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MgO Corp Boards are JAS/ANZ, CODEMARK Certified (CMA-CM40009) & BCA Approved.

MgO Corp Board (CMA-CM40009) products are code compliant under BCA

- BCA Volume 2 Part 3.5.3.3, Fibre cement planks and weatherboard cladding
- BCA Volume 2 Part 3.5.3.4, Fibre cement sheet wall cladding
- BCA Volume 2 Part 3.5.3.5, Eaves and soffit linings
- BCA Volume 2 Part 3.7.1, Fire separation for FRL to (-120/120)

- BCA Volume 2 Part 3.8.6, Sound insulation to >Rw 54
- BCA Volume 1 Section C for FRL to (-120/120)

MgO Corp Board products also meet UL and NFPA standards. NFPA certification for firewalls:

- NFPA 221, standard for high challenge fire walls, fire walls and fire barrier walls, 2009 edition, section 3.3.14.6
- NFPA 850-10 fire protection for electric generating plans and high voltage DC converter stations 2010 edition section 5.1.3.3-4
- NFPA 221, standard for high challenge fire walls, and fire barrier walls, 2009 edition, section 3.3.14.5
- NFPA 221, standard for high challenge fire walls, and fire barrier walls, 2009 edition, section 3.3.12.7
- NFPA 221, standard for high challenge fire walls, and fire barrier walls, 2009 edition, section 3.3.14.7
- NFPA 850-10 fire protection for electrical generating plants and high voltage DC converter stations 2012 edition section 5.1.4.3-4
- NFPA 221, standard for high challenge fire walls, and fire barrier walls, 2006 edition, section A3.3.12.6
- NFPA 221, standard for high challenge fire walls, and fire barrier walls, 2006 edition, section 4.6
- NFPA 221, standard for high challenge fire walls, and fire barrier walls, 2006 edition, section A4.9
- NFPA 221, standard for high challenge fire walls, and fire barrier walls, 2008 edition, section 4.8.3
General Installation

This guide provides detailed installation information for the fixing of MgO Corp Board in residential construction.

For additional information or assistance with MgO Corp Board fixing, please contact Magnesium Oxide Board Corporation’s head office in your region.

Description

MgO Corp Boards are a machine made sheet composed of naturally occurring mineral components, Alpha Cellulose Material and water that is mixed to our associated companies patented formula.

It does not contain any organic solvents, oils or toxic substances, nor does it contain any metal salts.

The board edges are cut square, tapered, tongue and groove, type 1, bevel and shiplap. Magnesium Oxide Board Corporation is ISO approved and all MgO Corp Boards conform to ISO, JAS/ANZ, BCA and ABCB Codes.

Applications

MgO Corp Board is used as an internal lining and external wall board to provide smooth, strong, long lasting walls and ceilings for homes, offices, hospitals, hostels for the ages, schools, shops and factories. It’s durable surface will accept most types of decorative finishing, including paint, wallpaper and texture compounds.

Joints between MgO Corp Board 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. Standard MgO Corp Board can be used for exterior ceilings and eaves lining.

MgO Corp Boards are fire and moisture resistant. When used in 'wet areas', installation is in accordance with the 'wet area installation' section of this guild. When used in fire risk areas, installation is in accordance with the 'general installation' section of this guide.
The World's Best Sheathing Boards

Magnesium Oxide Board Corporations Sheathing Products

The MgO Corp Board range of products consist of MgO Corp Board interior and exterior wall, ceiling, roofing and flooring panels.

Product Description and Applications

MgO Corp Board is an internationally patented product that has been inspected and approved by CertMark Australasia on behalf of the Australian Government. All products are certified and code compliant under JAS/ANZ, ABCB and BCA.

MgO Corp Board products are approved for their fire resistance, water and mould resistance, acoustic performances and impact resistance for use as a superior construction panel that is well suited for both interior and exterior sheathing applications.

With its mould resistant, fire resistant and high impact properties, MgO Corp Board is recommended by Magnesium Oxide Board Corporation Pty Ltd to be used whenever there is high value placed on a building's contents, equipment, fire and water risk or when health and safety concerns exist.

Applications include single family homes, apartment complexes, commercial high rise buildings, theatres, museums, schools, hospitals, retail, hotels, restaurants, night clubs, airports, subway stations, tunnels, fire separations, etc.

Features and Advantages

- MgO Corp Board significantly reduces installation costs. Depending on the application, MgO Corp Board offers savings of up to 67% on materials and labour to that of traditional fire separation and party walls.
- MgO Corp Boards are non-nutrient to mould or fungus per ASTM G21 and do not support insect life. Providing superior moisture resistance in high humidity areas and combats the growth of mould and mildew.
- MgO Corp Board is completely waterproof. It will not disintegrate when immersed in water or exposed to freeze/thaw cycles for prolonged periods of time.
- MgO Corp Board can be finished with any traditional drywall compounds.
Construction, Materials & Finishes

- MgO Corp Board is manufactured from a combination of magnesium oxide and magnesium chloride and includes fibrous reinforcement.

- MgO Corp Board is light tan to cream in colour. Standard production material is very smooth on one side and sand textured on the other.

- MgO Corp Board accepts any type of paint, wallpaper and tiling. Standard edges are square, tapered, recessed and tongue and groove. Special edges and sizes are available.

- MgO Corp Board may be cut, trimmed or shaped using ordinary power or hand tools. Every MgO Corp Board product is clearly labelled with the MgO Corp and CertMark logos and CodeMark Certification number at all times. (Products ordered without the direct consent of Magnesium Oxide Board Corporation Pty Ltd are not certified or approved for use or distribution in Australia or New Zealand. Contact Magnesium Oxide Board Corporation on 1300 721 279.)

Properties and Performance

MgO Corp Board is approved for fire resistance wall systems, providing an unprecedented degree of safety and security. Offering superior fire protection, MgO Corp Board require only a single layer, which expedited job completion, saving time and money.

MgO Corp Board has a flame spread and smoke propagation rating of 0 per ASTM E84. SCT ratings of 53 on a 2 hour UL assembly and 54 on a 3 hour UL assembly are available. Full cyclone qualified systems are also available.

Advantages

Strength and Stability

MgO Corp Board is stable building product when subjected to the normal range of ambient temperatures and humidity. MgO Corp Board (single board/non-load bearing) performance without insulation:

- 10mm Board: /60/60
- 10mm Board: /90/90
- 12mm Board: /120/120
- 14mm Board: /180/180

* All above MgO Corp Board results have been audited and JAS/ANZ CodeMark Approved (CM40009)

Performances on metal stud systems

- 10mm Board (with 4mm fillet): /120/120
- 12mm Board (with 4mm fillet): /150/150
- 14mm Board (with 4mm fillet): /210/210
MgO Corp Board in Wet Areas
AS3740 Waterproofing of wet areas within residential buildings.

Architectural Specification

Scope
The contractor shall furnish all materials, labour and equipment required to satisfy complete the installation and jointing of all MgO Corp Board where indicated on the drawings and/or as specified.

Delivery and Storage of Materials
All materials shall be delivered and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

Materials
All lining materials shall be MgO Corp Board, adhesives, fasteners, and jointing products as manufactured or supplied by MgO Corp.

Framing or Substrate
Framing must conform to structural standards specified by the appropriate building authorities and/or Australian standard.

MgO Corp Board Installation
The framing shall be lined on the first side with *_______ layer(s) of _______mm MgO Corp Board. The framing shall be lined on the second side with *_______ layer(s) of _______mm MgO Corp Board.

MgO Corp Board Fixing and Jointing
MgO Corp Board shall be fixed, jointed and finished to a standards specified by the appropriate building authorities and/or Australia standard application and finishing.
MgO Corp Board Ranges

Type 1 Edge

MgO Corp Board Recessed Edge
- 1.5mm recess on the long face side allows joint reinforcement
- Provides a smooth even and continuous surface once jointed.

Square Edge

MgO Corp Board Square Edge
- Square edge finishing
- The square edge allows sheets to be butted together neatly.
- These joints may be covered with aluminium, vinyl or timber mouldings.

Bevel Edge

MgO Corp Bevelled Edge
- Edges are slightly bevelled.
- Edges are butted together to form a neat V-joint
- Joints do not need to be covered with battens or finished with compounds.

Tapered Edge

MgO Corp Board Tapered Edge

Toung and Groove (Flooring)

MgO Corp Board Tongue and Groove Edge

Shiplap (Flooring)

MgO Corp Board Shiplap Edge

Storage and Handling Information

All materials must be kept dry, preferably by being stored inside the building. Care should be taken to avoid sagging or damage to edges, ends and surfaces. All MgO Corp Board should 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 maximum 600mm centres. If stored outside, sheets are to be stored off the ground, stacked as previously details and protected from the weather.
Design Considerations

Levels of Finish

Levels of finish are defined in the Australian/New Zealand standards AS/NZS 2589.1: 1997 MgO Corp Board linings in residential and light commercial construction, application and finishing. This standard is intended to provide builders, MgO Corp Board installers and finishers, and their customers with the various defined methods and practices necessary to meet the customers expectations in terms of the level of finish.

Six levels of finish (0, 1, 2, 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 process from framing preparation to finishing. 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 MgO Corp Board 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 as well as the fitting and finishing of stopping and corner accessories.

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

Roof Space Ventilation

MgO Corp Board will give many years of satisfactory performance under a wide range of climatic conditions, but to ensure long term performance to both lining material and paint finishes, the roof spaces should be adequately ventilated. Failure to do so may cause excessive moisture movement of timber framing causing popping or joint deformation.

The aluminium foil sarking on roofs should be installed in accordance with the relevant Australian Standards for reflective foil laminates.

Vapour barriers are incorporated into the structure to prevent the flow of water vapour from the warm to the cool regions. As a general rule, locate the vapour barrier as close as possible to the surface which is normally be at the higher temperature at the time of the condensation hazard.

Attics or similar unheated spaces above ceilings can be adequately ventilated as follows:

- Provide effective cross-ventilation for all spaces between roof and top floor ceilings by screen louvers or other approved and acceptable means.
- 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 are should be exhausted to the outside of the building, not into the roof space.

Fire Resistance

All MgO Corp Boards are fire and water resistant. MgO Corp Boards have been formulated to have far greater performance than standard plaster or fyrchek boards, in comparison to 13mm Fyrchek or Gypsum Board. MgO Corp Boards corresponding range was found to be extremely superior in performance at better resisting the effects of fire on walls and ceilings where there were no penetrations or openings.

In any case, penetrations and openings can reduce the fire resistance of a system.

Smoke alarms save lives and Magnesium Oxide Board Corporation highly supports the Australian and New Zealand governments in the legislation of fire detection alarms in all premises as well as fire extinguishers and fire blankets.
Peoples Safety is Our Priority

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 MgO Corp Board surfaces be isolated from structural elements, except the floor, by the use of control joints or other means where:

- A MgO Corp Board surface abuts any structural element or dissimilar wall or ceiling assembly.
- The construction changes within the plane of the partition, wall or ceiling lining.
- Control joints incorporated in a building to permit movement in the structure must be carried through all areas lined with MgO Corp Board.

Applied Finish Selection

Finishes applied to the MgO Corp Board can have a significant effect on the perceived quality of the installation, particularly where critical lighting conditions exist.

General rules when selecting the applied finishes are:

- The difference in texture and absorption characteristic between the body of the sheet and the joint mat show through some thin paint coatings.
- Imperfections show more readily on ceilings than walls.
- Textured or heavy patterned finishes tend to hide imperfections.
- Matt finishes minimise imperfection visibility.
- Semi-gloss and gloss finishes highlight imperfections.
- Lighter colours (when compared to darker colours) are less likely to show imperfections and impact damage. More effective at diffusing the light and reducing shadow effects, particularly in smaller rooms.
- Gloss paints tend to highlight paint application variations (e.g. where a good wet edge has not been maintained when painting).
- Paint or thin wallpaper finishes are less tolerant of imperfections.
- Paint applied with a longer pile roller tends to mask imperfections better than those applied with a short pile roller.

Garage Ceilings

Ceilings in garages are subjected to different environmental conditions to those in habitable rooms. The following conditions may occur:

- Wind loads can disrupt uncured adhesive and prevent an effective adhesive bond from ever 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 MgO Corp Board.
- Moisture and high humidity in the garage can result in poor joint performance.
- The above issues 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 method of fixing MgO Corp Board, as detailed in this manual.
- Use screws not nails to fix ceilings.
- Use trimmers across the sheet width for support (refer to FIG 1).
- Back-block all joints in garage ceilings.
- Use a good quality wallboard sealer and two coats of paint.
Selecting a level of finish

Level 0
This level may be useful in temporary construction. No stopping, taping, finishing or accessories are required.

Level 1
For use in plenum areas above ceilings, in areas where work would generally be concealed, or in building service corridors and other areas not normally open to public view. Tool marks and ridges are generally acceptable.

Level 2
For use in warehouse, storage or other similar areas where surface finish is not of primary concern. Surfaces should be free of excess joint compound. Some minor tool marks and visible edges are generally acceptable.

Level 3
For use in areas which are to receive heavy or medium texture (spray or hand applied) finishes before final painting, or where heavy grade wall coverings are to be applied as a final decoration. All joint compound is to be finished smooth. (Generally this is achieved by scraping of nibs and ridges and the like, with the edge of a trowel.)

Level 4
This is generally the accepted level of finish for domestic construction. All joint compound should be sanded to a smooth finish free of tool marks and ridges.

Level 5
This level of finish should be used wherever gloss or semi-gloss paints are to be used, and where critical lighting conditions occur with painted surfaces such as large flat wall and ceiling areas, where severe glancing light will occur from large window openings or skylights, or where artificial silhouette and spot lighting is to be used.

All joint compound should be sanded to a smooth finish free of marks and ridges. This should be followed by the application of proprietary surface preparations such as board sealers, and/or in the most critical areas, skim coating to remove differential surface textures and porosity.

Note: skim coating is a term used to describe a thin finish coat, towelled 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.
Summary of Level of Finish Dependent Installation Requirements

It should be noted that, domestic application 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.

**Table 2 - MgO Corp Board Installation Requirements for Category A Timber**

<table>
<thead>
<tr>
<th>Level of Finish</th>
<th>Max. Frame Alignment Deviation mm</th>
<th>Horizontal Wall Shear Fixing</th>
<th>Joint between frame and back block</th>
<th>Ceiling</th>
<th>Walls</th>
<th>Adhesive + Fastener Fixing</th>
<th>Screw Only Fixing</th>
<th>Approved Internal Corner Fixing System</th>
<th>Stopping &amp; External Corner Metal</th>
<th>Jointing and Finishing</th>
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Key to symbols: * Not Applicable * Mandatory Other Symbols, see notes.

Level 4: # Back blocking required where three or more recessed joints occur in a continuous ceiling area.

Level 5: / Screw only fixing may be used when fastening to metal furring system. 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.

**Table 3 - MgO Corp Board Installation Requirements for Category B Timber Frames**

<table>
<thead>
<tr>
<th>Level of Finish</th>
<th>Max. Frame Alignment Deviation mm</th>
<th>Horizontal Wall Shear Fixing</th>
<th>Joint between frame and back block</th>
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/ Screw only fixing may be used when fastening to a metal furring system.

Level 4: Category B timbers can only be used in ceilings if metal furring or seasoned timber battens are used.

Category B timbers are not permitted to be used in walls. 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.

**Table 4 - MgO Corp Board Installation Requirements for Steel Frames**

<table>
<thead>
<tr>
<th>Level of Finish</th>
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</table>

Level 4: Category B timbers are not permitted to be used in walls. 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.
Framing

Materials

MgO Corp Board may be fixed to timber or metal framing and masonry materials which conform to standards specified by the appropriate government building authorities.

All timber framing shall be in accordance with AS1684 - Residential Timber Framed Construction or AS1720.1 - Timber Structures. Timber used as a substrate for MgO Corp Board shall be defined as being in one of the following categories:

Category 'A'

- Timber with a moisture content under 16% at the time of lining. Based on 90% of timber members being within the specified moisture content range with the remainder being within +2% of the specification. (Generally seasoned or kiln dried timbers would be in the category.)
- Timber with a moisture content above 16%, but a tangential shrinkage below 8%. (Examples of these timbers would include; cypress pine, Douglas fir (Oregon), hoop pine, slash pine, radiate pine, western hemlock, jarrah, red narrow-leaved ironbark, rose/flooded hum and spotted gum.

Category 'B'

- Includes all timbers with a moisture content above 16% at the time of lining, and which have a tangential shrinkage above 8%. (Examples of these timbers would include; alpine ash, Blackbutt, karri, mountain ash, messmate, river red gum, silvertop ash, Sydney blue gum and tallowwood.

Tangential shrinkage at 12% moisture content is defined in AS1720.2. Metal framing shall be in accordance with AS1397, AS1538 or AS3623, as applicable.

MgO Corp Board may be fixed direct to structural metal ceiling framing not exceeding 1.2mm thickness. Concrete, brick or masonry surfaces which comply with AS3700 can be sheeted with MgO Corp Board adhered directly to the wall with MgO Corp MASONRY ADHESIVE. Alternatively, these surfaces may have a furring system applied in accordance with AS1684, and fixed in accordance with the appropriate MgO Corp system.
Preparation

The fixing of MgO Corp Board linings is deemed to be acceptance of the substrate.

Substrate members which are to support a joint shall have a minimum fat fixing face width of 35mm for nail fixing or 32mm for screw fixing, to enable adequate fixing of the MgO Corp Board. 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 MgO Corp Board.

The deviation in the alignment of the bearing surface(s) shall not exceed the tolerances given in Table 2, 3 or 4 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 amount of impact noise, speech and low frequency sound +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. Where the alignment of the bottom chords of roof members fall outside the appropriate specification, a metal furring channel system on sliding clip fixings can be used to enable the levelling of the ceiling support plane.

Trimmers are to be provided in the part of the ceiling framing system where primary support members change direction within a room. (Refer FIG 1 and 2).

All openings are to be framed. Where battens are used, they are to be selected and applied in accordance with AS1684, and maximum spacing’s are to be in accordance with Table 6 in this publication.

MgO Corp Board may be fixed directly over existing linings if they are firm, sound and suitably straight for the ‘Level of Finish’ chosen.

MgO Corp Resilient Mounts

The MgO Corp Resilient Mount is a proprietary component used in conjunction with an alternative system such as the Rondo steel sections for fastening MgO Corp Board 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.
Sheet Layout (Class 3 Fixings/ Non Corrosive at all Times)

The following installation information should be read in conjunction with Table 2, 3 and 4, to determine the requirements applicable to the chosen level of finish. MgO Corp Board should be installed after the installation of plumbing and electrical services. Provide adequate ventilation in all structures to minimise air humidity.

**MgO Corp Board**

Generally, MgO Corp Board should be applied to ceilings first and then to walls. Horizontal application of MgO Corp Board on walls is recommended because it:

- Reduces joints by up to 25%.
- Provides a stronger wall.
- Reduces the possibility of unacceptable light reflections MgO Corp Board Cutting
- Joints are at a more convenient height for finishing.
- Nogging is not required behind recessed edge joints in horizontal applications.

**MgO Corp Board Cutting**

MgO Corp Board can be cut by scoring the face linerboard with a knife and snapping the MgO Corp Board back away from the scored face. The back linerboard can then be cut from the back towards the front. 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. 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. If the MgO Corp Board adhesive is not properly cured, hold the sheet in place with temporary blocks on adjacent studs or joists while making cut-outs.

Where butt joints are permitted on framing members, butt sheet ends together centrally over the framing member. Butt joints on walls are not to coincide with the edge of openings (e.g. doorways or windows). Sheets are to be laid so that any vertical butt joint falls a minimum of 200mm from the edge of an opening. Avoid butt joints over single doorways and cavity sliding doors wherever possible.

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.

**Joint Location**

Where possible it is recommended that full length sheets are used to minimise butt joints at sheet ends. Sheets should be butted firmly together, but not forced. Where butt joints at sheet ends are unavoidable and where jointing between framing members is not required, as per Table 2, 3 and 4, 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 nail fixing or 32mm width for screw fixing.
Fixing Systems (Class 3 Fixings/Non-corrosive at all times)

The fixing systems detailed in this brochure are suitable for all Levels of Finish using timber or steel framing in Australian Regions A and B up to and including wind category N4 as defined in AS4055. These systems are based on a differential pressure of 0.5kPa.

Generally the recommended fixing system is a combination of adhesive and permanent fasteners. The use of fastener only fixing systems should be restricted to applications where adhesive cannot be used, such as in fire rated installations, tiled wet areas and over existing linings or vapour barriers. Refer to appropriate MgO Corp brochures for additional information in these cases.

Fasteners
The following fasteners are used with timber and steel framing to accommodate most installation applications. When fixing to timber that has been CCA treated, use hot-dip galvanised clouts or class 3 screws.

Adhesive
MgO Corp Board can be applied with all high quality Acrylic Stud Adhesive can be used (in conjunction with fasteners) to fix MgO Corp Board to timber or steel framing. CSR and KNAUF adhesives can be used on both timber and steel in temperatures not less than 5°C. It has a low toxicity, and does not represent a fire hazard when used in confined spaces. It is easily removed from tools and hands before the adhesive cures.

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.

Nails
(NON-CORROSIVE)
Hardwood 25 x 2.8mm
Softwood 30 x 2.8mm

Self Counter Sinking Screws
NON-CORROSIVE
For timber framing

N°6 Type ‘S’ Needle Point
NON-CORROSIVE
For lightweight steel studs and furring channel up to 0.8mm thickness.

N°6 Type ‘S’ Drill Point
NON-CORROSIVE
For steel framing 0.8mm to 1.2mm thickness.
Table 9 - Adhesive Beads & Permanent Fastener Requirements

<table>
<thead>
<tr>
<th>Minimum Number and Placement of Adhesive Beads and Fasteners Across Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Board Width (mm)</strong></td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>1220</td>
</tr>
</tbody>
</table>

**Warnings**

- Stud adhesive MUST NOT be used on TILED WET AREA systems.
- Apply minimum 4mm Full length bead of structural polyurethane adhesive to studs and noggings.
- Stud adhesive does not constitute a fixing system on its own and it must be used in conjunction with nail or screw fasteners.

**Fastener Installation**

Fasteners are to be positioned between 10 and 16mm from sheet edges, with the appropriate number of intermediate fasteners (if required), as specified in the appropriate installation details, equally spaced across the sheet into the support member.

Sheets are to be held firmly against frame while fasteners are positioned. Wherever possible commence fastening from the centre portion of the sheet, proceeding to the ends and edges. Alternatively, start at one edge and work across the sheet to the other edge.

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.

**Combination Adhesive/Fastener Fixing**

Combination adhesive/fastener fixing is generally the preferred system except in fire rated installations, tiled wet areas, or over existing linings or vapour barriers. When used in accordance with the following instructions the adhesive/fastener method of fixing produces a system which is comparable in strength to a fully nailed or screwed wall or ceiling. This method also reduces the number of fasteners required and minimises the possibility of nail pops due to frame movement.

MgO Corp recommends acrylic stud adhesives has good gap filling properties and will bridge board and studs which are slightly out of alignment. When temporary fasteners are used, they should remain in place for a minimum 24 hours, or longer in slow drying conditions.

Cautionary Notes:

- To reduce the possibility of fasteners popping, permanent fasteners should not be closer than 200mm from the edge of adhesive beads.
- Contact surfaces of framing must be free of oil, grease or other foreign materials.

The final bond of approved stud adhesive may be unsatisfactory if:

- Used on wet timber.
- Used with Category B timber.
- Temporary blocks/fasteners are removed too early.

The application of rows of adhesive and permanent fasteners across the MgO Corp Board sheet shall comply with Table 9. When fixing MgO Corp Board to garage ceilings, or to pre-painted ceiling battens, or to timber with CCA or LOSP treatment, adopt the ‘1/3 spacing’ fastener and adhesive installation method.
Adhesive/Fastener Fixing To Timber Framed Walls

- Apply minimum 4mm Full length bead of structural polyurethane adhesive to studs and noggings.
- Apply MgO Corp Board horizontally, fastening along one recessed edge at each stud.
- Press the sheet firmly against the framing, then fasten along the second recessed edge at each stud.
- Where butt joints on framing members are permitted, nail at 150mm maximum centres or screw fix at 200mm maximum centres.
- Fasten internal or external corners and around all openings at 300mm maximum centres. Omit fasteners where appropriate for floating internal corners.
- 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.

NOTE Beads of adhesive must NEVER coincide with fastening points.

Adhesive/Fastener Fixing To Timber Framed Ceilings

MgO Corp Board is to be installed at right angles to the joists/main support members.
- Apply minimum 4mm Full length bead of structural polyurethane adhesive to the framing members in the appropriate pattern as per Table 9. Beads are to be spaced at 230mm maximum centres, and a minimum of 200mm from fastener positions. Omit beads at all fastening points, at butt joints on frame members, and at cornice line.
- Apply MgO Corp Board 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 stud.
- Apply intermediate fasteners at each framing member as per Table 9.
- Where butt joints on framing members are permitted, screw at 200mm maximum centres.
- Fasten around service openings with nails at 150mm max. centres or screws at 200mm max. centres.
- Fasten ends of sheets at a maximum 300mm centres for a cornice finish, or at a maximum 150mm centres for a set finish.
- Under slow drying conditions, hold 1220mm wide sheets against the framing members with temporary fasteners driven through MgO Corp Board blocks as detailed, for at least 48 hours.

NOTES: Beads of adhesive must NEVER coincide with fastening points.
Adhesive/Fastener Fixing To Metal Framing

- Prepare metal frame work as for timber, ensuring that all metal surfaces to receive approved 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.

MgO Corp Board is fixed to metal framing the same way as to timber, except for the following points:

- Fasteners must be appropriate screws.
- Fastenbutt joints on framing where permitted at a maximum 200mm centres.
- For a set finish, fasten ends of ceiling sheets at a maximum 200mm centres.
- For pre-painted metal framing, one-third spacing must be used. Refer to Table 9.

Full Screw Fixing To Timber Or Metal Framing

The use of fastener only fixing systems should be restricted to applications where adhesive cannot be used, such as in fire rated installations, tiled wet areas and over existing linings or vapour barrier.

- Sheets are to be held firmly against frame while driving appropriate MgO Corp Board screws. Screws are to be driven at a 400mm maximum centres on walls and 300mm maximum centres on ceilings. The number of screws in each framing member is to be in accordance with the accompanying diagram, and be spaced equally across the sheet. Outer screws are to be placed 10 to 16mm from sheet edges.
- Screw fix butt joints on framing members at 200mm maximum centres with screws opposite each other.
- For a cornice finish, screw fix ends of ceiling sheets at a maximum 300mm centres.
- For a set finish, screw fix ends of ceiling sheets at a maximum 200mm centres.
- When fixing to resilient furring (Nº581), ensure screws do not contact supporting joists.

Table 10 – Full Screw Fixing

<table>
<thead>
<tr>
<th>Application</th>
<th>Board Width (mm)</th>
<th>Number of Fixing Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls</td>
<td>1220</td>
<td>4</td>
</tr>
<tr>
<td>Ceilings</td>
<td>1220</td>
<td>5</td>
</tr>
</tbody>
</table>
Control Joints

The control joint is located between the sheets and set over. When the compound is dry, the filament tape is 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.

**Control joints are to be installed:**

In long partition or wall runs, at no more than 12m centres. To coincide with control joints in the supporting frame. The continuity of MgO Corp Board and support framework should be broken at control joints. In continuous ceiling areas, spaced at no more than 12m centres in both directions. Control joints may be positioned to intersect light fixtures, heating vents and air diffusers. Between floor levels, e.g. in stairwells. Refer to FIG 16.
Control Joints (Cont.) Door Jambs

Installation Of Control Joint

- Allow a 15mm maximum gap between ends of MgO Corp Board sheets.
- Locate control joint, centrally in gap. Fasten flanges and MgO Corp Board 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.

Door Jambs

Standard Timber Jamb

- Install MgO Corp Board 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.

Butt Joints On Framing

Where butt jointing on frames is permitted, butt ends of sheets centrally on framing member and nail each sheet at 150mm maximum centres or screw fixed at 200mm maximum centres. Position fasteners opposite each other at between 10mm and 16mm from the ends of the sheets.
Back-Blocking Joints

Back-blocking is a reinforcing system where pieces of MgO Corp Board 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 Tables 2, 3 and 4. Where mid-span butt or end joints are not required but are used to minimise MgO Corp Board 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 cornice fibre cement applied with a notched spreader to form beads 6mm x 6mm at approximately 20mm centres over the entire face of the back-block.

Back-Blocking Of Recessed Joints On Ceilings

Back-blocking is required in Level 4 and 5 Finishes where three or more recessed joints occur in a continuous ceiling area.

- Cut back-blocks of at least 200mm width and long enough to fit loosely between the framing members.
- Fix with numatic nails or fibre cement compound to the backblocks with a notched spreader to form 6mm x 6mm beads at approximately 20mm centres at right angles to the joint, over the entire face of the back-block.
- Apply MgO Corp Board 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 On Ceilings

Where butt joints are positioned between framing members, the sheet ends are reinforced and depressed, forming a recess to allow jointing. The diagram illustrates how the butt joint is supported and back-blocked.

- Sheet ends should be neatly cut and butted together within 50mm of the centre line between the ceiling joists or other main support members.
- Bend sheet ends upwards using temporary battens and packing such as nails to form a 2mm deep depression (as illustrated).
- Reinforce the butt joint by back-blocking with pieces of MgO Corp Board cut to fit neatly between the framing. Back-block along the full length of the joint, extending a minimum 50mm past each end of the joint over the adjoining sheets.
- Fix back-blocks with cornice fibre 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, as illustrated.
**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.
- Cut back-blocking to fit neatly between the studs and fix by skew or nailing.
- Apply structural adhesive to back-blocks as described previously, prior to screwing or nailing.
- Fix MgO Corp Board wall sheets in place.
- Allow the adhesive to set for a minimum of 24 hours before removing the temporary screws or nails.
Internal Corners

Four alternative methods of forming internal corners may be used. The appropriate method should be fixed as illustrated.

Where category ‘B’ timber framing is used, sheets are not to be nail/screw fastened both sides. One of the other systems detailed must be used.

**Internal Corner Fixed One Side Only (Double Stud)**

Where two framing members occur, fasteners can be omitted from the underlying sheet. The overlapping sheet is butted firmly against the underlying sheet and fastened at 300mm centres.

**Internal Corner – Fixed One Side Only (Single Stud)**

Where only one framing member occurs at a wall junction as illustrated, tack-fix a minimum 35 x 35mm galvanised angle to the stud with a single fastener at approximately 1800mm above floor level. The length of the steel angle should be approximately 200mm less than the corner to be supported.

Apply beads of adhesive to one flange of the angle at 200mm spacing’s. Apply the underlying sheet to the prepared flange and fix the remainder of the sheet in the appropriate method.

Omit all fasteners from the sheet edge at the internal corner. Apply abutting corner sheet and fasten through steel angle at 300mm centres.

**Internal Corner – Full Floating**

Where two framing members occur at a wall junction as illustrated, tack-fix a minimum 35 x 35mm galvanised angle to the stud with a single fastener at approximately 1800mm above floor level.

The length of the steel angle should be approximately 200mm less than the corner to be supported. Apply beads of adhesive to both flanges of the angle at 200mm spacing’s.

Apply the underlying sheet to the prepared flange and fix the remainder of the sheet in the appropriate method. Omit all fasteners from the sheet edge at the internal corner. Butt the overlapping sheet firmly against the underlying sheet and fix remainder of sheet. Hold edge of overlapping sheet in place with temporary fasteners into stud for a minimum 24 hours.
Jointing Systems

Jointing and finishing of MgO Corp Board installations is to be carried out in accordance with the requirement of Table 2, 3 or 4 of this brochure, and the following details, so as to provide a smooth surface for decorating. Where stopping and external corner beads are required, these are to be applied to all edges subject to damage.

A Level 4 Finish is generally the accepted level of finish for domestic construction (as detailed in AS/ NZS2859.1:1997 Clause 6.6) and requires a three coat system, consisting of:
- Tape (or base) coat
- Second coat, and
- Finish (or topping) coat.

Jointing Compounds

MgO Corp recommends jointing compounds that are classified as either setting type or drying type. Setting type compounds produce stronger joints and reduce installation compounds. They are recommended for experienced trades people and have a defined setting time e.g. 40-60 minutes.

E.g. Setting type compounds are: Base coat 45, base coat 60. CSR products or similar

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

E.g. Drying type compounds are: Recommended by CSR, WET AREA BASE COAT, JOINTMASTER TOPPING, TOTAL COATLITE, TAPE and TOPPING, EASY FINISH, and PRO-LITE TOPPING. These products are premixed and TOTAL COATLITE is also available dry.

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.
Jointing Systems (Cont.)

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

Jointing Tape

MgO Corp Board Perforated Paper Tape has been developed to enable the preparation of strong joints and should be used on all butt and recess joints where prescribed in Tables 2, 3 or 4.

Site Mixing Of Compounds

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

- Always use clean containers and mixing equipment.
- 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 printed ‘Best By’ 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, only small quantities of compound should be mixed. 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.
Jointing Hand Applied

Recessed Joints

MgO Corp Board recommends the use of curved trowels when setting recessed joints. Under normal pressure, a curved trowel defects enabling the preparation of fatter and more consistent joints. A 200mm curved trowel is recommended for second coat application, while a 275mm curved trowel is recommended for the finish coat.

Tape Coat

- Fill recess in MgO Corp Board evenly and fully with compound using a 150mm broad knife.
- Bed in MgO Corp Board 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 (MgO Corp Board BASE COAT) to set for at least one hour, and drying type compounds to harden for 24 hours.

Second Coat

- When the tape coat is dry, apply a second coat, about 180mm 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 to set for at least one hour, and drying type compounds to harden for 24 hours.

Finish Coat

- When the second coat is dry, apply a thin finish coat of topping compound centrally over the previous coat, about 270mm wide. It may be useful to soften the outer edges of the newly trowelled compound with a damp water brush or sponge before feathering the edges 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.

Sanding

- Allow the finish coat of compound to dry, for at least 24 hours. Sand smooth with 150 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.

Butt Joints

Tape Coat

- Apply a thin layer of compound over the joint, (filling any recess created by back-blocking methods).
- Bed MgO Corp Board PAPER TAPE and apply a thin coat of compound over the top of the tape. The compound must be spread approximately 150mm each side of the joint.

Second Coat

- When the tape coat is dry, apply a second coat of compound about 200mm wide to each side of the joint. This should have a gradual convex camber over the joint surface.

Finish Coat

- When the second coat is dry, 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.

Sanding

- Allow the finish coat of compound to dry for at least 24 hours. Sand smooth with 150 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.
**Internal Corners**

- Apply a tape coat to both sides of the corner, and bed in the tape centrally over joint.
- When the tape coat is dry, apply a thin coat of finishing compound over the tape coat 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.

**External Corners And 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.
- When compound is dry, sand smooth with 150 grit paper or cloth, or with 150/180/220 grit sanding mesh.

**Jointing With Mechanical Tools**

The use of mechanical tools to joint MgO Corp Board is becoming more popular, and used correctly, these tools can significantly increase productivity by cutting the amount of time taken to finish a job. The MgO Corp Board range of drying type compounds are designed for use when jointing with mechanical tools.

TAPE and TOPPING, TOTAL COAT-LITE, and TOTAL COAT-LITE – Premixed, can be used as a three coat system.

JOINTMASTER EASY FINISH and PRO-LITE TOPPING COMPOUND are for use in mechanical tools as finishing coats only.

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 packaging.

**Methods**

MgO Corp Board may be scored and snapped, cut, trimmed, drilled or shaped using ordinary power or hand tools. MgO Corp Board panels may be fastened to supporting joists using self drilling, self counter sinking corrosion protected cement board screws.

Fasteners should be spaced at 12” (305mm) intervals along edges. Spacing may be increased to 18” (475mm) at intermediate joists. The smooth side of the MgO Corp Board is suitable for painting or wallpapering with no further and the rough side is apply a prime coat of acrylic-siloxane waterproofing sealer, followed by oil based paint.

Where MgO Corp Board is to be used as a mounting surface for ceramic tile, such as in a bathroom or shower enclosure, solvent based tile mastic is recommended.

MgO Corp Board recommended assemblies consist of wall, interior wall, shaft wall, steel column, staircase, ceiling, floors and roofing.

Recommended installation methods for each application are available at www.mgoboard.com.au

**Precautions**

- Avoid handling MgO Corp Board panels when wet.
- Allow to dry before applying joint finishing materials.
- MgO Corp Board does not contain any known cancer causing materials.
- Use of a dust mask is recommended during cutting and sanding operations.
- Use of gloves is suggested to reduce the possibility of abrasion injuries.
- Fasteners should not be closer than 2” (51mm) from a corner, with the adjoining screw not less than 4” (102mm) from the same corner.
- Do not install screws on a 45 degree angle at corners.
- Board ends must be supported by joists
- Fasteners must always be installed over supporting structure suitable for application of ceramic tile.
- Either solvent based oil paint or water based latex paint can be used.
- Do not install surface coverings by driving screw fasteners, except over supporting structure.
- Cantilever overhangs are not recommended.
- Fasteners should not be closer than 3/4” (19.1mm) from any edge.
- Do not fasten coverings directly to MgO Corp Board with mechanical fasteners (nails, screws, staples, etc.)
Building Codes

Installation must comply at all times with the BCA, ABCB and JAS/ANZ codes and conditions and/or with the requirements of all applicable local, state and federal code jurisdictions.

6. Warranty

Failure to comply with the advice given within the installation manual may void all product replacement warranties. Complete warranty terms and conditions are available from Magnesium Oxide Board Corporation Pty Ltd or the local distributor agent.

7. Maintenance

None required.

8. Technical Services

Technical assistance, including more detailed information, product literature, test results and project lists, are available by contacting MgO Corp.

Magnesium Oxide Board Corporation’s Cheat Sheet

<table>
<thead>
<tr>
<th>GENERAL PHYSICAL CHARACTERISTICS</th>
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<tbody>
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WARNING: The above information is ONLY relevant to MgO Corp Board CODEMARK Approved CM-11-A007 products. These results are not a reflection of the performances of other MgO products.

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DESIGN RECOMMENDATIONS

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IMPACT TESTING (ASTM D6628)

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</thead>
<tbody>
<tr>
<td>12 mm</td>
<td>6669.39kpcm</td>
<td>3866.70kpcm</td>
<td>1640.49kpcm</td>
</tr>
<tr>
<td>14 mm</td>
<td>12738.25kpcm</td>
<td>7177.17kpcm</td>
<td>3193.11kpcm</td>
</tr>
</tbody>
</table>

Above recommendations based on a maximum allowable flexural stress of 1000 psi.

PANEL SHEAR

12 mm panel - 140.51/meter
15 mm panel - 196.90/meter

Above recommendations based on a safety factor of 4. The use of a T-shaped spline 12.7 mm high with 25.4 mm wings on both sides is recommended for panels 15 mm thick, or heavier, used for subflooring.