

Promat



PROMATECT®-H
External Wall



Introduction

There is a recognised need to prevent fire leaping from one building to an adjacent location. The rush of fire could therefore be from within or without a building envelope.

Promat external wall systems are designed to offer up to 240 minutes fire resistance, with or without insulation, and lightweight systems which are swiftly and easily installed.

Fire Testing Method

Non-load bearing external walls should normally be tested or assessed in accordance with BS476: Part 22 or AS1530: Part 4 and are required to satisfy the failure criteria of integrity and insulation when exposed to fire from either side. In some cases there will be additional criteria concerning the heat radiation from the unexposed face of the walls. Please consult Promat Technical Department for further advice.

General Design Considerations

In the case of external walls, the proximity of a building to the relevant (facing) boundary determines the probability of it being a danger to other buildings on adjoining sites (if it is on fire) or it being at risk from a neighbouring building on fire. Requirements made in connection with building regulations therefore specify different performances for external walls depending upon their distance from the relevant boundary.

Where the walls are permitted to provide fire resistance only from the inside, load bearing capacity and integrity are required to be satisfied for the full period, whereas insulation is sometimes required for only 15 minutes. This means that satisfactory constructions will be very different from those required to maintain insulation for the full period and where fire resistance is required from either side.

The following are some of the factors which should be considered when determining the correct specification to ensure an external wall will provide the required fire performance. Further advice can be obtained from the Promat Technical Department.

1. Distance From The Relevant Boundary

The guidance given in appropriate building regulations does sometimes relax the requirements for those external walls which are one metre or more from the relevant property boundary. In most of these cases, the wall only needs to be tested or assessed for its performance when exposed to fire from within the building. In addition, the maximum insulation period required is often only 15 minutes.

Due to differences in various national regulatory requirements, local building codes should be checked before applying the following systems.

2. External Cladding

The external cladding can significantly affect the overall fire performance of an external wall. For example, some composite external cladding panels with expanded polyurathane cores may perform much worse than a single skin steel sheet due to the low melting point and toxicity of the core.

3. Structural Steel

All structural steel within a fire protected external wall may also be protected. This includes walls which may only require to be partially protected. If the steel frame of a single storey building has not been designed in accordance with the document, "Fire and Steel Construction: The Behaviour of Steel Portal Frames in Boundary Conditions, 1990 (2nd Edition)" British Steel Construction Institute or equivalent, the rafters of the roof may also need protection as their collapse could lead to the collapse of the external wall.

Generally, any steelwork located on the non-fire side of a PROMATECT®-H or PROMINA® 60 wall lining will be adequately fire protected.

4. Single Storey Buildings

The external walls of single storey buildings which may otherwise not require to be fire protected, may still require protection if they are too close to the relevant boundary.

5. Cavity Barriers

Local building regulations guidance documents will specify where provision of cavity barriers is required.

6. Thermal Insulation

U-values will depend on the complete wall design. These U-values can be improved by the addition of more insulation materials. For additional information, please consult Promat Technical Department.

7. Impact Resistance

PROMATECT®-H is robust and reasonably impact resistant. Where there is risk of heavy impact however, and in most cases below a height of 2000mm above floor level, it is advisable to introduce additional framing members as stiffening. Protection barriers or masonry walls 2000mm high are often advisable.

8. Wind Loading

Promat systems offer good resistance to wind induced internal pressures. If there are predominant openings in the external envelope of the building, however, the advice of the Promat Technical Department should be sought.

Fire attack from board side / Non loadbearing

Fire Rating	FRL	-/120/15 (6mm) -/240/15 (9mm)
	STANDARD	BS476: Part 22: 1987 AS1530: Part 4: 2005
	APPROVAL	BRE CC231704
Acoustic	# STC	38dB (for PH 31: -/120/15) 40dB (for PH 31: -/240/15) 46dB (for PH 31 - WM: -/120/15) 50dB (for PH 31 - WM: -/240/15)
	# R _w	38dB (-7) (for PH 31: -/120/15) 39dB (-7) (for PH 31: -/240/15) 46dB (-10) (for PH 31 - WM: -/120/15) 49dB (-10) (for PH 31 - WM: -/240/15)
	STANDARD	ISO140: Part 3: 1996 ISO717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 18th Oct 2006
Construction	MAXIMUM LENGTH	Unlimited
	PARTITION THICKNESS	From 212mm (for -/120/15) From 215mm (for -/240/15)
	PARTITION MASS*	From 10.31kg/m ² (for -/120/15) From 13.43kg/m ² (for -/240/15)

Margin of error is generally within ±3dB.
* Details for walls above 3000mm high are available on request.

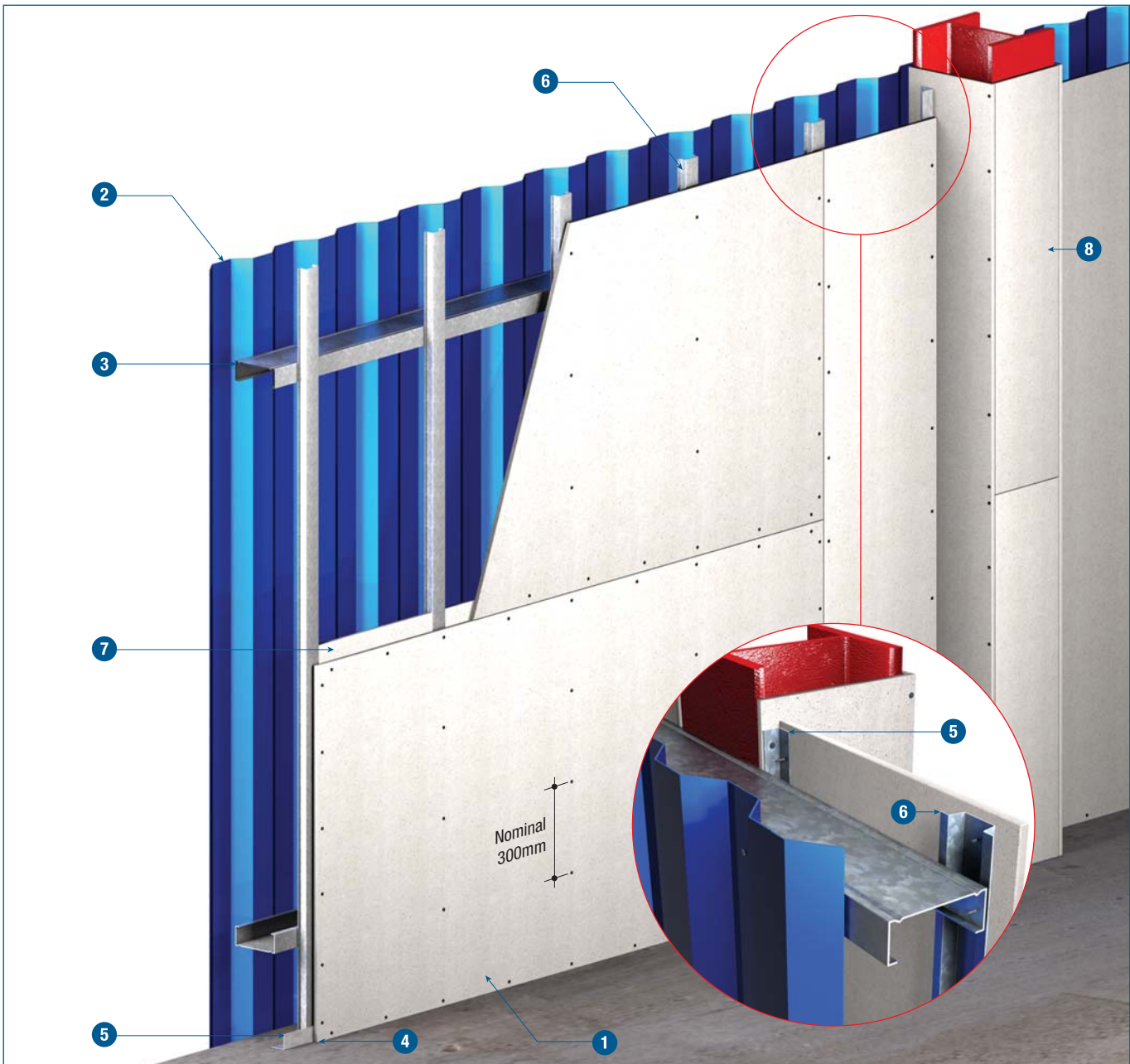
TECHNICAL DATA

- 1 1 layer of PROMATECT®-H board 9mm thick
- 2 Steel top hat sections approximately 26mm x 80mm x 0.56mm thick. Width of face to which boards are fixed should be minimum 50mm. Secure top hats at 610mm centres to every rail using 2 steel fixings per rail.
- 3 Horizontal sheeting rail at maximum 1800mm centres
- 4 Perimeter steel angle, 38mm x 19mm x 0.8mm thick or similar secured to wall or floor using 40mm x M6 masonry anchors at 500mm centres.
- 5 PROMASEAL® AN Acrylic Sealant, required only where gaps between board and substrate occur.
- 6 External cladding, either single skin steel or fibre cement sheet.

System Specification

Walls are to be constructed using PROMATECT®-H matrix engineered mineral boards all in accordance with the Architectural Specification in the manufacturer's handbook. Relevant constructions are to be selected according to the required FRL of (.../.../...). All printed installation details are to be followed to ensure approval to BS476: Part 22 and AS1530: Part 4. All work to be certified by installer in an approved manner.

1000mm or more from the relevant boundary / Non loadbearing



TECHNICAL DATA

- 1** For FRL of -/240/15
1 layer of PROMATECT®-H board 9mm thick screw fixed to all top hat sections
- 2** External cladding, either single skin steel or fibre cement sheet. Please consult Promat for other types of cladding.
- 3** Horizontal sheeting rail at maximum 1800mm centres
- 4** Caulk all perimeter gaps with PROMASEAL® AN Acrylic Sealant to achieve stated fire and/or acoustic performance
- 5** Perimeter steel trim 25mm x 25mm x 0.56mm thick or similar
- 6** Steel top hat sections approximately 26mm x 80mm x 0.56mm thick. Width of face to which boards are fixed should be minimum 50mm. Secure top hats at 610mm centres to every rail using 2 steel fixings per rail.
- 7** 1 layer of PROMATECT®-H cover strip 100mm x 9mm thick at horizontal board joints
- 8** Fire resistant structural steel column claddings

NOTE: For FRL of -/120/15, 1 layer of mineral wool of 60mm x 23kg/m³ should be included if external lining is profile steel sheet.

Architectural Specification

The following are standard Architectural Specifications for internal partition systems using PROMATECT®-H. The designer must determine the suitability of the design to the application and requirements before undertaking or constructing any works relating to the specifications and where in doubt should obtain the advice of a suitably qualified engineer.

Fire Attack From Either Side / Fire Attack From Board Side / Non Loadbearing

Up to _____⁽¹⁾ minutes of fire rating, integrity and _____⁽²⁾ minutes of insulation in accordance with the criteria of **BS476: Part 22: 1987** and **AS1530: Part 4: 2005**.

Acoustic Performance

The partition system shall have a Weighted Sound Reduction Index of R_w _____⁽³⁾.

Supporting Structure

Care should be taken that any structural element by which the system is supported, e.g. steel structure, concrete/brick wall or slab, has at least equivalent fire resistance of _____⁽⁴⁾ minutes.

Lining Boards

Single layer of 6mm PROMATECT®-H matrix engineered mineral boards as manufactured by Promat International (Asia Pacific) Ltd. Standard board dimensions 1220mm x 2440mm x 6mm.

Single layer of 9mm PROMATECT®-H matrix engineered mineral boards as manufactured by Promat International (Asia Pacific) Ltd. Standard board dimensions 1220mm x 2440mm x 6mm.

Fixing

Galvanised steel sheeting rails will be bolted horizontally at maximum 1800mm centres. Fix galvanised steel top hat sections vertically at 610mm centres. External cladding will be fixed in accordance with manufacturer's recommendations.

_____mm⁽⁵⁾ thick of PROMATECT®-H boards will be fixed to the steel framing at the internal face. All horizontal joints to be backed with a PROMATECT®-H board strip.

Mineral wool will be contained within the cavity where applicable.

Tests & Standards

The complete system along with the material and framing is tested in accordance with BS476: Part 22: 1987. The partition system should meet the requirements as specified under Clause 5.

Jointing

Plain butt joints between machined edges of boards. ⁽⁶⁾

Joints filled in preparation for painting. ⁽⁷⁾

Joints filled and taped in preparation for decoration. ⁽⁸⁾

Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁹⁾ in accordance with manufacturer's recommendations.

NOTES:

- ⁽¹⁾ insert required fire rating and integrity durations.
- ⁽²⁾ insert required insulation duration.
- ⁽³⁾ insert acoustic values by reference to Marshall Day assessment.
- ⁽⁴⁾ insert required fire resistance level (not exceeding 240 minutes).
- ⁽⁵⁾ insert 6mm or 9mm of board thickness.
- ^{(6), (7), (8), (9)} delete as appropriate.
- Perimeter gaps will be filled with fire resistant PROMASEAL® AN Acrylic Sealant.

For latest information of the Promat Asia Pacific organisation,
please refer to www.promat-ap.com

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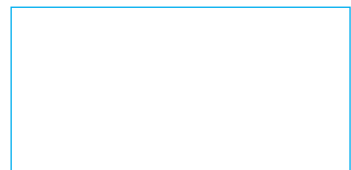
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