

5 FINISHING PLASTERBOARD

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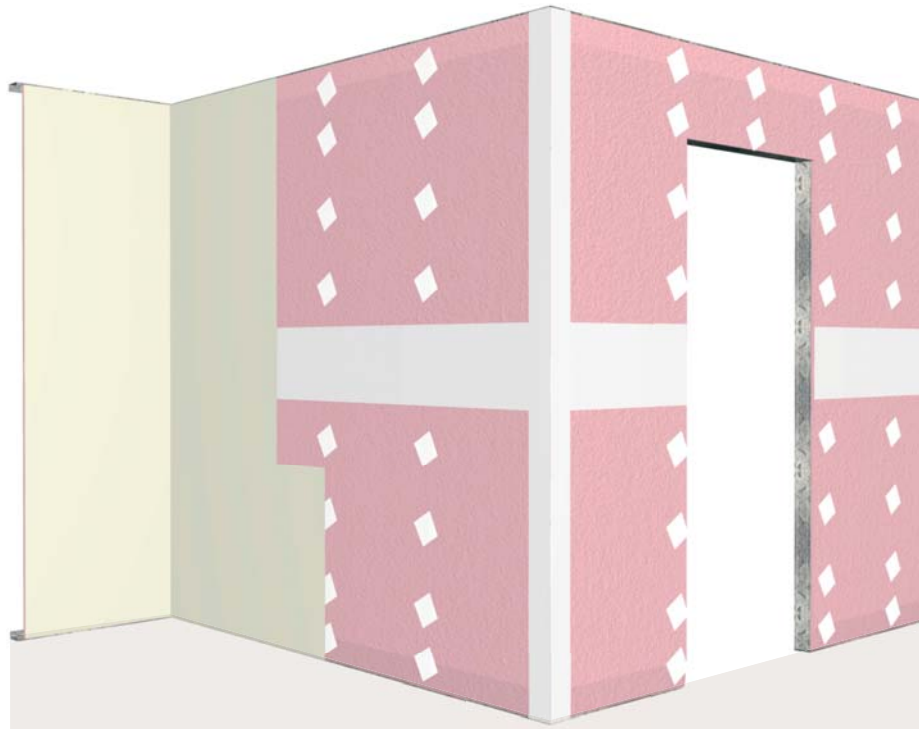
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Plasterboard is finished using plaster compounds, which are sanded and then finally painted to achieve a smooth and even appearance.

No building lining system has a surface that is perfectly flat and totally free of imperfections. By paying attention to framing, plasterboard sheet orientation, paint finishes and lighting conditions, it is possible to attain the perception of flatness.

Careful workmanship is required at each stage of construction to achieve a high quality finish. If faults are not corrected at the earliest opportunity it may be impossible to disguise them afterwards. In addition, there are some key design principles that should be followed to avoid conditions known to highlight imperfections.

AUSTRALIAN STANDARD REQUIREMENTS

The plasterboard installation standard AS 2589:2007, *Gypsum linings – Application and finishing*, refers to three Levels of Finish (Levels 3, 4 and 5). The standard nominates Level 4 as the default finish unless otherwise specified. Installation in accordance with Lafarge Plasterboard instructions will achieve a Level 4 Finish.

TABLE 1
Level of Finish requirements for non-fire rated systems

	LEVEL 3	LEVEL 4	LEVEL 5
Back-block recessed joints on ceilings with 3 or more recessed joints	Optional	✓ ¹	✓
Back-block recessed joints on ceilings with less than 3 recessed joints	Optional	Optional ¹	✓
Ceiling butt joints permitted on framing members	✓	✗ ²	✗ ²
Wall butt joints permitted on framing members	✓	✗ ²	✗ ²
Minimum number of coats for jointing	2	3	3 and Skim Coat
Maximum frame deviation of 90% of area (mm) ³	4	4	3
Maximum frame deviation of remaining area (mm) ³	5	5	4

¹ Back-blocking not required for recessed joints on suspended ceiling with no rigid connection at wall/ceiling junction.

² Back-blocking is required on these joints. [FOR MORE INFORMATION, REFER TO SECTION 5.2].

³ Over a 1.8m straight edge the frame must not deviate by more than these values.

FRAMING REQUIREMENTS FOR EACH LEVEL OF FINISH

AS 2589.1 defines allowable deviations in the flatness of the framing surface to achieve the required Level of Finish. Framing members must have a minimum fixing face width of 32mm for screw fixing and 35mm for nail fixing. Framing should be true, plumb and level. Before installing plasterboard, the frame must be flat enough for the required Level of Finish. Over a 1.8m straight edge the frame must not deviate more than the values listed in Table 1.

LEVEL 3 FINISH

A Level 3 Finish is recommended where no decoration is required such as walls above ceilings and concealed storage areas. The requirements for a Level 3 Finish are:

- › Framing as per the requirements in Table 1
- › A bedding coat and second coat on all face layer joints and corners.

LEVEL 4 FINISH

Level 4 is the default finish and is recommended for most applications, when lighting is favourable and light tone, flat or low sheen paints are used. The requirements for a Level 4 Finish are:

- › Framing and back-blocking as per the requirements in Table 1
- › Face layer joints finished as detailed in Section 5.3 Three Coat Jointing System
- › A quality three coat paint system as detailed in Section 5.5 Painting Plasterboard.



For a premium Level 4 Finish use **MastaDeco** WITH **LEVEL+** TECHNOLOGY [REFER TO SECTION 4.7.3].

LEVEL 5 FINISH

A Level 5 Finish is the highest Level of Finish defined in the Australian Standard. Installation of the frame and plasterboard, finishing with compounds and the correct application of paint all contribute to a Level 5 Finish. Even if completed correctly, a Level 5 Finish may not result in all surface deviations being concealed, only minimised.

A Level 5 Finish is recommended where gloss, semi-gloss or deep tone paints are used, or in harsh or critical lighting conditions which are referred to as glancing light. Higher standards are required for frame flatness, jointing and back-blocking. It involves skim coating the entire wall or ceiling to provide an even surface texture and porosity, as well as to conceal joints and fixing points. The skim coat would not normally exceed 1mm in thickness.

The requirements for a Level 5 Finish are:

- › Framing as per requirements in Table 1
- › Back-blocking of all ceiling joints and wall butt joints
- › Joints finished as detailed in Section 5.3 Three Coat Jointing System
- › Application of a skim coat over the entire surface to provide uniform texture and porosity
- › A quality three coat paint system as detailed in Section 5.5 Painting Plasterboard.

BACK-BLOCKING REQUIREMENTS

Back-blocking is a method for reinforcing plasterboard joints to minimise joint cracking and peaking. Back-blocked joints use strips of plasterboard adhered to the back of the joint between the framing members. Back-blocking adhesive must be set before commencing jointing.

Each Level of Finish has specific joint location and back-blocking requirements [REFER TO TABLE 1].

	BACK-BLOCKING REQUIRED
Butt joints not made on a framing member	✓
Ceiling joints in balconies and breezeways	✓
Joints using MastaLite , MastaRapid or MastaCoat3 for all three coats except those made over a framing member	✓
Joints using self-adhesive fibreglass tape except those made over a framing member	✓
Joints made over a framing member	✗
Multi-layer systems	✗
Wall butt joints less than 400mm in length and more than 2 metres above the floor	✗

BACK-BLOCKING CEILING RECESSED JOINTS

It is strongly recommended to back-block all ceiling recessed joints.

METHOD

Ensure the back of the plasterboard is free of dust and dirt.

Cut back-blocking strips 200mm min wide and long enough to fit loosely between the framing members with a gap not greater than 30mm at each end.

Use a notched spreader to apply **MastaBlock** to the back-blocking strips to form 6mm beads at right angles to the joint.

Apply back-blocking strips firmly to the back of the joint.

Where there is no access to the back of the ceiling, fix the first ceiling sheet, apply **MastaBlock** to the back-blocking strip and place it midway on the board, then fix the next board.

Allow **MastaBlock** to set before commencing any jointing.

FIGURE 1
Spreading MastaBlock on the back of a back-blocking strip

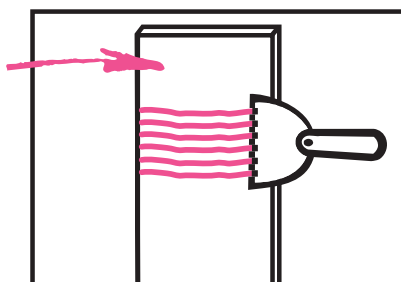


FIGURE 2
Placement of back-blocking strips for recessed and butt joints

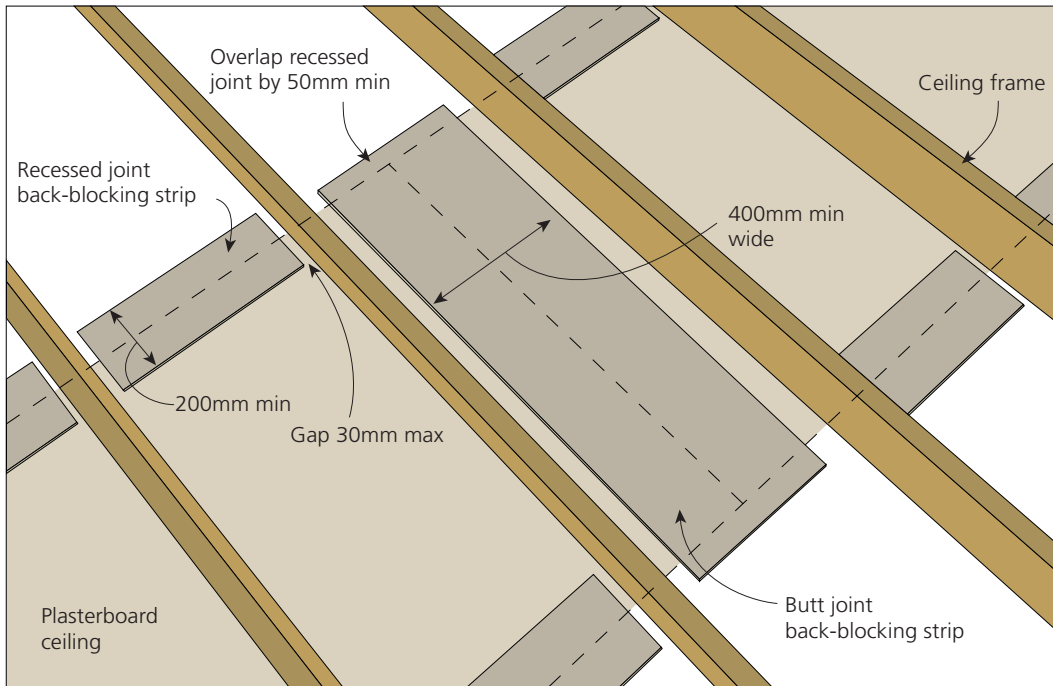
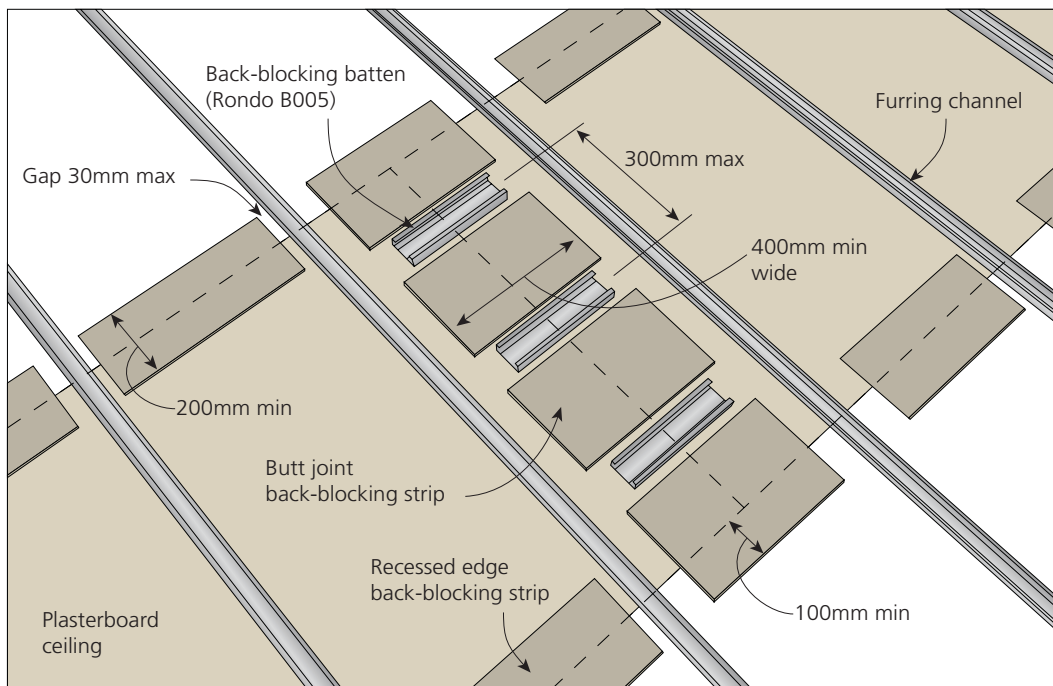


FIGURE 3
Placement of back-blocking batten and back-blocking strips for recessed and butt joints



BACK-BLOCKING BUTT JOINTS ON CEILINGS AND WALLS

Butt joints are more difficult to conceal than recessed joints so they should be minimised. If butt joints are unavoidable, concealing them can be made easier by creating the joint mid-way between framing members, forming a recess and back-blocking. Butt joint requirements differ for each Level of Finish [REFER TO TABLE 1].

METHOD

Create a recess by using either back-blocking battens as shown in Figure 3 or packers as shown in Figure 4 and 5.

Ensure the back of the plasterboard is free of dust and dirt.

Cut back-blocking strips 400mm min wide and long enough to fit loosely between the framing members. Back-blocking strips are to overlap recessed joints by 50mm min.

Wall butt joints need support for the back-blocking strips as shown in Figure 5.

Use a notched spreader to apply **MastaBlock** to the back-blocking strips to form 6mm beads at right angles to the joint.

Apply back-blocking strips firmly to the back of the joint.

Where there is no access to the back of the ceiling, fix the first ceiling sheet. Apply **MastaBlock** to the back-blocking strip and place it midway on the board, then fix the next board.

Allow **MastaBlock** to set before commencing any jointing.

Where possible, avoid wall butt joints over single doors and cavity sliding doors to minimise joint cracking from vibration.

FIGURE 4
Creating a recess at butt joints using back-blocking battens - Elevation

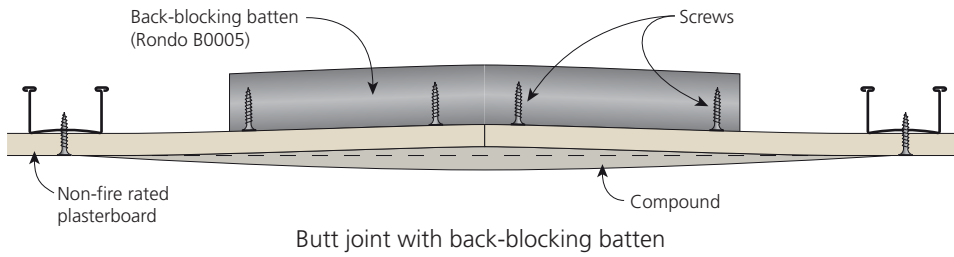


FIGURE 5
Creating a recess at a butt joint - Elevation

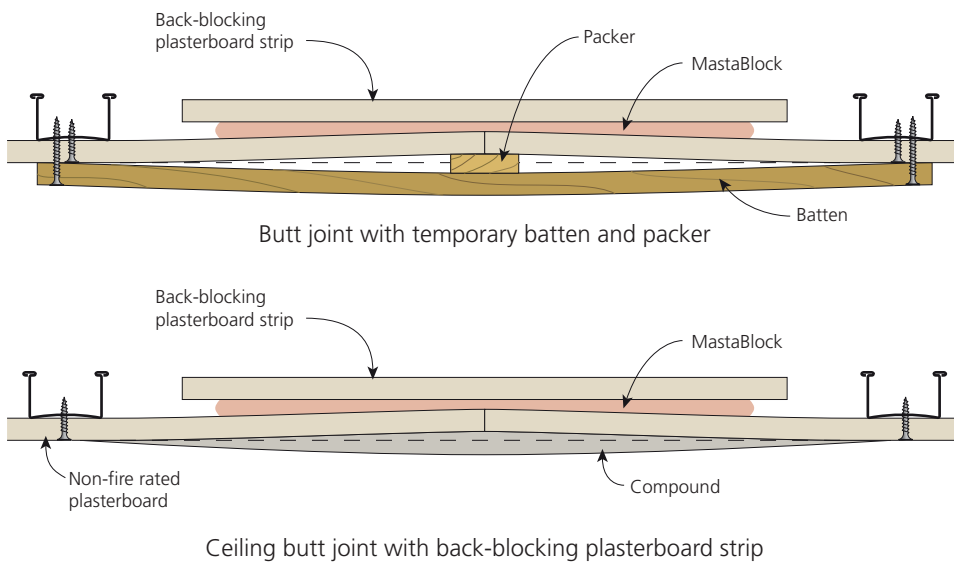
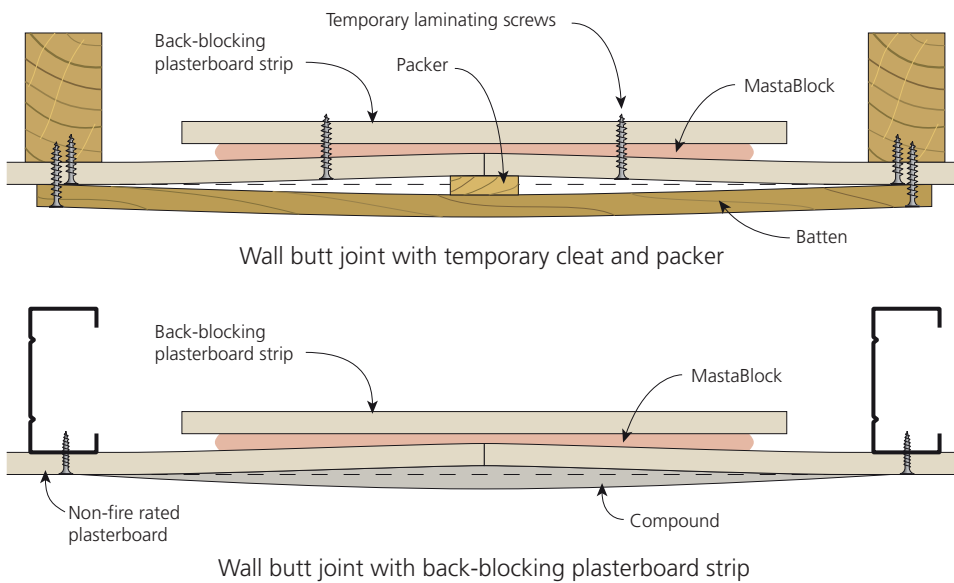


FIGURE 6
Creating a recess at a wall butt joint using laminating screws - Plan view



COMPOUNDS

Plasterboard walls and ceilings are jointed using compounds and reinforced with paper tape or corner beads. All joints, internal and external corners and fastener heads must be evenly finished with compounds and lightly sanded to remove tool marks and ridges prior to decoration.

Lafarge compounds must be used for Lafarge systems. Performance of all systems in this manual rely on using nominated Lafarge compounds. Use of non-Lafarge compounds may reduce a system's fire and acoustic rating, structural capacity or other aspects of performance.

To achieve the FRL, fire rated systems require as a minimum paper tape and two coats of **MastaBase** / **MastaLongset** or three coats of **MastaRapid** / **MastaLite**. External fire rated wall systems with a moisture barrier wall wrap and non-combustible cladding covering the plasterboard do not require jointing.

Joints in wet areas must use paper tape. Areas to be tiled must only use **MastaBase** or **MastaLongset**

Multi-layer systems only require face layer joints to be set, except **GIB X-Block** systems where all layers must be set.

There are two types of products used for jointing plasterboard: setting cements and air-drying compounds.

SETTING CEMENTS

Setting cements are plaster-based, supplied in powder form and when combined with water harden by chemical reaction. They create the strongest joint.

Setting cements can be completely set but still damp. In cold and humid conditions, additional coats of setting cement can be applied to the joints when the cement is hard but before it is completely dry.

Hot and dry conditions may dry out the cement before it sets resulting in reduced strength. Accelerating and retarding additives must not be used as they can also reduce strength.

Setting cements must not be applied over air-drying compounds.

AIR-DRYING COMPOUNDS

Air-drying compounds are generally pre-mixed and harden by drying out. They are softer than setting cements, and are designed for easy sanding.

Previous coats of air-drying compound or setting cement must be completely dry before applying the next coat and before sanding.



In cold and humid conditions air-drying compounds may take longer to dry. Ventilation such as open windows or an exhaust fan may be required. Air-drying compounds must not be used in temperatures lower than 10°C.

THREE COAT JOINTING SYSTEM

The Three Coat Jointing System consists of a Bedding Coat, a Second Coat and a Finish Coat of compound. Level 4 Finish and Level 5 Finish must use the Three Coat Jointing System for all joints and external corners. Internal corners only require a Bedding Coat and a Finish Coat.

TABLE 2

Type and use of compounds

COMPOUND	TYPE	POSSIBLE APPLICATIONS FOR EACH TYPE OF COMPOUND			WET AREAS UNDER TILES 	FIRE RATED SYSTEMS 
		Bedding	Second	Finish		
BEDDING CEMENT						
MastaBase	Setting powder	✓	✓		✓	✓
MastaLongset	Setting powder	✓	✓		✓	✓
FINISHING COMPOUND						
MastaFinish	Air-drying pre-mixed			✓	X	✓
ALL PURPOSE COMPOUND						
MastaLite	Air-drying pre-mixed	✓	✓	✓	X	✓
MastaRapid	Air-drying pre-mixed	✓	✓	✓	X	✓
MastaCoat³	Air-drying pre-mixed	✓	✓	✓	X	X



Paper tape is strongly recommended for all joints.

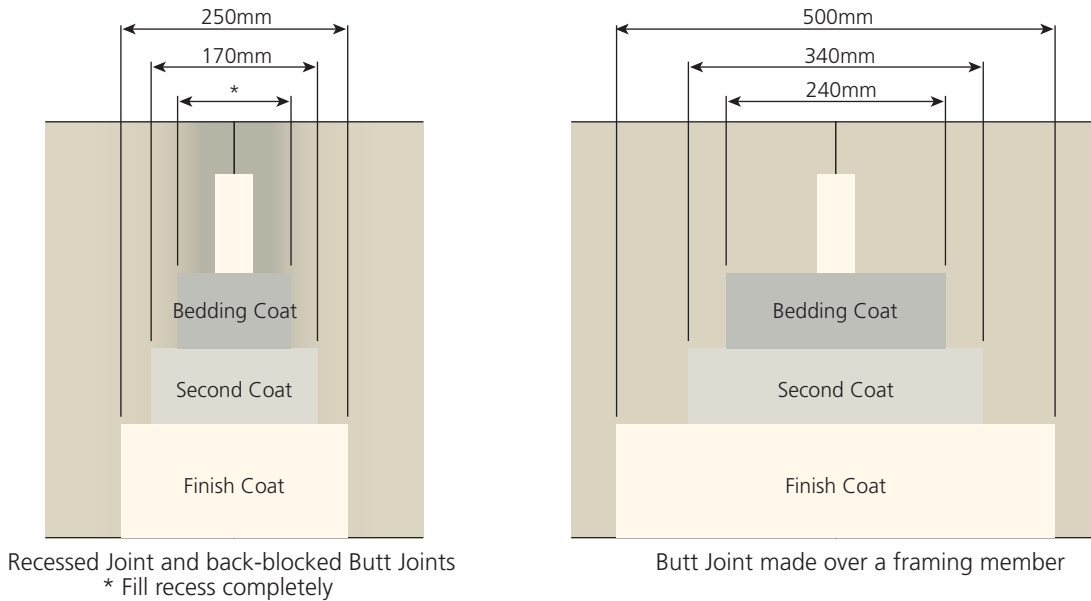
Joints made using paper tape are stronger and more durable than those made with fibreglass tape.

For the strongest joint, paper tape is recommended with two coats of **MastaBase** or **MastaLongset** and a final coat of **MastaFinish**.

If fibreglass tape is used, all joints must be back-blocked. Fibreglass tape is not permitted for use in wet areas or fire rated systems.

FIGURE 7

Minimum coat widths



Use curved trowels for recessed joints and flat trowels for butt joints.

BEDDING COAT (FIRST COAT)

METHOD

Fill any gaps more than 4mm at the joint and allow compound to set or dry.

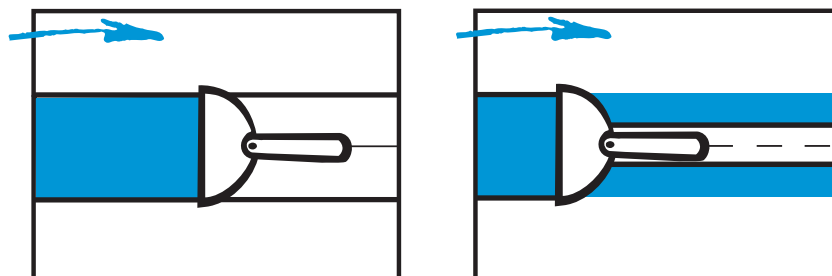
Using a 150mm broadknife, evenly fill the recess with compound. [REFER TO FIGURE 7 FOR MINIMUM COAT WIDTHS].

Place tape along the joint and bed it into the compound, removing excess compound and any air bubbles from behind the tape.

Apply a skim coat of compound over the tape.

FIGURE 8

Bedding Coat



SECOND COAT

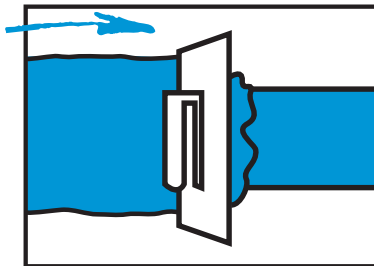
METHOD

Allow the first coat of compound to set or dry.

Use a 200mm trowel to apply a second coat of compound [REFER TO FIGURE 6 FOR MINIMUM COAT WIDTHS].

Feather the joint edges to remove excess.

FIGURE 9
Second Coat



FINISH COAT (THIRD COAT)

METHOD

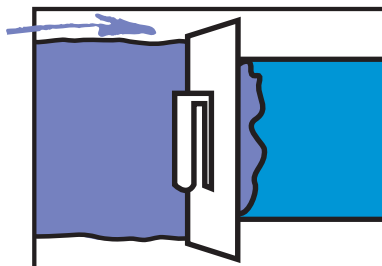
Allow the second coat to set and dry. Lightly scrape off any lumps and high spots of compound.

Use a 280mm trowel to apply a third coat of compound [REFER TO FIGURE 7 FOR MINIMUM COAT WIDTHS].

Feather the joint edges to a smooth even surface, removing any excess.

Allow the compound to dry before sanding.

FIGURE 10
Finish Coat



FASTENERS

METHOD

Cover fastener heads with three coats of compound in a similar way to the joints. Apply each coat in a different direction.

SANDING

METHOD

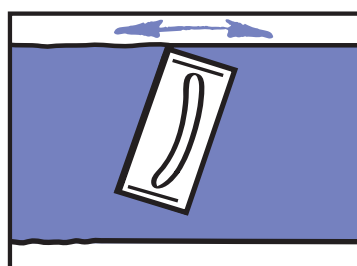
Lightly sand to a smooth even surface using a sanding float and 180 grit paper or 220 sanding mesh.

Do not expose or scuff the paper linerboard while sanding.

Use power sanders with care as they can easily over sand the joint.

A finished joint should have a slight crown.

FIGURE 11
Sanding



INTERNAL CORNERS

METHOD

Use a 75mm broadknife to apply compound to the corner.

Fold paper tape in half and bed it into the compound using the broadknife or a corner taping tool.

Cover the tape with a thin coat of bedding compound and remove any excess. Allow to set or dry.

Apply a finish coat with a 100mm broadknife to both sides of the angle.

Feather the edges and finish the joint with an internal angle finishing tool. Allow to dry.

Lightly sand to a smooth finish before painting.

EXTERNAL CORNERS

METHOD

Position a corner bead ensuring that it is plumb and straight [REFER TO FIGURE 12].

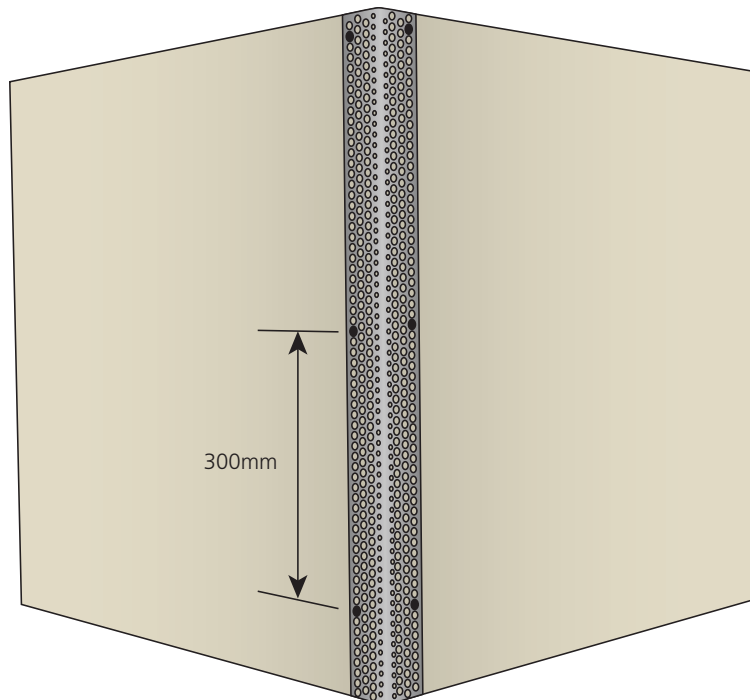
Fix the bead in place using fasteners or staples at 300mm centres on both sides.

Treat external corner beads with the three coat jointing system as described previously. The minimum width of the three coats on both sides of the external corner is:

- › Bedding coat 200mm
- › Second coat 230mm
- › Finish coat 250mm.

FIGURE 12

Corner bead on external corner



CORNICE INSTALLATION

Cornice is used to complete the decoration of the building. Cornice is fixed to walls and ceilings using cornice cements, which are setting cement adhesives available in powder form.

Cornice cements are selected depending on the length and stability of the setting time, as well as their features for practical application, such as the ability to work back the cornice cement, polish mitres, and the strength of the bond.

TABLE 3

Type and use of compounds – cornice cements

COMPOUND	TYPE	SETTING TIME	APPLICATIONS		
			Cornicing	Patching	Jointing (1 st and 2 nd Coat)
CORNICE CEMENT					
MastaCove45	Setting powder	45 minutes	✓	✓	
MastaCove75	Setting powder	75 minutes	✓	✓	
MastaSmooth	Setting powder	45 minutes	✓	✓	
3-IN-1 SPECIALTY CEMENT					
MastaFix20	Setting powder	20 minutes	✓	✓	✓

METHOD

Ensure that wall and ceiling surfaces are free of dust and dirt.

Measure and cut all cornices to the required lengths. Cut internal and external mitres using a mitre box.

Avoid joints in straight runs where possible. If necessary, mitred joints are recommended.

Measure and mark cornice projection on wall and ceiling to ensure accurate placement.

Mix only the quantity of cornice cement that can be used within the setting time.

Spread a 10mm continuous bead of cement along both back edges and the mitred end of the cornice. [FIGURE 13]

Press the cornice into place and if necessary hold with temporary nails in the wall and ceiling along the edges of the cornice. [FIGURE 14]

Clean off excess and remove nails when cement has partially set. [FIGURE 15]

Straight stop along cornice edge at wall and ceiling and finish mitres using a small cornice tool. [FIGURE 16]

Wipe down the cornice with a wet sponge. [FIGURE 17]

FIGURE 13
Butter up

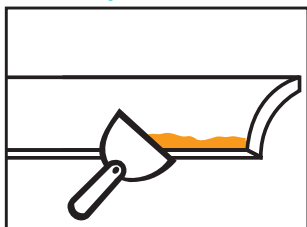


FIGURE 14
Position cornice

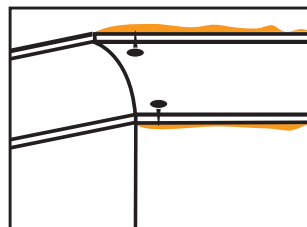


FIGURE 15
Clean off excess

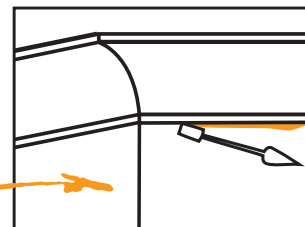


FIGURE 16
Mitres

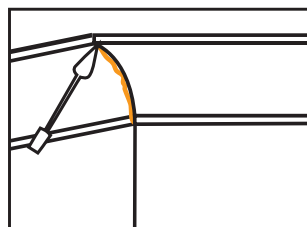
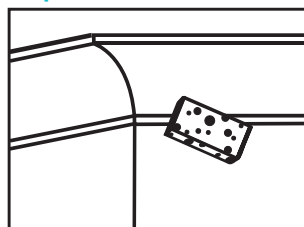


FIGURE 17
Wipe down



AUSTRALIAN STANDARD REQUIREMENTS

Painting systems and methods are detailed in Australian Standard AS/NZS 2311, *Guide to the painting of buildings*. If painting plasterboard, a **Three Coat Paint System** must be applied. This consists of a sealer undercoat followed by two top coats. Both the quality of the paint and how it is applied have a large effect on the finished appearance of the plasterboard.

Two coat paint systems are not recommended by AS/NZS 2311 as they often do not meet the customer's expectations by showing up joints through texture and sheen variations.

i To achieve a good quality painted finish, the following recommendations in addition to the **Three Coat Paint System** should be followed:

- › Apply paint according to the manufacturer's recommendations.
- › Avoid spraying or brushing which require advanced application techniques.
- › Choose white or light colours and flat or low sheen paints.
- › Select a Level 5 Finish when using medium to high gloss paints and dark colours, especially in areas of glancing light. These paints highlight any minor imperfections in the plasterboard and make the joints more visible.

SEALER UNDERCOAT APPLICATION

RECOMMENDATIONS

Ensure surfaces are set and dry.

Lightly sand any minor surface defects and brush down surfaces to remove dust.

Apply a sealer undercoat suitable for plasterboard, preferably with a roller. Plasterboard that has been exposed to sunlight and/or is discoloured will require a stain sealer undercoat.

Ensure that the sealer undercoat is applied such that the plasterboard paper fibres remain flat.

Check for any unsuitable surface imperfections and repair.

Lightly sand with fine to medium grade paper before applying top coats.

Avoid overworking sealer undercoat on plasterboard joints to avoid paint lifting.

PAINT APPLICATION

RECOMMENDATIONS

Ensure surfaces are dry.

Lightly sand any minor surface defects and brush down surfaces to remove dust.

Cut in edges with a brush.

Apply paint to the broad areas with an appropriate 10mm nap roller. The roller nap gives a slight texture that improves the overall evenness of finish.

Ensure each paint film is dry before applying the next coat.

If plasterboard is to be spray painted, the paint must not be diluted more than the manufacturer recommends. While the sealer undercoat is still wet, the surface should be back rolled to leave a 'roller finish'. This helps to equalise the surface texture between the plasterboard and the set joints. For best results also back roll 2nd and 3rd coats. Any minor paint touch-ups can then be done with a roller rather than having to re-spray.

INSPECTION

The final inspection of a plasterboard wall or ceiling occurs after painting. AS/NZS 2311 recommends that visual inspection of finished surfaces of plasterboard be carried out in ordinary lighting, sighting from a distance of 1.5 to 2 metres from the surface. If differences of appearance are not clearly discernable the finish is usually considered acceptable.

- i** For more information on glancing light, painting and other subjects affecting the appearance of plasterboard walls and ceilings, refer to:
- › www.fwcianz.com (Federation of Wall and Ceiling Industries – Australia and New Zealand).
 - › www.apmf.asn.au (Australian Paint Manufacturers Association).

GLANCING LIGHT

Glancing Light is natural or artificial light that is cast along a surface. Attention is drawn to minor deviations inherent in the manufacture and installation of plasterboard.

Glancing Light can highlight the following surface conditions:

- › Sheet joints
- › Surface irregularities
- › Patches
- › Variations in paint application technique.

The Glancing Light condition can occur even when the wall or ceiling has been built according to AS/NZS 2589. Glancing Light effects are directly linked to the type and placement of light sources relative to ceilings and walls.

MINIMISING GLANCING LIGHT

Interior Design

The following are recommendations to reduce the effect of Glancing Light:

- › Avoid full length windows in direct sunlight
- › Avoid locating windows close to perpendicular wall and ceiling surfaces during design phase
- › Diffuse light entering a room by using curtains, blinds or other window treatments
- › Introduce curtains or blinds where windows are close to wall and ceiling surfaces
- › Use low gloss, light coloured paints applied with a brush or roller.

Framing

Framing members should be straight and aligned.

Sheet Orientation

Plasterboard sheets should be fixed parallel to the light source. Also arrange the sheets to minimise the number of joints.

Lighting

Glancing Light caused by artificial lighting can be addressed by changing the type and/or positioning of the light fittings. Natural lighting problems are normally caused by building geometry. An example is running windows right to the edge of the ceiling or wall line.

The following are recommendations for design of light fittings:

- › Use recessed downlights and recessed fluorescent tubes
- › Shade batten-fixed bulbs on the ceiling and table lamps
- › Avoid designs that will create Glancing Light conditions where possible
- › Position downlights so that they do not shine down the surface of a wall.



For a premium Level 4 Finish use **Masta** D_{ECO} WITH **LEVEL+** TECHNOLOGY [REFER TO SECTION 4.7.3].

Level 5 Finish

A Level 5 Finish is the highest level of finish possible and can assist in reducing the effect of glancing light. By covering the entire surface, the skim coat of a Level 5 Finish fills any slight impressions in the surface, and removes the difference in texture and paint absorption between plasterboard and the joints. The framer, plasterer and painter all need to cooperate and contribute to providing a Level 5 Finish. Even when applied correctly, a Level 5 Finish is no guarantee that all surface deviations will be invisible, only minimised. [REFER TO SECTION 5.1 FOR DETAILS ON LEVEL 5 FINISH].