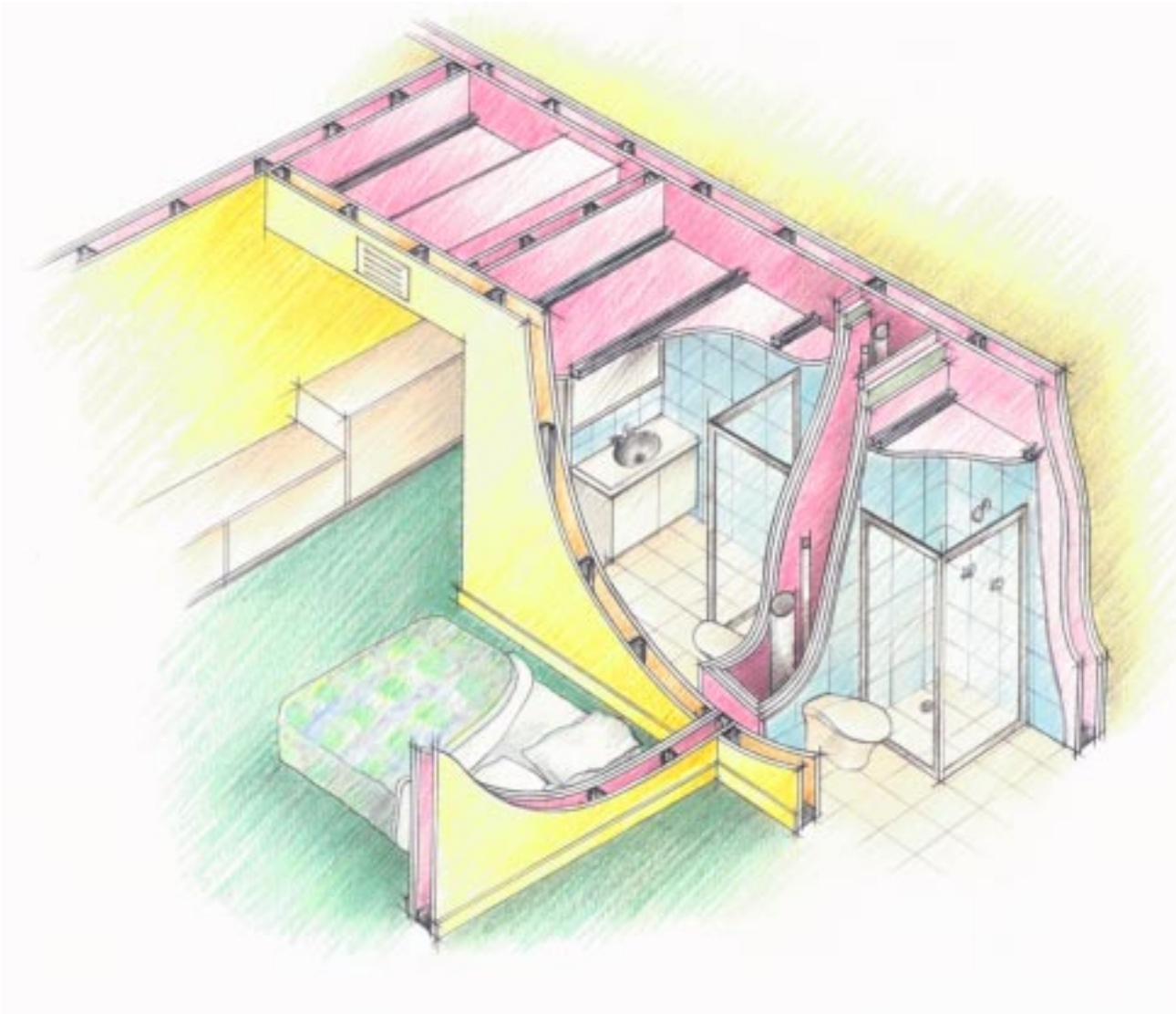
Plasterboard Laminated Wall Systems



306C Issue 4

2 Introduction

Contents

Introduction

Boral Plasterboard Vent Shaft Wall is a laminated fire-rated wall system developed primarily for use as an enclosure around minor floor penetrations, vent and service risers in commercial and residential building construction. The design is ideally suited for use in hotels and multi-storey residential units where small service shaft penetrations, air return and exhaust risers between levels are required. The system can accommodate a wide range of fire-rated penetration features and provides a simple construction solution for the designer. Some of the more significant features are:

- Light weight and space saving;
- Requires no steel or timber studs;
- Fire rated for up to 2 hours;
- Constructed from one side enabling speed and ease of erection; and
- Easily joined to other plasterboard drywall, masonry or concrete walls.

Description

Boral Plasterboard Vent Shaft Wall is constructed using a three layer laminated plasterboard configuration with no metal or timber stud requirement. Metal angles are used for top and bottom tracks, and again in corners at changes in direction of wall runs. The FRL 120/120/120 wall consists of one outer layer of 16mm Boral Firestop Plasterboard each side, encapsulating an inner layer of 25mm Boral Shaft Liner. The FRL 90/90/90 wall consists of three layers of 16mm Boral Firestop Plasterboard. The systems has been successfully fire tested with typical service penetrations such as large and small diameter pipes, air conditioning fire damper, access panel, cable tray and power points.

Performance and Materials

Fire-rating Performance

FRL 90/90/90: This system has been tested at the Division of Building, Construction and Engineering CSIRO and reported on in test reports FSP 0169, FSP0203 and FSV 0538. The FRL 90/90/90 system is covered by CSIRO Opinion FCO1480.
FRL 120/120/120: This system has been tested by BHP Research, Melbourne Laboratories and is covered by their test BFT470.

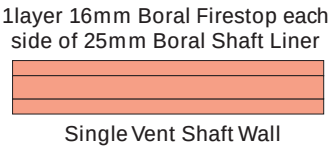
Structural Performance

Structural tests on the systems were carried out in the R. & D. laboratory of Boral Australian Gypsum Limited (NATA registered) for compliance with the requirements of the Building Code of Australia (C1.8). The systems were tested successfully for static loading up to 0.35kPa and impact loading to bag drop of 150mm.

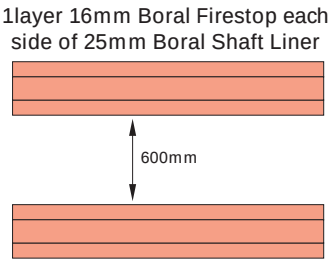
Acoustic Performance

The systems have been appraised by Graeme Harding & Associates, consultants in acoustics, noise and vibration. Greater STC values than shown below can be achieved with the addition of furred linings (refer to Boral Plasterboard Sales Offices for details).

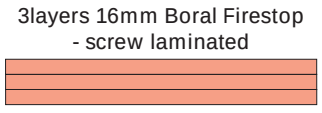
STC 35



STC 60



STC 34



Materials

Plasterboard

- 16mm Boral Firestop recessed edge.
- 25mm Boral Shaft Liner.
- 13mm Boral Firestop recessed edge (access panel).

Adhesives & Sealants

- Boral Cornice Adhesive (for laminating plasterboard sheets).
- Boral Fyreflex Sealant or approved equivalent.
- IBS rod 22mm and 29mm diameter , IBS Strip 25mm x 20mm , Fyre Seal Mastic (all supplied by Fyreguard Pty. Ltd.).
- Gulf Foam, Pyropanel Fire Prevention Pillow, Multiflex Sealant, Intumex "F" Putty (all supplied by Pyropanel Developments Pty. Ltd.).
- Fireban One Sealant.

Metal Components

- 38 x 20 x 0.75 BMT, 50 x 10 x 0.75 BMT MS Angle.
- 35 x 35 x 0.75 BMT MS Angle (Rondo Part No. 553).
- Type 4 Retrofit Pipe Collars (supplied by Grinnell).

Fasteners

- "Dynabolts" 6 x 40mm (Ramset Pty. Ltd.)
- Screws:
  - 6 x 50mm Single Start-Needle Point-Bugle Head (indicated by "1" on details).
  - 6 x 32mm Double Start-Needle Point-Bugle Head (indicated by "2" on details).
  - 10 x 38mm Single Start- Needle Point-Bugle Head (indicated by "3" on details).
  - 8 x 50mm Double Start- Needle Point-Bugle Head (indicated by "4" on details).
  - 8 x 40mm Double Start- Needle Point-Bugle Head (indicated by "5" on details).
  - 6 x 40mm Double Start- Needle Point-Bugle Head (indicated by "6" on details).
  - 8 x 45mm Double Start- Needle Point-Bugle Head (indicated by "7" on details).
  - Plastic "Snap Caps" for screw fixings on Access Panel if required.

Finishing

- Any jointing compound system from the Boral Plasterboard range of compounds over 50mm wide slotted paper tape.
- Corner bead (Rondo Part No. P32) if required for finishing external corners.
- Long Leg Stopping Angle Part No. P26 (Access Panel).

4 Construction Details

Construction Notes

FRL 120/120/120

- Fix top, bottom and side perimeter angles (Shaft Side).
- Fix temporary support angle (Shaft Side) if required for ease of construction at location of horizontal joint (refer Fig.2).
- Place 16mm Boral Firestop in position vertically and fix to perimeter angles (starting from one end) and perimeter caulking.
- Butter face of Shaft Liner Panels with Boral Cornice Adhesive using a notched trowel (stop Cornice Adhesive 20mm back from angles in Deflection Heads and Control Joints). Laminate to 16mm Boral Firestop sheets (already in position).
- Ensure vertical joints between 16mm Firestop (Shaft Side) and Shaft Liner Panels are staggered 300mm min.
- Screw fix (supplementary fastening) Shaft Liner to 16mm Firestop sheets using 6 x 50mm "Single Start" screws at 400mm centres each way.
- Install Shaft Side perimeter sealants and caulking as per details shown.
- Fix additional top, bottom and side perimeter angles (Tenancy Side).
- Butter face of 16mm Boral Firestop sheets (Tenancy Side) with Boral Cornice Adhesive using a notched trowel (stop Cornice Adhesive 20mm back from angles in Deflection Heads and Control Joints). Laminate to Shaft Liner Panels.
- Ensure vertical joints between 16mm Firestop sheets (Tenancy Side) and Shaft Liner Panels are staggered 300mm min.
- Screw fix (supplementary fastening) 16mm Firestop sheets to Shaft Liner Panels using 6 x 50mm "Single start" screws at 400mm centres each way.
- Install Tenancy Side perimeter sealants and caulking as shown on details.

Note: Fixing sequence may be affected by existing service penetrations.

FRL 90/90/90

- Fix top, bottom and side perimeter angles (Shaft side).
- Place 16mm Boral Firestop plasterboard in position vertically and fix to perimeter angles (starting from one end) and perimeter caulking.
- Screw laminate second layer of 16mm Boral Firestop plasterboard to first (already in position) using laminating screws @ 600mm x 600mm centres as shown on details.
- Ensure screws are @ 200mm centres to both sides of plasterboard horizontal joints.
- Ensure vertical joints between layers of 16mm Boral Firestop (Shaft side) are staggered by 300mm minimum.
- Install Shaft side perimeter sealants and caulking as per details shown.
- Fix additional top, bottom and side perimeter angles (Tenancy side).
- Screw laminate third layer of 16mm Boral Firestop plasterboard to second using laminating screws @ 600mm x 600mm centres, as shown on details.
- Ensure screws are @ 200mm centres to both sides of plasterboard horizontal joints.
- Ensure vertical joints between 16mm Boral Firestop sheets (Tenancy side) are staggered by 300mm minimum.
- Install Tenancy side perimeter sealants and caulking as shown on details.

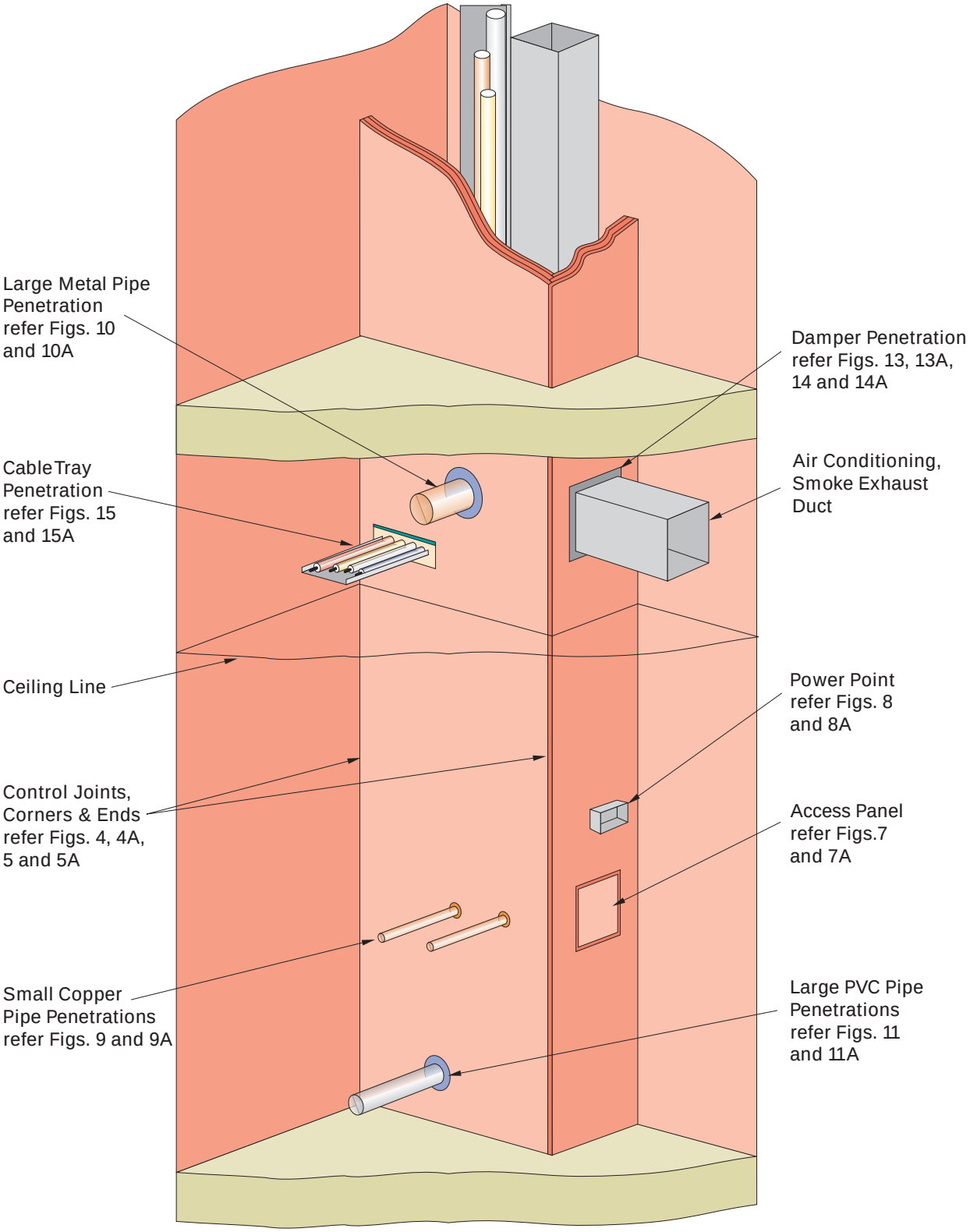
Note: Fixing sequence may be affected by existing service penetrations.

Limitations

Boral Vent Shaft Laminated Wall systems are not to exceed 4250mm in height and 3000mm in any straight length. Boral Vent Shaft Laminated Wall systems are not for use in exterior environments.

Architectural Specification

Boral Plasterboard Laminated Wall Systems (Vent Shaft) as shown on relevant drawings shall consist of materials supplied by Boral Plasterboard and be fixed and finished in accordance with the instructions in this manual.



Typical Vent Shaft Wall Application

6 Construction Details

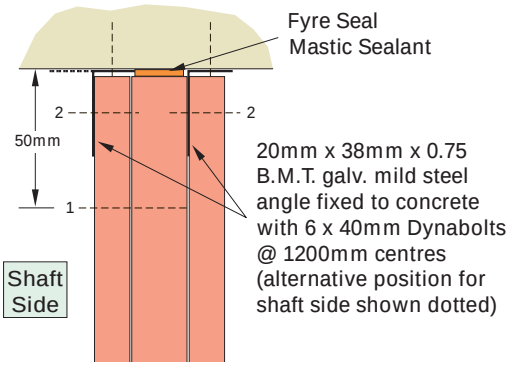


Figure 1. Standard Head Detail
FRL 120/120/120

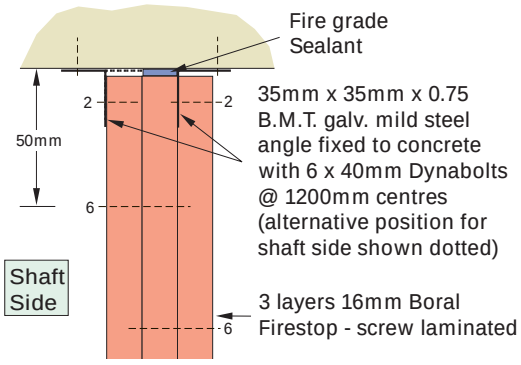


Figure 1A. Standard Head Detail
FRL 90/90/90

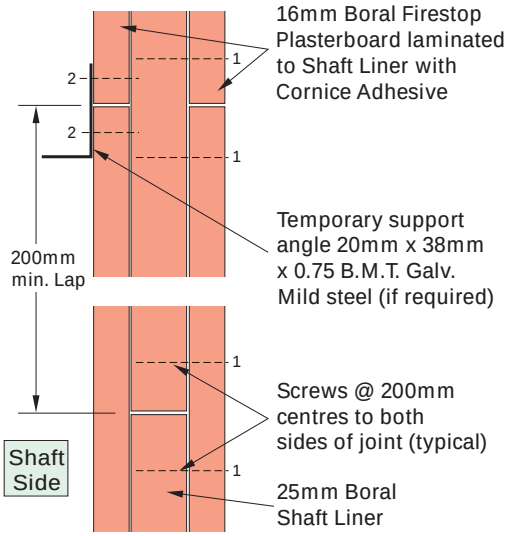


Figure 2. Horizontal Joint
FRL120/120/120

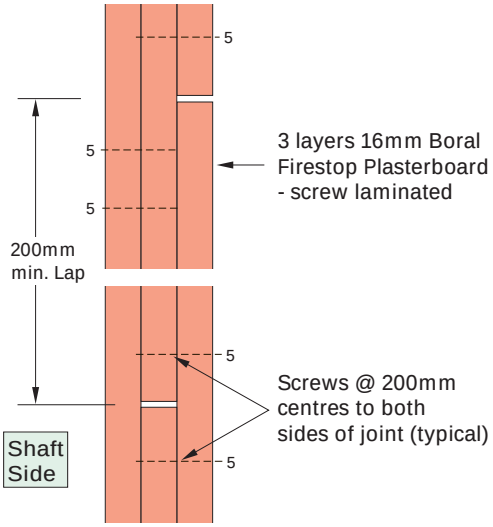


Figure 2A. Horizontal Joint
FRL 90/90/90

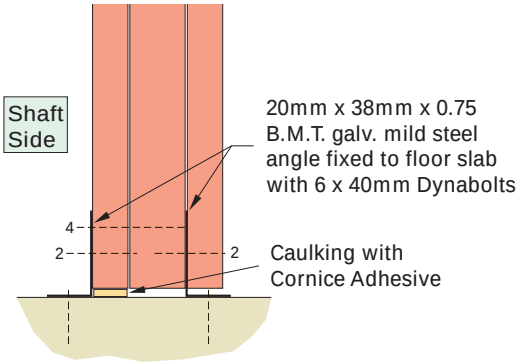


Figure 3. Base Detail
FRL120/120/120

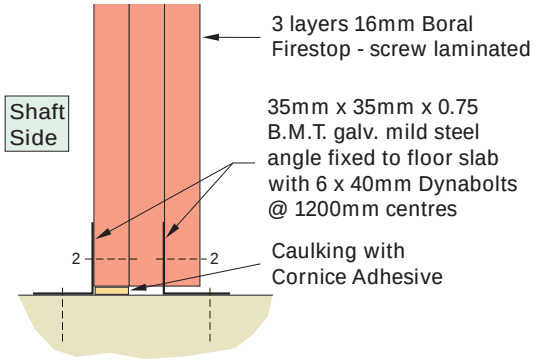


Figure 3A. Base Detail
FRL90/90/90

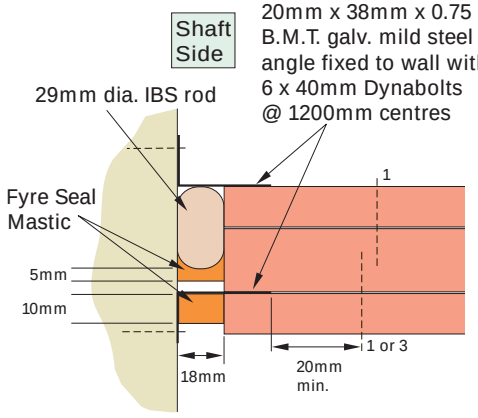


Figure 4. Control Joint (if required)
FRL 120/120/120

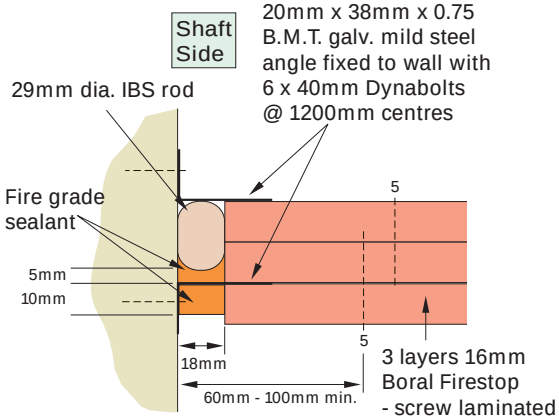


Figure 4A. Control Joint (if required)
FRL 90/90/90

8 Construction Details

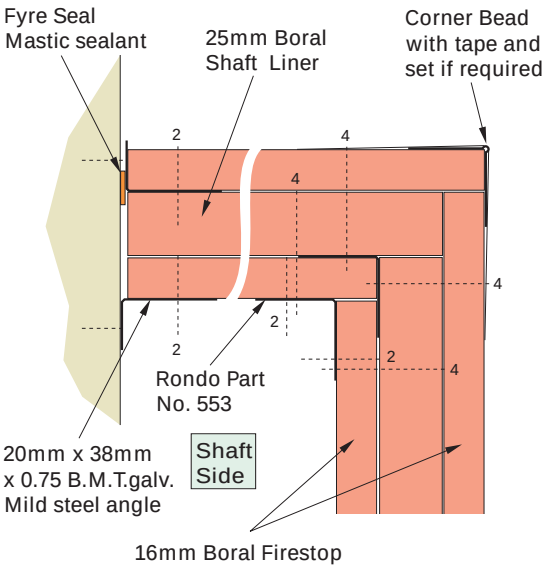


Figure 5. Typical Corner & End Detail
FRL 120/120/120

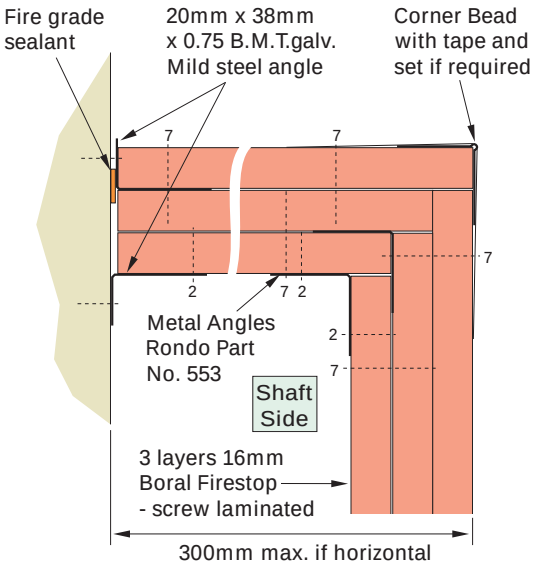


Figure 5A. Typical Corner & End Detail
FRL 90/90/90

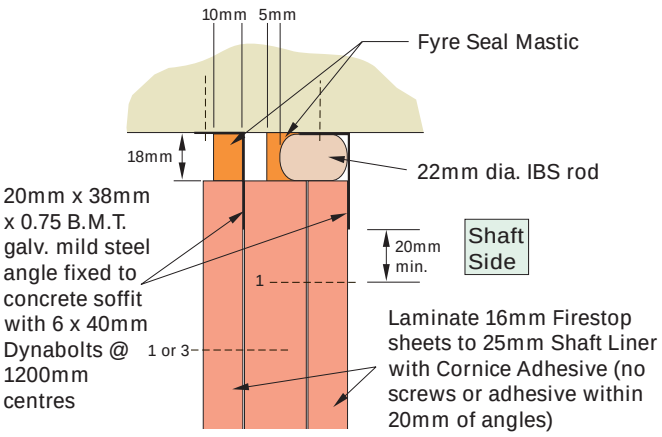


Figure 6. Deflection Head Detail (if required)
FRL 120/120/120

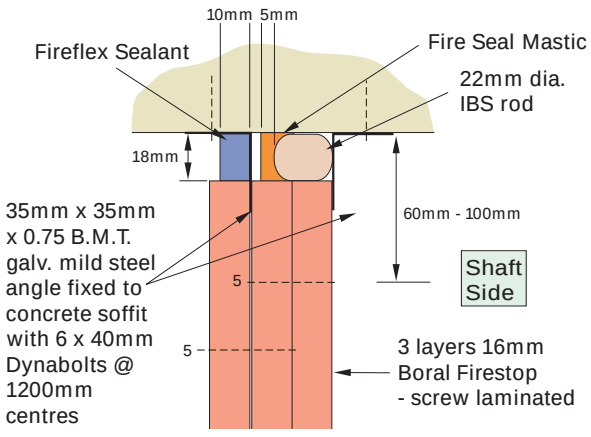


Figure 6A. Deflection Head Detail (if required)
FRL 90/90/90

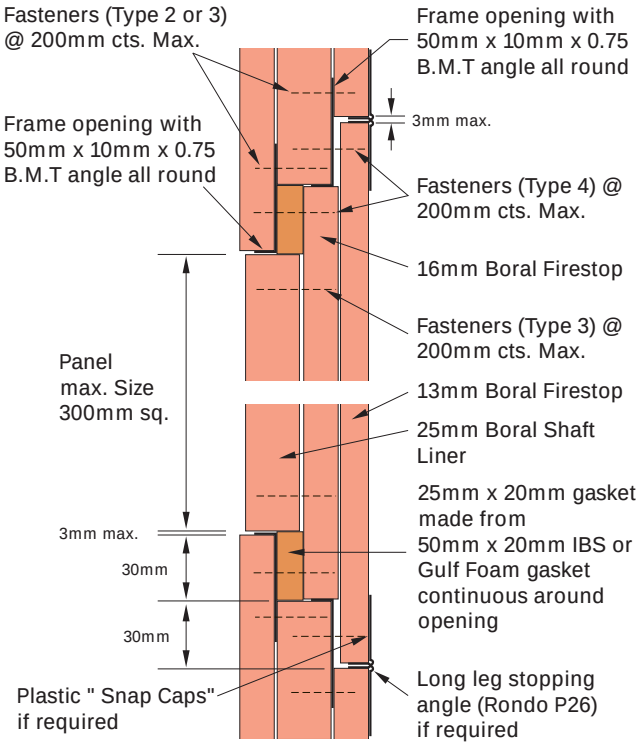


Figure 7. Access Panel Detail
FRL NA/120/90 (from Tenancy side)

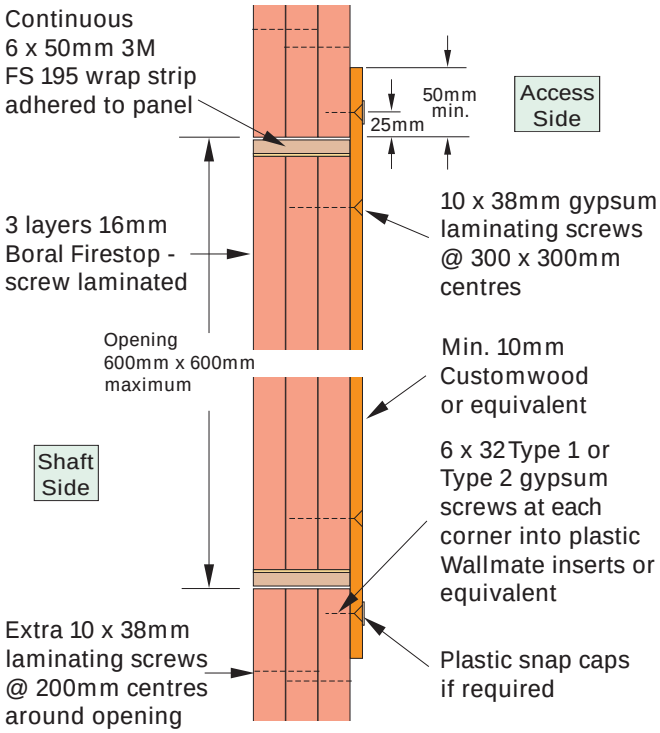


Figure 7A. Access Panel Detail
FRL NA/90/90

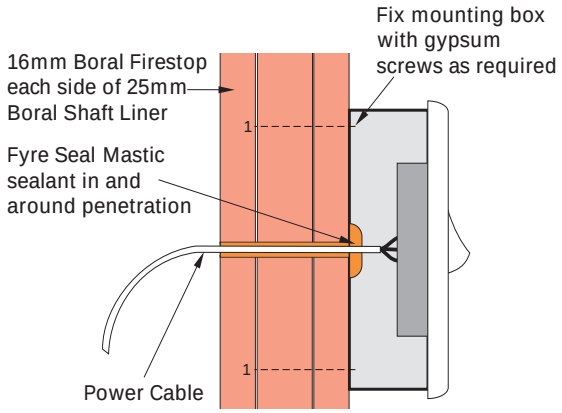


Figure 8. Power Point Detail
FRL NA/120/90

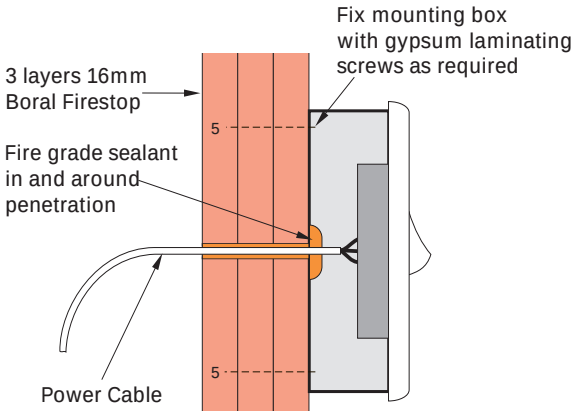


Figure 8A. Power Point Detail
FRL NA/90/90

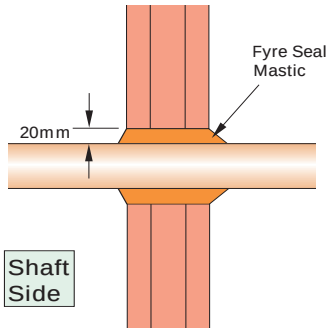


Figure 9. Pipe Penetration Detail
32mm Copper Pipe
FRL NA/120/0

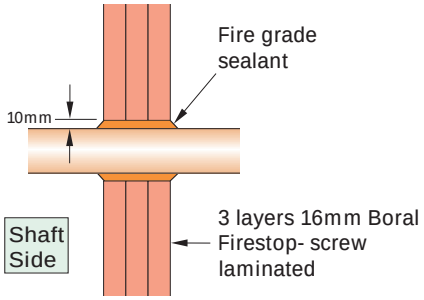


Figure 9A. Pipe Penetration Detail
32mm Copper Pipe
FRL NA/90/0

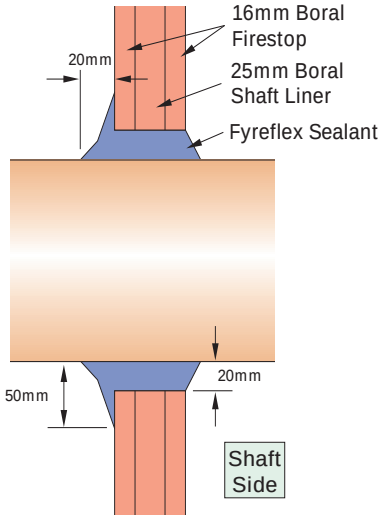


Figure 10. Pipe penetration Detail,
Copper Pipe (150mm diameter max.)
FRL NA/120/0

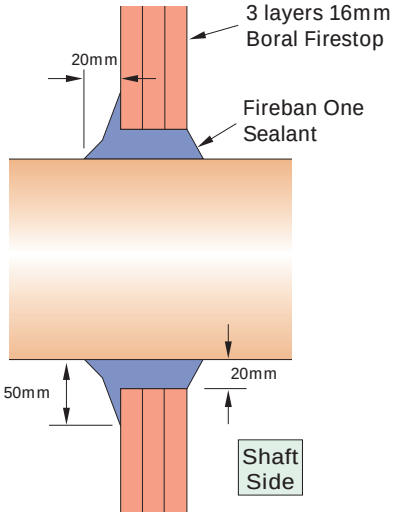


Figure 10A. Pipe penetration Detail,
Copper Pipe (150mm diameter max.)
FRL NA/90/0

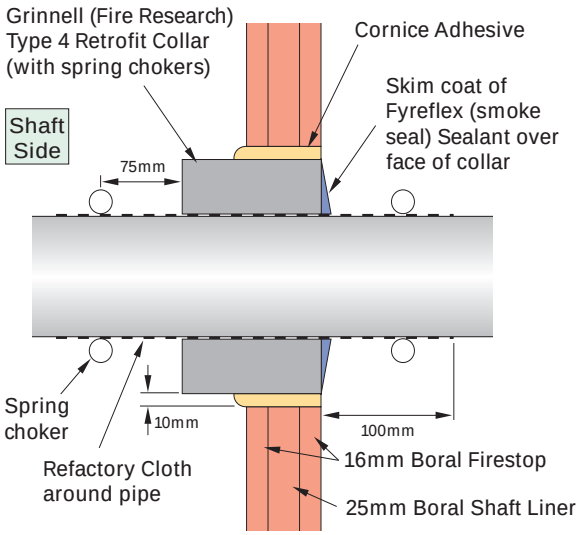


Figure 11. Pipe Penetration Detail,
PVC Pipe (100mm diameter max.)
FRL NA/120/60

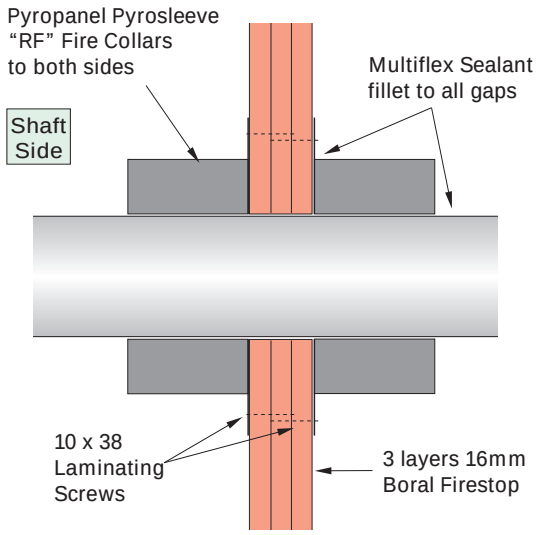


Figure 11A. Pipe Penetration Detail,
PVC Pipe (100mm diameter max.)
FRL NA/90/60

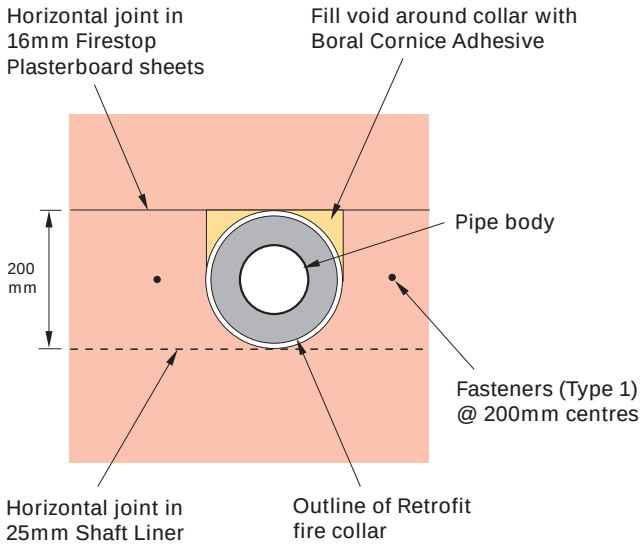


Figure 12. Typical plasterboard installation
around existing Pipe & Collar
FRL NA/120/60

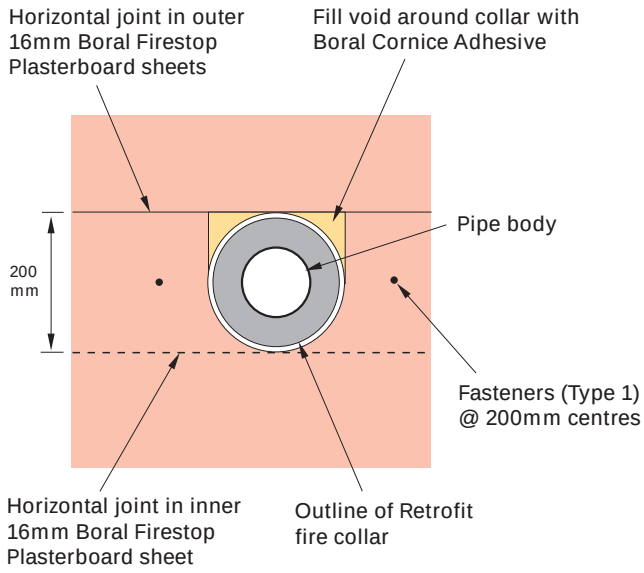


Figure 12A. Typical plasterboard installation
around existing Pipe & Collar
FRL NA/90/60

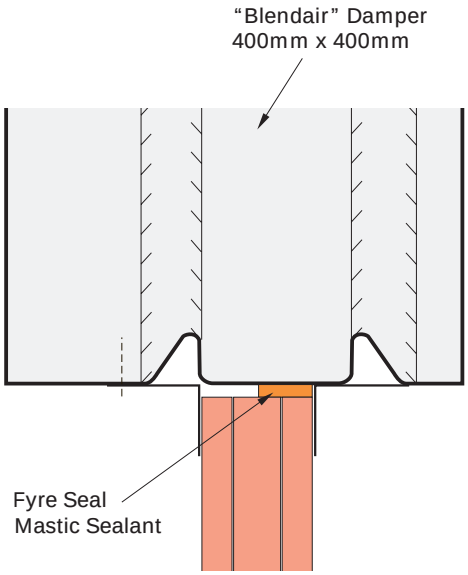


Figure 13. Damper Penetration Detail (bottom)
FRL NA/120/0

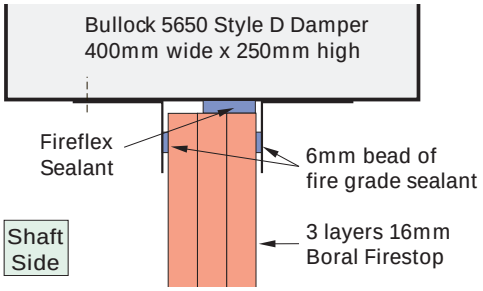


Figure 13A. Damper Penetration Detail (bottom)
FRL NA/90/0

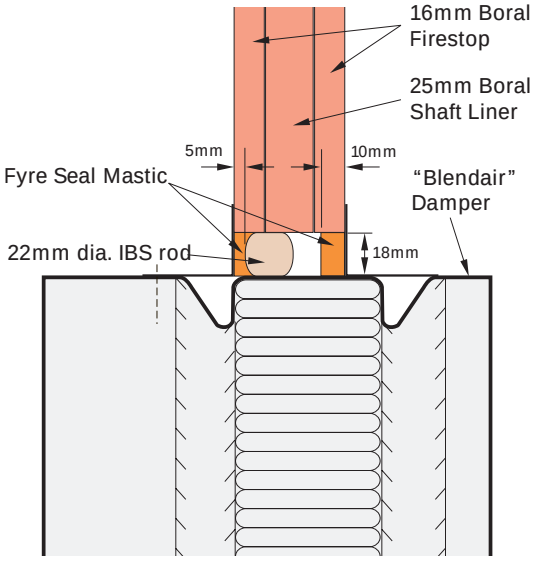
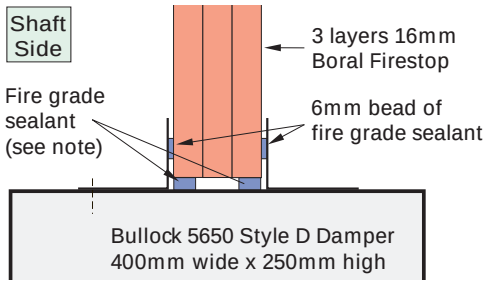


Figure 14. Damper Penetration Detail (top & sides)
FRL NA/120/0



Note: Lorient Sealant at sides and Fireban One Sealant at top as viewed from the cold side.

Figure 14A. Damper Penetration Detail (top & sides)
FRL NA/90/0

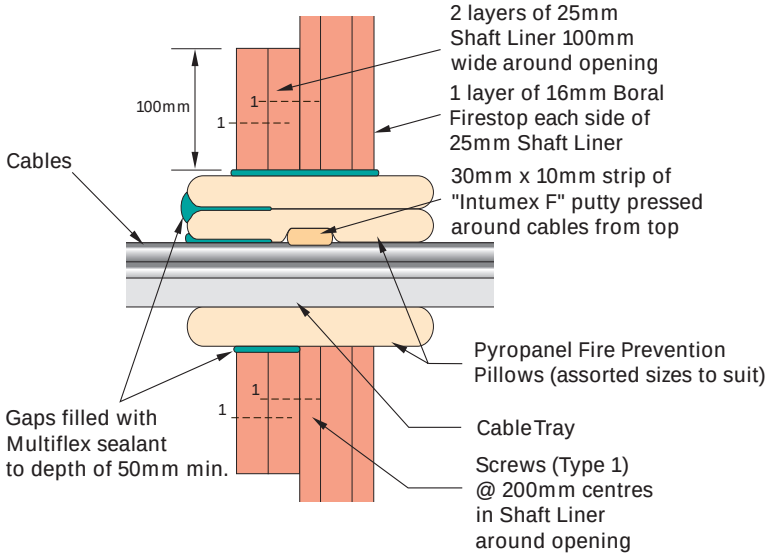


Figure 15. Section Through Cable Tray Penetration
FRL NA/180/30

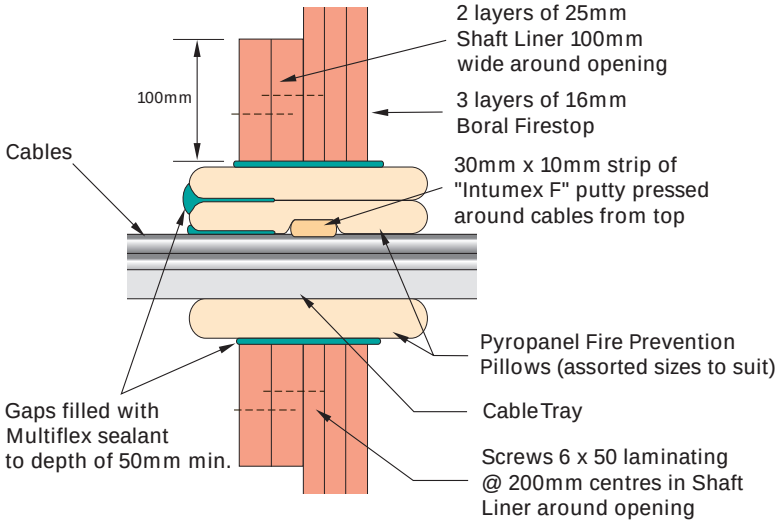


Figure 15A. Section Through Cable Tray Penetration
FRL NA/90/30

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.

The information contained in this brochure is available on TecSYS - a comprehensive technical catalogue on CD-ROM.

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).

TecASSIST
add a valuable member to your team

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Fax (08) 9302 1133

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Telephone (02) 6280 4243
Fax (02) 6280 5816

Tasmania
93 Albert Road Moonah 7009
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Fax (03) 6278 9865

Northern Territory
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Fax (08) 8984 3778

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