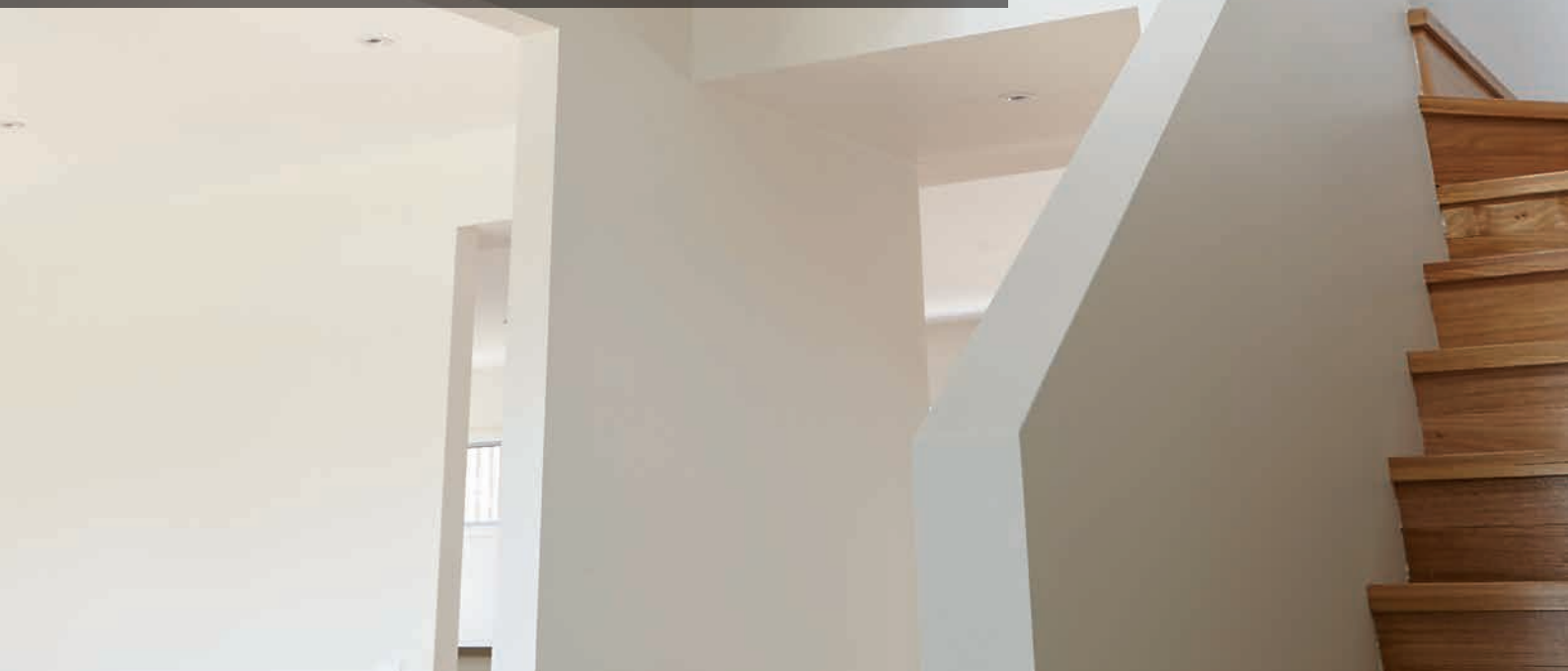


GYPROCK®

Everything else is just plasterboard

Residential Installation Guide

Including wet area systems



**PROFESSIONAL
SOLUTIONS**



CSR

CONTENTS

INTRODUCTION	2
APPLICATIONS	3
REFERENCED MATERIAL	6
DESIGN & INSTALLATION CONSIDERATIONS	6
HANDLING & STORAGE	15
PLASTERBOARD CUTTING & FIXING	15
COMPONENTS	16
WALL SYSTEMS INSTALLATION	20
STUD FRAMING	20
PLASTERBOARD INSTALLATION	20
DIRECT FIXING PLASTERBOARD TO MASONRY WALLS	28
CURVED WALLS	30
CONSTRUCTION DETAILS	34
FIRE RATED EXTERNAL WALL SYSTEM	37
WET AREA LINING SYSTEMS	38
INTRODUCTION	38
DESCRIPTION	38
APPLICATIONS	38
ADVANTAGES	38
COMPONENTS	39
STUD FRAMING	39
PLASTERBOARD INSTALLATION	39
CONSTRUCTION DETAILS – SHOWER, BATH & BASIN AREAS	40
CONSTRUCTION DETAILS – GENERAL WET AREAS	49
FLUSH JOINTED CEILING SYSTEMS	50
INTRODUCTION	50
APPLICATIONS	50
ADVANTAGES	50
COMPONENTS	51
DESIGN & INSTALLATION CONSIDERATIONS	53
CONSTRUCTION DETAILS	64
JOINTING & FINISHING	69
JOINTING SYSTEMS	69
JOINTING WITH MECHANICAL TOOLS	71
JOINTING HAND APPLIED	76
ARCHES	81
DECORATION	82
MAINTENANCE	83
HEALTH & SAFETY	84
WARRANTY	84
CONTACT DETAILS	84

INTRODUCTION

This guide provides detailed installation information for the fixing of Gyprock® plasterboards to walls and ceilings in timber, steel and masonry residential construction including internal wet areas, protected external ceilings and eaves, curved applications, fire rated applications for bush fire risk areas and boundary wall applications.

For additional information or assistance with plasterboard fixing, please contact the CSR Gyprock office in your region.

Gyprock® Plasterboard

Gyprock plasterboard is a machine made sheet composed of a gypsum core encased in a heavy duty linerboard. The linerboard is folded around the long edges to reinforce and protect the core. The board ends are cut square. Gyprock plasterboard conforms with manufacturing standard AS/NZS2588.

Gyprock plasterboards are manufactured from gypsum, paper and a small amount of additives. Gypsum is a naturally occurring, non-toxic sedimentary rock. The paper liner board used for plasterboard and cornice is made from 100% recycled newspapers and cartons, and the additives are benign materials such as starch and foam.

The energy used in the manufacture of Gyprock is amongst the lowest of any building product. Emissions are limited to water vapour and products of natural gas consumption.

Optimised Core Technology

Selected Gyprock plasterboards are manufactured with Optimised Core technology. Optimised Core plasterboard has an advanced performance-to-weight ratio, meaning greater breaking strength in a substantially lighter board that continues to exceed the performance requirements of Australian Standard AS/NZS2588.

The benefits of Optimised Core technology are easier lifting with improved handling and installed performance as well as crisper score and snap.

Good Environmental Choice Australia

In 2008, Gyprock led the market with EC08, the first Australian plasterboard to be accredited to the Good Environmental Choice Australia Panel Boards standard. This achievement was reinforced when Gyprock was first to meet the 2011 revised GECA standard, and again with the launch of Gyprock EC08 Complete in 2012; the highest specification, GECA accredited board in the Gyprock range.

In 2014, GECA accreditation has been granted to the majority of Gyprock plasterboards, with a total of 16 GECA recognized Gyprock plasterboard variants now available. In addition, the majority of Gyprock's compounds have been accredited by GECA, with all jointing products exceeding the Green Building Council of Australia (GBCA) specification for Volatile Organic Compounds (VOC).



Sensitive Choice

CSR Gyprock is proud to be a partner of the National Asthma Council Australia's Sensitive Choice® program. Gyprock Sensitive and Gyprock EC08 Complete are premium quality products that incorporate unique mould inhibiting treatments, making these products a better choice for asthma and allergy sufferers.



Green Building Council of Australia (GBCA)

The Green Building Council of Australia (GBCA) is Australia's leading authority on green building. The GBCA was established in 2002 to develop a sustainable property industry in Australia and drive the adoption of green building practices. The GBCA promotes green building programs, technologies, design practices and processes, and operates Australia's only national voluntary comprehensive environmental rating system for buildings - Green Star.



green building council australia
MEMBER

Strength & Stability

Gyprock plasterboard is a stable building product when subjected to the normal range of ambient temperatures and humidity.

Thermal coefficient of expansion is:

$16.2 \times 10^{-6}/^{\circ}\text{C}$ in the temperature range 4°C to 38°C .

Hygrometric coefficient of expansion is:

$7.2 \times 10^{-6}\text{mm/mm}/\% \text{ R.H. (5\%-90\% R.H.)}$.

Gyprock Plasterboard products have been tested to ASTM C518 for thermal performance.

Thermal Resistance 'R' is:

10mm thickness = $0.04 - 0.05 \text{ m}^2 \text{ K/w}$.

13mm thickness = $0.05 - 0.07 \text{ m}^2 \text{ K/w}$.

16mm thickness = $0.07 - 0.09 \text{ m}^2 \text{ K/w}$.

APPLICATIONS

Gyprock plasterboard is used as an internal lining board to provide smooth, strong, long-lasting walls and ceilings in all types of residential construction including homes, duplexes, town houses, and medium density residential developments. Its durable surface will accept most types of decorative finishing, including paint, wallpaper, texture compounds and tiles.

Joints between Gyprock plasterboard sheets are reinforced and concealed to provide a smooth, durable finish to the whole surface. Alternatively, the joints may be expressed using square edge board, or covered with a decorative moulding.

Standard Gyprock plasterboard or moisture resistant plasterboards such as Gyprock Aquachek can be used for exterior ceilings and eaves lining, provided the ceilings are protected from the weather.



Gyprock Plasterboard Selection

All Gyprock plasterboards are manufactured to the requirements specified in AS/NZS2588.

Gyprock plasterboards are available in a large range of sheet lengths. Lengths vary by state, and a full list is available at www.gyprock.com.au. Standard width is 1200mm. Some products are also available in 900, 1350 and 1400mm widths (lead times may apply). Shaft Liner Panel is supplied in 600mm width only. Colour shading behind each product name approximates the colour of the product face liner sheet.

TABLE 1: GYPROCK PLASTERBOARD FEATURES, APPLICATIONS & SPECIFICATIONS											
GYPROCK® PLASTERBOARDS	APPLICATIONS – WALLS & CEILINGS	THICK- NESS (mm)	MASS kg/m²	FIRE GRADE	MOISTURE RESISTANT	ENHANCED IMPACT RESISTANCE	ENHANCED SOUND RESISTANCE	ENHANCED SOUND ABSORPTION	MOULD RESISTANT	LOW VOC	GECA ACCREDITED
	FEATURES										
RESIDENTIAL – SELECT RANGE											
Plus™	<ul style="list-style-type: none">A 10mm thick sheet primarily designed for residential walls. Long edges are recessed to assist in producing a smooth, even and continuous surface once jointed.Made with Optimised Core technology that delivers an advanced performance-to-weight ratio, meaning greater breaking strength in a substantially lighter board that continues to exceed the performance requirements of AS2588.Optimised Core technology delivers improved handling and installed performance, as well as crisper score and snap.	10	5.7							✓	
Supaceil™	<ul style="list-style-type: none">A 10mm thick sheet designed to span up to 600mm in ceiling applications. Can also be used for wall applications. Long edges are recessed to assist in producing a smooth, even and continuous surface once jointed.Made with Optimised Core technology that delivers an advanced performance-to-weight ratio, meaning greater breaking strength in a substantially lighter board that continues to exceed the performance requirements of AS2588.Optimised Core technology delivers improved handling and installed performance, as well as crisper score and snap.	10	6.1 6.5 WA only							✓	
Aquachek™	<ul style="list-style-type: none">Both the core and linerboard facing are treated in manufacture to withstand the effects of moisture and high humidity.Recessed long edges allow flush jointing to other Recessed Edge plasterboards.	10	8.0		✓					✓	
		13	10.4								
RESIDENTIAL – SPECIALTY OPTIONS											
Soundchek™	<ul style="list-style-type: none">Designed to provide enhanced acoustic resistance.A machine made sheet composed of a high density gypsum core encased in a heavy duty linerboard.Long edges are recessed for flush jointing.	13	13.0				✓			✓	
Sensitive	<ul style="list-style-type: none">Approved by the National Asthma Council's Sensitive Choice® program as a better choice for asthma and allergy sufferers.Gyprock Sensitive provides moisture and mould resistance.Long edges are recessed for flush jointing. 	10	7.5		✓				✓	✓	
Superchek™	<ul style="list-style-type: none">Manufactured with a very dense core and heavy duty facing producing high impact and sound resistance, Superchek has a white paper face to assist in paint coverage.Will span 600mm in ceiling applications.Double the force to impose a discernible surface indentation compared to standard plasterboard.Walls lined with Superchek provide a clearly noticeable reduction in perceived loudness compared to standard plasterboard.Long edges are recessed for flush jointing.	10	10.4			✓	✓			✓	
COMMERCIAL – SELECT RANGE											
Standard Plasterboard	RE – Recessed Edge <ul style="list-style-type: none">Long edges are recessed to assist in producing a smooth, even and continuous surface once jointed.	13	8.5							✓	
	RE/SE – 1 Recessed Edge, 1 Square Edge <ul style="list-style-type: none">Typically used on walls with a single horizontal joint. One long edge is recessed to assist in producing a smooth, even and continuous surface once jointed.One long edge is square to enable easy fixing of skirting and cornice at the top and bottom of walls.	13	8.5							✓	
	SE – 2 Square Edges <ul style="list-style-type: none">Long edges are square, and can be butted together without jointing, or covered with aluminium, timber or vinyl mouldings.	13	8.5							✓	
Aquachek™	Refer to Residential Select Range for details.	10	8.0		✓					✓	
		13	10.4								

TABLE 1: GYPROCK PLASTERBOARD FEATURES, APPLICATIONS & SPECIFICATIONS

GYPROCK® PLASTERBOARDS	APPLICATIONS – WALLS & CEILINGS	THICK- NESS (mm)	MASS kg/m ²	FIRE GRADE	MOISTURE RESISTANT	ENHANCED IMPACT RESISTANCE	ENHANCED SOUND RESISTANCE	ENHANCED SOUND ABSORPTION	MOULD RESISTANT	LOW VOC	GECA ACCREDITED
	FEATURES										
Soundchek™	<ul style="list-style-type: none"> Refer to Residential Specialty Options for details. 	13	13.0				✓			✓	
Impactchek™	<ul style="list-style-type: none"> Fire grade board reinforced with a woven fibreglass mesh to produce a high strength plasterboard which resists soft body impact damage. Ideal for high traffic areas such as hallways, stairways, playrooms and garages. Long edges are recessed for flush jointing. 	13	10.3	✓		✓	✓			✓	
Fyrchek™	<ul style="list-style-type: none"> Fire grade board composed of a specially processed glass fibre reinforced gypsum core encased in a heavy duty linerboard. Ideal for high performance fire and acoustic rated walls and ceilings. Long edges are recessed for flush jointing. 	13	10.5	✓			✓			✓	
		16	12.5								
Fyrchek™ MR	<ul style="list-style-type: none"> Fire grade board with moisture resistant properties. Both the core and the liner board are treated in manufacture to withstand the effects of high humidity and moisture. Long edges are recessed for flush jointing. 	13	10.7	✓	✓		✓			✓	
		16	13.5								

COMMERCIAL – SPECIALTY OPTIONS

Flexible	<ul style="list-style-type: none">A 6.5mm thick plasterboard with an enhanced core to allow bending to small radii for curved walls and ceilings.Designed for installation as a two layer system.Long edges are recessed for flush jointing.	6.5	4.25							✓	
Perforated	<ul style="list-style-type: none">Featuring 6mm round perforations arranged in 6 rectangular sections across the board.Perforated plasterboard sound absorption properties make it ideal for high traffic, noisy areas.Long edges are recessed for flush jointing.	13	8.8					✓		✓	
Shaft Liner Panel	<ul style="list-style-type: none">Fire grade board used extensively in Gyprock shaft systems, services systems, party wall and intertenancy wall applications.A 25mm thick sheet composed of a glass fibre reinforced gypsum core encased in a heavy duty linerboard.600mm wide square edge sheets.	25	19.8	✓				✓		✓	
EC08™ Impact	<ul style="list-style-type: none">Features reCore* technology which allows an increased percentage of recycled materials to be used in the plasterboard core.EC08 Impact is a fire grade board offering increased density for greater resistance to soft and hard body impact for high traffic areas such as hallways and stairs in education and health facilities.Long edges are recessed for flush jointing.	13	12.1	✓			✓	✓		✓	 
EC08™ Impact MR	<ul style="list-style-type: none">Features reCore* technology which allows an increased percentage of recycled materials to be used in the plasterboard core.A fire grade board specially treated for wet area/high humidity locations subject to increased impact risk, such as bathrooms, kitchens, laundries, walkways for hospitals, aged care, educational and commercial buildings.Long edges are recessed for flush jointing.	13	12.4	✓	✓		✓	✓		✓	 
EC08™ Complete	<ul style="list-style-type: none">Features reCore* technology which allows an increased percentage of recycled materials to be used in the plasterboard core.Approved by the National Asthma Council's Sensitive Choice® program as a better choice for asthma and allergy sufferers. Gyprock EC08 Complete is a premium internal lining solution which integrates an efficient mould inhibitor, scuff resistance, soft and hard body impact resistance, moisture resistance, sound resistance and fire resistance into a low VOC plasterboard.Long edges are recessed for flush jointing. 	13	12.4	✓	✓		✓	✓		✓	 
		16	14.8								

NOTE: * Gyprock reCore™ technology was developed to allow the production of plasterboards with much higher levels of recycled content without compromising performance.

REFERENCED MATERIAL

The entire range of Gyprock plasterboards, as referenced in this technical literature, complies with the following standard.

Plasterboard Manufacture –

- AS/NZS2588 Gypsum plasterboard.

Other referenced standards are:

- AS/NZS1170 Structural design actions (series)
- AS1684 Residential timber framed construction (series)
- AS1720.1 Timber structures – Design methods
- AS/NZS2311 Guide to the painting of buildings
- AS/NZS2358 Adhesives for fixing ceramic tiles
- AS/NZS2589 Gypsum linings – Application and finishing
- AS/NZS3000 Electrical installations
- AS/NZS3700 Masonry structures
- AS3740 Waterproofing of domestic wet areas
- AS3958.1 Ceramic tiles – Part 1: Guide to the installation of ceramic tiles
- AS3959 Construction of buildings in bushfire-prone areas
- AS4055 Wind loads for housing
- AS/NZS4600 Cold formed steel structures
- AS4858 Wet area membranes
- AS/NZS5601.1 Gas installations – General installations
- AS/ISO13007 Ceramic tiles – Grouts and adhesives – Terms, definitions and specifications for adhesives
- NASH Standards – Residential and Low-rise Steel Framing, Part 1 and Part 2

DESIGN & INSTALLATION CONSIDERATIONS

Gyprock plasterboard is used as an internal lining board to provide smooth, strong, long-lasting walls and ceilings for homes, offices, hospitals, hostels for the aged, schools, shops and factories. Its durable surface will accept most types of decorative finishing, including paint, wallpaper, texture compounds and tiles.

Joints between Gyprock plasterboard sheets are reinforced and concealed to provide a smooth, durable finish to the whole surface. Alternatively, the joints may be covered with a decorative moulding or finished as expressed joints.

Framing Materials

Gyprock plasterboard may be fixed to timber or steel framing and masonry materials which conform to standards specified by the appropriate government building authorities.

All timber framing shall be in accordance with AS1684 (series) or AS1720.1.

Steel framing shall be in accordance with AS/NZS4600 or the NASH Standards, as applicable.

Gyprock plasterboard may be fixed to structural steel wall framing up to 2.4mm in thickness.

Gyprock plasterboard may be fixed direct to structural steel ceiling framing up to 1.6mm thickness.

Brick or block masonry surfaces which comply with AS3700 can be sheeted with Gyprock plasterboard adhered directly to the wall with Gyprock Masonry Adhesive. Alternatively, these surfaces may have a furring system applied in accordance with AS1684 (series), and fixed in accordance with the appropriate Gyprock system.

Also refer to the 'Installation Procedures' sections in this guide.

Wind Loads

All wall, ceiling, floor and roof framing must be designed for the applied loads. Wind pressures occur on interior wall and ceiling linings due to air flow through façade elements.

Span tables for building perimeter walls and for ceilings are given for wind categories in AS4055, and include the effects of dominant openings for Regions C and D only. Interior walls that are not part of the building perimeter are assumed to have no design wind pressure. Other wind pressures may be applicable and the designer should refer to AS/NZS1170 (series).

Control Joints

Movement and stresses created by temperature and humidity fluctuation, can result in deformation and damage to internal linings and partitions.

It is recommended that Gyprock plasterboard surfaces be isolated from structural elements, by the use of control joints or other means where:

- A plasterboard/wallboard surface abuts any structural element or dissimilar wall or ceiling assembly
- The framing or structural support changes within the wall or ceiling
- At all construction / control joints within the building
- For non-tiled internal walls with plasterboard outer layer at 12m maximum centres
- For tiled internal walls at 4.8m maximum centres
- At junctions with other building elements
- At changes of lining material
- At each storey or rise of studs.

Control joints incorporated in a building to permit movement in the structure must be carried through all areas lined with plasterboard / wallboard. Allowance for movement must be made through the frame, lining and any tiles. Door frames extending from floor to ceiling constitute control joints. For doors less than ceiling height, a control joint extending from one corner of the frame may be used.

Vertical control joints in stud framed walls are to be constructed using two studs with a 15-20mm gap between.

Refer to 'Installation Procedures' and 'Installation Details' section for construction information and details.



Control of Moisture Within Buildings

Gyprock plasterboard will give many years of satisfactory performance under a wide range of climatic conditions, but to ensure long term performance to both lining materials and paint finishes, the building should be designed and constructed to control moisture.

Moisture can be evident within a building for varied reasons and may include:

- Failure of the building fabric to protect the building from the ingress of external water, such as defective roofs, external claddings, flashings, etc. Wind loads can produce lower air pressures within buildings than on the outside, forcing water through small gaps in the building envelope around penetrations and joints, even at low wind speeds.
- Dampness within the building sub-floor due to poor sub-soil drainage and ponding of water under the building.
- Excess moisture from within the building including due to the condensation of water vapour, including from sources including cooking, bathing, and the vapour expelled in the breath of its occupants. Condensation within a building is the result of a temperature difference from one side of a building element to the other. The temperature differential forces water vapour contained in the warmer air to flow towards the cooler region where it condenses on any surface below the 'dew point' temperature of the air.
- Failure of appliances within the building and the leakage of water, including from Hot Water Systems, plumbing fittings and drains, etc.

Methods to control moisture within buildings include:

- Providing adequate ventilation of the building sub-floor.
- Ensuring the roof space is adequately ventilated, as failure to do so may result in the plasterboard sagging, or the excessive moisture movement of the timber framing causing nail popping or joint deformation. Attics or similar unheated spaces above ceilings can be adequately ventilated to provide effective cross-ventilation by screened louvres or other approved and acceptable means. The ratio of total net free ventilating area to area of ceiling shall not be less than 1/150.
- In rooms such as bathrooms, kitchens, and laundries, moisture laden air should be exhausted to the outside of the building, not into the roof space.
- Installing wall wraps/sarking into the structure to control the flow of water vapour from the warm to the cool regions to prevent condensation within the structure. This is a complex problem and can occur under a variety of conditions (not just in cold and tropical climates) so selection of the right wall wrap/sarking needs to consider the local climate, building use and orientation, material R-Value of the insulation, as well as the degree and location of ventilation. Additional literature on condensation is available from sources including the CSIRO, BRANZ, ASHRAE, and the ABCB.

The control of moisture within a building is a requirement of the Building Code of Australia and is the responsibility of the designer.

Insulation

Insulation is installed in buildings to provide both thermal comfort, by insulating the building from excessive variations of temperature; and for acoustic control, by reducing external noise from entering the building or its transfer from room to room within a building. Gyprock recommends that CSR Bradford Insulation be installed.

Energy efficiency requirements for buildings are set out in the BCA as performance requirements and acceptable construction practices, and are dependent on geographical climate zones. Check with your local building authorities for minimum insulation requirements, however it is recommended that insulation values above the minimum be chosen for energy conservation and occupant comfort. The level of thermal insulation provided in a wall is described by its R-value, the higher the R-value the greater the insulation provided.

Acoustic performance requirements for buildings are set out in the BCA as performance requirements and acceptable construction practices, and are dependent on building types and their proximity to potential sources of noise. The level of acoustic performance provided by a wall is described by its R_w or R_w+C_{tr} rating, generally the higher the value the greater the acoustic separation provided.

For more information contact CSR Gyprock for residential acoustic solutions or refer to the Gyprock Red Book, GYP500.

Sealing of Building Envelope

Where buildings require Building Sealing to achieve energy efficiency measures in accordance with Part 3.12.3 of the Building Code of Australia (BCA), the external walls must be constructed to minimise air leakage. In such cases the internal linings (i.e., plasterboard lining) of external walls should be close fitting at the ceiling, wall and floor junctions and sealed by caulking skirtings, architraves, cornices, around windows and doors, and in locations where services may penetrate the wall.

Heating

The following situations may give rise to localised high temperature conditions ($\geq 52^\circ$) which may be detrimental to wall and ceiling linings:

- Radiant heaters,
- Halogen lighting,
- Heat pumps,
- Reverse cycle air conditioners,
- Solid fuel stoves.

Recessed lights must be installed in a way which prevents damage from temperature rise and to prevent the risk of fire. Refer to AS/NZS3000.

Refer to heating unit manufacturer for more information.

Gas Services & Appliances

Where a gas stove in a residential application is required to be installed to AS/NZS5601.1, there are requirements for materials to protect surrounding construction.

Where a burner is within 200mm of a wall (including walls covered with metal or toughened glass), protection methods include:

- Splashback attached to the stove intended to protect the rear wall.
- Fire Resistant material covered with 0.4mm steel sheet.
- 5mm ceramic tiles attached to plasterboard lining.

Protection is to be provided to a height of 150mm above the hob and for the full extent of the cooking area. A list of Fire Resistant materials is available from Energy Safe Victoria and does not include plasterboard or fibre cement products.

Attaching Fixtures

Light weight fixtures such as picture frames may be attached to plasterboard walls with proprietary fixings. Check with the fixing manufacturer for allowable loadings.

Heavier loads such as shelves and appliances must be fixed through the linings to the studs.

Refer to page 36.



Levels of Finish

Levels of finish are defined in the Australian/New Zealand Standard AS/NZS2589. This standard is intended to provide builders, plasterboard installers and finishers, and their customers with the various defined methods and practices necessary to meet the customer's expectations in terms of the 'Level of Finish'.

Three 'Levels of Finish' (3, 4 and 5) are defined, and minimum specifications to achieve each level of finish are detailed in the standard for each of the installation processes from framing preparation to finishing. All details may not be suitable for fire rated systems or multilayer systems.

It is essential to determine the level of finish required before the frame construction begins, as specific tolerances are required for frame alignment as well as for plasterboard fixing and finishing for each of the levels of finish. Unless these requirements are met throughout construction, it may not be possible to attain the desired finish level without extensive corrective measures.

The level of finish specified also affects the methods of jointing, particularly butt joints and back-blocking requirements, the number of coats of joint compound applied, and the fitting and finishing of stopping beads. Refer to TABLE 2.

It should be noted that, generally, residential applications should be prepared to a minimum 'Level 4 Finish' unless specifically a higher or lower level of finish is agreed to by all contracting parties. Other commercial applications should be specified in contract documents.

Selection of Level of Finish

Factors affecting the level of finish include the surface's visibility, the texture and gloss level of the final decoration and the lighting conditions. Critical or glancing light is that projected across the surface at low angles of incidence, as opposed to diffused lighting or light striking the surface at close to right angles. Refer to the following section "Surface Finishing & Lighting".

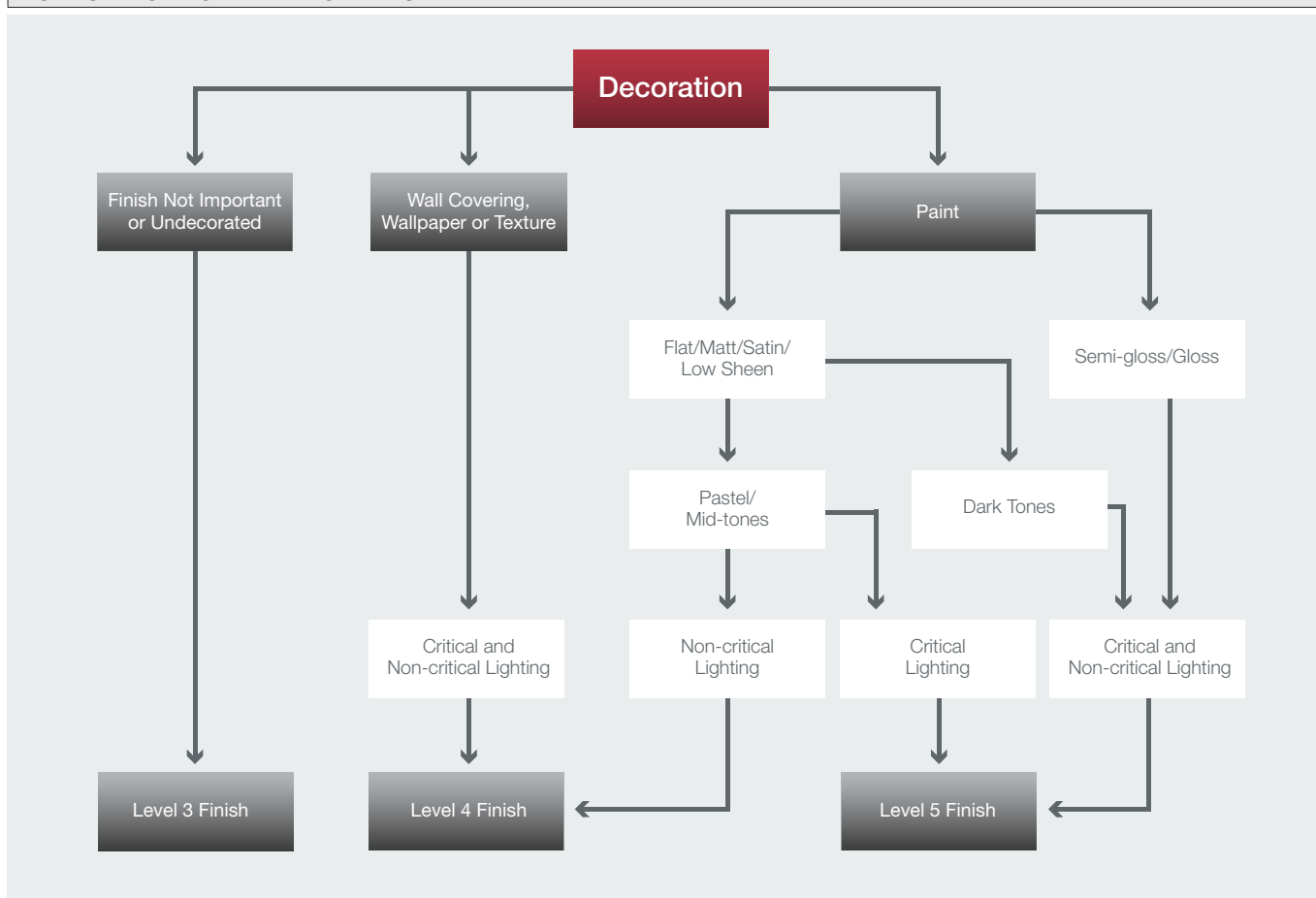
A good method to overcome differences in opinions of quality is to prepare a sample area in a suitable position and for all parties to agree on the finish. The following flow chart will assist in selecting the most appropriate Level of Finish for each area.

For further information on levels of finish, refer to 'Plasterboard Expectations', available from the Association of Wall & Ceiling Industries.

LEVEL 3

For use in areas that do not require a finish, such as above ceilings and inside service shafts and other inaccessible spaces. All joints are to be taped with two applications of compound and all fastener heads are to be covered. Compound is to be finished smooth, such as by scraping ridges etc with a trowel.

FIG 1: SELECTING A LEVEL OF FINISH



LEVEL 4

This is generally the accepted level of finish for residential construction. Joints are to have a tape coat, and two separate coats are to be applied over the tape coat and fastener heads. All joint compound should be sanded to a smooth finish free of tool marks and ridges. Full details can be found in the Jointing section.

LEVEL 5

This level of finish should be used wherever gloss or semi-gloss paints are to be used, where paint is mid or dark coloured, or where critical light conditions occur such as from windows, skylights, or silhouette and spot lighting.

A three coat jointing system is required as for level four. All joint compound should be sanded to a smooth finish free of tool marks and ridges. This should be followed by the application of proprietary surface preparations by skim coating to remove differential surface textures and porosity.

Skim coating is a term used to describe a thin finish coat, rolled, trowelled or airless sprayed and then possibly sanded, to achieve a smooth and even finish. It is normally less than 1mm in thickness and is applied over the entire surface to fill imperfections in the joint work, smooth the paper texture and provide a uniform surface for decorating.



TABLE 2: SUMMARY OF GYPROCK 'LEVEL OF FINISH' DEPENDENT INSTALLATION REQUIREMENTS

It should be noted that, generally, residential applications should be prepared to a minimum level 4 finish unless specifically a higher or lower level of finish is agreed to by all parties.

Key to Symbols: – = Not Applicable. ✓ = Required. Other symbols, see notes.

Level of Finish	Max. Frame Alignment Deviation mm	Joint Between Frame Members and Back-block				Adhesive + Fastener Fixing ④	OR	* Fastener Only Fixing ④	Jointing and Finishing (minimum)
		Ceilings		Walls					Butt and Recessed Joints Internal and External Corners
		Butt	Recessed	Butt	Recessed				
3	4	–	–	–	–	✓	OR	✓ ⑤	Tape Coat + Second Coat
4	4	✓	✓ ② ③	✓①	–	✓	OR	✓ ⑤	Tape Coat + Second Coat + Finish Coat
5	3	✓	✓	✓①	–	✓	OR	✓ ⑤	Tape Coat + Second Coat + Finish Coat + Skim Coat to the entire surface

NOTES

- ① Where a butt joint in a wall is less than 400mm long and is located more than 2 metres from the floor, there may be no need to provide back-blocking.
- ② Back-blocking required only where 3 or more recessed joints occur in a continuous ceiling area.
- ③ Back-blocking is not required in suspended ceilings with no rigid connection between ceiling and walls.
- ④ Tiled and or fire rated installations MUST be all fastener fixed, adhesive is not permitted. All butt-joints to be on-stud.
- ⑤ Not permitted for unseasoned timber.

Surface Finishing & Lighting

Builders, plasterers and painters work hard to achieve the appearance of a flat surface when installing walls and ceilings. However some surface variation is inevitable due to the following factors:

- Natural variations in the framing.
- The hand-finished nature of a plasterboard wall or ceiling.
- Subtle differences between the textures of plasterboard and the jointing compounds.

Under the majority of lighting conditions a plasterboard surface finished to a Level 4 standard, as defined in AS/NZS2589, will appear flat. In critical lighting conditions, an effect referred to as 'glancing light', will highlight any surface variations.

This section will assist in minimising glancing light issues and enhance the occupant's enjoyment of their premises.

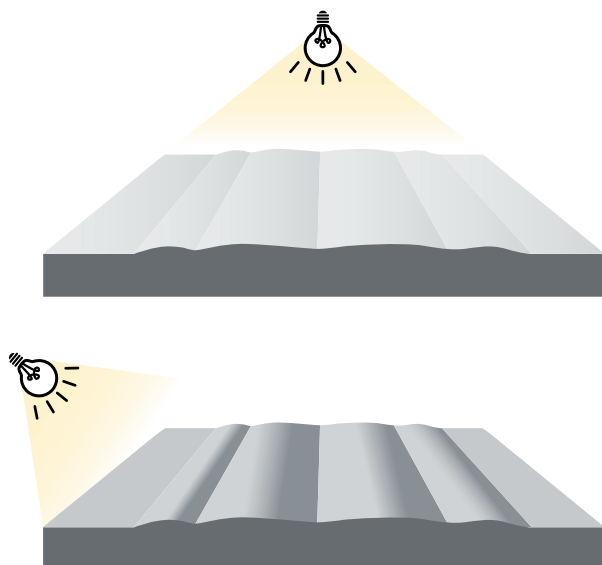
WHAT IS GLANCING LIGHT?

Glancing light (or critical light) is a condition which exists when light hits the plasterboard surface at an acute angle and casts shadows that highlight any surface irregularities. On plasterboard walls and ceilings this can make the surface look uneven and highlight the appearance of joints.

This is most commonly found in situations where there are:

- Floor to ceiling windows.
- Windows directly adjacent to walls.
- Unshaded batten holder ceiling lights.
- Ceiling mounted fluorescent lights.
- Wall lights and downlights close to walls.
- Windows at the end of long corridors.
- Brightly lit rooms.
- Lights installed just below skillion/raked ceilings.
- Reflections of light from water features.

FIG 2: WHAT IS GLANCING LIGHT



Consideration to Minimise Glancing Light

The best time to consider potential glancing light issues is during the design phase, which allows choices to be made that can greatly reduce the impact of glancing light.

Large window areas are a popular feature of modern design and the preference for open plan living and working often results in ceilings and walls that extend through a number of different spaces. These features can lead to challenging lighting conditions for wall and ceilings surfaces.

When designing a project it is important to consider the effect of both natural and artificial light and how it will fall on the walls and ceilings across the whole day.

In particular, attention should be given to light entering the building in mornings and evenings when the sun is lower in the sky and casts elongated shadows that can highlight any surface variations in walls and ceilings.

SHADING

For windows that are positioned where glancing light can be an issue, the use of external shading or vertical louvres may help to mitigate any problems. Curtains or interior blinds are also helpful in this situation.

WINDOW PLACEMENT AND ORIENTATION

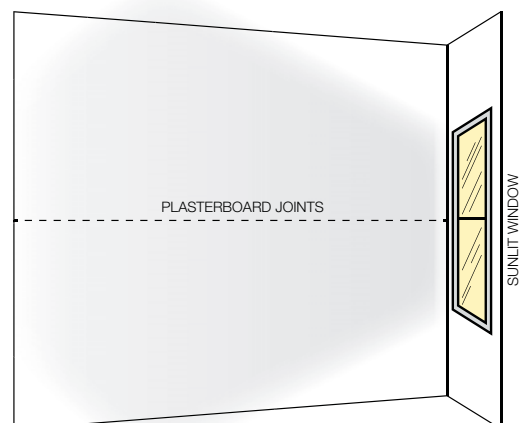
Ideally windows should not abut walls or ceilings and should be oriented away from the east and west. External reflective surfaces, such as pools or neighbouring buildings, can reflect light into the space, should also be considered as they can exacerbate the problem.

JOINT ORIENTATION

The installation of plasterboard walls and ceilings should also be considered as there are a number of design and installation choices which can significantly impact the appearance of the surface.

Running the plasterboard so that the long joints are parallel to the direction of the light will help reduce the effects of glancing light. The use of longer sheets to reduce the number of butt joints is also beneficial.

FIG 3: JOINT ORIENTATION



ARTIFICIAL & NATURAL LIGHTING

Any imperfection in a completed lining installation will be made obvious by a condition called critical lighting or glancing light, where the incident light from an artificial or natural light source is nearly parallel to the surface. Glancing light also greatly exaggerates the size of imperfections making them glaringly obvious.

The worst result is achieved by an unshaded light source located directly on a ceiling or wall where the light shines parallel to the surface.

Cases where this situation may exist include:

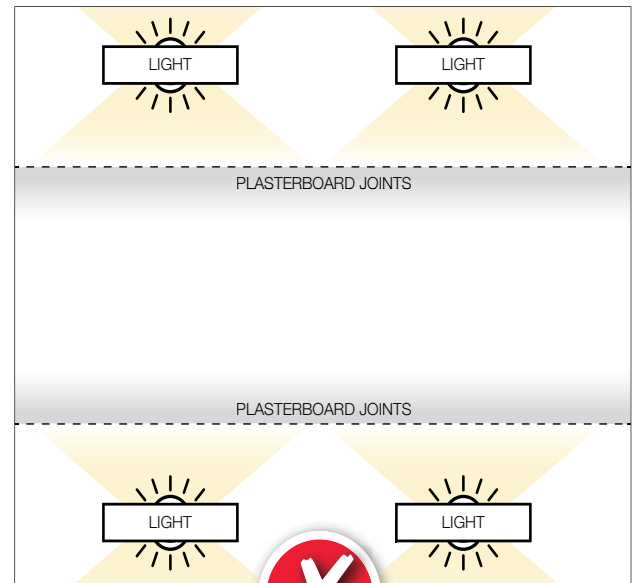
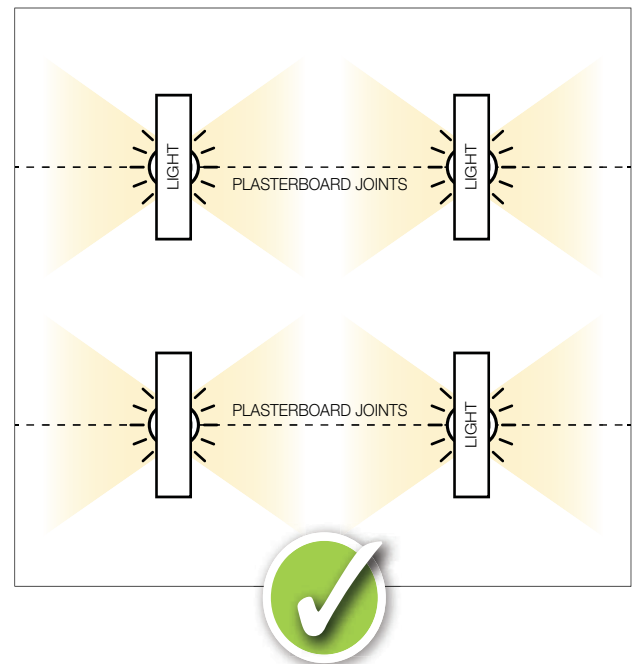
- Unshaded batten holder light fittings.
- Fluorescent lights mounted on the ceiling.
- Wall mounted up lights and downlights.

Methods to minimise glancing/critical lighting effects from artificial lighting sources

The following lighting solutions will provide diffused light and reduce the appearance of surface variations:

- Shaded batten holder light fittings.
- Ceiling mounted pendant lights.
- Recessed ceiling lights such as downlights and recessed fluorescents (although recessed lights are more likely to be associated with glare problems).
- Consider the use of more lights of lower intensity at regular spacings, ensuring lit areas overlap. This will improve ambiance and reduce the visible effects of glancing light, and minimise shadows that can occur from a single row or single light source.
- Allow a generous angle of incidence to the surface for feature lighting such as spotlights, to minimise the highlighting of imperfections.
- Do not locate a single or isolated unshaded light source close to a wall or ceiling in a space which has generally low levels of light.
- Do not use uplights, wall-washers and spotlights in areas with a smooth wall finish to eliminate light being emitted at a glancing angle to the surface.
- Preferably, locate fluorescent lights about 450mm below the ceiling as this will give a more even distribution of light.
- When installing ceiling mounted fluorescent lights it is recommended to position the light fittings over the long edge joints. Refer to the following illustration.

FIG 4: INSTALLATION OF CEILING MOUNTED FLUORESCENT LIGHT



Methods to minimise glancing/critical lighting effects from natural lighting sources

- Do not take window glazing right up to the ceiling level.
- Avoid placing windows or glass doors immediately adjacent to the end of a wall.
- Provide sun shades over the windows and glass doors.
- Recess the window to stop the sunlight reaching the wall.

Applied Finish Selection

The chosen finish selected for walls and ceilings plays a very important role in determining the effects of glancing light.

A Level 4 finish presents the painter with a surface comprised of two different materials, namely the plasterboard paper surface and the jointing compound, which have different textures and porosity.

In order to achieve a consistent finish across these materials it is vital that a plasterboard primer sealer is applied.

AS/NZS2311 requires that **a sealer plus two coats of water based paint must be applied as a minimum.** Such a system will provide a surface with minimal difference in texture and porosity.

Roller application for all coats is strongly recommended as it imparts a light texture to the surface and minimises visible differences. If spray application is used, each paint coat should be back rolled while still wet, to create a lightly textured finish, and allowed to dry completely before applying the next coat. Paint applied with a longer pile roller tends to mask imperfections better than those applied with a short pile roller.

A similar paint system is recommended for a level 5 finish to ensure the best possible result.

PAINT FINISHES

The choice of gloss level can also have a significant impact on the perceived quality of the surface in glancing light conditions.

A matt paint finish provides the highest level of light diffusion and helps to disguise any surface irregularities. It is recommended that a matt finish be used in areas where a higher gloss is not required for functional reasons, such as ceilings. Textured or heavy patterned finishes tend to hide imperfections.

Higher gloss levels, such as satin, semi gloss and gloss, can accentuate any minor variations in the surface and are recommended only for use over a level 5 finish.

COLOUR SELECTION

Light colours diffuse light more effectively than dark shades and reduce the effects of glancing light. In rooms where a dark colour is to be used a level 5 finish is recommended.

WALL PAPER FINISHES

Gyprock plasterboard walls may be finished with wall paper. A Level 4 Finish is recommended. A primer sealer should be applied to the surface prior to wall paper application. This will also assist with future removal.

Thin wall papers may still highlight imperfections in the wall surface. Textured or heavy patterned finishes tend to hide imperfections.

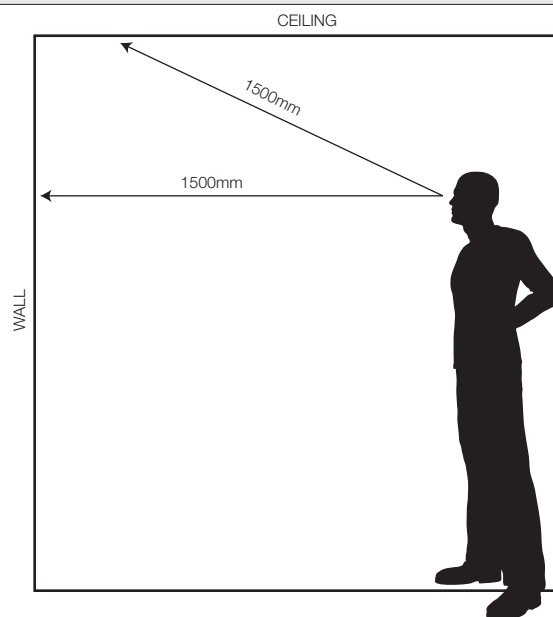
Inspection of Plasterboard

The Guide to Standards and Tolerances (Victorian Building Commission 2007) outlines the following standard for inspection of vertical and horizontal surfaces.

“Generally, variations in the surface colour, texture and finish of walls, ceilings, floors and roofs, and variations in glass and similar transparent materials are to be viewed where possible from a normal viewing position. A normal viewing position is looking at a distance of 1.5 m or greater (600 mm for appliances and fixtures) with the surface or material being illuminated by ‘non-critical light’. ‘Non-critical light’ means the light that strikes the surface is diffused and is not glancing or parallel to that surface.

Slight variations in the colour and finish of materials do not always constitute a defect”.

FIG 5: INSPECTION OF PLASTERBOARD



Sequence of Works

The sequence of works should be considered on a situation-by-situation basis, but generally will follow the following order:

- Framing installation.
- Wet trades.
- Roughing in of mechanical and electrical services.
- Installation of insulation in walls.
- Plasterboard installation.
- Penetrations
- Finishing of services.
- Sealants and junction treatment.
- Jointing of plasterboard.
- Installation of insulation in ceilings.
- Decorative finishing.

HANDLING & STORAGE

All materials must be kept dry, preferably stored inside. Care should be taken to avoid sagging or damage to ends, edges and surfaces of sheets.

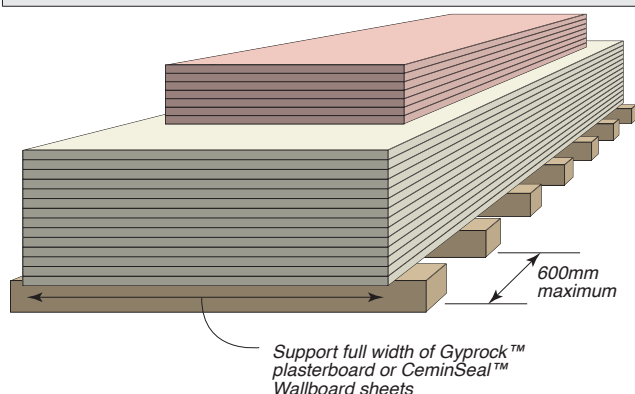
All Gyprock plasterboard and CeminSeal Wallboard must be stacked flat, properly supported on a level platform or on support members which extend the full width of the sheets and which are spaced at a maximum of 600mm centres.

If stored outside, sheets must be stored off the ground, stacked as detailed and protected from the weather.

Buildings should be sealed against water ingress before plasterboard is installed. It is recommended that plasterboard damaged by water is replaced.

Sheets must be dry prior to fixing, jointing and finishing.

FIG 6: STACKING AND SUPPORT OF LINING SHEETS



PLASTERBOARD CUTTING & FIXING

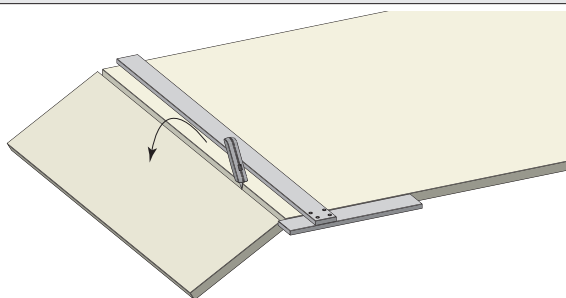
Gyprock plasterboard can be cut by scoring the face linerboard with a knife and snapping the plasterboard back away from the scored face.

Always score the front (non-printed) face first. The back linerboard can then be cut from the back towards the front. Gyprock Impactchek has fibreglass mesh behind the back face paper, so this face must also be cut before snapping.

Alternatively a saw may be used from the front face.

Cut edges are to be smoothed as required to permit neat joints. A metal T-square will assist in creating a clean, straight cut.

FIG 7: PLASTERBOARD CUTTING



TIP: Site recessing tools are available to treat cut edges for easier jointing.

Penetrations

All cut-outs for pipes, electrical installations, fixtures etc, are to be scored on both faces before removal, or are to be cut out with a suitable tool. **The use of an impact tool such as a hammer is not an acceptable method of producing cut-outs.**

Where electrical wiring is obviously mounted for connection to a wall or ceiling fixture, the installer shall pass the cables through a neat, close-fitting hole in the face of the sheet at the appropriate position clearly marked by the electrician.

Fastener & Adhesive Installation

For recessed joints and butt joints on framing, position fasteners opposite each other and between 10mm and 16mm from sheet edges.

All fasteners are to be driven home with the head slightly below the surface of the sheet, but not punched through the face linerboard. Care should be taken to avoid damaging the face or core of the plasterboard.

FIG 8: FASTENER DRIVING

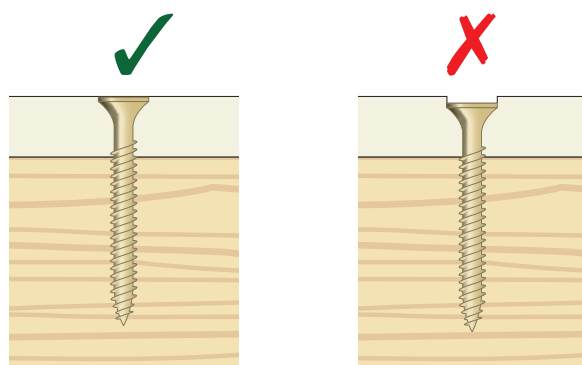
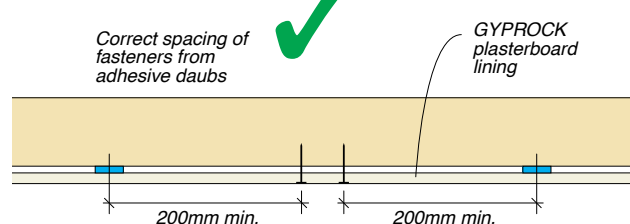
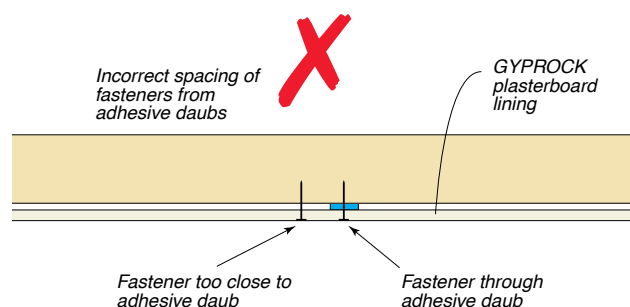


FIG 9: ADHESIVE/FASTENER PLACEMENT

CORRECT METHOD



INCORRECT METHOD



COMPONENTS

Fixing Systems

CSR Gyprock has developed a number of fixing systems designed to cater for steel and timber framed walls and ceilings.

The fixing systems detailed in this brochure are for interior applications in wind category N1 to N4, and for external applications up to N2, as defined in AS4055. These systems are based on a net pressure of 0.5kPa.

Generally the recommended fixing system for interior applications is a combination of adhesive and permanent fasteners. The fastener only fixing system is to be used in exterior applications and areas where adhesive cannot be used, such as in tiled areas and over existing linings or vapour barriers and fire rated installations. For fixing in tiled areas, refer to Wet Area Lining Systems in this publication.

Fasteners

The following fasteners are used with timber and steel framing to accommodate most installation applications.

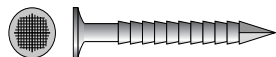
When fixing to timber that has been treated with copper-based compounds, such as CCA, ACQ and copper azole, use hot-dip galvanised clouts or class 3 screws. For timber framing with other treatments, contact the manufacturer for the applicable class of fixing.

For wet area and protected external applications, Class 3 fasteners must be used.

To guarantee performance, only approved fasteners should be used in these systems.

- **Ring Shank Nails**

25 and 30mm x 2.8mm Ø.



- **Clouts**

(Hot-dip galvanised).

30, 40, 50mm x 2.8mm Ø. 65 x 3.15mm Ø.

75 x 3.75mm Ø.



- **Plasterboard Screws**

#6 Type 'W'

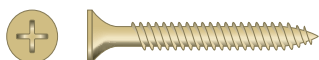
for timber framing.



#6 Type 'S' Needle Point

(NP) for lightweight steel

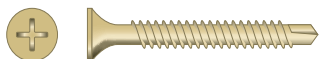
studs and furring channel up to 0.8mm thickness and hardwood.



#6 and #8 Type 'S' Drill

Point (DP) for steel framing

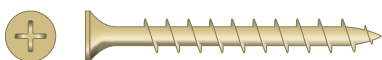
0.8mm to 1.2mm thickness.



Laminating Screws.

#10 x 40mm. for

laminating layers of plasterboard together (where permitted).



Adhesives

Gyprock Acrylic Stud Adhesive

- Gyprock Acrylic Stud Adhesive is coloured blue for easy identification. It can be used on timber or steel framing in temperatures not less than 5°C. It has a low toxicity, and does not represent a fire hazard when used in confined spaces. This product is suitable for use with pre-painted metal battens and some treated timbers. Always follow directions on packaging.
- Contact surfaces must be free of oil, grease or other foreign materials before application.
- The adhesive is applied with a broad knife to form 25mm diameter by 15mm high walnuts.
- Available in 5.5kg and 1kg buckets, and 900g sausage for gun applicator.

WARNING

- Stud adhesive **MUST NOT** be used on **TILED WET AREA** systems.
- Daubs of adhesive must never coincide with fastener points.
- Stud adhesive does not constitute a fixing system on its own and it must be used in conjunction with nail or screw fasteners.
- Stud adhesive **MUST NOT** be relied on in **FIRE RATED** systems.



TABLE 3: FIXING MATERIAL USAGE – Approximate Quantities Used per 100 m² of Gyprock Plasterboard (per layer)

Fixing System	Framing Centres (mm)	Adhesive	Nails	Screws
Adhesive + Nail	600	3.5 kg	1.0 kg	–
Fully Screwed	Adhesive + Screw	600 450	3.5 kg 4.2 kg	– 620 750
	600 (Horizontal Sheets)	–	–	820
	450 (Horizontal Sheets)	–	–	1000
	600 (Vertical Sheets)	–	–	1150
Masonry Adhesive to wall	N/A	20 – 24 kg	–	–

TABLE 4: FIXING PLASTERBOARD TO SOFTWOOD			
Thickness	1st Layer	2nd Layer	3rd Layer
6.5mm Plasterboard	2.8 x 40mm Gal Clout or 2.8 x 25mm Ring Shank Nail or Type W or S #6 x 25mm NP Screw	2.8 x 40mm Gal Clout or 2.8 x 30mm Ring Shank Nail or Type W or S #6 x 32mm NP Screw	
10mm Plasterboard	2.8 x 40mm Gal Clout or 2.8 x 30mm Ring Shank Nail or Type W or S #6 x 25mm NP Screw (on wall) Type W or S #6 x 30mm NP Screw (on ceiling)	2.8 x 50mm Gal Clout or Type W or S #6 x 40mm NP Screw	
13mm Plasterboard	2.8 x 40mm Gal Clout or 2.8 x 30mm Ring Shank Nail or Type W or S #6 x 32mm NP Screw	2.8 x 50mm Gal Clout or Type W or S #6 x 45mm NP Screw	3.75 x 75mm Gal Clout or Type W or S #8-15 x 65mm NP Screw and #10 x 40mm Laminating Screw
16mm Plasterboard	2.8 x 50mm Gal Clout or Type W or S #6 x 32mm NP Screw	3.15 x 65mm Gal Clout or Type W or S #6 x 50mm NP Screw	3.75 x 75mm Gal Clout or Type W or S #8-15 x 65mm NP Screw and #10 x 40mm Laminating Screw
13mm + 16mm Plasterboard	2.8 x 40mm Gal Clout or 2.8 x 30mm Ring Shank Nail or Type S #6-18 x 32mm NP Screw	2.8 x 50mm Gal Clout or Type S #6-18 x 45mm NP Screw	

TABLE 5: FIXING PLASTERBOARD TO HARDWOOD			
Thickness	1st Layer	2nd Layer	3rd Layer
6.5mm Plasterboard	2.8 x 30mm Gal Clout or 2.8 x 25mm Ring Shank Nail or Type W or S #6 x 25mm NP Screw	2.8 x 30mm Gal Clout or 2.8 x 25mm Ring Shank Nail or Type W or S #6 x 32mm NP Screw	
10mm Plasterboard	2.8 x 30mm Gal Clout or 2.8 x 25mm Ring Shank Nail or Type W or S #6 x 25mm NP Screw (on wall) Type W or S #6 x 30mm NP Screw (on ceiling)	2.8 x 40mm Gal Clout or Type W or S #6 x 32mm NP Screw	
13mm Plasterboard	2.8 x 30mm Gal Clout or 2.8 x 25mm Ring Shank Nail or Type W or S #6 x 32mm NP Screw	2.8 x 40mm Gal Clout or Type W or S #6 x 45mm NP Screw	3.15 x 65mm Gal Clout or Type W or S #8-15 x 65mm NP Screw and #10 x 40mm Laminating Screw
16mm Plasterboard	2.8 x 40mm Gal Clout or Type W or S #6 x 32mm NP Screw	2.8 x 50mm Gal Clout or Type W or S #6 x 45mm NP Screw	3.15 x 65mm Gal Clout or Type W or S #8-15 x 65mm NP Screw and #10 x 40mm Laminating Screw
13mm + 16mm Plasterboard	2.8 x 30mm Gal Clout or 2.8 x 25mm Ring Shank Nail or Type W or S #6 x 32mm NP Screw	2.8 x 50mm Gal Clout or Type W or S #6 x 45mm NP Screw	

TABLE 6: SCREWS FOR FIXING PLASTERBOARD TO SOFTWOOD/HARDWOOD AND STEEL 0.5 – 0.8mm BMT			
Plasterboard Thickness	1st Layer	2nd Layer	3rd Layer
6.5mm Plasterboard	Type S #6-18 x 25mm NP Screw	Type S #6-18 x 25mm NP Screw	
10mm Plasterboard	Type S #6-18 x 25mm NP Screw	Type S #6-18 x 40mm NP Screw	
13mm Plasterboard	Type S #6-18 x 25mm NP Screw	Type S #6-18 x 40mm NP Screw	Type S #8-15 x 65mm NP Screw and #10 x 40mm Laminating Screw
16mm Plasterboard	Type S #6-18 x 30mm NP Screw	Type S #6-18 x 45mm NP Screw	Type S #8-15 x 65mm NP Screw and #10 x 40mm Laminating Screw
13mm + 16mm Plasterboard	Type S #6-18 x 25mm NP Screw	Type S #6-18 x 45mm NP Screw	

TABLE 7: SCREWS FOR FIXING PLASTERBOARD TO STEEL – (WALLS 0.8 – 2.4mm BMT) – (CEILINGS 0.8 – 1.6mm BMT)			
Plasterboard Thickness	1st Layer	2nd Layer	3rd Layer
6.5mm Plasterboard	Type S #6-18 x 25mm DP Screw	Type S #6-18 x 25mm DP Screw	
10mm Plasterboard	Type S #6-18 x 25mm DP Screw	Type S #6-18 x 40mm DP Screw	
13mm Plasterboard	Type S #6-18 x 25mm DP Screw	Type S #6-18 x 40mm DP Screw	† Type S #8-15 x 65mm NP Screw and #10 x 40mm Laminating Screw
16mm Plasterboard	Type S #6-18 x 30mm DP Screw	Type S #6-18 x 45mm DP Screw	† Type S #8-15 x 65mm NP Screw and #10 x 40mm Laminating Screw
13mm + 16mm Plasterboard	Type S #6-18 x 25mm DP Screw	Type S #6-18 x 45mm DP Screw	

NOTES:

Fixings are suitable for internal applications only.

† Pilot hole may be required for Needle Point (NP) screws.

NP = Needle Point Screws. DP = Drill Point Screws. GAL = Galvanised.

Gyprock Masonry Adhesive

- Gyprock Masonry Adhesive is used to adhere Gyprock plasterboards to concrete and all masonry substrates.

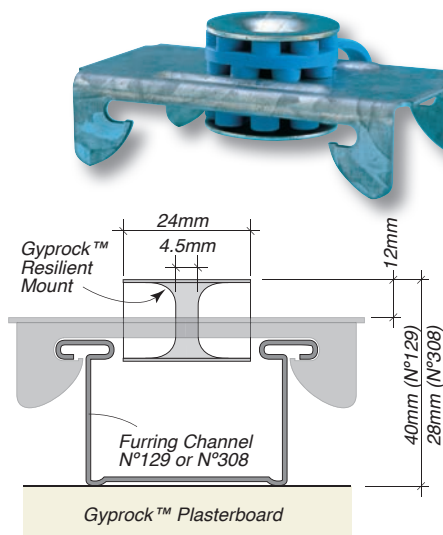


Gyprock Resilient Mount

- A proprietary component used in conjunction with Rondo steel sections for fastening Gyprock plasterboard to a supporting structure while simultaneously isolating it from structure borne vibration.

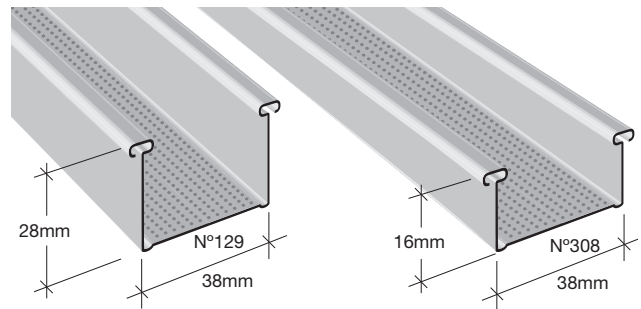
This significantly reduces the amount of impact noise, speech and low frequency sound filtering through to rooms above, below or alongside the noise generating room.

The resilient mount has been design for use on ceilings and can be used on walls provided plasterboard with minimum mass of 12.5kg/m² is fixed on the resilient mount side of the wall. The mount can be used in fire rated and non-fire rated systems.



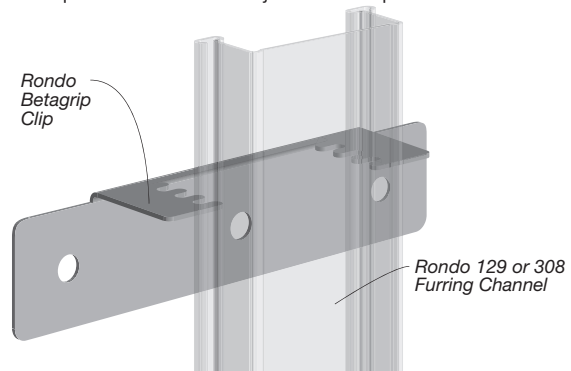
Rondo P129/308 Furring Channel

- Used in some wall systems where fixing direct to framing is not suitable. Used in some ceiling systems for leveling or acoustic applications.



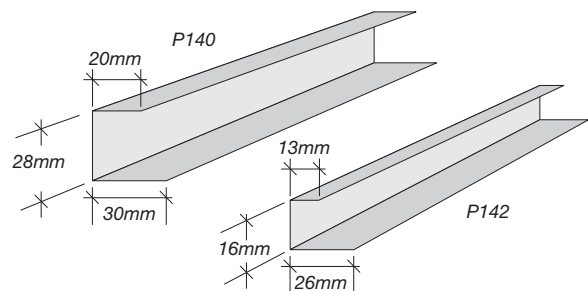
Rondo Betagrip Clip

- Used for attaching furring channel 129 or 308 in wall and ceiling installations where no acoustic performance is required. Provides adjustable depth.



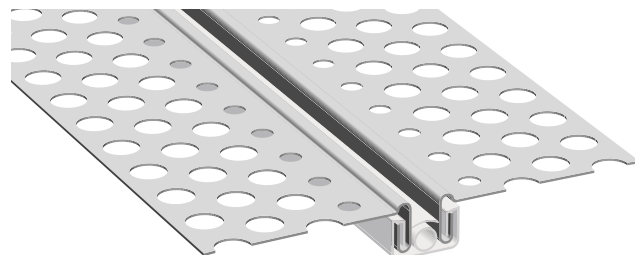
Furring Channel Track (J-Track)

- Used at walls to support ends of furring channels at ceiling/wall junctions or for fixing directly to ceiling plasterboard at ceiling/wall junctions. Also used at head and base of wall incorporating furring channels.



Rondo P35 Control Joint

- Used at some control joints during the finishing process.

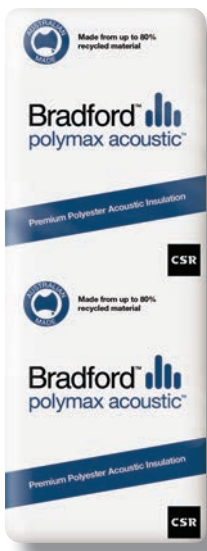


Insulation Materials

Energy efficiency requirements for buildings are set out in the BCA as performance requirements and acceptable construction practices, and are dependant on geographical climate zones. To meet the requirements, it is recommended that Bradford or Martini insulation be installed in the wall framing prior to fixing of Gyprock plasterboard. Check with local building authorities for minimum insulation requirements.

It is recommended that insulation values above the minimum be chosen for energy conservation and occupant comfort.

The level of thermal insulation provided in a wall is described by its R-value. The higher the R-value the greater the insulation provided.



CSR Gyprock also offers a comprehensive range of Fire and Acoustic Systems that incorporate Bradford glasswool and rockwool insulation materials or Bradford and Martini polyester insulation. These products have undergone significant acoustic testing and have a proven track record of performance and durability in service. Additional information on Bradford Insulation materials is available by telephoning Bradford on 1300 850 305.

CSR only recommends materials that have been tested for fire and acoustic applications, have proven durability, and are supported by their manufacturer for these applications. Should other insulation materials be used, the manufacturer of those materials must verify the performance of the complete system, CSR will not support the performance of substitute materials.

Mastics & Sealants

- Gyprock Wet Area Acrylic Sealant is recommended for sealing non-fire rated wet area systems and for acoustic integrity. It is available in 300ml cartridges.



Jointing Compounds

CSR Gyprock has a wide range compounds, cements and accessories for finishing plasterboard installations.

Refer to the "JOINTING & FINISHING" section of this guide for details.



WALL SYSTEMS INSTALLATION

STUD FRAMING

All wall framing must be designed for the applied loads.

Wind pressures occur on walls that form part of the building perimeter enclosure due to air flow through the façade and lining elements. The spacing of framing for these walls is dependent on the plasterboard lining span limits. Refer to TABLE 8 for maximum framing centres.

- Substrate members which are to support a joint shall have a minimum flat fixing face width of 35mm for timber or 32mm for steel, to enable adequate fixing of the plasterboard. All other substrate members are not to be less than 30mm width.
- All substrate members are to be straight and suitable for the application of Gyprock plasterboard. Noggings must not protrude to interfere with the linings and should preferably be set back from the line of studs.
- The deviation in the alignment of the bearing surface(s) shall not exceed the tolerances given in TABLE 2 when measured with a straight edge over a span of 1800mm along individual members or across adjacent members.
- NOTE: A minimum of 90% of all framing shall be in accordance with the appropriate tolerance specified. The remaining 10% (maximum) of framing shall be within +1mm of the allowable deviation.
- Where the alignment of the fixing surface plane falls outside the appropriate tolerance, a suitable levelling system is to be used.
- All openings are to be framed.

TABLE 8: MAXIMUM FRAMING CENTRES – BUILDING PERIMETER WALLS

Wind Category/Zone	Sheeting Recessed Edge Direction	Framing Centres mm max.
N1 to N6, C1, C2	Horizontal	600mm
N1 to N3	Vertical	600mm
C3, C4	Horizontal	450mm

PLASTERBOARD INSTALLATION

The following information should be read in conjunction with specific system installation requirements. Also refer to TABLE 2 on page 11 to determine the requirements applicable to the chosen 'Level of Finish'.

Fixing details for building perimeter walls are given for wind categories in AS4055, and include the effects of dominant openings for Regions C and D only. Interior walls that are not part of the building perimeter are assumed to have no wind pressure. Other wind pressures may be applicable; the designer should refer to AS/NZS1170 (series).

In wet areas, moisture resistant grade Gyprock plasterboards must be used. Refer to the TABLE 1 of this guide for appropriate products, and to specific installation details in the 'Wet Area Lining Systems' section of this guide.

Planning & Layout

- The orientation of sheets should be chosen so that any critical light falls along the recessed joints, or to minimise the number of butt joints. Refer to "DESIGN & INSTALLATION CONSIDERATIONS" section in this guide.
- Where possible it is recommended that full length sheets are used to minimise butt joints at sheet ends.
- The lower edge of wall sheets (or the outer layer in the case of multiple layer systems) is to be kept 6-10mm above the finished floor level.
- Sheet joints are not to coincide with the edge of openings (eg doorways, windows or vents etc.) except where permitted to form a control joint. Sheets are to be laid so that any joint falls a minimum of 200mm from the edge of an opening. Avoid butt joints over single doorways and cavity sliding doors wherever possible. Refer to FIG 10.
- Nogging is not required behind recessed edge joints in horizontal sheet applications. Noggings should be relocated or trimmed to suit back blocking requirements.
- Where back-blocking of butt joints made between framing is required in accordance with TABLE 2, refer to "Back-Blocking Methods" on page 35 for installation procedures.
- Where butt joints are unavoidable and jointing between framing members is not required, as per TABLE 2, butt joints may be formed on a framing member, provided that the framing member has a bearing face equal to or greater than 35mm width for timber framing or 32mm width for steel framing.
- Where butt joints are permitted on framing members, butt sheet ends together centrally over the framing member.
- Where a butt joint in a wall is less than 400mm long and is located more than 2 metres from the floor, then back-blocking may be omitted.

- Butt joints in adjacent sheets on the same side of a wall, and in adjacent sheets on opposite sides of the same wall, are to be staggered and located on/between different framing members.
- Ensure that all services and insulation materials are installed (when required), prior to the fixing of sheets to the second side of stud walls.
- For double layer systems, butt joints in the second layer should be either backed by a stud or nogging, and fixed as per the Fixing Specification table for the system chosen, or located between framing and fixed using laminating screws as per the system Fixing Specification table.
- Gyprock plasterboard may be fastener fixed directly over existing linings if they are firm, sound and suitably straight for the 'Level of Finish' chosen. Increase the length of fasteners to compensate for existing lining thickness.

Control Joints

Control joints must be installed to allow for structural movement. Allowance for movement must be made through the frame, lining and any tiles.

Vertical control joints in stud walls are to be constructed using two studs with a 15-20mm gap between.

Refer to the "DESIGN & INSTALLATION CONSIDERATIONS" on page 6 for appropriate placement information.

Refer to the "CONSTRUCTION DETAILS" on page 34 for appropriate construction details.

Electrical Penetrations

Where electrical wiring is obviously mounted for connection to a wall or ceiling fixture, the installer shall pass the cables through a neat, close-fitting hole in the face of the sheet at the appropriate position clearly marked by the electrician.

Tiled Walls

Where Gyprock plasterboard is used as a substrate for tiles, the sheets must be wet area grade plasterboard and fastened with screws only. Adhesive/fastener fixing is not acceptable.

Refer to fixing details later in this guide for specific fastener positioning based on tile weight.

Caulking

Caulking is required in applications such as wet area penetration, where acoustic performance is required and in fire rated applications.

Gyprock Wet Area Acrylic Sealant has tested performance and should be used for wet area and acoustic applications.

Gyprock Fire Mastic and CSR FireSeal have tested performance and should be used where specified in fire rated applications.

Jointing & Finishing

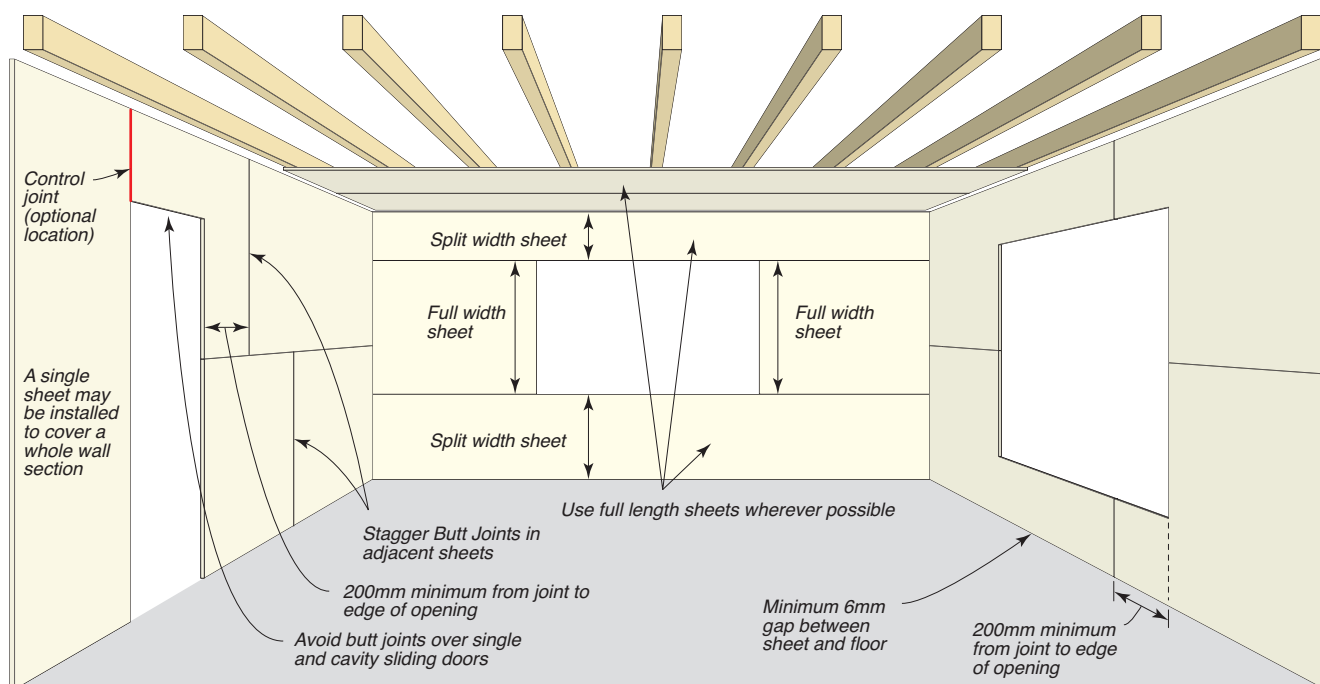
Sheets are to be fitted together neatly at joints. Gaps up to 3mm wide are permitted and must be filled with a Gyprock Base Coat before jointing.

Refer to the 'Jointing & Finishing' section of this guide for detailed information.

In multi-layer systems, jointing and finishing is required on the outer layer only, on each side of the wall.

In acoustic rated systems, all outer layer joints and corners, including those in non-visible areas such as ceiling voids, must be finished with a minimum of base coat and paper tape.

FIG 10: PLASTERBOARD SHEET AND JOINT LAYOUT



Plasterboard Fixing

Gyprock plasterboard linings may be fixed with either fasteners only or with a combination of fasteners and adhesive. In some applications including walls that are tiled and those in high wind categories, only fastener fixing is recommended.

Plasterboard fixing to the interior face of building perimeter walls is to be in accordance with TABLE 9.

Plasterboard fixing for interior walls that do not form part of the building perimeter enclosure is to be in accordance with FIG 11 to FIG 17.

ADHESIVE/FASTENER FIXING

This method reduces the number of fastener heads to be set over and minimises the possibility of nail pops due to frame movement. Gyprock Acrylic Stud Adhesive has good gap-filling properties and will bridge board and studs that are slightly out of alignment.

Sheet ends are either back blocked or fixed to framing. At other framing members sheets are fixed with fasteners to each edge and with adhesive daubs to the field of the board as detailed in TABLE 9.

Cautionary Notes:

- To reduce the possibility of fasteners popping, permanent fasteners should not be closer than 200mm from the edge of adhesive daubs.
- Contact surfaces of framing must be free of oil, grease or other foreign materials.
- Fix board to framing as soon as possible after applying stud adhesive so that adhesive does not form a skin.
- Plasterboard must be installed within 20 minutes of applying stud adhesive, and less in severe drying conditions.
- The final bond of Gyprock Stud Adhesive may be unsatisfactory if:
 - used on wet or unseasoned timber
 - temporary blocks/fasteners are removed too early.



ALL FASTENER FIXING

Fasteners may be either screws at sheet edges and to the field of the board, or nails at sheet edges with double nails to the field of the board. Refer to TABLE 9.

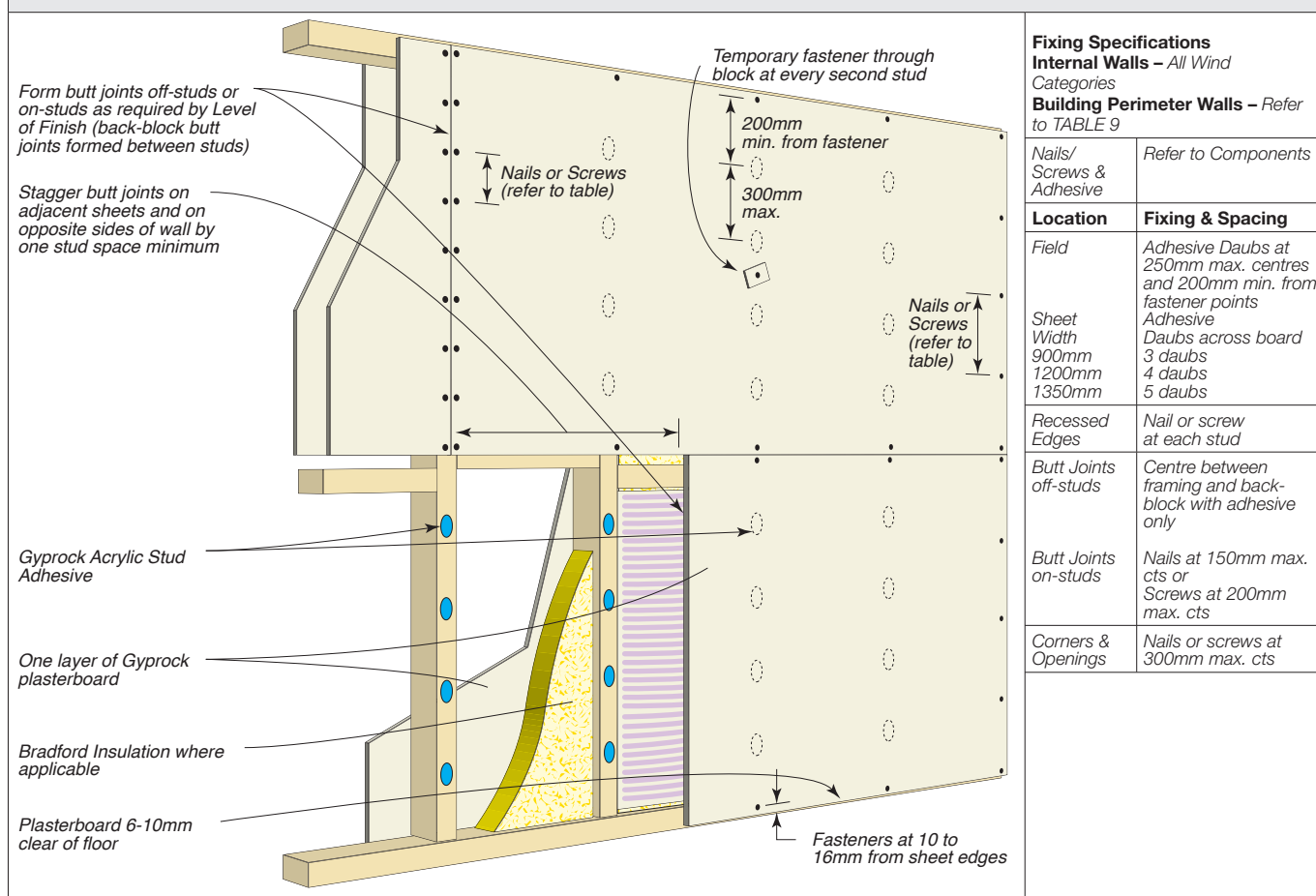
At sheet ends, corners and openings use single fasteners as detailed for interior walls.

TABLE 9: MAXIMUM FIXING CENTRES FOR FIELD OF BOARD – STUD FRAMED BUILDING PERIMETER WALLS		
Wind Category/Zone	Fixing Method (Horizontal or Vertical Sheeting)	Field of Board Fixing Centres mm max.
N1 to N4	Adhesive + Fasteners	250
	Fasteners	400
N5, C1	Adhesive + Fasteners	250
	Fasteners	300
N6, C2	Fasteners	200
C3, C4		125

- Fasteners shall be 2 nails at 50mm apart or 1 screw.
- For tiled areas, use the smaller of the values from TABLE 9 or as specified for the appropriate tile weight.



FIG 11: PLASTERBOARD FIXING – HORIZONTAL SHEETING – ADHESIVE/FASTENER FIXING – NON-TILED AREAS



Notes On Fixing

- Butt joints in adjacent sheets and on opposite sides of the wall must be staggered by a minimum of one stud spacing.
- For a level 4 and 5 finish, butt joints must be formed between studs and back-blocked.
- Daubs of adhesive must be 200mm minimum from fastening points.
- Place edge fasteners at 10 to 16mm from sheet edge.

Fixing Procedure

For fastener specifications refer to “Components” section.

First Side

- Apply stud adhesive to intermediate studs. Using a broadknife apply daubs 25mm diameter x 15mm high at 200mm minimum from fastening points and at 300mm maximum centres in accordance with the Fixing Specification table above.
- Apply sheets horizontally (paper bound edges at right angles to studs), leaving a 6-10mm max. gap between the bottom of the sheet and the floor, and with butt joints off-stud or on-stud in accordance with TABLE 2.
- Press the sheet firmly against the studs and fix to each stud along one recessed edge, beginning at the centre of the sheet and working towards the ends.

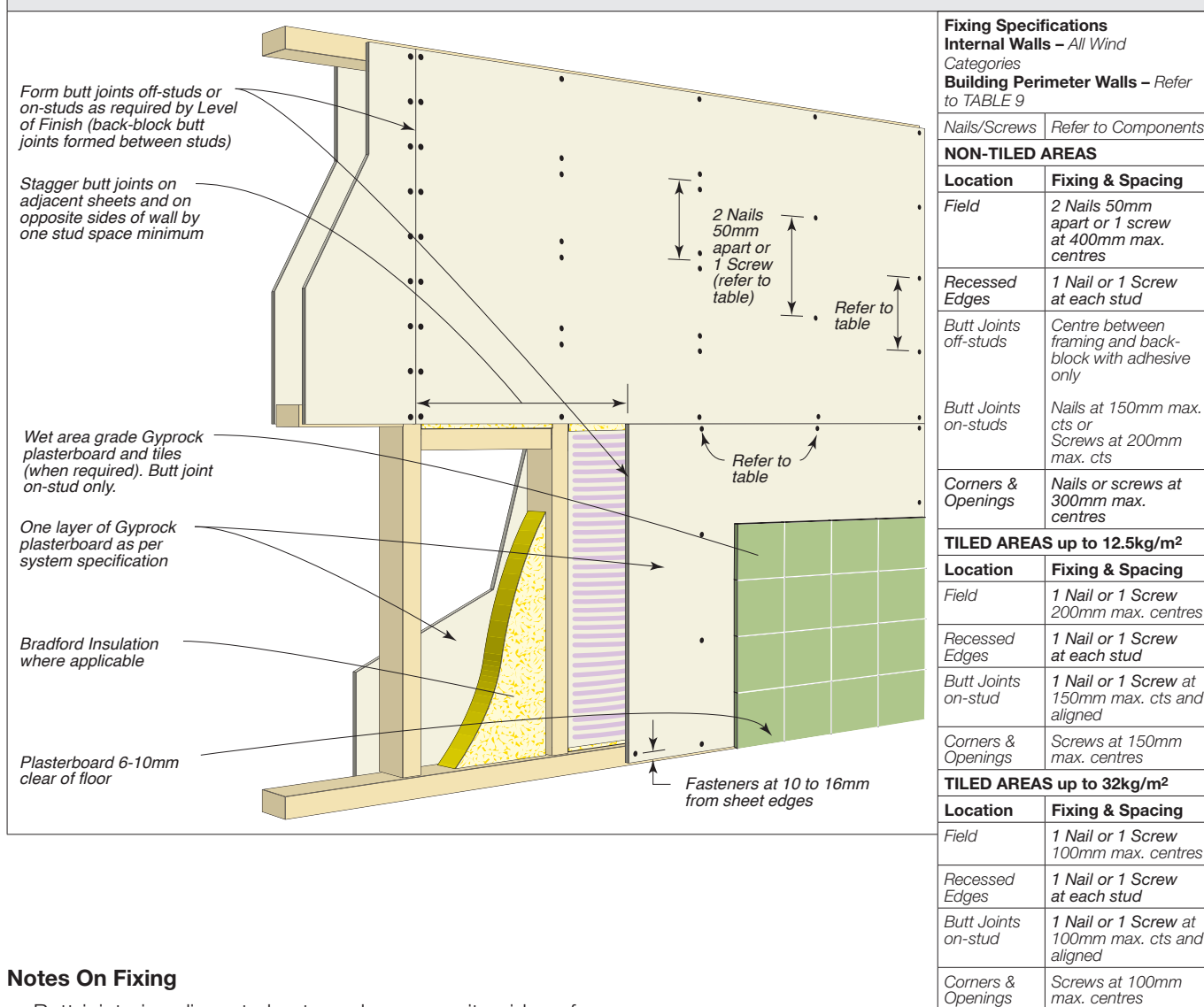
- Press the sheet firmly against the studs and fix to each stud along the second recessed edge, beginning at the centre of the sheet and working towards the ends.
- Where off-stud butt joints are required, form joints within 50mm of the centreline between framing and back-block with adhesive fixed plasterboard. Refer to ‘Back-blocking Methods’ on page 35.
- Where on-stud butt joints are permitted, centre joints on the studs, press the sheet firmly against the framing and fix as per the Fixing Specification table above.
- Press the sheet firmly against the framing and fix at all corners and around openings as per the Fixing Specification table above.

- Apply the next row of sheets, cutting the first sheet so that butt joints will be offset from adjacent sheets by a minimum of one stud spacing.
- Hold the sheet against the studs for a minimum 24 hours with temporary fasteners driven through plasterboard blocks along the centreline of the sheet at every second stud.

Second Side

- Ensure all electrical/plumbing/insulation materials have been installed before sheeting second side.
- Cut sheets as necessary so that butt joints in adjacent sheets and on opposite sides of the wall are offset by a minimum of one stud spacing.
- Apply and fix sheets as detailed for the first side.

FIG 12: PLASTERBOARD FIXING – HORIZONTAL SHEETING – FASTENER FIXING – NON-TILED OR TILED AREAS



Notes On Fixing

- Butt joints in adjacent sheets and on opposite sides of the wall must be staggered by a minimum of one stud spacing.
- For a level 4 and 5 finish, butt joints must be formed between studs and back-blocked.
- For tiled areas, butt joints must be formed on-stud.
- Place edge fasteners at 10 to 16mm from sheet edge.

Fixing Procedure

For fastener specifications refer to Components section.

First Side

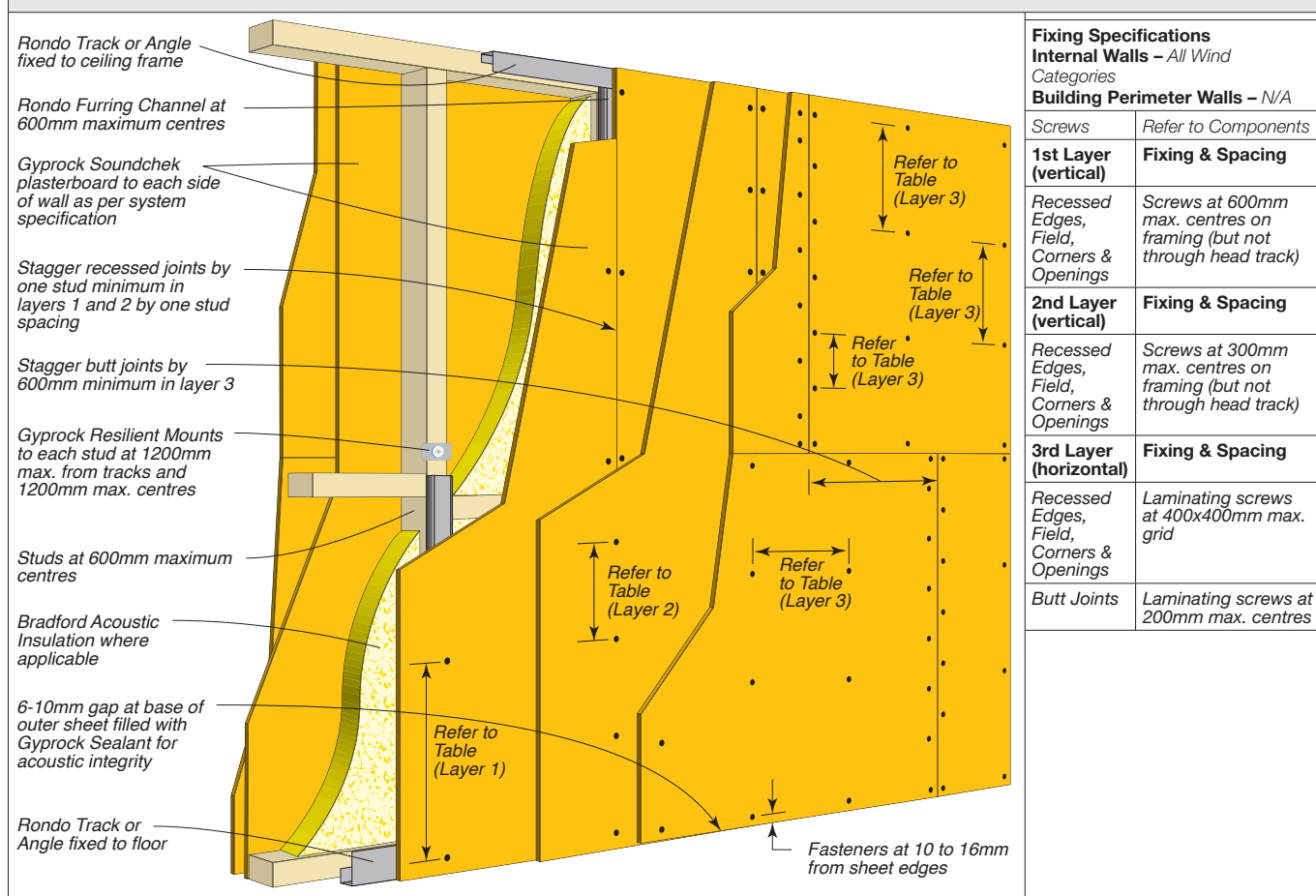
- Apply sheets horizontally (paper bound edges at right angles to studs), leaving a 6-10mm max. gap between the bottom of the sheet and the floor, and with butt joints off-stud or on-stud in accordance with TABLE 2.
- Press the sheet firmly against the studs and fix to each stud along one recessed edge, as per the Fixing Specification table above, beginning at the centre of the sheet and working towards the ends.
- Press the sheet firmly against the studs and fix to each stud along the second recessed edge, as per the Fixing Specification table above, beginning at the centre of the sheet and working towards the ends.

- Where off-stud butt joints are required, form joints within 50mm of the centreline between framing and back-block with adhesive fixed plasterboard. Refer to 'Back-blocking Methods' on page 35.
- Where on-stud butt joints are permitted, centre joints on the studs, press the sheet firmly against the framing and fix as per the Fixing Specification table above.
- Press the sheet firmly against the framing and fix at all corners and around openings as per the Fixing Specification table above.
- Apply the next row of sheets, cutting the first sheet so that butt joints will be offset from adjacent sheets by a minimum of one stud spacing.

Second Side

- Ensure all electrical/plumbing/insulation materials have been installed before sheeting second side.
- Cut sheets as necessary so that butt joints in adjacent sheets and on opposite sides of the wall are offset by a minimum of one stud spacing.
- Apply and fix sheets as detailed for the first side.

FIG 13: PLASTERBOARD FIXING – 3 LAYER VERTICAL & HORIZONTAL SHEETING – FASTENER FIXING



Notes On Fixing

- Recessed joints between layers 1 and 2 must be staggered by a minimum of one stud spacing.
- Butt joints in adjacent sheets or the third layer must be staggered by a minimum of one stud spacing.
- Place edge fasteners in layers one and two at 10 to 16mm from sheet edge.
- Place Laminating Screws in layer three at 20 to 40mm from sheet edges.

Fixing Procedure

For fastener specifications refer to Components section.

First Layer

- Apply sheets vertically (paper bound edges parallel with studs), with the bottom edge of the sheet on the floor, and with recess joints centred on furring channels.
- Press the sheet firmly against the framing and screw fix at top and bottom (but not through top track) and in accordance with the Fixing Specification table above.
- Screw fix at all corners and around openings in accordance with the Fixing Specification table above.

Second Layer

- Apply sheets vertically (paper bound edges parallel with studs), with the bottom edge of the sheet on the floor, and with recess joints centred on furring channels. Offset joint by one stud spacing.

- Press the sheet firmly against the framing and screw fix at top and bottom (but not through top track) and in accordance with the Fixing Specification table above.
- Screw fix at all corners and around openings in accordance with the Fixing Specification table above.

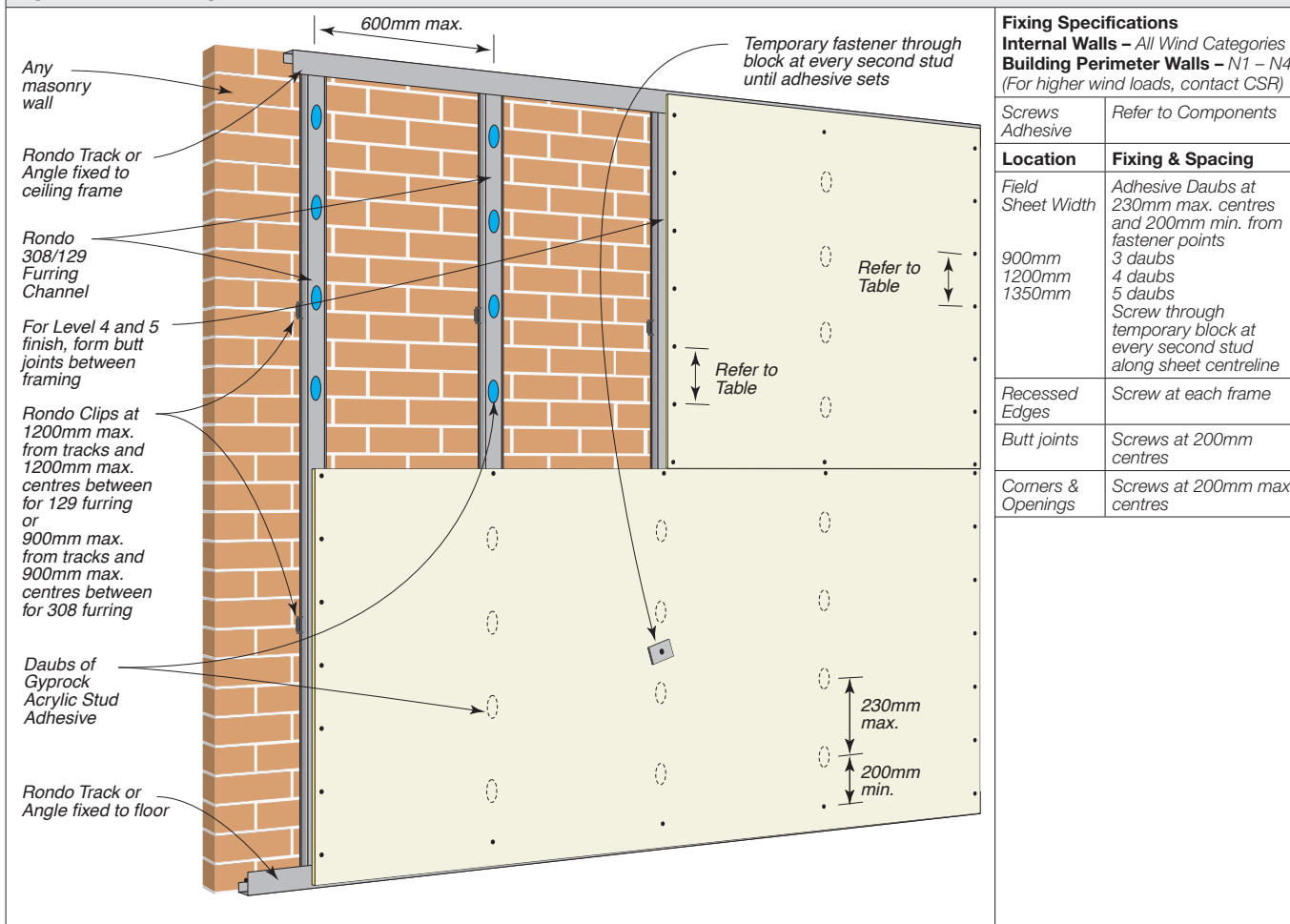
Third Layer

- Apply sheets horizontally (paper bound edges at right angles to studs), leaving a 6-10mm max. gap between the bottom of the sheet and the floor, and with butt joints off framing.
- Press the sheet firmly against the framing and screw fix with laminating screws in accordance with the Fixing Specification table above.

Finishing

- Fill all gaps at wall perimeters with Gyprock Sealant for acoustic integrity. Refer to “CONSTRUCTION DETAILS” on page 34.

FIG 14: PLASTERBOARD FIXING TO FURRING CHANNEL – HORIZONTAL SHEETING – ADHESIVE/SCREW FIXING – NON-TILED AREAS



Notes On Fixing

- Cut sheets as necessary to provide up to 10mm gap at the bottom and appropriate clearance at the top.
- Do not fix sheets to the top tracks, (fix to furring only).
- Daubs of adhesive must be 200mm minimum from fastening points.
- Place edge fasteners at 10 to 16mm from sheet edge.
- Butt joints in adjacent sheets must be staggered by a minimum of one frame spacing.
- For a level 4 and 5 finish, butt joints must be formed between framing and back-blocked.

Fixing Procedure

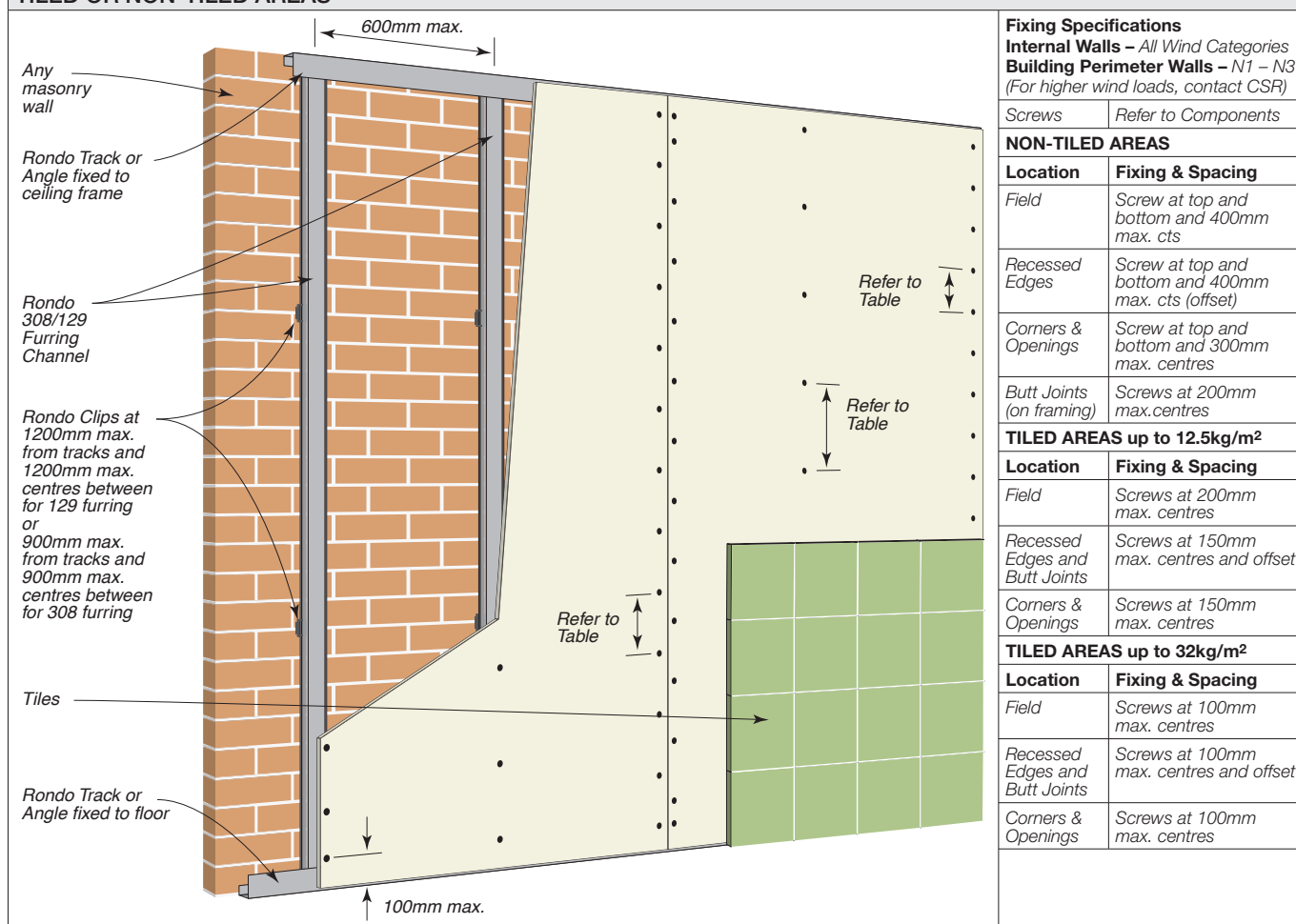
For fastener specifications refer to Components section.

- Apply stud adhesive to intermediate furring channels. Using a broadknife apply daubs 25mm diameter x 15mm high at 200mm minimum from fastening points and at 300mm maximum centres.
- Apply sheets horizontally (paper bound edges at right

angles to framing), leaving a 10mm max. gap between the bottom of the sheet and the floor, and with butt joints centred on framing. (Refer to Notes On Fixing for butt joints for Level 4 or 5 Finish).

- Screw fix to each furring, beginning at the centre of the sheet and working towards the ends and edges. Alternatively, start at one edge and work across the sheet to the other edge.
- Screw fix edges as per the Fixing Specification table above.
- Screw fix at all butt joints, corners and around openings as per the Fixing Specification table above.
- Apply the next row of sheets, cutting the first sheet so that butt joints will be offset from adjacent sheets by a minimum of one frame spacing.
- Cut sheets as necessary to ensure appropriate clearance is provided at the head.

FIG 15: PLASTERBOARD FIXING TO FURRING CHANNEL – VERTICAL SHEETING – FASTENER FIXING – TILED OR NON-TILED AREAS



Notes On Fixing

- Cut sheets as necessary to provide up to 10mm gap at the bottom and appropriate clearance at the top.
- Do not fix sheets to the top tracks, fix to furring only.
- If butt joints are required, they must be staggered by 600mm minimum in adjacent sheets, backed by framing and fixed as per the Fixing Specification table above.
- Place edge fasteners at 10 to 16mm from sheet edge.

Fixing Procedure

For fastener specifications refer to Components section.

- Apply sheets vertically (paper bound edges parallel with furring), leaving a 10mm max. gap between the bottom of the sheet and the floor, and with recess joints centred on furring.
- Press the sheet firmly against the framing and screw fix recessed edges at 100mm maximum from top and bottom of sheet (but not through tracks) and as per the Fixing Specification table above.
- Screw fix field of plasterboard at 100mm maximum from top and bottom of sheet and as per the Fixing Specification table above.
- Screw fix at butt joints, corners and around openings as per the Fixing Specification table above.

DIRECT FIXING PLASTERBOARD TO MASONRY WALLS

Description

The Gyprock plasterboard may be used to line dry masonry walls to provide an alternative to cement render and set plaster finishes. Gyprock plasterboard can be laminated directly onto the masonry, including concrete blocks, clay bricks and calcium silicate bricks, using Gyprock Masonry Adhesive (in WA, Gyprock Drywall Masonry Adhesive 100).

Joint treatment as detailed in the jointing systems section creates a smooth flush surface ready for decoration.

Design Considerations

Lining masonry with plasterboard is an alternative to solid plaster, not a means of isolating dampness. The adhesive fixing method must not be used where walls are to be tiled or where walls are over 3m high.

Services should be installed prior to the Gyprock plasterboard linings being fixed. All wall fixtures must be fastened to the masonry wall, with additional daubs of adhesive around the fixing to avoid distortion of the plasterboard.

Control joints are to be installed in the following locations:

- To correspond with control joints in the masonry
- Where plasterboard abuts any structural element or dissimilar wall assembly.
- In long wall runs, at not more than 12m centres.
- Between floor levels, e.g. in stairwells.

When lining a true wall surface, an allowance of about 5mm should be made for adhesive thickness.

Installation

- All new masonry surfaces must be allowed to dry out to normal levels before installation of Gyprock plasterboard. Masonry surfaces are to be firm, clean, and free of dust, oil, etc. For painted masonry walls, locally remove paint where adhesive is to be placed.
- Establish the basis of a true wall plane before commencing installation. Levelling pads are to be used where irregularities in wall surface exceed 15mm. Plasterboard sheets can be fixed horizontally or vertically.
- Ensure masonry has no treatment that could reduce adhesion. Water should be easily absorbed by the masonry surface.
- Daubs of Gyprock Masonry Adhesive can be applied to the wall surface or to the back of the sheets. Hold sheets in position until adhesive sets by using temporary masonry nails.
- Gyprock Masonry Adhesive is a setting type plaster. Do not use the mix after setting or hardening has commenced, and mix only a sufficient quantity that can be used in 45 minutes.
- Check alignment of the wall with a straight edge to establish the wall alignment. Strike a chalk line on ceiling and floor for use as a guide to align the face of the Gyprock plasterboard.
- When applying adhesive daubs to the wall, mark the wall where the sheet edges fall to keep daubs 50mm away from the edges of the sheet. Measure and cut the sheets to fit horizontally or vertically, allowing 6mm clearance at top and bottom.
- Stagger butt joints a minimum of 900mm. Mix the Masonry Adhesive with water to a fairly thick consistency. If the wall alignment is flat and true, using a 75mm broadknife, apply daubs of adhesive at 50mm from all sheet edges and at 450mm maximum centres vertically and horizontally. Daubs may be applied to the wall or to the back of the sheet, and should be approximately 50mm diameter and minimum 15mm thick. If the wall is out of alignment by up to 15mm, bigger daubs must be used.
- Additional daubs must be applied at butt joints, external angles and around power points, plumbing fixtures, doors, windows and skirtings.
- Position boards and use a straight edge to tamp the boards into alignment both vertically and horizontally. Hold sheets in position for at least 80 minutes to allow adhesive to set with temporary masonry nails through sheet edges. If necessary, use temporary blocks or props to the field of the board.
- Do not disturb the walls or set joints for at least 48 hours.

FIG 16: PLASTERBOARD FIXING TO MASONRY – HORIZONTAL SHEETING – ADHESIVE FIXING – NON-TILED AREAS

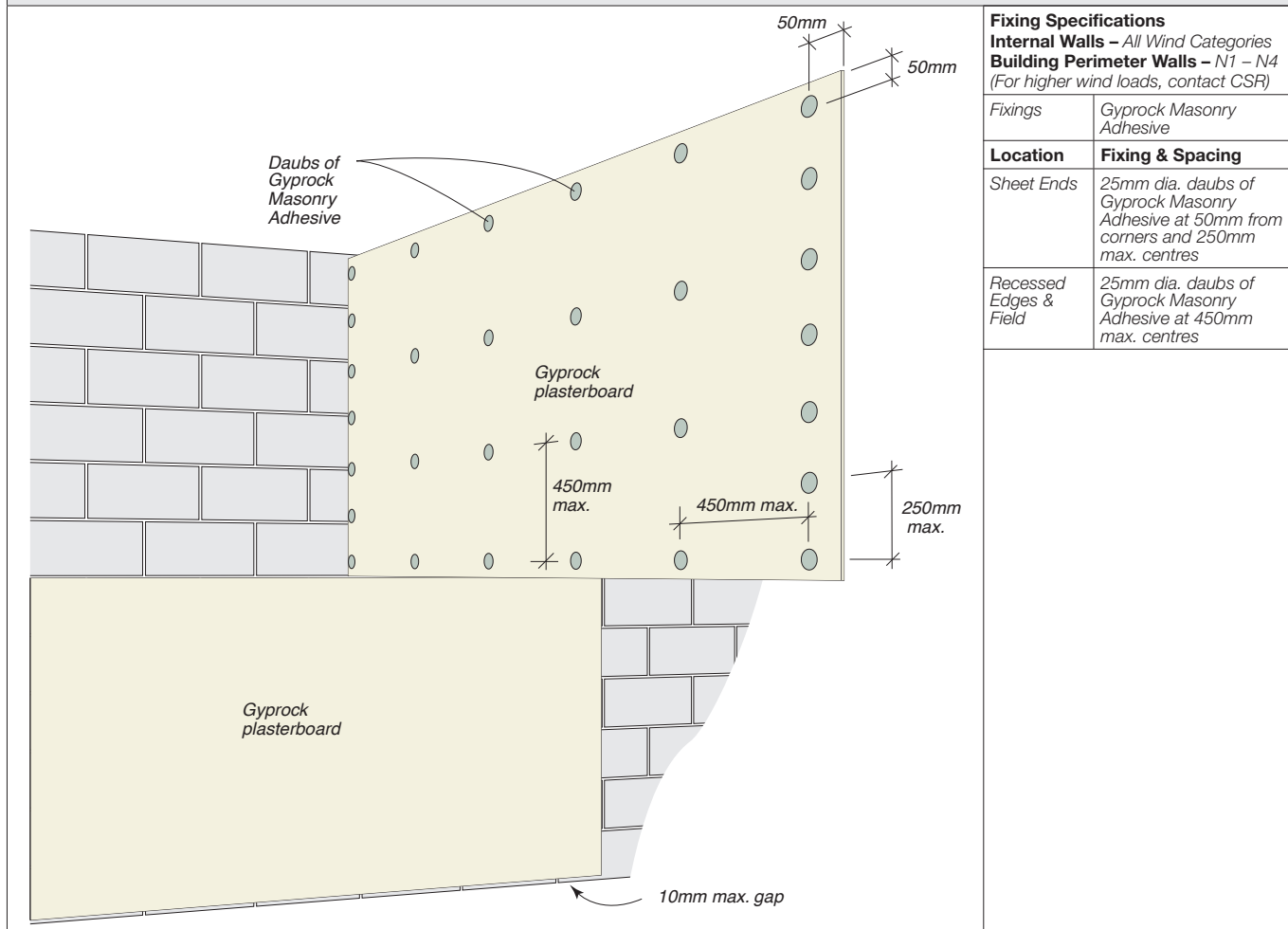
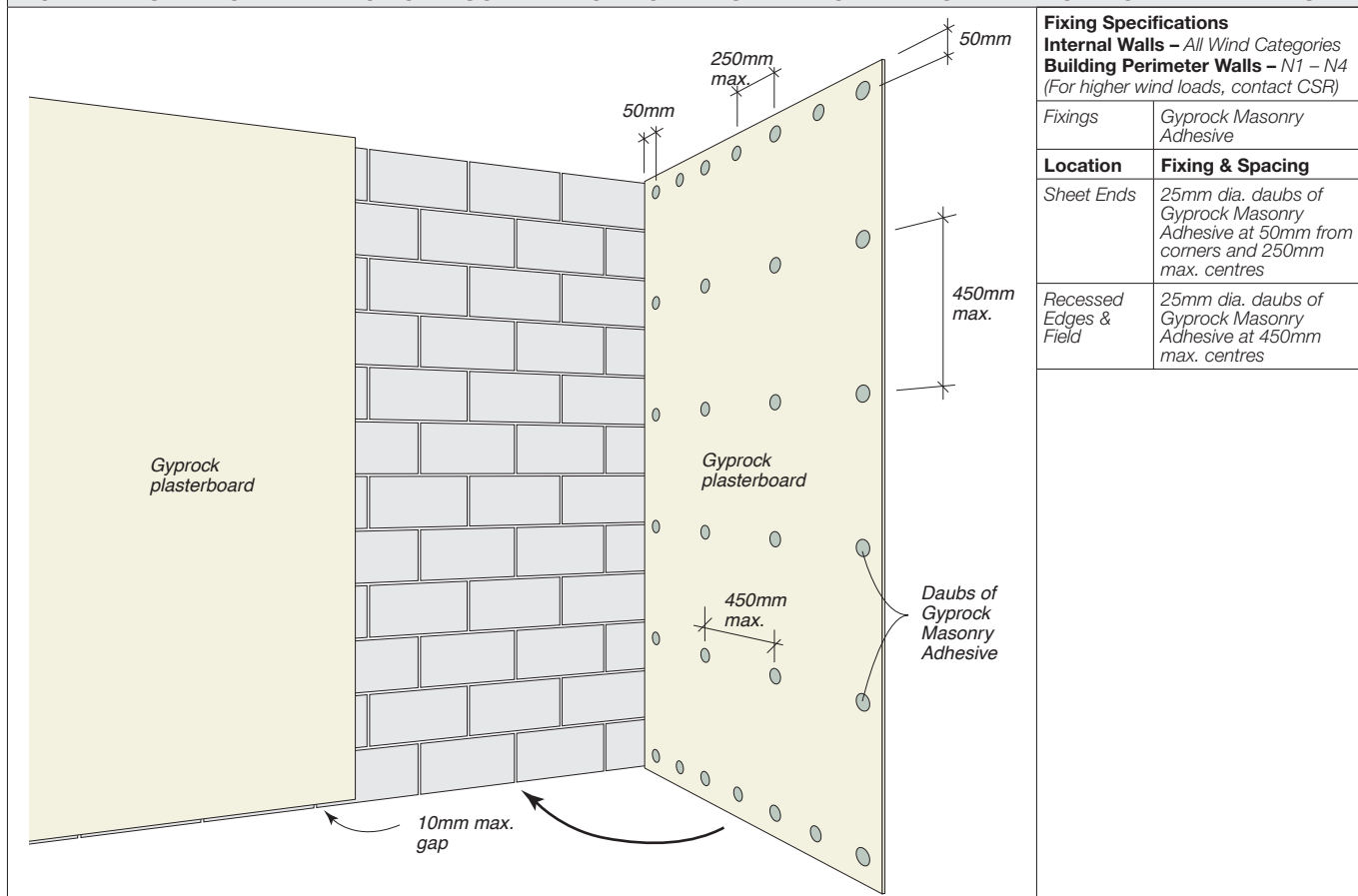


FIG 17: PLASTERBOARD FIXING TO MASONRY – HORIZONTAL SHEETING – ADHESIVE FIXING – NON-TILED AREAS



CURVED WALLS

Applications

Gyprock Flexible Plasterboard has a thickness of 6.5mm, and has been specifically designed for curved wall and ceiling applications. It is particularly effective for small radius situations (less than 900mm) which cannot be accomplished with other Gyprock plasterboards.

Gyprock Standard Plasterboard of 10mm or greater thickness may be used on curved walls/ceilings where the radius of the curve is 900mm or greater, as detailed in TABLE 10.

All Gyprock plasterboards, except perforated, may be used on curved surfaces with a radius greater than 3000mm.

Fire rated walls MUST NOT be curved to a radius of less than 3000mm.

Framing Preparation

Prepare the curved framing in accordance with TABLE 10 or TABLE 11 and FIG 18 appropriate for the chosen plasterboard and curving radius. For small radius curves, install double studs at each end of the curve to prevent frame deflection.

Rondo Flexi-Track makes the job of preparing curved walls considerably easier, and is available in 0.55 BMT for general use, and in 0.75 BMT for deflection head applications.

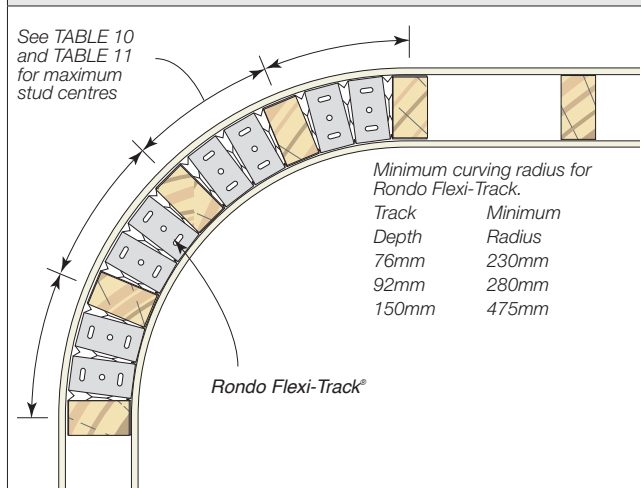
Flexi-Track should be fixed at each stud, through the pre-punched holes provided.

Ensure that all framing members to receive sheeting are correctly spaced and aligned for the application.

Flexible Plasterboard Fixing

Gyprock Flexible Plasterboard sheets can be curved with the recess edges bent around the curve (horizontal sheeting), however for very small radius applications Gyprock Flexible

FIG 18: FRAMING PREPARATION FOR CURVED WALLS



Plasterboard curves significantly better where the recess edges are not bent around the curve (vertical sheeting).

In most instances, two layers of Gyprock Flexible Plasterboard are recommended, and they can easily be flush jointed to one layer of 13mm Gyprock plasterboard for adjacent straight sections where appropriate.

All butt joints must fall on framing members.

When planning the sheet layout within the curved area, ensure that the sheet edges of the first and second layers are staggered at least 200mm to avoid aligned joints.

Fasten Gyprock Flexible Plasterboard as per FIG 19, FIG 20, FIG 21 or FIG 22 appropriate to the installation. Carefully follow the screw spacing details for each application.

TABLE 10: CURVING RADII AND MAXIMUM STUD SPACING FOR 6.5, 10, 13 AND 16mm GYPROCK PLASTERBOARDS

Plasterboard Thickness (mm)	Gyprock Flexible Plasterboard	Gyprock Standard Plasterboard and Flexible Plasterboard ONLY					All Gyprock Plasterboards (excluding Perforated)	
	Curve Radius (mm)							
	<900	900 – 1000	1000 – 1500	1500 – 2000	2000 – 2500	2500 – 3000	3000 – 4000	4000 – Plus
	Maximum Stud Spacing (mm)							
2 x 6.5	Refer to TABLE 11	150	200	250	300	350	450	550
10	–	150	200	250	300	350	400	500
13	–	–	150	200	250	300	400	500
16	–	–	–	–	–	–	250	350

TABLE 11: MINIMUM CURVING RADII AND MAXIMUM FRAME SPACING FOR GYPROCK FLEXIBLE PLASTERBOARD

Applications	Sheets Installed Vertically		Sheets Installed Horizontally	
	Minimum Radius	Max. Stud Spacing	Minimum Radius	Max stud Spacing
Concave	450mm	150mm	650mm	200mm
Convex	250mm	125mm	450mm	200mm

Notes – Low temperature and humidity will reduce board flexibility.

Wetting Flexible Plasterboard

Wetting plasterboard is usually not a recommended practice, however when conditions of low humidity or high temperature occur, or an extremely tight radius is to be attempted, it may be necessary to roll on a small amount of water with a clean paint roller.

Only wet the face of the plasterboard that will be in compression.

Allow 15 minutes for water to soak into the core before attempting to bend the board.

Fixing 10, 13 & 16mm Plasterboards

Gyprock 10, 13 and 16mm plasterboards may be attached vertically or horizontally, depending upon the framing support and application, however, wherever possible sheets should be installed with horizontal recess joints as this considerably improves the ease of jointing.

Sheets should begin and end a minimum of one stud from the curved section, and more if possible.

10, 13 and 16mm thickness plasterboards used on curved walls must be screw fixed to all studs at 100mm maximum from the top and bottom of the wall (but not through tracks)

and at 400mm maximum centres for non-fire rated walls or 300mm maximum centres for fire rated walls.

All vertical butt joints must fall on framing members, be screw fixed at 200mm maximum centres, and be staggered by a minimum of 600mm between adjacent sheets.

Jointing & Finishing

Jointing and finishing of curved walls is in accordance with normal practice.

In multi-layer systems, jointing and finishing is required on the outer layer only, on each side of the wall.

Note: Under some lighting conditions, glancing light may highlight the plasterboard joints. This is more apparent with vertical sheeting. A skim coat to the entire plasterboard surface is recommended to reduce this effect.

Gyprock Flexible Plasterboard can be painted with the full range of finishes.

The use of a preparatory sealer over the entire surface is recommended prior to application of finish coats.

Refer to the "JOINTING & FINISHING" section of this guide for details.



Flexible Plasterboard Fixing For Concave Curves

Arrange sheets so that both layers of the flexible plasterboard extend at least one stud spacing beyond the curved area.

Attach one end/edge of the sheet to the framing member or substrate by fastening at the appropriate centres.

Apply pressure to the sheet and unrestrained end/edge of the sheet. When the sheet makes contact with the substrate it should be fixed with the appropriate fasteners, beginning at the fixed end/edge and proceeding towards the unrestrained end/edge.

The second layer joints should be staggered at least 200mm from the first layer to prevent aligned joints.

For radii less than 900mm, fix all layers at edges only as detailed. For radii greater than 900mm, also fix all layers in the field at 400mm max. centres to all framing. Avoid placing more screws than recommended into the plasterboard face within the curved area.

FIG 19: CONCAVE – VERTICAL SHEETING

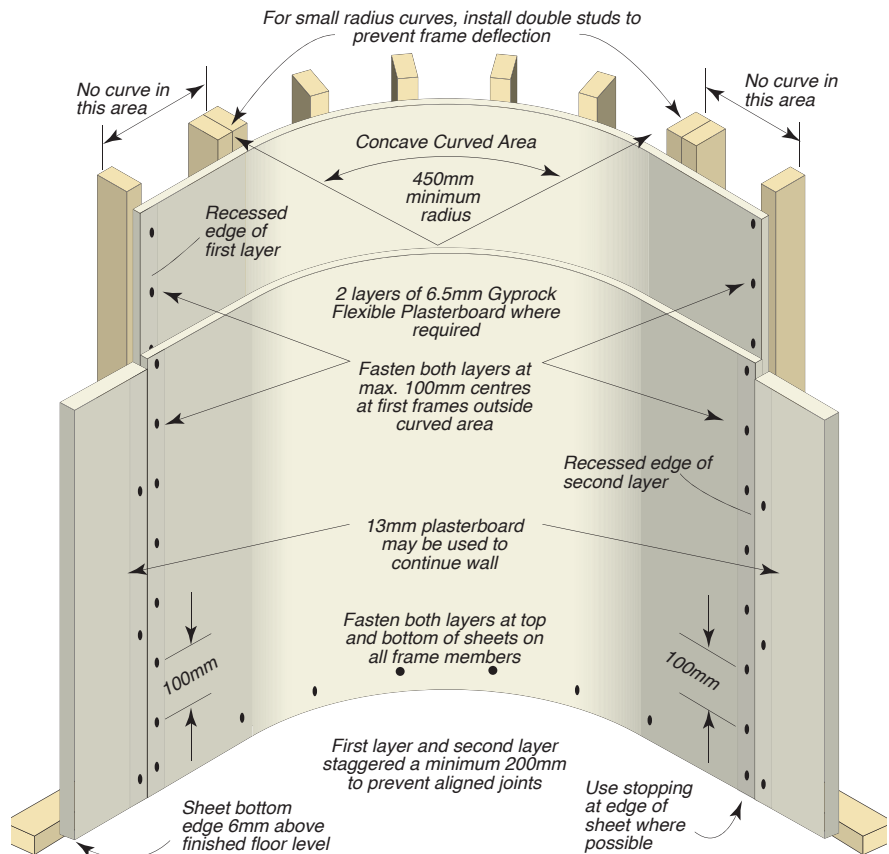
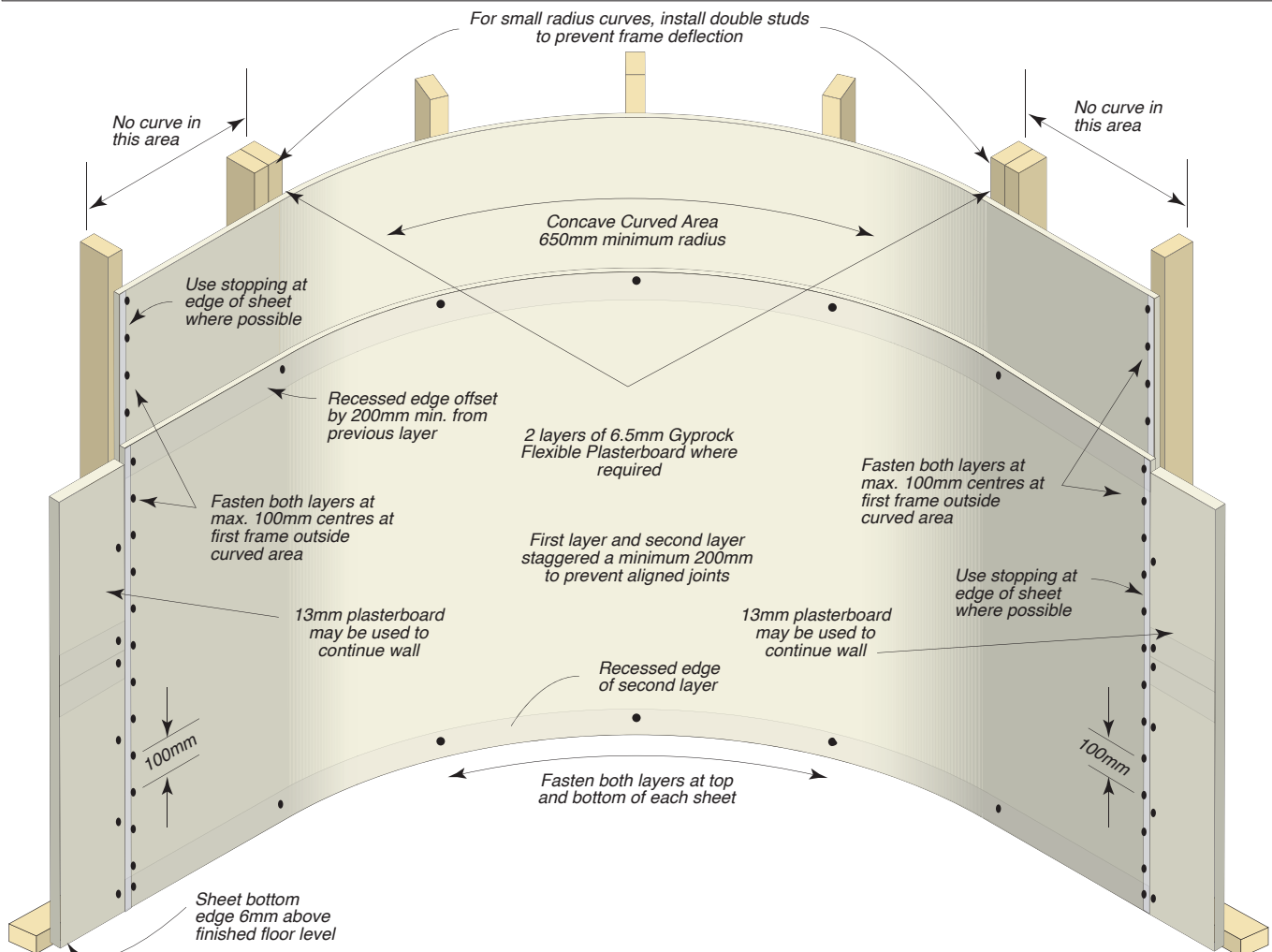


FIG 20: CONCAVE – HORIZONTAL SHEETING



Flexible Plasterboard Fixing for Convex Curves

Arrange sheets so that both layers of the flexible plasterboard extend at least one stud spacing beyond the curved area.

Attach one end/edge of the sheet to the framing member or substrate by fastening at the appropriate centres.

Beginning from the fixed end/edge, progressively work the sheet against the framing.

As the sheet makes contact with the framing, fix the sheet with the appropriate fasteners.

The second layer joints in the curved area should be staggered at least 200mm from the first layer to prevent aligned joints.

For radii less than 900mm, fix all layers at edges only as detailed. For radii greater than 900mm, also fix all layers in the field at 400mm max. centres to all framing. Avoid placing more screws than recommended into the plasterboard face within the curved area.

FIG 21: CONVEX – VERTICAL SHEETING

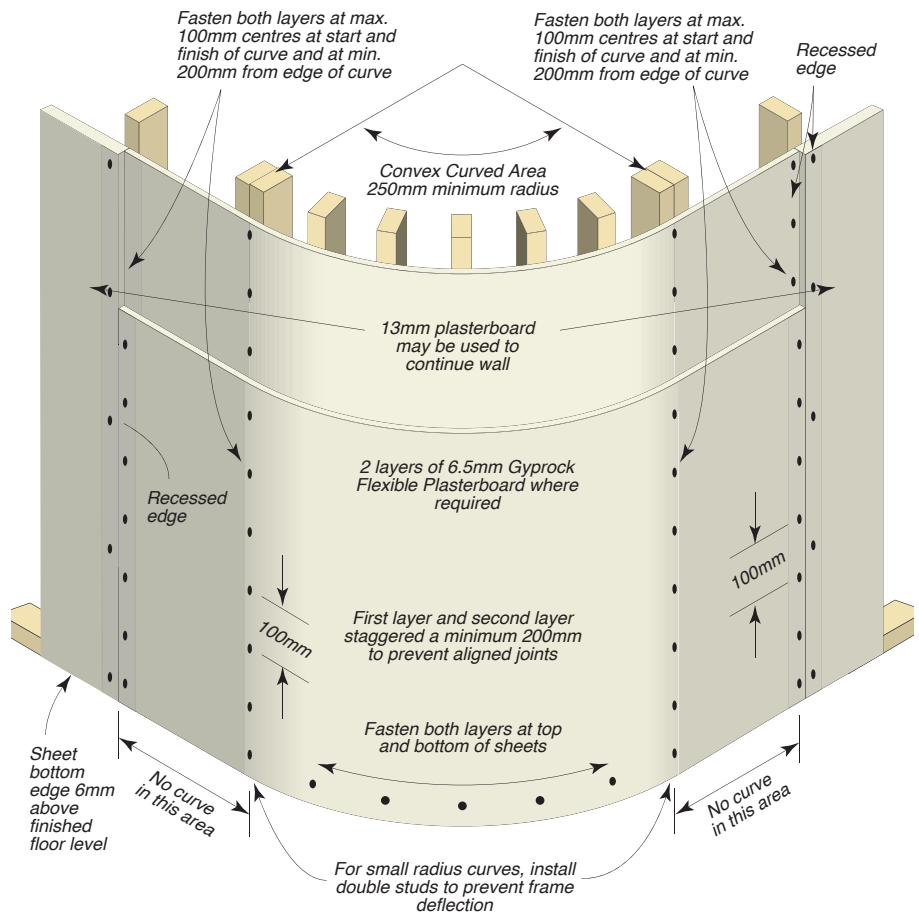
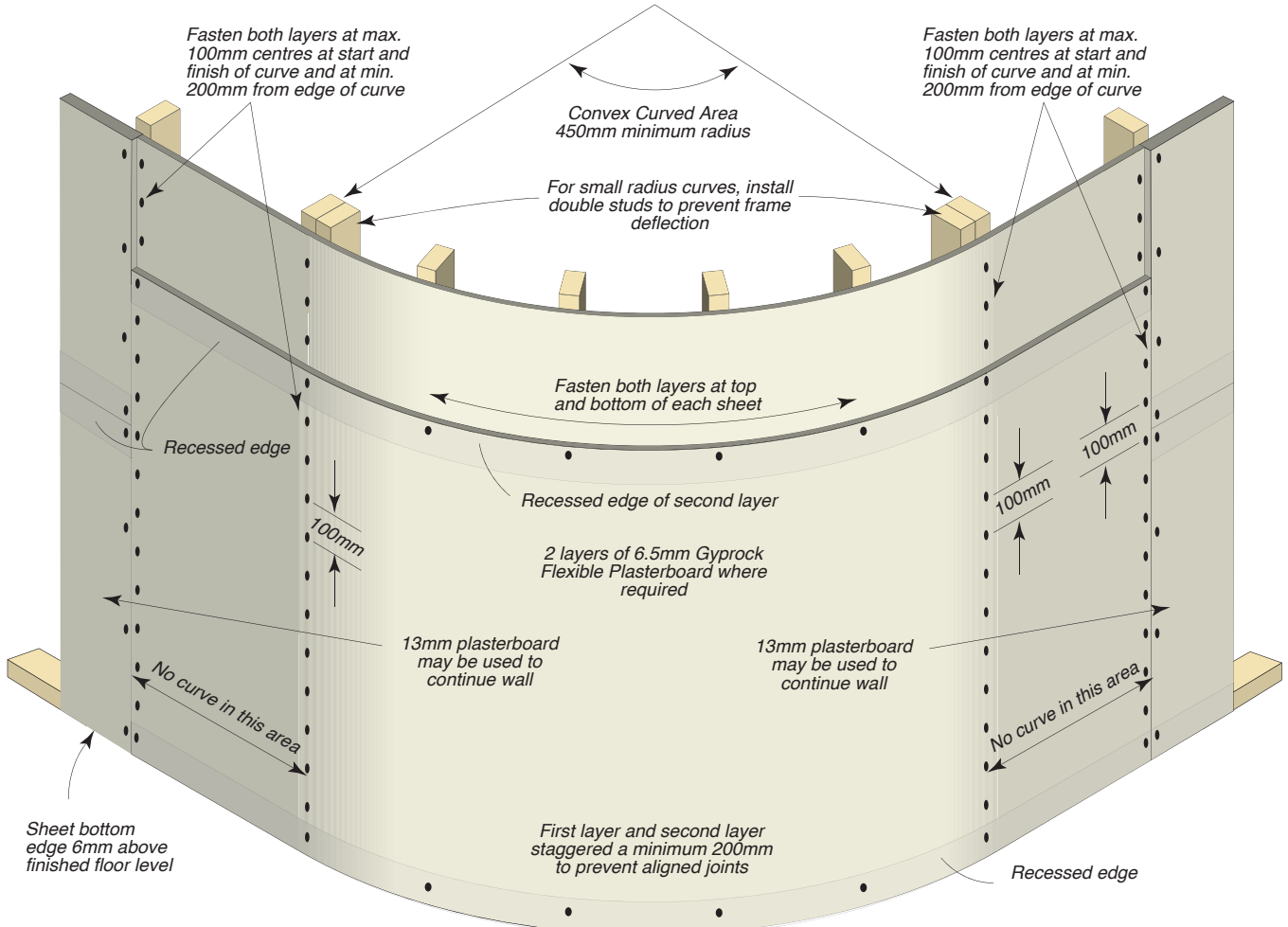


FIG 22: CONVEX – HORIZONTAL SHEETING



CONSTRUCTION DETAILS

Control Joints

The Gyprock Plasterboard Control Joint Part N°P35 is designed to form expansion or control joints in Gyprock plasterboard walls and ceilings.

The control joint is located between the sheets and set over. The filament tape is then removed leaving a clean, well-formed joint.

Door frames extending from floor to ceiling constitute control joints. For doors less than ceiling height, control joints extending from both corners of the frame to ceiling may be used.

Refer to "Control Joints" on page 6 for detailed location requirements.

INSTALLATION OF CONTROL JOINT

- Allow a 15-20mm gap between ends of Gyprock plasterboard sheets.
- Locate control joint, Rondo N°P35, centrally in gap. Fasten flanges and Gyprock plasterboard sheets to frame at a maximum of 300mm centres.
- Set over bead as for normal joint application using centre channel ribs as screeding guides.
- Finish the joint in the normal manner.
- When the joint is dry, remove the filament tape.

FIG 23: RONDO P35 CONTROL JOINT

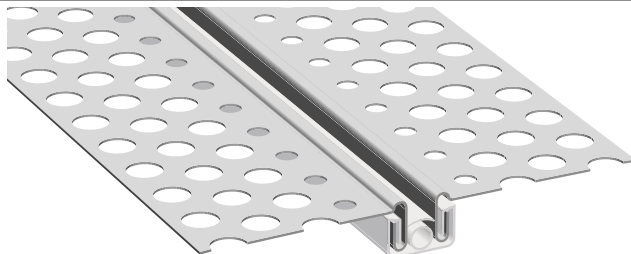


FIG 24: VERTICAL CONTROL JOINT WITH RONDO P35

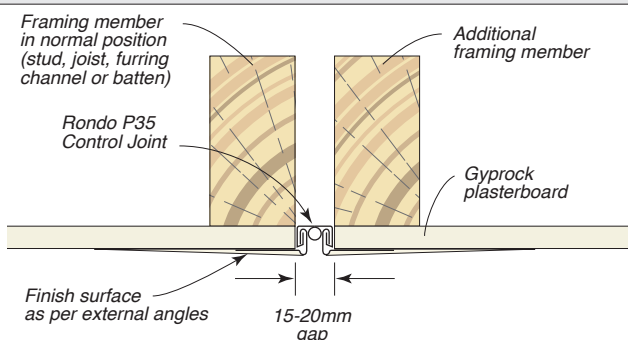


FIG 25: VERTICAL CONTROL JOINT – TILED WALL

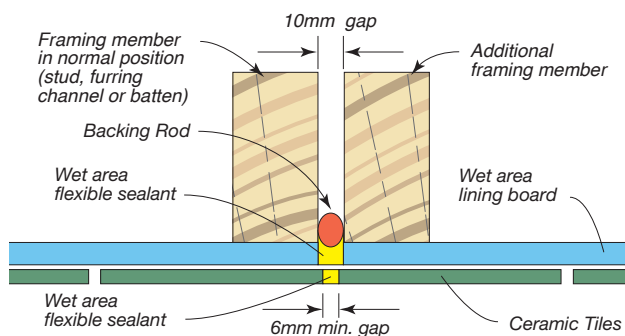


FIG 26: HORIZONTAL CONTROL JOINT WITH RONDO P35

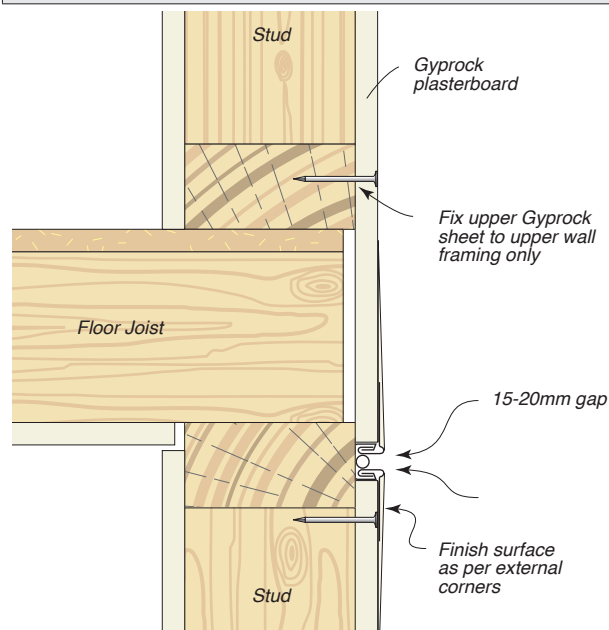
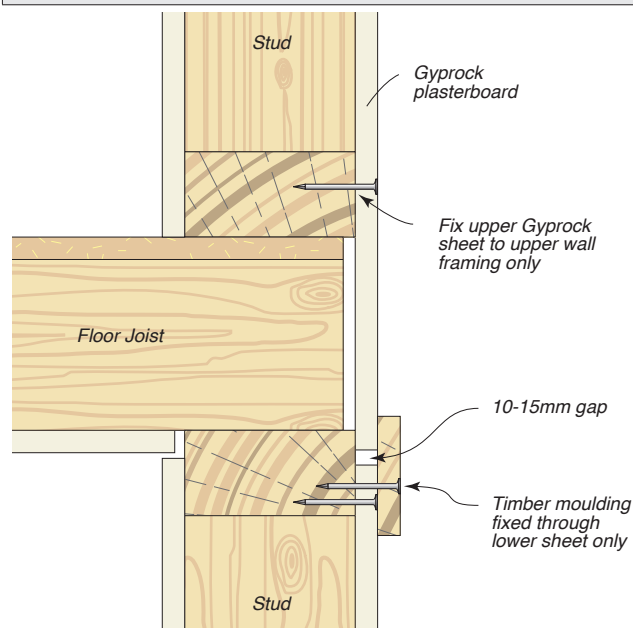


FIG 27: HORIZONTAL CONTROL JOINT WITH TIMBER MOULDING



Back-Blocking Methods

Back-blocking is a reinforcing system where pieces of Gyprock plasterboard are laminated to the back of the sheets, behind joints.

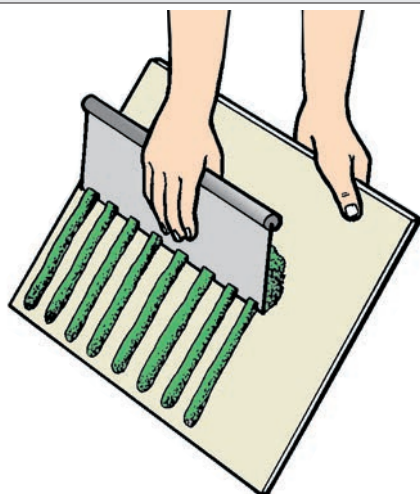
Back-blocking is to be used on all butt joints formed between framing members and on recessed joints where indicated. See requirements in Table 2.

Where mid-span butt or end joints are not required but are used to minimise plasterboard wastage, these joints must also be back-blocked.

All mid-span joints must be positioned within 50mm of the mid-span point between the framing members.

Fix back-blocks with Gyprock Back-Blocking Cement, Base Coat or Cornice Cement applied with a notched spreader to form beads 6mm x 6mm at approximately 20mm centres over the entire face of the back-block.

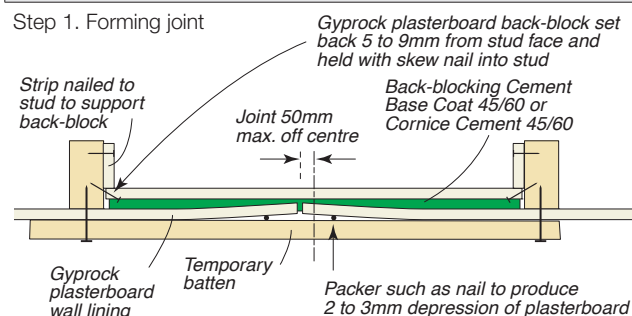
FIG 28: ADHESIVE APPLICATION TO BACK-BLOCK



Back-Blocking of Butt Joints on Walls

- Sheet ends should be neatly cut and butted together within 50mm of the centre line between the studs.
- Nail strips of Gyprock plasterboard to the sides of the studs to support the back-blocking over the full length of the joint. Position so that the face of the back-block will finish 5mm to 9mm behind the stud face.
- Cut back-blocking to fit neatly between the studs and fix by skew-nailing the edges back to the studs.
- Apply Gyprock Back-Blocking Cement, Base Coat or Cornice Cement to back-blocks as described previously.
- Fix Gyprock plasterboard wall sheets in place.
- Depress sheet ends at butt joint with battens and packing such as nails to form a 2mm deep depression as illustrated.
- Allow the adhesive to set for a minimum of 24 hours before removing the temporary battens. A hollow formation suitable for jointing remains, as illustrated.

FIG 29: BACK-BLOCKING OF BUTT JOINTS ON WALLS



Step 2. Ready for setting

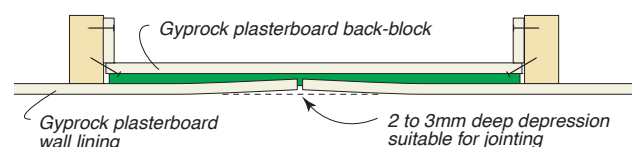
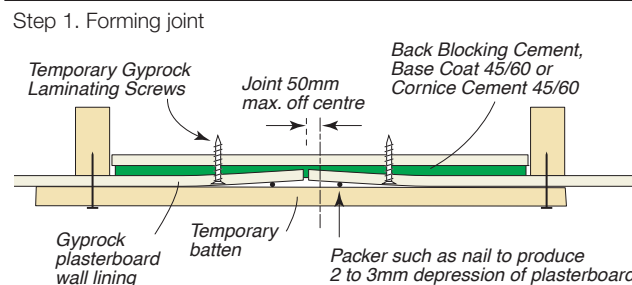
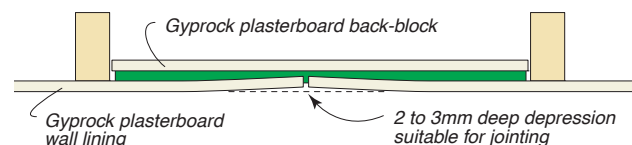


FIG 30: BACK-BLOCKING OF BUTT JOINTS ON WALLS (ALTERNATIVE METHOD)



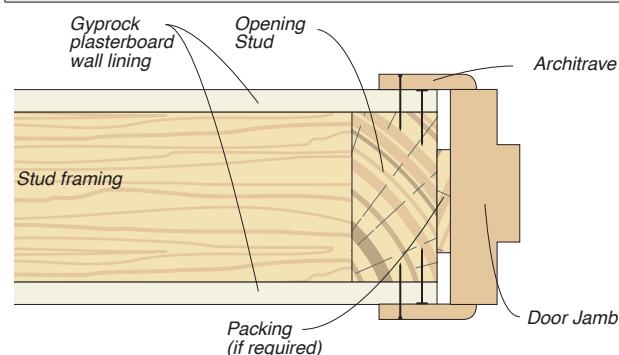
Step 2. Ready for setting



Timber Door Jambs

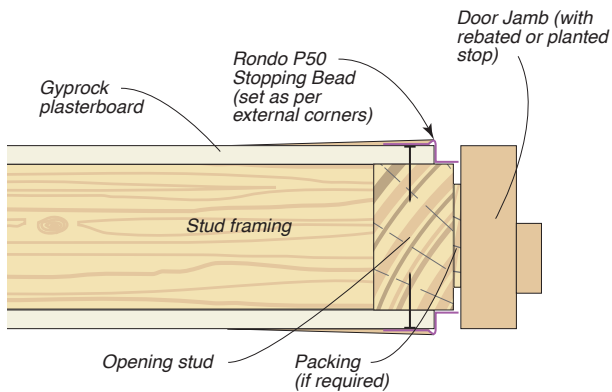
- Install Gyprock plasterboard to finish flush with the side of the opening stud.
- The appropriate width door jamb is then installed to the side of the opening stud (with packing as required).
- Architraves are then fitted over the junction of the plasterboard and the door jamb by fastening them through to the opening stud.

FIG 31: PLASTERBOARD FINISHING AT DOOR JAMB WITH ARCHITRAVE



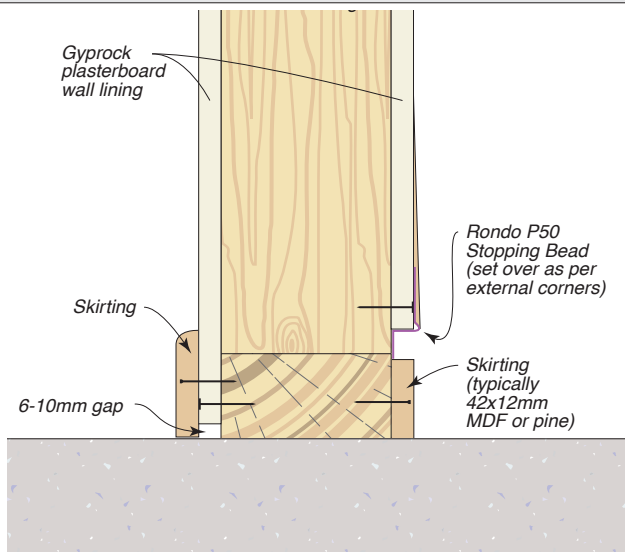
- Install Gyprock plasterboard to finish flush with the side of the opening stud.
- The appropriate width door jamb is then installed to the side of the opening stud (with packing as required).
- Trim plasterboard back to allow for P50 Stopping Bead.
- Fit P50 Stopping Bead and fix at 300mm max. centres.
- Set over bead as for external corners.

FIG 32: PLASTERBOARD FINISHING AT TIMBER DOOR JAMB WITH RONDO P50 STOPPING BEAD



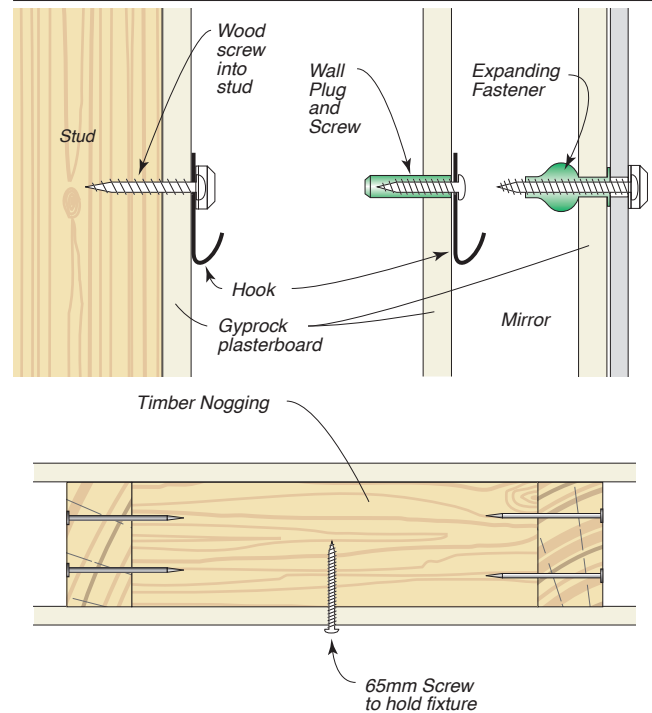
Skirting

FIG 33: TYPICAL PLASTERBOARD FINISHING AT SKIRTING



Attaching Fixtures

FIG 34: ATTACHING FIXTURES



FIRE RATED EXTERNAL WALL SYSTEM

Fire Rated External Wall Systems

In accordance with the fire safety requirements of the BCA, walls within close proximity to the property boundary or when exposed to a fire source are required to have a Fire Resistance Level (FRL). Walls may include:

- External walls within a Bushfire Attack Level – Flame Zone (BAL-FZ),
- External walls to Class 1 buildings within 900mm of the boundary, including Zero-Lot walls,
- External walls adjacent to an external fire source (such as an Electrical Sub-Station).

For more detailed fire system information, please refer to Gyprock publication, GYP500 – The Red Book™ Fire & Acoustic Design Guide.

Cemintel™ external cladding systems are suitable for use as part of a fire rated system. For additional information, refer to Cemintel installation guides or contact CSR DesignLINK.

Also refer to the BCA for additional requirements and further details.

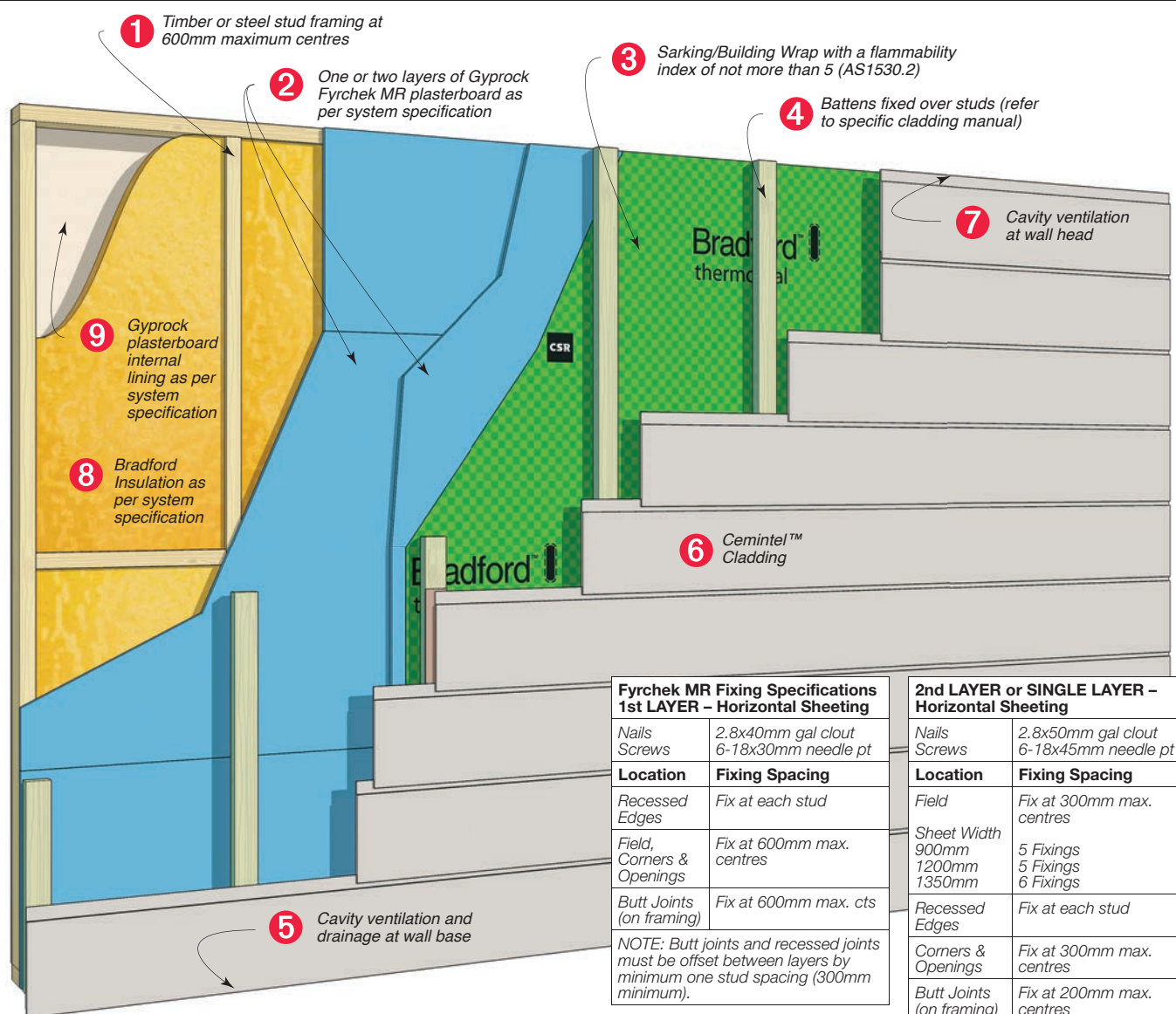
Bushfire Resistant Walls

In accordance with AS3959, Cemintel™ cladding products are suitable as an external wall lining for buildings in some bushfire zones. Refer to the Cemintel Construction Guide for Bushfire Areas for product suitability.

Cemintel™ clad walls used in bushfire zones may require battens to be fixed to the face of studs over appropriate wall wrap/sarking in accordance with FIG 35, and should include specific treatments such as mesh coverings at all gaps that exceed 3mm, including wall head, base, eaves and junctions with roofs, etc., to ensure appropriate fire and ember resistance. Refer to the BCA and AS3959 for additional requirements and further details.

Also refer to the publication Bushfire Roofing Systems Design Guide for assistance with roofing designs – available at www.bradfordinsulation.com.au.

FIG 35: TYPICAL CEMINTEL CLADDING AND GYPROCK PLASTERBOARD FIRE RATED EXTERNAL WALL SYSTEM



WET AREA LINING SYSTEMS

INTRODUCTION

CSR Gyprock has developed waterproof systems for wet areas based on AS3740. The systems use a range of moisture resistant plasterboards including Gyprock Aquachek, Fyrchek MR, Sensitive, EC08 Impact MR, and EC08 Complete. Information in this section is based on Gyprock Aquachek, however any of the water resistant Gyprock plasterboards may be used.

The development of Gyprock Wet Area Lining Systems and the recommendations contained in this publication have evolved from years of extensive research conducted by CSR Building Materials Research Centre and the Building Research Centre of the University of New South Wales, and meet or exceed the requirements of AS3740.

DESCRIPTION

Gyprock Aquachek is a gypsum plasterboard with the core, face and back treated in manufacture to make it resistant to moisture and humidity. It is coloured light blue for easy identification. It is manufactured to satisfy the requirements of AS/NZS2588 for water resistant grade plasterboard.

Gyprock Aquachek is designed specifically for use in lining the walls of kitchens, bathrooms, laundries, toilets or areas commonly known as 'wet areas' in dwellings and commercial buildings.

Gyprock Aquachek is not subject to moisture movement, therefore it provides an excellent stable substrate for ceramic tiles. It is made with a recessed edge so that joints between sheets can be taped and set with appropriate Gyprock jointing materials. Where Gyprock Aquachek extends beyond the tiled area, it can be decorated by painting, wall papering and other decorative mediums.

Gyprock Aquachek has extremely low water absorption characteristics compared to other lining materials, therefore eliminating the possibility of water wicking up the lining board causing subsequent damage to the structure or finishing systems.

APPLICATIONS

The Building Code of Australia allows that wet areas in Class 1, 2, & 3 buildings may be treated in accordance with AS3740. Additional requirements that may apply in some states are not included in this manual.

Wet areas are defined as areas within a building that are supplied with water. They include bathrooms, showers, laundries and toilets, and exclude kitchens, bars and other food preparation areas. The BCA specifies which walls, floors, junctions and penetrations are to be treated as waterproof or water-resistant.

This manual considers the treatment of walls and wall/floor junctions in these areas.

Extent of protection for:

Wet area walls in showers

- a) In an enclosed shower, the walls up to 1800mm high to be water resistant. Internal and external corners to 1800mm high, and wall to floor junctions within the enclosure, to be waterproof.
- b) In an unenclosed shower, as for an enclosed shower but extending to 1500mm (horizontal projection) from the shower rose.
- c) In a shower-over-bath situation, as for unenclosed shower except wall requirement may terminate at a suitable fixed shower screen. Horizontal surfaces supporting baths to be waterproof.

Refer to details in the following section.

Wet area walls outside showers

- a) Wall to floor junctions to be waterproof.
- b) The wall 150mm above a bath and any fixed vessel such as a basin, sink, or tub if it is within 75mm of the wall, to be water resistant.

Refer to details in the following section.

For walls required to be waterproof or water resistant, tiles and a waterproof membrane are recommended over Gyprock Aquachek plasterboard.

There are no requirements for treatment to ceilings of wet areas. Ceilings may be lined with Aquachek or Gyprock Standard plasterboard as for other areas of the building.

ADVANTAGES

The advantages of Gyprock Aquachek plasterboard for wet areas include:

- Simple dry wall installation.
- Low in-place cost.
- Smooth, even finish.
- Dimensional stability.
- Low maintenance.
- Suitable for timber and steel framed walls, Hebel AAC blocks or panels and masonry walls.
- Allows flush jointing to other Gyprock plasterboards.
- 10 or 13mm uniform thickness suits standard door and window frame widths.
- A substrate suitable for both tile and paint finishes.

COMPONENTS

Gyprock Moisture Resistant Plasterboards

Refer to detailed information in the 'Components' section at the beginning of this publication. Please contact your CSR Gyprock Sales Office in your region for details of stock sheet widths and thicknesses available.

Where Cemintel Wallboard is to be used, additional information is available in FC101 Cemintel Wet Area Systems Installation Guide.

Fasteners

Refer to details in the "COMPONENTS" on page 16 of this publication.

Jointing Materials

- Gyprock Wet Area Base Coat.
- Gyprock Paper Joint Reinforcing Tape.
- Gyprock finishing compounds (non tiled areas only).

Gyprock Wet Area Base Coat is recommended for all set sheet joints of walls required to be waterproof or water resistant. Refer to the 'Jointing & Finishing' section of this guide for detailed information.

Where sheets are to be a substrate for tiling, set corners with paper tape and two coats of Wet Area Base Coat. Cover all fastener heads with Wet Area Base Coat.

Joints in non-tiled areas (that are not designated wet areas) may be finished with Gyprock finishing compounds.

Flexible Sealant

Gyprock Wet Area Acrylic Sealant is used to seal the edge of the Gyprock Aquachek against other surfaces such as a preformed shower base or bath and around plumbing fixtures. Gyprock Wet Area Acrylic Sealant may be painted if required after it is fully cured.

Waterproof Membrane*

A proprietary impervious barrier assessed and classified in accordance with AS4858.

Bond Breaker*

Tape used at wall to floor junctions and movement joints and compatible with the proprietary membrane.

Vertical Corner Flashing

- External Vertical Flashing Angle: PVC angle 50 x 50mm. For use with external shower trays.
- Internal Vertical Flashing*: A liquid applied membrane assessed and classified in accordance with AS4858, for use with internal shower trays.

Perimeter Flashing

- Perimeter Flashing Angle: PVC angle 75 x 50mm.
- Perimeter Flashing for Step-Down Slab: Such as Hypalon Flashing Strip* 130mm width.
- Proprietary Insitu Membranes*: Such A proprietary impervious barrier assessed and classified in accordance with AS4858.

NOTE: * Products supplied by others.

STUD FRAMING

Ensure that all timber or steel framing members to receive sheeting are plumb and true in accordance with the chosen Level of Finish, and studs are spaced at a maximum 600mm centres and in accordance with TABLE 8 on page 20.

Provide noggings at 25mm above bath, purpose made shower base or sink/tub to support edges of Gyprock Aquachek.

Provide suitable noggings to support the bath and other fixtures such as soap holders, hand rails and towel rails.

Wall framing around bath enclosures and shower bases should be checked out to accommodate the bath or shower base flange, or alternatively, should be packed by furring to ensure that the face of the Gyprock Aquachek will finish in front of the upturn on the receptacle.

When a perimeter angle flashing is used, the Gyprock Aquachek sheet must not be fixed through the angle flashing to the bottom plate. An additional row of noggings must be placed 25mm above the flashing to allow the sheets to be fastened.

PLASTERBOARD INSTALLATION

Generally, Gyprock Aquachek wall sheets are applied horizontally, unless a single sheet covers the whole wall.

Fasteners are to be positioned between 10 and 16mm from sheet edges and at appropriate spacing for the application. Sheets are to be held firmly against frame while fasteners are positioned.

Fasteners are to be driven home with the head slightly below the surface of the sheet, but not punched through the face linerboard. Care should be taken to avoid damaging the face or core of the plasterboard.

Stagger butt joints between different framing members.

Refer to FIG 12 for detailed installation information.

Non Tiled Areas

Gyprock Aquachek sheets installed in non-tiled areas should be fixed and set in accordance with Level 4 or Level 5 Finish methods as detailed elsewhere in this publication.

Tiled Areas

Where Gyprock Aquachek is applied as a substrate for tiles, the sheets must be fastened with nails or screws only. **Adhesive/fastener fixing is not acceptable.** Installation should be to Level 3 Finish.

All tiling must be installed in accordance with the requirements of AS3958.1. Additional information on tiling may be obtained from the BRANZ publication 'Good Tiling Practice'.

Where a waterproof membrane is used, ceramic tiles are recommended. A tile adhesive that is compatible with the membrane must be used and comply with AS/ISO13007.

Refer to FIG 12 for detailed installation information.

CONSTRUCTION DETAILS – SHOWER, BATH & BASIN AREAS

Enclosed Shower with Preformed Base/Tray

A preformed shower base/tray has the advantage of being easy to install over floors of timber, compressed fibre cement sheet and concrete slabs, as well as ensuring that the wall linings are kept clear of any free water likely to accumulate on the shower floor.

A number of treatments for the shower wall junctions are available depending on the class of membrane. Membranes are classified as Class 1, Class 2 or Class 3, with Class 3 having the greatest elongation capabilities.

- A preformed shower base/tray must be installed before the wall linings. Cut and install PVC angle to internal corner, fixing the angle to studs at 600mm centres. Carry angle down over the shower base/tray lip, stopping 6mm above shower base or floor finish. PVC angle is to extend a minimum height of 1800mm from the finished floor surface.
- Cut and fix the Gyprock Aquachek, leaving a 6mm gap between the bottom edge of the sheet and the shower base or floor finish, and where detailed, between sheets forming an internal corner. Neatly cut holes for plumbing penetrations.
- Caulk around plumbing penetrations, and, where detailed, at sheet bases and internal corners with flexible sealant.
- Joint plasterboard with Gyprock Wet Area Base Coat and paper tape.
- An appropriate liquid membrane is applied to the face of the Gyprock Aquachek plasterboard before tiling. Follow respective manufacturers' instructions. Apply membrane to the entire shower area to a minimum height of 1800mm from the finished floor surface. The membrane should extend 50mm minimum outside the shower area.
- A compatible tile adhesive must be used to fix tiles to the membrane.

Refer to FIG 36 to FIG 39 and FIG 49 to FIG 51.



FIG 36: PREFORMED SHOWER BASE

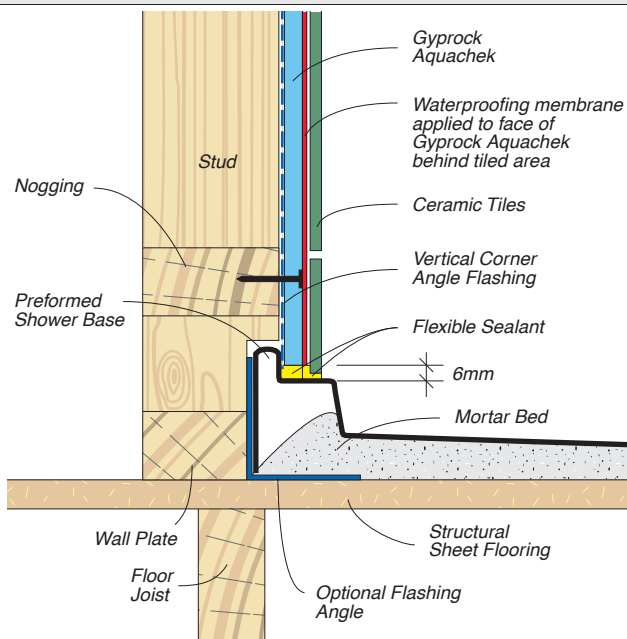


FIG 38: PREFORMED SHOWER TRAY

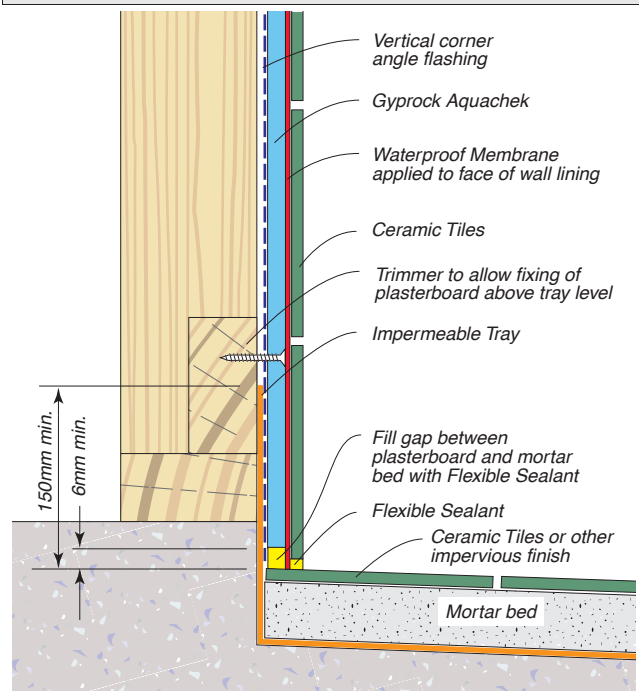


FIG 37: TYPICAL DETAIL FOR PREFORMED SHOWER BASE

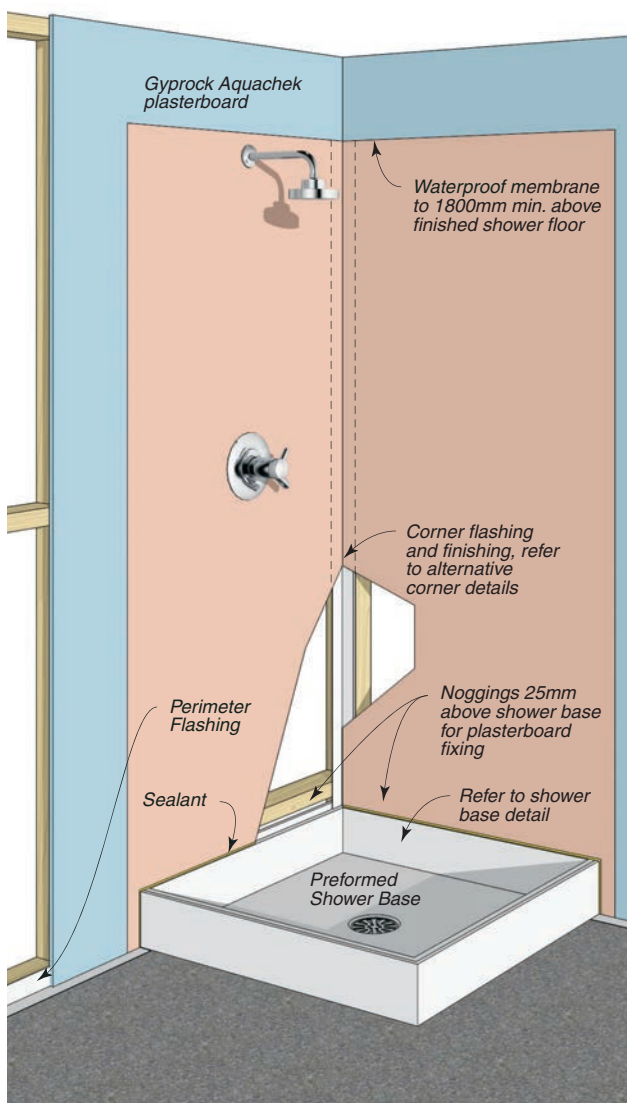
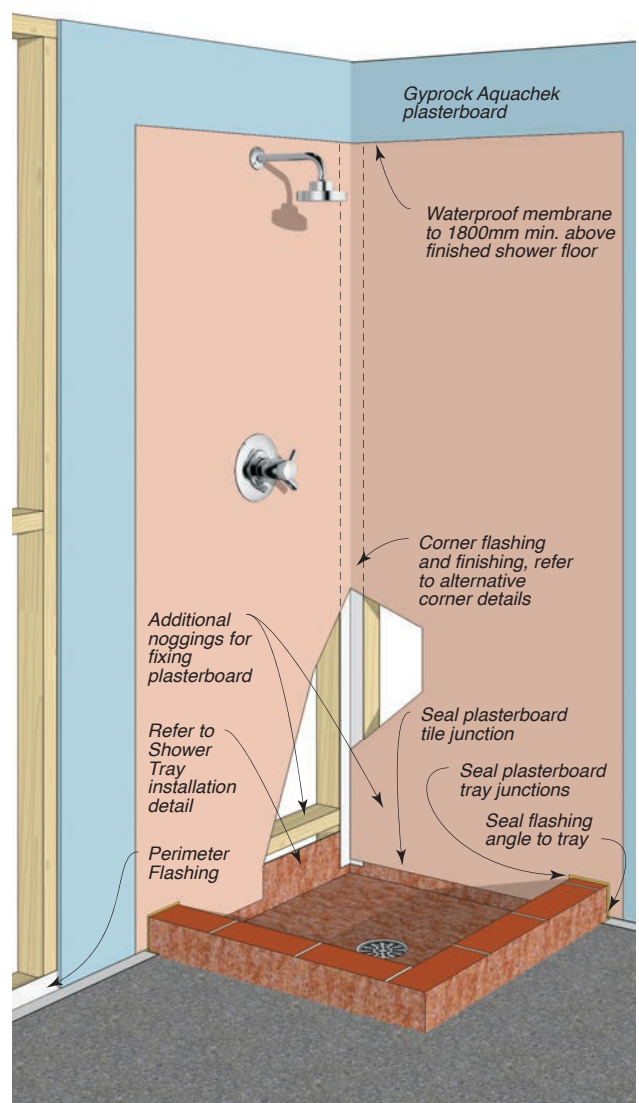


FIG 39: TYPICAL DETAIL FOR PREFORMED SHOWER TRAY



Enclosed Shower with Insitu-Formed Shower Membrane

Shower floors may be formed with a mortar bed and waterproof membrane. A number of treatments for the shower wall/floor are available depending on the class of membrane. Membranes are classified as Class 1, Class 2 or Class 3, with Class 3 having the greatest elongation capabilities.

- Cut and install PVC angle to the wall/floor junction if required. Fix to floor only.
- Cut and install PVC angle to internal corner, fixing the angle to studs at 600mm centres. PVC angle is to extend from 6mm above to a minimum height of 1800mm above the finished floor surface.
- Cut and fix the Gyprock Aquachek, leaving a 6mm gap between the bottom edge of the sheet and the shower floor, and where detailed, between sheets forming an internal corner. Neatly cut holes for plumbing penetrations.
- Caulk around plumbing penetrations, and, where detailed, at sheet bases and internal corners with flexible sealant.
- Joint plasterboard with Gyprock Wet Area Base Coat and paper tape.
- An appropriate liquid membrane is applied to the face of the Gyprock Aquachek plasterboard and floor to form an insitu tray. Follow respective manufacturers' instructions. Apply membrane to the entire shower area to a minimum height of 1800mm from the finished floor surface. The membrane should extend 50mm minimum outside the shower area.
- A compatible tile adhesive must be used to fix tiles to the membrane.

Refer to FIG 40 to FIG 44 and FIG 49 to FIG 51.

FIG 41: INSITU-FORMED SHOWER RECESS – CLASS 2 MEMBRANE

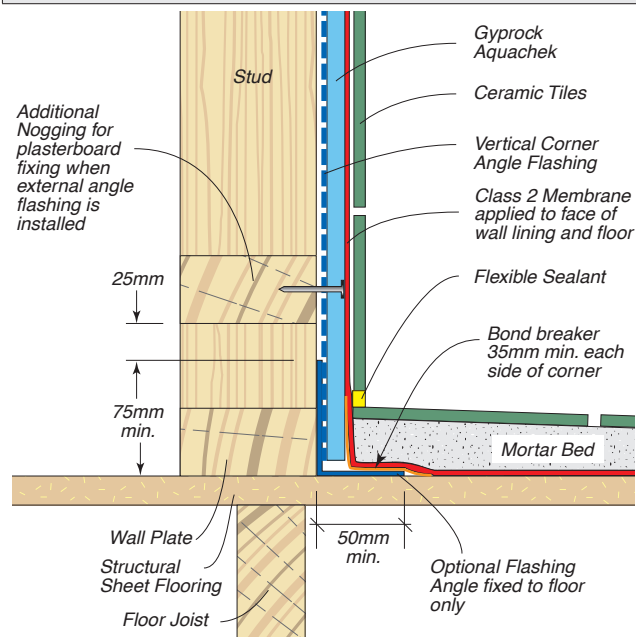


FIG 40: INSITU-FORMED SHOWER RECESS – CLASS 1 MEMBRANE

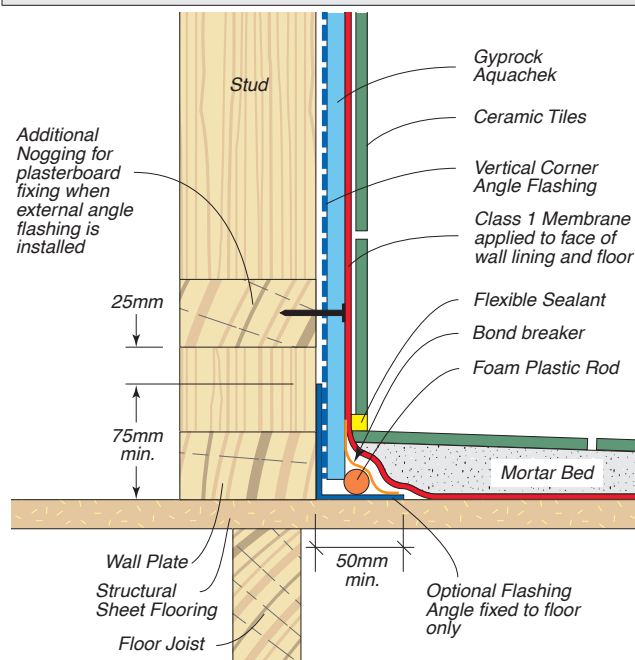


FIG 42: INSITU-FORMED SHOWER RECESS – CLASS 3 MEMBRANE

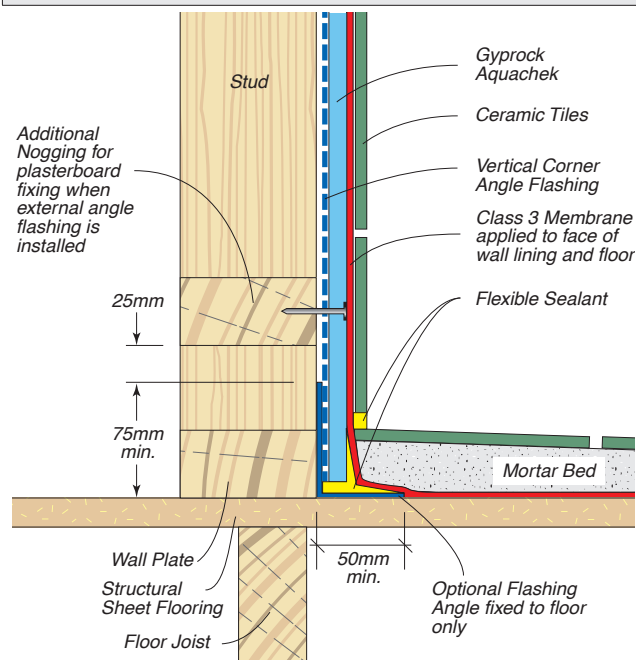


FIG 43: INSITU-FORMED SHOWER RECESS WITH HOB

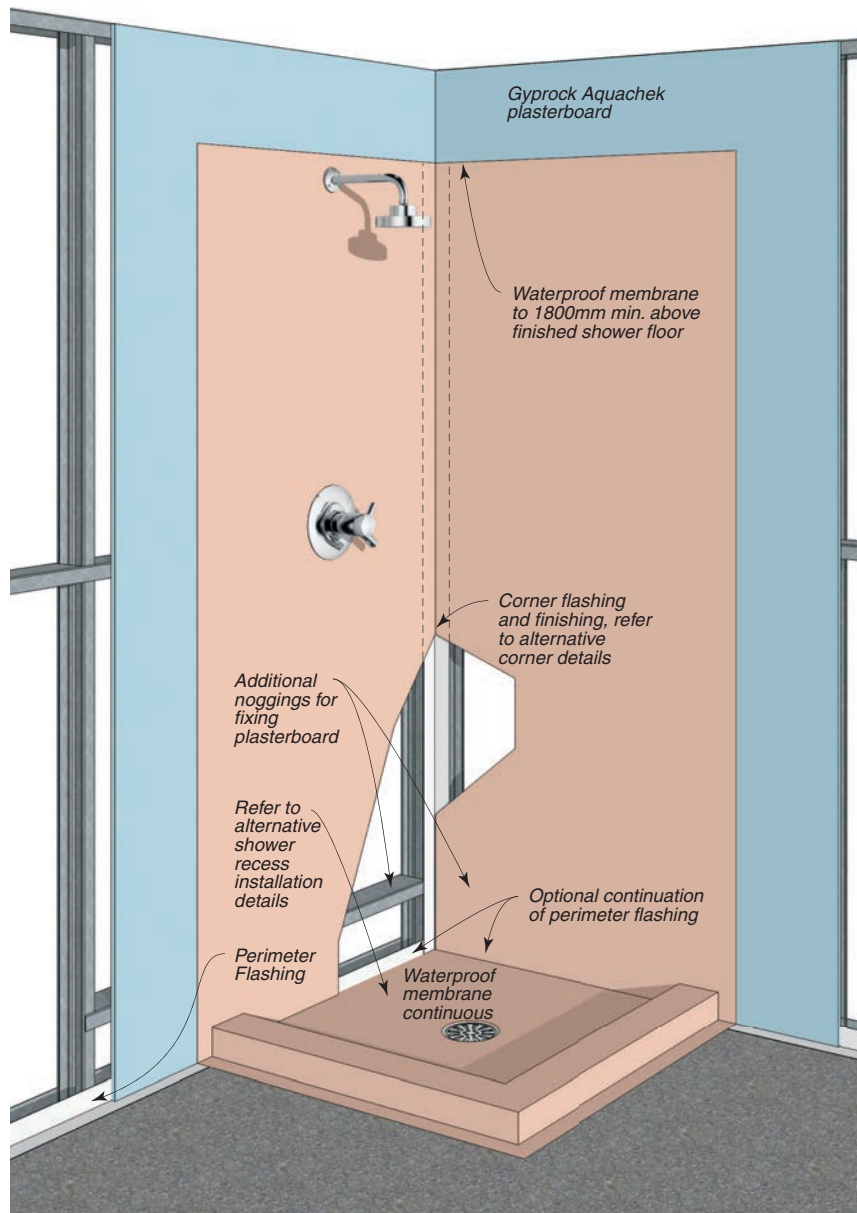
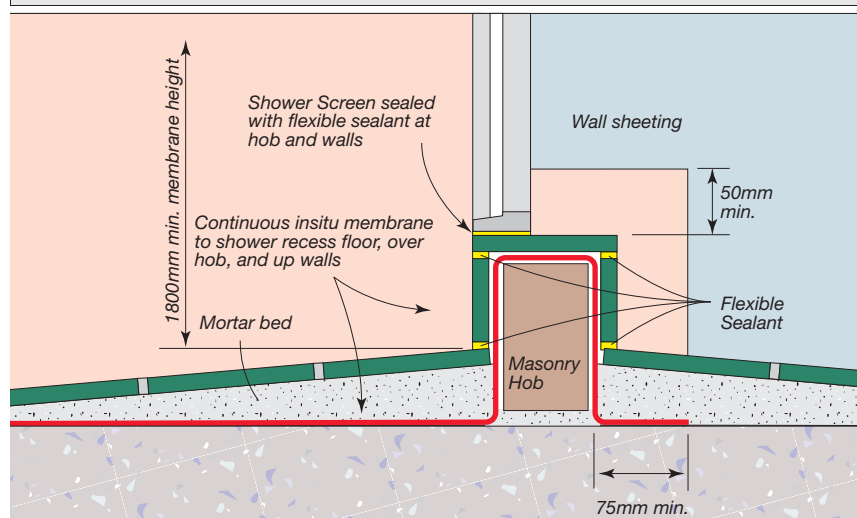


FIG 44: INSITU-FORMED SHOWER RECESS WITH HOB



Enclosed Shower Area – Masonry Walls with Preformed Shower Base

- Install furring (steel channel or timber) at maximum 600mm centres using appropriate masonry fixings.
- Place noggings between furring, at finished floor level and 25mm above a bath, purpose-made shower base or sink/tub to support the edges of sheets.
- Provide suitable noggings to support the bath and other fixtures such as soap holders and towel rails.
- Fix Gyprock Aquachek sheets to metal furring with Type S Needle Point Screws.
- Fix to Part N° 333 with 20mm screws.
- Fix to Part N°129 and 308 with 25mm screws.
- Fit plasterers/PVC angle vertically to internal corners from 1800mm above floor level down into the shower base, stopping 6mm above the shower base. Fix to framing at 600mm vertical centres. Refer to FIG 49.
- Cut and fix the Gyprock Aquachek, leaving a 6mm gap between the bottom edge of the sheet and the shower base, and where detailed, between sheets forming an internal corner. Neatly cut holes for plumbing penetrations.
- Caulk around plumbing penetrations, and, where detailed, at sheet bases and internal corners with flexible sealant.
- Joint plasterboard with Gyprock Wet Area Base Coat and paper tape.
- Seal face of Gyprock Aquachek to 1800mm minimum above the floor with a waterproof membrane.

Refer to FIG 37, FIG 39, FIG 45 and FIG 49 to FIG 51.

Insitu-Formed Shower Recess – Ceramic Tiled

- Cut and install PVC angle to the wall/floor junction if required. Fix to floor only.
- Fit plasterers/PVC angle vertically to internal corners from 1800mm above floor level, stopping 6mm above floor level. Fix to studs at 600mm vertical centres.
- Cut and fix the Gyprock Aquachek, leaving a 6mm gap between the bottom edge of the sheet and the floor/ flashing, and where detailed, between sheets forming an internal corner. Neatly cut holes for plumbing penetrations.
- Caulk around plumbing penetrations, and, where detailed, at sheet bases and internal corners with flexible sealant.
- Joint plasterboard with Gyprock Wet Area Base Coat and paper tape.
- Proprietary waterproof membrane materials are to be applied to the face of the Gyprock Aquachek and floor to form an insitu tray. Seal face of Gyprock Aquachek to 1800mm minimum above the floor with a waterproof membrane.
- Refer to FIG 43, FIG 44 and FIG 49 to FIG 51.

FIG 45: PREFORMED SHOWER BASE

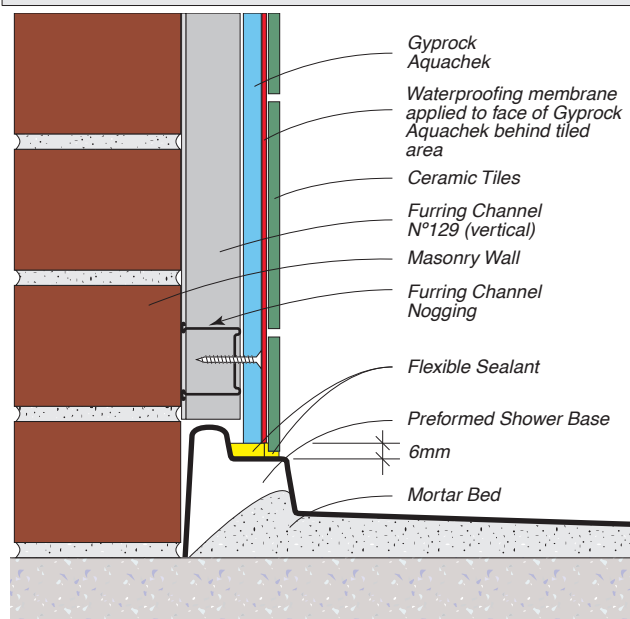
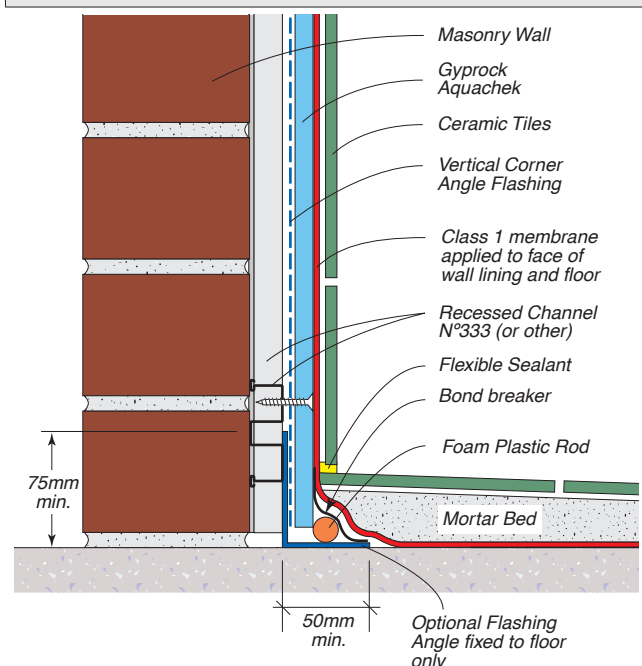


FIG 46: INSITU-FORMED SHOWER RECESS – CERAMIC TILED



Shower Over Bath & Unenclosed Shower

- Cut and install PVC angle to internal corner, fixing the angle to studs at 600mm centres. PVC angle is to extend from 6mm above the bath to 1800mm minimum above the finished floor surface. Install flashing angle to wall/floor junction.
- Cut and fix the Gyprock Aquachek, leaving a 6mm gap between the sheet and the floor, the sheet and the bath, and where detailed, between sheets forming internal corner. Neatly cut holes for plumbing and bath penetrations.
- Caulk around plumbing penetrations, and, where detailed, at sheet bases and internal corners with flexible sealant.
- Joint plasterboard with Gyprock Wet Area Base Coat and paper tape.
- Proprietary liquid membrane materials are applied to the face of the Gyprock Aquachek and the floor.
- A compatible tile adhesive must be used to fix tiles to the membrane.
- Extent of floor treatment is shown for fibre cement or concrete flooring only. For timber based flooring, waterproof entire floor.
- Refer to FIG 47, FIG 48 and FIG 49 to FIG 51.

FIG 47: MEMBRANE DETAIL FOR AN UNENCLOSED SHOWER OVER BATH OR SHOWER AREA

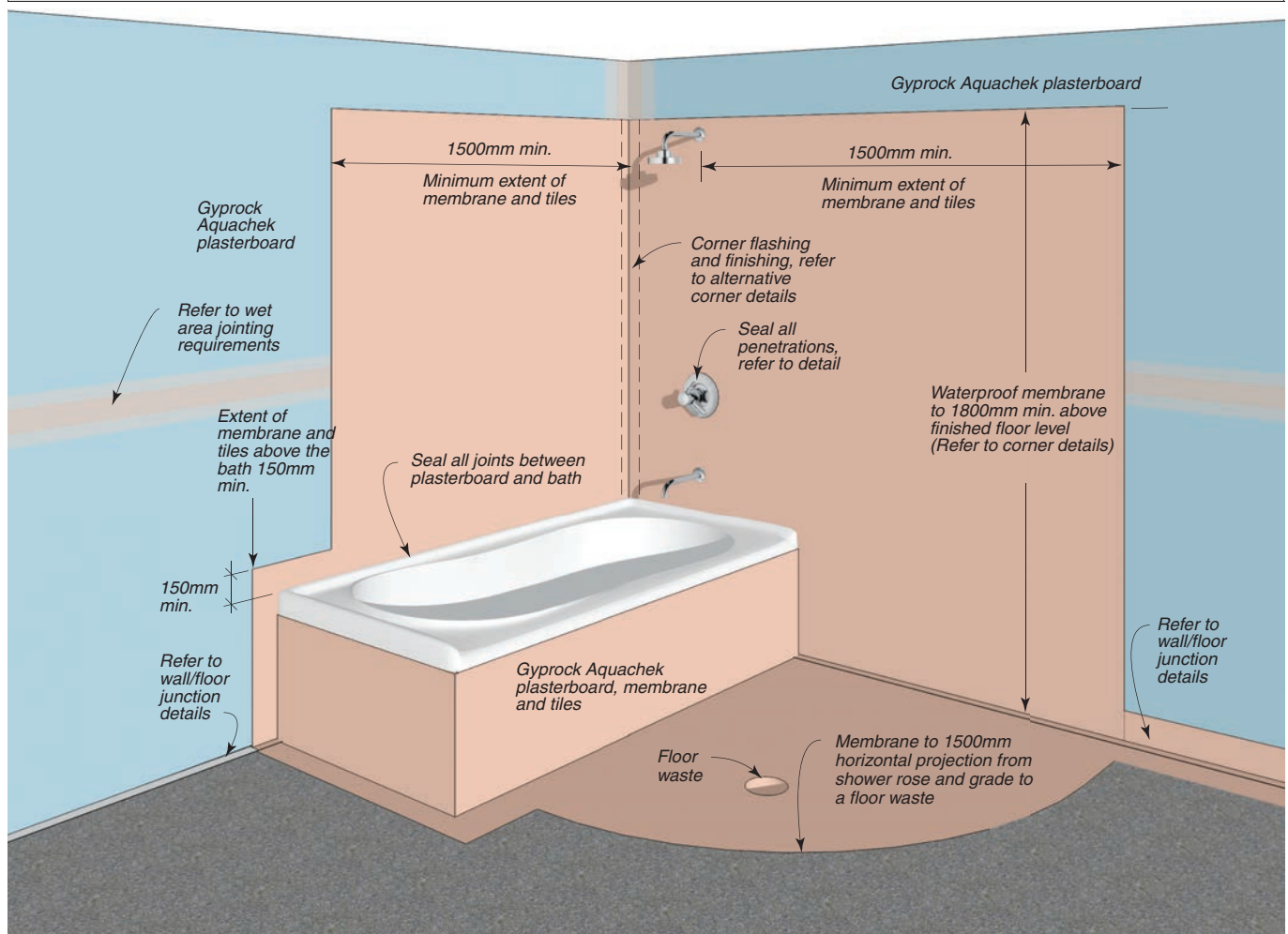
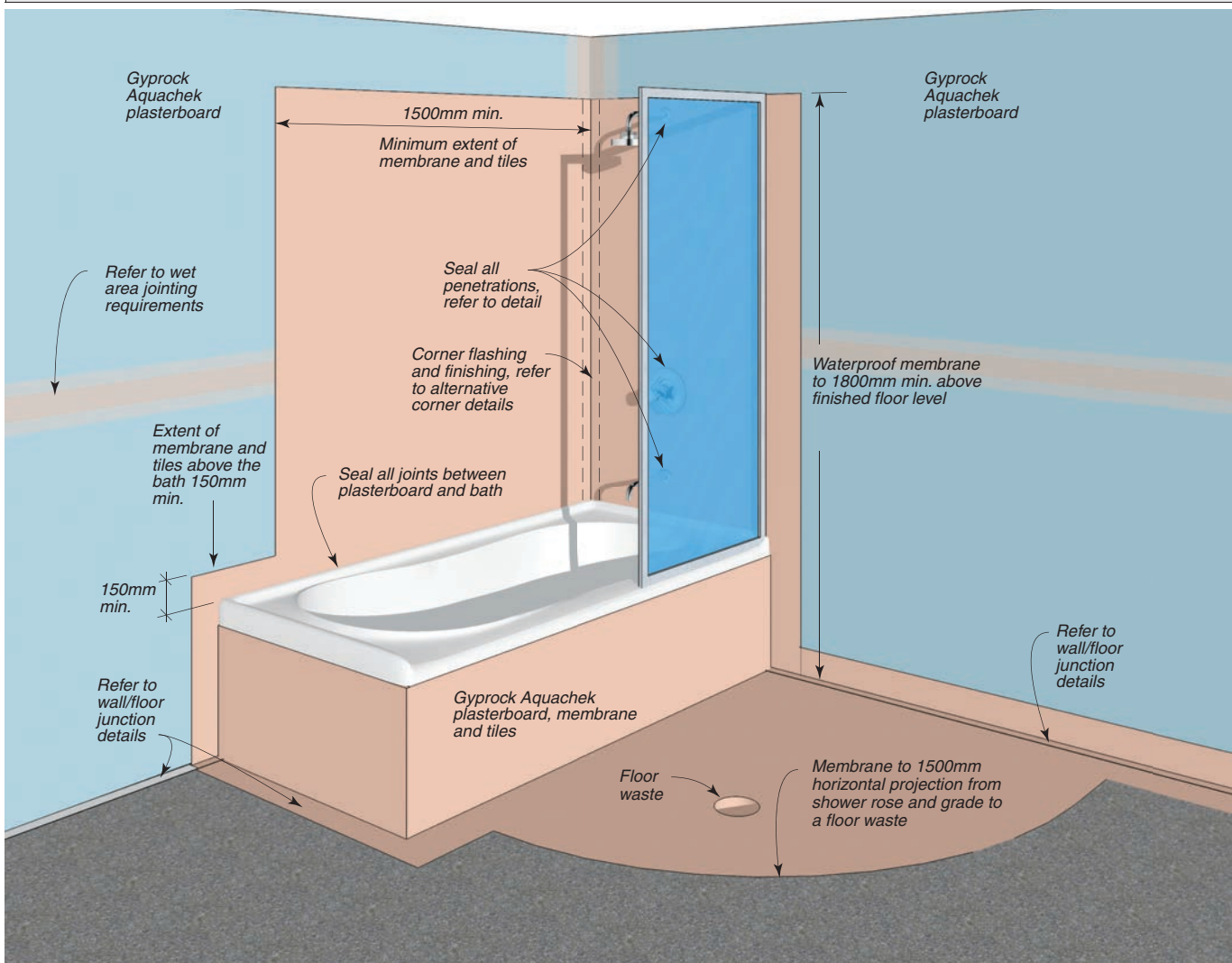


FIG 48: MEMBRANE DETAIL FOR A SEMI-ENCLOSED SHOWER OVER BATH OR SHOWER AREA



Corner Details for Shower Recess Areas

FIG 49: INTERNAL CORNER DETAIL – CLASS 1, 2 OR 3 MEMBRANE

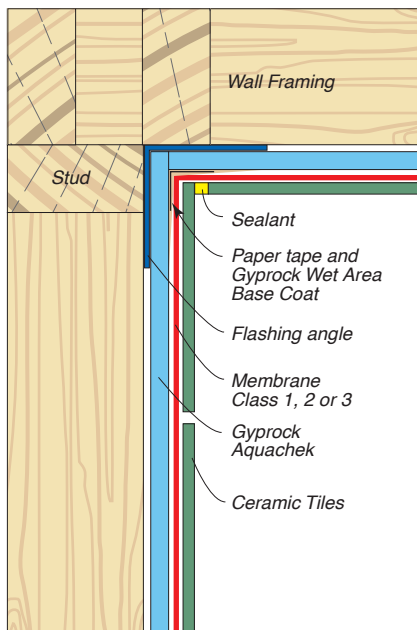


FIG 50: INTERNAL CORNER DETAIL – CLASS 2 MEMBRANE

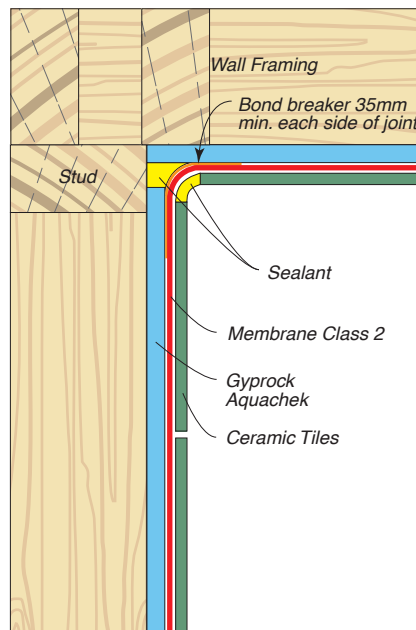
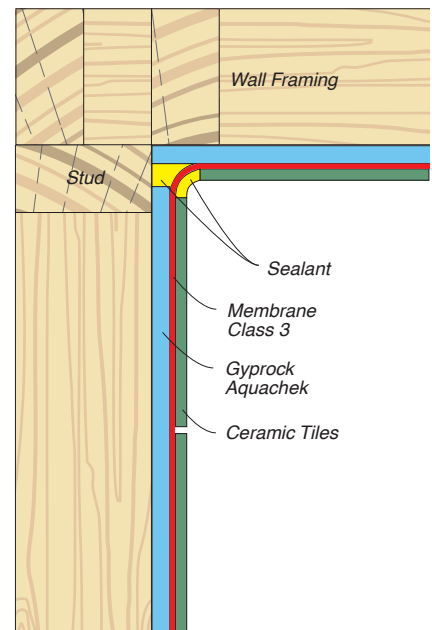


FIG 51: INTERNAL CORNER DETAIL – CLASS 3 MEMBRANE



Bath & Basin

Refer to previous construction methods detailed for Shower Over Bath installations and the following details.

FIG 52: INSTALLATION LAYOUT FOR A BATH WITHOUT SHOWER

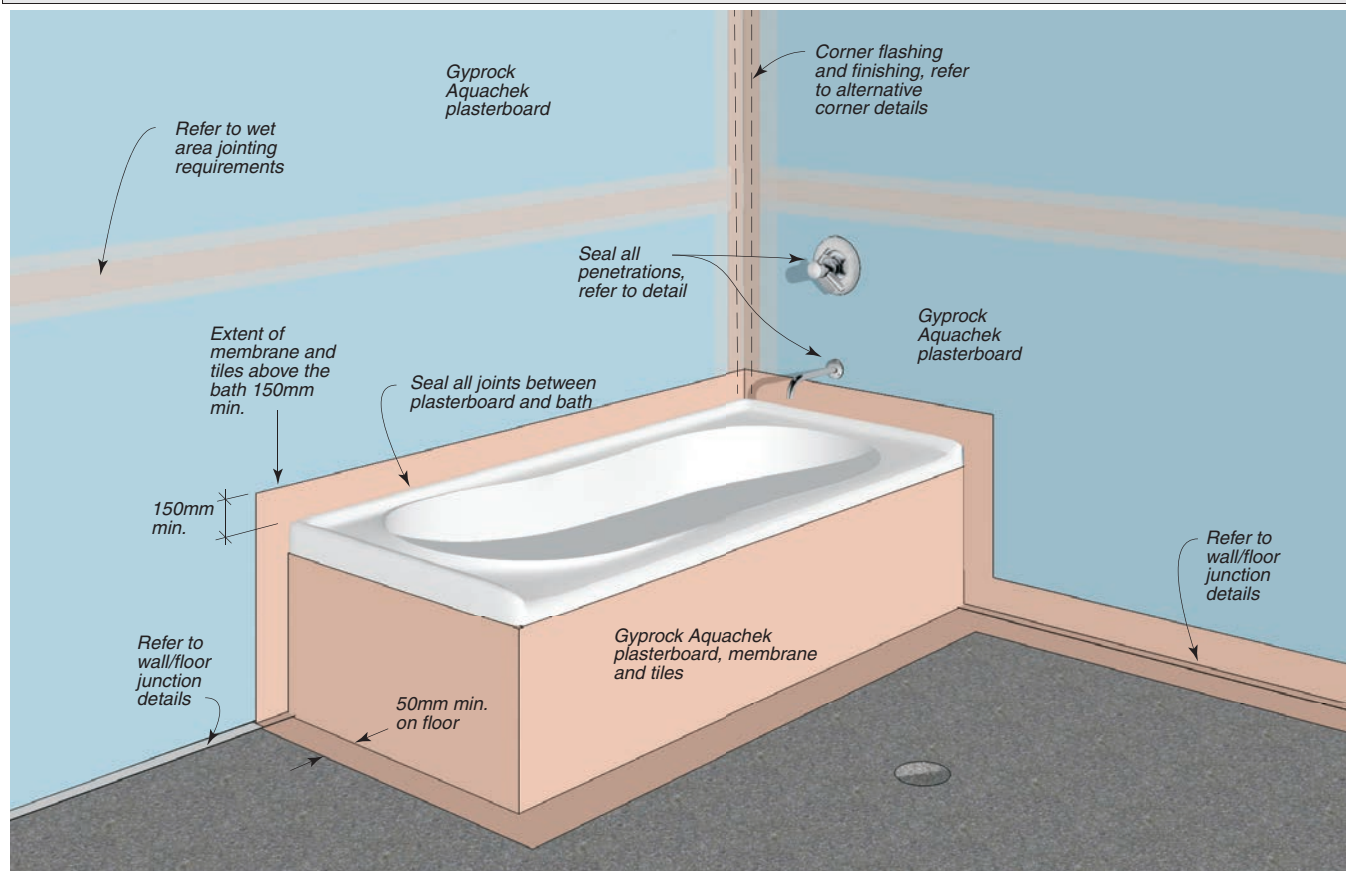


FIG 53: BATH INSTALLATION

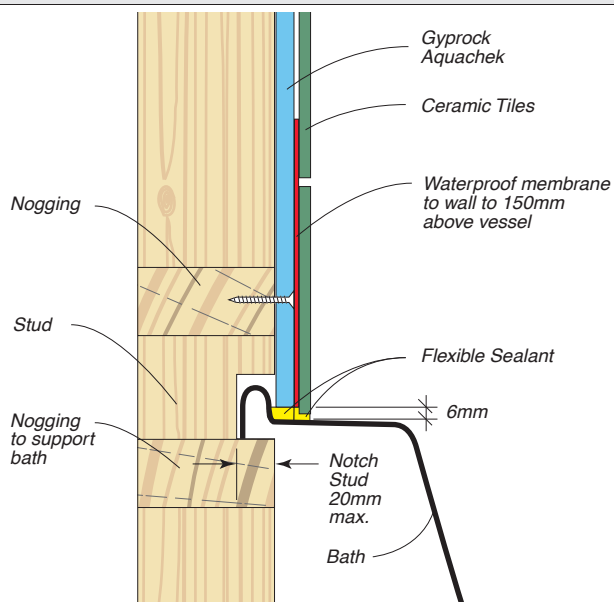


FIG 54: BATH INSTALLATION

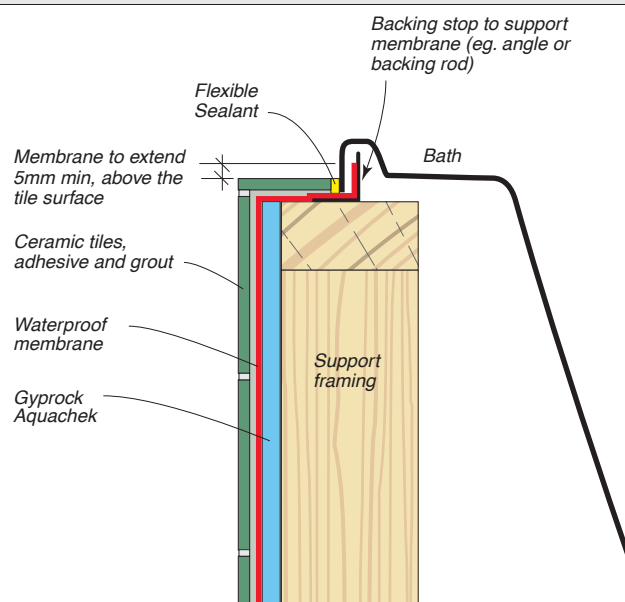


FIG 55: TYPICAL HAND BASIN – MEMBRANE/TILING DETAIL

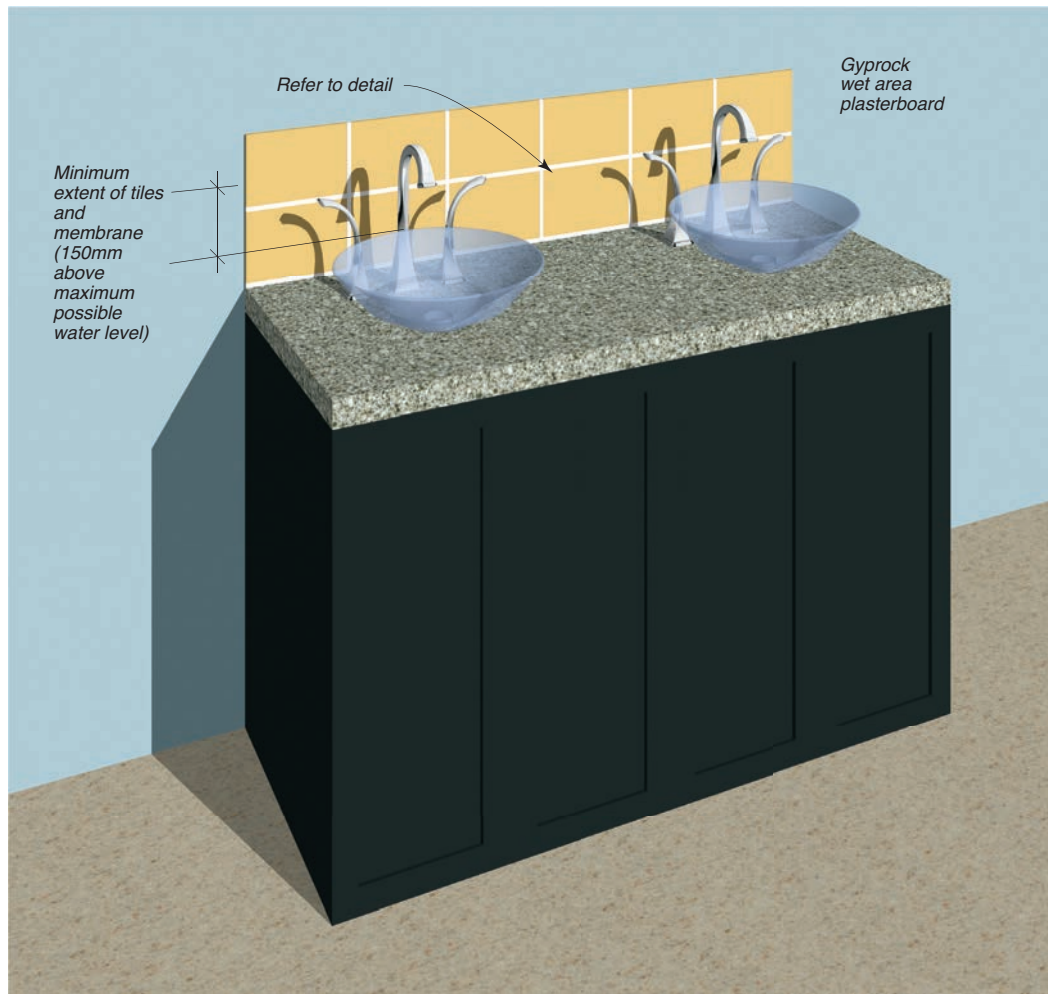


FIG 56: TAP INSTALLATION – ELEVATION

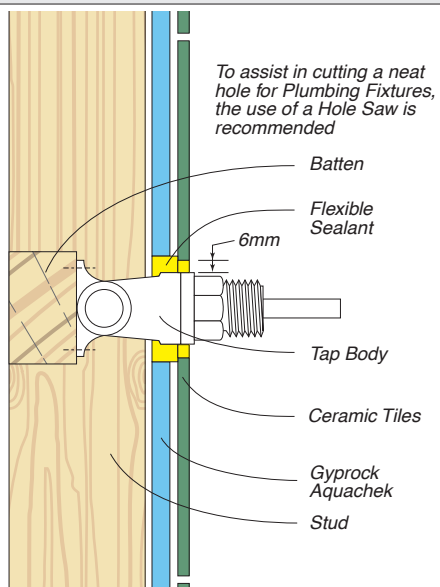
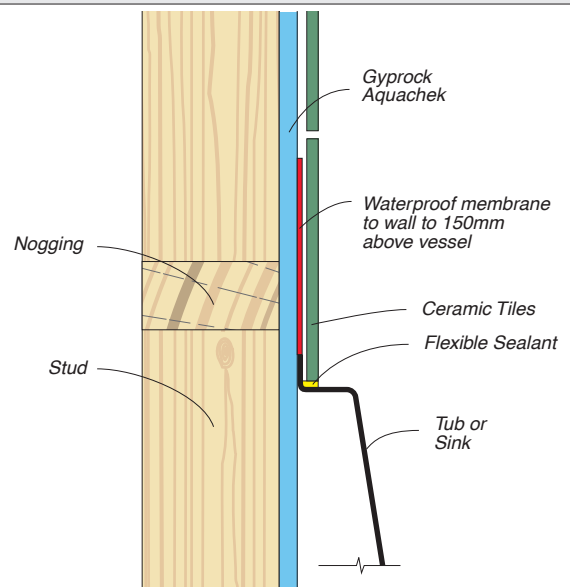


FIG 57: LAUNDRY TUB/SINK INSTALLATION



CONSTRUCTION DETAILS – GENERAL WET AREAS

FIG 58: PERIMETER INSITU MEMBRANE

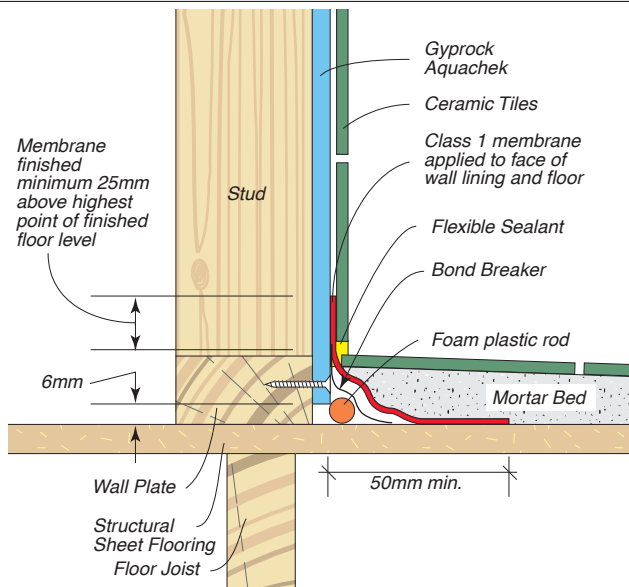


FIG 60: PERIMETER ANGLE FLASHING

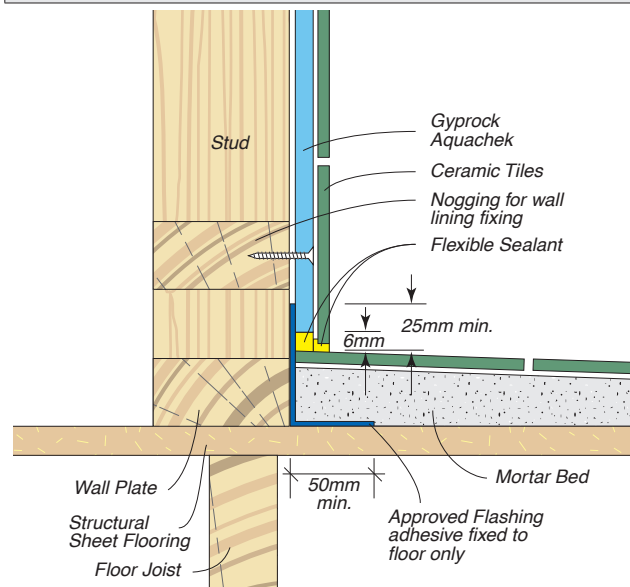


FIG 59: HOB OR SET-DOWN SLAB
AND PERIMETER FLASHING

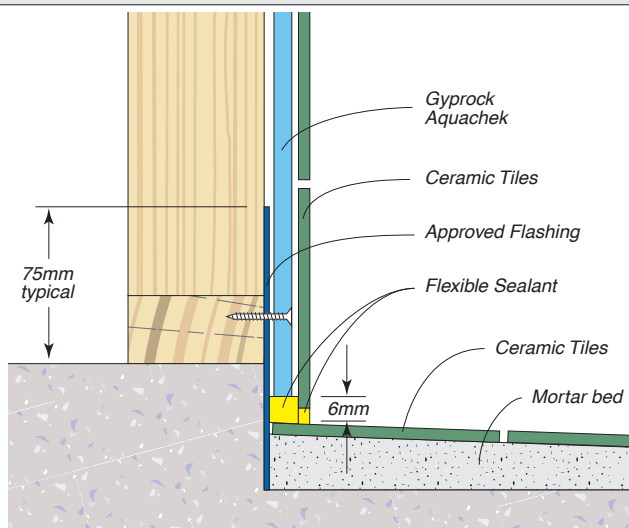
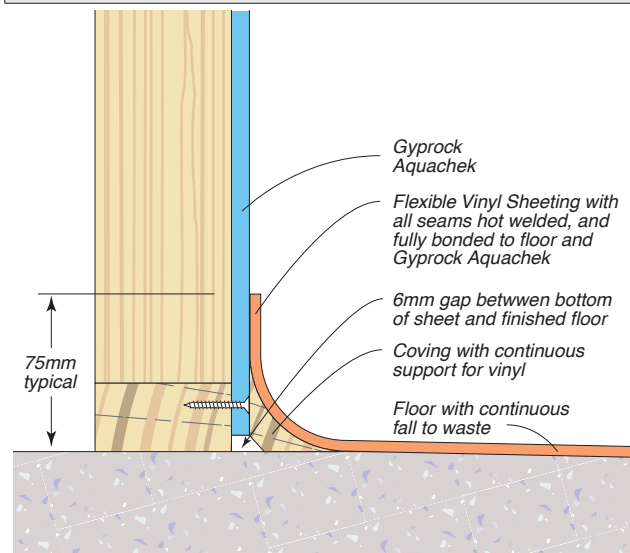


FIG 61: PERIMETER FULLY BONDED VINYL SHEETING



FLUSH JOINTED CEILING SYSTEMS



INTRODUCTION

CSR Gyprock has developed a wide range of flush jointed ceiling systems for functional and decorative purposes in residential applications.

Gyprock flush jointed ceiling systems utilise Gyprock plasterboard sheet which is fixed to appropriately prepared framing. Plasterboard joints are 'taped and set' to form a smooth 'flush jointed' continuous ceiling suitable for painting.

APPLICATIONS

Gyprock flush jointed ceiling systems are suitable for interior and protected exterior residential ceiling applications and can be installed under roof or floor framing.

Where a Level of Finish is specified, refer to the Design & Installation section of this manual for additional framing and fixing requirements.

An extensive range of ceiling systems is also available for specific acoustic and fire rated applications. Limited information is provided in this guide for acoustic ceilings in residential applications. For detailed information on acoustic and fire rated systems, please contact CSR DesignLINK.

ADVANTAGES

- Flush jointing gives a smooth, seamless, easily decorated finish.
- Systems available for decorative, acoustic rated and fire rated application.
- Suitable for use under a wide range of roof and floor structures.
- Permit flexible location of internal non-loadbearing walls.
- Surface or flush mounted light fittings can be used.

COMPONENTS

Gyprock Plasterboard

Please refer to the full range of Gyprock plasterboards in the introduction section of this guide, TABLE 1 on page 4

Gyprock Cornice

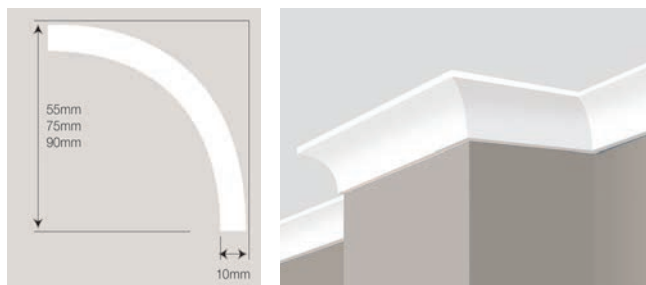
Gyprock Cornice is designed to provide an attractive finish at the junction of the wall and ceiling. It can be used on Gyprock plasterboard, fibrous plaster or cement rendered surfaces.

The cornice is composed of gypsum plaster encased in a strong linerboard. Gyprock cornice sections are available in various lengths. Call your local sales office for lengths stocked in your state.

It is recommended that cornice be attached with Gyprock Cornice Cement unless noted.

Gyprock Cove Cornice in 55mm and 90mm sizes is available in all states. 75mm is available in Western Australia and Victoria only.

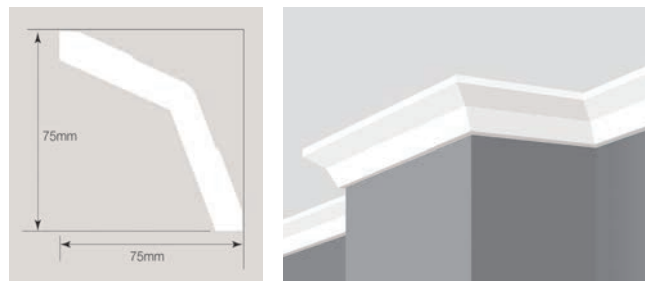
Gyprock Cove Cornice



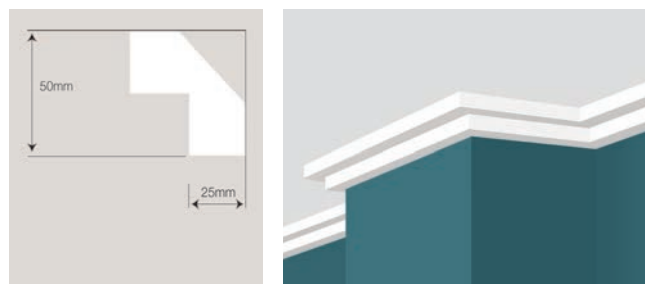
There are two categories of Gyprock decorative cornice;

Contemporary – If the property style calls for something more modern and streamlined than Cove, the Gyprock Contemporary range offers three minimalistic profiles that will add interest with simple, fresh appeal.

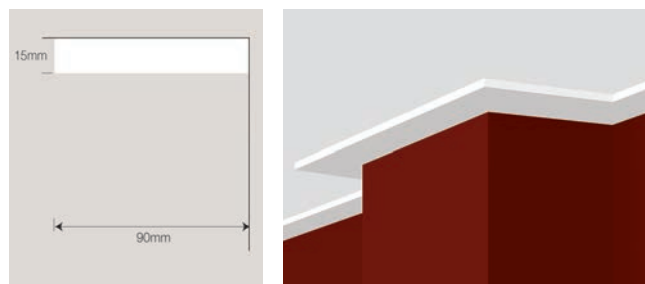
Gyprock Aria™ Cornice



Gyprock Duo

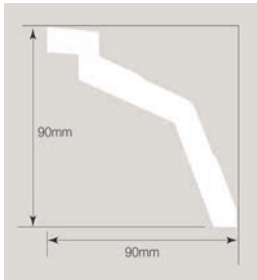
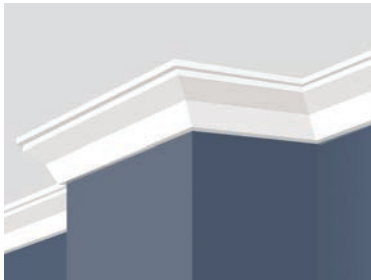


Gyprock Presto Cornice

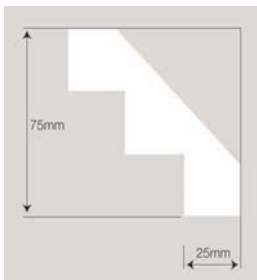


Inspirations – A Gyprock Inspirations cornice gives a new dimension of style and detail. Whether traditional or modern in style, each has a unique and distinctive look that can add quality and value to your home.

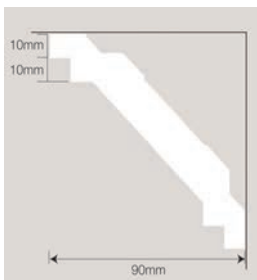
Gyprock Alto™ Cornice



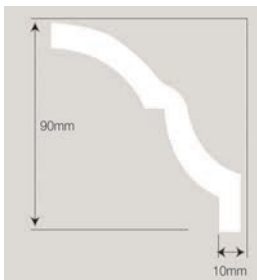
Gyprock Trio Cornice



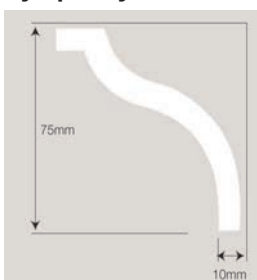
Gyprock Tempo™ Cornice



Gyprock Concerto™ Cornice



Gyprock Symphony™ Cornice



Framing & Fixing Components

CSR Gyprock distributes a comprehensive range of steel components, adhesives, nails, screws and mastics to accommodate most installation applications. Please refer to “COMPONENTS” on page 16 and additional information in this section.

For wet area and external applications, Class 3 fasteners must be used. To guarantee performance, only approved fasteners should be used in Gyprock systems.

Gyprock Cornice Cement

- Gyprock Cornice Cement 45/60 is formulated for adhesion of cornice to plasterboard surfaces.
- For material other than plasterboard, such as fibre cement, plaster glass, cement render, or highly absorbent surfaces, Gyprock Masonry Adhesive is recommended. In Western Australia Gyprock Cornice Cement 60 may be used as an alternative.
- Installation of 100 lineal metres of standard cornice requires approximately 12kg of cornice cement.



Fixing Methods

Specific fixing information is provided throughout this section for many applications.

IMPORTANT

When fixing plasterboard for ceilings in the following applications:

- painted battens (eg Colorbond)
- timber that is CCA or LOSP (H1 to H3) treated
- or in garages,

use either the ‘1/3 Spacing’ fastener-and-adhesive installation method or the all-fastener installation method.

Contact CSR Gyprock for recommendations that apply in Western Australia.

DESIGN & INSTALLATION CONSIDERATIONS

Refer to design, framing, components and installation requirements at the beginning of this guide together with the following specific requirements.

Framing

All ceiling framing must be designed for the applied loads.

Wind pressures occur on interior ceilings due to air flow through the façade and lining elements. The spacing of framing for ceilings is dependent on the plasterboard lining span limits. Refer to TABLE 12 for maximum framing centres in various wind categories and TABLE 13 to TABLE 18 for framing and fastening details.

Wind loads on external ceilings can be similar to those on adjacent walls. Pressures can be positive or negative and the lining, grid and structure should be designed to resist the loads. Internal suspension components, even with down struts, may not be suitable. Refer to specific information and limitations in “Exterior Ceilings” on page 57.

Ceiling linings may be fixed directly to primary timber or steel framing, or to secondary members such as furring channels and battens.

Timber members to which plasterboard will be fixed must comply with AS1684 (series), or be designed in accordance with AS1720.1. Timber framing for direct fixing of linings shall have a minimum flat fixing face width of 35mm.

Steel framing for direct fixing of linings shall have a maximum base metal thickness (BMT) 1.6mm and a minimum face fixing width of 32mm. Framing may be trusses, top hats, C sections, furring channels, or similar members. In all cases they should be designed in accordance with the NASH Standards or AS/NZS4600.

Trimmers are to be provided in the part of the ceiling framing system where primary support members change direction within a room. Refer to FIG 62.

Where the alignment of the bottom chords of roof members fall outside the appropriate specification, a metal furring channel system with clip fixings can be used to enable the levelling of the ceiling support plane. Refer to FIG 63 and detailed information in this section.

Control Joints

The continuity of lining sheets and support framework should be broken at control joints.

Control joints may be positioned to intersect light fixtures, heating vents and air diffusers.

Control joints are to be installed:

- To coincide with control joints in the supporting frame.
- At changes of framing type or framing direction.
- In continuous interior ceiling areas lined with plasterboard, spaced at no more than 12m centres in both directions.

Refer to “Construction Details” for appropriate installation methods.

FIG 62: CEILING TRIMMERS WHERE TRUSSES CHANGE DIRECTION

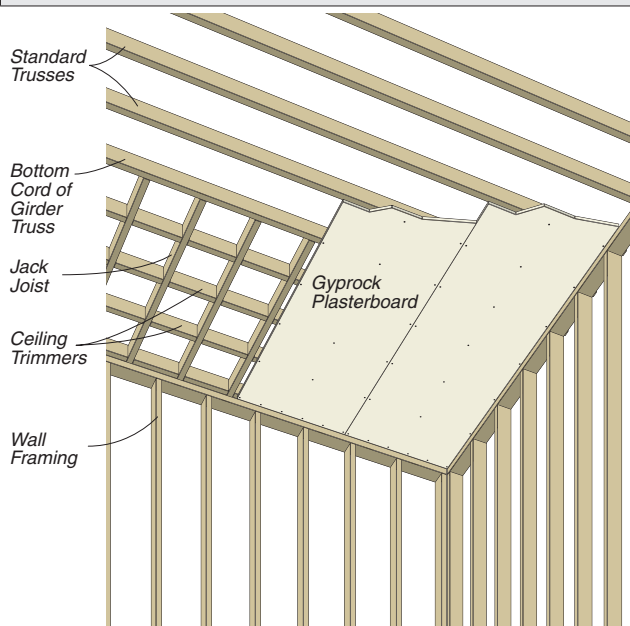
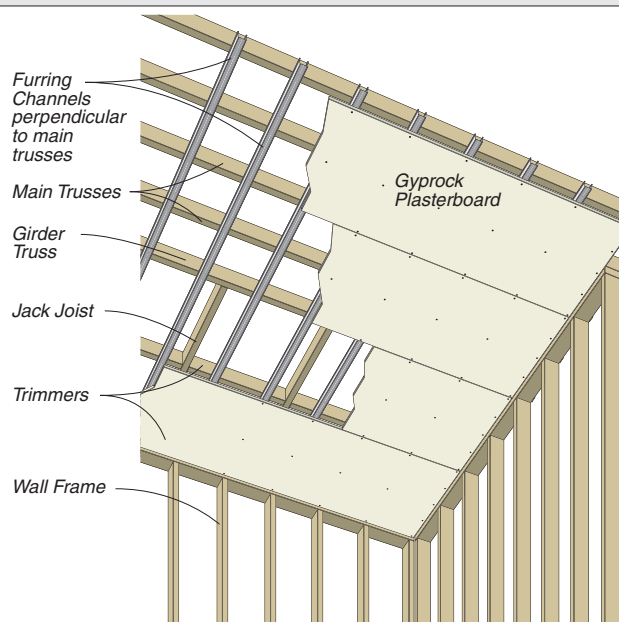


FIG 63: FURRING SYSTEM FOR CEILING CONSTRUCTION



Ceiling Furring Channel Installation

The use of metal battens or furring channel in ceilings applications produces a more consistent and stable fixing system, and allows levelling of the ceiling mounting surfaces.

Where furring/battens are used, they are to be selected and applied in accordance with AS1684 (series), and maximum spacings are to be in accordance with TABLE 13 or TABLE 14 in this publication.

Also refer to FIG 64 to FIG 67.

TABLE 12: MAXIMUM FRAMING CENTRES – INTERIOR CEILINGS – (Including an insulation load of 5kg/m² max.)

Wind Category to AS4055	Gyprock Plasterboard Product			
	10mm Gyprock Plus	Supaceil (10mm)	10mm Soundchek, Superchek, Aquachek & Sensitive	13mm Gyprock Standard & Soundchek
N1, N2	450	600	600 ★ (2kg/m ² insulation max.)	600
N3, N4, N5	450 ★ (2kg/m ² insulation max.)	450	450	450
C1	300	450	450	450
N6, C2	300	300	300	450
C3, C4	300	300	300	300

NOTE: ★ Use spacing from higher Wind Category to achieve insulation load limit of 5.0kg/m²

TABLE 13: MAXIMUM SPANS FOR FURRING CHANNEL N°129 – INTERIOR CEILINGS

Wind Category	Single Span (mm max.)			Continuous over 2 or more Spans (mm max)		
	300	450	600	300	450	600
N1, N2	–	1370	1260	–	1705	1560
N3, N4, N5	–	1120	–	–	1225	–
C1	–	1125	–	–	1230	–
C2	–	960	–	–	1050	–
C3	1020	–	–	1115	–	–
C4	890	–	–	890	–	–

NOTES:

- Suitable for single layer lining only. any 10 or 13mm Gyprock plasterboard
- Wind Categories to AS4055
- Insulation weight up to 5kg/m²

TABLE 14: MAXIMUM SPANS FOR FURRING CHANNEL N°308 – INTERIOR CEILINGS

Wind Category	Single Span (mm max.)			Continuous over 2 or more Spans (mm max)		
	300	450	600	300	450	600
N1, N2	–	940	880	–	1170	1060
N3, N4, N5	–	790	–	–	830	–
C1	–	795	–	–	835	–
C2	–	680	–	–	710	–
C3	705	–	–	740	–	–
C4	–	–	–	–	–	–

NOTES:

- Suitable for single layer lining only. any 10 or 13mm Gyprock plasterboard
- Wind Categories to AS4055
- Insulation weight up to 5kg/m²

Steel Furring Channel Direct Fixed to Framing

- Gyprock plasterboard may be fixed directly to steel furring which is held by appropriate direct fixing clips attached to a structural support as shown in adjoining details.
- Direct fixing clips provide some vertical adjustment to enable accurate levelling of the furring. After levelling, the brackets should be permanently fixed in place by two nails/screws.
- Furring channels then snap fit into the clips.
- Join furring channel end to end using channel joiners.
- The ceiling drop should be limited to 200mm maximum with these attachment systems.
- Install brackets to ensure there is a clearance between joist and furring of 10mm minimum.
- Refer to span tables in this guide and Rondo Building Services specifications for grid span and spacing information.

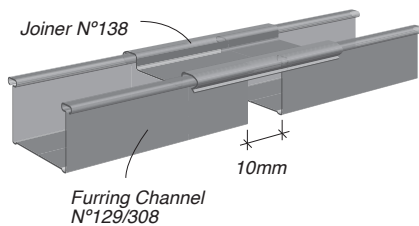
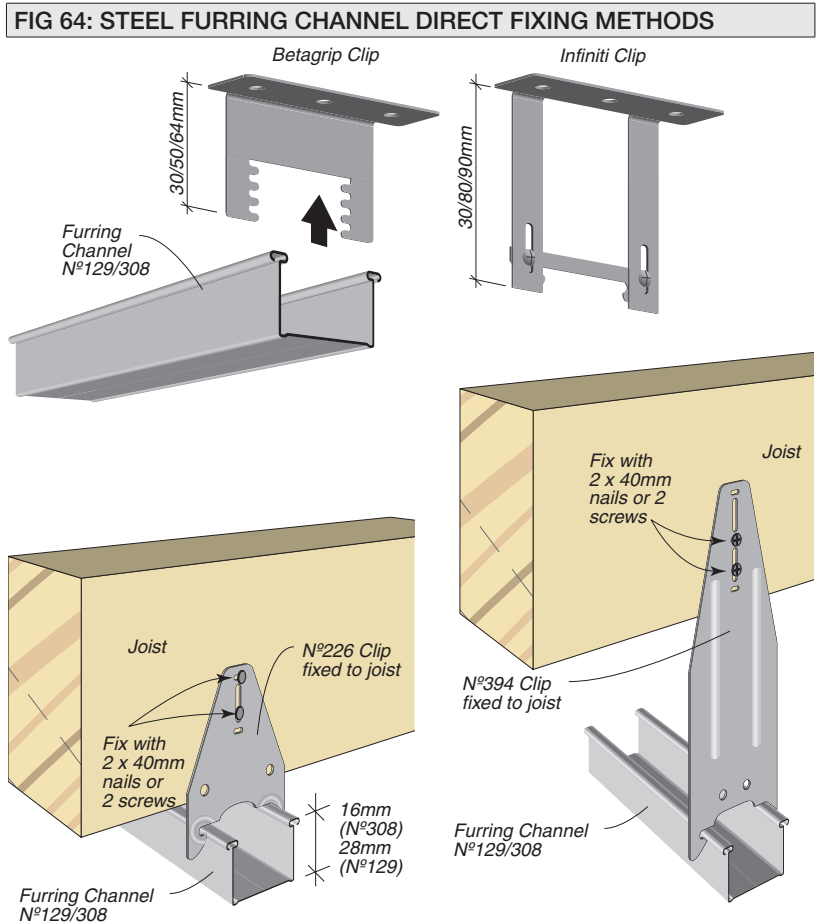
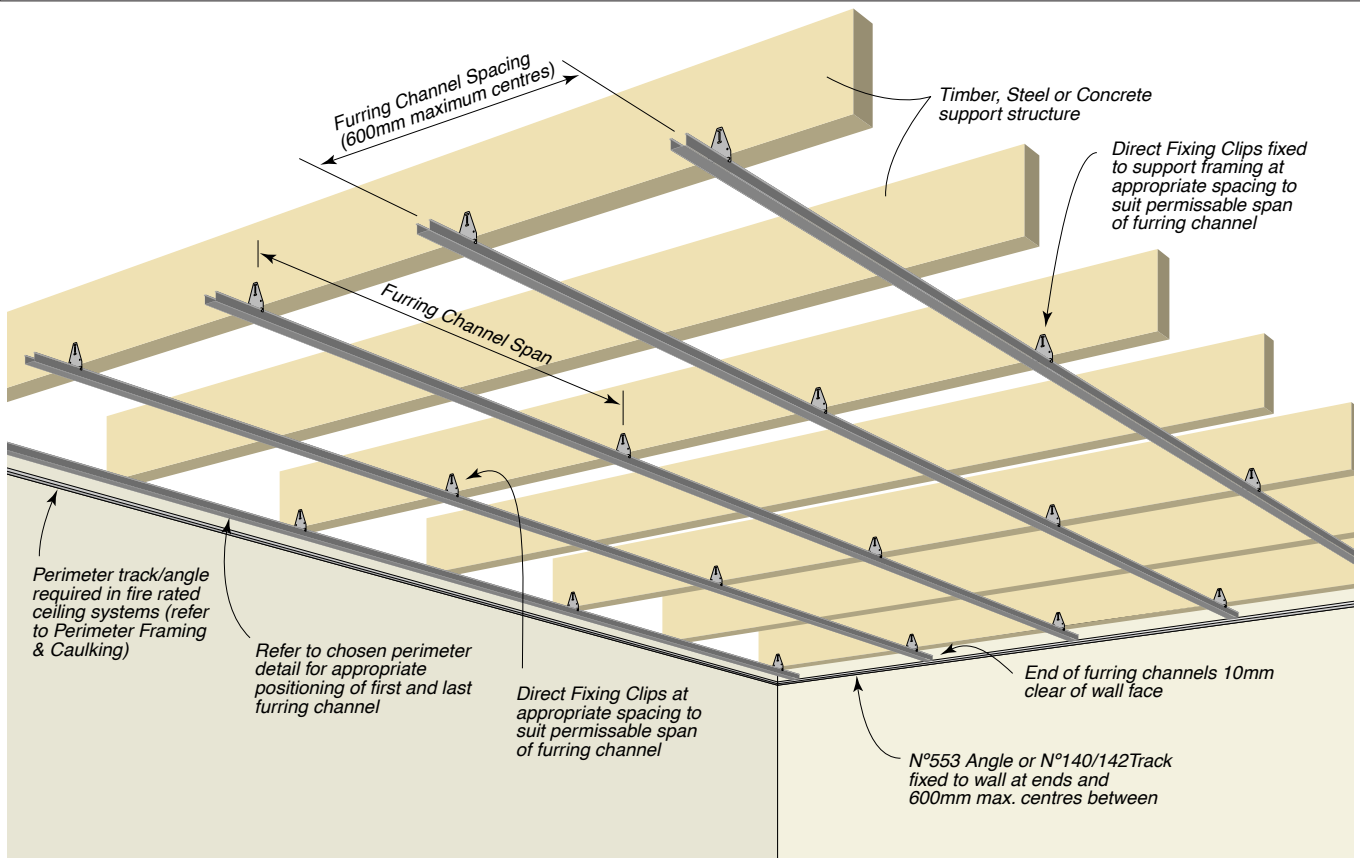


FIG 65: STEEL FURRING CHANNEL DIRECT FIXED TO FRAMING



Steel Furring Channel on Resilient Mounts

- The Gyrock Resilient Mount may be screw fixed directly to the underside of joists or trusses using (50mm x N°8 screws for timber) or (30mm x N°8 screws for steel).
- Should the joists or trusses be uneven, the adjustable direct-fix bracket (N°CSR4) should be fixed to the side of the framing as detailed in FIG 66. This will provide up to 20mm height adjustment for levelling purposes. After levelling, the bracket should be permanently fixed in place with two nails/screws.
- The resilient mount may then be screw fixed to the adjustable bracket (N°CSR4) using a 40mm x N°6 screw.
- The furring channels then snap fit into the anchor clips.
- The Gyrock Resilient Mount is designed to support a maximum ceiling load of 27kg per mount, and must be installed at appropriate centres to suit the chosen ceiling system.
- Refer to span tables in this guide and Rondo Building Services specifications for grid span and spacing information.

FIG 66: GYROCK RESILIENT MOUNT FIXING

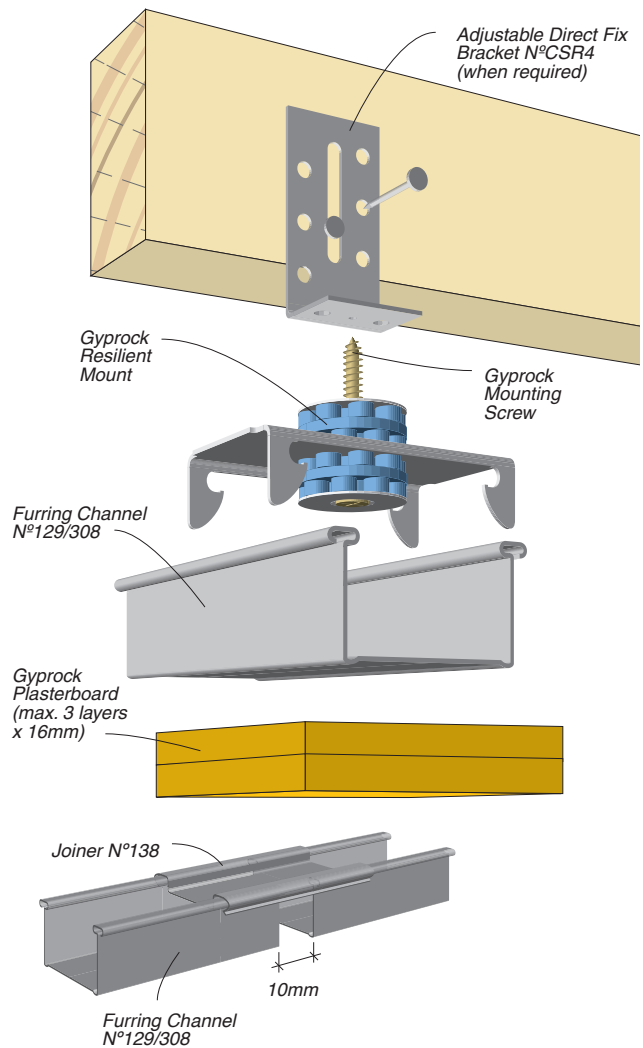
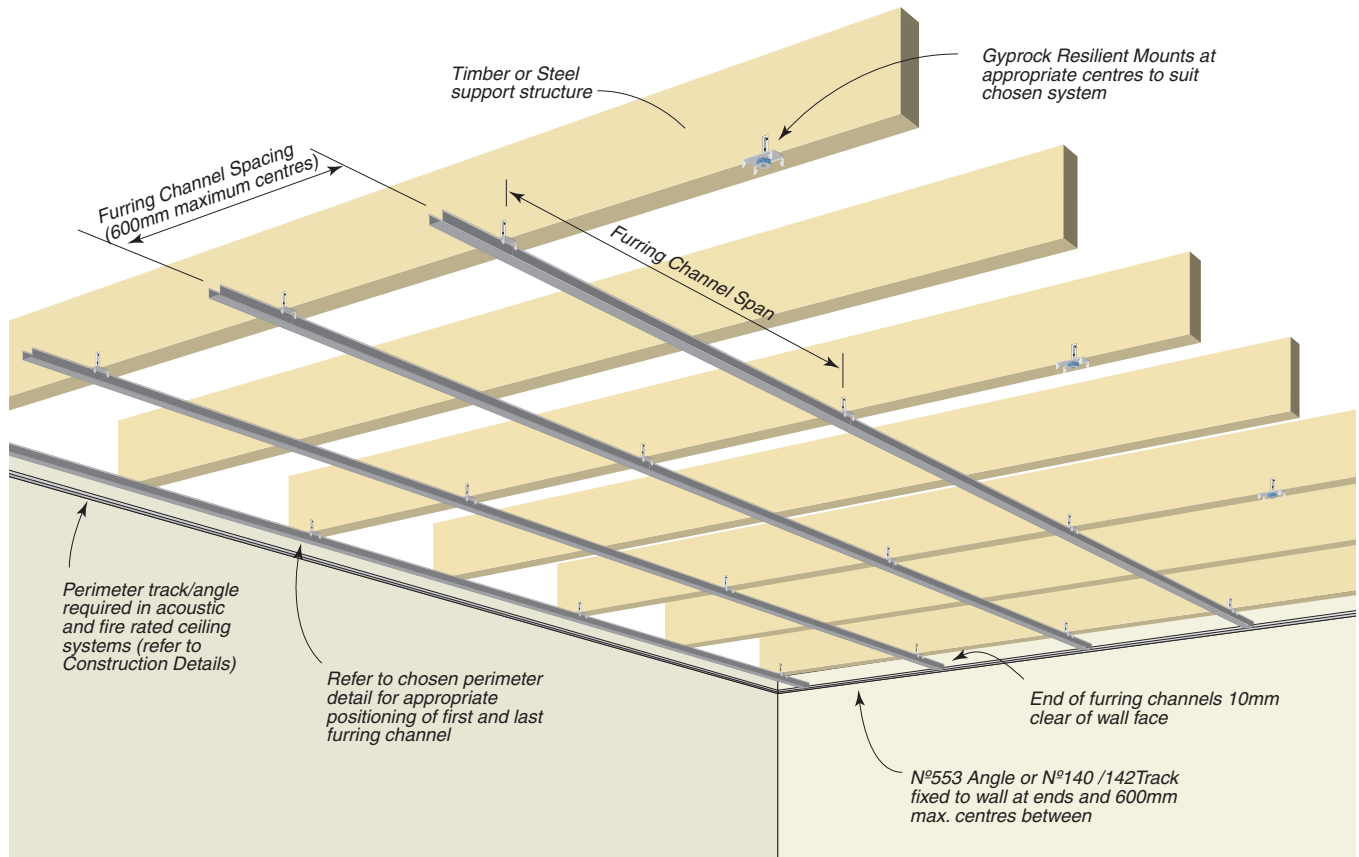


FIG 67: STEEL FURRING CHANNEL FIXED WITH RESILIENT MOUNTS TO FRAMING



Exterior Ceilings

Gyprock plasterboard is suitable for lining ceilings of carports, verandahs, alfresco dining areas, eaves or areas that are horizontal or incline downwards away from the building, provided the ceiling is protected from exposure to rain. It is the designers responsibility to ensure that there is sufficient protection to prevent the plasterboard from getting wet.

In these applications:

- External ceilings are subject to wind loads and the ceiling framing in these cases should be designed to suit. Refer to AS1684 (series), Rondo Building Services or the appropriate framing manufacturer for more information.
- Plasterboard installation details in this guide are suitable for wind categories N1 and N2 to AS4055, with maximum framing centres of 450mm and fasteners at 300mm maximum centres.
- Ceilings must be installed after the roof cladding has been completed and sealed.
- Effective cross-ventilation for all spaces between the roof and the ceiling is to be provided.
- Where high fronted eaves gutters are installed, care should be taken to ensure that water will not flow back onto the ceiling.
- Plasterboard to be fixed using screws or nails only.
- Back-block all plasterboard joints.
- Plasterboard and cornice must be finished with an external grade paint system. Apply a good quality wallboard sealer and two coats of external grade paint to paint manufacturer's recommendations.
- In highly corrosive environments such as coastal areas or in applications where corrosion is of concern, the Rondo E-beads should be used in place of metal casing beads.

Corrosion Protection

For steel components in external environments, in heavy industrial areas or within 1km of the coast, additional coatings may be required. Refer to AS/NZS2785 for guidance.

Installation

The following details provide recommended edge finish methods for external ceiling applications.

FIG 68: TIMBER TRIM EDGE FINISH

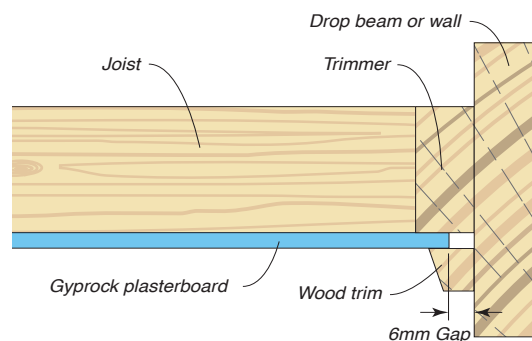


FIG 69: METAL ANGLE EDGE FINISH

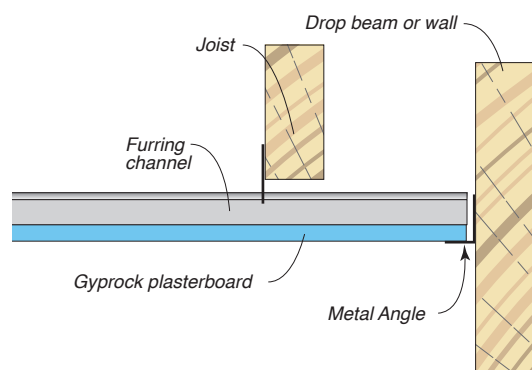


FIG 70: METAL WALL ANGLE EDGE FINISH

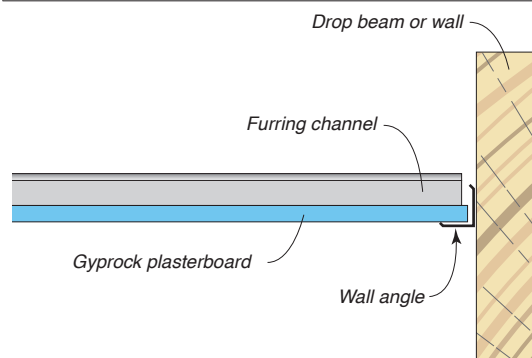
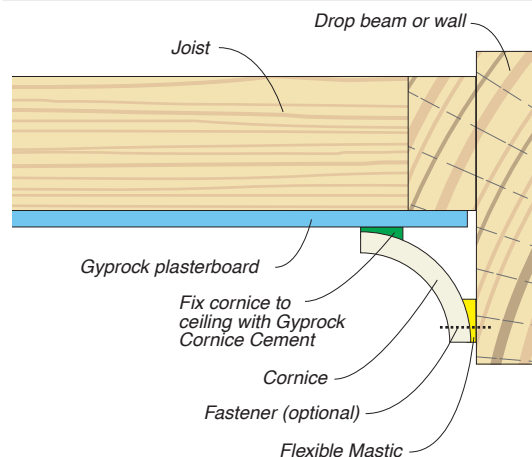


FIG 71: CORNICE EDGE FINISH



Garage Ceilings

Garages that are fully enclosed are designed as for internal rooms, with doors and windows usually closed. However, ceilings in garages are subjected to different environmental conditions to those in habitable rooms. The following conditions may occur:

- Wind loads during construction can disrupt uncured adhesive and prevent an effective adhesive bond from forming.
- Door operation may induce vibration in ceiling framing, adversely affecting nailed joints and disrupting adhesive bond.
- Framing that changes direction in the garage may result in insufficient perimeter support for the plasterboard.
- Moisture and high humidity in the garage can result in poor joint performance.

These conditions can also result in the poor performance of any installed cornice.

While the performance expectations for garage ceilings remain the same as for internal ceilings, additional details are required to ensure this performance is achieved

- Use the 1/3 spacing or full fastener method of fixing plasterboard, as detailed in this manual.
- Use screws not nails to fix ceilings.
- Use trimmers across the sheet width for support (refer to FIG 72).
- Back-block all joints in garage ceilings.
- Use a good quality wallboard sealer and two coats of paint.
- In areas of high humidity, use Gyprock Wet Area Base Coat in the jointing system.

FIG 72: GARAGE CEILING FRAMING AT CHANGE IN DIRECTION OF TRUSSES

(Plan view from above)

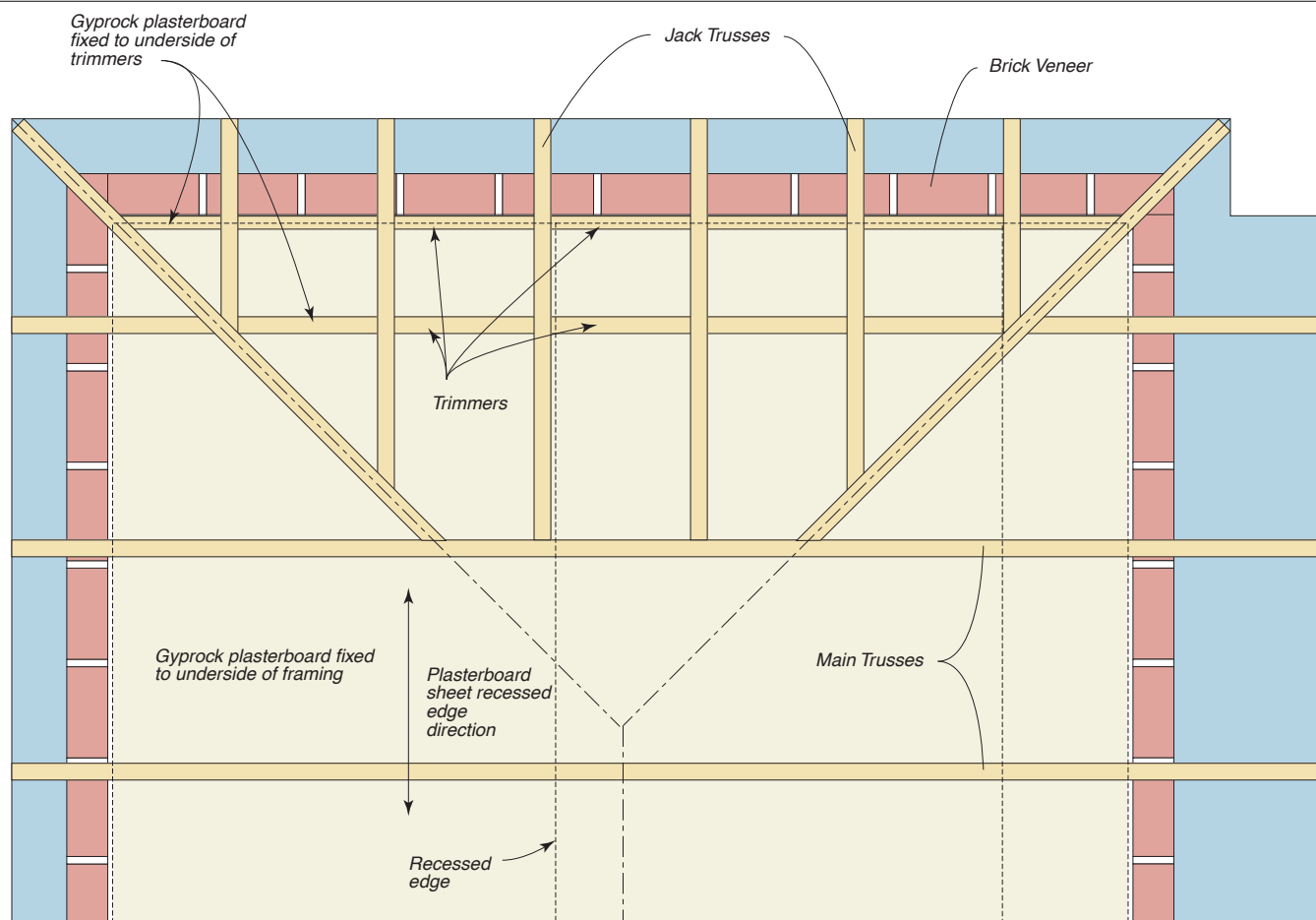
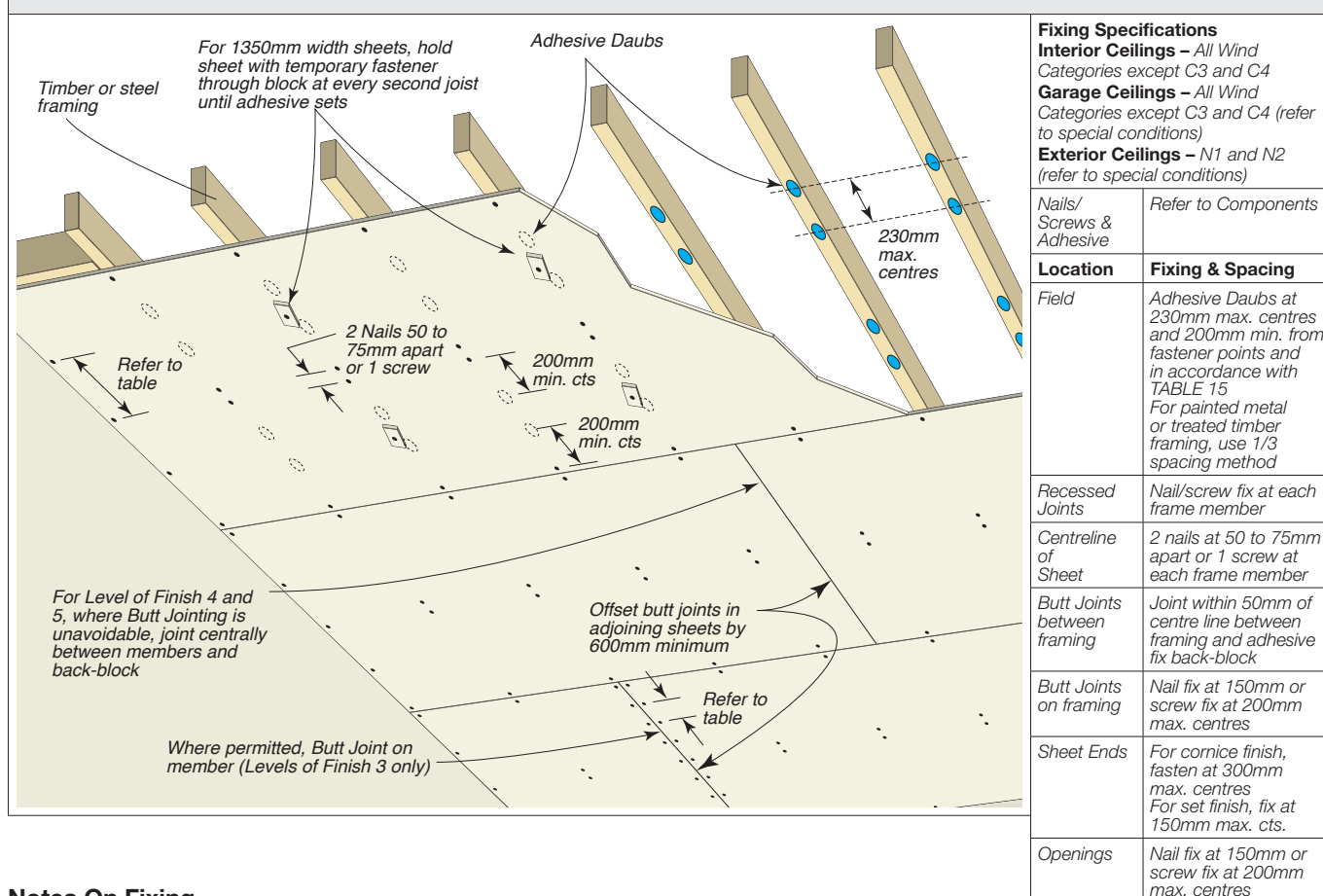


FIG 73: PLASTERBOARD FIXING – SINGLE LAYER – ADHESIVE/FASTENER FIXING – TIMBER OR STEEL FRAMING



Notes On Fixing

- Suitable for direct fixing to internal timber or steel joists or battens.
- Install sheets with paper bound edges at right angles to joists/framing to which sheets are being fixed.
- Daubs of adhesive must be 200mm minimum from fastening points.
- Place edge fasteners at 10 to 16mm from sheet edge.

Gyprock plasterboard is fixed to metal framing the same way as to timber, except for the following points:

- Ensure that all metal surfaces to receive Gyprock Acrylic Stud Adhesive are wiped clean with a rag, or if heavily contaminated with oil, grease, or other foreign material they should be cleaned using an organic solvent.
- Fasteners must be appropriate screws.
- For painted metal or treated timber framing, 1/3 spacing must be used. Refer to TABLE 15.

TABLE 15: ADHESIVE DAUBS AND PERMANENT FASTENER REQUIREMENTS – FIELD OF BOARD

Plasterboard Width (mm)	Minimum Number and Placement of Adhesive Daubs and Fasteners across sheet	
	Conventional Spacing	1/3 Spacing
900	F A F/F A F	F A F A F
1200	F A A F/F A A F	F A F A F A F
1350	F A A F/F A A F	F A F A F A F

NOTES:

F = Fastener

A = Adhesive Daub

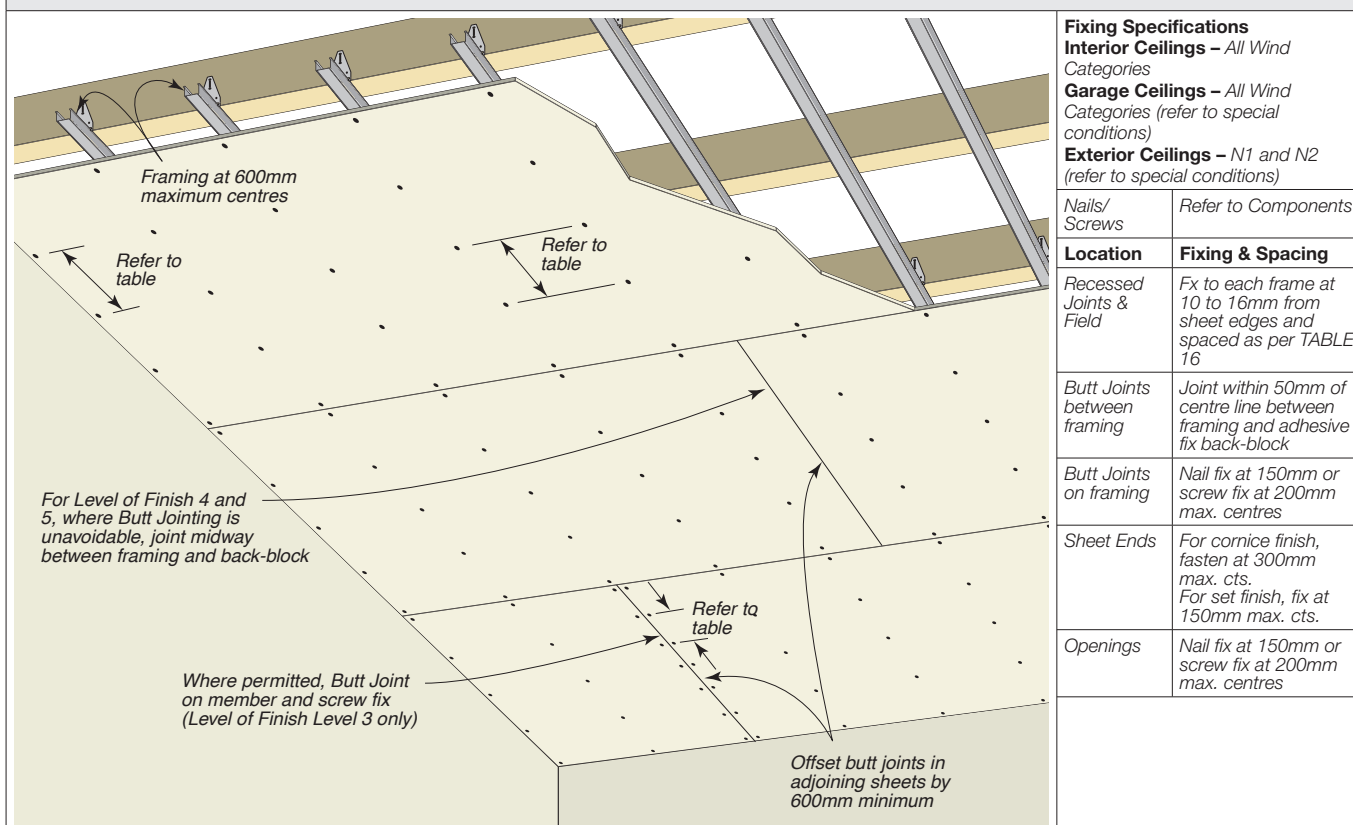
F/F = 1 Screw or 2 Nails at 50 – 75mm apart

Fixing Procedure

Refer to “Components” for fastener/adhesive details.

- Apply stud adhesive to framing in accordance with TABLE 15. Using a broadknife, apply daubs 25mm diameter x 15mm high at 230mm maximum centres and at 200mm minimum from fastening points at sheet edges and centreline. Omit daubs at ends of sheets and at butt joints.
- Apply plasterboard and fasten one recessed edge at each framing member.
- Press the sheet firmly against the framing, then fasten along the second recessed edge at each framing member.
- Fasten along the centreline of sheet as per Fixing Specification table above.
- Where butt joints are permitted on framing members, fix as per the Fixing Specification table above.
- Where butt joints are made between framing, join within 50mm of centreline between framing and back-block joint. Refer to “Back-Blocking of Butt Joints Off Framing” on page 66.
- Back-block recessed joints where required. Refer to “Back-Blocking of Recessed Joints” on page 66.
- Offset butt joints in adjoining sheets by 600mm minimum.
- Fasten around service openings and ends of sheets as per the Fixing Specification table above.
- Under slow drying conditions, hold 1350mm wide sheets against the framing members for at least 48 hours with temporary fasteners driven through plasterboard blocks at every second frame. Refer to installation detail.

FIG 74: PLASTERBOARD FIXING – SINGLE LAYER – NAIL OR SCREW FIXING – TIMBER OR STEEL FRAMING



Notes On Fixing

- Suitable for direct nail or screw fixing to timber joists or battens or screw fixing to steel joist or battens.
- Install sheets with paper bound edges at right angles to joists/framing to which sheets are being fixed.
- Place edge fasteners at 10 to 16mm from sheet edge.
- Offset butt joints in adjoining sheets by 600mm minimum.

Gyprock plasterboard is fixed to metal framing the same way as to timber, except for the following points:

- Ensure that all metal surfaces to receive Gyprock Acrylic Stud Adhesive are wiped clean with a rag, or if heavily contaminated with oil, grease, or other foreign material they should be cleaned using an organic solvent.
- Fasteners must be appropriate screws.

Fixing Procedure

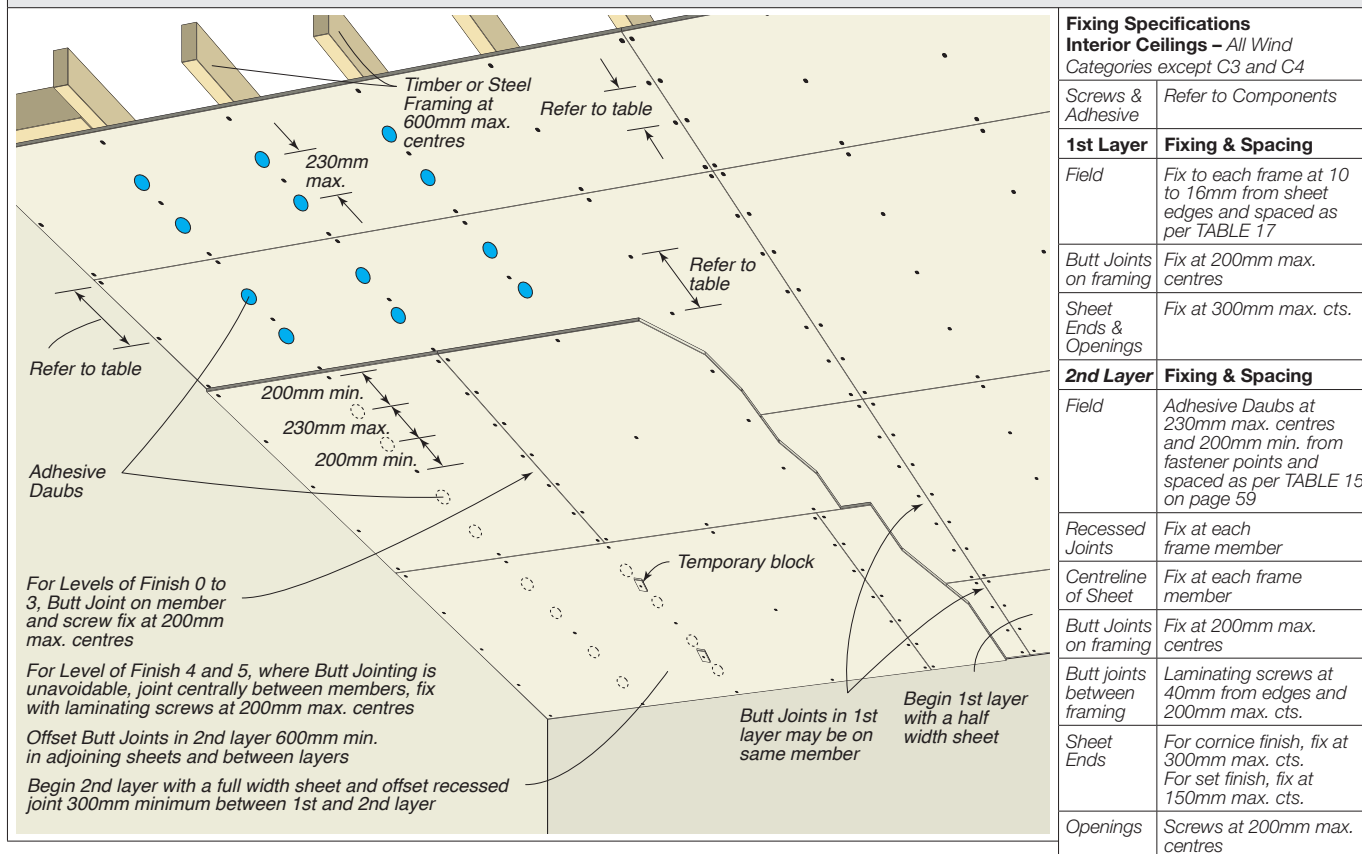
Refer to “Components” for fastener details.

- Apply plasterboard and fasten to each framing member along recessed edges.
- Press the sheet firmly against the framing and fasten the field of the board to each framing member in accordance with TABLE 16.
- Where butt joints are made between framing, join within 50mm of centreline between framing and back-block joint. Refer to “Back-Blocking of Butt Joints Off Framing” on page 66.
- Where butt joints are permitted on framing members, fix as per the Fixing Specification table above.
- Back-block recessed joints where required. Refer to “Back-Blocking of Recessed Joints” on page 66.
- Around service openings, fix as per the Fixing Specification table above.
- Fix ends of sheets as per the Fixing Specification table above.

TABLE 16: MAXIMUM FASTENER SPACING – FIELD OF BOARD

Wind Category	Gyprock Plasterboard Product	
	10mm All types	13mm Gyprock Standard & Soundchek
N1 to N6	300	300
C1, C2	300	250
C3, C4	200	200

FIG 75: PLASTERBOARD FIXING – TWO LAYER – SCREW & ADHESIVE FIXING – TIMBER OR STEEL FRAMING



Notes On Fixing

- Suitable for direct fixing to timber or steel joists or battens.
- Install sheets with paper bound edges at right angles to joists/framing to which sheets are being fixed.
- Daubs of adhesive must be 200mm minimum from fastening points.
- Place edge fasteners at 10 to 16mm from sheet edge.

Fixing Procedure

Refer to “Components” for fastener/adhesive details.

First Layer

- Begin with a half width sheet. Apply plasterboard and fasten along recessed edges at each framing member.
- Press the sheet firmly against the framing and fasten the field of the board to each framing member in accordance with TABLE 17.
- Centre butt joints on framing and fix as per the Fixing Specification table above.
- Fasten ends of sheets and around service openings as per the Fixing Specification table above.

TABLE 17: MAXIMUM FASTENER SPACING – FIELD OF BOARD – 1st LAYER

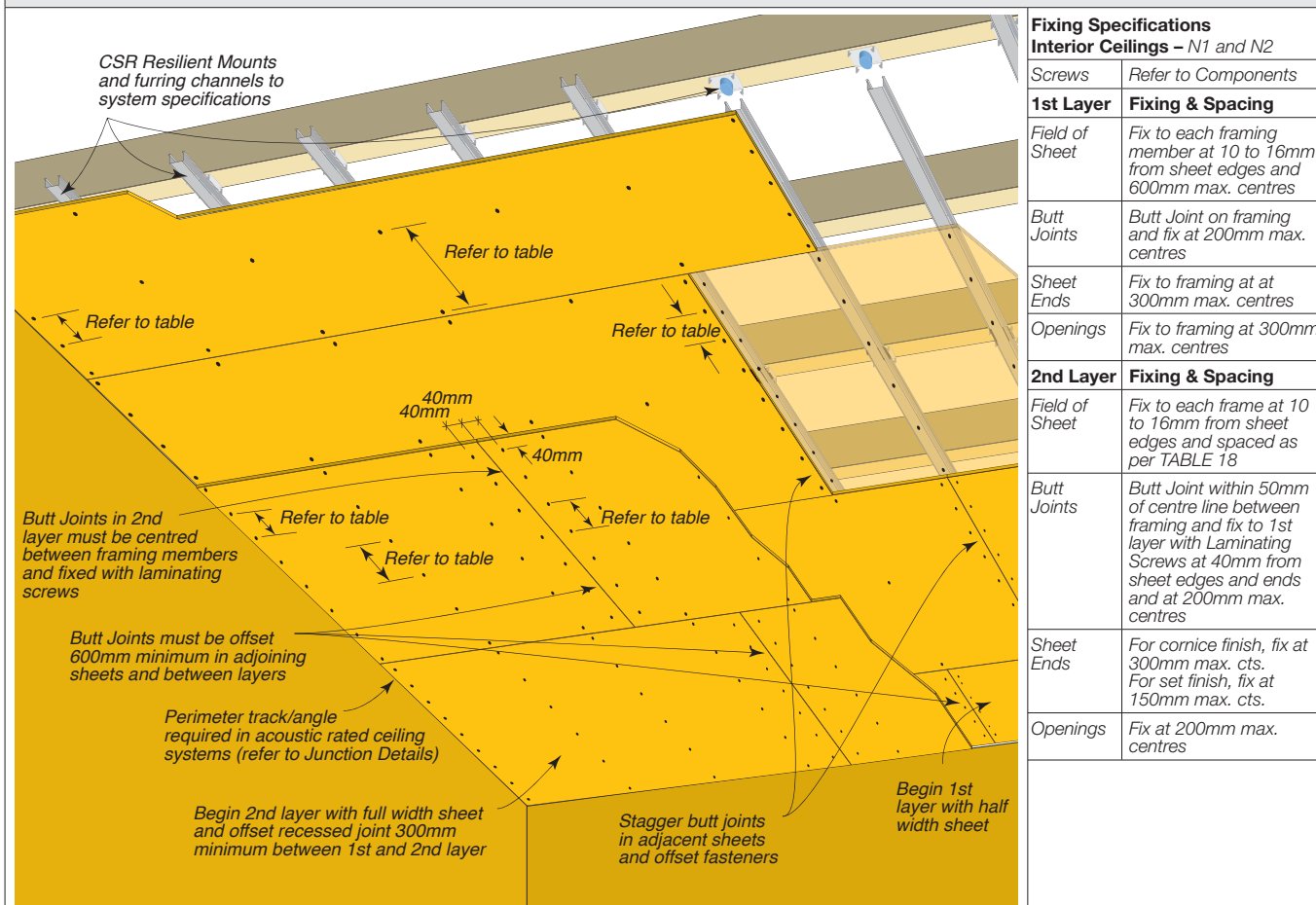
Wind Category	Gyprock Plasterboard Product	
	10mm All types	13mm Gyprock Standard & Soundchek
N1 to N6	300	300
C1, C2	300	250
C3, C4	200	200

NOTE: Fasteners shall be 2 nails at 50-75mm apart or 1 screw.

Second Layer

- Begin with a full width sheet so that recess joints will be offset from first layer by 300mm minimum.
- Using a broadknife, apply adhesive daubs 25mm dia. x 15mm high as per TABLE 15 on page 59. Omit daubs at ends of sheets and at butt joints.
- Apply plasterboard and fasten one recessed edge at each framing member. Press the sheet firmly against the framing, then fasten along the second recessed edge at each framing member.
- Fasten along the centreline of the sheet at each framing member.
- Offset butt joints in adjoining sheets and between layers by 600mm minimum.
- Where permitted centre butt joints on framing and fix as per the Fixing Specification table above.
- Where required form butt joints within 50mm of the centreline between framing and fix as per the Fixing Specification table above.
- Fix ends of sheets and around service openings as per the Fixing Specification table above.
- Under slow drying conditions, hold 1350mm wide sheets against the framing members for at least 48 hours with temporary fasteners driven through plasterboard blocks at every second frame.

FIG 76: PLASTERBOARD FIXING – TWO LAYER – SCREW FIXING – ACOUSTIC RATED CEILING SYSTEM



Notes On Fixing

- Use Furring Channel 129 only and install resilient mounts at 1200mm max. cts and furring channel at 600mm max. spacing to structural framing.
- Install sheets with paper bound edges at right angles to the framing to which sheets are being fixed.
- Offset recess joints between layers by 300mm min.
- Place edge fasteners at 10 to 16mm from sheet edge.

Fixing Procedure

Refer to “Components” for fastener details.

First Layer

- Begin with a half width sheet.
- Apply plasterboard and fix recessed edges to each framing member.
- Press the sheet firmly against the framing and fix the field of the board to each framing member as per the Fixing Specification table above.
- Form butt joints centred on framing members and fasten as per the Fixing Specification table above.
- Fasten ends of sheets and around openings as per the Fixing Specification table above.

Second Layer

- Begin with a full width sheet so that recess joints will be offset from first layer by 300mm minimum.
- Apply plasterboard and fix recessed edges and field of sheets in accordance with TABLE 18.
- Offset butt joints in adjoining sheets by 400mm minimum.
- Form butt joints within 50mm of the centreline between framing and fix with laminating screws as per the Fixing Specification table above.
- Fasten around openings and ends of sheets as per the Fixing Specification table above.
- Caulk all perimeter gaps for acoustic integrity. Refer to FIG 86 and FIG 87.

TABLE 18: MAXIMUM FASTENER SPACING – FIELD OF BOARD – 2nd LAYER

Wind Category	Gyprock Plasterboard Product	
	10mm All types	13mm Gyprock Standard & Soundchek
N1 to N6	300	300
C1, C2	300	250
C3, C4	200	200

Curved & Raked Ceilings

Gyprock plasterboards may be used on curved installations in accordance with TABLE 19 and TABLE 20.

Where a radius tighter than 900mm is to be used, the framing should be sheeted with Gyprock Flexible Plasterboard.

Fire rated ceilings MUST NOT be curved to a radius of less than 3000mm.

TABLE 19: CURVING RADII AND MAXIMUM STUD SPACING FOR 6.5, 10, 13 AND 16mm GYPROCK PLASTERBOARDS

Plasterboard Thickness (mm)	Gyprock Flexible Plasterboard	Gyprock Standard Plasterboard and Flexible Plasterboard ONLY					All Gyprock Plasterboards (excluding Perforated)	
	Curve Radius (mm)							
	<900	900 – 1000	1000 – 1500	1500 – 2000	2000 – 2500	2500 – 3000	3000 – 4000	4000 – Plus
	Maximum Stud Spacing (mm)							
2 x 6.5	Refer to TABLE 20	150	200	250	300	350	450	550
10	–	150	200	250	300	350	400	500
13	–	–	150	200	250	300	400	500
16	–	–	–	–	–	–	250	350

TABLE 20: MINIMUM CURVING RADII AND MAXIMUM FRAME SPACING FOR GYPROCK FLEXIBLE PLASTERBOARD

Applications	Sheets Installed Lengthways		Sheets Installed Widthways	
	Minimum Radius	Max. Stud Spacing	Minimum Radius	Max stud Spacing
Concave	450mm	150mm	650mm	200mm
Convex	250mm	125mm	450mm	200mm

NOTES – Low temperature and humidity will reduce board flexibility.
 Curved Lengthways = where recessed edges are NOT curved.
 Curved Widthways = where recessed edges are curved.

FIG 77: CURVED CEILING FRAMING

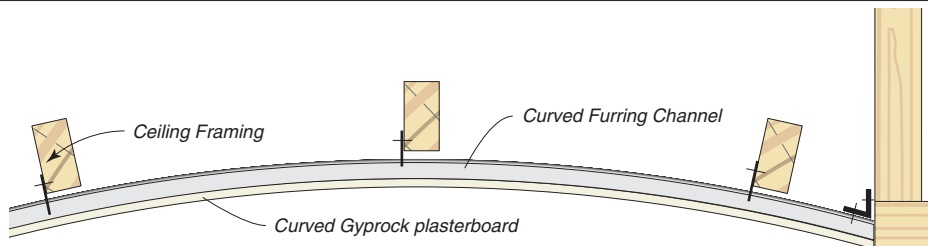


FIG 78: CURVED CEILING FRAMING

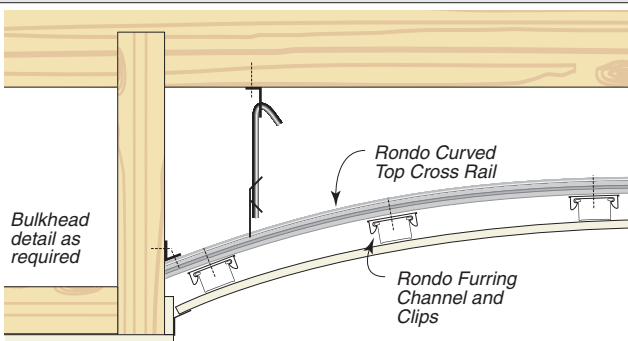
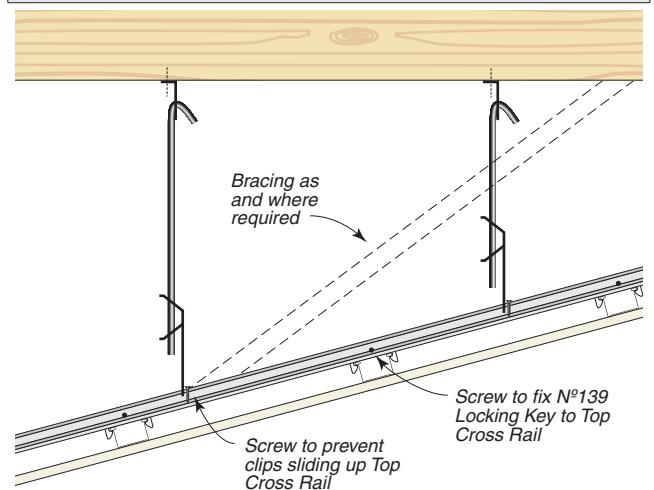


FIG 79: RAKED SUSPENDED FLUSH JOINTED CEILING



CONSTRUCTION DETAILS

Details in FIG 80 to FIG 85 are suitable for non-fire rated ceilings with no acoustic requirements only.

Control Joints

FIG 80: CONTROL JOINT IN CEILING – PARALLEL TO STEEL FURRING

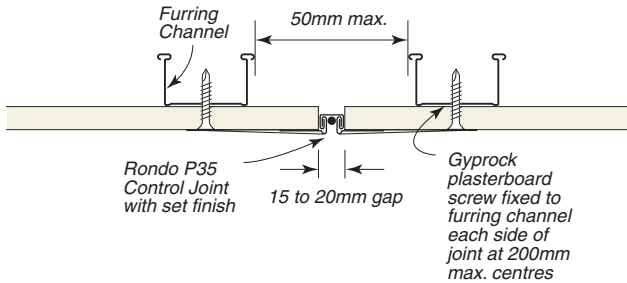
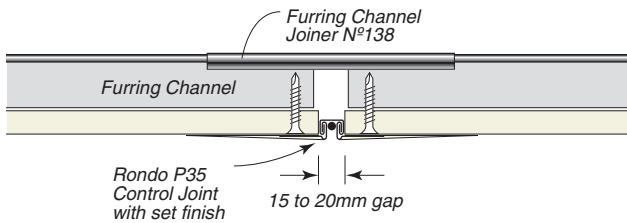


FIG 81: CONTROL JOINT IN CEILING – PERPENDICULAR TO STEEL FURRING



Perimeter Details

FIG 82: PERIMETER DETAIL – CORNICE FINISH

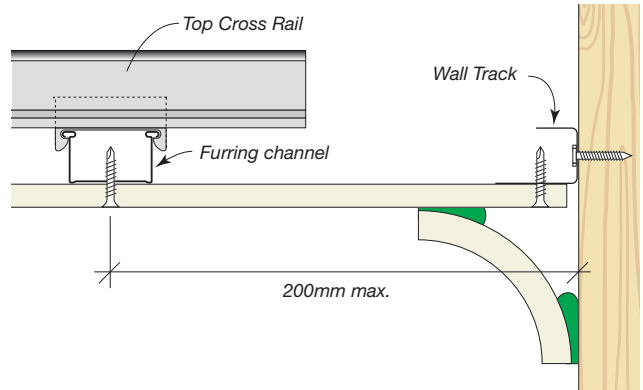


FIG 83: PERIMETER DETAIL – SHADOWLINE FINISH

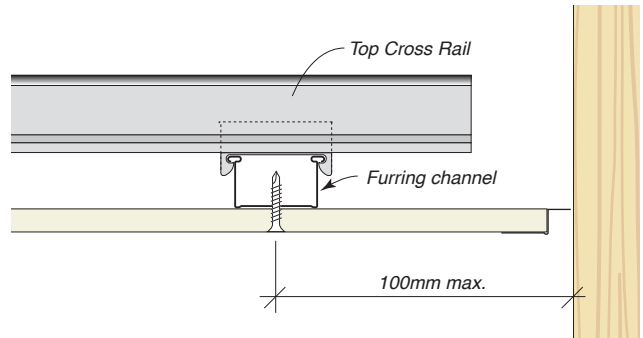


FIG 84: PERIMETER DETAIL – SHADOWLINE FINISH

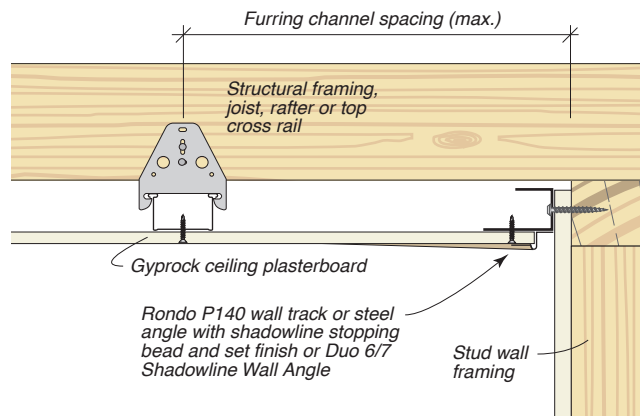


FIG 85: PERIMETER DETAIL – SHADOWLINE FINISH

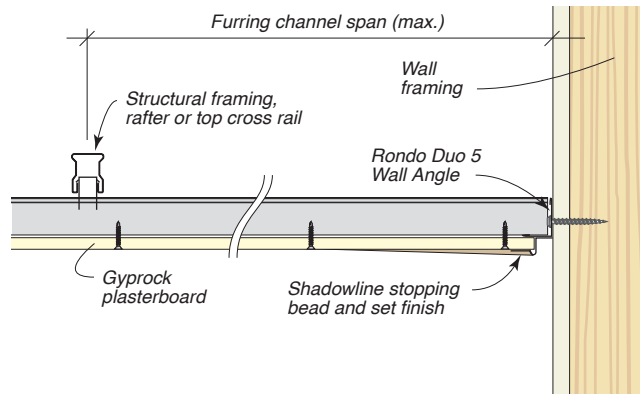


FIG 86: TYPICAL INSTALLATION AND PERIMETER DETAIL FOR GYPROCK ACOUSTIC WALL/CEILING SYSTEM – PERPENDICULAR TO CEILING FRAMING

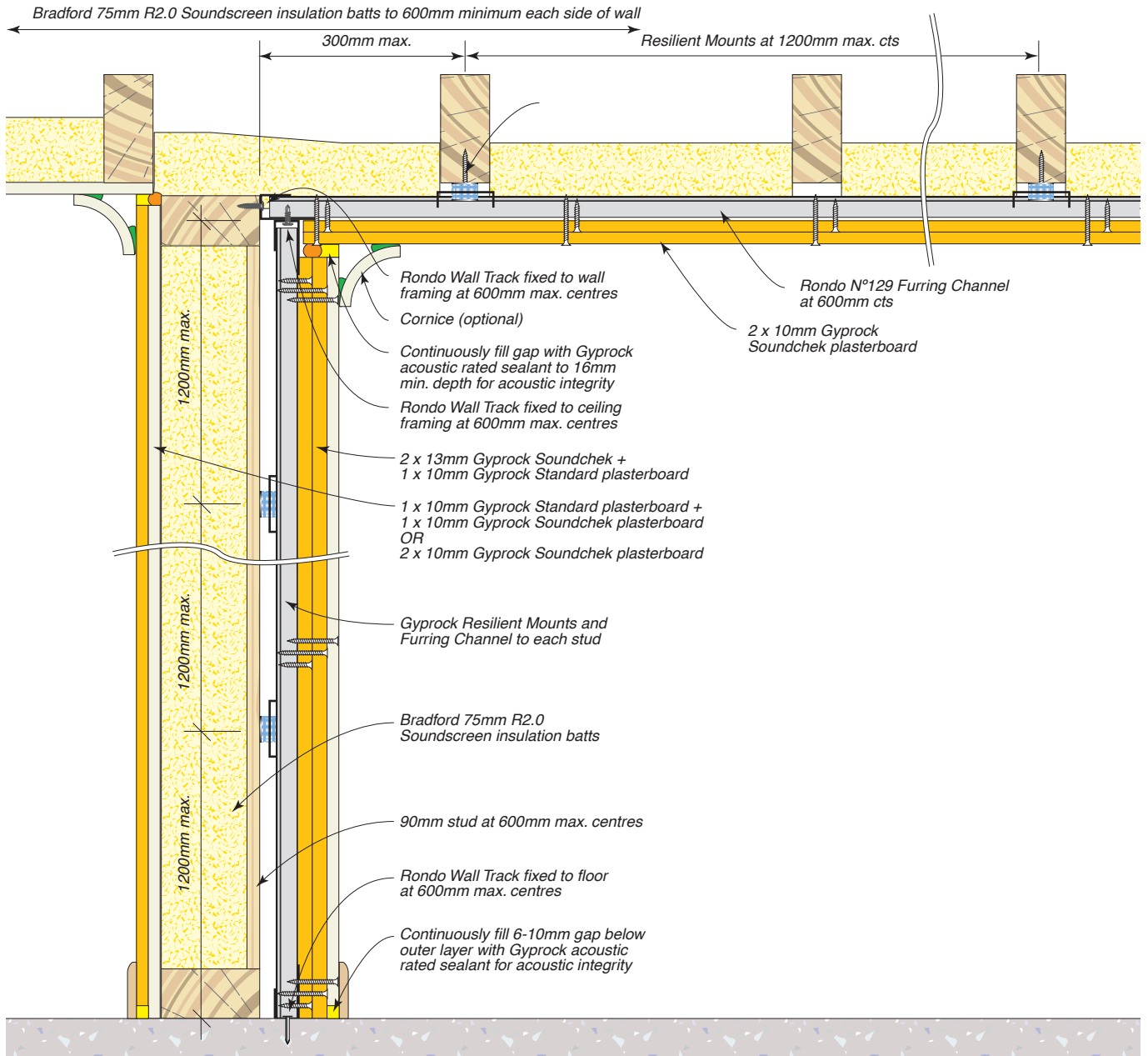
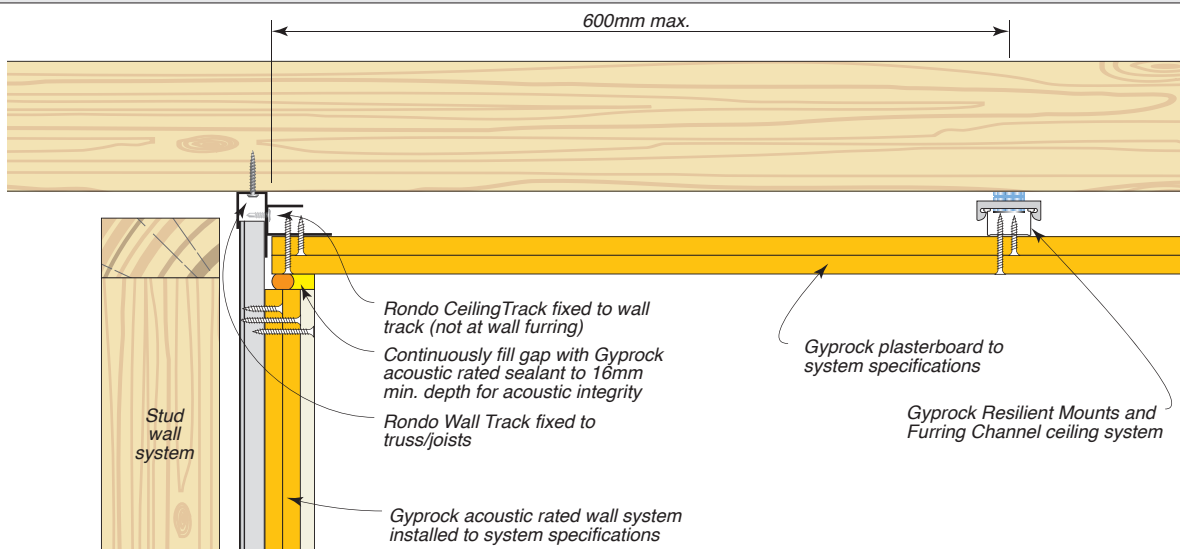


FIG 87: TYPICAL PERIMETER JUNCTION DETAIL FOR GYPROCK ACOUSTIC WALL/CEILING SYSTEM – PARALLEL TO CEILING FRAMING



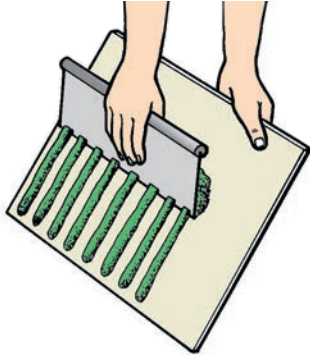
Back-Blocking of Recessed Joints

In multi-layer systems recessed joints in consecutive layers must be offset by a minimum of 300mm. No back-blocking is required.

In single layer systems, back-blocking of recessed joints is required in Level 4 Finishes where three or more recessed joints occur in a continuous ceiling area, and in all Level 5 Finish applications.

Install back-blocking in accordance with the following specifications. Refer to the "Levels of Finish" and FIG 88.

- Cut back-blocks of at least 200mm width and long enough to fit loosely between the framing members.
- Fix back-blocks with Gyprock Back-Blocking Cement, Base Coat or Cornice Cement applied with a notched spreader to form beads 6mm x 6mm at approximately 20mm centres over the entire face of the back-block.
- Apply Gyprock sheets with the long edges at right angles to joists or battens. Place back-blocks along the full length of the sheet edge. As soon as all the blocks are in position, install the adjoining sheet.



- Back-blocks must be adhered in position before the joints are finished. Back-blocks may also be applied by working above the ceiling after the sheets have been fixed.

Back-Blocking of Butt Joints Off Framing

Wherever possible, butt jointing of sheets on ceilings should be avoided.

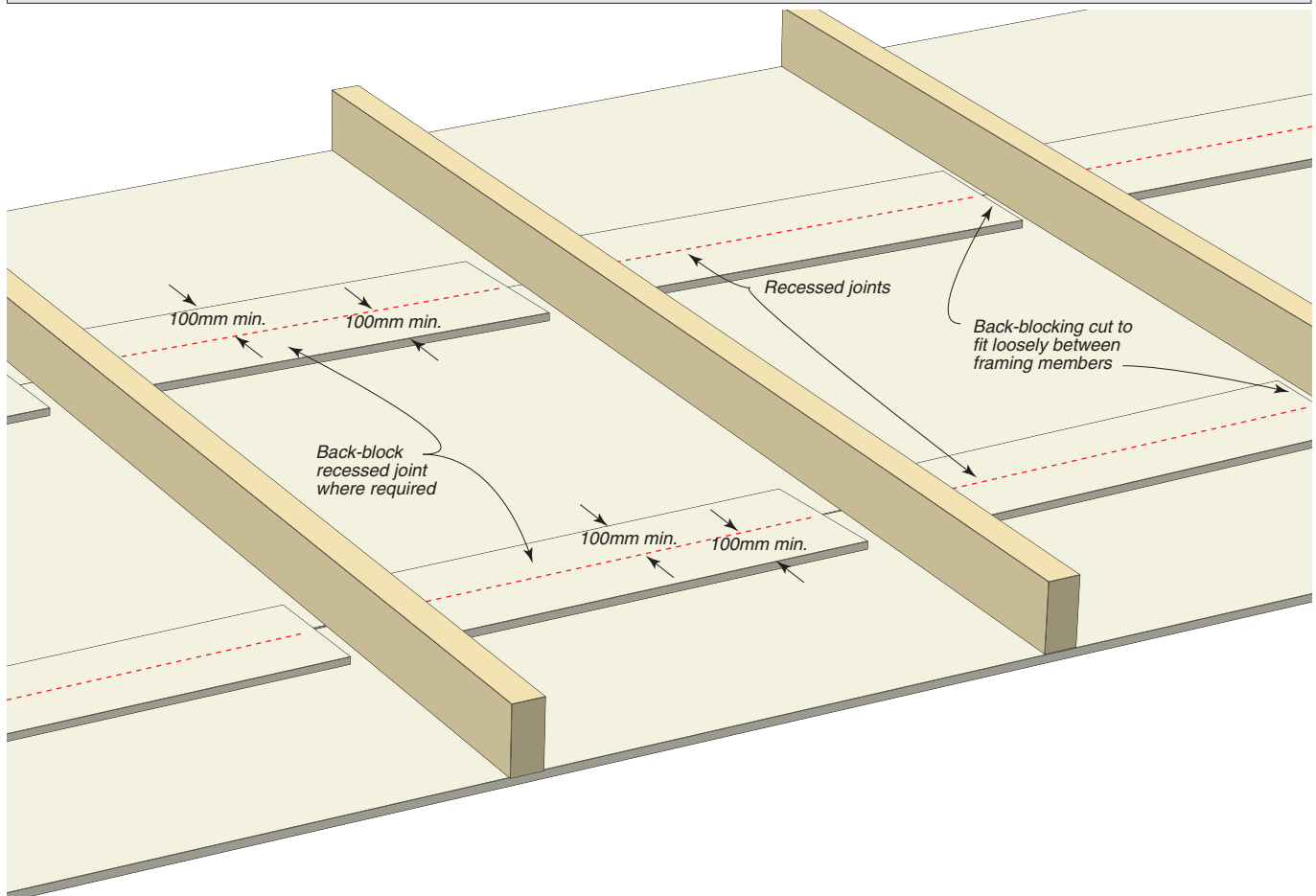
In multi-layer systems, butt joints in hidden layers are to be formed on framing members and offset by one frame spacing minimum in consecutive layers.

Butt joints in the final layer are to be formed within 50mm of the centreline between members, offset by one frame spacing minimum from previous layers and in adjoining sheets, and fixed with Gyprock Laminating Screws (40mm x N°10) at 40mm from corners and sheet ends and at 200mm maximum centres.

In single layer systems, back-blocking of butt joints is required in all Level 4 and Level 5 Finishes. In these cases, butt joints are to be formed within 50mm of the centreline between framing members, back-blocked and depressed, forming a recess to allow smooth jointing.

Where mid-span butt or end joints are not required but are used to minimise plasterboard wastage, these joints must also be back-blocked.

FIG 88: BACK-BLOCKING OF RECESSED JOINTS ON CEILINGS

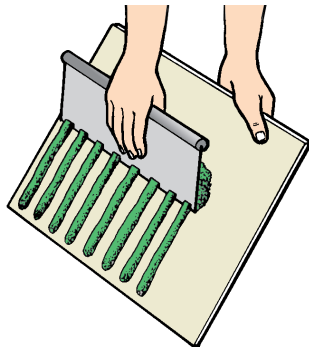


One of the following methods is to be used on all single layer butt joints formed between framing members.

Method 1

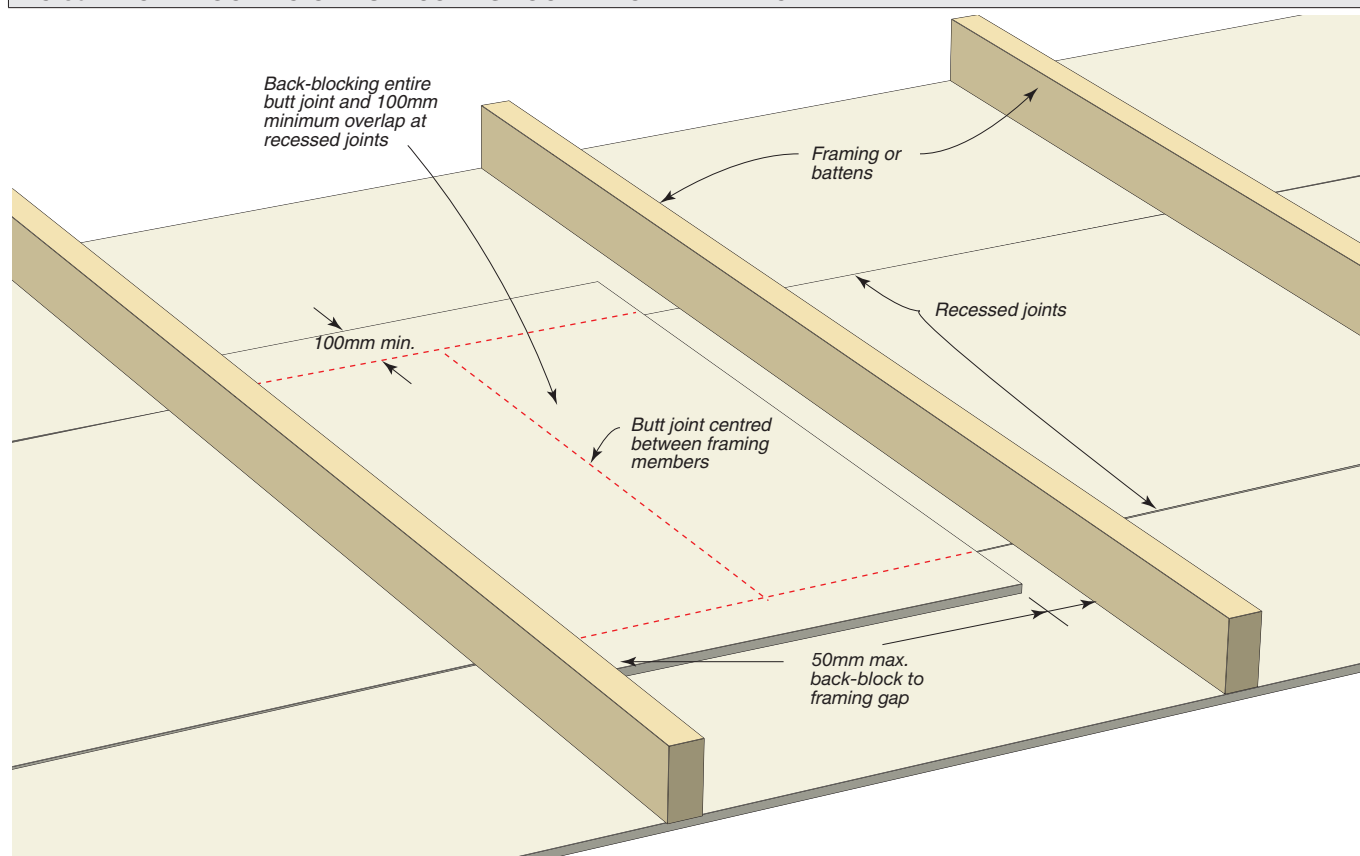
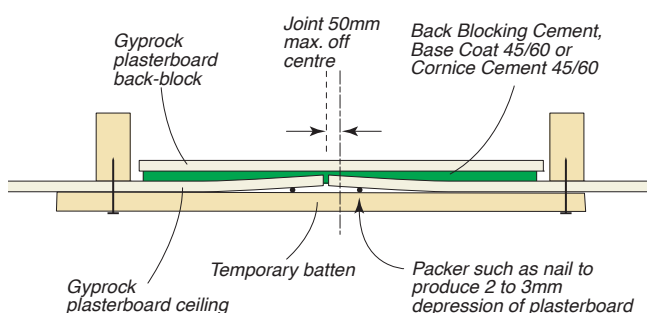
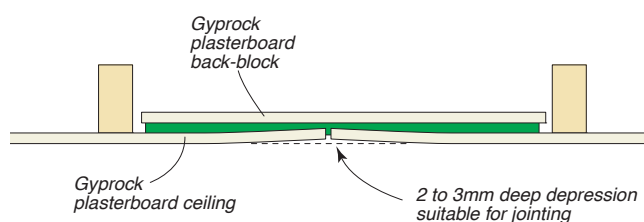
Back-blocking is formed using temporary battens screwed to framing across the front of the joint together with pieces of Gyprock plasterboard adhesive laminated to the back of the joints. Refer to FIG 89.

- Sheet ends should be neatly cut and butted together within 50mm of the centre line between the studs.
- Fix back-blocks with Gyprock Back-Blocking Cement, Base Coat or Cornice Cement applied with a notched spreader to form beads 6mm x 6mm at approximately 20mm centres over the entire face of the back-block.



- Bend sheet ends upwards using temporary battens and packing (such as screws) installed at 300mm maximum centres along the butt joint to form a 2mm deep depression.
- Reinforce the butt joint by back-blocking with Gyprock plasterboard placed between the framing. Back-block along the full length of the butt joint and overlapping the recessed joints by a minimum 100mm.
- Fix back-blocks with Gyprock Back-Blocking Cement, Base Coat or Cornice Cement as described earlier.
- Allow the adhesive to set for a minimum of 24 hours before removing the temporary battens. A hollow formation suitable for jointing remains.

FIG 89: BACK-BLOCKING OF BUTT JOINTS LOCATED OFF FRAMING

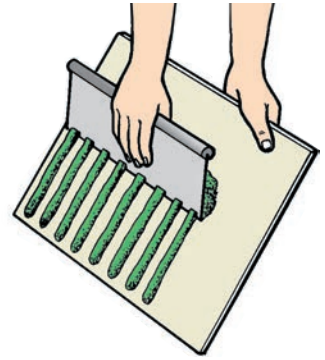


Method 2

Back-blocking is formed using Rondo B005 battens to form the depressed joint, along with pieces of Gyprock plasterboard adhesive laminated to the back of the joint. Refer to FIG 90.

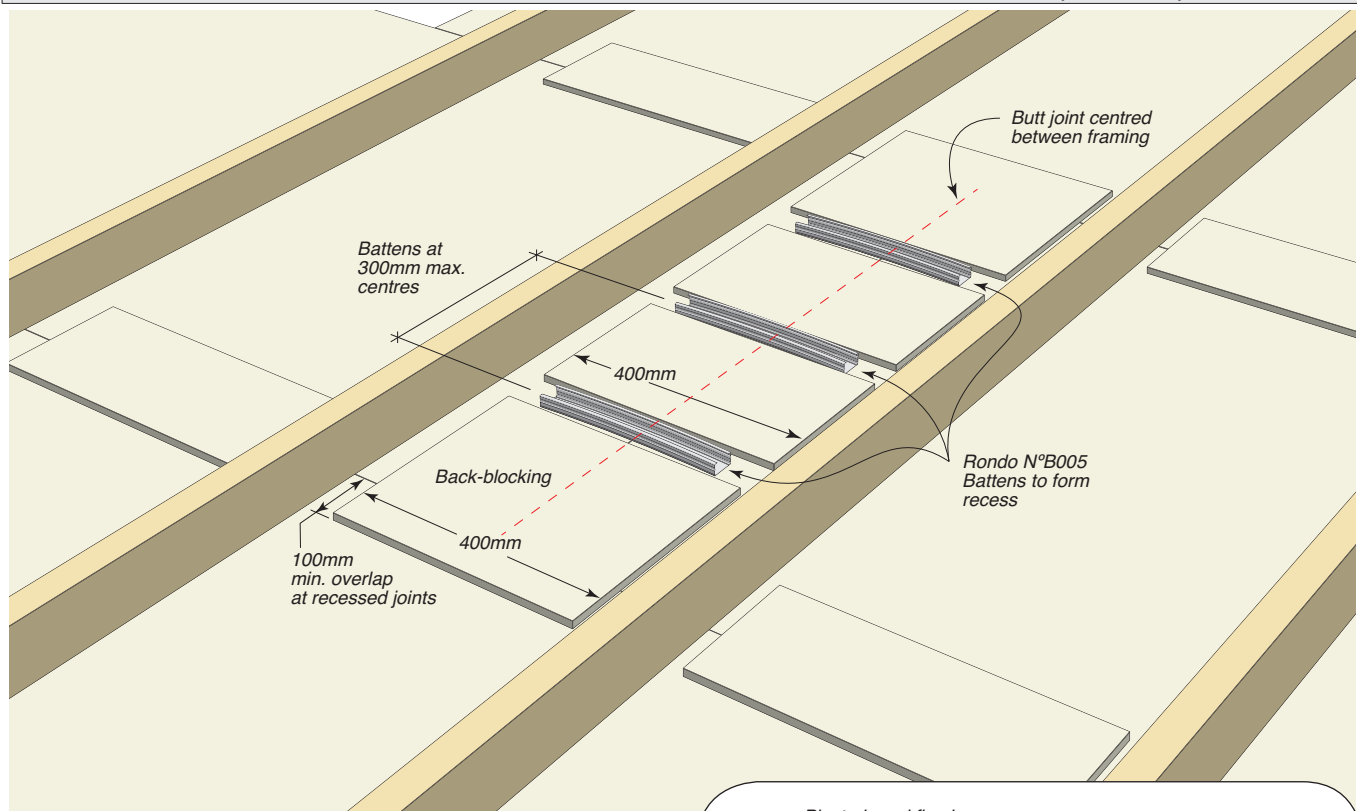
- Install Rondo B005 battens centred over the butt joint and at 300mm maximum from recessed joints and 350mm maximum centres.
- Fix battens with 2 screws each side of the joint to form a depression in the ceiling sheet. Install screws carefully. Collated screw guns may not be suitable for this procedure.
- Cut back-blocks to overlap the recessed joints by 100mm minimum and long enough to fit loosely between the framing members.

- Fix back-blocks with Gyprock Back-Blocking Cement, Base Coat or Cornice Cement applied with a notched spreader to form beads 6mm x 6mm at approximately 20mm centres over the entire face of the back-block.

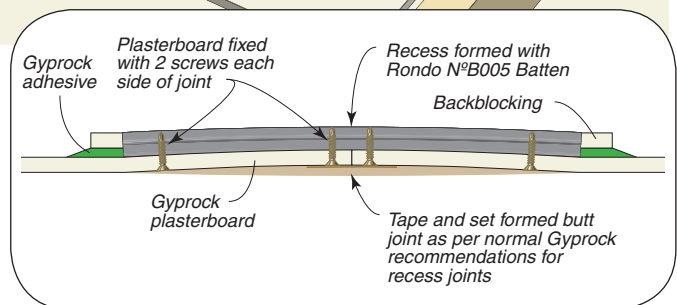


- Reinforce the butt joint with the back-blocking along the full length of the butt joint and overlapping the recessed joints by a minimum 100mm.
- Allow the adhesive to set for a minimum of 24 hours before removing the temporary battens. A hollow formation suitable for jointing remains.

FIG 90: BUTT JOINT CONSTRUCTION USING RONDO B005 BATTENS AND BACK-BLOCKING (TOP VIEW)



NOTE: Install screws to battens carefully. Collated screw guns may not be suitable.



JOINTING & FINISHING

Good Environmental Choice Australia

A majority of CSR Gyprock compounds, plasters and adhesives products have been accredited under the Good Environmental Choice Australia Adhesives, Fillers & Sealants Standard AFSv4.0-2014, which is compliant with the requirements of the Green Building Council of Australia's Assessment Framework for product certification schemes. This certification as a good 'environmental choice' means that the product complies to the environmental and social performance characteristics as detailed in the voluntary environmental labelling standard.



JOINTING SYSTEMS

Jointing and finishing of Gyprock plasterboard interior installations is to be carried out in accordance with the requirement TABLE 21 or TABLE 22 in this publication, and the following details, so as to provide a smooth surface for decorating.

Stopping and external corner beads are to be applied to all edges subject to damage.

A Level 4 Finish is generally the accepted level of finish for residential construction as detailed in AS/NZS2589.1, and is also recommended for commercial construction. This requires a three coat system, consisting of:

- tape and tape coat
- second coat, and
- finish (or topping) coat.

In fire rated systems and acoustic systems with multiple board layers, a different level of finish may be specified, and back-blocking of joints is not required. For additional requirements for Levels 3, 4 and 5 Finishes, refer to TABLE 2.

Jointing Compounds

Gyprock jointing compounds are classified as either setting type or drying type. Setting type compounds produce stronger joints and reduce installation delays and shrinkage associated with drying-type compounds. They are recommended for experienced trades people and have a defined setting time e.g. 20, 45, 60 or 90 minutes.

Setting type compounds are: Base Coat 20, Base Coat 45, Base Coat 60 and Base Coat 90.

Additional coats may be applied over setting type compounds once they have gone hard (set), usually 40 minutes to two hours. A drying type compound must be used as a finish coat and must be completely dry before sanding. This usually takes about 24 hours.

Drying type compounds are: Wet Area Base Coat, Multi-Purpose Compound, Pre-Mixed Total Joint Cement, Easy-Flow, Ultra-AP, Final Finish, Jointmaster, Easy-Finish, and Ultra-Top, and are supplied as premixed product. Total Coat-Lite is supplied in dry form.

Drying type compounds will shrink and harden with evaporation of water. The joints must be allowed to set and appear completely dry before re-coating or sanding. Actual drying times will be extended in low temperature and high humidity conditions. Do not use a setting type compound over a drying type compound. Note that Gyprock Wet Area Base Coat sets very hard; apply accurately to avoid the requirement to sand.

All compounds can be applied by hand or with mechanical jointing tools.

Jointing Perforated Plasterboard

Tape and set joints using only approved Gyprock jointing systems and use as detailed later in this guide.

Due to the location of the perforations close to the edge of panels, butt joints are of a narrower width than is normal. Special care should be taken to ensure a good joint finish without filling of perforations.

Jointing Wet Areas

It is recommended that a Gyprock Wet Area Base Coat be used at sheet joints in areas that are required to be waterproof or water resistant. Set all joints with Gyprock Wet Area Base Coat and paper tape. When the tape coat has dried, apply a second coat of Wet Area Base Coat. Cover all fastener heads with Wet Area Base Coat.

Joints in wet areas that are not tiled and not required to be waterproof or water resistant should be set with Gyprock compounds and tape as detailed for Level 4 or Level 5 finishes.

Jointing Tape

Gyprock jointing tapes are used to provide strength and rigidity in the first coat of a three coat plasterboard jointing process. The tape is bedded in a base coat or all-purpose compound before the second coat and topping coat is applied and sanded ready for painting. Gyprock tapes are also used in conjunction with a patching compound to repair dents, cracks and holes in plasterboard walls, ceilings and cornice.

Gyprock Paper Tape is a professional taping product that provides high tensile strength for stronger joints. It has a rough texture for better adhesion and spark perforations for a smoother finish. Paper Tape is creased along the centre line for better corners and performance in automatic taping tools.

Easy Tape is a self-adhesive, fibreglass mesh jointing tape designed for plasterboard repairs and minor wall jointing projects. Easy Tape is used with Gyprock Rapid Patch or Base Coat compounds for repairing cracks and holes in plasterboard walls, ceilings and cornice, and with Gyprock jointing compounds when taping minor sections of wall joints. Easy Tape is not suitable for use in ceiling joints or fire-rated systems.

Site Mixing of Compounds

The first step to achieving good jointing is proper mixing of the compound.

- Always use clean containers and mixing equipment as contamination by previously set compound will accelerate setting time.
- Always use clean water of drinking quality.
- Never mix different compounds together or mix old batches with new ones.
- Follow mixing instructions printed on each bag.
- Use compounds before the 'Best Before' date printed on the packaging.

IMPORTANT

When setting type compounds are used during hot, dry conditions, rapid evaporation of water and increased absorption by the lining surface can prevent the compound from setting correctly. This will result in the compound being soft and weak.

If jointing must be carried out under severe drying conditions, use Base Coat 45 and mix only small quantities of compound. The compound should then be left standing for approximately 15 minutes to ensure that it sets soon after application to the joints. Additionally, depending on the severity of the drying conditions, the surface of the area to be jointed may require wetting with a brush before applying the compound.

Drying-type compounds should not be used when the interior temperature is less than 10°C.

Preparation

Fill any voids deeper than 4mm and gaps greater than 3mm wide with Base Coat and allow to dry before jointing. All surfaces must be free of dirt, oil or foreign matter that could reduce bond.

TABLE 21: JOINTING COMPOUND SELECTION – HAND OR MECHANICAL APPLICATION		
Tape Coat	Second Coat	Finish Coat
Any of the following:	Any of the following:	Any of the following:
Base Coat 20 Base Coat 45 Base Coat 60 Base Coat 90 Pre-Mixed Total Joint Cement Multi-Purpose Compound Wet Area Base Coat Easy-Flow Ultra-AP Total Coat-Lite (dry)	Base Coat 20* Base Coat 45* Base Coat 60* Base Coat 90* Pre-Mixed Total Joint Cement Multi-Purpose Compound Wet Area Base Coat Easy-Flow Ultra-AP Total Coat-Lite (dry)	Jointmaster Ultra-Top Pre-Mixed Total Joint Cement Multi-Purpose Compound Easy-Finish Easy-Flow Final Finish Ultra-AP Total Coat-Lite (dry)
* Do not use a setting compound over a drying type compound. For protected exterior applications, use Wet Area Base Coat for tape and second coat, followed by a Gyprock Finish Coat.		

TABLE 22: JOINTING SYSTEM SELECTION – TILED AREAS			
Wall	Tape coat	Second Coat	Finish Coat
Waterproof or water resistant	Wet Area Base Coat	Wet Area Base Coat	Nil
Other areas	Base Coat 20 Base Coat 45 Base Coat 60 Base Coat 90	Base Coat 20 Base Coat 45 Base Coat 60 Base Coat 90	Nil

TABLE 23: APPROXIMATE QUANTITIES PER 100m² GYPROCK PLASTERBOARD (HORIZONTAL SHEETING)^

Tape + Second Coats	Approx Qty	Finish Coat	Approx Qty
Base Coat 20/45/60/90	16kg	Multi-Purpose Compound	10kg
Wet Area Base Coat	15kg	Pre-Mixed Total Joint Cement	10kg
Multi-Purpose Compound	31kg	Easy-Flow	7kg
Pre-Mixed Total Joint Cement	31kg	Ultra-AP	5.7kg
Easy-Flow	21kg	Final Finish	10kg
Ultra-AP	18.5kg	Jointmaster	10kg
Total Coat-Lite (dry)	13kg	Easy-Finish	8kg
		Ultra-Top	6kg
		Total Coat-Lite (dry)	4.5kg

^ Allow 20% more jointing material for vertical sheeting.

JOINTING WITH MECHANICAL TOOLS

The use of mechanical tools to joint Gyprock plasterboard is very popular, and used correctly, these tools can significantly increase productivity by cutting the amount of time taken to finish a job. Gyprock supplies an extensive range of mechanical jointing tools to increase productivity and reduce physical stresses on operators. Please contact your local Gyprock centre for details.

Premixed compounds should be used directly from the bucket, but can, if necessary, be thinned down with water, used sparingly. Follow the instructions provided on the product packaging.



Mechanical Jointing of Recessed Joints & Back-blocked Butt Joints

Tape Coat

- Using a 'combination machine', apply tape and compound centrally to the recessed joint.
- Using a 'mud box', apply a 140mm tape coat to the joint. This will fill the recess and feather the edges.

OR

- Using a joint knife, immediately press tape into the joint, fill the recess and cover the tape with a thin coat. Feather the edges and clean off excess compound.

NOTE

A minimum 1mm compound is to be left under the tape.

- Cover all fastener heads and fill any surface damage with compound.
- Allow setting-type compounds (Gyprock Base Coat) to set completely, and drying type compounds to harden for 24 hours before proceeding.

Second Coat

- Using a '200mm mud box', apply a second coat to the recessed joint.
- Cover fastener heads with a second coat of compound, laid in a different direction, and extending beyond the first coat by about 25mm.
- Allow compound to set/harden before proceeding.

Finish Coat

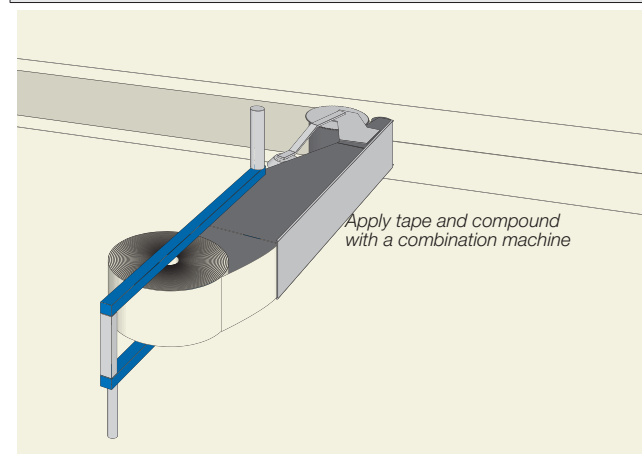
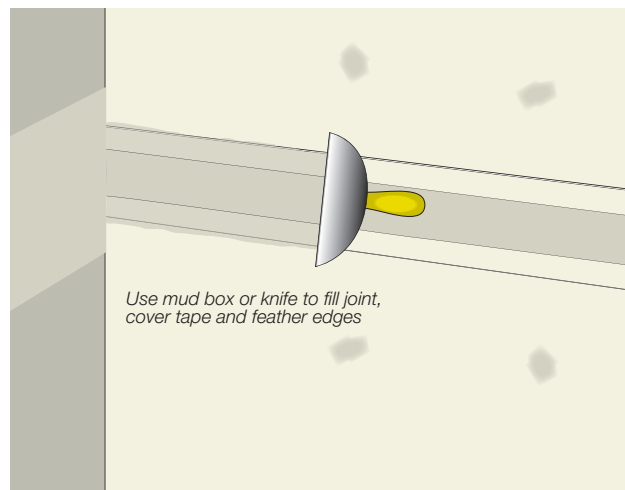
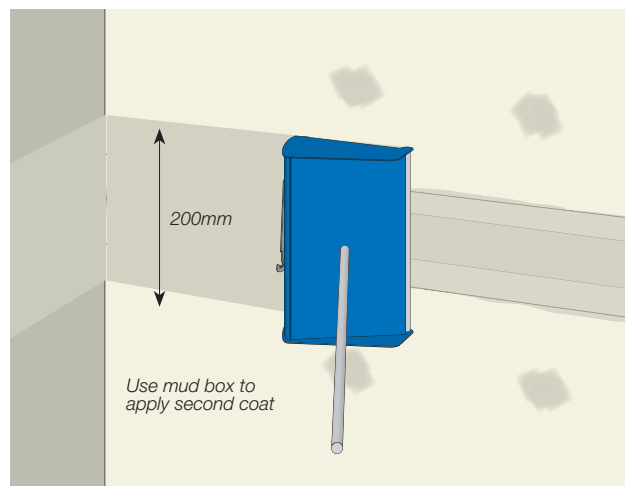
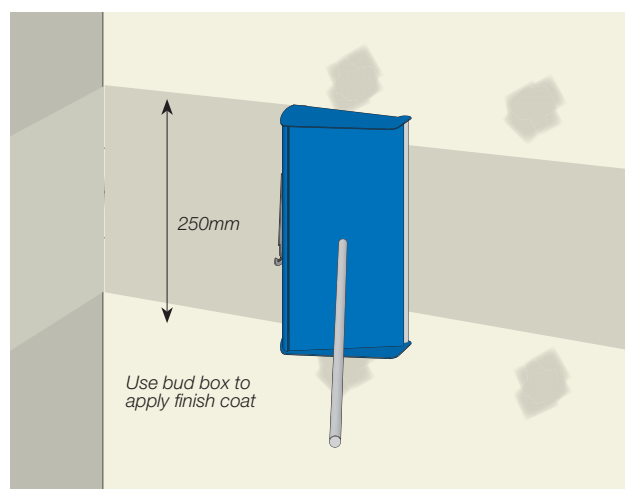
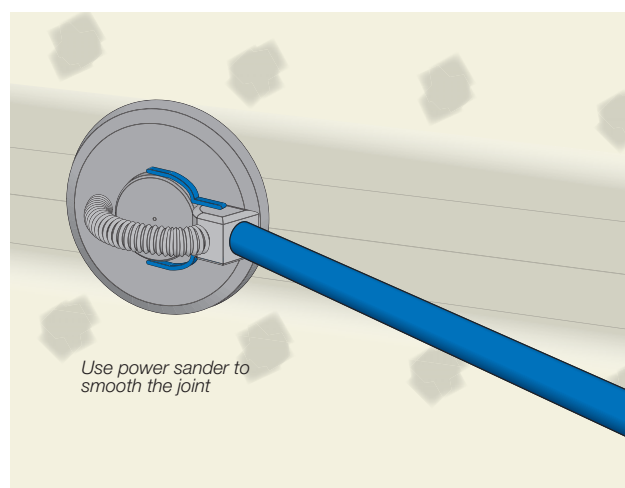
- Using '250mm mud box', apply third coat to the recessed joint.
- Cover fastener heads with a third coat of compound, laid in a different direction, extending beyond the previous coat by about 25mm. Ensure that the edges of the compound are neatly feathered and that there are no trowel edge marks left in the final stopping.
- Allow compound to harden before proceeding.

Sanding

- Use a power sander to smooth the compound.

Caution: If previous coats of drying type compounds are not thoroughly dry before application of subsequent coats, imperfections can result from delayed shrinkage of the compound.

FIG 91: PROCEDURE FOR MECHANICAL JOINTING OF RECESSED JOINTS & BACK-BLOCKED BUTT JOINTS



Mechanical Jointing of Butt Joint Formed on Framing

Tape Coat

- Using a 'combination machine', apply tape and compound centrally to the butt joint.
- Using a 'mud box', apply a 140mm tape coat to the joint. This will also feather the edges.

OR

- Using a joint knife, immediately press tape into the joint and cover the tape with a thin coat. Feather the edges and clean off excess compound.

NOTE

A minimum 1mm compound is to be left under the tape.

- Allow setting-type compounds (Gyprock Base Coat) to set completely, and drying type compounds to harden for 24 hours before proceeding.

Second Coat

- Using a '200mm mud box' (adjusted to reduce centre build-up), apply a second coat to each side of the butt joint.
- Allow compound to set/harden before proceeding.

Finish Coat

- Using a '250mm mud box' (adjusted to reduce centre build-up), apply a third coat to each side of the butt joint.
- Allow compound to harden before proceeding.

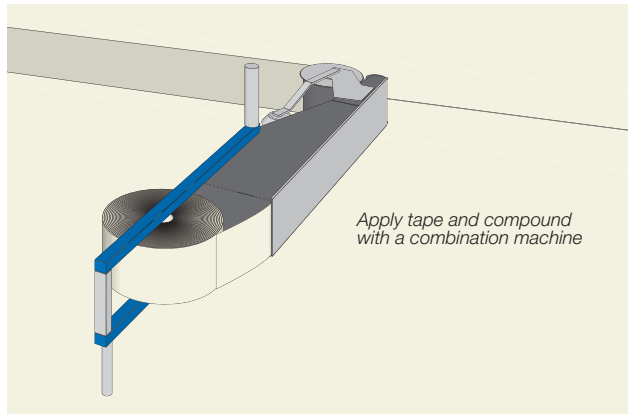
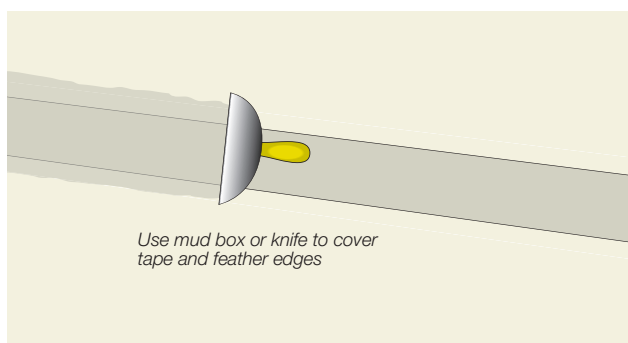
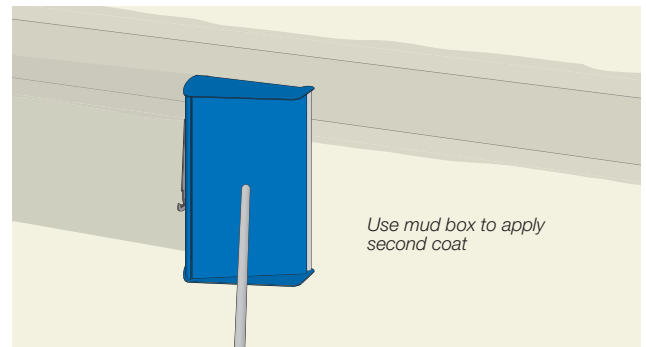
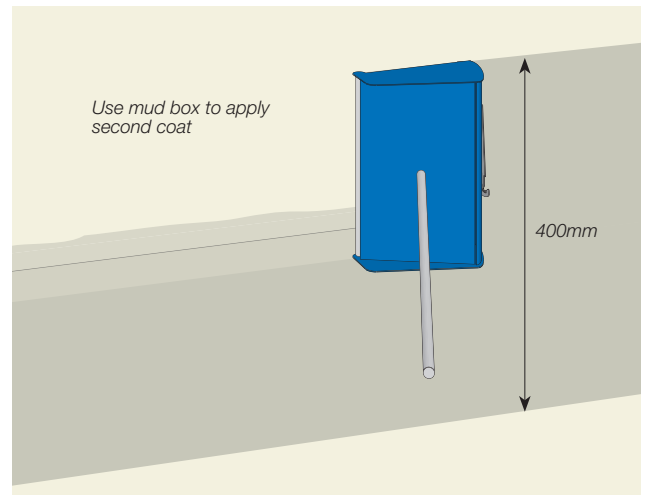
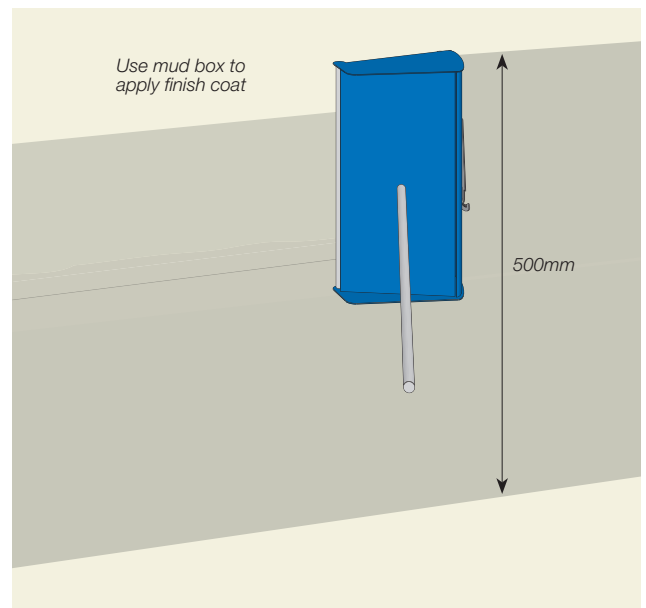
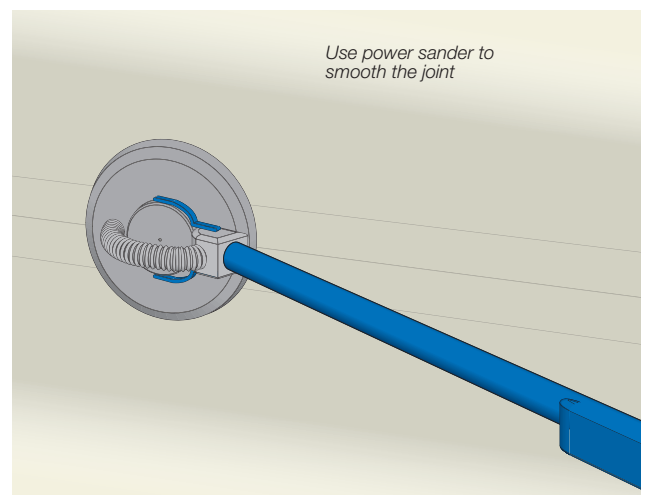
Sanding

- Use a power sander to smooth the compound.

Sanding

- Use a power sander to smooth the compound.

FIG 92: PROCEDURE FOR MECHANICAL JOINTING OF BUTT JOINT FORMED ON FRAMING



Mechanical Jointing of Internal Corners

Remove debris from corner and floor.

Tape Coat

- Using a 'combination machine with tape creaser in place', or a 'mud box with creaser attachment', apply tape and compound centrally to the recessed joint.

OR

- Using a 'corner box', apply compound to the corner, then manually apply tape centred over the joint.
- Follow immediately with a corner roller, pressing tape into the joint.
- Using a glazing tool, cover the tape with a thin coat, feather the edges and clean off excess compound.

NOTE

A minimum 1mm compound is to be left under the tape.

- Allow setting-type compounds (Gyprock Base Coat) to set completely, and drying type compounds to harden for 24 hours before proceeding.

Finish Coat

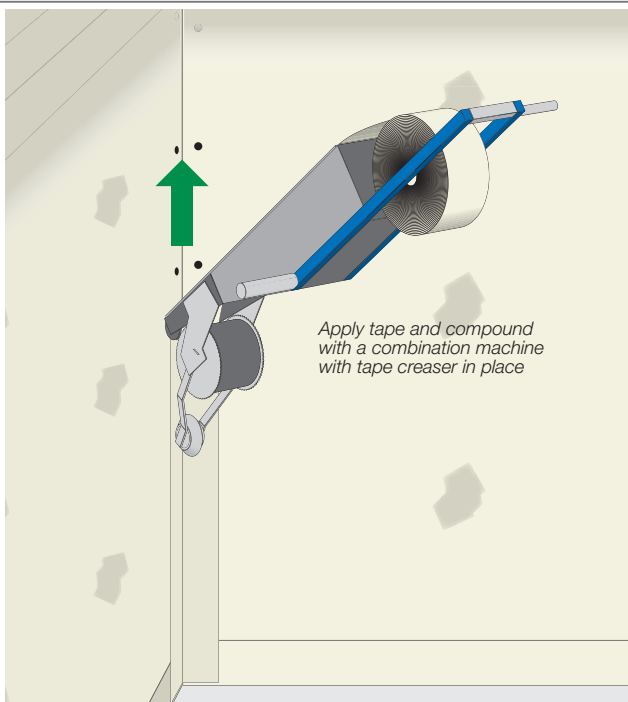
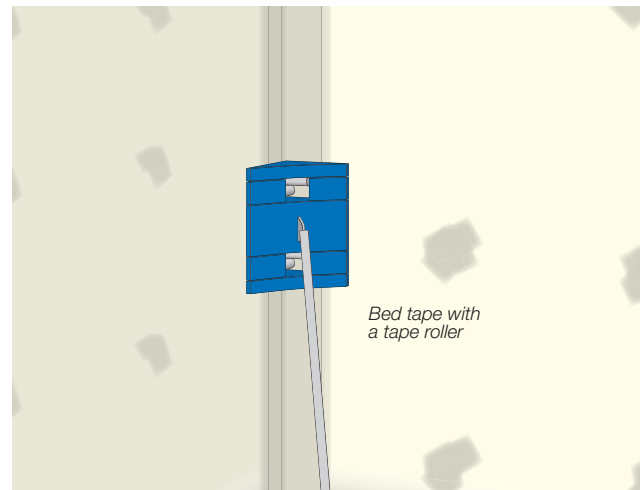
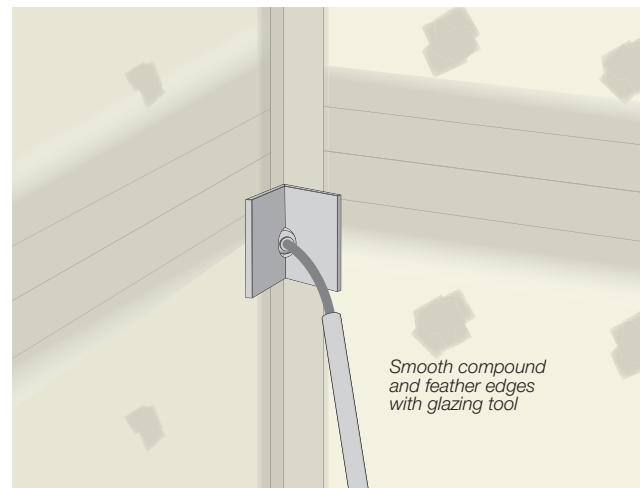
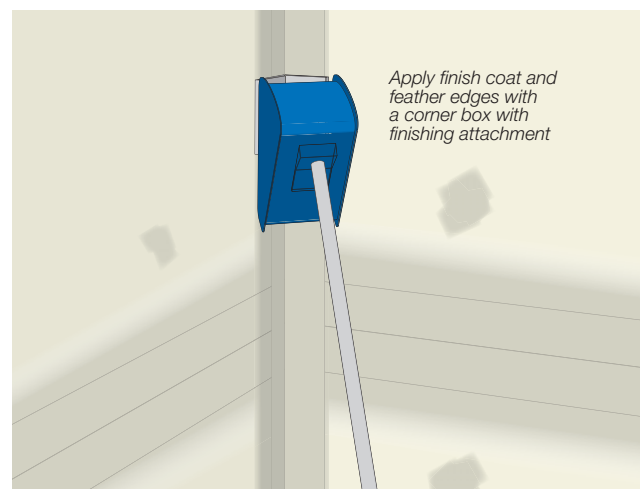
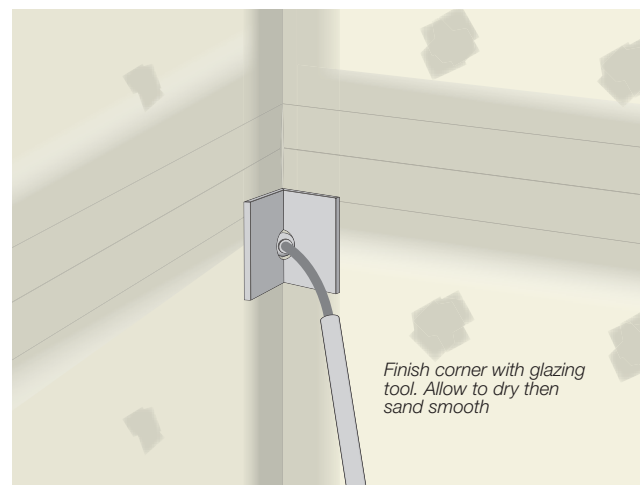
- Using a 'corner box with finisher attachment or corner glazer', apply a thin coat of finishing compound over the tape coat, ensuring that the edges are well feathered.
- Smooth joint with glazing tool.
- Allow compound to harden before proceeding.

Sanding

- Hand sand smooth with 150 grit paper or cloth, or with 150/180/220 grit sanding mesh and a sanding block.

Caution: If previous coats of drying type compounds are not thoroughly dry before application of subsequent coats, imperfections can result from delayed shrinkage of the compound.

FIG 93: PROCEDURE FOR MECHANICAL JOINTING OF INTERNAL CORNERS



Mechanical Jointing of External Corners

Apply Corner Bead

- Position external angle bead over the corner and sight it to ensure straightness before fastening both flanges at 300mm centres.
- Using a joint knife, cover the bead with a thin coat. Feather the edges and clean off excess compound.
- Allow setting-type compounds (Gyprock Base Coat) to set completely, and drying type compounds to harden for 24 hours before proceeding.

Second Coat

- Using a 'mud box', with 'bead guide' attached, apply a minimum 140mm width compound coat to each side of the corner. This will also feather the edges.
- Allow compound to set/harden and trim excess material.

Finish Coat

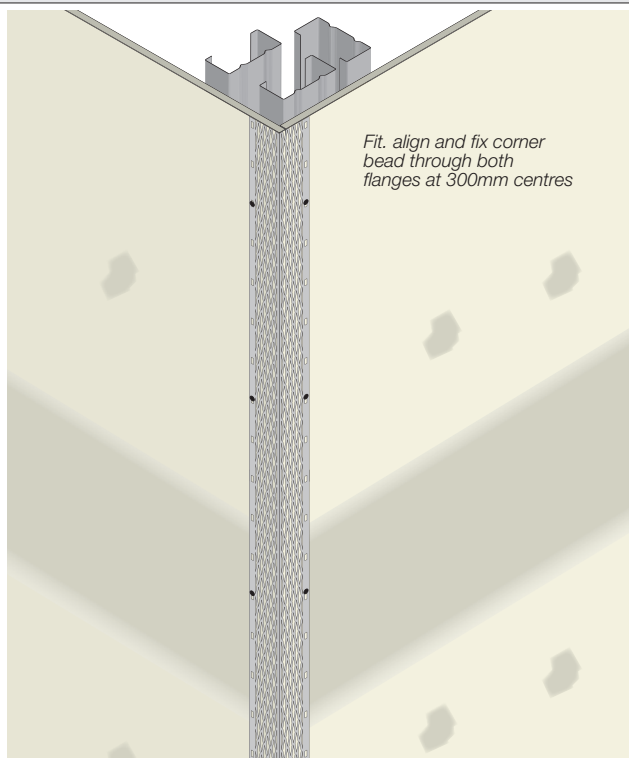
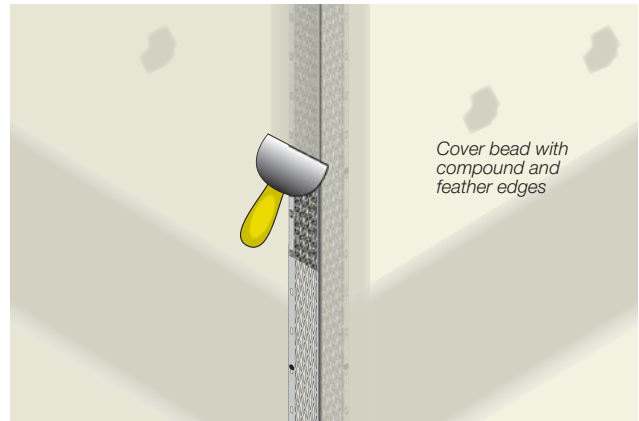
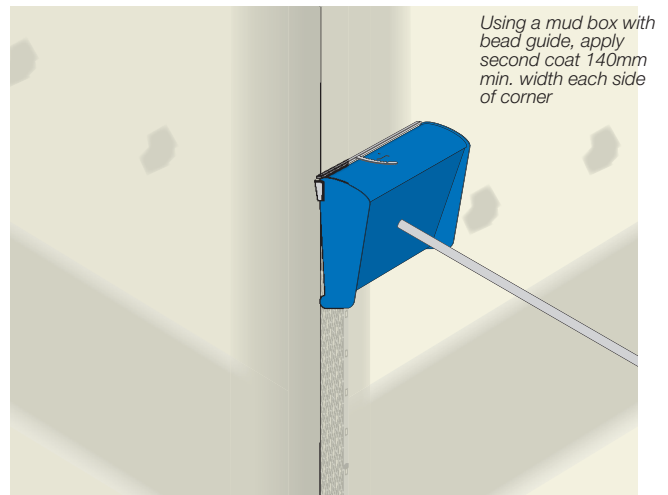
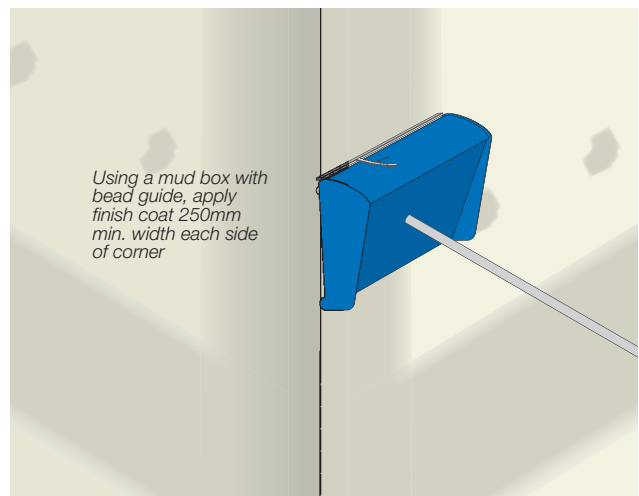
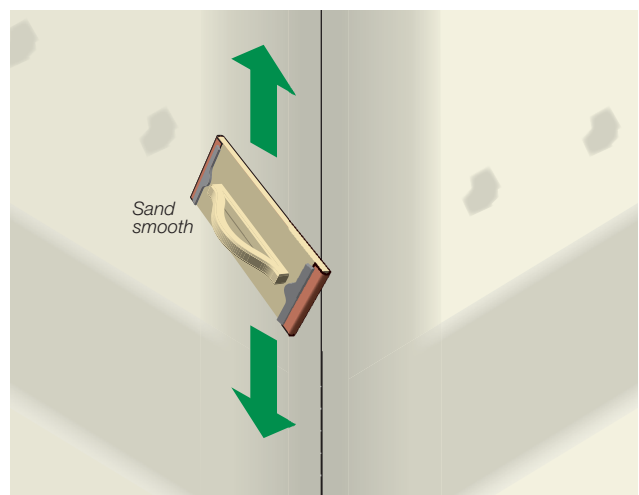
- Using '250mm mud box', with 'bead guide' attached, apply a finish coat each side of the corner.

Sanding

- Hand sand smooth with 150 grit paper or cloth, or with 150/180/220 grit sanding mesh.

Caution: If previous coats of drying type compounds are not thoroughly dry before application of subsequent coats, imperfections can result from delayed shrinkage of the compound.

FIG 94: PROCEDURE FOR MECHANICAL JOINTING OF EXTERNAL CORNERS



JOINTING HAND APPLIED

Hand Jointing of Recessed Joints & Back-blocked Butt Joints

CSR Gyprock recommends the use of curved trowels when setting recessed and back-blocked butt joints. Under normal pressure, a curved trowel deflects enabling the preparation of flatter and more consistent joints. A 200mm curved trowel is recommended for second coat application, while a 250mm curved trowel is recommended for the finish coat.

Tape Coat

- Fill recess in plasterboard evenly and fully with compound using a 150mm broadknife.
- Bed in Gyprock Paper Tape centrally over the joint and cover lightly with compound.
- Cover all fastener heads and fill any surface damage with compound.
- Allow setting-type compounds (Gyprock Base Coat) to set completely, and drying type compounds to harden for 24 hours before proceeding.

Second Coat

- Apply a second coat, about 170mm wide, finishing slightly above the board surface, and feather joint edges.
- Cover fastener heads with a second coat of compound, laid in a different direction, and extending beyond the first coat by about 25mm.
- Allow setting-type compounds (Gyprock Base Coat) to set completely, and drying type compounds to harden for 24 hours before proceeding.

Finish Coat

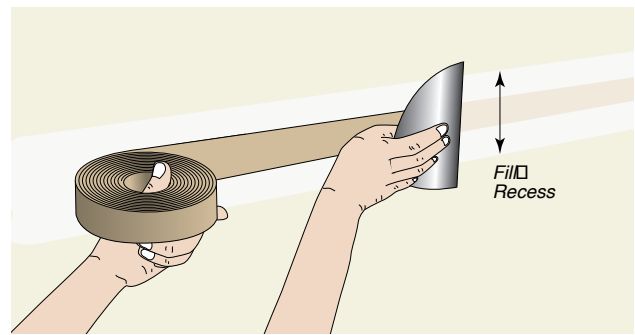
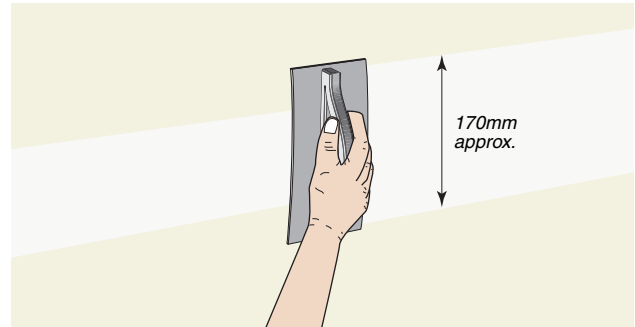
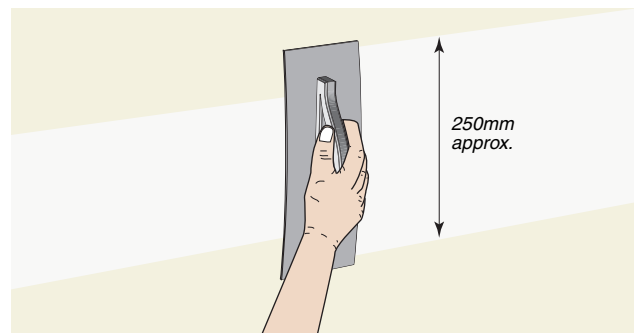
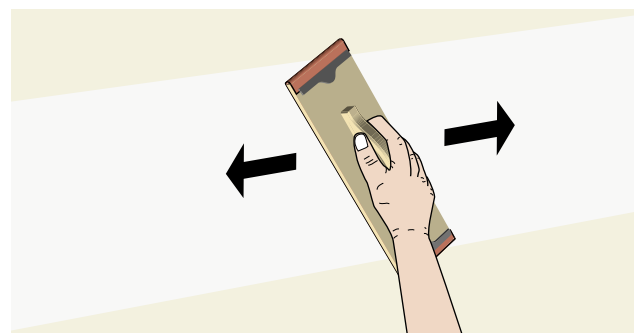
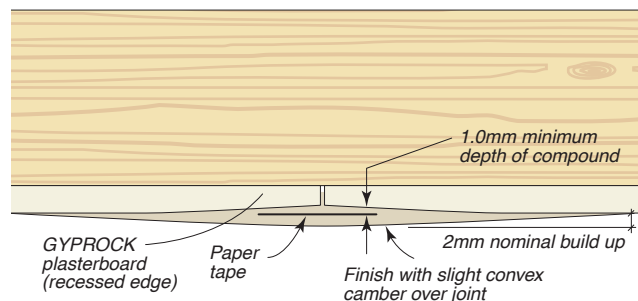
- Apply a thin finish coat of topping compound centrally over the previous coat, about 250mm wide. Feather the edges of the compound with the trowel.
- Cover previously stopped fastener heads with a third coat of compound, laid in a different direction, extending beyond the previous coat by about 25mm. Ensure that the edges of the compound are neatly feathered and that there are no trowel edge marks left in the final stopping.
- Allow the finish coat of compound to dry for at least 24 hours before proceeding.

Sanding

- Sand smooth with 180 grit paper or cloth, or with 220 grit sanding mesh. Avoid any heavy pressure which might scuff the linerboard.

Caution: If previous coats of drying type compounds are not thoroughly dry before application of subsequent coats, imperfections can result from delayed shrinkage of the compound.

FIG 95: JOINTING OF RECESSED JOINTS



Hand Jointing of Butt Joints Formed on Framing

Tape Coat

- Apply a thin layer of compound over the joint.
- Bed Gyprock Paper Tape and apply a thin coat of compound over the top of the tape. The compound must be spread approximately 120mm each side of the joint.
- Allow setting-type compounds (Gyprock Base Coat) to set completely, and drying type compounds to harden for 24 hours before proceeding.

Second Coat

- Apply a second coat of compound about 170mm wide to each side of the joint. This should have a gradual convex camber over the joint surface.
- Allow setting-type compounds (Gyprock Base Coat) to set completely, and drying type compounds to harden for 24 hours before proceeding.

Finish Coat

- Apply a finish coat of topping compound centrally over the previous coat to form an even camber over the joint about 250mm each side of the joint. Soften the outer edges of the compound with a damp water brush or sponge before feathering the edges with the trowel.
- Allow the finish coat of compound to dry for at least 24 hours before proceeding.

Sanding

- Sand smooth with 180 grit paper or cloth, or with 220 grit sanding mesh.
- Finished joints should have an even and slightly convex camber from edge-to-edge as shown.

Caution: If previous coats of drying type compounds are not thoroughly dry before application of subsequent coats, imperfections can result from delayed shrinkage of the compound.

FIG 96: JOINTING OF BUTT JOINTS FORMED ON FRAMING

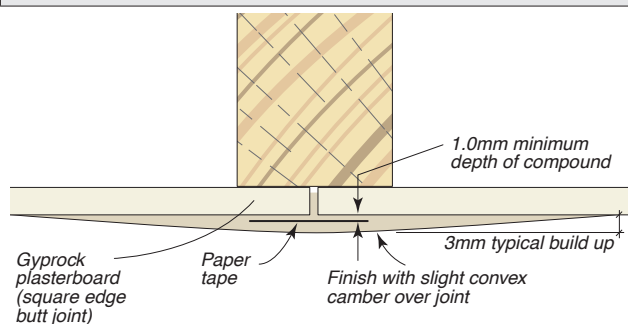
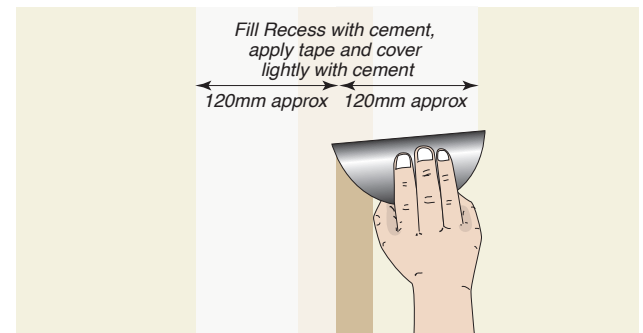
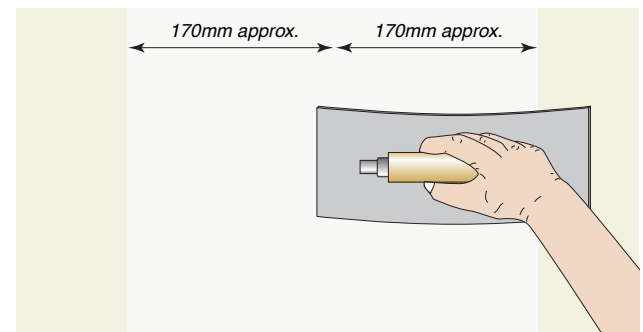
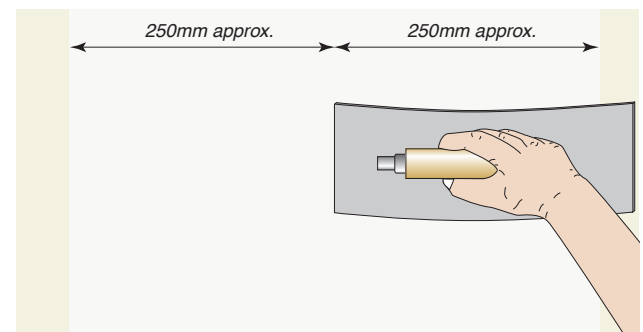
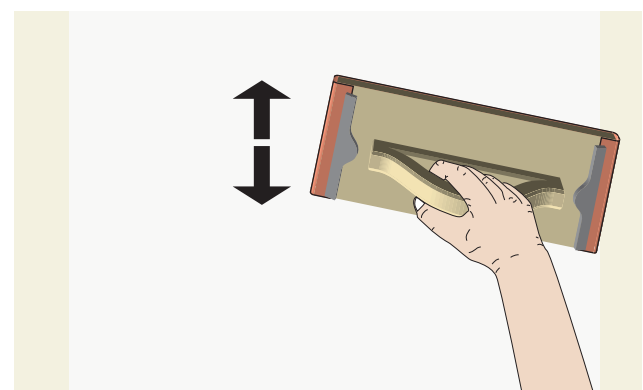


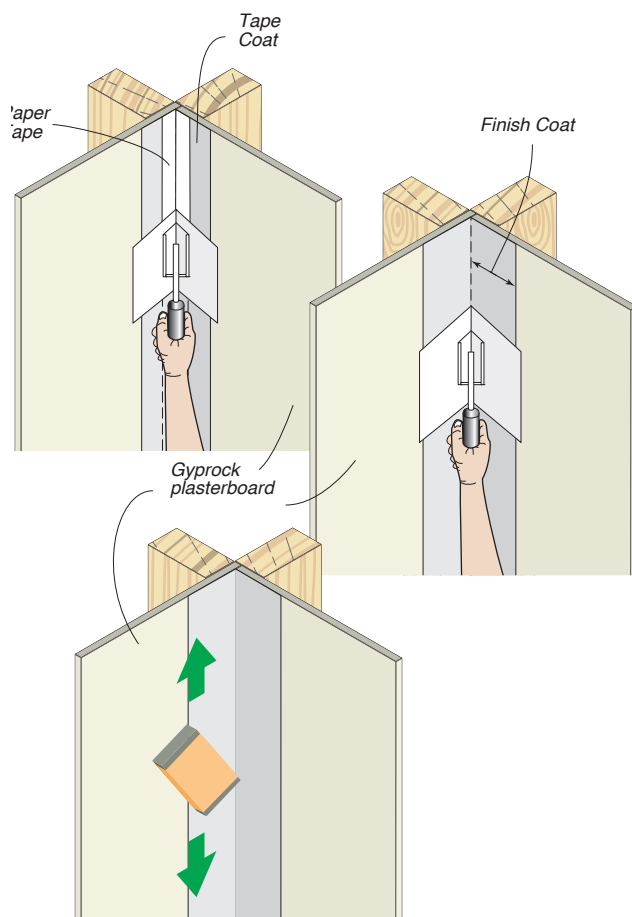
FIG 97: PROCEDURE FOR JOINTING OF BUTT JOINTS



Hand Jointing of Internal Corners

- Apply a tape coat to both sides of the corner, bed in the tape centrally over joint and cover lightly with compound. Ensure at least 1mm depth of compound under the tape.
- Allow setting-type compounds (Gyprock Base Coat) to set completely, and drying type compounds to harden for 24 hours before proceeding.
- When the tape coat is dry, apply a thin coat of finishing compound over the tape coat to a width of at least 100mm, ensuring that the edges are well feathered.
- When dry, sand smooth with 150 grit paper or cloth, or with 150/180/220 grit sanding mesh.

FIG 98: PROCEDURE FOR HAND JOINTING OF INTERNAL CORNERS



Hand Jointing of External Corners & Arch Beads

- Position external angle bead over the corner and sight it to ensure straightness before fastening both flanges at 300mm centres.
- External corners and arch beads are finished with a three coat compound system applied to the same specifications as for joints. The finish coat should be at least 250mm wide each side of the corner.
- When compound is dry, sand smooth with 150 grit paper or cloth, or with 150/180/220 grit sanding mesh.

FIG 99: JOINTING OF EXTERNAL CORNERS

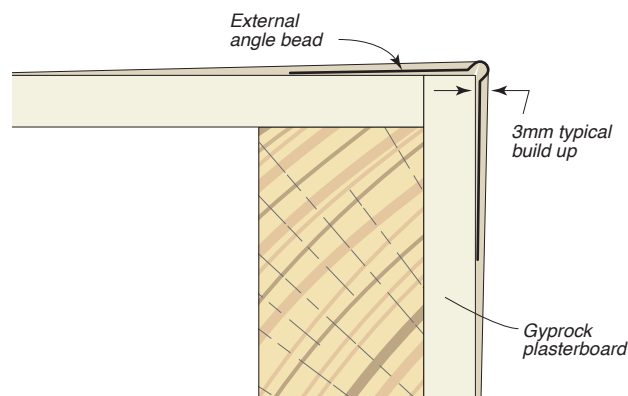
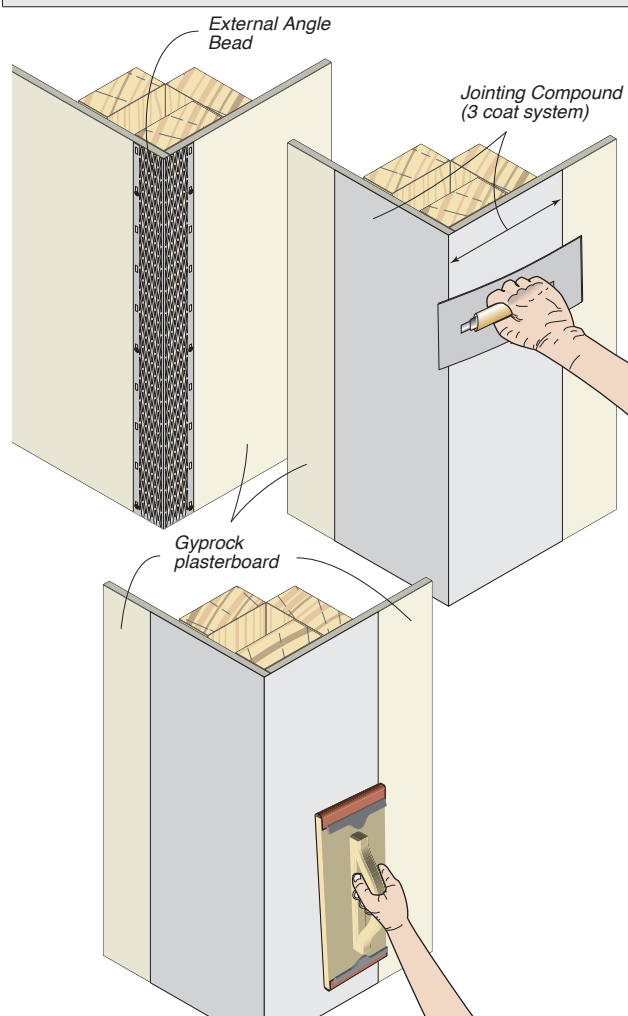


FIG 100: PROCEDURE FOR HAND JOINTING OF EXTERNAL CORNERS



Cornice Fixing

Gyprock Cornice is designed to provide an attractive finish at the junction of the wall and ceiling. It can be used on Gyprock plasterboard, fibrous plaster or cement rendered surfaces.

The cornice is composed of gypsum plaster encased in a strong linerboard.

Gyprock Cornice Cement 45/60 is formulated for adhesion of cornice to plasterboard surfaces. For material other than plasterboard, such as fibre cement, plaster glass, cement render, or highly absorbent surfaces, Gyprock Masonry Adhesive is recommended. In Western Australia Gyprock Cornice Cement 60 may be used as an alternative.

Installation of 100 lineal metres of standard cornice requires approximately 12kg of cornice cement.

IMPORTANT

When cornice cements are used in hot, dry conditions, the water in the mix can evaporate or be absorbed into the dry lining surfaces. In this situation the cement will not set correctly and will be lacking in strength.

Under severe drying conditions, mix only small quantities of cement and allow to stand for 10 to 15 minutes to ensure that it sets soon after application.

Butter cement to one length of the cornice only before installation. In addition, depending on the severity of drying conditions, the contact surfaces may require dampening with a water brush before applying the cement.

The best adhesion is to unpainted plasterboard. Where cornices are to be fixed to surfaces that are painted, additional preparation is required:

- For low gloss acrylic paint, sand painted surfaces.
- For high gloss acrylic or oil based paint, coat with a PVA adhesive such as Bondcrete.

Cornice Cement may not bond well to ceramic tiles. When fixing cornice to wall tiles and a plasterboard ceiling, additional strength is required. If possible, bond the cornice to plasterboard above the tiles, otherwise use screws or nails to the ceiling plasterboard. Gyprock Wet Area Acrylic Sealant may be used to seal any gaps to the tiles. Support cornice for 24 hours or until adhesive is dry.

Cornice Fixing (Mechanical or Hand Fixing)

Preparation

- To ensure equal projection on wall and ceiling surfaces, measure down from the ceiling surface and mark lines on the walls at; 55mm down for the 55mm cornice; 90mm down for the 90mm cornice; and 75mm down for the 75mm cornice.
- Mark and cut the cornice to the actual length required.
- All corner angles are to be mitred. When cutting mitres, use a mitre box with the cornice orientated as it is to be mounted. Where butt joints are unavoidable, prepare ends so that they will accurately butt together.
- Where the cornice aligns with a control joint in a wall or ceiling it is necessary to maintain the control joint through the cornice. Install the control joint in the wall and ceiling as recommended under 'Control Joints' and fill the gap in the cornice with flexible sealant suitable for painting.

Apply Cornice Adhesive

- Using a 'applicator tube', apply cornice cement to wall/ceiling junction. Ensure adequate amount of adhesive is applied.

OR

- Butter 20-30mm wide beads of cement along the full length of each back edge of the cornice and to each mitre and butt joint.

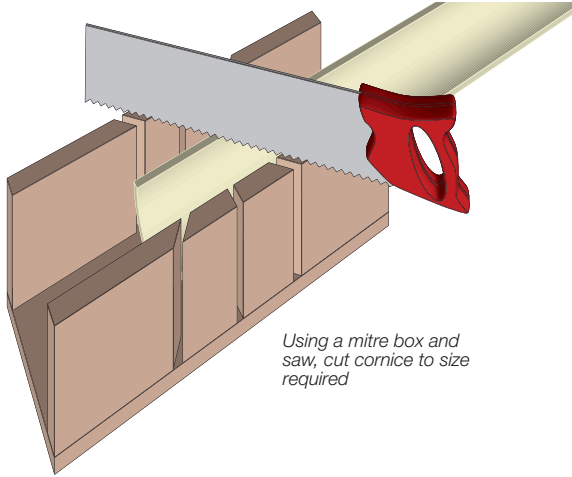
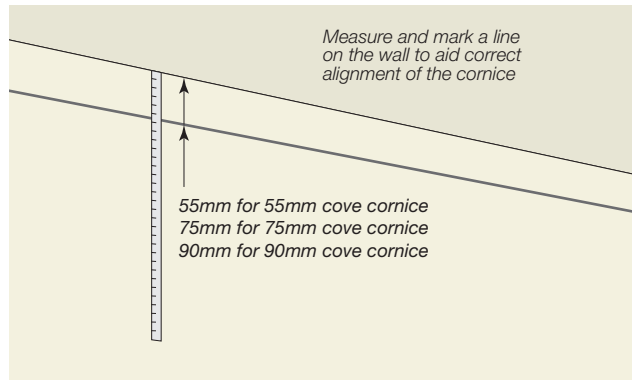
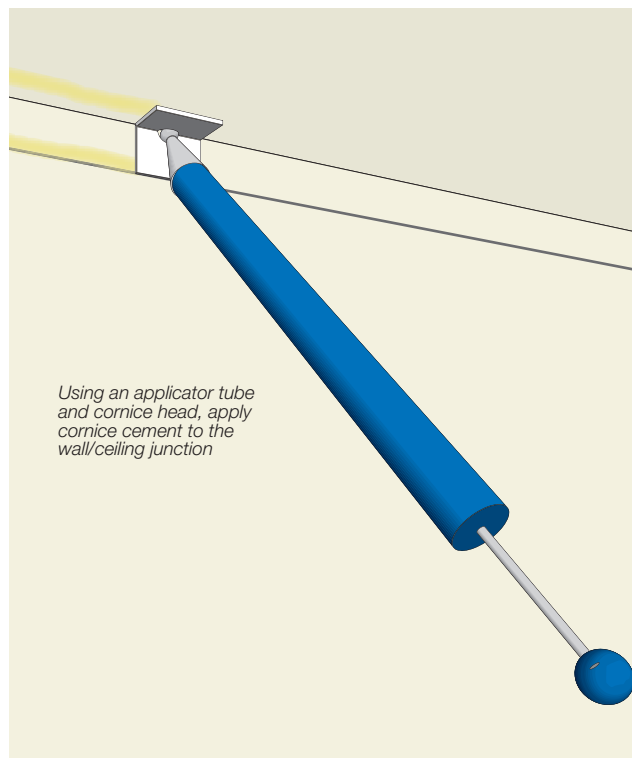
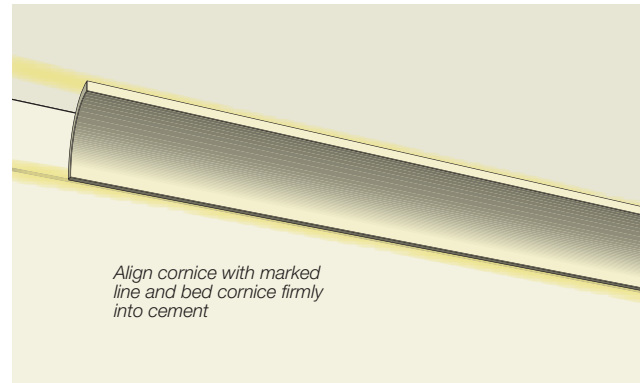
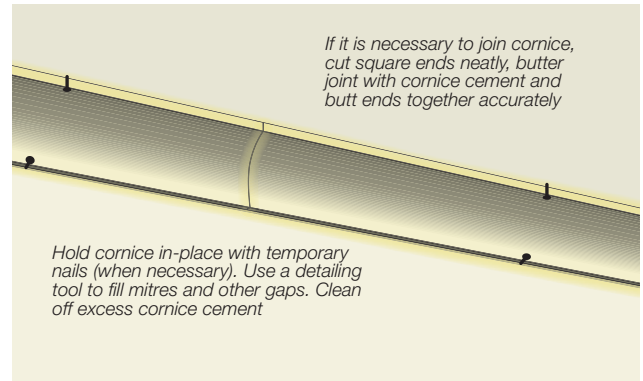
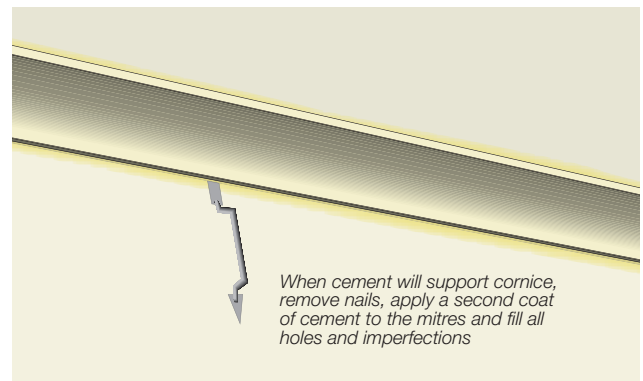
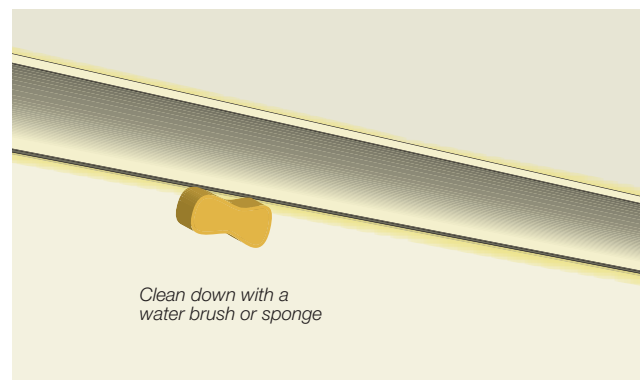
Install Cornice

- Position the cornice accurately to the marked lines. Press the cornice firmly into the cement, and where necessary hold cornice in position with temporary nails.
- If it is necessary to join cornice, align butt joints accurately.
- Clean off any surplus cement.
- Straight stop the cornice and fill internal and external mitres.
- Clean off residue with a damp water brush or sponge.
- Allow to set before removing the temporary nails and fill the holes.

Finishing

- When cement will support cornice, apply a second coat of cement to the mitres and butt joints, remove nails and fill holes and any imperfections, then brush with a clean water brush or sponge.

FIG 101: PROCEDURE FOR PREPARING AND FIXING CORNICE

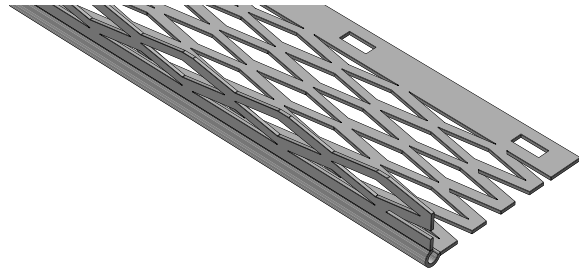


ARCHES

Gyprock plasterboard may be used to line arches in timber and metal frame construction and may be formed as semi-circular, segmental, elliptical or other profiles prepared by the builder.

Arches are finished with arch bead and corner bead to reinforce the corners and maintain an accurate profile. The Gyprock Arch Bead is designed for use with all thicknesses of Gyprock plasterboard.

FIG 102: P30 ARCH BEAD



Frame Preparation

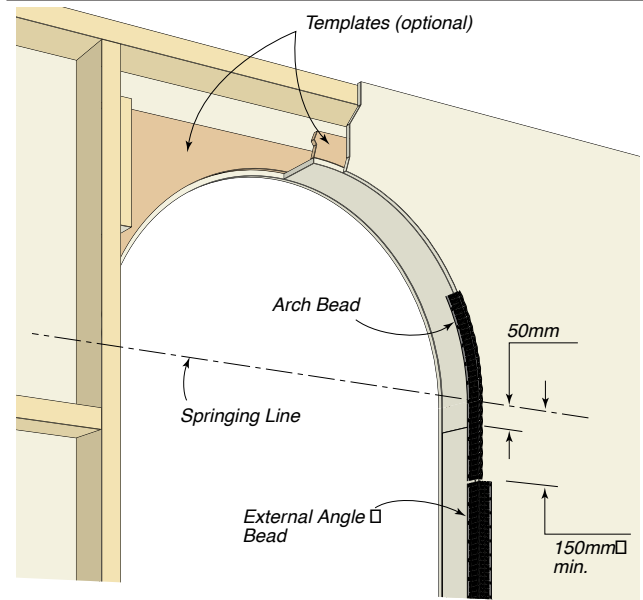
The builder is to construct the frame to the selected profile using minimum 12mm thickness particleboard/MDF templates, positioned flush with both faces of the wall framing.

Installation of Gyprock Plasterboard

- Apply Gyprock plasterboard with the recessed edges horizontal to the main stud framing.
- Ensure that butt joints do not occur over the arch or within 200mm of the side of the arch.
- Mark the profile of the arch on one side of the opening, allowing the wall sheet to project past the curved edge of the template and inner edge of the stud framing by the thickness of the plasterboard being used.
- Cut the face sheet accurately, using a keyhole saw.
- Square the profile across the opposite side before marking and cutting the other sheet.
- Fix plasterboard to particleboard templates along cut-out edges with screws at 300mm centres or with a bead of stud adhesive.
- Measure soffit and cut Gyprock plasterboard soffit strip to fit neatly between the face sheets and long enough to reach 50mm minimum below springing line on both sides of the opening. Cut reveal strips to fill sides of the opening.
- Apply a 10mm continuous bead of Gyprock Cornice Cement or Gyprock Base Coat to the back edge of the face sheets around the arch opening.
- Position one end of the Gyprock plasterboard soffit strip 50mm minimum below the springing line and fasten at the springing line. Press the strip into cement beads following the profile of the arch to ensure continuous contact. Dampen the soffit strip to facilitate bending if a sharp radius is specified.

- Fasten the other end at the springing line and support the soffit strip with props if necessary. Ensure that the soffit sides are square to the wall face.
- Where more than one length of soffit strip is necessary and the ends are not supported by a template, support the joints with pieces of Gyprock plasterboard glued to the back of the soffit strip.
- Fit and fasten reveal strips where required and allow all strip to set in position.

FIG 103: INSTALLATION OF AN ARCH



Installation of Arch Bead

- Bend the metal bead to suit the profile of the arch ensuring the short, perforated leg of the bead is on the face of the wall and the long perforated leg is against the arch soffit.
- Allow the arch bead to begin and end 150mm below the springing line.
- Fix arch bead at the springing line at one end, fit the bead to the arch profile fixing at maximum 300mm centres, finishing by fixing the other end at the springing line.
- Fit and fix external corner beads to vertical reveals.

Joint Finishing

Refer to Jointing External Corners.



DECORATION

Interior Gyprock plasterboard surfaces may be decorated in any of a variety of finishes including flat, semi-gloss or gloss paint, wallpaper or vinyl, texture or stipple, or tiles.

Tiles are required in waterproof and water resistant areas.

No building material has an absolutely flat surface, and all that can be expected in practice is an appearance of flatness. The effect of glancing light on the appearance of flat surfaces is described in the CSIRO Division of Building Research Report No. L8 (Revised Edition). This report clearly demonstrates that surfaces which seem perfectly flat in diffuse light appear rough and uneven when light strikes nearly parallel to the surface.

Surface Preparation

All joint stopping must be sanded smooth.

Remove all loose dirt and dust with a soft brush or dry cloth.

Ensure that the joint treatment is thoroughly dry before applying sealer or paint.

Wallpaper & Vinyl

To enable removal of wallpaper and vinyl without damaging the plasterboard, seal the surface with a pigmented solvent based sealer.

Paint Finishes

Select a proprietary paint system and apply all paints strictly in accordance with the respective manufacturer's instructions.

Roll coated paints generally have a greater coating thickness and create a similar texture on both the plasterboard and the jointing compounds.

The use of a preparatory coat over the entire surface is recommended prior to application of the finish coats due to the differing texture and porosity of uncoated plasterboard and areas which have received joint treatment.

Recommended paint systems typically consist of one coat of a plasterboard sealer followed by two coats of finishing paint.

Preparatory Coat

The chosen proprietary brand sealer should be formulated to fulfil the following functions:

- Equalise variations in porosity over the entire surface.
- Provide a bonding surface or key for the finishing coats.
- Stop the migration or bleeding of chemicals from the substrate which could effect the performance of the finishing coat.
- Conceal the difference in texture between the paper surface and the joints.

Important:

- Plasterboard that has been fixed and allowed to stand for long periods prior to painting may become discoloured due to exposure to light. In this case the plasterboard surface should be sealed with a pigmented solvent-borne sealer before the application of finishing coats.

- In areas of high humidity such as bathrooms, kitchens, laundries and toilets, a paint system that protects the plasterboard and joints from moisture must be used. Refer to paint manufacturer's recommendations.
- When applying the preparatory coat, apply a sufficient thickness to ensure that the surface is completely covered. Do not over-spread the paint.
- To avoid paint lifting over jointed areas, do not overwork or over-roll the paint when applying the preparatory coat.
- Allow the preparatory coat to dry thoroughly. If necessary, lightly sand between coats of paint to remove any nap lift or other surface blemishes.
- In accordance with normal building practice, application of a finish is deemed to be acceptance of the substrate.

Finishing Coats

Always follow the manufacturer's instructions for application and recoating.

For best results, apply the coatings with a roller. This helps to achieve a full even coat and a light, uniform texture over the entire surface.

Refer to AS/NZS2311 and/or paint manufacturer's recommendations for specific roller nap length for the desired finish.

Joint Treatment – Wet Areas

It is recommended that a water resistant base coat be used at sheet joints in areas that are required to be waterproof or water resistant. Set all joints with Gyprock Wet Area Base Coat and paper tape. When the tape coat has dried, apply a second coat of Wet Area Base Coat. Cover all fastener heads with Wet Area Base Coat.

Joints in wet areas that are not tiled and not required to be waterproof or water resistant should be set with Gyprock compounds and tape as detailed in this publication.

Tiling

Tiles are required in waterproof and water resistant areas.

The tile adhesive must be compatible with the proprietary waterproofing membrane used.

Proprietary tile adhesives that meet the requirements of AS2358 are recommended.

For best results, spread tile adhesive directly onto the surface to a depth of about 3mm, then 'rib' in a horizontal direction with a notched trowel having approximately 6mm x 6mm notches.

It is important to strictly follow the membrane/sealer and tile adhesive manufacturer's instructions to ensure that the system will perform satisfactorily and will provide suitable long term performance. Some products require primers before application.

Allowance must be made for movement by leaving a gap of 3mm between tiles in each vertical corner, as shown.

MAINTENANCE

It is important that Gyprock plasterboard products be kept dry throughout their service lifetime, and must be protected from internal and external moisture. Regular checks of the lining system (at least annually), as well as regular cleaning and re-painting to manufacturer's requirements is recommended to ensure the Gyprock plasterboard continues to perform the function which they were originally intended.

In general, we recommend that Gyprock plasterboard be replaced after being substantially wet (say as a consequence of burst water services or flooding) as if the paper is wet, or if the paper lining is subject to any deterioration, board strength and the holding capacity of fixings may be reduced. When subjected to minor water effect, the plasterboard must be allowed to dry and be inspected for signs of deterioration or warping. If unaffected the plasterboard can be retained.

Gyprock plasterboard affected by smoke or fire damage is recommended to be replaced.

Minor impact damage to Gyprock plasterboard resulting in small holes and cracks must be patched, stopped and finished as originally carried out using CSR plasterboards and accessories. Where the plasterboard has suffered significant impact damage, resulting in large holes, creases along edge of support framing, or cracks the plasterboard should be repaired using standard methods. For fire rated walls repair must be completed in accordance with the assessed methods outlined in the Gyprock Professional Solutions Guide 'Repair Of Gyprock® Fire Rated Wall & Ceiling Linings', available by contacting DesignLINK.

In tiled areas any cracks or damaged areas which would allow water ingress into the wall cavity, must be repaired immediately by re-stopping and repainting, or by replacing tiles, pointing or sealants.

Damaged boards are not covered by CSR's product guarantee and should be replaced.

Health & Safety

Information on any known health risks of our products and how to handle them safely is on their package and/or the documentation accompanying them.

Additional information is listed in the Safety Data sheet.

To obtain a copy, telephone 1300 306 556 or visit www.gyprock.com.au.

Warranty

Gyprock products are designed to achieve optimal performance when part of a CSR integrated system.

CSR Building Products Limited warrants its Australian made Gyprock products to remain free of defects in material and manufacture for the usual lifetime of the product (25 years).

CSR warrants its International Alliance Gyprock products to remain free of defects in material and manufacture for 7 years.

For details on our product warranty, please visit www.gyprock.com.au, or contact us on 1300 306 556.

Contact Details

CSR Gyprock

www.gyprock.com.au

Telephone: 13 17 44

Facsimile: 1800 646 364

CSR DesignLINK Technical Support Service

Telephone: 1800 621 117

Facsimile: 1800 069 904

Email: designlink@csr.com.au

New South Wales and ACT

376 Victoria Street,
Wetherill Park NSW 2164

Queensland

768 Boundary Road,
Coopers Plains QLD 4108

Victoria

277 Whitehall Street,
Yarraville VIC 3013

South Australia

Lot 100 Sharp Court,
Mawson Lakes SA 5095

Western Australia

19 Sheffield Road,
Welshpool WA 6106

Tasmania

PO Box 61,
Glenorchy TAS 7010

Northern Territory

Cnr Stuart Hwy & Angliss St,
Berrimah NT 0828



Trinity 3, 39 Delhi Road, North Ryde, NSW 2113, Australia
CSR Building Products ABN 55 008 631 356



GYP547 AUGUST 2018 (BMS1086.0818)

CSR Gyprock, CSR Building Products A.B.N. 55 008 631 356.

The following are trade marks of CSR Limited and are under license. CSR, Gyprock®, Plus™, Soundchek™, Aquachek™, Impactchek™, Superchek™, Fyrchek™, EC08™, Supaceil™, Bradford™, Martini™, DesignLINK™.

© CSR Limited 2018. Except as provided by the Copyright Act of 1968, no part of this publication may be reproduced in any form or by any means without the prior written permission of CSR Limited.