Partiwall®

SEPARATING WALLS FOR CLASS 1a BUILDINGS TIMBER FRAMED

www.boral.com.au/partiwall
Boral’s Purpose …

to create sustainable solutions for a worldwide building and construction industry.

Boral is a leading Australian supplier of building and construction materials, operating also throughout Asia and in the United States.

Boral offers a wide range of building solutions for the residential, commercial and infrastructure sectors, including Bricks, Roof Tiles, Plasterboard, Concrete, Asphalt and many others. Information on the full range of Boral products can be found at www.boral.com.au

Boral Plasterboard specialises in the manufacture, distribution and installation of plasterboard based wall and ceiling systems. In Australia, Boral operates plasterboard manufacturing facilities in New South Wales, Queensland and Victoria. Boral Plasterboard also operates Australia-wide distribution network of company owned stores and independent resellers.

Striving to create sustainable building solutions for a worldwide building and construction industry, Boral aims to reduce the impact of its operations on the environment and to make a positive difference to the communities in which it operates.

Boral Plasterboard prides itself on its leadership in the area of lightweight building solutions.

Among the successful solutions introduced by the company over the years are: Partiwall® and IntRwall® separating wall systems, OutRwall® and FireClad® fire rated exterior wall systems, CinemaZone® acoustic walls and ceilings for home cinemas, and many others.

Boral Plasterboard’s Product and Systems Development (PSD) team boasts expertise in lightweight fire rated and acoustic systems, and routinely works with customers to select and, if required, tailor solutions for specific projects.

Together with the TecASSIST® customer help line, Boral Plasterboard’s PSD team is well positioned to provide technical support to projects of any size and complexity.

For expert advice on lightweight Building Systems, contact Boral TecASSIST® 1800 811 222.

The new Gypsum receiving/conveying system over Lorimer Street, Port Melbourne.
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Introduction

The pioneering Boral Partiwall® system is one of the most widely used separating wall systems in the Australian market.

Excellent acoustic performance, ease of construction and design flexibility has made Boral Partiwall® the system of choice on many multi-residential townhouse projects.

Continuous innovation of the Partiwall® system has kept it in step with the changing regulatory and market requirements over the years. Some of the Partiwall® innovations that can be found in this brochure and at www.boral.com.au/partiwall are as follows:

- Compliance with Building Code of Australia (BCA) requirements for ‘discontinuous construction’ supported in BCA Illustrated.
- Independent assessment shows that Partiwall® acoustically outperforms a double-leaf brick wall1.
- New cost effective configuration to achieve FRL 90/90/90.
- Staggered aluminium clips on opposite sides of Partiwall® stud for offset floors.
- Services penetrations through Shaftliner™ barrier allowed in the roof space.

Boral Partiwall® is an innovative solution for separating walls between attached dwellings (Class 1a buildings). For construction of timber framed apartment buildings (Class 2) up to 3 storeys contact Boral TecASSIST® at www.boral.com.au/tecassist

The Boral Partiwall® system utilises certain components and accessories as specified in this brochure. Material substitution in the Partiwall® system and non-compliance with the instructions in this brochure may lead to a reduction in performance and void reports in support of BCA compliance.

Assembled System
(Separation by Shaftliner™ fire barrier at eaves not shown for clarity)

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1 Renzo Tonin & Associates Doc Ref: TE405-01F02 (rev 3) Comparisons of Acoustic Performance (stated 3 Feb 2010)
Introduction

What is Partiwall®?

The Partiwall® system is essentially a twin wall system, which incorporates 25mm fire-resistant Shaftliner™ plasterboard panels within the wall cavity.

Partiwall® was developed to suit the normal pattern of construction and follow-up trades. The fire-resistant Shaftliner™ panels are held in position by lightweight steel H or I section studs. No plasterboard fixing, jointing or finishing is required at this stage. This installation procedure is easily carried out during the framing stage. The internal wall linings are installed at the plastering stage using conventional installation methods.

Boral Partiwall® has been tested and certified to meet Fire Resistance Levels (FRL’s) of 60/60/60 and 90/90/90 and acoustic performance up to and exceeding $R_w + C_t = 50\text{dB}$.

The inclusion of Boral’s 10mm Soundstop® and 13mm ENVIRO Soundstop® plasterboard provides additional options where the BCA requires $R_w + C_t = 50\text{dB}$ acoustic rating.

This brochure covers timber framed Partiwall® systems. Boral Plasterboard can also advise on using the Partiwall® system in steel framed buildings.

Features and Benefits

- Cost effective and fast to construct.
- No wet trades are required.
- Modular construction of Shaftliner™ fire barrier permits easy installation at framing stage - no additional trades are required.
- Permits easy inclusion of service penetrations, such as switches, power points, light fittings and pipes within the partition.
- Internal wall linings are installed at the plastering stage as per normal construction sequence.

How Partiwall® Works

While in a conventional fire rated wall system fire resistant outer linings provide protection to the wall substrate, in the Partiwall® system the main fire barrier is located within the wall cavity and is designed to protect the structure on the side opposite to the fire.

At the same time, the Shaftliner™ fire barrier relies on this structure for the support as the structure on the fire side loses stability or collapses.

In order to ensure that the Shaftliner™ fire barrier is not damaged by the collapse of the structure on the fire side, Partiwall® aluminium clips are utilised to attach the fire barrier to the timber frames on both sides. As the clips on the fire side melt, the Shaftliner™ fire barrier is disconnected from the collapsing structure and is supported by the clips and the structure on the protected side for the specified fire rating period.

Steel clips must not be used in the Partiwall® system as their use compromises the integrity of the Shaftliner™ fire barrier during the fire.
Design Considerations

Fire
The Partiwall® system has been fire tested at CSIRO’s laboratory at North Ryde in Sydney. The performance of the various systems has been assessed in CSIRO’s assessment number FSV 0381, FC0-2256, FC0-2713, FC0-1446 and FC0-2016.

Partiwall® system provides Fire Resistance Levels (FRL) of 60/60/60 and 90/90/90. In the case of a fire, the structural adequacy and load bearing capacity is provided by the wall frame on the other side of Shaftliner® fire barrier.

As the primary fire barrier (the Shaftliner® panels) is located in the cavity between the frames, the system permits easy inclusion of services such as water and waste pipes, electrical and communications cables, as long as the primary barrier is not penetrated. Service penetrations are allowed through Shaftliner® fire barrier in the roof space.

The following penetrations, individually or in combinations, or back-to-back, are allowed in the outer linings and are not required to be fire rated:
• normal residential electrical switches and power points
• data, communications or electrical cables passing through the linings into the cavity
• copper, galvanized steel, or plastic water or wastewater pipes of up to 50mm nominal diameter passing through the linings into the cavity
• cabinets, baths, shower bases or vanities.

For other penetrations contact Boral TecASSIST® 1800 811 222.

The following requirements are essential to maintain the fire-rating integrity and acoustic performance of the Partiwall® Shaftliner® fire barrier:
• Use only the specified Partiwall® clips to attach the Partiwall® studs to framing members. In the event of a fire, this aluminium clip is designed to melt to allow the framing members on the fireside to fall away leaving the Shaftliner® fire barrier intact.
• Other than the clips, there should be no attachments to the Shaftliner® fire barrier.
• There should be no penetrations through the Shaftliner® fire barrier apart from approved penetrations in the roof space.

Refer to Building Surveyor for advice.

For design and installation requirements of internal plasterboard wall linings, refer to Boral Plasterboard Installation Manual.

Acoustic
The Partiwall® system has been the subject of a series of acoustic tests at the CSIRO Acoustic Laboratory at Highett, Victoria.

Acoustical estimates have been determined by Renzo Tonin and Associates Pty Ltd.

Partiwall® satisfies BCA acoustic provisions for Class 1 buildings of
\[ R_W = 50\,\text{dB} \] and \[ R_W + C_{tr} = 50\,\text{dB} \] for separating walls and \[ R_W + C_{tr} = 25\,\text{dB} \] and \[ R_W + C_{tr} = 40\,\text{dB} \] acoustic separation of adjoining soil and waste pipes within the cavity.

Small penetrations of linings in occupancy areas ie switches, power points, light fittings and pipes do not need to be acoustically sealed.

Shaftliner® fire barrier base and internal lining junctions with floors must be sealed with an approved fire acoustic sealant.

To maintain acoustic performance, service pipes must not be in contact with the Shaftliner® fire barrier.

All services should be run through the framing. Insulation thicker than the stud framing is allowed.

The clear distance between the Shaftliner® fire barrier and wall framing on both sides should not be less than 20mm nor more than 40mm.

The 16mm Firestop® plasterboard laminated to the Shaftliner® fire barrier should not come into contact with the stud or floor framing. It is recommended the gap between Shaftliner® fire barrier and timber framing be increased to a minimum 25mm on the Firestop® side to ensure adequate clearance.

Partiwall® complies with BCA requirements for ‘discontinuous construction’ (supported in BCA Illustrated).
Isolated Support for Stairs

‘BCA COMPLIANT, SOUND AND FIRE RATED TIMBER FRAMED CONSTRUCTION – Design and Construction Guide for Class 1a Attached Buildings – Townhouses’, states that impact sound from stair usage typically vibrates its way into separating walls, thus creating a greater likelihood of sound passing across the wall into attached dwellings. The recommended way to prevent this is by isolating the stair structure. Options include:

- Using the stringers to support the stairs, at each floor level, without intermediate support from the separating wall in between, ie free standing, or alternatively
- Using newel posts rather than the separating wall to support the stair structure
- Keeping the treads clear off the separating wall.

Structural

Maximum Permissible Height
Height of the Shaftliner™ fire barrier should not exceed 12 metres.

Support Clip Separation
Clips each side of the Shaftliner™ fire barrier must be spaced at no more than 3000mm vertically and 600mm horizontally UNO.

Control Joints
Where control joints are necessary in the Shaftliner™ fire barrier, contact Boral TecASSIST® 1800 811 222 for construction details.

Wind Speed
Partiwall® is suitable for wind classifications N1 and N2 as determined by AS 4055, Wind loads for housing. For higher wind classifications Boral Plasterboard recommends temporary propping of Shaftliner™ fire barrier during construction until the building is enclosed. Propping details are to be designed by a suitably qualified Structural Engineer. Where Partiwall® is proposed in cyclonic areas contact Boral Plasterboard for advice.

Framing

Timber framing to be designed by a suitably qualified Structural Engineer to meet BCA requirements and relevant Australian Standards.

Note: Stud spacing not to exceed 600mm centres.

Thermal

Total R values of Partiwall® systems provided in this brochure have been assessed by James M. Fricker in Melbourne based on AS/NZS 4859.1:2002/Amdt 1 2006, Materials for the thermal Insulation of Buildings (James M. Fricker Report i274b).

Independent assessment shows that Partiwall® achieves thermal resistance ratings from R2.89 to R5.76.

Wet Areas

In areas classified as Wet Areas in accordance with the BCA, the following linings should be used in lieu of the specified internal linings in order to achieve required fire and acoustic ratings:

<table>
<thead>
<tr>
<th>Wet Area Linings</th>
<th>Specified Internal Lining</th>
<th>Wet Area Lining</th>
</tr>
</thead>
<tbody>
<tr>
<td>10mm Regular plasterboard</td>
<td>10mm Wet Area Board™</td>
<td></td>
</tr>
<tr>
<td>2 x 10mm Regular plasterboard</td>
<td>2 x 10mm Wet Area Board™ Or 1 x 6mm Villaboard® + 1 x 10mm Wet Area Board™</td>
<td></td>
</tr>
<tr>
<td>10mm Soundstop® plasterboard</td>
<td>13mm Wet Area Board™</td>
<td></td>
</tr>
<tr>
<td>13mm ENVIRO Soundstop® plasterboard</td>
<td>13mm Wet Area Firestop® plasterboard Or 1 x 6mm Villaboard® + 1 x 10mm Wet Area Board™</td>
<td></td>
</tr>
</tbody>
</table>

Materials

All materials are available from Boral Plasterboard and must be installed in accordance with current printed instructions. All materials should be stored clear of the ground and provided protection from damage and exposure to the elements.

The following materials are recommended for the installation of the Shaftliner™ fire barrier:

### Boral Partiwall® Components

<table>
<thead>
<tr>
<th>Product Image</th>
<th>Item Description</th>
<th>Boral Item Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Partiwall" /></td>
<td>25mm Shaftliner™ 600 x 3000mm</td>
<td>25SW0630</td>
</tr>
<tr>
<td></td>
<td>25mm Shaftliner™ 600 x 3600mm</td>
<td>25SW0636</td>
</tr>
<tr>
<td><img src="image2.png" alt="Partiwall" /></td>
<td>16mm Firestop® 1200 x 2400mm</td>
<td>16FS1224</td>
</tr>
<tr>
<td></td>
<td>25mm H-Stud x 3000mm</td>
<td>R25HS3055</td>
</tr>
<tr>
<td></td>
<td>25mm H-Stud x 3600mm</td>
<td>R25HS3655</td>
</tr>
<tr>
<td></td>
<td>50mm I-Stud x 3000mm</td>
<td>RO51IS300055</td>
</tr>
<tr>
<td></td>
<td>50mm I-Stud x 3600mm</td>
<td>RO51IS360055</td>
</tr>
<tr>
<td><img src="image3.png" alt="Partiwall" /></td>
<td>25mm Furring Channel Track x 3000mm</td>
<td>RO14030</td>
</tr>
<tr>
<td></td>
<td>51mm Wall Track x 3000mm</td>
<td>RO40030</td>
</tr>
<tr>
<td><img src="image4.png" alt="Partiwall" /></td>
<td>Aluminium wall clip</td>
<td>RPWALLCLIP</td>
</tr>
</tbody>
</table>

### Boral Firepack™

- Mineral wool packer 5m x 200 x 50mm, Pkt 3: IPWBATT

Call your nearest Boral Plasterboard store for information on the range of insulation listed in the Partiwall® Systems Selector tables.

**Note:**

Partiwall® performance values stated in this document are based on the use of materials and components listed above. Material substitution may effect the performance of Partiwall® systems. Please contact TecASSIST on 1800 811 822 for advice.

Linings for Occupancy Areas

Linings in the occupancy areas (including Wet Area Firestop™ specified in some Partiwall® Wet Area Systems) do not need be fire rated and are constructed using the normal installation and finishing methods outlined in Boral Plasterboard Installation Manual. Base of linings must be acoustically sealed.
## Partiwall® Systems

### FRL 60/60/60 (System Type 25TP)

<table>
<thead>
<tr>
<th>Assembly</th>
<th>System Reference</th>
<th>Nom Width (mm)</th>
<th>Stud Size (mm)</th>
<th>Pbd Weight (kg/m²)</th>
<th>Fire RFL Basis</th>
<th>Acoustic Ratings</th>
<th>Total R Value (m²K/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60/60/60 FCO-2256</td>
<td>R₂₅, R₃₂₄, C₆²</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25TP1010A</td>
<td></td>
<td>225</td>
<td>70</td>
<td>36.9</td>
<td>60</td>
<td>R₂.0 glass wool or 100P14 both sides</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>225</td>
<td>70</td>
<td></td>
<td>62</td>
<td>R₂.0 glass wool or 100P14 both sides</td>
<td>5.88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>265</td>
<td>70 or 90</td>
<td></td>
<td>59</td>
<td>110mm thick Boral Partiwall® Acoustic batt one side only</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>265</td>
<td>70 or 90</td>
<td></td>
<td>63</td>
<td>110mm thick Boral Partiwall® Acoustic batt both sides</td>
<td>5.27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>285</td>
<td>90</td>
<td></td>
<td>62</td>
<td>R₂.0 glass wool or 100P14 both sides</td>
<td>4.84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>295</td>
<td>90</td>
<td></td>
<td>65</td>
<td>110mm thick Boral Partiwall® Acoustic batt both sides</td>
<td>5.76</td>
</tr>
</tbody>
</table>

(Insulation not shown for clarity)

| 25TP1313A |                  | 231            | 70             | 42.9               | 61             | R₂.0 glass wool or 100P14 both sides | - |
|          |                  | 231            | 70             |                    | 62             | R₂.0 glass wool or 100P14 both sides | 5.29 |
|          |                  | 271            | 70 or 90       |                    | 62             | R₂.0 glass wool or 100P14 both sides | 4.92 |
|          |                  | 271            | 70 or 90       |                    | 62             | R₂.0 glass wool or 100P14 both sides | 5.29 |
|          |                  | 281            | 90             |                    | 65             | 110mm thick Boral Partiwall® Acoustic batt both sides | - |

(Insulation not shown for clarity)

| 25TP2020  |                  | 245            | 70             | 47.7               | 64             | R₂.0 glass wool or 100P14 both sides | 4.59 |
|          |                  | 285            | 70 or 90       |                    | 65             | R₁.5 glass wool both sides          | 3.69 |
|          |                  | 285            | 70 or 90       |                    | 65             | 70P14 both sides                    | 3.86 |
|          |                  | 295            | 90             |                    | 67             | 110mm thick Boral Partiwall® Acoustic batt both sides | 5.59 |

(Insulation not shown for clarity)

### Notes:
- For explanation of System Reference notation refer Section B1 of Boral Selector+ Plasterboard Systems.
- Insulation abbreviation: XXGYY = Glasswool insulation in format of thickness (mm), G (Glasswool), Density (kg/m³). XXPYY = Polyester insulation in format of thickness (mm), P (Polyester), Density (kg/m³).
- Where two stud sizes are nominated for a particular wall width, the gap from the stud to the Shaftliner fire barrier:
  - provides a maximum allowable gap of 40mm for the 70mm stud
  - meets the BCA requirement of a 20mm gap for the 90mm stud.
### Partiwall® Systems

**FRL 90/90/90 (System Type 41TP)**

<table>
<thead>
<tr>
<th>System Reference</th>
<th>Nom Width (mm)</th>
<th>Stud Size (mm)</th>
<th>Pbd Weight (kg/m²)</th>
<th>Fire FRL Basis</th>
<th>Acoustic Ratings</th>
<th>Total $R$ Value (m²K/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>41TP1010</td>
<td>281</td>
<td>70 or 90</td>
<td>47.1</td>
<td>90/90/90 FCO-2713</td>
<td>63 50</td>
<td>R2.0 glass wool or 100P14 both sides</td>
</tr>
<tr>
<td></td>
<td>281</td>
<td>70 or 90</td>
<td></td>
<td>64 52</td>
<td>110mm thick Boral Partiwall® Acoustic batt both sides</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>301</td>
<td>90</td>
<td></td>
<td>67 55</td>
<td>110mm thick Boral Partiwall® Acoustic batt both sides</td>
<td>5.35</td>
</tr>
<tr>
<td>41TP1010A</td>
<td>241</td>
<td>70</td>
<td>49.9</td>
<td>90/90/90 FCO-2713</td>
<td>60 49</td>
<td>R2.0 glass wool or 100P14 both sides</td>
</tr>
<tr>
<td></td>
<td>241</td>
<td>70</td>
<td></td>
<td>63 51</td>
<td>R2.0 glass wool or 100P14 one side only</td>
<td>4.55 or 4.70</td>
</tr>
<tr>
<td></td>
<td>281</td>
<td>70 or 90</td>
<td></td>
<td>61 50</td>
<td>R2.0 glass wool or 100P14 one side only</td>
<td>2.89 or 2.93</td>
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<tr>
<td></td>
<td>281</td>
<td>70 or 90</td>
<td></td>
<td>66 54</td>
<td>R2.0 glass wool or 100P14 one side only</td>
<td>-</td>
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<tr>
<td></td>
<td>281</td>
<td>70 or 90</td>
<td></td>
<td>67 55</td>
<td>110mm thick Boral Partiwall® Acoustic batt both sides</td>
<td>5.35</td>
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<tr>
<td>41TP1313A</td>
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<td>55.9</td>
<td>90/90/90 FCO-2713</td>
<td>62 50</td>
<td>R2.0 glass wool or 100P14 one side only</td>
</tr>
<tr>
<td></td>
<td>247</td>
<td>70</td>
<td></td>
<td>64 52</td>
<td>R2.0 glass wool or 100P14 both sides</td>
<td>4.56 or 4.71</td>
</tr>
<tr>
<td></td>
<td>287</td>
<td>70 or 90</td>
<td></td>
<td>62 51</td>
<td>R2.0 glass wool or 100P14 one side only</td>
<td>2.90 or 2.94</td>
</tr>
<tr>
<td></td>
<td>287</td>
<td>70 or 90</td>
<td></td>
<td>67 55</td>
<td>R2.0 glass wool or 100P14 both sides</td>
<td>4.91 or 4.99</td>
</tr>
</tbody>
</table>

- **For explanation of System Reference notation refer Section B1 of Boral Selector+ Plasterboard Systems.**
- **Insulation abbreviation:** XXGYY = Glasswool insulation in format of thickness (mm), G (Glasswool), Density (kg/m³); XXPYY = Polyester insulation in format of thickness (mm), P (Polyester), Density (kg/m³).
- **Where two stud sizes are nominated for a particular wall width, the gap from the stud to the Shaftliner fire barrier:**
  - provides a maximum allowable gap of 40mm for the 70mm stud or
  - meets the SCA requirement of a 20mm gap for the 90mm stud.
### Partiwall® Systems

**FRL 90/90/90 (System Type 50TP)**

<table>
<thead>
<tr>
<th>Assembly</th>
<th>System Reference</th>
<th>Nom Width (mm)</th>
<th>Stud Size (mm)</th>
<th>Pbd Weight (kg/m²)</th>
<th>Fire R Value FRL Basis</th>
<th>Acoustic Ratings</th>
<th>Insulation</th>
<th>Total R Value (m²K/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>50TP1010</strong></td>
<td>2x25mm Shaftliner™ panel 1x10mm Regular plasterboard to each side of timber frame</td>
<td>250</td>
<td>70</td>
<td>54.6</td>
<td>90/90/90 FCO-1446 FCO-2016 FCO-2256</td>
<td>61</td>
<td>48</td>
<td>R2.0 glass wool or 100P14 both sides</td>
</tr>
<tr>
<td></td>
<td></td>
<td>290</td>
<td>70 or 90</td>
<td></td>
<td></td>
<td>64</td>
<td>51</td>
<td>R2.0 glass wool or 100P14 both sides</td>
</tr>
<tr>
<td></td>
<td></td>
<td>300</td>
<td>90</td>
<td></td>
<td></td>
<td>67</td>
<td>55</td>
<td>110mm thick Boral Partiwall® Acoustic batt both sides</td>
</tr>
<tr>
<td><strong>50TP1010A</strong></td>
<td>2x25mm Shaftliner™ panel 1x10mm Soundstop® plasterboard to each side of timber frame</td>
<td>250</td>
<td>70</td>
<td>57.4</td>
<td>90/90/90 FCO-1446 FCO-2016 FCO-2256</td>
<td>60</td>
<td>48</td>
<td>R2.0 glass wool or 100P14 one side only</td>
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<td><strong>50TP1313A</strong></td>
<td>2x25mm Shaftliner™ panel 1x13mm ENVIRO Soundstop® plasterboard to each side of timber frame</td>
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<td>R2.0 glass wool or 100P14 both sides</td>
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- For explanation of System Reference notation refer Section B1 of Boral Selector+ Plasterboard Systems.
- Insulation abbreviation: XXGYY = Glasswool insulation in format of thickness (mm), G (Glasswool), Density (kg/m³), XXPYY = Polyester insulation in format of thickness (mm), P (Polyester), Density (kg/m³).
- Where two stud sizes are nominated for a particular wall width, the gap from the stud to the Shaftliner fire barrier:
  - provides a maximum allowable gap of 40mm for the 70mm stud or
  - meets the BCA requirement of a 20mm gap for the 90mm stud.
Details

Perspective - Section at Roof

- Non-combustible roofing
- Continuous top track capping to Shaftliner™ fire barrier
- Partiwall® stud supported by clip fastened to truss
- Boral Shaftliner™ fire barrier
- Timber wall framing
- Back-to-back continuous top tracks
- Horizontal joints in the Shaftliner™
- Partiwall® stud restrained by clips fastened to wall plates on both sides
- Provide additional layer of 16mm Boral Firestop® plasterboard screw laminated to Shaftliner™ fire barrier as specified
- Clip fastened to Partiwall® stud through 16mm Boral Firestop® plasterboard
- Boral Firepack™ compressed mineral wool packer filling cavity between roofing and Shaftliner™ fire barrier to allow for frame shrinkage and roof movement
- 16mm Boral Firestop® plasterboard, screw laminated to one side of Shaftliner™ fire barrier in ceiling space
- Flooring material
- Boral plasterboard ceiling as specified
- Flooring material
- Boral Regular, Wet Area Board™ or Soundstop® plasterboard to each side
- Boral Shaftliner™ fire barrier
- Acoustic insulation as required
- Plumbing and electrical services within wall cavity do not require special treatment or fixtures to maintain fire rating. Seal for acoustic isolation
- Continuous bottom track to bottom of Shaftliner™ fire barrier and Partiwall® studs
- Min 10mm Boral Regular, Wet Area Board™ or Soundstop® plasterboard both sides
- Pipes may be installed through studs. Where so installed they must be securely fastened to the wall frame and must not be in contact with the Shaftliner™ fire barrier

Typical Arrangement of Services
Details

Concrete Base Detail - FRL 60/60/60 (PW02a)

Masonry Base Detail - FRL 60/60/60 (PW02b)

Notes:
1) Ensure all gaps are sealed with acoustic sealant.
2) Vertical support of Shaftliner® fire barrier must not exceed 3000mm in any case.

Continuous Partiwall® track
Fasten to slab @ 600mm ctrs

Seal track with Firesound® sealant

Continuous Partiwall® track
Fasten to masonry @ 600mm ctrs

FRL of brickwork to match
FRL of Partiwall®

Timber studs both sides

Concrete slab

Termite and moisture barrier as required

Continuous Partiwall® track.
Fasten to slab @ 600mm ctrs

Seal track with Firesound® sealant

Continuous Partiwall® track.
Fasten to masonry @ 600mm ctrs

FRL of brickwork to match
FRL of Partiwall®

Timber studs both sides

Concrete slab to Engineer’s design

Boral plasterboard as specified

Insulation as specified

Skirting as required

20-40mm gap both sides

Nogging as required

Boral plasterboard as specified

Timber studs both sides

Insulation as specified

Shaftliner® fire barrier

Seal track with Firesound® sealant

All gaps to be sealed with Firesound® sealant

Continuous Partiwall® track
fasten to slab @ 600mm ctrs.
Ensure fasteners have adequate edge distance

Concrete slab to Engineer’s design

Firesound® sealant

Partiwall® clip required if vertical support of Shaftliner® fire barrier exceeds 3000mm

Firesound® sealant

Partiwall® clip required

Step heights

refer notes on CAD detail

Engineer’s design

Step in Slab Detail - FRL 60/60/60 (PW04a)

Step in Slab Detail - FRL 60/60/60 (PW04b)
Details

Typical Floor/Wall Junction - FRL 60/60/60 (PW01)

- 20-40mm gap each side
- Continuous top and bottom track
- Fasten together with 10 gauge screws @ 600mm max ctrs
- Skirting as required
- All gaps to be sealed with Firesound® sealant
- Boral plasterboard as specified both sides

Shaftliner™ fire barrier and Partiwall® studs
Where no trimmers or end blocks exist between floor joists, screw laminate an additional layer of 16mm Boral Firestop® @ floor levels extending 150mm, above floor and below ceiling. Fixings @ 400mm x 400mm ctrs

Notes:
1) Floors may be staggered to meet design requirements.
2) Floor joists can be of any type and can run parallel or perpendicular to Shaftliner™ fire barrier.

Boral plasterboard ceiling as specified
Partiwall® clips @ each Partiwall® stud

Floor joists typical
Insulation as specified
Timber studs

Floor joist running perpendicular to wall (posistrut shown, however other joist types applicable)

Boral plasterboard ceiling as specified
Opposing Partiwall® clips at each Partiwall® stud
Boral plasterboard as specified both sides

Typical Floor/Wall Junction - FRL 90/90/90 (PW17)

- 20-40mm gap each side
- Continuous top and bottom track fasten together with 10 gauge screws @ 600mm max ctrs
- Skirting as required
- All gaps to be sealed with Firesound® sealant
- Boral plasterboard as specified both sides

Shaftliner™ fire barrier and Partiwall® studs
Where no trimmers or end blocks exist between floor joists, screw laminate an additional layer of 16mm Boral Firestop® @ 400mm x 400mm ctrs at floor levels extending 150mm, above floor and below ceiling.

Note:
Additional layer of 16mm Boral Firestop® in roof cavity.

Timber studs
Insulation as specified
Shaftliner™ fire barrier and Partiwall® studs

Floor joists typical
Insulation as specified
Timber studs

Floor joist running perpendicular to wall (posistrut shown, however other joist types applicable)

Boral plasterboard ceiling as specified
Opposing Partiwall® clips at each Partiwall® stud
Boral plasterboard as specified both sides

Note:
Additional layer of 16mm Boral Firestop® to be laminated at eaves and floor level at the masonry base. Refer drawing set for similar details.
» Details

Staggered Floor Detail - FRL 60/60/60 (PW18)
Non combustible roofing

Roof framing

Allow gap for frame shrinkage and roof movement

Continuous capping ex Partiwall® track

Provide timber packing where distance of truss face to Shaftliner™ fire barrier does not provide adequate fixing of aluminium clip

600mm Insulation

Trimmers as required to support plasterboard

Opposing Partiwall® clips at each Partiwall® stud

Boral plasterboard as specified both sides

Insulation to one/both sides as specified to achieve acoustic rating

Max 25mm gap between underside of roofing and Shaftliner™ fire barrier

Continuous capping ex Partiwall® track

Sisilation/sarking to continue uninterrupted over Partiwall®

Insulation as used in Partiwall® extending 600mm both sides (required for flanking sound control) not required if average height of roof above ceiling is greater than 600mm (thermal insulation as utilised to achieve system thermal performance is acceptable for flanking sound control)

Ongoing Partiwall® clips @ each Partiwall® stud

Boral plasterboard ceiling as specified

Shaftliner™ fire barrier

Timber studs

Boral plasterboard as specified both sides

20-40mm gap each side

Insulation to one/both sides as specified to achieve acoustic rating

Continuous compressed Boral Firepack™

Max 25mm gap between underside of roofing and Shaftliner™ fire barrier

Continuous capping ex Partiwall® track

Sisilation/sarking to continue uninterrupted over Partiwall®

Insulation as used in Partiwall® extending 600mm both sides (required for flanking sound control) not required if average height of roof above ceiling is greater than 600mm (thermal insulation as utilised to achieve system thermal performance is acceptable for flanking sound control)

Opposing Partiwall® clips @ each Partiwall® stud
» Details

- **Continuous compressed Boral Firepack™**
- **Corrosion resistant metal parapet capping**
- **Non combustible roofing**
- **Box gutter**
- **Non combustible roofing**
- **Box gutter**
- **Roof parapet heights as required by BCA**
  - 150mm min
- **Roof framing**
  - 150mm min
- **Corrosion resistant metal parapet capping**
- **Non combustible roofing**
- **Box gutter**
- **Roof framing**
- **Non combustible roofing**

### Roof Parapet - Junction Detail - FRL 60/60/60 (PW15)

- **Continuous capping ex Partiwall® track**
- **25mm gap between underside of gutter and Shaftliner™**
- **Continuous compressed Boral Firepack™**
- **Opposing Partiwall® clips @ each Partiwall® stud**
- **External cladding and insulation as required**
- **Non combustible roofing**
- **Shaftliner™ fire barrier**
- **Timber studs**

### Box Gutter Detail - FRL 60/60/60 (PW16)

- **Continuous capping ex Partiwall® track**
- **Opposing Partiwall® clips @ each Partiwall® stud**
- **External cladding and insulation as required**
- **Non combustible roofing**
- **Shaftliner™ fire barrier**
- **Timber studs**

**Boral plasterboard ceiling**
**Top plate**
**Insulation as specified**
**Boral plasterboard as specified both sides**
**Timber studs**

**Boral plasterboard ceiling**
**Top plate**
**Insulation as specified**
**Boral plasterboard as specified both sides**
**Timber studs**

**600mm Insulation**
**Insulation as used in Partiwall® extending 600mm both sides required for sound control (thermal insulation as utilised to achieve system thermal performance is acceptable for flanking sound control)**

**Shaftliner™ fire barrier**
**Timber studs**
**Opposing Partiwall® clips @ each Partiwall® stud**

25mm gap between underside of gutter and Shaftliner™
Details

Eave Closure Detail - FRL 60/60/60 (PW03)

- Min 10mm Regular plasterboard
- 16mm Wet Area Firestop® plasterboard
- External cladding to Architect’s details
- Batten to suit external cladding
- Load bearing timber studs @ max 600mm ctrs
- Skirting as required
- All gaps to be sealed with Firesound® sealant

Partiwall® to OutRwall® - Transition Detail 1 - FRL 60/60/60 (PW05)

Note:
For Staggered Roof Transition Detail - FRL 60/60/60
contact TecASSIST 1800 811 222

Note:
FRL 60/60/60 for upper storey external wall fire rating is from outside only.
Details

**Partiwall® to OutRwall® - Transition Detail 2 - FRL 60/60/60 (PW06)**

- Continuous acoustic insulation as used in Partiwall® to extend 600mm from junction both sides of Partiwall® for flanking sound control (thermal insulation as utilised to achieve system thermal performance is acceptable for flanking sound control)
- Sarking covers Boral Firepack™
- Maximum 40mm gap between brickwork and panel
- Control joint opposite Shaftliner™ fire barrier
- Continuous compressed Boral Firepack™ 200mm wide
- Continuous Partiwall® track fastened at top and bottom
- Brick veneer cladding

**Brick Veneer Wall - Junction Detail 1 - FRL 60/60/60 (PW07)**

- Insulation to one/both sides as specified to achieve required acoustic rating
- Shaftliner™ fire barrier
- Partiwall® stud
- 20-40mm gap each side
Details

- Timber studs
- Boral plasterboard as specified both sides
- Shaftliner™ fire barrier
- Min 600mm acoustic insulation (thermal insulation as utilised to achieve system thermal performance is acceptable for flanking sound control)
- Articulation joint fire sealant with backing
- Brick veneer cladding
- Partiwall® stud
- Opposing Partiwall® clips at each Partiwall® stud
- Insulation to one/both sides as specified to achieve required acoustic rating

Brick Veneer Wall Junction - Detail 2 - FRL 60/60/60 (PW08)

- Opposing Partiwall® clips
- Shaftliner™ fire barrier
- Exterior sealant
- Continuous bead of acoustic sealant or closed cell acoustic foam to capping track (seal all gaps)
- Continuous Partiwall® track to end of Shaftliner™ panel
- External cladding system with sarking as required
- Sarking as required

Control Joint Detail (where required)

- External cladding system with sarking as required

Clad Wall - Junction Detail - FRL 60/60/60 (PW09)

- Continuous Partiwall® track to end of Shaftliner™ panel
- Timber studs
- Boral plasterboard as specified both sides
- Opposing Partiwall® clips @ each Partiwall® stud
- Partiwall® stud
- Shaftliner™ fire barrier
Details

4-Way Intersecting Wall - Plan Detail - FRL 60/60/60 (PW11)

- Aluminium clips attached to top or bottom plate and to "H" stud on both sides
- 20-40mm gap both sides typical
- Screw Partiwall® tracks together @ 600mm max ctrs and 150mm max from ends
- Insulation as specified
- Shaftliner™ fire barrier
- Timber studs wall framing
- Boral plasterboard as specified

Typical Corner - Plan Detail - FRL 60/60/60 (PW10)

- Aluminium clip attached to "H" stud on both sides
- 20-40mm gap both sides typical
- Side clip to frame or clip at floor level
- Screw Partiwall® tracks together @ 600mm max ctrs and 150mm max from ends
- Continuous Partiwall® track
- Refer to systems for lining and insulation
Internal Wall/Partiwall® Junction - FRL 60/60/60 (PW22)

Notes:
1) Refer to Partiwall® systems table for insulation and wall linings.
2) Ensure all gaps are sealed with Firesound® sealant.

Shaftliner™ fire barrier
Non fire rated wall
Opposing Partiwall® clips @ each Partiwall® stud
Insulation as specified

Provide trimmers as required for services
Wet area sealant around all plumbing penetrations
10mm max (gap sealant)

Power point (GPO)
Stud bracket for power point (GPO)

Wet area sealant around PVC pipe (max 65mm dia)
10mm max (gap sealant)

20-40mm gap both sides typical

Notes:
1) All penetrations can be back-to-back.
2) Refer to Partiwall® systems table for insulation and wall linings.

Wall Penetrations - Plan Details - FRL 60/60/60 (PW12)
» Details

**uPVC Pipe Penetration at Roof Space - FRL /60/60** (PW19)

- Boral 16mm Firestop®
- Boral Shaftliner™ fire barrier
- Pyropanel® Pyrolesieve
- RF100 fire collar
- Pyropanel® Multiflex sealant
- uPVC pipe 100mm diameter

**Note:**
Designer/Builder to obtain approval from Building Surveyor prior to installation.

**Power Cables Penetrations at Roof Space - FRL /60/-** (PW20)

- Boral 16mm Firestop®
- Additional layer of 16mm Firestop® (can be applied to either side of wall)
- 50mm x 10mm IBS strip
- Fire rated acrylic sealant or Promaseal® acrylic sealant
- PVC insulated power cable (D1 group)

**Note:**
Designer/Builder to obtain approval from Building Surveyor prior to installation.
Details

- Additional layer of 16mm Firestop® (can be applied to either side of wall)
- Boral 16mm Firestop®
- Boral Shaftliner™ fire barrier
- Fire rated acrylic sealant or Promaseal acrylic sealant
- Copper pipe penetration at roof space - FRL -/60/- (PW21)

Note:
Designer/Builder to obtain approval from Building Surveyor prior to installation.

150mm min

32mm-150mm dia copper pipe. Thickness 0.91mm-2.03mm

Fire rated acrylic sealant or Promaseal acrylic sealant

50mm

Additional layer of 16mm Firestop® around service

H-stud

Note:
Designer/Builder to obtain approval from Building Surveyor prior to installation.
Installation of Shaftliner™ Fire Barrier

Installation of the Shaftliner™ fire barrier requires the attachment of the supporting Partiwall® studs to framing members using aluminium clips. Set out framing to allow for the required clearances on both sides of the Shaftliner™ fire barrier and later clipping of the Partiwall® studs to wall plates and roof trusses.

After the framing on one side has been completed, the Shaftliner™ fire barrier is installed and clipped to the completed side. When framing on the other side is completed the Shaftliner™ fire barrier is clipped to that side.

The sequence of construction should be planned to accommodate the progressive erection of the Shaftliner™ fire barrier.

Protection From Weather

To prevent damage from the weather all materials must be suitably protected during construction.

Boral recommends that exposure of the Shaftliner™ fire barrier to the elements should be minimised, and that protection is provided if exposure is likely to exceed one month or when periods of intense inclement weather, such as heavy rain or high winds, are expected. Allow it to dry out before lining the occupancy areas.

Temporary exposure of Shaftliner™ fire barrier to moisture should not downgrade its fire resisting properties as long as there is no physical damage to the panels in a wet state.

Boral also recommends that concrete slabs on which the Shaftliner™ fire barrier is erected should be level, free draining, and free of depressions where water can collect, removing the possibility of the panel standing in the water for any length of time. The specified 6mm gap between the adjacent bottom track lengths will facilitate drainage of water from the track.

Do's and Don’ts

- **Do** use aluminium clips at every Partiwall® stud and not more than 3000mm above lower clip line or base track.
- **Do** locate and fix down bottom track adequately.
- **Do** seal at bottom track.
- **Do** install Boral Firepack™ at wall ends and top, as specified.
- **Do** cut Partiwall® stud and Shaftliner™ panels to the same length.
- **Do** insert Partiwall® stud and Shaftliner™ fully into the base track.
- **Do** insert Shaftliner™ panels fully into the Partiwall® studs.
- **Do** use the specified fasteners for aluminium Partiwall® clips.
- **Don’t** use damaged materials.
- **Don’t** penetrate the Shaftliner™ other than in the roof space as per Boral’s details.
- **Don’t** exceed specified clip spacing.
- **Don’t** use steel clips.
- **Don’t** cut tracks between Partiwall® studs. Tracks should be used in full lengths.
- **Don’t** run services in the gap between Shaftliner™ fire barrier and framework.
- **Don’t** use Partiwall® H-stud in lieu of Partiwall® track as edge capping nor as horizontal joint in Shaftliner™ fire barrier.
Installation of Shaftliner™ Fire Barrier

Step 1: Fixing bottom track
- Position track at the base level centred in the Partiwall® cavity and attach to foundation with power actuated fasteners at both ends and at 600mm maximum spacing.
- Use full lengths spaced 6mm apart and 20-40mm from the frame.
- Start and end nominal 40mm from inside of external brickwork or level with inside face of cladding material.
- Apply acoustic sealant along track/floor junction on one side. Refer to step 7.

Step 2: Cut Shaftliner™ panels and Partiwall® stud to the same length

Step 3: First Shaftliner™ panel fitted into base track
- To enable later fixing of aluminium clips, cut this Shaftliner™ panel to width so that its edge falls at least 50mm from a wall frame stud.
- House the outside edge at the end of the wall with the track.
- Screw this end track to the base track where they meet.

Step 4: First Partiwall® stud fits fully down into track
- Move it along the track to house the edge of the Shaftliner™.
- Lightly tap up to give a snug fit.
- Fit the second Shaftliner™ panel.
- Fix H-stud to timber frame with Partiwall® aluminium clip.

Step 5: Continue fitting Partiwall® studs and Shaftliner™ panels
- Continue to erect Partiwall® studs and Shaftliner™ panels progressively until the fire barrier is completed.
- House last Shaftliner™ panel with track at the end of the wall.
- Exposed Shaftliner™ barrier may be subjected to high wind forces and so must be adequately braced while exposed to the wind.

Step 6: Aluminium Partiwall® clips fasten all Partiwall® studs to wall frame
- Must be at every Partiwall® stud.
- Maximum 3000mm apart vertically.
- For aligned floors, must be directly opposite on both sides of the Partiwall® studs. Alternatively, Partiwall® clips can be staggered in line with offset floors.
- Where Shaftliner™ panels butt to external wall, cap the vertical edge of panels with Partiwall® track screw fixed to base track with 10g x 16mm drill point wafer head screws.

Step 7: Seal for acoustics and fire
- Install continuous Boral Firepack™ at wall ends and roof as specified.
- Seal bottom track with a recommended fire rated acoustic sealant.
Installation of Shaftliner™ Fire Barrier

Step 8: At mid-floor
- Cut and screw laminate 16mm Firestop® plasterboard to one side ensuring minimum 150mm overlap above floor and below ceiling level.
- It is recommended the gap from Partiwall® panel to wall stud framing be increased to a minimum of 25mm on this side to ensure adequate clearance for the Firestop® plasterboard.
- Screw laminate one layer of 16mm Boral Firestop® plasterboard to one side of Shaftliner™ fire barrier as required. Fasten at maximum 400mm x 400mm centres with 10g x 40mm Type ‘L’ laminating screws minimum 10mm from edge of the board.
- Fix clips to Partiwall® studs with 2 x 10g x 16mm ‘D’ type screws.
- Fix clips to timber plates with 2 x 2mm dia x 25mm nails or 2 x 6g x 25mm ‘W’ type screws.
- Fix clips through 16mm Firestop® to Partiwall® studs with 2 x 10g x 30mm ‘D’ type screws.
- As framing progresses, clip Partiwall® studs to wall plates on the other side.

Step 9: Cap top of Shaftliner™ panels and Partiwall® studs with track
- Use full lengths, end to end, spaced 6mm apart.
- Houses top of Partiwall® panels, end tracks and Shaftliner™ panels.
- Screw this capping track to the end tracks where they meet.

Step 10: Upper sections
- Back capping track with base track.
- Fasten with minimum 10g x 16mm screws at 600mm centres.
- Cut Shaftliner™ panels and Partiwall® studs, cut to a length not exceeding 600mm above clip support points.
- Install as previously Partiwall® studs to align vertically with bottom section.

Step 11: At roof
- Measure and cut Shaftliner™ panels and Partiwall® studs to pitch of roof.
- Allow gap for frame shrinkage and roof movement in pitched roof application. Provide max 25mm gap between underside of flat metal roof/parapet/box gutter applications.
- Cap on rake and clip Partiwall® studs to roof frame on one side.
- Cut and screw laminate 16mm Firestop® plasterboard to one side of Shaftliner™ fire barrier in the roof space with 10g x 40mm Type ‘L’ laminating screws at 400mm x 400mm centres, minimum 10mm from edge of Firestop®.
- Fix Partiwall® clips to Partiwall® studs through 16mm Firestop® plasterboard with 10g x 30mm Type ‘D’ drill point screws and to framing.
- Provide nominal 25mm gap between top end of Shaftliner™ fire barrier and roofing.
Sustainability
Boral Plasterboard 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.

Plasterboard waste can be recycled back into new plasterboard or used as a soil conditioner. Please contact Boral Plasterboard regarding waste collection services available in your region.

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

Technical Enquiries 1800 811 222
TecASSIST® provides technical advice to builders, architects, contractors, engineers, regulators and home owners throughout Australia.

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 TecASSIST® weekdays 8.30am - 4.30pm AEST on 1800 811 222 or www.boral.com.au/tecassist.

Sales Enquiries 1800 003 377

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<tr>
<td>ACT</td>
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