



MASTERBOARD®

Masterboard® is manufactured under a quality management system - certified in accordance with ISO 9001.



Masterboard® is a calcium silicate board reinforced with selected fibres and fillers. It is formulated without asbestos or any other inorganic fibres. It does not contain formaldehyde. The board is semi-compressed and cured in a high pressure steam autoclave. This provides the board with high dimensional and chemical stability, accompanied by low alkalinity. Masterboard® is a versatile building board suitable for use in a wide range of internal and semi-exposed external applications. It is off-white in colour and has a smooth finish on one face with a slightly textured reverse. Masterboard® is plain or perforated (to order). It can be easily decorated with paints, wallpapers or tiles, or left in its natural state if preferred.

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Masterboard^{fi}

THE WELL KNOWN





FIRE PERFORMANCE

Masterboard® is non combustible when tested in accordance with the criteria of BS 476: Part 4: 1970. This product is also classified as a Class '0' material in accordance with Building Regulations Definitions.



THERMAL INSULATION

Masterboard® can provide a degree of thermal insulation, depending on system and product thickness. Masterboard® provides an ideal support for thermal insulation materials, and is resistant to continuous operating temperatures up to 80 C.



FLEXIBLE COMPATIBILITY

Masterboard® is compatible with most commonly used building materials. Masterboard® will not cause corrosion (it is alkali in nature), it is non caustic, and does not cause any adverse reaction when in contact with bituminous materials. Masterboard® can be decorated using most commonly available materials.



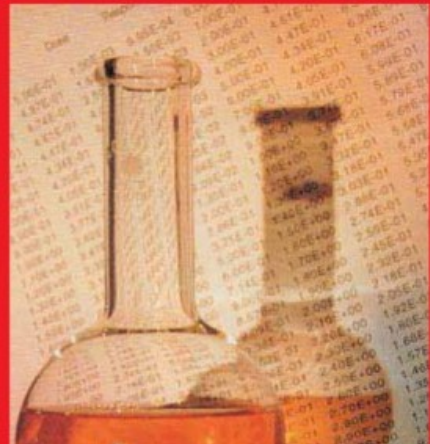
BIOLOGICAL PERFORMANCE

Masterboard® has a high pH, it is immune to attack from insects or vermin. Masterboard® will not support mould or fungal growth. Masterboard® is non toxic and does not emit smoke or toxic fumes under fire conditions.



EASY TO USE

Masterboard® is flexible yet robust, it is easily worked using conventional wood working tools. Boards can be nailed or screwed into position, depending on substrate. For most instances, pre-drilling is not required provided fixings are a minimum of 50mm from corners and 12mm from board edges.



CHEMICALLY BALANCED

Masterboard® is resistant to brine and dilute chlorine solution, resistant to low concentrations of most acids and alkalis. Surface pH value of Masterboard® is between 7 to 10.

W N FACTS



DIMENSIONAL STABILITY

Masterboard® has good dimensional stability and is eminently suitable for use in areas of high humidity.



EFFECT OF MOISTURE

Masterboard® is resistant to the effects of moisture, will not physically deteriorate when used in damp or



EXCELLENT DURABILITY

The base of Masterboard® contains no water

Masterboard[®]

FOR CEILING

A proven high performance material for your ideal ceiling systems, Masterboard[®] is widely used in both concealed and exposed grid ceiling systems.



Curved ceiling construction

FOR CEILINGS

Masterboard[®]

Masterboard[®] can be installed as full size sheets, giving architects and designers the ultimate solution for achieving smooth, flush joints.

The unique formulation of Masterboard[®] results in a material that is lightweight and has high performance in terms of moisture resistance and dimensional stability.

Masterboard[®] is easy to install and can be left un-decorated without risk of deterioration. The material is moisture tolerant and will demonstrate minimal sag, even when used in high humidity environments.

In the event of a leakage above the ceiling, Masterboard[®] panels will allow water to pass through, indicating that a leak has occurred. The wet panels will have a slightly reduced flexural strength, but full strength will be regained once they are allowed to dry out. The dried panels can be reinstalled once leakage has been repaired. Any staining on the panels caused by the leakage can be easily resolved by painting over.

Masterboard[®] offers versatility in ceiling designs. The inherent strength and flexibility allows the board to be bowed to achieve a curved ceiling without flexing back or breakage of the material. Simply cutting Masterboard[®] to a desired shapes and size can create inventive ceilings with circular, stepping effect. Holes can be punched to incorporate down lights for better effects and atmosphere. Strong and contrasting colours can also be used to enhance the ceiling.



Concealed grid suspended ceiling system with expressed joints



Architectural ceiling

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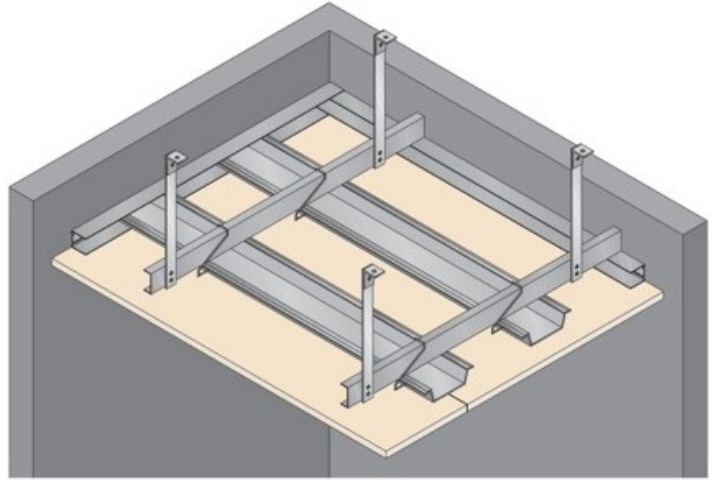
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Masterboard[®]

SUSPENDED & CONCEALED CEILINGS

CONCEALED GRID CEILING

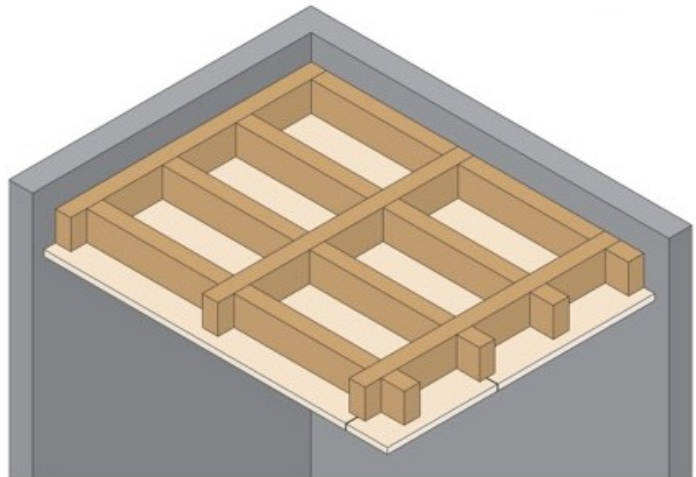
The Masterboard[®] concealed grid comprises standard galvanised steel sections. The system is composed of primary channel sections, at maximum 1800mm centres, supported from the substrate using steel strap hangers. To the underside of the primary channels are fixed galvanised steel furring sections (MF sections) positioned at nominal 610mm centres. The Masterboard[®] is fixed to the MF sections using screws at nominal 300mm centres. It should be noted that centres of the primary channel sections and the hangers are dependent on a number of factors, e.g. span of channels, centres of hangers, weight of cladding systems etc. Please consult Intumex Asia Pacific for precise installation details.



Masterboard[®] can be supplied with tapered edges to facilitate joint filling to provide a smooth soffit, or with bevelled edges to provide shadow line features.

TIMBER JOISTED CEILING

Masterboard[®] can be installed directly to the underside of timber framed ceilings. The Masterboard[®] is nailed or screwed to the joists. A 50mm x 50mm timber noggin should be positioned as backing to the transverse joists. Masterboard[®] can be supplied with tapered edges to facilitate joint filling to provide a smooth soffit.

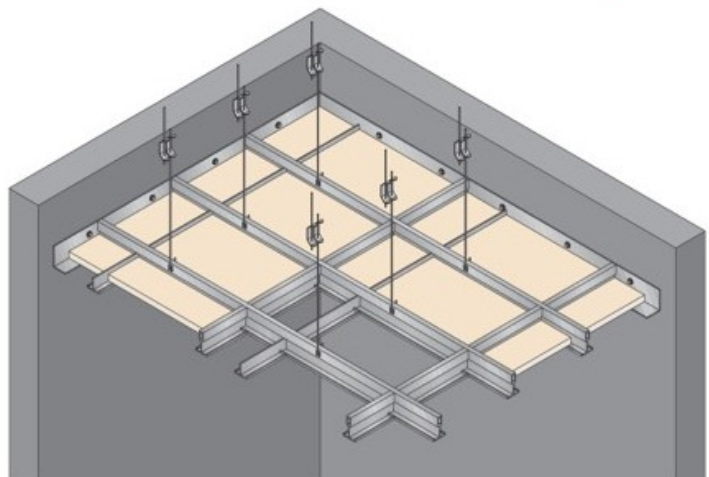


For fire resistant constructions, please consult Intumex Asia Pacific for pertinent fixing details and minimum joist dimensions, centres etc.

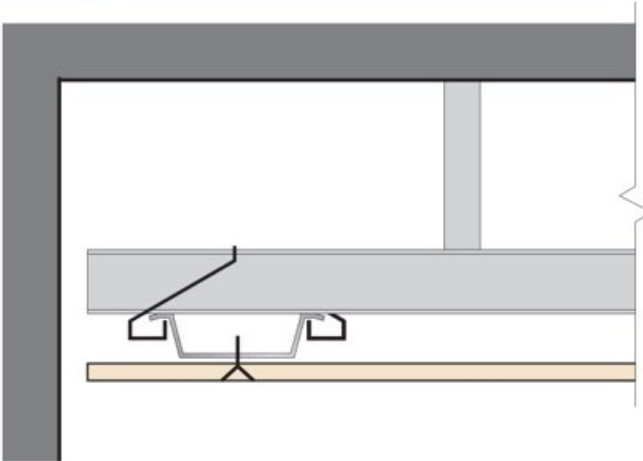
EXPOSED GRID CEILING

Masterboard[®] can be used as the infill panel to decorate exposed grid ceiling systems, and can be used as part of a system for acoustic or thermally efficient ceiling construction.

Masterboard[®] can be used in panel dimensions of 595mm x 595mm (for a 600mm grid) or 1195mm x 595mm (for a 1200mm x 600mm grid) without risk of sagging etc occurring.



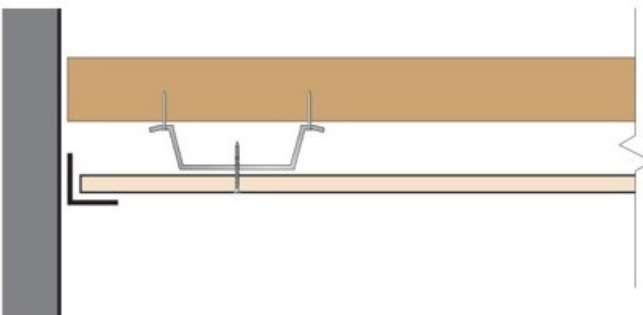
ALTERNATIVE CONCEALED GRID (1)



When using a concealed grid system, Masterboard[®] can be secured to the furring (MF) channels using No.8 self-tapping screws at 300mm centres.

The furring channels run at 610mm centres and can be secured to the primary channels using a clip holder.

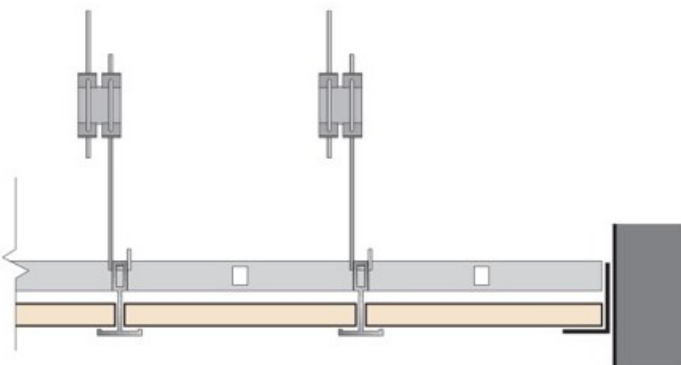
ALTERNATIVE CONCEALED GRID (2)



Board joints should coincide with framing sections, additional framing may need to be introduced to coincide with transverse joints. This is especially important where tapered edges are employed to facilitate joint filling for a flush finish. Failure to fix all board edges correctly could result in joint fillings showing hairline cracks. Perimeter edges can be finished with angles or beads for aesthetic purposes.

For full size boards, 2440mm x 1220mm, framing generally required at nominal 610mm centres. Please consult Intumex Asia Pacific for precise installation details.

EXPOSED GRID (LAY-IN)



Masterboard[®] is eminently suitable for use in areas of intermittent high humidity, and can be used in lay-in grid systems without risk of the boards sagging. Care should be taken to match the requisite panel dimensions, length/width, to a thickness commensurate with the flatness tolerances required, e.g. the larger the panel dimension, the greater thickness is required. In general a 1200mm x 600mm or 600mm x 600mm grid presents no problems.



Masterboard®

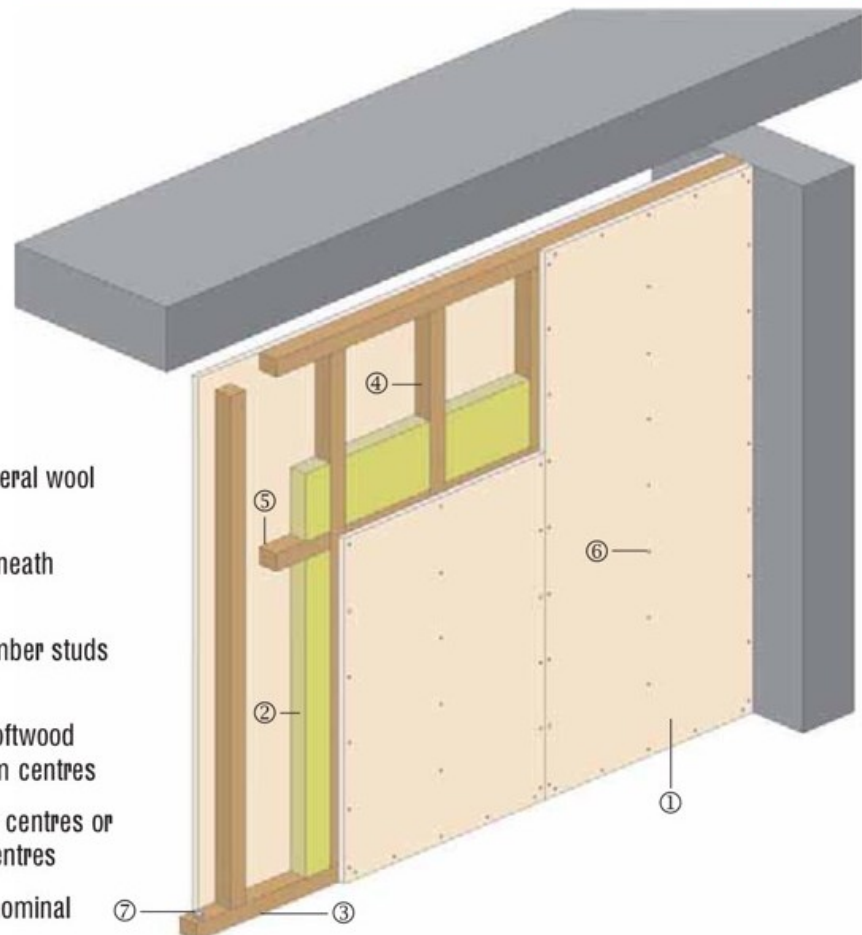
FOR **PARTIT**

Flexible and
lightweight
systems that
are faster to
construct
and practical
for today's

TIMBER STUD FRAMING

Details of annotations:

- ① 6mm thick Masterboard®
- ② 60mm thick x 20 kg/m³ mineral wool (optional)
- ③ Mineral wool padding underneath (optional)
- ④ 50mm x 63mm softwood timber studs at 610mm centres
- ⑤ Minimum 50mm x 63mm softwood horizontal timber at 2440mm centres
- ⑥ 38mm long nails at 200mm centres or 25mm screws at 300mm centres
- ⑦ Non combustible fixings at nominal 500mm centres



Timber stud framing can be quickly and easily installed to create partitions for heights in excess of 20m without the problems sometimes associated with steel stud constructions. The dimensions of the timber studs should be such that they will adequately support the required loadings, including any internal wind loads which may be present in high bay warehouses for example. See BS 5268 for details.

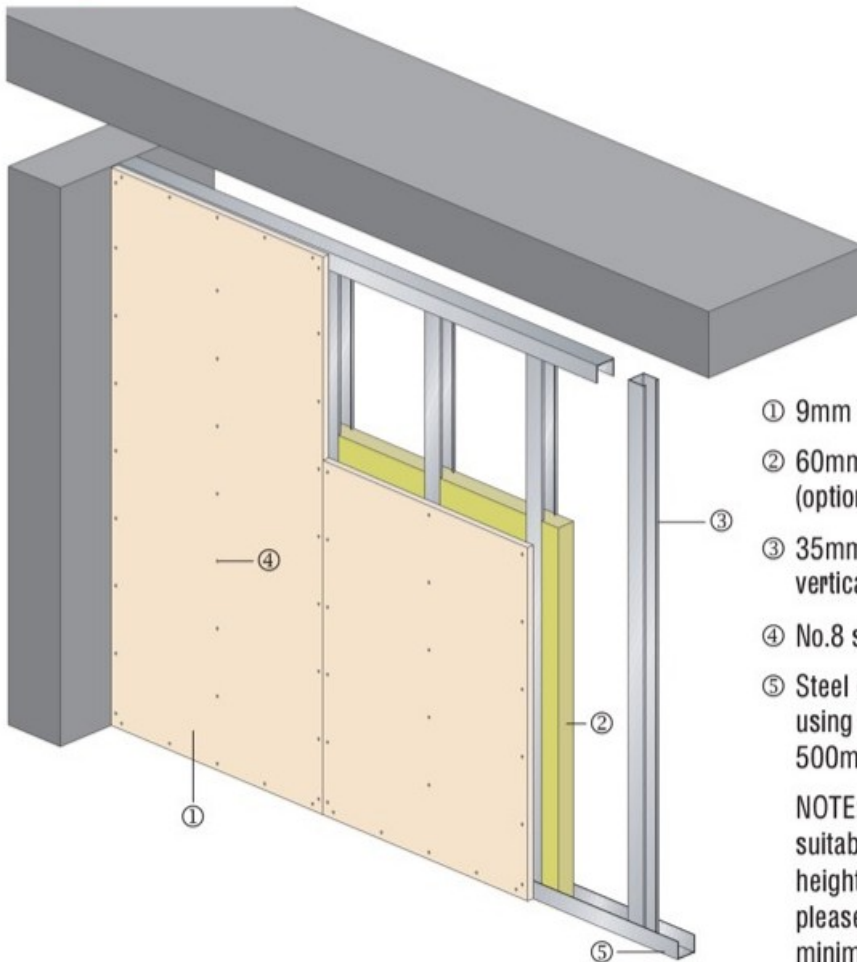
All framing should be constructed using dry, straight sections of timber. The vertical studs are of nominal 610mm centres, with horizontal noggins at 2440mm centres, i.e. to coincide with the horizontal joints between the boards.

The top and bottom plates should be secured to the substrate using non combustible fixings at nominal 500mm centres. The Masterboard® can be nailed or screwed to the framing. Pre-drilling of the boards is not a pre-requisite, provided fixings are at least 12mm from the edges of the boards, and at least 50mm from the corners.

Masterboard® can be used for the construction of fire resistant partitions for up to 60 minutes integrity and insulation. Mineral wool infill is required for these applications.

Masterboard® partitions can be used for the construction of acoustic walls.

Please consult Intumex Asia Pacific for details of the board thickness and cavity infill materials to provide the requisite performance.



Details of annotations:

- ① 9mm thick Masterboard[®]
- ② 60mm thick x 23 kg/m³ mineral wool (optional)
- ③ 35mm x 48mm x 35mm x 0.5mm thick vertical steel studs at 610mm centres
- ④ No.8 self-tapping screws at 300mm centres
- ⑤ Steel channel section fixed to substrate using non combustible fixings at nominal 500mm centres.

NOTE: The above framing dimensions are suitable for partitions up to 3000mm in height. For constructions in excess of this, please consult Intumex Asia Pacific for minimum frame specification.

Masterboard[®] steel stud partitions can be constructed for heights in excess of 12m, provided attention is paid to selecting the correct dimensions of steel studs. Where partitions are required to withstand additional requirements e.g. high impact within warehouse environments etc, these additions should be taken into account when selecting your framing sections.

The top and bottom channels should be fixed to the substrate using non combustible fixings at nominal 500mm centres. If the substrate is uneven, a mineral wool gasket can be placed between the substrate and the face of the channel framing members.

In general, the vertical studs are positioned at 610mm centres. For extreme or aggressive environments it may be necessary to reduce these centres to provide additional support against impact etc.

Masterboard[®] can be used for the construction of fire resistant partitions for up to 60 minutes integrity and insulation. Mineral wool infill is required for these applications. In addition, the Masterboard[®] partitions can be used for the construction of acoustic walls.

Please consult Intumex Asia Pacific for details of the board thickness and cavity infill materials to provide the requisite performance.

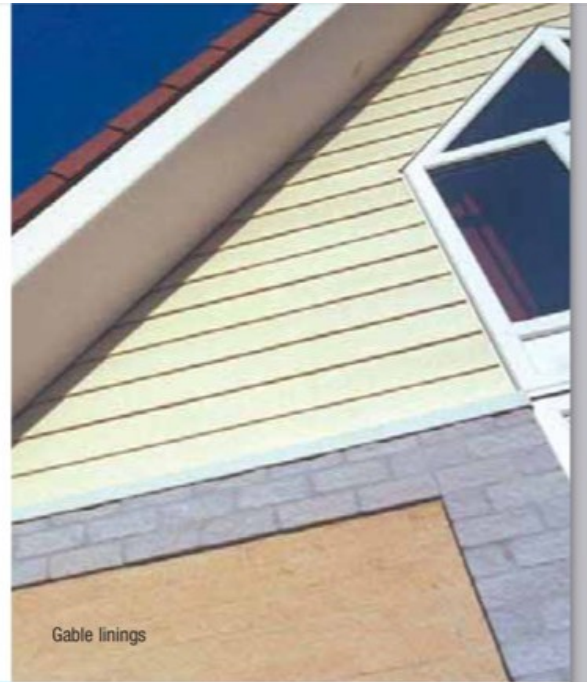
FOR EAVES & SOFFITS

Masterboard[®] is moisture resistant and will not deteriorate in wet or humid conditions. In semi-exposed applications such as eaves, soffits, gable overhangs, porches, awnings and canopies, the continuous exposure to atmospheric moisture does not permanently affect its physical properties.

Masterboard[®] is lightweight for easy handling and installation. It can also be cut or drilled using conventional wood-working tools. The boards, when left un-decorated, will not degrade, rot or deteriorate physically.

If painting is required, it can be applied directly without the need for special preparation such as an alkaline resistant primer.

Where large areas of external soffits are to be butt jointed, expansion joints must be provided at 4200mm centres to allow for movement of the building.



Gable linings



Fascia boards

FOR BACKING PANELS

Masterboard[®] has also been used as a backing to vitreous enamel and porcelain enamel panels for many years. Bonding Masterboard[®] to the back of the panel ensures that these panels remains flat. Masterboard[®] will not warp, swell or decay unlike most plywood or gypsum boards.

Masterboard[®] has a greater resistance to moisture than most plywood and gypsum boards. Hence, it becomes a natural choice of material to be used in continually damp environments such as underground tunnels and railway stations.



Backing to architectural wall

Masterboard[®]

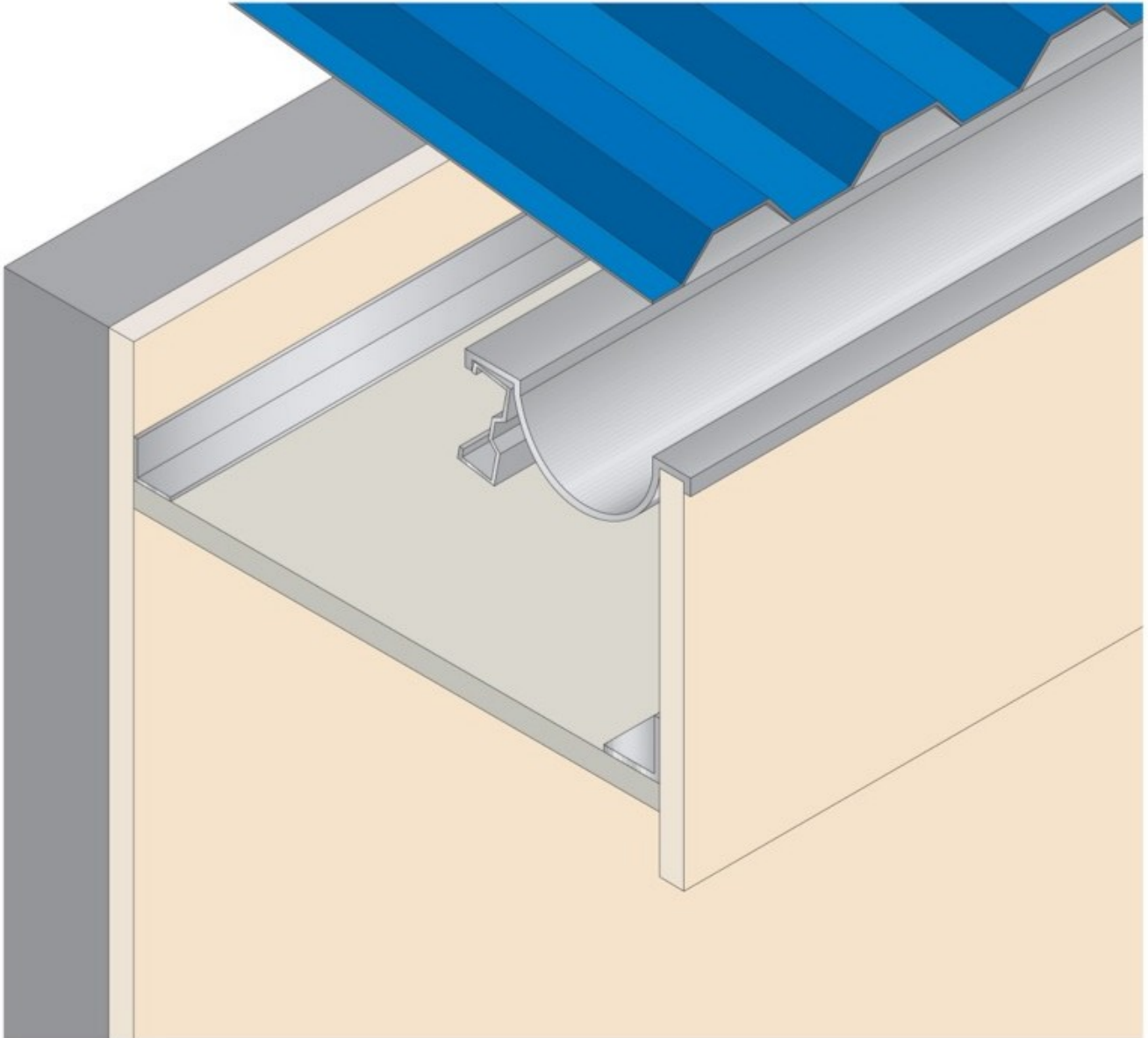


Masterboard^{fi}

SEMI-EXPOSED EXTERNAL APPLICATIONS



The good dimensional stability of Masterboard^{fi} makes it an excellent product in such applications. Changes in temperature or humidity will not cause swelling, shrinking or warping of the board.

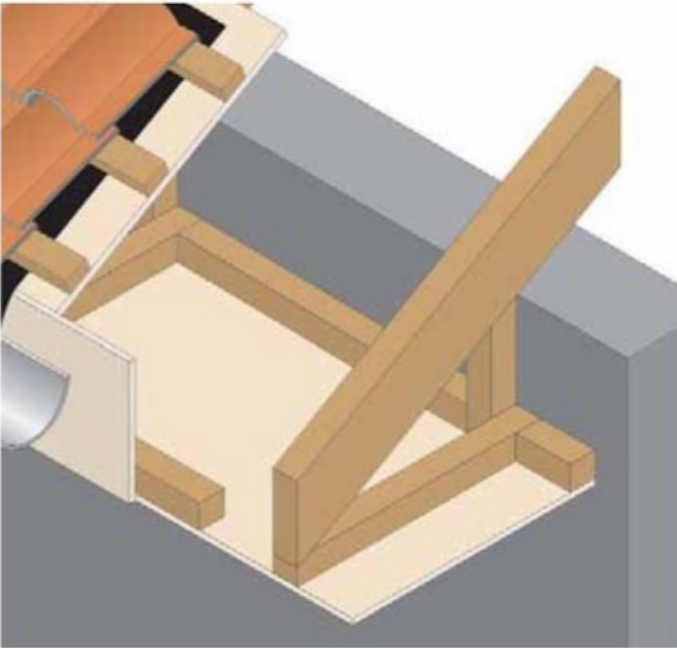


Masterboard® is widely used in semi-exposed applications such as eaves and soffits. The moisture resistance and dimensional stability are the key criteria in selecting the right board for such applications.

Secure galvanised steel angles or timber battens securing to the masonry wall and fascia board. Cross-battens or furring channels are used and fixed to the L-angle at 610mm centres, these are only required where the width of the board exceeds 400mm.

A 9mm thickness of Masterboard® is recommended in this application. The board should be fastened to the angles/furring channels/timber battens using No.8 self-tapping screws at 300mm centres.

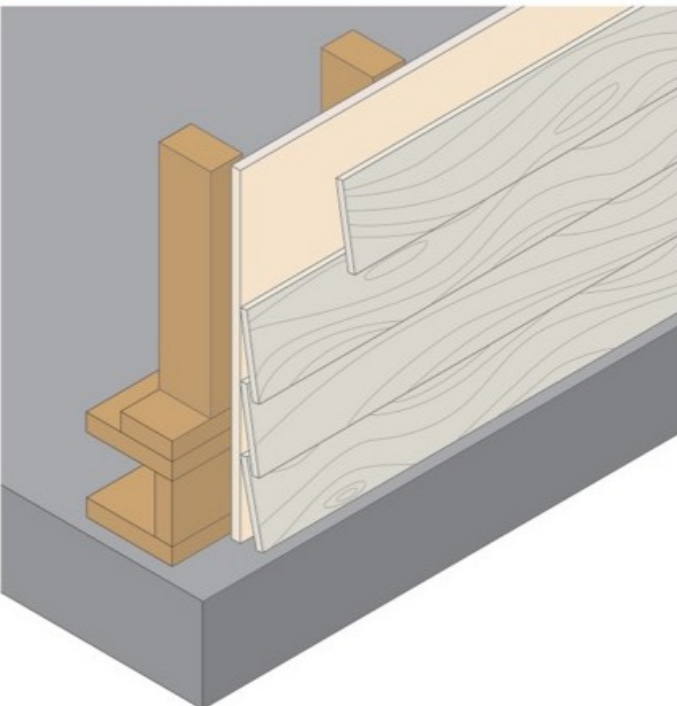
To allow for structural movement, an expansion joint should be used in accordance to the architects' recommendation.



Masterboard[®] is widely used as underlay to roofs, in order to provide a non combustible lining over rafters which will assist in preventing fire spread.

The Masterboard[®] should be laid over the rafters and secured in position by use of nails into the rafters. If roofing battens are being used, the Masterboard[®] only needs tacking into position as the batten fixings will properly secure the board when they are applied. If battens are not being used, then the Masterboard[®] underlay should be fixed using nails at 300mm centres.

Ideally all joints between boards should coincide with rafter positions to prevent sagging at the joints, Cross noggins at transverse centres are not necessary unless the rafters exceed 900mm centres. It should be noted that Masterboard[®] is NOT a loadbearing material and thus is cannot withstand foot traffic. Use crawling boards or keep to the roof battens.



Masterboard[®] is an ideal solution for providing sheathing to the external walls of timber frame constructions. The Masterboard[®] is unaffected by moisture and will not rot, degrade or support mould or fungal growth.

Masterboard[®] can also provide racking strength where required, the loading dependent on board thickness and nail patterns used.

Masterboard[®] should be used in conjunction with a proprietary vapour barrier to ensure condensation problems can be avoided.

The Masterboard[®] is simply nailed or screwed to a timber framing, which is composed of stud dimensions appropriate to meet the requisite loadings. Maximum framing centres 610mm, maximum fixing centres 300mm.

Overcladding with timber or fibre cement sidings is possible, simply affix the sidings through the Masterboard[®], into the timber framing, in accordance with the siding manufacturers' recommendations.

Masterboard^{fi}

CUTTING & SAWING

Use a fine-toothed saw. For shaped cuts use a pad, keyhole or coping saw. Work fair face up and support the board throughout. A power saw can be used, with a tungsten carbide tipped blade.



DRILLING

Use a hand drill or high speed power drill (not the percussion type); bits should have HSS tips. When drilling, always provide support to the back of the board to prevent break out.



PLANNING & SANDING

The edges of the boards can be planed or smoothed with a surform, rasp or file. Use conventional papers for sanding.



WORKING WITH THE BOARD

NAILING

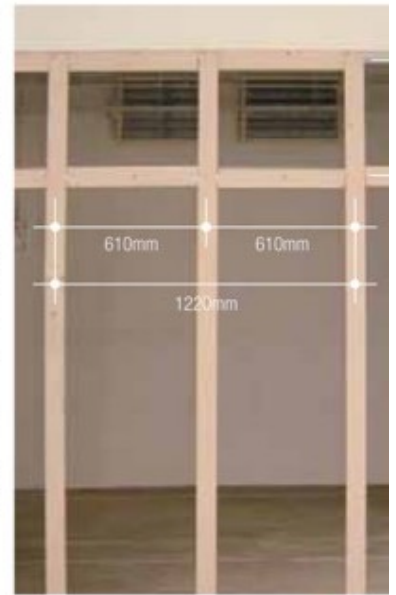
When nailing, position not less than 12mm from board edge with pre-drilling. Galvanised wire nails are recommended. Do not use head nails or panel nails. Boards can also be stapled, but not for resistance applications.



FIXING

For non-fire resisting applications, boards should be supported at 610mm centres and fixed to supports at 300mm centres.

In normal areas, cross noggins are required only at board joints. If increased impact resistance is required, 400mm support centres should be used with cross noggins at 1220mm centres.



SCREWING

When screwing, do not countersink 6mm boards. Pre-drilling is necessary. Use wood or self-tapping screws. Screws should be minimum of 12mm from board edges and 50mm from board corners.



DECORATING THE BOARD

PAINTING & PAPERING

Any conventional paints can be used. Alkali resistant primers are not necessary. Water based paints (with a watered down first coat) or oil based paints can be applied to all products using proprietary primer/top coat systems as recommended by paint manufacturers.

When papering Masterboard®, size to seal against suction and improve slip, then hang papers or vinyl in the normal way.



PLASTERING

If a skim finish is desired, fix textured side out, apply a sealing coat of universal primer and allow to dry. Follow with a second coat. Apply plaster while this coat is wet and tacky. At all times strictly follow plaster/jointing compound manufacturers' instructions for applying to fibre cement boards.



Masterboard®

TILING

Minimum 9mm thick boards should be fixed, textured side out. Supports should be maximum 400mm centres with cross noggins at transverse board joints. Seal the boards with P.V.A. Countersunk corrosion resistant screws should be used to fix boards at 200mm centres. Fix tiles in strict accordance with manufacturers' recommendations.



TECHNICAL PROPERTIES

Masterboard^{fi}

PROPERTIES	DESCRIPTIONS	UNITS	VALUES
The Board	Thickness	mm	6 / 9 / 12 / 15 / 20
	Width*	mm	610 / 1220
	Length*	mm	610 / 1220 / 1830 / 2440
	Weight (approx.)	kg/m ²	6 for 6mm board 9 for 9mm board 11 for 12mm board 14 for 15mm board 19 for 20mm board
Density	Normal dry density	kg/m ³	910 (± 10%)
Strength	Flexural strength, across grain	MN/m ²	9
	Flexural strength, along grain	MN/m ²	6
	Maximum allowable compressive load	MN/m ²	17
	Flexural Modulus of Elasticity, dry	GN/m ²	5.5
	Sag when suspended at 600mm span	mm	1.5 for 6mm board 1 for 9mm board 1 for 12mm board
Bending Radius	Minimum bending radius for board at ambient:		
	Along grain	mm	4800 for 6mm board 7200 for 9mm board 9600 for 12mm board
	Across grain	mm	5400 for 6mm board 8200 for 9mm board 10900 for 12mm board
Effect of Moisture	Moisture movement (ambient to saturated)	%	0.40
	Nominal moisture content:		
	Ex work	%	10 to 15
	In situ at EMC	%	3 to 5
Thermal Performance	Thermal conductivity	W/m·K	0.210
	Thermal movements (100-25°C)	m/m·C	2.4 x 10 ⁻⁶
	Thermal shrinkage (4 hr/300°C)	%	14
Fire Performance	Surface spread of flame (BS476: Part 7)		Class 1
	Building Regulations Classification (BS476: Part 6)		Class 0
Tolerances	Manufacturing tolerances:		
	Length	mm	± 5
	Width	mm	± 5
	Thickness	mm	± 0.5 for 6mm board ± 0.5 for 9mm board ± 0.5 for 12mm board
	Difference of diagonals	mm	Max. 3

*Equivalent metric sizes are available and a maximum length of 3050mm and width of 1250mm can be produced to special order.