWALL™ exterior wall system for use as fire rated exterior walls in residential buildings using timber framing.

All details and information contained in this publication are intended as a general guide for use in exterior wall construction. Refer to the graphics on following pages for construction details.

OutRWALL™ Applications

The following summary is intended as a guide only. Readers should satisfy themselves as to the requirements of the BCA by direct reference and/or through an appropriately qualified person.

<table>
<thead>
<tr>
<th>Building Classification and Type</th>
<th>Relevant OutRWALL™ System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>OutRWALL 60</td>
</tr>
<tr>
<td>Class 2, Type A or Type B</td>
<td>OutRWALL 90C or OutRWALL 90F</td>
</tr>
<tr>
<td>Class 2, Type A or Type B, Sprinklers</td>
<td>OutRWALL 90A or OutRWALL 90D</td>
</tr>
<tr>
<td>Class 2, Type C</td>
<td>OutRWALL 90, OutRWALL 90B or OutRWALL 90E</td>
</tr>
<tr>
<td>Class 3, Type A or Type B</td>
<td>OutRWALL 90C or OutRWALL 90F</td>
</tr>
<tr>
<td>Class 3, Type C</td>
<td>OutRWALL 90, OutRWALL 90B or OutRWALL 90E</td>
</tr>
<tr>
<td>Class 10</td>
<td>OutRWALL 60</td>
</tr>
</tbody>
</table>
Design Notes

• Frames, stumps and footings are to be designed and installed in accordance with the requirements of AS 1684 - 1999 “Residential Timber Framed Construction” and AS 2870 - 1996 “Residential Slabs and Footings - Construction”.

• Exterior cladding must be properly weather sealed for the life of the structure, particularly at ends, edges & joints. Adequate drainage should be provided for any moisture which may develop inside the cladding due to condensation or leakage.

• Boral Plasterboard drywall materials and accessories must be installed in accordance with the detailed specifications supplied in Boral Plasterboard Technical Literature.

• Limiting heights will be determined by various design criteria including wind loads, deflection limits, stud size, stud spacing and charfactor number where applicable.

• With the introduction of “Charfactor numbers” assigned to each system, the designer/builder has greater choice available for selection of framing to meet the requirements of height, axial load and fire ratings. For detailed information on how to use “Charfactor Numbers” for framing selection, refer to Boral Plasterboard “Construction Selector” - Technical Manual 100C.

• Movement or control joints should be installed: (a) where the plasterboard abuts dissimilar materials, and/or where the construction changes within the plane of the wall; (b) in long unbroken partition or wall runs at not more than 12 metre centres; and (c) as required to accommodate shrinkage of timber.

Fire Performance

The OutRWALL™ system has been assessed by Warrington Fire Research in their assessment Nos. WFRA C91580 and WFRA C91585 for fire-ratings of 1 hour and 1.5 hours. The system must be assembled in accordance with the relevant assessment.

Acoustic Performance

Acoustic performance may be improved with variations in plasterboard, stud and/or partition width and choice of insulation. These variations offer a wide choice of attainable Rw values. For details, contact Boral Plasterboard.

Cladding

“Lightweight Cladding” includes, but is not limited to:

• Fibre cement sheets, profiles and weatherboard;
• Timber or hardboard weatherboards;
• Steel or aluminium profiles; and
• Plywood.

Note: Cladding does not include materials with a self ignition temperature of less than 200°C except where the fire rating is from the outside only.

Prefabricated Walls

Where conventional construction can not be used due to difficult access, the Boral OutRWALL™ exterior wall system may be prefabricated prior to erection.

Plasterboard Standard

Boral Plasterboard is manufactured in accordance with Australian Standard A.S. 2588 - 1983 “Gypsum Plasterboard” and is to be installed generally in accordance with the requirements of Australian/New Zealand Standard A.S/NZS 2589.1:1997 Part 1 “Gypsum Plasterboard”.

Architectural Specification

Scope

Specify to meet project requirements.

Qualifications

All materials, unless otherwise indicated, shall be manufactured by Boral Plasterboard, and shall be installed in accordance with its current printed instructions.

Delivery and Storage of Materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the site.

Framing

Timber framing to receive plasterboard lining shall be structurally sound, free from bow, and in general compliance with Building Code requirements. Damaged and excessively bowed studs shall be replaced before installation of plasterboard lining. Timber framing shall approximate the moisture content it will reach in service by allowing the enclosed building to stand as long as possible prior to the application of plasterboard. Do not install plasterboard over wet framing.
Compressed rockwool insulation - may be encapsulated

Boral plasterboard as required (refer to table on page 5)

Boral Wet Area Firestop plasterboard as required (refer to table on page 5)

Roof sarking terminates in gutter

Gutter by others

Additional layer of 16mm Boral Wet Area Firestop butted to top plate and fixed to roof framing

Lightweight external cladding fixed to timber battens to manufacturer’s specifications

Tyvek Homewrap stapled to plasterboard as per manufacturer’s specifications

Provide appropriate vermin and termite protection at ground level

Vertical or horizontal battens fixed to studs at 600mm maximum centres

Ground level to be suitably graded to prevent pooling adjacent to external wall

Boral plasterboard as required (refer to table on page 5)

Box Gutter Option

Box gutter design by others

Capping as required

70 x 35 timber stud uprights fixed to truss top chord. Provide 70 x 45 top plate.

Additional layer of 16mm Boral Wet Area Firestop fixed to roof framing

Tyvek Homewrap stapled to plasterboard and carried over parapet into gutter as per manufacturer’s specifications

Lightweight external cladding fixed to vertical or horizontal timber battens to manufacturer’s specifications

Load bearing timber frame max. 600mm stud centre

Boral Wet Area Firestop plasterboard as required (refer to table on page 5)
**Construction Details**

- Frame and footings to be in accordance with AS 1684 - 1999 “Residential Timber Framed Construction” and AS 2870 - 1996 “Residential Slabs and Footings - Construction”.
- Provide movement joint where timber shrinkage is expected.
- Brick footing options are also available. Contact Boral Plasterboard for details (see back page).
- Ensure that lateral support to top of wall is maintained during a fire event.
- * Warrington Fire Research Assessment No. WFRA C91580

**OutRWALL™ 60 on Stumps**

- Load bearing timber frame max. 600mm stud centre
- Minimum 10mm Boral plasterboard lining
- Additional layer of 16mm Boral Wet Area Firestop fixed to floor joists, battens and plinth
- Additional batten required where plasterboard span exceeds 600mm
- Continuous pine plinth treated to in-ground retention level
- Tyvek Homewrap stapled to plasterboard as per manufacturer’s specifications
- 1 layer 16mm Boral Wet Area Firestop plasterboard
- Lightweight external cladding fixed to vertical or horizontal timber battens to manufacturer’s specifications
- Continuous impermeable membrane between plinth and plasterboard
- Provide appropriate vermin and termite protection at ground level
- Ground level to be suitably graded to prevent pooling adjacent to external wall

**OutRWALL™ 90 on Stumps**

- Load bearing timber frame max. 600mm stud centre
- Minimum 10mm Boral plasterboard lining
- Additional layer of 16mm Boral Wet Area Firestop fixed to floor joists and battens
- Additional batten required where plasterboard span exceeds 600mm
- Continuous concrete plinth to equivalent FRL
- Tyvek Homewrap stapled to plasterboard as per manufacturer’s specifications
- 2 layers 16mm Boral Wet Area Firestop plasterboard
- Lightweight external cladding fixed to vertical or horizontal timber battens to manufacturer’s specifications
- Continuous impermeable membrane between plinth and plasterboard
- Provide appropriate vermin and termite protection at ground level
- Ground level to be suitably graded to prevent pooling adjacent to external wall

<table>
<thead>
<tr>
<th>System</th>
<th>Internal Plasterboard</th>
<th>External Plasterboard</th>
<th>Charfactor</th>
<th>FRL*</th>
</tr>
</thead>
<tbody>
<tr>
<td>OutRWALL™ 60</td>
<td>1 x 10mm Standard Core</td>
<td>1 x 16mm Wet Area Firestop as per system TS3</td>
<td>11</td>
<td>60/60/60 from outside only</td>
</tr>
<tr>
<td>OutRWALL™ 90</td>
<td>1 x 10mm Standard Core</td>
<td>2 x 16mm Wet Area Firestop as per system TS14</td>
<td>N/A</td>
<td>90/90/90 from outside only</td>
</tr>
<tr>
<td>OutRWALL™ 90A</td>
<td>1 x 16mm Wet Area Firestop</td>
<td>2 x 16mm Wet Area Firestop as per system TS14</td>
<td>11</td>
<td>90/90/90 from outside 60/60/60 from inside</td>
</tr>
</tbody>
</table>
Compressed rockwool insulation - may be encapsulated

Additional layer of 16mm or 13mm Boral Wet Area Firestop butted to top plate and fixed to roof framing

Roof sarking terminates in gutter

Boral Plasterboard as required (refer to table)

Tyvek Homewrap stapled to plasterboard as per manufacturer’s specifications and taken over slab edge.

12mm plywood or 7.5mm fibre cement external lining fixed to vertical or horizontal battens to manufacturer’s specifications

Provide appropriate vermin and termite protection at ground level

Ground level to be suitably graded to prevent pooling adjacent to external wall

**Typical System on Slab**

<table>
<thead>
<tr>
<th>System</th>
<th>Internal Plasterboard</th>
<th>External Plasterboard</th>
<th>Charfactor</th>
<th>FRL*</th>
</tr>
</thead>
<tbody>
<tr>
<td>OutRWall™ 90B</td>
<td>1 x 10mm Standard Core</td>
<td>2 x 13mm Wet Area Firestop as per system TS15</td>
<td>N/A</td>
<td>90/90/90 from outside only</td>
</tr>
<tr>
<td>OutRWall™ 90C</td>
<td>2 x 13mm Firestop</td>
<td>1 x 16mm Wet Area Firestop as per system TS3</td>
<td>N/A</td>
<td>90/90/90 from both sides</td>
</tr>
<tr>
<td>OutRWall™ 90D</td>
<td>1 x 16mm Firestop</td>
<td>1 x 16mm Wet Area Firestop as per system TS3</td>
<td>11</td>
<td>90/90/90 from outside 60/60/60 from inside</td>
</tr>
</tbody>
</table>

- Frame and footings to be in accordance with AS 1684 - 1999 “Residential Timber Framed Construction” and AS 2870 - 1996 “Residential Slabs and Footings - Construction”.
- Provide movement joint where timber shrinkage is expected.
- Brick and stump footing options are also available. Contact Boral Plasterboard for details (see back page).
- Ensure that lateral support to top of wall is maintained during a fire event.
- * Warrington Fire Research Assessment Nos. WFRA C91580 and WFRA C91585.
Construction Details

OutRWALL™ 90E and 90F (with double studs)

- Frame and footings to be in accordance with AS 1684 - 1999 "Residential Timber Framed Construction" and AS 2870 - 1996 "Residential Slabs and Footings - Construction".
- Provide movement joint where timber shrinkage is expected.
- Brick and stump footing options are also available. Contact Boral Plasterboard for details (see back page).
- Ensure that lateral support to top of wall is maintained during a fire event.
- * Warrington Fire Research Assessment No. WFRA C91580

### System Details

<table>
<thead>
<tr>
<th>System</th>
<th>Internal Plasterboard</th>
<th>External Plasterboard</th>
<th>Charfactor</th>
<th>FRL*</th>
</tr>
</thead>
<tbody>
<tr>
<td>OutRWALL™ 90E</td>
<td>1 x 10mm Standard Core</td>
<td>2 x 13mm Wet Area Firestop as per system TS15</td>
<td>N/A</td>
<td>90/90/90 from outside only</td>
</tr>
<tr>
<td>OutRWALL™ 90F</td>
<td>2 x 13mm Firestop</td>
<td>1 x 16mm Wet Area Firestop as per system TS3</td>
<td>N/A</td>
<td>90/90/90 from both sides</td>
</tr>
</tbody>
</table>

Typical System on Slab

- Compressed rockwool insulation - may be encapsulated
- Boral Plasterboard as required (refer to table)
- Wall frame designed to AS 1684-1999 then double studs provided throughout length of wall by nail laminating an additional identical stud to all stud sections
- Seal gaps with fire grade sealant
- Additional layer of 16mm or 13mm Boral Wet Area Firestop butted to top plate and fixed to roof framing
- Roof sarking terminates in gutter
- Gutter by others
- Boral Wet Area Firestop plasterboard as required (refer to table)
- Tyvek Homewrap stapled to plasterboard as per manufacturer's specifications and taken over slab edge.
- Vertical or horizontal battens fixed to studs at 600mm maximum centres
- 7.5mm fibre cement external lining fixed to battens to manufacturer's specifications
- Provide appropriate vermin and termite protection at ground level
- Ground level to be suitably graded to prevent pooling adjacent to external wall
Prefabricated OutRWall™ Details

- Vertical battens each side of joint
- Optional timber cover strap
- Battens to suit cladding
- External cladding as required
- Load bearing or non load bearing timber frame
- Continuous 18mm diam. IBS strip to 16mm gap (typical)
- Weather sealant (typical)
- Tyvek "Homewrap" membrane stapled to plasterboard
- Internal Boral plasterboard as required - fixed later
- Boral Wet Area Firestop as required

Detail at Panel Joint

Detail at Corner

Detail at Internal Wall

Horizontal Section Detail
Prefabricated OutRWALL™ Details

- Boral Wet Area
  - Firestop as required

- Tyvek “Homewrap” membrane stapled to plasterboard and lapped over flashing

- Floor joist

- Internal Boral plasterboard as required - fixed later

- Boral Wet Area
  - Firestop as required

- Load bearing or non load bearing timber frame

- Tyvek “Homewrap” membrane stapled to plasterboard and lapped over slab edge

- Battens to suit cladding min. 22mm thick

- Continuous 18mm diam. IBS strip to 16mm gap (typical)

- Coated steel Z flashing

- Sacrificial timber plate:
  - 1 x 45mm for FRL 60/60/60
  - 2 x 45mm for FRL 90/90/90

- Tyvek “Homewrap” membrane stapled to timber and lapped over flashing

- Coated steel Z flashing

- Battens to suit cladding min. 22mm thick

- Cover strap as required

- External cladding as required

- Continuous 18mm diam. IBS strip to 16mm gap (typical)

- Damp Proof Membrane

- Provide appropriate vermin and termite protection at ground level

Vertical Section Detail for Multi-storey Construction
Materials

Plasterboard

Standard Core
10mm thick, 1200mm and 1350mm wide plasterboard, length as required.

Wet Area Firestop
13mm and 16mm thick, 1200mm wide plasterboard, lengths as required.

Fasteners

<table>
<thead>
<tr>
<th>Number of Layers of Plasterboard x Thickness</th>
<th>Nails Smooth Shank</th>
<th>Nails Annular Ring Shank</th>
<th>Nails Uninail</th>
<th>Screws Type W</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 10mm</td>
<td>40mm¹</td>
<td>30mm¹</td>
<td>30mm¹</td>
<td>25mm</td>
</tr>
<tr>
<td></td>
<td>30mm²</td>
<td>30mm²</td>
<td>30mm²</td>
<td></td>
</tr>
<tr>
<td>1 x 16mm</td>
<td>50mm¹</td>
<td>-</td>
<td>-</td>
<td>32mm</td>
</tr>
<tr>
<td></td>
<td>50mm²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 x 16mm</td>
<td>65mm¹</td>
<td>-</td>
<td>-</td>
<td>45mm</td>
</tr>
<tr>
<td></td>
<td>65mm²</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 x 13mm</td>
<td>65mm¹</td>
<td>-</td>
<td>-</td>
<td>45mm</td>
</tr>
<tr>
<td></td>
<td>65mm²</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Screws

Wood/Timber screws Type W - for fastening plasterboard to timber framing.

Nails

- Smooth Shank
- Annular Ring
- Uninail

Water Proofing Membrane

Tyvek® Homewrap™
Used to line the outer face of plasterboard sheeting behind exterior cladding. Tyvek® is a registered trademark of DuPont®.

Caulking and Sealants

Boral FyreFlex or other approved fire rated sealant
Fire resistant sealant used as a flexible sealant at movement joints and wall/floor bases.

Fyre Seal IBS (or equivalent)
A Promat Fyreguard Pty. Ltd. product used as a flexible and expandable fire sealant in lieu of, or in conjunction with, Boral Plasterboard Fyreflex Sealant. For use in construction joints and floor/wall bases.

Screws

Wood/Timber screws Type W - for fastening plasterboard to timber framing.

Nails

- Smooth Shank
- Annular Ring
- Uninail

Boral Cornice Adhesive
Used in fire rated systems to caulk gaps between plasterboard wall and structure (eg. floor/wall base).
**Joint Treatment**

Any of the range of Boral Plasterboard Jointing Systems, reinforced with slotted perforated paper tape, may be used for jointing over internal Standard Core, Firestop & Wet Area Firestop plasterboard.

**Note:** Taping and setting is not required on external plasterboard.

**Paper Tape**

![Slotted Perforated Paper Tape]

**Taping and Basecoating Compounds**

**Finishing Compounds**

**Metal Trims & Accessories**

- Rondo Plaster Stopping Bead P13
- Rondo Plaster Casing Bead P07, P08
- Rondo Plaster Long Leg Stopping Angle P26, P27
- Rondo Plaster Corner Bead P01, P32 and P55
- Control Joint Component Part No. P35

**All Purpose Jointing Compounds**

**Materials**
Guarantee

Products manufactured and supplied by Boral Australian Gypsum Limited (BAGL) A.C.N. 004 231 976, trading as Boral Plasterboard, are guaranteed to be of consistent quality and free from any defects.

Boral Plasterboard products must be installed using the components and accessories specified and in accordance with the instructions detailed in Boral Plasterboard’s technical literature.

Our products are manufactured to suit the requirements of the building industry in Australia.

Boral Plasterboard may limit its liability under this guarantee to, at its option, the replacement or payment of the cost of replacing OR supplying equivalent or payment of the cost of supplying equivalent OR the repair or payment of the cost of repairing products found to be defective.

Important Note

The technical information contained within this manual was correct at the time of printing. Building Systems and details are, however, subject to change. To ensure the information you are using is current, Boral Plasterboard recommends you review the latest building information available electronically on TecSYS (our technical catalogue on CD) or the Boral Plasterboard Website. Alternatively, contact your nearest Boral Plasterboard Sales Office or TecASSIST (see details below).

Through TecASSIST Boral Plasterboard is demonstrating its commitment to providing excellent technical service and support to design, building and construction professionals Australia wide.

A free-call architectural support line, TecASSIST is available to provide sound advice on all matters relating to drywall plasterboard construction.

Combining years of professional experience with the latest design information and technology, the TecASSIST team has the skills to help you.

Boral Plasterboard TecASSIST phone line is open to receive calls from 9.00am to 5.00pm Monday to Friday, Melbourne time (Victorian public holidays excepted).

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Fax (07) 3215 2299

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Fax (02) 9638 5557

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Fax (08) 8341 1004

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Fax (03) 9646 1912

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