



Building a green and eco-friendly future



MagnaBoard®

Partitioning, Ceiling, Cladding and
General Building Board for Internal
and External use



Member Green Building Council

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MagnaBoard®

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Welcome to Magnastruct

Our office is situated in Thornton, Cape Town and was established in 2009.

Magnastruct provides a mineral-based board that can be used for ceilings, partitioning, cladding, eaves and much more. Our MagnaBoard range spans many applications and we supply this product across Southern Africa. We strive to contribute to a green and eco-friendly future in the building industry by providing this environmentally-friendly option to the market and we back our world-class product with professional service and support.

MagnaBoard[®] is a registered trademark and is the only SA fire-rated MgO board. It is homogenous with no delamination, is impervious to fire, water, insects, mould and mildew, is nontoxic, non-flammable, non-combustible, and maintains its dimensional stability even when wet.

MagnaBoard[®] has been specified by architects and engineers, and we believe that MagnaBoard is perfectly suited to be the product of choice based on its excellent characteristics, its alignment with environmentally-friendly focus and its competitive pricing.

MagnaBoard[®] (Magnesium Oxide Board) provides a total solution for healthy, affordable, durable and energy efficient buildings. MagnaBoard is a technologically advanced building material offering superior performance in every category when compared to traditional wood, gypsum and cement-based products.

A GREEN PRODUCT

Magnastruct provides a new and revolutionary building board that is green and environmentally-friendly, and still surpasses latest technical reforms and product innovations in the market. Magnastruct will never use a raw material that is known to be harmful, such as asbestos, formaldehyde, benzene etc., as Magnastruct recognises the importance of protecting resources and the environment we are living in. MagnaBoard is made from natural materials.

Introduction to MagnaBoard®

Magnastruct offers two grades of board, **MagnaBoard** (for interior use) and **MagnaBoard Premium** (for exterior use). There is a difference in ratios and percentages of ingredients of the raw materials between our MagnaBoard and MagnaBoard Premium. (Further, a purer grade of magnesium and magnesium oxide content is used in the exterior grade boards). The difference in composition improves the general characteristics of the exterior board; most significantly so for weatherability i.e. how well the board holds up against the elements such as severe temperature changes, sun, wind, rain and frost.

MagnaBoard Premium is specifically manufactured for this purpose and for this reason should be used for external applications and for applications where the conditions are more severe - for example excessive damp. Unfortunately, not all MgO manufacturers produce a consistent quality of boards. By purchasing MagnaBoard you can have piece of mind that you are using the correct product for your application, backed by a 10 year warranty.

* Magnastruct accepts absolutely no liability for any damages where the interior grade board has been used for external applications.

MagnaBoard®

The discovery of Magnesium Oxide board is changing the building industry around the world. MgO boards are used extensively in Asia, Europe, the USA and North Africa. Upon the introduction of MagnaBoard into South Africa we offer significant advantages to the building industry.

The advantages of MagnaBoard are as follows:

- MagnaBoard is fire resistant - it has a 'zero' flame spread and smoke developed rating
- MagnaBoard is impervious to water. When submerged completely in water for extended periods of time MagnaBoard experiences no dimensional changes whatsoever
- MagnaBoard is mould- and mildew resistant
- MagnaBoard will save on labour and material costs and therefore also save on the overall duration of projects due to the ease of application
- MagnaBoard is made of a mineral product and therefore reduces allergic reactions and is conducive to cleaner homes, offices and other environments
- MagnaBoard has no chemicals in its formula
- MagnaBoard has good acoustic dampening qualities
- MagnaBoard has good thermal insulation qualities
- The MagnaBoard manufacturing process is eco-friendly and MagnaBoard is both environmentally-friendly and is a Green Building Council approved product
- MagnaBoard is 100% recyclable
- MagnaBoard has good weatherability characteristics. It has been subjected to some of the toughest conditions on building materials today and has withstood these conditions with good results
- MagnaBoard is stable. When subjected to temperature changes the boards will experience minimal expansion and contraction
- MagnaBoard is impervious to insects including termites and sugar ants, as it is inedible
- MagnaBoard is an easy-to-install product
- MagnaBoard has excellent strength characteristics
- MagnaBoard is non-toxic, free of carcinogens and contains no silica.

Magnesium Oxide in Construction

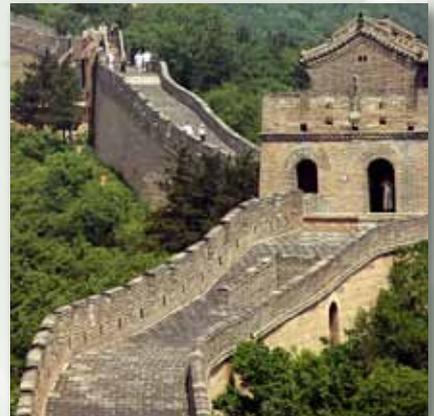
The Terracotta Army of China

The famous Terracotta Army is a collection of terracotta sculptures depicting the armies of Qin Shi Huang, the first Emperor of China. The figures contain large amounts of MgO. There are said to be more than 8000 soldiers, 130 chariots, 520 horses and 150 cavalry horses, and they have lasted for more than 2000 years.



The Great Wall of China

It has emerged that the Great Wall of China consists of large amounts of MgO-based mortar, which has in large part accounted for its strength and durability over time. In many places it has outperformed, and even outlived, some stone. The Great White Mountains that the Great Wall of China follows are said to contain enough MgO to replace all of the drywall and plywood on the planet at the current consumption rate, for 800 years.



The Pantheon

The “pozzolana” that was used for the cement in many Roman buildings contains large amounts of MgO. A main source for raw materials was the city of Magnesia. Volcanoes had been converting the MgO much the same as we do today.



...more recent uses

In **Taipei 101**, one of the tallest buildings in the world, considerable use was made of MgO boards in its construction. All 101 stories use MgO boards on the inside and outside of all the walls, fireproofing beams and as the sub floor sheathing.

MgO boards were also the “official” specified construction material of the **2008 Beijing Olympics** buildings, a project costing over 160 billion dollars. Over 8 million square feet of MgO boards were installed.



MagnaBoard®

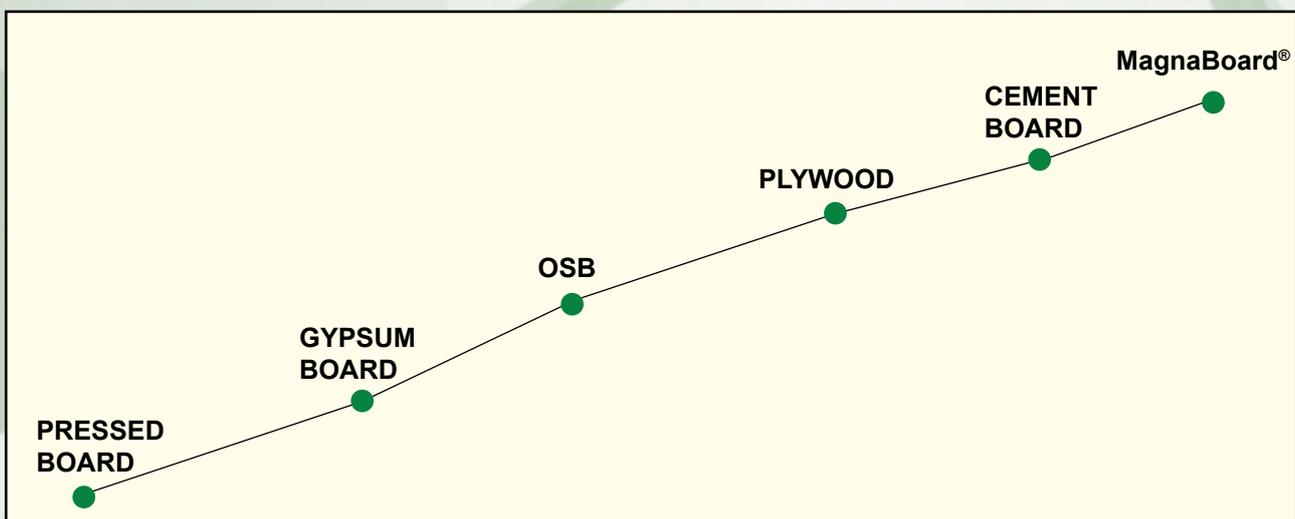
A revolutionary non-combustible construction board material with numerous applications in commercial projects of all kinds.

- Provides a hard, long lasting surface that looks and feels like **hard cement plastering** but is fireproof and resistant to damage from water, humidity, freezing, organisms, chlorine, salt and more. Excellent material for **sound proofing** applications. The ideal wallboard for pool buildings, garages, kitchens and wet areas, or for any of the more demanding locations in buildings.
- Can be applied to **wooden structures and/or metal framing** or directly on to steel structures and masonry work with mechanical fasteners (screws, bolts, rivets, brads, staples, nails). Can also be used to laminate over existing surfaces using adhesives and cements. (Use with a variety of joint fillers for different levels of resistance as required).
- As **a component for light steel framing**, MagnaBoard allows structures to be built taller and larger at a rapid pace yet remain lighter than other board products. There is a wide range of thickness options, for interior and exterior applications. It can be left natural with clear finishes; alternatively due to its inherent superior bonding property it may be painted or plastered.
- A **faster and better alternative to lathing and plastering**. MagnaBoard can be installed with taped joints like a drywall, gypsum or plasterboard, or spliced using specific fillers without taping, or with joints without any filling or taping, to save time as an alternative to plastering walls at a fraction of the cost. Also a great substrate to receive exterior and interior decorative coatings directly to its surface.
- MagnaBoard can be **screwed in place with wood screws** and/or quickly and **strongly fastened with pneumatic guns** using brads, staples or nails with less filling. Most laminating adhesives work better on MagnaBoard.
- Unique, attractive, economical, and **seamless commercial grade acoustic flooring**. Installed floating over regular adhesives for isolated mass dampening of ambient sound levels. Perfect for making flush seamless floor joints that prevent dirt build-up and permit easy maintenance for machine polishing and waxing.
- For **incredibly fast dry wall boarding**, it can be installed and painted within hours using fast setting fillers trimmed with a sharp blade (reducing sandpaper and sanding). Fillers can be cut flush without a tape over the panel joints and without needing a corner-bead, metal trims, etc., whilst giving you perfectly true square corners and edges naturally. Panels can be spliced between studs without the need to land joints over studs. i.e. using MagnaBoard behind the seam as a back-blocking splicer stapled or screwed together results in seamless flush joints on the front.
- It is a **concrete-hard, dry wall material ideal for high impact areas**, as well as hot, wet and humid areas; can receive paint directly or as a wall tile or floor tile backer board. A backer board that provides a 20 MPa strong substrate for floor and wall tile, screwed or nailed in place without pre-drilling or laminated in layers to obtain any thickness. When nailed in place with a light brad nail gun a whole room can be made ready to tile in minutes. Every thickness from 6 mm to 20 mm can be nailed in place to wood studs, plywood subfloors, particleboards, OSB... even MagnaBoard to MagnaBoard with pneumatically applied brads.

Comparison with similar materials:

Attributes	MagnaBoard®	Gypsum Board	Plywood / OSB	Cement Board
Environmentally "Green" and Non-Toxic	YES	NO	NO	NO
Recyclable	YES	NO	NO	NO
Fire Resistant / Non-Combustible	YES	NO	NO	YES
Water & Moisture Resistant	YES	NO	NO	YES
Mould- and Mildew Free	YES	NO	NO	YES
Insect Resistant	YES	NO	NO	YES
Cut / Saw - No Special Tools	YES	YES	YES	NO
Wallpaper Over	YES	NO	NO	NO
Tile Backer	YES	NO	NO	YES
Insulation Sound and Heat	YES	NO	NO	YES
Strong and Durable	YES	NO	YES	NO
Light Weight	YES	YES	NO	NO
Fastener Strength	Excellent	Poor	Excellent	Poor
Available in thicknesses from 3 mm - 20 mm	YES	Not all Thicknesses	Not all Thicknesses	Not all Thicknesses

MagnaBoard® Ladder of Comparison



The graph above shows the excellent standard of MagnaBoard®.

Uses of MagnaBoard®

Where can MagnaBoard® be used?

- Houses - MagnaBoard has been used in high-end homes, due to the achievement of a level 5 finish
- Low-cost housing
- Commercial buildings
- Hotels and convention centres
- Factories and warehouses
- Hospitals
- Theatres
- Stations.

Main Uses for MagnaBoard®

- Dry walling
- Ceilings
- Soffits
- Fascias
- Eaves
- Skirtings
- Flooring bases (instead of marine ply and shutter board)
- On door faces
- Cladding of interior and exterior walls instead of plastering the walls (the finishes will be far better than plastering and skimming and will save on time and labour)
- On the exterior as a wall structure
- Magnesium oxide boards are used in America for the construction of homes in hurricane areas and have a rating to withstand these storms.
- For low-cost housing - quick construction and cost-effective.



Product Range

MagnaBoard® and MagnaBoard® Premium

- **Standard stock:**
Thicknesses: 9 mm, 12 mm and 15 mm
Length: 2700 mm
Width: 1220 mm
- **Also available** - can be accommodated upon request:
Thicknesses: 3 mm - 20 mm
Lengths: 2440 mm, 2700 mm and 3000 mm
Width: 900 mm and 1220 mm



Characteristics of MagnaBoard®

Fireproof, fire-resistant and non-combustibility

Certified and approved
SANS10177 P.2 - Dry Wall Fire Tests
Fire rating installations approved from 30 minutes to 2 hours 30 minutes.
MagnaBoard is recognised overseas as an A1 Grade non-burning material.

Impervious to water

MagnaBoard remains intact after being soaked in water for lengthy periods of time. The phenomenon of swelling and changing shape does not occur. The changing of shape rate in wet or dry conditions is 0.26%. The water absorption rate is about 15%. The intensity of breaking pressure when MagnaBoard is dry is 16 MPa and when moisture absorption has taken place it is 22 MPa.

Sound insulation

The sound insulation of a dry wall panel using 10 mm MagnaBoard is about 46 dB. This is approximately twice as good when compared to a standard gypsum board.

Heat insulation

MagnaBoard has good thermal properties, especially when used in conjunction with Magna Rockwool.

Strength, durability and weight

- 9 mm MagnaBoard
- Impact strength $>3.0 \text{ kJ/m}^2$
- Compressive strength $>4.5 \text{ MPa}$
- Weight = 8.5 kg/m^2

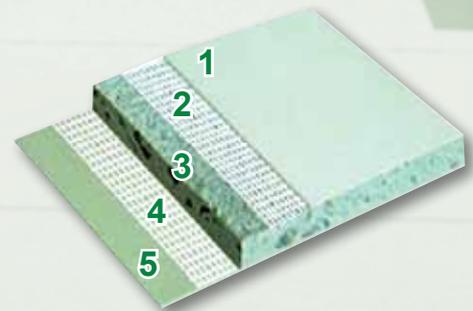
When constructing a dry wall out of MagnaBoard it is considerably lighter than an ordinary brick wall. When MagnaBoard is compared to a gypsum board it has a 2 - 3 times better impact resistance.

Ease of installation

- MagnaBoard is quick and easy to install and will shorten the time on a project.

Composition of MagnaBoard®

1. Facial surface layer
2. Non-woven cloth layer
3. Filler layer (magnesium oxide, magnesium chloride, saw dust and perlite)
4. Fibreglass net layer
5. Filler layer on the inner side.



NOTE: For certain applications Magnastruct has added fibreglass net layers for additional strength.

6 mm MagnaBoard®

6mm MagnaBoard®	
Ingredient	
Magnesium Oxide Powder	
Magnesium Sulphate or Magnesium Chloride	
Perlite	
Wood Bits	
Other (Glass Fibre Mesh, Non-woven Cloth)	
Characteristics	
Thickness	6 mm
Tolerance Thickness	± 0.3 mm
Product Name	Magnesium Oxide Board
Standard Length	2440 mm, 2700 mm
Tolerance Length	± 1 mm
Standard Width	1220 mm
Tolerance Width	± 1 mm
Non-combustable (Fire-Resisting Limit)	A-Grade non combustible (PSB, GB8624)
Density	0.9 - 1.1 g/cm ³
Flexibility	good
Content of Harmful Substances	100% None
Sound Resistance	40dB
Colour	White
Bending Strength (Mpa)	≥ 18 Mpa
Impact Strength (KJ/m ²)	≥ 2.0 KJ/m ²
Thermal Resistance (R-Value)	0.026 (m ² K/W)
Compressive Strength (Mpa)	4 Mpa
Moisture Content	≤ 12%
Dryness Retraction	≤ 0.28%
Water Absorption	≤ 15%
Natural Expansion	0.09%
Pollution	100% does not include asbestos, formaldehyde, or benzene.
Wet Inflation Rate	≤ 0.05%

9 mm MagnaBoard®

9mm MagnaBoard®	
Ingredient	
Magnesium Oxide Powder	
Magnesium Sulphate or Magnesium Chloride	
Perlite	
Wood Bits	
Other (Glass Fibre Mesh, Non-woven Cloth)	
Characteristics	
Thickness	9 mm
Tolerance Thickness	± 0.3 mm
Product Name	Magnesium Oxide Board
Standard Length	2440 mm, 2700 mm
Tolerance Length	± 1 mm
Standard Width	1220 mm
Tolerance Width	± 1 mm
Non-combustable (Fire-Resisting Limit)	A-Grade non combustible (PSB, GB8624)
Density	0.9 - 1.1 g/cm ³
Flexibility	good
Content of Harmful Substances	100% None
Sound Resistance	42dB
Colour	White
Bending Strength (Mpa)	≥ 16 Mpa
Impact Strength (KJ/m ²)	≥ 3.0 KJ/m ²
Thermal Resistance (R-Value)	0.039 (m ² K/W)
Compressive Strength (Mpa)	4.5 Mpa
Moisture Content	≤ 12%
Dryness Retraction	≤ 0.28%
Water Absorption	≤ 15%
Natural Expansion	0.09%
Pollution	100% does not include asbestos, formaldehyde, or benzene.
Wet Inflation Rate	≤ 0.05%

11 mm MagnaBoard® Premium Woodgrain (Exterior)

11mm MagnaBoard® Premium Woodgrain (Exterior)	
Ingredient	
Magnesium Oxide Powder	
Magnesium Sulphate or Magnesium Chloride	
Perlite	
Wood Bits	
Other (Glass Fibre Mesh, Non-woven Cloth)	
Characteristics	
Thickness	11 mm
Tolerance Thickness	± 0.5 mm
Product Name	Magnesium Oxide Board
Standard Length	2440 mm
Tolerance Length	± 1.5 mm
Standard Width	1220 mm
Tolerance Width	± 1.5 mm
Non-combustable (Fire-Resisting Limit)	A-Grade non combustible (EN 13501-1)
Density	0.95 - 1.1 g/cm ³
Flexibility	good
Content of Harmful Substances	100% None
Sound Resistance	43dB
Colour	White
Bending Strength (Mpa)	≥ 13 Mpa
Impact Strength (KJ/m ²)	≥ 4.3 KJ/m ²
Thermal Resistance (R-Value)	0.050 (m ² K/W)
Compressive Strength (Mpa)	5 Mpa
Moisture Content	≤ 12%
Dryness Retraction	≤ 0.28%
Water Absorption	≤ 23%
Natural Expansion	0.09%
Pollution	100% does not include asbestos, formaldehyde, or benzene.
Wet Inflation Rate	≤ 0.05%

12 mm MagnaBoard®

12mm MagnaBoard®	
Ingredient	
Magnesium Oxide Powder	
Magnesium Sulphate or Magnesium Chloride	
Perlite	
Wood Bits	
Other (Glass Fibre Mesh, Non-woven Cloth)	
Characteristics	
Thickness	12 mm
Tolerance Thickness	± 0.3 mm
Product Name	Magnesium Oxide Board
Standard Length	2440 mm, 2700 mm
Tolerance Length	± 1 mm
Standard Width	1220 mm
Tolerance Width	± 1 mm
Non-combustable (Fire-Resisting Limit)	A-Grade non combustible (PSB, GB8624)
Density	0.9 - 1.1 g/cm ³
Flexibility	good
Content of Harmful Substances	100% None
Sound Resistance	43dB
Colour	White
Bending Strength (Mpa)	≥ 14 Mpa
Impact Strength (KJ/m ²)	≥ 4.6 KJ/m ²
Thermal Resistance (R-Value)	0.051 (m ² K/W)
Compressive Strength (Mpa)	5 Mpa
Moisture Content	≤ 12%
Dryness Retraction	≤ 0.28%
Water Absorption	≤ 15%
Natural Expansion	0.09%
Pollution	100% does not include asbestos, formaldehyde, or benzene.
Wet Inflation Rate	≤ 0.05%

12 mm MagnaBoard® Premium (Exterior)

12mm MagnaBoard® Premium (Exterior)	
Ingredient	
Magnesium Oxide Powder	
Magnesium Sulphate or Magnesium Chloride	
Perlite	
Wood Bits	
Other (Glass Fibre Mesh, Non-woven Cloth)	
Characteristics	
Thickness	12 mm
Tolerance Thickness	± 0.3 mm
Product Name	Magnesium Oxide Exterior Board
Standard Length	2440 mm, 2700 mm
Tolerance Length	± 1 mm
Standard Width	1220 mm
Tolerance Width	± 1 mm
Non-combustable (Fire-Resisting Limit)	A-Grade non combustible (PSB, GB8624)
Density	0.9 - 1.1 g/cm ³
Flexibility	good
Content of Harmful Substances	100% None
Sound Resistance	43dB
Colour	White
Bending Strength (Mpa)	≥ 14.8 Mpa
Impact Strength (KJ/m ²)	≥ 4.6 KJ/m ²
Thermal Resistance (R-Value)	0.051 (m ² K/W)
Compressive Strength (Mpa)	5 Mpa
Moisture Content	≤ 12%
Dryness Retraction	≤ 0.28%
Water Absorption	≤ 15%
Natural Expansion	0.09%
Pollution	100% does not include asbestos, formaldehyde, or benzene.
Wet Inflation Rate	≤ 0.05%

15 mm MagnaBoard®

15mm MagnaBoard®	
Ingredient	
Magnesium Oxide Powder	
Magnesium Sulphate or Magnesium Chloride	
Perlite	
Wood Bits	
Other (Glass Fibre Mesh, Non-woven Cloth)	
Characteristics	
Thickness	15 mm
Tolerance Thickness	± 0.8 mm
Product Name	Magnesium Oxide Board
Standard Length	2440 mm, 2700 mm
Tolerance Length	± 1 mm
Standard Width	1220 mm
Tolerance Width	± 1 mm
Non-combustable (Fire-Resisting Limit)	A-Grade non combustible (PSB, GB8624)
Density	0.9 - 1.1g/cm ³
Flexibility	good
Content of Harmful Substances	100% None
Sound Resistance	44dB
Colour	White
Bending Strength (Mpa)	≥ 10 Mpa
Impact Strength (KJ/m ²)	≥ 6.0 KJ/m ²
Thermal Resistance (R-Value)	0.065 (m ² K/W)
Compressive Strength (Mpa)	6 Mpa
Moisture Content	≤ 12%
Dryness Retraction	≤ 0.28%
Water Absorption	≤ 15%
Natural Expansion	0.09%
Pollution	100% does not include asbestos, formaldehyde, or benzene.
Wet Inflation Rate	≤ 0.05%

15 mm MagnaBoard® Premium (Exterior)

15mm MagnaBoard® Premium (Exterior)	
Ingredient	
Magnesium Oxide Powder	
Magnesium Sulphate or Magnesium Chloride	
Perlite	
Wood Bits	
Other (Glass Fibre Mesh, Non-woven Cloth)	
Characteristics	
Thickness	15 mm
Tolerance Thickness	± 0.8 mm
Product Name	Magnesium Oxide Exterior Board
Standard Length	2440 mm, 2700 mm
Tolerance Length	± 1 mm
Standard Width	1220 mm
Tolerance Width	± 1 mm
Non-combustable (Fire-Resisting Limit)	A-Grade non combustible (PSB, GB8624)
Density	0.9 - 1.1 g/cm ³
Flexibility	good
Content of Harmful Substances	100% None
Sound Resistance	44dB
Colour	White
Bending Strength (Mpa)	≥ 10.8 Mpa
Impact Strength (KJ/m ²)	≥ 6.0 KJ/m ²
Thermal Resistance (R-Value)	0.065 (m ² K/W)
Compressive Strength (Mpa)	6 Mpa
Moisture Content	≤ 12%
Dryness Retraction	≤ 0.28%
Water Absorption	≤ 15%
Natural Expansion	0.09%
Pollution	100% does not include asbestos, formaldehyde, or benzene.
Wet Inflation Rate	≤ 0.05%

Installation Specification

MagnaBoard Installation partitioning or ceiling Method:

- Framing Method - Gridding (batten, stud, light steel frame or tees)
- The gridding structure must be rigid prior to the installation of the boards

MagnaBoard size - 1220 mm x 2700 mm

Battens spaced at 305 mm to a maximum of 610 mm from c-c

MagnaBoard are to be fitted perpendicular to the gridding

Double batten or bigger batten to be installed on joints where boards meet

All joints must fall in the centre of a batten

A 3 mm gap (space) **MUST** be allowed between the boards at joints for expansion and contraction.

Movement joints to be made every 10 m -12 m

Where a large cut-out section is required in the fitting of a board it is not recommended that the board be fitted as one piece. The board should be cut into separate pieces and joined correctly as specified to prevent cracks from developing at a later stage.

Securing the MagnaBoard:

- All edges and centres must be secured
- Screws are to be spaced 180 mm - 250 mm maximum
- Screws are to be fixed 50 mm from the corners
- Screws are to be fixed no closer than 15 mm from the edges

Joint Preparation:

- Skimming of joints (we recommend using tapered boards)
- All 3 mm gaps on joints must first be properly caulked (filled)
- Fibre tape then to be applied to the board
- Joint then skimmed over the fibre tape to the level of the board

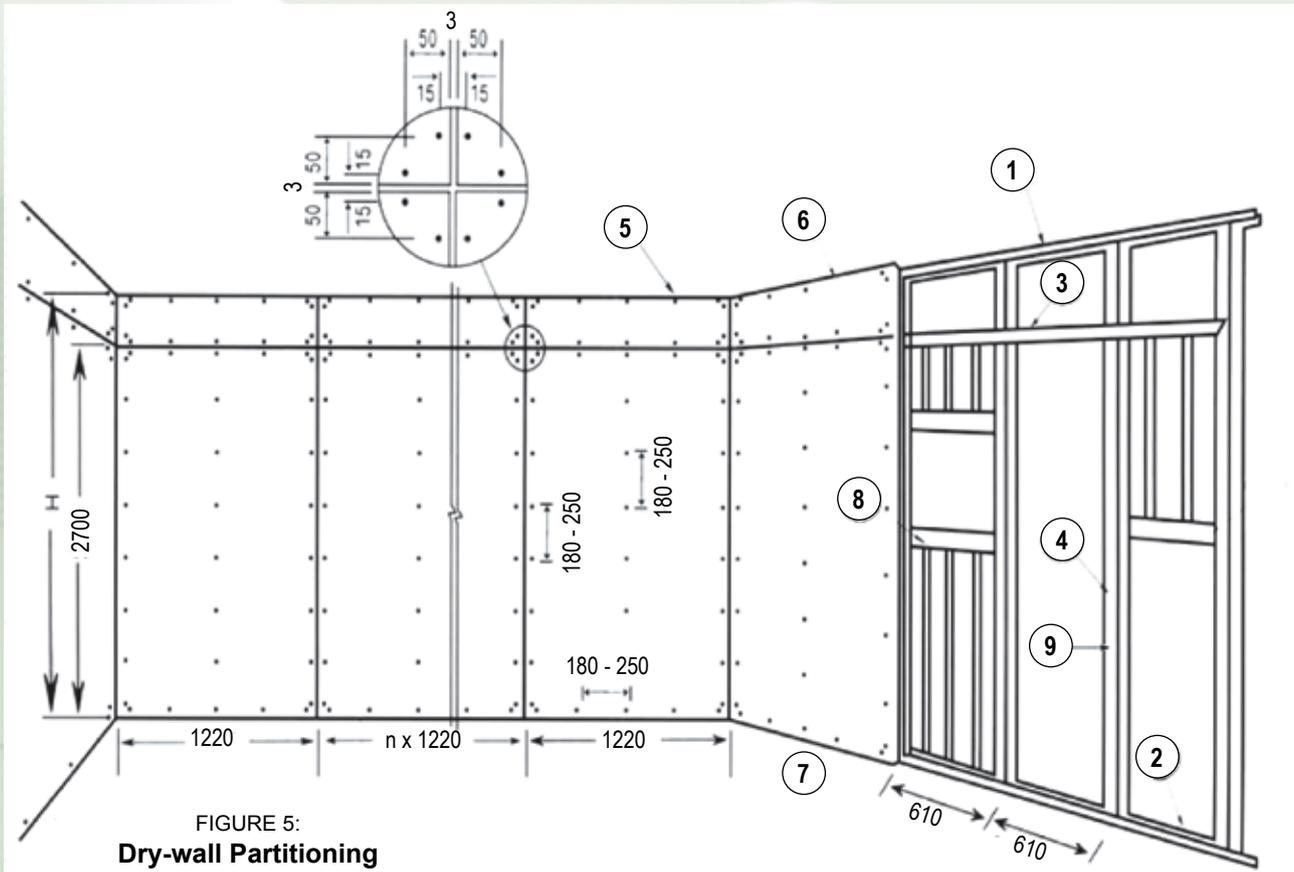
Note:

1. It is advisable to consult with our Technical Advisor prior to installation, as the above standard specification may not cover all aspects of a particular application.
2. The performance of every wall/ceiling joint is the responsibility of the installer, as this is governed by the standard of workmanship and installation practices.

Please follow the above installation instructions in order not to compromise the Magnastruct warranty.

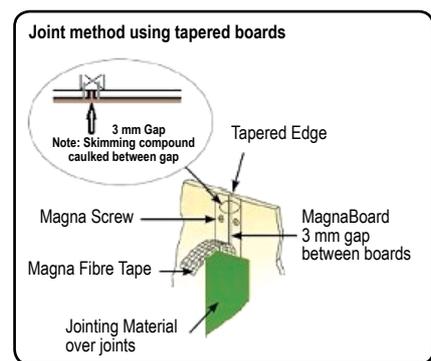
Installation Details

All technical diagrams are for general installations. Industry regulations and local standards should be consulted in conjunction with these diagrams.



Labelling for Figure 5 , Figure 7 and Figure 8

1. Roof/Soffit - Light steel track
2. Floor - Light steel track
3. Light steel frame
4. Vertical steel stud
5. Magna countersink screws
6. MagnaBoard/MagnaBoard Premium
7. Floor base
8. Light steel frame for window openings
9. Light steel frame for door openings



Note:

- When skimming only joints tapered boards must be used.
- Timber can be used with good results in place of light steel framework.
- Where movement can be expected on the frame the screw spacings should not exceed 200 mm.
- The above (Figure 5) will also apply to ceiling installations with regard to screw spacings and screw spacings from edges and corners.

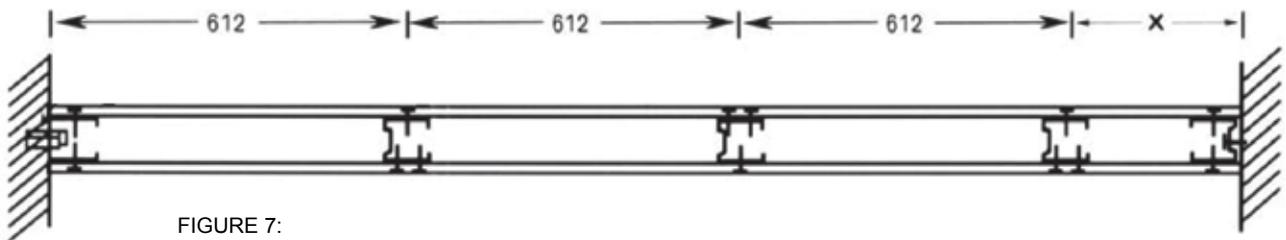


FIGURE 7:
Staggering Of Joints

Installation Method

Framework and Gridding:

- Determine the installation line
- Fix light steel track roof/soffit and floor with penetrating nails and/or expanding screws
- Fix vertical studs @ 612 mm and walling frame/studs (if required).
- 50 mm or double battens for all board joints

Boarding:

- Cut MagnaBoard to required sizes in advance (10 mm lower than roof height)
- Fix boards to steel frame with Magna Countersink Screws @ 200 - 250 mm gaps. Set screws to countersink between 0.5 mm - 1 mm
- On the edges of the board where they are tapered the Magna standard screw should be fitted and should not be over-tightened; these holes should be pre-drilled prior to fitting these screws but is not a requirement
- Stagger the joints and all joints must fall on a stud
- Allow 3 - 5 mm space between boards for expansion
- Fix boards from centre to edges to prevent uneven surface
- Prior to boarding both sides of wall, allow for plumbing and/or electrical fittings and insert insulation material if required. Expansion joints have to be allowed for every 10 – 12 m
- Should only joints be required to be skimmed then MagnaBoard must be tapered and square edge boards should not be used
- All joints must be properly caulked prior to applying fibre tape



FIGURE 8:
Detail Of Fixing

Ceilings

Magnastruct does not recommend 5 - 7 mm MagnaBoard to be tapered. The joints should be dealt with by means of cover strips or H Channel profiles. If a seamless look is required then joints must be caulked, Magna Fibre tape should be applied over all the joints and the full boards should be skimmed with *papresa* Aligerado.

8 - 12 mm MagnaBoard may be routed and Magna Fibre tape fitted, and only the joints will need to be caulked and skimmed with *papresa* De Juntas.

Branding Spacing

- Magnastruct recommends that when using 6 mm MagnaBoard the branding spacing is between 350 - 400 mm centre to centre.
- Magnastruct recommends that when using 9 mm MagnaBoard the branding spacing is between 400 - 500 mm centre to centre.
- Magnastruct recommends that when using 11 and 12 mm MagnaBoard the branding spacing is between 450 - 550 mm centre to centre.

Standard practice is for the boards to be fitted at right angles (length of the boards) to the gridding and the branding should be spaced so that the ends of the boards are fixed on branding. When fitting boards to walls or ceilings they should be fitted from the centre outwards.

Expansion Joints

Allowance should be made for expansion joints on ceilings between every 10 - 12 m depending on the installations.

Additional Notes:

- All screws spacing to be between 180 - 250 mm. In high wind areas and where movement is expected spacings should not exceed 200 mm
- 3 mm gaps to be left between the boards
- When skimming with any other products besides *papresa* products it is recommended that the board's surface is primed with a bonding agent
- If boards are fitted in areas of high wind loading or where movement is expected, wire scrim (or fibre mesh 5x5) tape should be used over joints in place of fibre tape.
- All joints must fall on a 50 mm or double batten

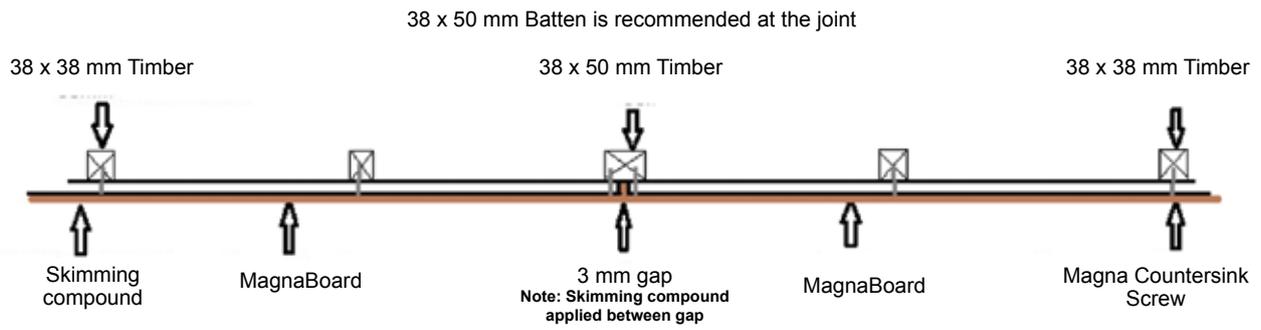
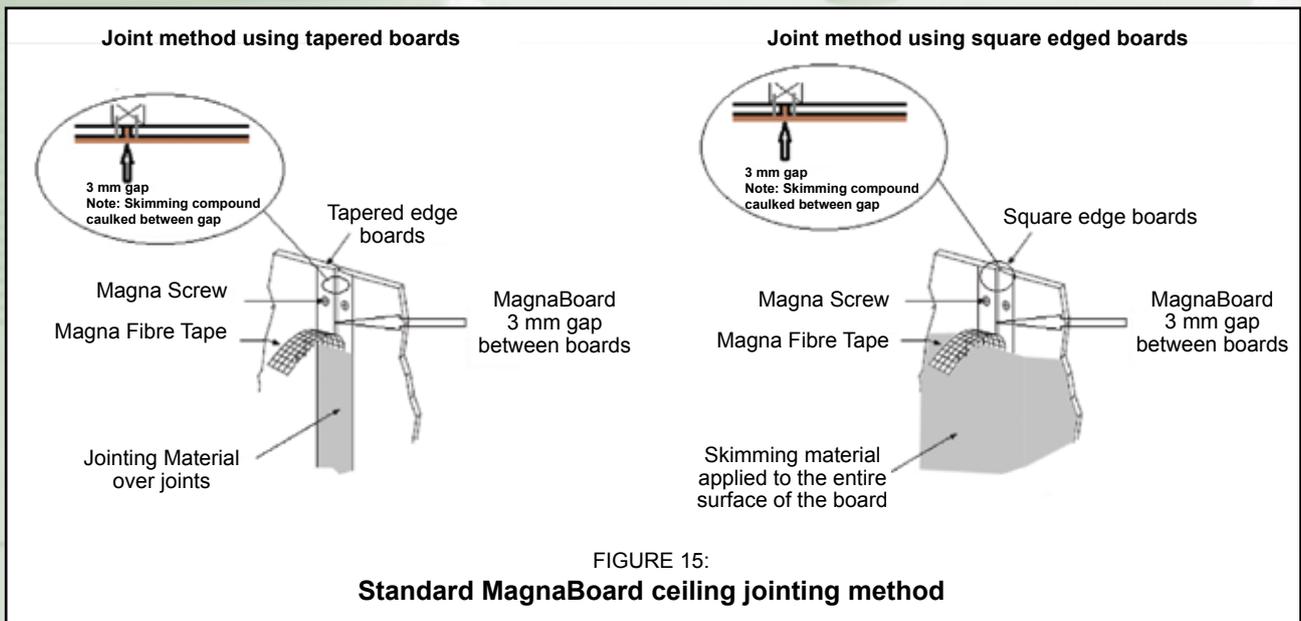


FIGURE 14:
Recommended batten size of joints



Note: Please see Figure 5 on Page 16 for screw spacings and screws distance from edges and corners.



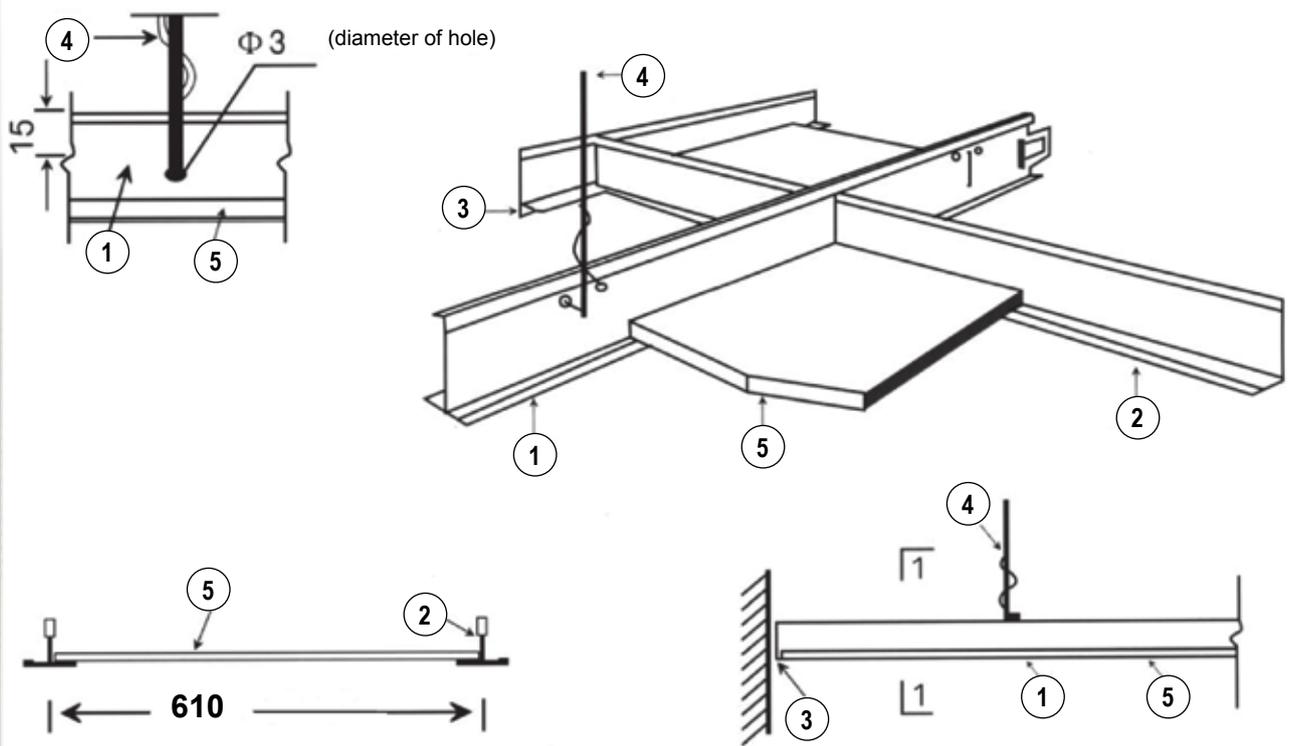


FIGURE 16:
Ceiling Configuration

Labelling for Figure 16

1. Main Tee
2. Cross Tee
3. Wall angle/shadow line
4. Suspension hangers
5. MagnaBoard drop-in ceiling panels

Installation Method

- Measure and fix suspension hangers at a maximum of 1200 mm centres
- Fix Wall Angle/Shadow line to walls creating border for ceiling
- Mitre internal and external corners
- Fix Main Tees to suspension hangers
- Fix Cross Tees @ 610 mm centres
- Lay in 1195 x 595 MagnaBoard drop-in ceiling panels.

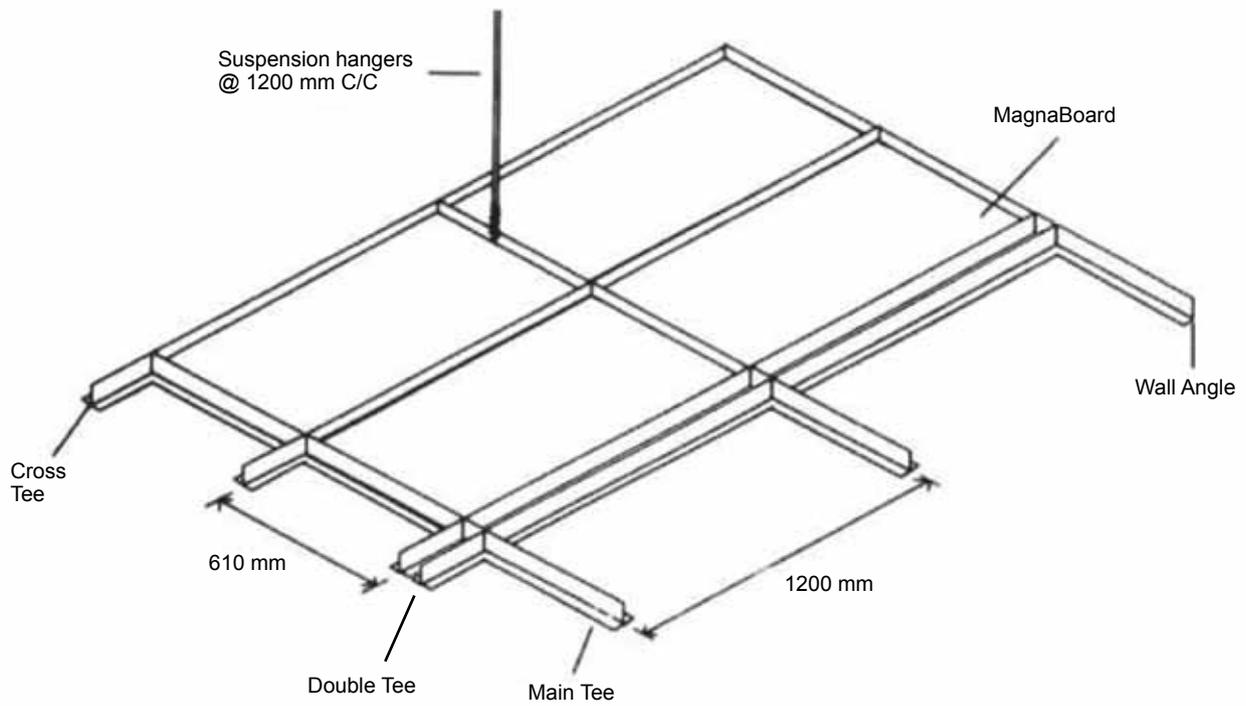
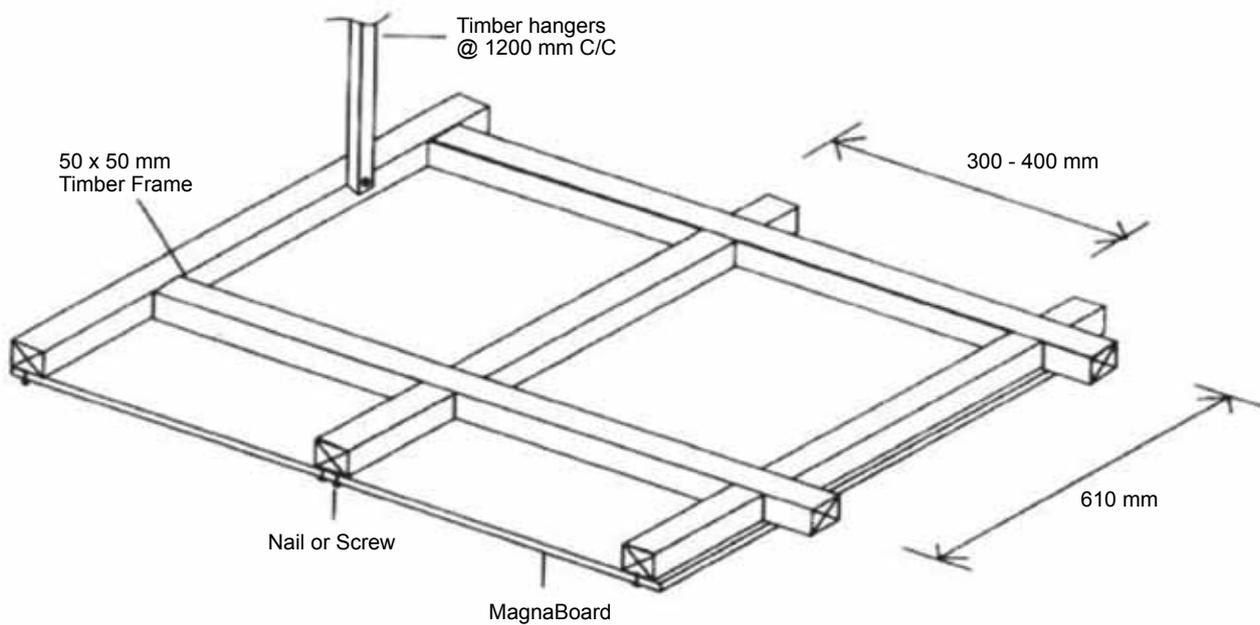


FIGURE 17:
Exposed Grid Ceiling System



38 x 38 mm or 50 x 50 mm Timber frame. MagnaBoard to be fixed to these. Long side of board to run at right angle to the 38 x 38 mm or 50 x 50 mm Timber.

FIGURE 18:
Timber Frame Concealed Ceiling System

Installation Diagrams

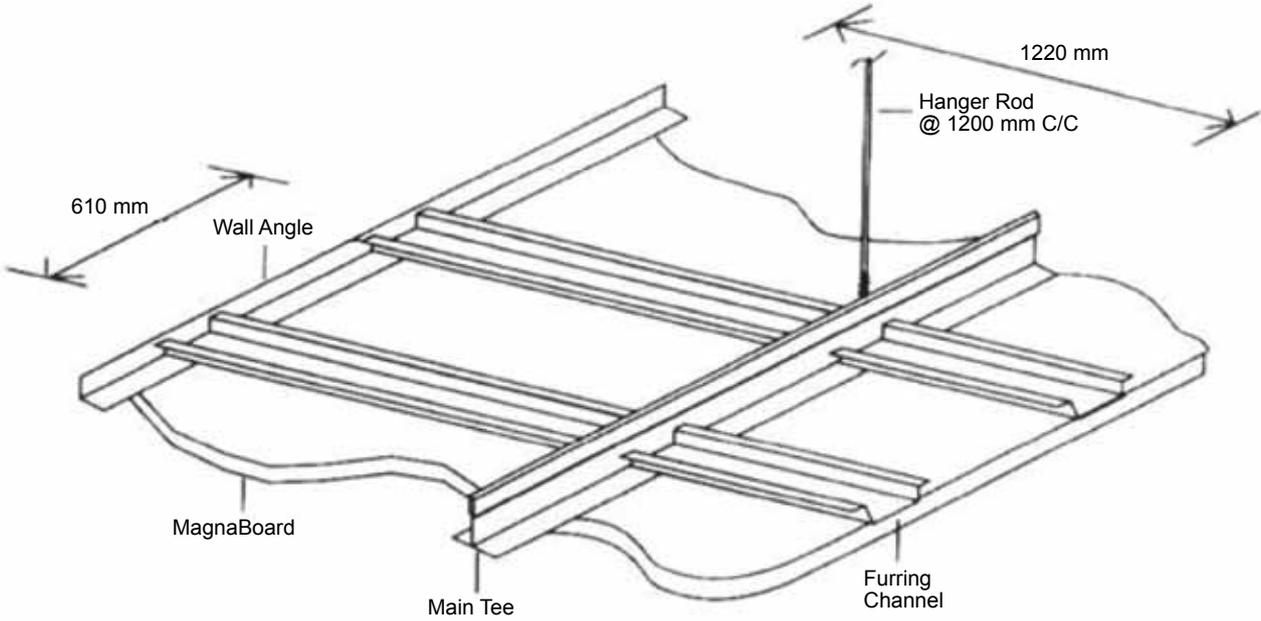


FIGURE 19:
Metal Concealed Grid System

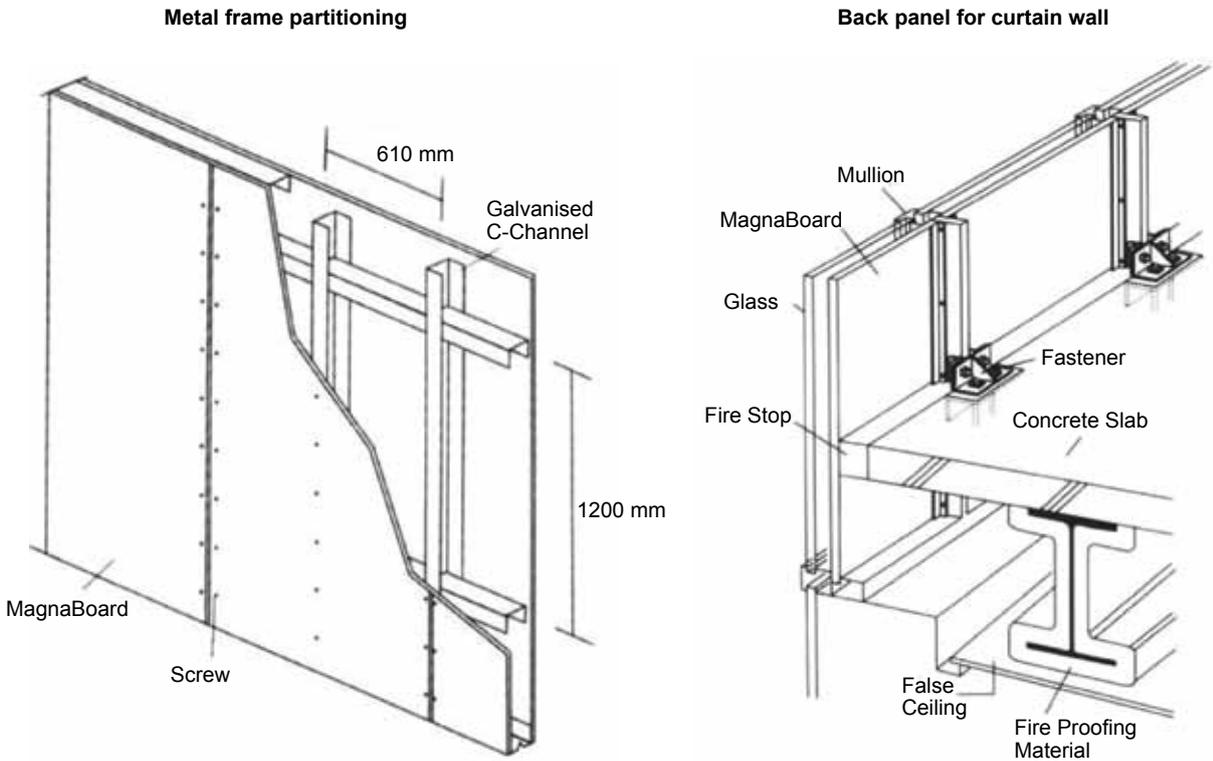


FIGURE 20:
Additional boarding and gridding options

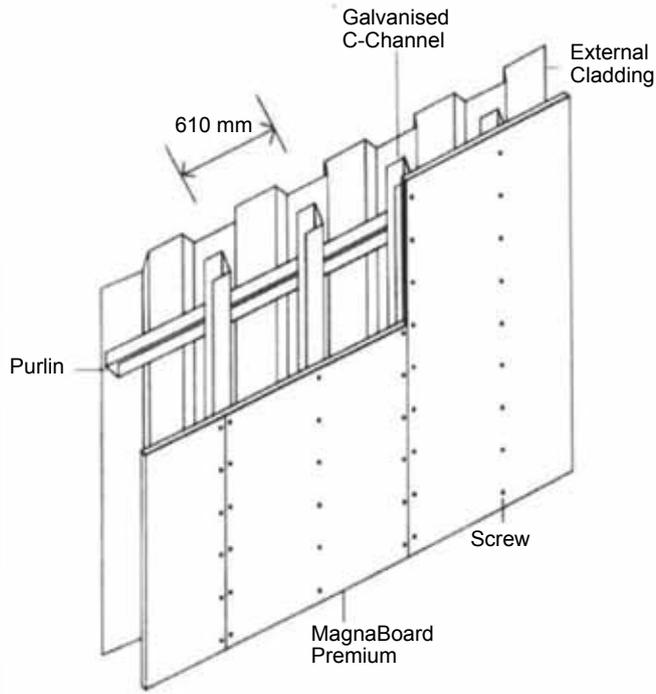


FIGURE 21:
Industrial Wall Lining

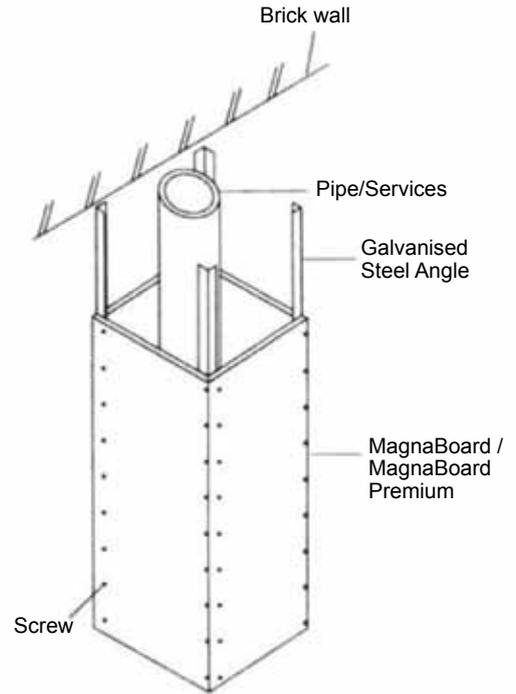


FIGURE 22:
Boxing For Pipes and Services

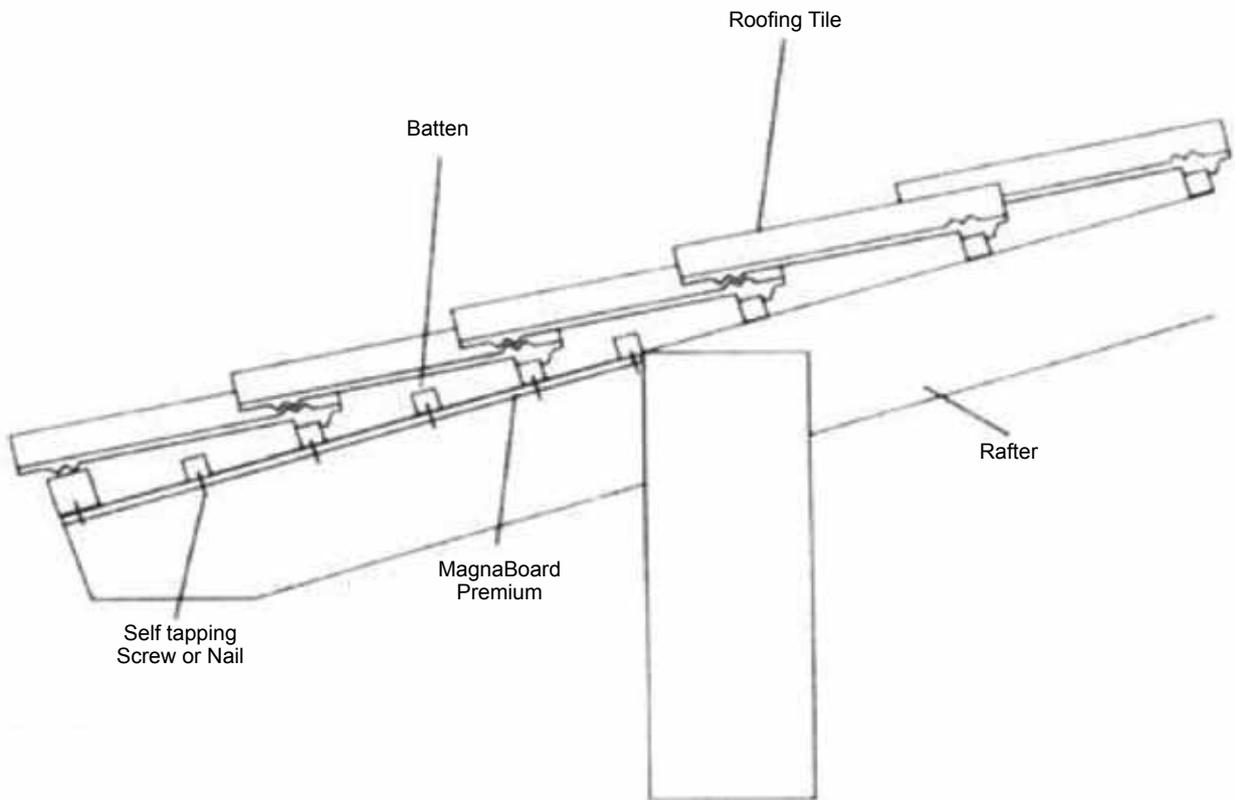


FIGURE 23:
MagnaBoard Premium as Eaves Lining

Additional information for ceilings and walls

MagnaBoard® and MagnaBoard® Premium

MagnaBoard is for interior use only and should not be fitted on the exterior where it is directly exposed to the elements. MagnaBoard Premium is for exterior use and is produced to handle exterior weathering conditions. MagnaBoard Premium may be used as interior boards if needed. Please note that all MagnaBoard Premium should be painted and/or treated if used on the exterior.

Working with MagnaBoard®

MagnaBoard can be cut using circular saws or jig saws, table saws or hand saws. A grinder can also be used with a cutting disc. A T-square and a backer board knife can be used to score the panel/board on the smooth surface of the board, and then the panel/board can be laid on a 3/8" piece of wood or rebar and snapped in the same way as gypsum board. MagnaBoard is easy to drill through and can be routed with extreme ease. Sandpaper may be used on MagnaBoard to neaten edges or to roughen up a surface if needed. MagnaBoard can be trimmed or shaped using ordinary power or hand tools.

Although MagnaBoard contains no harmful substances, it is advisable to wear a dust mask when sawing, sanding or routing. Glue and most epoxies can also be applied to the boards. The boards can be fixed to a variety of surfaces and/or gridding types by using nails, expansion screws and normal screws (please consult Magnastruct for recommendations on screw types). Pneumatic air tools may be used for fixing.

Jointing

A large variety of jointing material and stuccos can be used on MagnaBoard. We recommend using the *papresa* range of products to skim the joints, entire boards and to fill the screw holes with.

Fibreglass tape should be applied over the joints before skimming (refer to page 23) - should there be an indication that there might be movement on the structure or there will be excessive wind loads then it is recommended that wire scrim is used over the joints in place of Magna Fibre tape. In the case of light steel frame building systems special attention should be given to movement, expansion and contraction as this can cause the joints to crack. Once the material has dried, a light sanding should be done over the joints. Due to the fact that the finishing side of the boards is very smooth (a level 5 finish can easily be attained) it is not necessary to skim the entire surface of the boards, thus saving time, additional materials and labour costs. In the event that the boards are required to be skimmed we recommend using *papresa* Aligerado or Controlado. If any other type of skimming material is used it may be required that the surface of the boards are primed with a suitable bonding agent.

Special Note

Joints between all boards must have 3 - 4 mm gaps. These gaps must be filled with jointing or skimming compound and care should be taken to fill the gaps completely and not just half. Fibre Tape should then be applied over all joints. If movement is expected on the structure or gridding then a wire scrim or a heavier duty fibre mesh should be used (please contact Magnastruct for more details). Lastly the jointing or skimming compound should be applied as per the manufacturer's specifications. As noted on page 16 and elsewhere in this brochure should only joints be required to be skimmed then MagnaBoard must be tapered and square edge boards should not be used.

Note: All gaps left between the boards (3 mm) have to be filled completely (the gap should not be half filled) with the jointing material or skimming material.

Magna Joint Seal is the recommended product to be used to fill these gaps. This will be applicable on wall and ceiling installations.

H-Channels and wooden cover strips may be used over the joints.

Surface Finishes

Wallpaper can be applied to MagnaBoard. Paint is easily applied to the boards. For MagnaBoard Premium (exterior use) we recommend that the boards are primed with 1 - 2 coats of Plaster/Masonry primer before coating with exterior quality paint.

When MagnaBoard Premium is fitted to the exterior, care should be taken not to leave the boards exposed to the elements for an extended period of time. Magnastruct strongly recommends that when boards are fitted, especially in dry and hot regions, they are primed without delay with a masonry/plaster primer as this will ensure that the boards do not lose excessive moisture which could cause slight board shrinkage.

Tiles may also be applied to the surface of the boards. In this case it is recommended that the surface of the board is roughened up and a suitable bonding agent is applied before tiling.

Cement plaster coats can be applied to the surface of the boards. All joints must be meshed with Magna Fibre Mesh (10 x 10 or 5 x 5) or wire scrim prior to applying the cement plaster coat. In this instance we recommend using *papresa* Shikkui 0.5; this product will only need to be applied 3 - 4 mm thick.

Shower walls and wet areas

After MagnaBoard has been installed a good quality waterproofer (e.g. Magnastruct SABS Approved Waterproof Method) should be applied to the boards as per the manufacturer's recommendations and instructions. Please refer to page 44.

Special Note for Installations:

Magnastruct has a new jointing system available that makes installations easier and faster and eliminates many of the problems associated with dry wall and cladding installations.

IMPORTANT NOTICE

When architects or engineers have specified MagnaBoard or products, Magnastruct will not suggest changing to a lower specification. If the specification is under-specified, Magnastruct will recommend increasing the specification. In all cases it is the responsibility of the contractor to contact the architect or engineer to re-specify. Magnastruct will take or accept no responsibility should a contractor/builder or client deviate (however slightly) from specifications made by architects or engineers.

MagnaBoard® Premium Woodgrain

MagnaBoard Premium Woodgrain is used on exteriors and interiors. These boards are mirror image wood panels. They are durable and attain a high class, beautiful wood finish when used as cladding on both the exterior and interior. These boards are durable and are being used effectively no matter how harsh the weather conditions.

Note: For harsh weather conditions Magnastruct recommends a minimum of an 11 mm board.



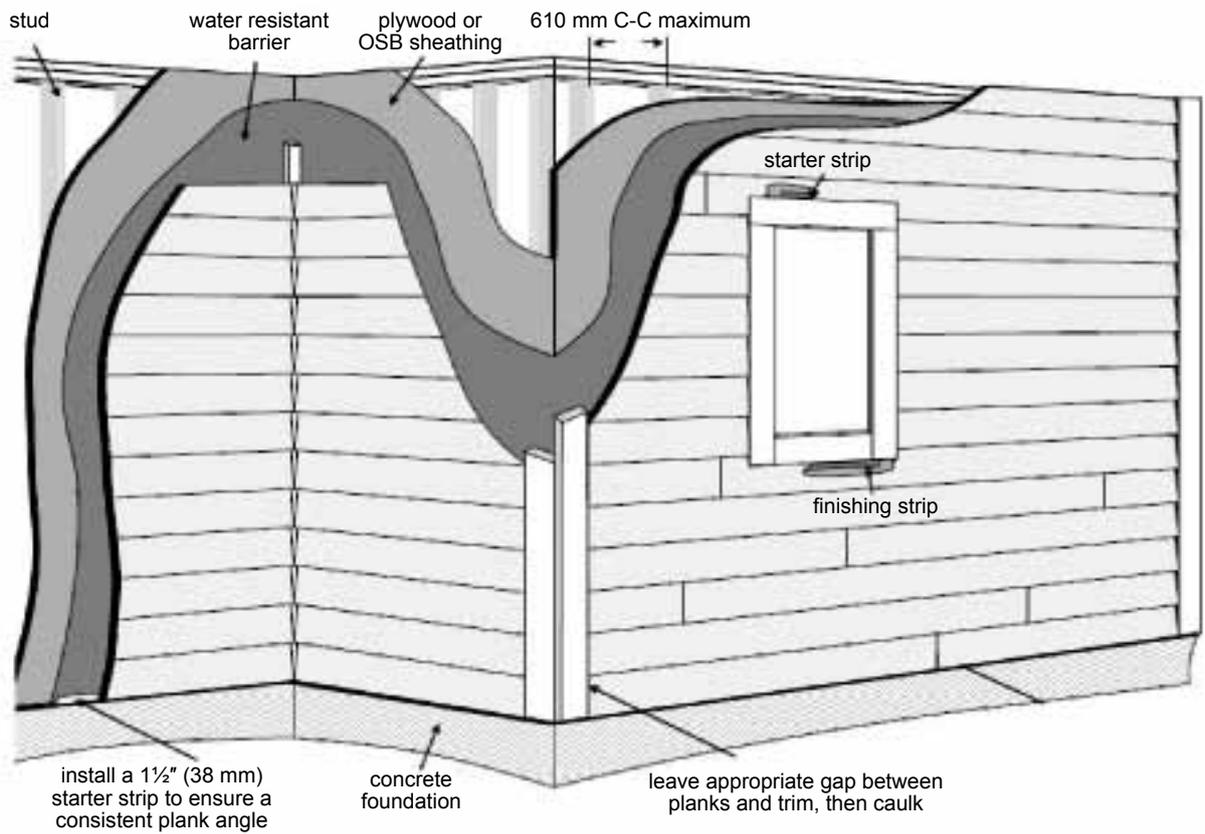


FIGURE 1:
Standard Ship-Lap Installation

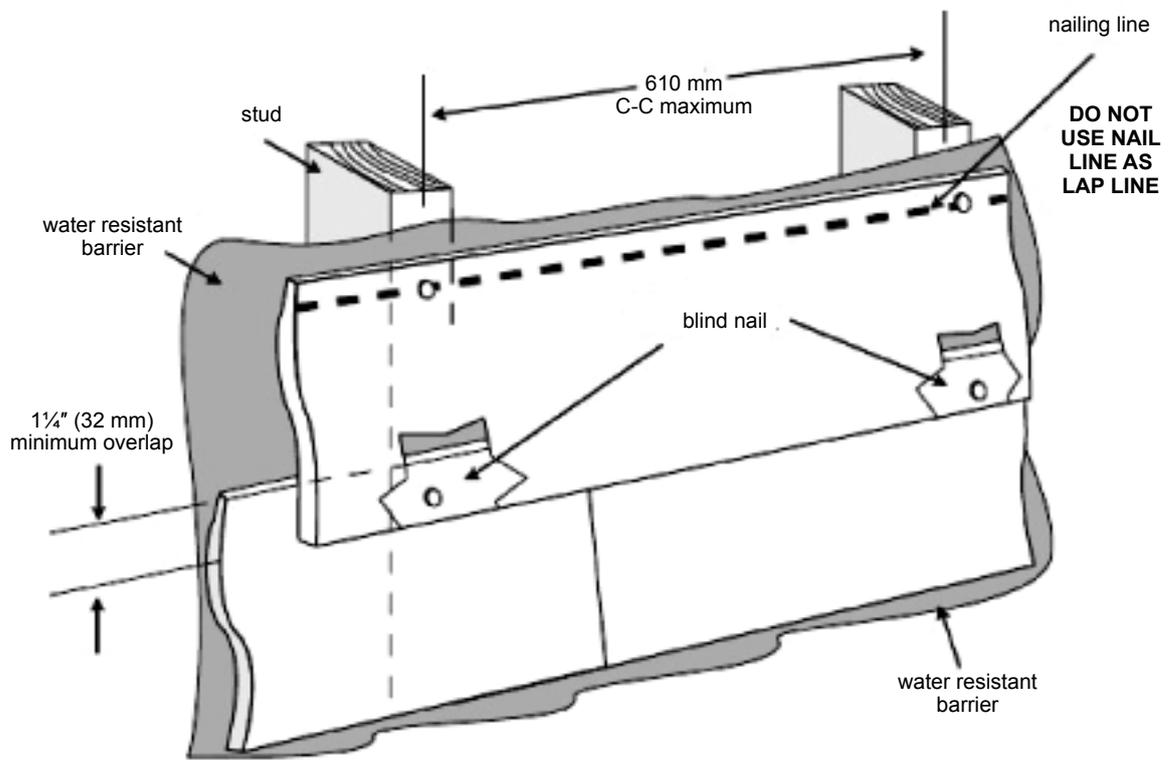


FIGURE 2:
Fixing Detail

Fixing Method for MagnaBoard® Premium Woodgrain Planks

All shiplap Woodgrain planks should be fitted to a solid surface (like OSB or MagnaBoard) or to a timber/metal frame system with adequate spacing between studs. Should the boards be fitted to a gridding system then a board of the correct thickness should be selected (please contact Magnastruct for recommendations). The screws should be fitted a maximum of 180 - 250 mm apart, or when using a timber or metal support structure fixing is to be done on every vertical stud. A spacing of 3 mm should be left between the boards horizontally. All joints should be sealed with Magna Joint Seal.

In high wind and harsh weather regions we recommend that the bottom edge of the underneath side of the overlapping edge also be sealed with Magna Joint Seal at spaced intervals. The preferred fixing method is the exposed fixing method – this method must be used if the board thickness is less than 11 mm. For board thicknesses of 11 mm or greater either the exposed or concealed fixing methods may be used. All boards should be primed using a plaster/masonry primer prior to installation. We recommend that in high wind/harsh weather regions the boards are primed on all sides.

Note: For harsh weather conditions and areas with high wind loads the screw spacings should not exceed 180 mm.

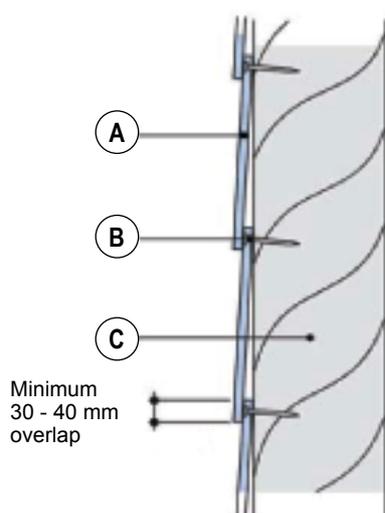


FIGURE 3:
Concealed Fixing Method

A - MagnaBoard Premium Woodgrain Plank
B - Concealed nail or screw fixing
C - Timber, Metal stud or OSB / MagnaBoard
D - Exposed nail or screw fixing

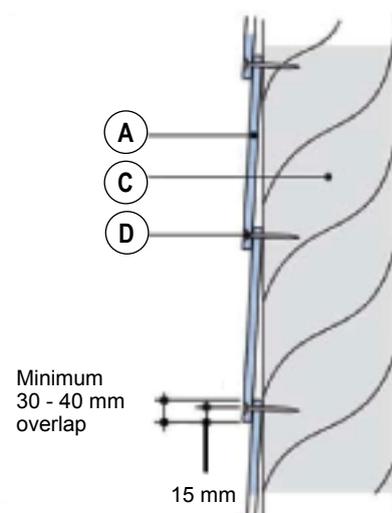
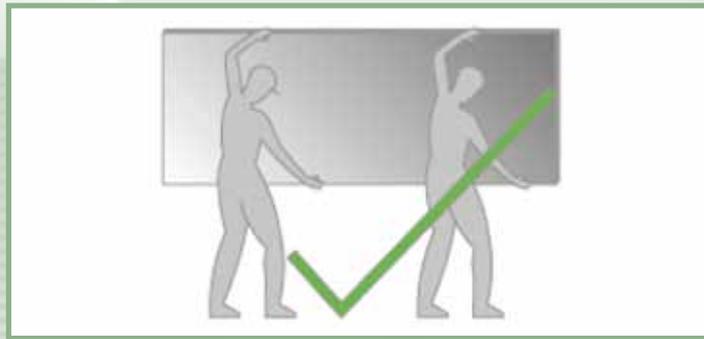


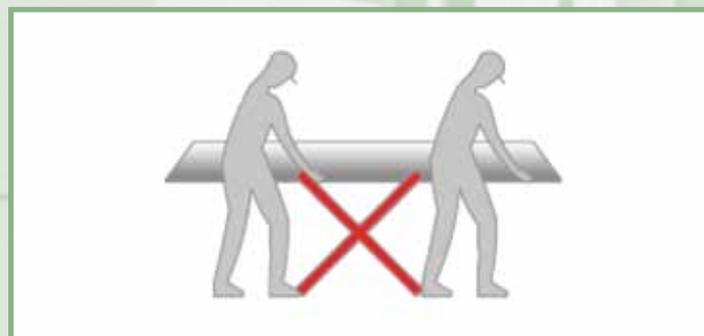
FIGURE 4:
Exposed Fixing Method

Handling and Storage of MagnaBoard®

When MagnaBoard is stored it must be carefully stacked flat above the ground, preferably supported on pallets. Care should be taken to avoid damage to the product's edges and surfaces. If the product becomes wet it is advisable that the product be allowed to dry before fixing; water will not damage the boards in any way.



Boards should be lifted from the pallet by sliding sideways and carried on their long edges. Individual boards should be stacked and handled carefully to avoid damage.



It is recommended that two people move/carry and handle MagnaBoard in order to keep it in the best condition. MagnaBoard weight is such that if only 1 person moves a board, too much pressure may be applied in the wrong place and this can cause the board to break.

MATERIAL SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION AND COMPANY DETAILS:

Product Name:	MagnaBoard®
HS Code (Commodity Code):	6808000000
Distributor's name:	Gull Management (Pty) Ltd t/a Magnastruct
Address:	9 Thor Circle Thornton Cape Town South Africa
Phone:	+27 (0)21 531 2145
Email:	info@magnastruct.co.za www.magnastruct.co.za

SECTION 2 - INGREDIENTS/IDENTITY INFORMATION:

Solids:

MgO (Magnesium Oxide) – 54%
MgCl₂ (Magnesium Chloride) – 24%
Saw Dust – 12%
Perlite – 8%
Woven & non-woven Glass Fibre Screed/Cloth – 2%
Liquids - Water

Note: These are approximate figures and may vary for different grades.

SECTION 3 - HAZARD INFORMATION:

Treat as inert/non-hazardous. Contains zero toxins, no formaldehyde, asbestos or harmful substances of any kind. Contains glass fibre screed (2%), which under certain circumstances can cause slight irritation/discomfort. Dust is created when machining the boards i.e. sanding, sawing or routing.

Dust inhalation: Slightly hazardous

Skin Contact: Irritation may occur when machining due to glass fibre content. Can be rough on hands when handling boards occasionally causing a rash.

Eye Contact: Dust can be irritating to eyes when cutting boards.

SECTION 4 - FIRST AID MEASURES:

NB. Always take preventative measures where possible i.e. wear protective clothing.

Skin Contact: Rinse dust off by flushing skin with generous amounts of water.

Eye Contact: Flush eyes with generous amounts of cold water.

Inhalation: Remove to fresh air. Seek medical advice if symptoms occur.

ALWAYS SEEK MEDICAL ATTENTION IF IRRITATION CONTINUES.

SECTION 5 – FIRE-FIGHTING MEASURES:

MagnaBoard is non-combustible and used as a fire-proofing material. Therefore no danger or threat is posed with respect to fire.

SECTION 6 – ACCIDENTAL RELEASE MEASURES:

Not Applicable/No data.

SECTION 7 – PRECAUTIONS FOR SAFE HANDLING AND USE:

Waste disposal method:

Dispose of in accordance with national and local regulations for non-hazardous waste material i.e. as a harmless landfill. See distributor with respect to recycling as the material is recyclable.

Storage and handling precautions:

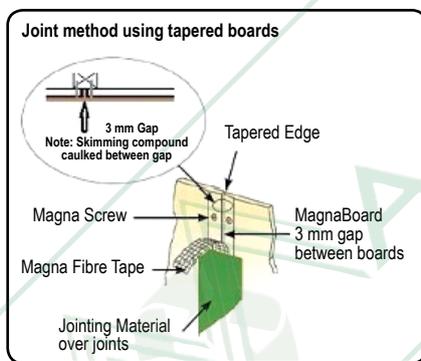
Store boards flat off the ground such as on pallets, preferably under cover.

When handling boards be aware that they are reasonably heavy so care should be taken not to drop boards. Carry boards upright to avoid breakage. Wear protective gear when handling or machining boards.

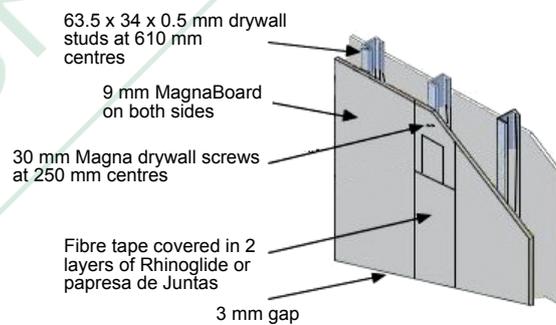
MagnaBoard® Wall Panel (30 minute Fire Rating SANS 10177P 2-2005) (Internal Test)

Fire Test Report #: 2538 / FPE / 85258 / 10

- Symmetrical construction using 1 x 9 mm MagnaBoard on either side of frame
- 63.5 x 25 x 0.5 mm drywall tracks suitably fixed to floor at 600 mm centres (and top)
- 63.5 x 34 x 0.5 mm drywall studs fixed on tracks at 610 mm centres
- 30 mm drywall screws fitted at 250 mm centres
- Fibre tape fitted over the joints
- Permabond primed to joints before gliding joints
- Rhinoglide mixed with Permabond (ratio 4:1) and water covering joints in 2 layers, or fibre tape covered in 2 layers of *papresa de Juntas*.
- Double studs used at all board joints



NB: Refer to Page 17 for screw spacing



JOINTS MUST BE STAGGERED

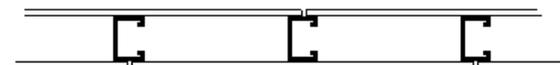
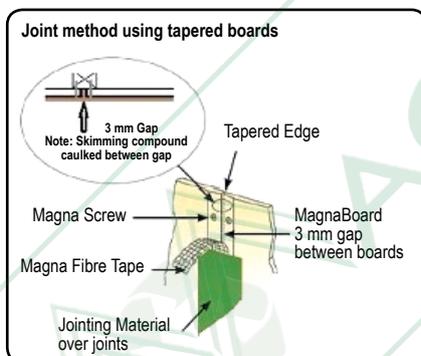


FIGURE 9:
30 Minute Fire Rating Diagram

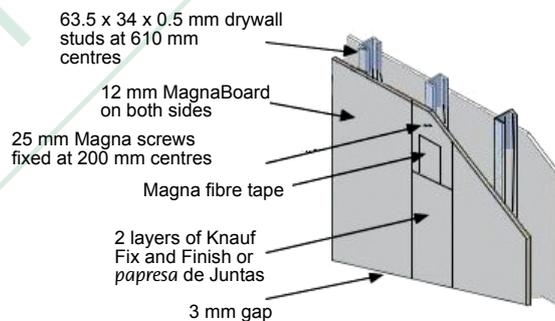
MagnaBoard® Wall Panel (1 hour Fire Rating SANS 10177P 2-2005) (Internal Test)

Fire Test Report #: 2538 / 85631 / FPE 13

- Symmetrical construction using 1 x 12 mm MagnaBoard on either side of the frame with staggered joints
- 63.5 x 25 x 0.5 mm drywall tracks suitably fixed to floor at 600 mm centres (and top)
- 63.5 x 34 x 0.5 mm drywall studs fixed on tracks at 610 mm centres
- 25 mm Magna Screws fitted at 200 mm centres
- Magna Fibre tape used over the joints
- Knauf Fix and Finish or *papresa de Juntas* used to skim the joints (2 layers).
- Double studs used at all board joints



NB: Refer to Page 17 for screw spacing



JOINTS MUST BE STAGGERED

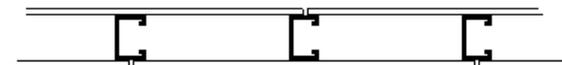
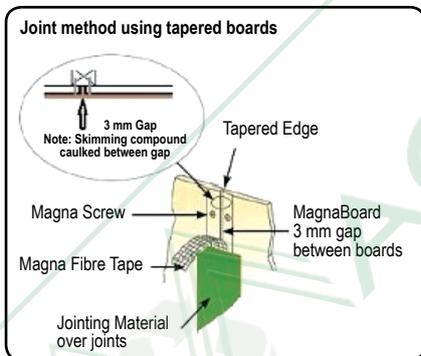


FIGURE 10:
1 Hour Fire Rating Diagram

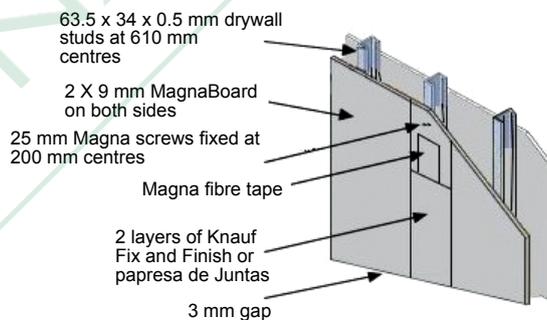
MagnaBoard® Wall Panel (1 hour 30 minute Fire Rating SANS 10177P 2-2005) (Internal Test)

Fire Test Report #: 2538 / FPE / 85561 / 12 A1

- Symmetrical construction using 2 x 9 mm MagnaBoard on either side of the frame with staggered joints
- 63.5 x 25 x 0.5 mm drywall tracks suitably fixed to floor at 600 mm centres (and top)
- 63.5 x 34 x 0.5 mm drywall studs fixed on tracks at 610 mm centres
- 25 mm Magna Screws fitted at 200 mm centres to fix first layer of boards
- 40 mm Magna Screws fitted at 200 mm centres to fix second layer of boards
- Magna Fibre tape used over the joints of the second layer of boards (second layer of boards tapered)
- Knauf Fix and Finish or *papresa de Juntas* used to skim the joints (2 layers).
- Double studs used at all board joints



NB: Refer to Page 17 for screw spacing



ALL JOINTS MUST BE STAGGERED

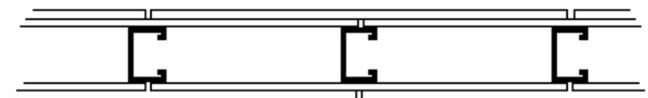
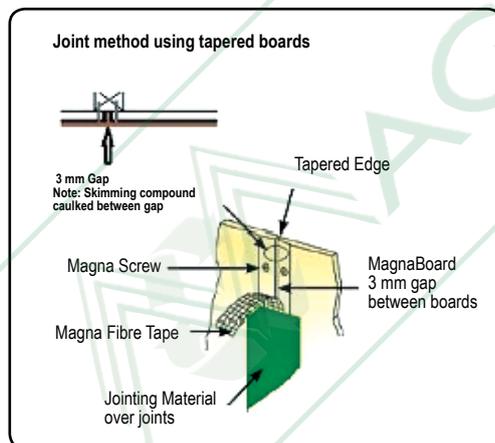


FIGURE 11:
1 Hour 30 minute Fire Rating Diagram

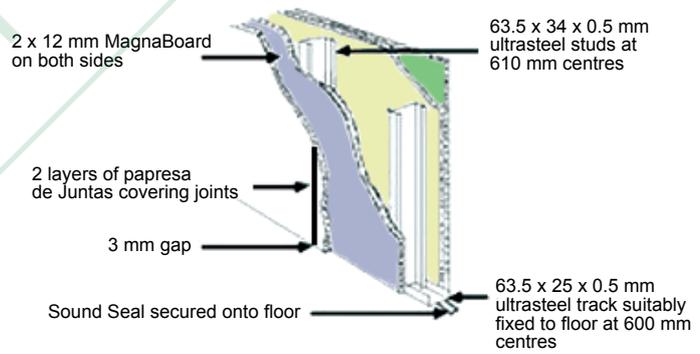
MagnaBoard® Wall Panel (2 hour Fire Rating SANS 10177P 2-2005) (Internal Test)

Fire Test Report #: 2538 / FPE / 85706 / 13

- Symmetrical construction using 2 x 12 mm MagnaBoard on either side of the frame with staggered joints
- 63.5 x 25 x 0.5 mm ultrasteel tracks suitably fixed to floor at 600 mm centres (and top)
- 63.5 x 34 x 0.5 mm ultrasteel studs fixed on tracks at 610 mm centres
- 25 mm Magna Screws fitted at 200 mm centres to fix first layer of boards
- 40 mm Magna Screws fitted at 200 mm centres to fix second layer of boards
- Magna Fibre tape used over the joints of the second layer of boards (second layer of boards tapered)
- *papresa* De Juntas used to skim the joints.
- Double studs used at all board joints



NB: Refer to Page 17 for screw spacing



ALL JOINTS MUST BE STAGGERED

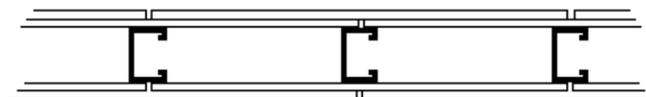
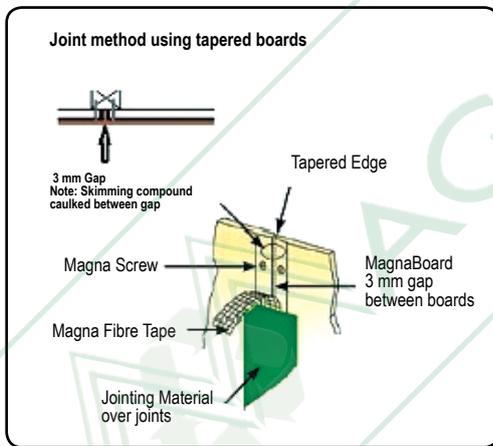


FIGURE 12:
2 Hour Fire Rating Diagram

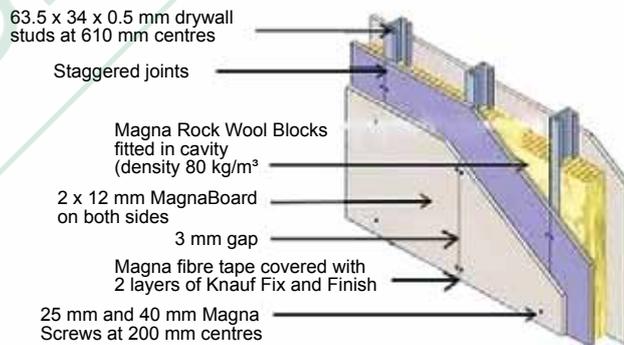
MagnaBoard® Wall Panel (2 hour 30 minute Fire Rating SANS 10177P 2-2005) (Internal Test)

Fire Test Report #: 2538 / FPE / 85561 / 12 B1

- Symmetrical construction using 2 x 12 mm MagnaBoard on either side of the frame with staggered joints
- 63.5 x 25 x 0.5 mm drywall tracks suitably fixed to floor at 600 mm centres (and top)
- 63.5 x 34 x 0.5 mm drywall studs fixed on tracks at 610 mm centres
- Magna Rock Wool Blocks fitted in cavity (Density 80 kg/m³)
- 25 mm Magna Screws fitted at 200 mm centres to fix first layer of boards
- 40 mm Magna Screws fitted at 200 mm centres to fix second layer of boards
- Magna Fibre tape used over the joints of the second layer of boards (second layer of boards tapered)
- Knauf Fix and Finish used to skim the joints (2 layers).
- Double studs used at all board joints



NB: Refer to Page 17 for screw spacing



ALL JOINTS MUST BE STAGGERED



FIGURE 13:
2 Hour 30 minute Fire Rating Diagram

Product list

Boards

- MagnaBoard
- MagnaBoard Premium
- MagnaBoard Premium Woodgrain
- MagnaBoard Drop-in Ceiling Panels
- MagnaBoard Acoustic Panels

Screws

- Magna standard screw 3.5 x 30 mm
- Magna standard screw 3.5 x 40 mm
- Magna Countersink screw 3.5 x 25 mm
- Magna Countersink screw 3.5 x 40 mm

Magna Profiles

- 6 mm, 9 mm and 12 mm PVC H Profile
- 9 mm, 12 mm Aluminium H Profile
- 9 mm and 12 mm Aluminium U Profile
- 9 mm and 12 mm Aluminium Corner Profile

Additional Products

- Magna Rock Wool
- Magna Galvanized Corner Tape
- Magna Galvanized Corner Bead
- Magna Fibre Mesh roll
- Magna Fibre Tape
- Magna Joint Seal

Papresa Products

- *papresa* Aligerado
- *papresa* De Juntas
- *papresa* Enlucido
- *papresa* Shikkui 0.5
- *papresa* Mortero
- *papresa* Controlado
- *papresa* Adesilátex
- *papresa* Morteroflex (Waterproofing)

Contact Details

Cape Town Head Office

Phone: +27 (0)21 531 2145

Email: info@magnastruct.co.za

www.magnastruct.co.za

Address: 9 Thor Circle, Thornton, Cape Town, 7460

Sales

Tel: +27 (0)21 531 2145

Email: sales@magnastruct.co.za

Technical Advisor/Representative

Archie Galant

Tel: +27 (0)21 531 2145

Mobile: +27 (0)79 571 3326

Email: archie@magnastruct.co.za

Johannesburg Warehouse

Phone: +27 (0)11 824 3330

Address: Corner Steenbras and Snapper Road, Wadeville, Johannesburg, 2000

Warehouse Controller

Emmanuel Mawadze

Email: emmanuel@magnastruct.co.za

Managing Director

Dave Lindup

Tel: +27 (0)21 531 2145

Email: dlindup@magnastruct.co.za

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