



Promat UK Limited

Sterling Centre
Eastern Road
Bracknell
Berkshire RG12 2TD
Tel: 01344 381400 Fax: 01344 381401
e-mail: technicaluk@promat.co.uk
website: www.promat.co.uk

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**Agrément
Certificate
No 90/2500**
Third issue*

Designated by Government
to issue
European Technical
Approvals

MASTERBOARD

Revêtement
Verkleidungselement

Product



Typical soffit/
porch installation

• THIS CERTIFICATE RELATES TO MASTERBOARD FIBRE-REINFORCED CALCIUM SILICATE FLAT SHEET.


• The boards are of limited combustibility with a Class 0 surface.

• The product is for use as a general purpose building board for internal and semi-exposed locations such as:

- ceilings to timber floors and suspended systems
- industrial wall linings of steel frame buildings
- upgrading fire doors
- soffits, canopy and porch linings.

Regulations

1 The Building Regulations 2000 (as amended) (England and Wales)

 The Secretary of State has agreed with the British Board of Agrément the requirements of the Building Regulations to which fire protection boards can meet or contribute in achieving compliance. In the opinion of the BBA, Masterboard, if used in suitable constructions in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: B1	Means of warning and escape
Comment:	The product can contribute to meeting this Requirement. See sections 7.2 and 13.3 to 13.5 of this Certificate.
Requirement: B2	Internal fire spread (linings)
Comment:	The product meet this Requirement for use in all locations. See sections 13.3 and 13.5 of this Certificate.
Requirements: B3(1), B3(2) and B3(3)	Internal fire spread (structure)
Comment:	The product can contribute to meeting these Requirements. See sections 7.2 and 13.5 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The product comprises acceptable materials. See section 18.1 of this Certificate.

continued

continued

- It is essential that the product is installed in accordance with the conditions set out in the Design Data and Installation parts of this Certificate.

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2 The Building Standards (Scotland) Regulations 1990 (as amended)



In the opinion of the BBA, Masterboard, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and Technical Standards as listed below.

Regulation:	10	Fitness of materials and workmanship
Standard:	B2.1	Selection and use of materials, fittings, and components, and workmanship
Comment:		The product can contribute to a construction meeting this Standard. See the <i>Installation</i> part of this Certificate.
Standard:	B2.2	Selection and use of materials, fittings, and components, and workmanship
Comment:		The product complies with this Standard. See section 18.1 of this Certificate.
Regulation:	12	Structural fire precautions
Standards:	D2.1 and D2.2	Structural protection — Principles
Comment:		The product can contribute to enabling a wall or floor to achieve a short duration of fire resistance and satisfy the relevant requirements of these Standards. See sections 7.2 and 13.5 of this Certificate.
Standard:	D2.3	Structural protection — Non-combustible materials
Comment:		The product is 'low risk' but may be used in accordance with the exceptions permitted by Standards D5.6, D5.7 and D11.12. See sections 7.2 and 13.3 to 13.5 of this Certificate.
Standard:	Part D3	Compartmentation
Standard:	Part D4	Sub-compartmentation
Standard:	Part D5	Separating walls and separating floors
Comment:		The product can contribute to enabling a wall or floor to achieve a short duration of fire resistance and satisfy the relevant requirements of these Standards within these Parts. See sections 7.2 and 13.5 of this Certificate.
Standard:	D7.1	Fire spread on internal linings — Principles
Comment:		The product is 'low risk' and satisfies this Standard for use in all locations. See section 13.4 of this Certificate.
Standard:	Part D11	Escape route protection
Comment:		The product can contribute to enabling a wall or floor to achieve a short duration of fire resistance and satisfy the relevant requirements of these Standards within these Parts. See sections 7.2 and 13.5 of this Certificate.
Regulation:	13	Means of escape from fire, facilities for fire-fighting and means of warning of fire
Standard:	E1	Application of Part E
Comment:		The product can contribute to enabling a wall or floor to achieve a short duration of fire resistance and satisfy the relevant requirements of this Standard. See sections 7.2 and 13.5 of this Certificate.

3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, Masterboard, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 18.1 of this Certificate.
Regulation:	E2	Means of escape
Comment:		The product can contribute to satisfying the deemed-to-satisfy provisions for means of escape as detailed in Regulation E3. See sections 7.2 and 13.3 to 13.5 of this Certificate.
Regulation:	E3	Internal fire spread — Linings
Comment:		The product satisfies this Regulation for use in every purpose group. See section 13.3 of this Certificate.
Regulation:	E4	Internal fire spread — Structure
Comment:		The product will contribute to satisfying this Regulation. See sections 7.2 and 13.3 of this Certificate.

4 Construction (Design and Management) Regulations 1994 (as amended) Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See sections: 5 *Description* (5.4), and 6 *Delivery and site handling* (6.3).

5 Description

5.1 Masterboard consists of fibre-reinforced calcium silicate and is manufactured (using a Hatschek machine) from silica, Portland cement, fillers and selected cellulose fibres to provide reinforcement. Sheets are cured in steam autoclaves, dried to specified moisture content and trimmed to size.

5.2 Continual process control checks are conducted on batching of raw materials, process conditions and on formed sheet material for wet density, moisture content and fibre content.

5.3 Quality assurance tests are conducted on sheet thickness, dimensional accuracy, density, flexural strength, shrinkage, surface quality, edge condition and flatness.

5.4 Masterboard is an off-white, undecorated flat sheet and has an unsanded fair face and a lightly textured reverse face. Sheets are available in sizes⁽¹⁾ of:

thicknesses (mm)	6.0, 9.0 and 12.0
width (mm)	1200 and 1220
length (mm)	2400 and 2440

(1) Other widths and lengths and imperial equivalents are available to order.

5.5 Door facings in Masterboard material are available in thickness of 6.0 mm, and size 915 mm wide by 2135 mm long.

5.6 Masterboard is available in thickness of 6 mm and size 600 mm wide by 1200 mm and 1800 mm long for FlameBraker industrial lining system.

5.7 Masterboard has a nominal dry density of 1000 kgm⁻³.

5.8 Masterboard may be decorated, if required, but the Certificate holder should be consulted regarding suitable coating systems (see also section 18.3 of this Certificate).

6 Delivery and site handling

6.1 Masterboard should be stored on bearers placed not more than one metre apart on a level base in dry conditions under cover, away from the possibility of damage and without sheets protruding from the stack.


6.2 Each sheet is marked on the reverse face with the product's name and batch date. The sheets are stacked and edge protected.

6.3 Sheets should be stacked fair-face upwards. A separate stack must be made for each length of sheet and individual stacks must not exceed 450 mm in height.

7 General

7.1 Masterboard is satisfactory for use as a general purpose building board for internal and semi-exposed locations. It provides a 30-minute fire resistance when used as an internal wall lining to timber frame constructions, as ceilings to timber floors and in suspended ceiling systems.

Masterboard can also be used as industrial linings to walls of steel frame buildings, in timber stud external walls, for upgrading fire doors, in semi-exposed locations such as soffits and linings to porches and canopies.

 7.2 It is essential that the product is installed strictly in accordance with the Certificate holder's instructions and the recommendations in the relevant clauses and sections of the following documents listed, in such a manner that a specimen constructed to the same specification, if exposed to test by fire in accordance with BS 476-8 : 1972 or to BS 476-20 to 23 : 1987, would satisfy the requirements of the test:

- BS 5588-0 : 1996
- *Guidelines for the construction of fire-resisting structural elements* (HMSO 1988)
- BS 5234-1 and -2 : 1992
- BRE Digest 208 *Increasing the fire resistance of timber floors*
- BRE Digest 230 *Fire performance of walls and linings*.

7.3 When designing an installation incorporating Masterboard, consideration may also need to be given to any additional requirements contained in:

- Fire Precautions Act 1971 (HMSO): The Fire Precautions (Hotels and Boarding Houses) Order 1972
- The Fire Precautions (Factories, Offices, Shops and Railway Premises) Order 1989/76.
- Fire Safety and Safety of Places of Sports Act 1987 (HMSO)
- Fire Services (Northern Ireland) Order of 1984 (HMSO)
- Health and Safety at Work etc Act 1974 (HMSO)
- Housing Act 1988 (HMSO)
- Fire Insurance requirements.

8 Strength

8.1 When tested generally in accordance with BS 4624 : 1981(amended 1992), Section 3, paragraph 16, Masterboard (dry) has a mean bending strength of 9.3 Nmm⁻².

8.2 Masterboard is not recommended for use where it may be exposed to high levels of abrasion or where impacts may be frequent or severe.

9 Thermal conductivity

The λ value (thermal conductivity) of Masterboard should be taken as $0.22 \text{ Wm}^{-1}\text{K}^{-1}$.

10 Thermal expansion

Masterboard has a mean coefficient of linear thermal expansion from 0°C to 40°C of 9×10^{-6} per $^\circ\text{C}$.

11 Moisture movement

The moisture movement, ambient (30% RH and 20°C) to saturated, should be taken as 0.12%.


12 Permeability

When tested in accordance with DD 146 : 1986, Masterboard has a water vapour resistivity of 80 MNsgm^{-1} . Therefore, it is not considered a vapour barrier.

13 Behaviour in relation to fire

13.1 The boards were tested for fire propagation in accordance with BS 476-6 : 1989 and BS 476-7 : 1997 giving a fire propagation index (I) of 0.1, a sub-index (i_1) of 0.0 and a Class 1 surface.

13.2 The boards were also tested in accordance with BS 476-11 : 1982 from which the mean furnace temperature rise was 11°C , the mean specimen temperature rise was 101°C , the mean duration of sustained flaming was zero, and the mean loss of mass was 17.1%.

 13.3 The boards are a material of limited combustibility as described in the relevant national Building Regulations and achieve the requirements for a Class 0 or 'low risk' surface in accordance with:

England and Wales

Approved Document B, Appendix A, Table A7

Scotland

Standard D1.3, Table 3

Northern Ireland

Technical Booklet E, paragraphs 2.4 and 6.5.

13.4 The boards may be used in all situations as detailed in the national Building Regulations thus:

England and Wales

Approved Document B, Table D1, Appendix D

Scotland

Technical Standard D7.1

Northern Ireland

Technical Booklet E, Table 2.1.

13.5 When tested in accordance with BS 476-8 : 1972, the constructions obtained the results given in Table 1. The test reports submitted for this Certificate have been evaluated with respect to BS 476-20 to -23 : 1987 and in the opinion of the Loss Prevention Council this product would achieve equivalent results under these parts as it did under Part 8.

Table 1 Results of fire tests⁽¹⁾

Test (See section No)	Applications	Results (mins)			Exposure
		Stability	Integrity	Insulation	
13.7	Unloaded internal timber stud partition TE3901 Masterboard 6.0 mm thick Mineral wool 60 mm thick Masterboard 6.0 mm thick	47	47	41	Either side
13.8 ⁽²⁾	Timber floor protection WARRES 48328 (loaded) 38 mm x 225 mm GS grade joists at 610 mm centres, supporting nominal 19 mm thick tongue-and-groove softwood boarding, protected by 6.0 mm thick Masterboard	30	30	30	Underside
13.9	Timber floor protection TE3379 (loaded) 50 mm x 225 mm GS grade joists at 406 mm centres, supporting nominal 22 mm thick tongue-and-groove boarding, protected by a suspended ceiling of 6.0 mm Masterboard in a Donn exposed grid system	30	30	30	Underside
13.10	Structural steel protection TE3418 Three 203 mm x 102 mm x 27 kgm^{-1} I-section steel beams supporting a suspended ceiling of 6.0 mm Masterboard in a Donn exposed grid system	—	65	37½	Underside
13.11	Unloaded external wall TE3983 Masterboard lining 6.0 mm thick (inside) with (a) 6.0 mm fibre cement cladding sheet (b) Cape 800/30 steel sheeting with insulation	65	65	22	
13.12 to 13.14	Upgrading panel and flush doors TE3330 6.0 mm Masterboard each side of 34 mm thick timber panel door 6.0 mm Masterboard each side of 38 mm thick timber flush door	46½	40	33½	Opening towards furnace
		46½	45	40½	Opening towards furnace

(1) A list of fire tests and assessments is available on request from the Certificate holder.

(2) This test was carried out in accordance with BS 476-21 : 1987.

13.6 The boards may be used in the following constructions where fire resistance is required. Care is necessary to ensure that the construction is carried out strictly in accordance with the *Design Data* and *Installation* parts of this Certificate.

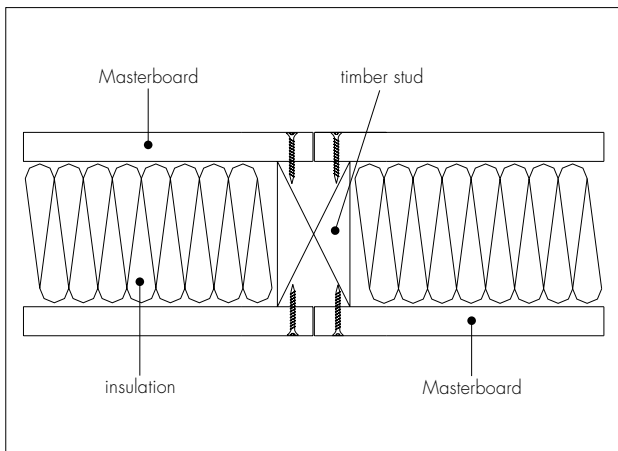
Non-loadbearing timber stud partition (see Figure 1)

13.7 The following construction has a 30-minute fire resistance with respect to integrity and insulation. Masterboard is suitable for use as the lining to this form of non-loadbearing timber stud partition:

- Softwood timber frame — nominal dimensions of studwork 63 mm by 50 mm at maximum 610 mm centres and horizontal noggings at maximum 1220 mm height
- Mineral wool — 60 mm thick (20 kgm^{-3}) between studs

- Masterboard — 6.0 mm thick fixed to both sides with 38 mm long, flat-headed 14 swg wire nails at maximum 300 mm centres. Sheets tightly butt-jointed together.

Figure 1 Non-loadbearing timber stud partition

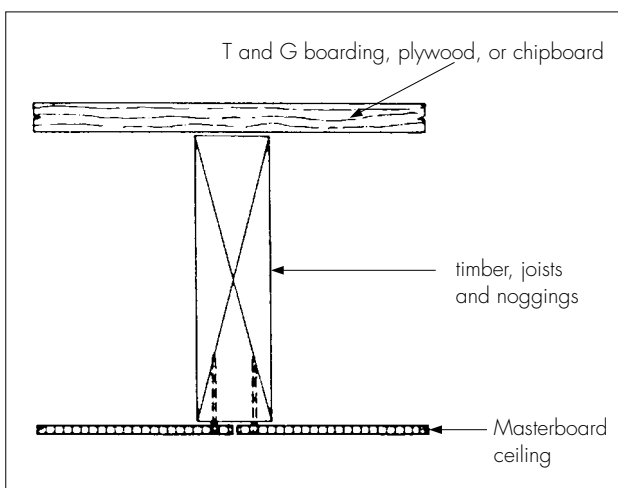


Protection to timber floors (see Figure 2)

13.8 The following construction has a 30-minute fire resistance with respect to loadbearing capacity, integrity and insulation. The different forms of floor decking have been assessed as capable of providing an equivalent performance as that tested. Masterboard is suitable for use as the ceiling to this form of floor assembly:

- Tongue-and-groove boarding, chipboard or plywood floor — minimum 18 mm thick tongue-and-groove boarding, square-edged chipboard or plywood, or tongue-and-groove chipboard
- Timber joists (GS grade) — minimum 38 mm thick, nominal depth 225 mm, at maximum 610 mm centres
- Timber noggings — 38 mm by 225 mm noggings at centres required by BS 5268-2 : 1998 and at transverse joints in square-edged chipboard or plywood
- Masterboard ceiling — 6.0 mm thick, butt-jointed and fixed to the joists using 50 mm long nails at 200 mm centres

Figure 2 Protection to timber floors

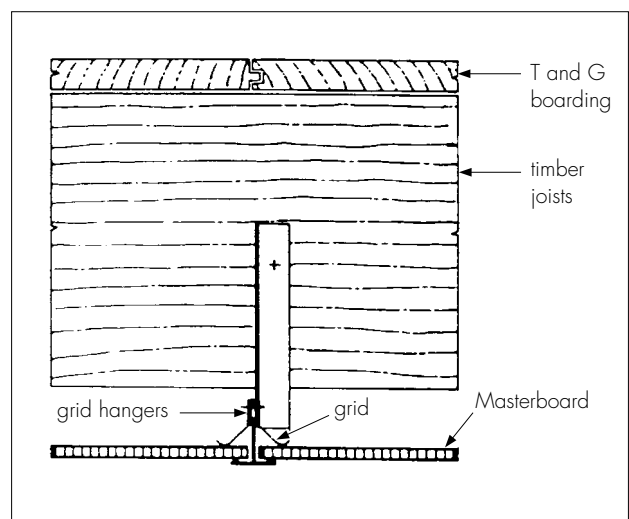


Protection to timber floors using suspended ceilings (see Figure 3)

13.9 The following construction has a 30-minute fire resistance with respect to loadbearing capacity, integrity and insulation. Masterboard is suitable for use as ceiling panels in this form of suspended ceiling:

- Tongue-and-groove boarding — minimum 18 mm thick
- Timber joists — minimum 45 mm thick, nominal depth 225 mm (GS grade), at maximum 610 mm centres
- Timber noggings — 50 mm by 225 mm herringbone noggings at mid-span
- Grid hangers — 2 mm diameter wire hangers nailed to joists with 38 mm long galvanized wire nails, or galvanized steel angle hangers fixed with 30 mm galvanized wire nails. In both cases nails must be fixed at a minimum of 75 mm above the base of the joists
- Grid — fire-rated exposed tee-grid system having 38 mm deep stems and 24 mm wide tables, fabricated from decorated 28 swg mild steel. Main tee sections, running transversely to the timber joists, supported at 1220 mm centres with cross-tee sections at 610 mm centres and located 150 mm below the lower faces of the joists
- Masterboard — 6.0 mm thick ceiling panels 600 mm by 600 mm or 1200 mm by 600 mm or imperial equivalents, fixed with hold-down clips.

Figure 3 Protection to timber floors using suspended ceilings



Protection to steel beams supporting concrete deck (see Figure 4)

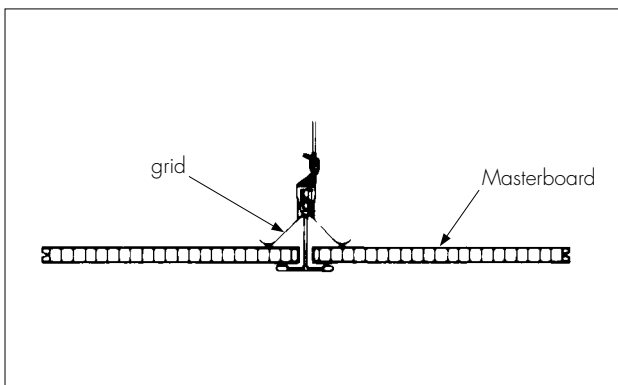
13.10 The following construction has a 30-minute fire resistance with respect to integrity and insulation. Masterboard is suitable for use as ceiling panels in this form of suspended ceiling. It may also be used to protect a range of steel beams having a lower $A/V^{(1)}$ than above,

supporting concrete decks, but in this case the advice of the Certificate holder should be sought:

- Steel beam — British Standard I-section steel beams 203 mm by 102 mm by 27 kgm^{-1} , representing the structural steel members of a floor, at 1220 mm centres
- Tee-grid suspended ceiling (as described in section 13.9 of this Certificate) — the grid system suspended from the steel beams via 2.0 mm diameter galvanized wires wrapped around the beams and located into pre-punched holes in the grid
- Masterboard — 6.0 mm thick ceiling panels as described in section 13.9 of this Certificate.

(1) Where A is the heated perimeter of the steel section, and V is the cross-sectional area.

Figure 4 Protection to steel beams supporting concrete deck



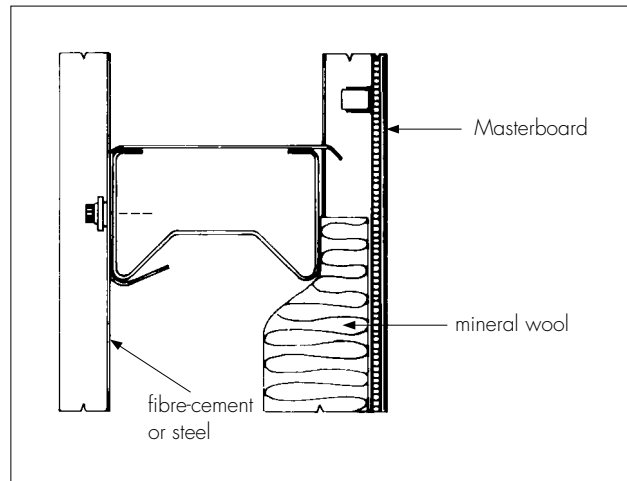
Industrial linings to non-loadbearing external walls (see Figure 5)

13.11 The following construction has a 60-minute fire resistance with respect to integrity and 15 minutes with respect to insulation (internal fire only). Masterboard is suitable for use as the internal lining to this form of non-loadbearing external wall one metre or more from the relevant boundary:

- Fibre-cement or steel external claddings — 6.0 mm thick Profile Six fibre-cement sheeting or 0.6 mm thick profiled PVC-coated steel sheeting fastened to multi-beam sheeting rails (140 mm by 76 mm by 1.8 mm) by steel crook bolts 95 mm long or No 12 self-drilling screws 25 mm long, respectively
- Mineral wool — minimum 60 mm thick (23 kgm^{-3}) stapled to back of internal lining or suspended from sheeting rails; required only with steel external cladding to obtain fire performance; may also be used with fibre-cement cladding to improve thermal insulation
- FlameBraker grid — galvanized steel tee sections 35 mm by 35 mm by 0.6 mm, with a 7.5 mm wide table opposite the main table; positioned with the smaller table against the multi-beam sheeting rails. The vertical members are spaced at 603 mm centres and the horizontal members spaced up to 3000 mm centres

- Masterboard — 6.0 mm thick internal lining retained by spring wedges at 300 mm centres and approximately 120 mm from each end.

Figure 5 Industrial linings to non-loadbearing external walls



Upgraded fire doors (see Figure 6)

Flush door protected both sides

13.12 The following construction has a 30-minute fire resistance with respect to integrity and insulation:

- Flush door — minimum 38 mm thick, comprising a softwood frame-faced on each side with 4.0 mm thick plywood and with hardlipping along the vertical edge
- Masterboard — 6.0 mm thick, fixed on both faces with 32 mm No 8 wood-screws at maximum 300 mm centres down vertical edges and maximum 250 mm centres along horizontal edges, 16 mm from the edges of the Masterboard
- Intumescent strip — vertical edges of the door leaf grooved to a depth of 2.0 mm and fitted with a single 10 mm by 2.0 mm intumescent strip and the head of the door fitted with two strips on the top edge
- Door stop — where the existing door stop is less than 25 mm deep it must be made up to a minimum of 25 mm by fixing layers of Masterboard using 44 mm long No 8 wood-screws at nominal 300 mm centres.

Panelled door protected both sides

13.13 The following construction has a 30-minute fire resistance with respect to integrity and insulation:

- Panelled door — minimum 34 mm thick with minimum 9.0 mm thick plywood panels
- Masterboard — 6.0 mm thick, fixed to both faces with 32 mm long No 8 wood-screws at maximum 300 mm centres down vertical edges, maximum 250 mm centres along horizontal edges and at 400 mm centres down the muntin
- Intumescent strip — as described above
- Door stop — as described above.

Panelled door protected on risk side only

13.14 Masterboard has been assessed as suitable for use as facings to existing doors of the following design to provide 30-minute fire resistance with respect to stability (BS 476-8 : 1972) and 20-minute with respect to integrity from the fire risk side. Masterboard is suitable for use as facing to existing doors of the above designs to upgrade fire performance as specified:

- Panelled door — minimum 34 mm thick with minimum 9.0 mm thick plywood panels
- Masterboard — 6.0 mm thick fixed to risk side. Recessed panels infilled with 6.0 mm Masterboard pinned with 38 mm nails at 300 mm centres to the sides of the stiles and rails. Facing material fixed with 32 mm long No 8 wood-screws at maximum 300 mm centres down vertical edges and maximum 250 mm centres along horizontal edges
- Intumescent strip — as described above
- Door stop — as described above.

Cavities

13.15 Fire must not spread between or within cavities and must not by-pass elements required to have fire resistance. Any cavities formed by the use of Masterboard may need to be enclosed and subdivided in accordance with the guidance/requirements in the national Building Regulations thus:

England and Wales

Approved Document B, section 10

Scotland

Technical Standards D6.1 to D6.10

Northern Ireland

Regulation E4.

14 Resistance to water

14.1 Masterboard meets the requirement of BS 4624 : 1981, Section 3, paragraph 15. No water droplets formed on the lower surface of Masterboard within 24 hours.

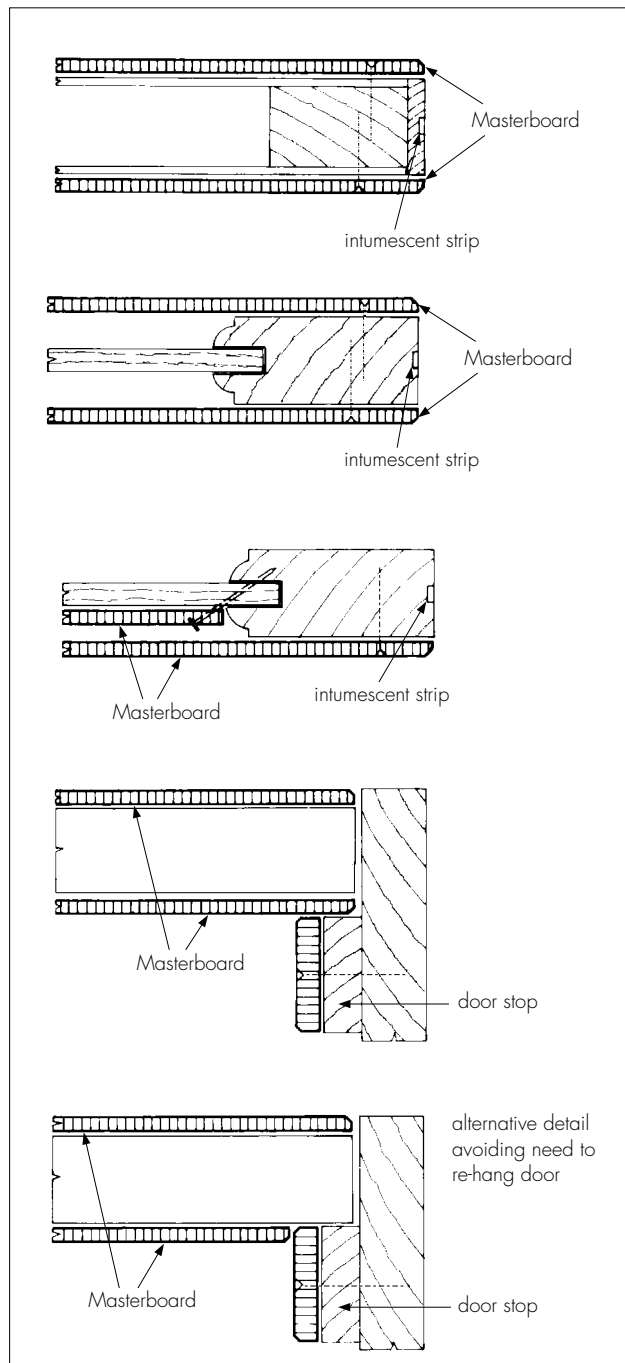
14.2 The product is not suitable for use where it may be in contact with water for prolonged periods and subjected to cyclic freezing and thawing.

14.3 The product loses approximately 50% of its strength on wetting but full strength is recovered on drying.

14.4 Moisture will not cause leaching or efflorescence to occur under normal service conditions.

14.5 The product is absorbent and can contribute to surface condensation control.

Figure 6 Upgraded fire doors



15 Risk of mould growth

The recommendations in BS 5250 : 2002 should be followed when considering Masterboard for use in humid areas. When such conditions exist the manufacturer should be consulted concerning suitable surface treatments.

16 Surface temperature

The performance of Masterboard linings will not be affected when subject to local heating caused by radiators and similar heating appliances.

17 Maintenance

17.1 The product will retain dirt in a similar manner to fibre-cement lining sheets. Normal dirt deposits may be removed using clean water and a stiff brush but some change in appearance must be

accepted. The Certificate holder's advice should be sought concerning suitability of chemical cleaning agents to remove difficult stains.

17.2 Damaged components can be replaced using normal installation techniques. Any difference in appearance between new and existing sheets may mellow with age.

17.3 Care is required when placing ladders against linings, in particular industrial linings. The practice of sliding or bouncing the top of the ladder along the wall surface to change position may cause damage to the sheets, either by scoring the surface or by impact, and should be avoided.

18 Durability



18.1 Tests after prolonged water immersion, oven drying and cyclic wetting and drying show no evidence of significant deterioration. The results indicate that a life in excess of 30 years can be expected when Masterboard is used in normal internal environmental conditions or in semi-exposed locations as soffits in the United Kingdom.

18.2 In common with other cementitious materials, the matrix material will carbonate and embrittle with time.

18.3 If the product is to be decorated with a water vapour impermeable coating, differential moisture absorption may make the sheets more likely to bow than undecorated sheets and an appropriate backsealer should be used. The Certificate holder should be consulted for advice on the use of water vapour impermeable coatings and backsealers. The Certificate holder should also be consulted regarding suitable primers and paint systems to avoid adversely affecting the fire performance properties of the board.

Installation

19 Health and safety

No specific exposure limit exists for the dust produced when sheets are sawn or drilled, but there is a general duty (defined in the Health and Safety Executive Guidance Note EH44 *Dust in the Workplace : General principles of protection*) to reduce exposure to the minimum reasonably practicable. If cutting is required and excessive concentrations of dust are produced (eg by power sawing in a confined area) the measures defined in Guidance Note EH44 should be followed.

20 Procedure

20.1 Masterboard must be installed strictly in accordance with the Certificate holder's instructions and this Certificate (see sections 7.2, 7.3 and 13 of this Certificate).

20.2 Sheets must be supported on all four edges and fixed to a secured framework which has been levelled to give a flat fixing surface. Masterboard may be fixed to metal supports but the advice of the manufacturer should be sought regarding suitable materials, profiles and fixing methods.

20.3 In fire-resisting timber stud constructions where mineral wool is used it must fit tightly in the framework and completely fill the cavity between the lining sheets.

20.4 Perimeter fixings for Masterboard should be at a minimum distance of 12 mm from sheet edges, and 40 mm from sheet corners.

20.5 For general use, sheets may be fixed using galvanized wire nails driven flush or slightly below the surface of the board; or by using No 6 or No 8 wood-screws or self-tapping screws for 9.0 mm and 12.0 mm thick Masterboard. 6.0 mm thick Masterboard may also be fixed using 6.0 mm crown, 25 mm long rustproofed staples, except where fire resistance is required.

20.6 Adequate fixing is essential for fire protection and the nails or screws must be well anchored into the supports. All supports must be in sound condition.

20.7 Masterboard may be butt jointed or the board edges can be birdsmouthed, or left slightly apart and filled. Joints and screw holes can be filled and sanded to a smooth flat surface.

20.8 Where water may be used for washing the floor, the joint between the lining and the floor should prevent water penetrating the adjoining space. The lower edge of the lining should be protected to a height of at least 75 mm.

21 Cutting and drilling

21.1 Masterboard may be cut using a fine-toothed saw: eg panel saw, padsaw, keyhole saw or coping saw; working with the fair face up and the board supported as the cut progresses. Rough cuts can be made by scoring the board and snapping over a straight-edge. Power sawing can be carried out using a tungsten carbide or diamond-tipped blade.

21.2 Masterboard should be drilled using a high- or low-speed twist drill and scrap material placed under the drilling location will ensure a clean hole.

The following is a summary of the technical investigations carried out on Masterboard.

22 Tests

Tests were carried out to determine:

- geometric characteristics
- density
- watertightness
- water absorption
- effect of accelerated ageing on flexural strength
- behaviour in fire.

23 Investigations

23.1 Test data from independent laboratories in relation to the following were examined and found to be satisfactory:

- BS 476-6 : 1989
- BS 476-7 : 1997
- BS 476-8 : 1972
- BS 476-11 : 1982
- BS 476-21 : 1987
- coefficient of linear thermal expansion
- water vapour permeability
- moisture movement.

23.2 An examination was made of test data from the manufacturer's laboratory to evaluate:

- hard body impact resistance
- fixing strength
- effect of oven-drying on flexural strength.

23.3 Visits were made to sites to examine the performance in use.

23.4 The manufacturing process was examined, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

- BS 476-6 : 1989 *Fire tests on building materials and structures — Method of test for fire propagation for products*
- BS 476-7 : 1997 *Fire tests on building materials and structures — Method of test to determine the classification of the surface spread of flame of products*
- BS 476-8 : 1972 *Fire tests on building materials and structures — Test methods and criteria for the fire resistance of elements of building construction*
- BS 476-11 : 1982 *Fire tests on building materials and structures — Method for assessing the heat emission from building materials*
- BS 476-20 : 1987 *Fire tests on building materials and structures — Method for determination of the fire resistance of elements of construction (general principles)*
- BS 476-21 : 1987 *Fire tests on building materials and structures — Methods for determination of the fire resistance of loadbearing elements of construction*
- BS 476-22 : 1987 *Fire tests on building materials and structures — Methods for determination of the fire resistance of non-loadbearing elements of construction*
- BS 476-23 : 1987 *Fire tests on building materials and structures — Methods for determination of the contribution of components to the fire resistance of a structure*
- BS 4624 : 1981 *Methods of test for asbestos-cement building products*
- BS 5234-1 : 1992 *Partitions (including matching linings) — Code of practice for design and installation*
- BS 5234-2 : 1992 *Partitions (including matching linings) — Specification for performance requirements for strength and robustness including methods of test*
- BS 5250 : 2002 *Code of practice for control of condensation in buildings*
- BS 5268-2 : 1998 *Structural use of timber — Code of practice for permissible stress design, materials and workmanship*
- BS 5588-0 : 1996 *Fire precautions in the design, construction and use of buildings — Guide to fire safety codes of practice for particular premises/applications*
- DD 146 : 1986 *Methods of test for water vapour transmission resistance of sheet materials used in buildings*

Conditions of Certification

24 Conditions

24.1 This Certificate:

- (a) relates only to the product that is described, installed, used and maintained as set out in this Certificate;
- (b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;
- (c) is valid only within the UK;
- (d) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;
- (e) is copyright of the BBA;
- (f) is subject to English law.

24.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

24.3 This Certificate will remain valid for an unlimited period provided that the product and the manufacture and/or fabrication including all related and relevant processes thereof:

- (a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;

(b) continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine; and

(c) are reviewed by the BBA as and when it considers appropriate.

24.4 In granting this Certificate, the BBA is not responsible for:

- (a) the presence or absence of any patent or similar rights subsisting in the product or any other product;
- (b) the right of the Certificate holder to market, supply, install or maintain the product; and
- (c) the nature or standard of individual installations of the product or any maintenance thereto, including methods and workmanship.

24.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the installation and use of this product.



In the opinion of the British Board of Agrément, Masterboard is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 90/2500 is accordingly awarded to Promat UK Limited.

On behalf of the British Board of Agrément

Date of Third issue: 23rd January 2004

Chief Executive

**Original Certificate issued on 30th October 1990. This amended version includes reference to the revised Building Regulations, change of name and address of the Certificate holder and new Conditions of Certification.*

Electronic Copy

British Board of Agrément

P O Box No 195, Bucknalls Lane
Garston, Watford, Herts WD25 9BA
Fax: 01923 665301

©2004

e-mail: mail@bba.star.co.uk
website: www.bbacerts.co.uk



For technical or additional information,
contact the Certificate holder (see
front page).
For information about the Agrément
Certificate, including validity and
scope, tel: Hotline 01923 665400,
or check the BBA website.