

Promat

Promat SYSTEMPANEL™ 2G

Quick Solutions for Fire Resistant, Ceilings and Floors



www.promat.com.au



Promat SYSTEMPANEL™ 2G is the latest development in fire resistance board systems from Promat® the leader in innovation for passive fire protection products and systems



Promat Australia is part of a global research, development and manufacturing company focussing solely in the area of passive fire and acoustic systems and was founded some 30 years ago. Our parent company, The Etex Group, employs over 13,000 staff worldwide. Promat Australia brings added global experience to the industry and continues to support Australian made exports of product to South East Asia, Europe and America through the Promat companies in those regions.

Promat is an acknowledged leader in the field of passive fire protection and high performance insulation. As a market-driven solution provider, Promat's products and systems are used for passive fire protection of buildings, industrial facilities, tunnels, infrastructure, marine applications and development of best performance insulation solutions for high and low temperatures, acoustic, impact and humidity resistance needs.

Promat supply by far the widest range of passive fire protection and fire-resistant products and systems in Australia, including PROMATECT® boards, CAFCO® and PROMASPRAY® vermiculite sprays and intumescent coating systems and PROMASEAL® fire collars, sleeves, sealant, pillows, mortar, backing rods, and other specialised fire stopping systems.

Promat's products and systems are designed and tested in accordance with Australian and International standards and are installed by approved, trained and certified applicators. This ensures that only the highest quality products are made available to the market with minimal impact to the environment. Ongoing training programs are also available and encouraged to ensure all products are correctly applied and installed.

Recently, Promat have been primary suppliers for a number of major projects such as;

Brisbane: Legacy Way Tunnel, Millenium Arts Centre, Brisbane Square, the Brisbane International Terminal Extension, INB5, INB3 & INB1, Harrogate Tunnel, The new Airport link tunnel and the Gold Coast Casino development.

Adelaide: SAHMRI, New Royal Adelaide Hospital, Adelaide Oval, Australian Submarine Corporation, Adelaide University and the Desalination Plant, Sky City Expansion and Calvary Hospital.

Melbourne: Royal Children's Hospital, Southern Cross Station, Eureka Tower, ANZ - Docklands, Myer Centre - City and Mornington on Tanti, Australia 108 and Flemington Race Course.

Sydney: Barangaroo, Macquarie Bank - King St wharf and Westfield's Centrepoint, Crown Sydney and The Ribbon.

Perth: Fionna Stanley Hospital, Perth Arena and Burswood Casino.

Darwin: Darwin Convention & Exhibition Centre.

Promat's products are strongly supported by our extensive technical knowledge and experience in the fire protection industry from Promat's headquarters and manufacturing facility in Adelaide, as well as our sales and distribution centres in Sydney, Melbourne, Brisbane, Perth, Darwin and New Zealand. The Company is service driven and derives its great strength by providing solutions to all types of passive fire problems encountered during construction of Commercial, HealthCare, Industrial and Special Purpose buildings by servicing Architects, Engineers, Councils, Consultants, Builders and its valued installation contractor customers.

Promat SYSTEMPANEL™ 2G

Fire Resistance Flooring and Ceiling System

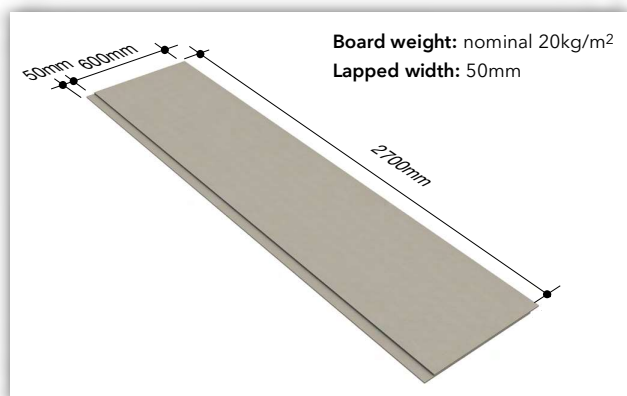
Promat SYSTEMPANEL™ 2G is composed of boards that are asbestos free with a 50mm calcium silicate overlapping system on the two long edges to allow modular continuity and excellent sealing at all joints.

Promat SYSTEMPANEL™ 2G is off white in colour with one smooth face which can be left unfinished in many applications.

Promat SYSTEMPANEL™ 2G is an innovative lightweight panel system which is economical, easy and fast to install. Promat SYSTEMPANEL™ 2G is manufactured to meet environmental standards.



Promat SYSTEMPANEL™ 2G



General Description

Promat SYSTEMPANEL™ 2G is a non combustible matrix engineered mineral board reinforced with selected fibres and fillers. It is formulated without inorganic fibres and does not contain formaldehyde.

Promat SYSTEMPANEL™ 2G is resistant to the effects of moisture and will not physically deteriorate when used in damp or humid conditions but it is not recommend for use in external or wet areas. unless waterproofed to Promat's specification

It is recommended that panels are stored flat and in dry conditions and protected from water once installed. However if panels get wet or saturated they must be handled with care and allowed to dry out before being fully enclosed.

A health and safety data sheet is available from the Promat and, as with any other materials should be read before working with the board.



Compliance with the building code

This systems has tested and assessed in accordance with AS1530.4:2014. However, the suitability of use of lightweight construction in your project should be confirmed with the authority having jurisdiction before being installed.

Material properties

Generic description	Matrix Engineered Mineral Board
Surface condition	Front face: smooth Back face: sanded
Building regulations	Class 0
Alkalinity	pH 9
Coefficient of expansion	-7.5×10^{-6} m/mk
Thickness tolerance	-0.5mm, +1mm (standard thickness boards)
Dimension tolerance	±5mm (standard dimension boards)

Physical performance

Property	Test method	Test results
Density	BS EN 323	Nominal 1000kg/m ³
Modulus of elasticity, E	BS EN 310	Longitudinal 4599N/mm ² Transverse 3817N/mm ²
Flexural strength, F_{rupture}	BS EN 310	Longitudinal 7.52N/mm ² Transverse 5.15N/mm ²
Tensile strength, T_{rupture}	BS 5669: Part 1	Longitudinal 5.99N/mm ² Transverse 5.17N/mm ²
Compressive strength	BS 5669: Part 1	7.76N/mm ²
Material class	AS1530.1	Non combustible
Surface burning	BS 476: Part 7	Class 1
Thermal conductivity	ASTM C518	0.136W/m°K
Moisture content	BS EN 322	8%

Application

- Floors
- Ceilings

Health and safety

When machining the Promat SYSTEMPANEL™ 2G product, airborne dust may be released, which may be hazardous to health. Do not inhale the dust. Avoid contact with skin and eyes. Use dust extraction equipment. Respect regulatory occupational exposure limits for total inhalable and respirable dust. A health and safety data sheet is available from Promat and, as with any other material, should be read before working with the product.

Promat SYSTEMPANEL™ 2G product is not classified as a an environmental hazard so no special provisions are required regarding the transportation and the disposal of the product to landfill. The product can be placed in on-site rubbish skips with other general building waste which should then be disposed by a registered contractor in the appropriate and approved manner.

General Technical Properties *Continued from previous page*

115mm Diameter Load Applicator (kN)

	Joist Centres (mm)
SYSTEM TESTED	450
SYSTEMPANEL™ 2G + 18mm Fibrecement	6.93

350mm² Diameter Load Applicator (kN)

	Joist Centres (mm)
SYSTEM TESTED	450
SYSTEMPANEL™ 2G + 18mm Fibrecement	4.43

Density (tested to BS 5669: Part 1 1989, Clause 8)	kg/m³	Nominal 1000
Emission test (to ASTM D5116-90 for Green Label Singapore)		Within limits set out by the Singapore Environment Council
Steel and timber joists centres		450mm centres
Thickness tolerance of standard boards	mm	- 0.5mm, +1mm
Length x width tolerance of standard boards	mm	+/- 5mm
Surface condition		Smooth and fair face on one side

NOTE 1: Standards and codes may determine that higher loads may need to be considered. A registered structural engineer should be consulted in these instances.

NOTE 2: These tests satisfy the requirements for ultimate limit states.

NOTE 3: Promat SYSTEMPANEL™ 2G is not a finished product and should always have a floor covering applied to stop mechanical damage and an approved waterproofing system if used in areas where water is present.

Thickness (mm)	Standard dimensions* (mm x mm)	Module dimension (mm x mm)	Weight (kg/m ²)	Total board weight (kg)
18	650 x 2700	600 x 2700	18	30

*The properties in above tables are mean values given for information and guidance only. If certain properties are critical for a particular application, it is advisable to consult Promat. Promat SYSTEMPANEL™ 2G board is manufactured under a quality management system certified in accordance with ISO 9001: 2000 Certification.

AS FOR ALL NATURAL MATERIALS SUCH AS CONCRETE AND CLAY, THESE PRODUCTS MAY RELEASE DUST PARTICLES WHEN THEY ARE MECHANICALLY MACHINED (CUTTING, SANDING, DRILLING). INHALATION OF HIGH CONCENTRATIONS OF DUST CAN IRRITATE THE RESPIRATORY SYSTEM. DUST CAN ALSO IRRITATE THE EYES AND/OR THE SKIN. THE INHALATION OF DUST, IN PARTICULAR HIGH CONCENTRATIONS OF FINE (RESPIRABLE) DUST OR OVER A PROLONGED PERIOD OF TIME CAN LEAD TO LUNG DISEASE (SILICOSIS) AND AN INCREASED RISK OF LUNG CANCER. AVOID INHALATION OF DUST BY USING MACHINERY WITH DUST EXTRACTION. GUARANTEE ADEQUATE VENTILATION ON THE WORK FLOOR. AVOID CONTACT WITH THE EYES AND SKIN AND AVOID INHALATION OF THE DUST BY WEARING APPROPRIATE PERSONAL PROTECTION GEAR (SAFETY GOGGLES, PROTECTIVE CLOTHING AND DUST MASK). FOR MORE INFORMATION PLEASE CHECK THE APPROPRIATE MATERIAL SAFETY DATA SHEET, AVAILABLE UPON REQUEST.

Working With The Board

Cutting & Sawing

Promat SYSTEMPANEL™ 2G can be worked with conventional woodworking equipment although the use of hand saws with hardened teeth is recommended. Boards may be more easily cut using a power circular saw with a tungsten carbide tipped blade, or a jigsaw. Use of diamond tip blades is also allowable and will extend the life of cutting tools.

Promat recommends that all cutting be carried out in well ventilated spaces, using dust extraction facilities. Operators should wear protective face masks at all times. For cutting of Fibre Cement, manufacturers recommendations should be followed.

Drilling

Drilling can be carried out either by hand drill or any conventional power drill with or without dust extraction. For best results, the boards should be firmly supported behind the location of the holes. Generally when working on Promat board products, the use of drills with point angles of 60° to 80° rather than the more usual 120° type, are preferable and more efficient.

Nailing

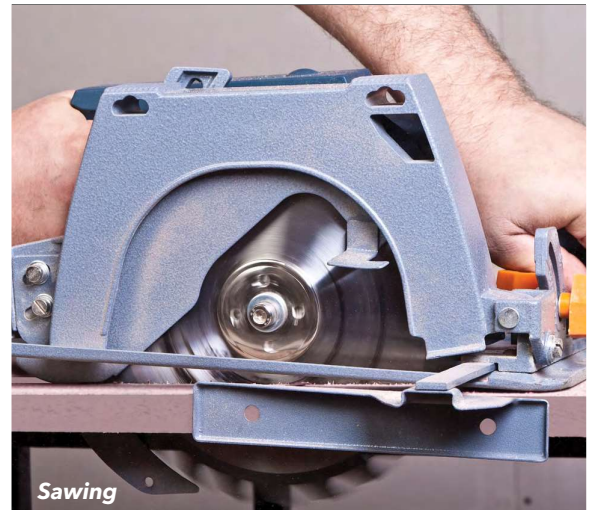
Pneumatic or gas powered nail guns may be used to fix the floor layers of this system. Manual nailing is also acceptable. Care should be taken to ensure nail head is not driven more than 0.5mm below the surface of the board.

Fixing

Panels should be supported and fixed as per the system specification (*See pages 6 to 7*).

Planing & Sanding

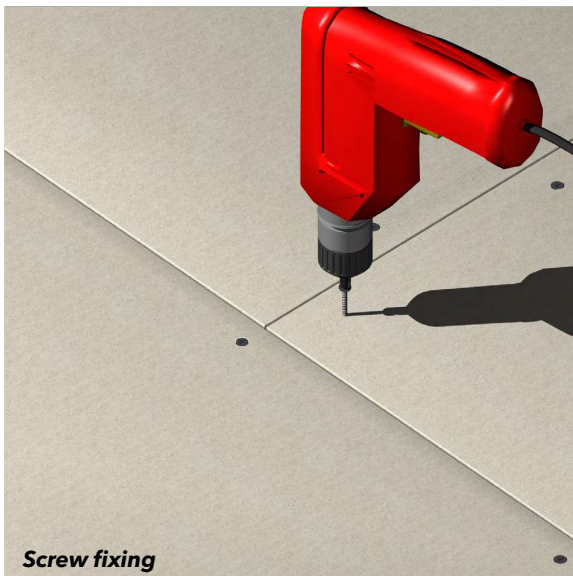
The edges of the boards can be planed or smoothed with a surfm, rasp or file. Use conventional glass papers for sanding.



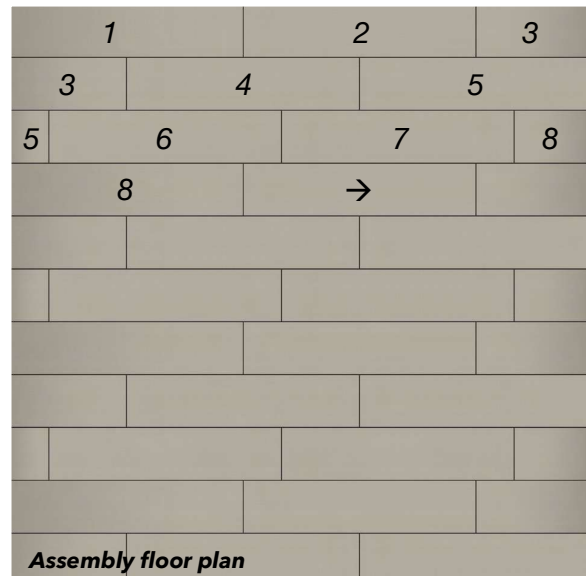
Sawing



Drilling



Screw fixing



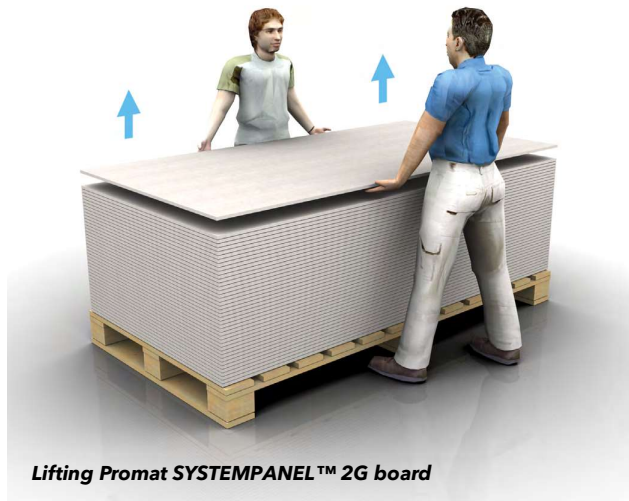
Assembly floor plan

Handling & Storage

Carry boards on edge, and do not drop on their corners. Promat SYSTEMPANEL™ 2G should be stored under cover on a flat base, clear of the ground. If stored on racks, boards should be fully supported across their width at not more than 1m centres. The following recommendations must be always taken into account when handling Promat SYSTEMPANEL™ 2G.

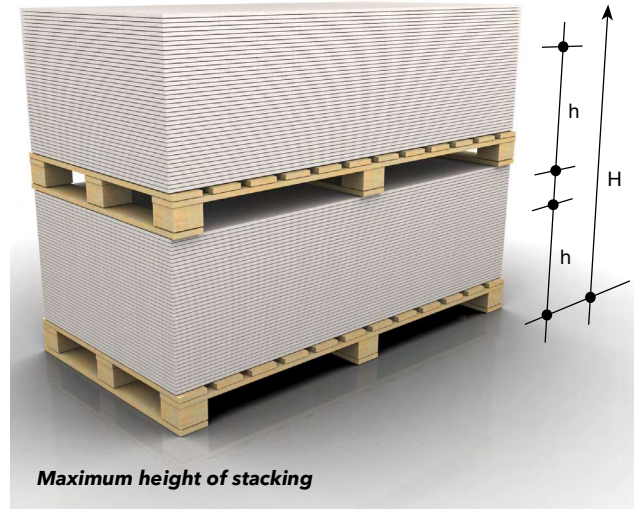
Lifting

Always lift boards off the board below, never slide board on board or drag the stack as this could mark the surface of the lower board.



Stacking

Boards should be stacked a maximum of 800mm high ($h \leq 800\text{mm}$), on firm level ground. If two or more pallets are stacked, the total stack height must be not more than 3500mm ($H \leq 3500\text{mm}$).



Protection

Boards should be stored under cover for protection against inclement weather on dry level ground, away from the working area of mechanical plant.



Carrying

Always carry the boards on edge but do not store on edge.



Health & Safety

No special precautions are necessary in handling or working. When power sawing or sanding in a confined space, dust extraction equipment must be used to control dust levels. Care should be taken to prevent injury from sharp edges and corners.

Do not leave boards lying about on site, on scaffolding or in high traffic areas, where risk of damage or injury is increased, and prevent any misuse which could result in personal injury or damage to boards. In the event of injury obtain proper medical treatment. The materials and the packaging used for distribution do not incorporate any substances considered to be hazardous to health.

Promat SYSTEMPANEL™ 2G

Fire and acoustic floor and ceiling system in lightweight construction for fire from either direction

For Buildings that require Type A Construction, the Building Code of Australia requires horizontal fire separation between storeys. The Fire Resistance Level (FRL) required depends on the Class of Building in question.

Traditionally floor construction in multi level buildings have been in concrete and the fire resistance testing has always been carried out from the underside.

However there is a trend in Australia, driven by innovation, cost cutting and a flow of building methods from overseas that has seen an increase in the demand to use lightweight floor construction and lightweight cassette floor systems.

One of the fundamental purposes of fire protection in the BCA is that 'A building is to be provided with safeguards to prevent fire spread to adjoining fire compartments (BCA, CP2 (d)).'

The 'Performance Requirements' in the BCA clearly state that 'A building must have elements which will, to the degree necessary, maintain structural stability during a fire.'

Research carried out by BRANZ (Building Research Association of New Zealand) show that fire attack from above a floor should be taken in to account in building design. The use of lightweight construction only highlights this issue.

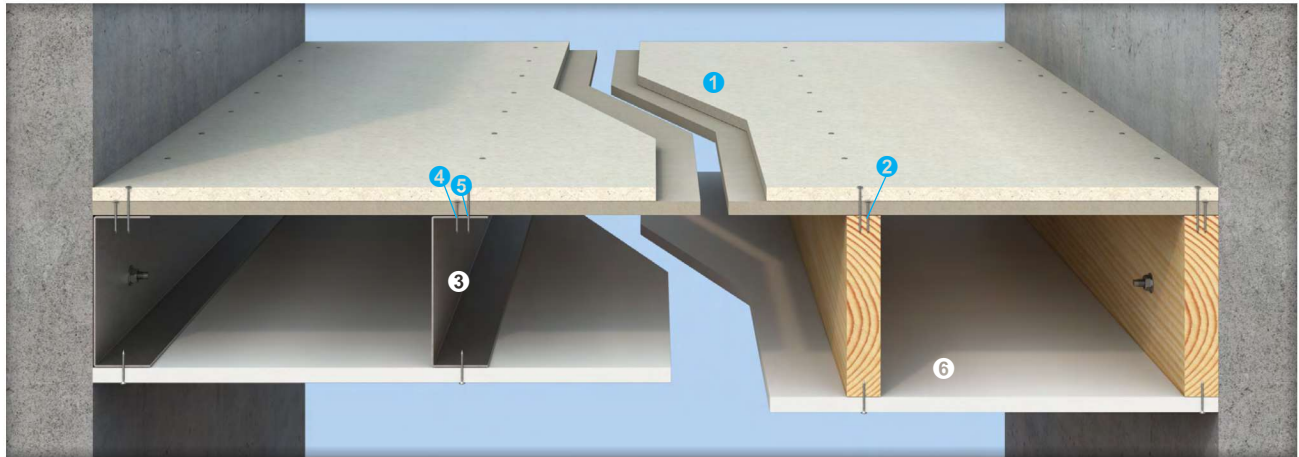
Fire tests carried out by registered laboratories also show that fire rated load bearing lightweight floors did not always perform in a manner that would satisfy the requirements of the BCA.

Promat set out to test floor systems that may have been expected and accepted to comply with the requirements of the BCA for horizontal fire separation for fire above and below and found that they did not.

Following much research and fire testing Promat is both proud and pleased to announce the introduction of a new floor / ceiling system design especially for the lightweight floor market that complies with fire and acoustic requirements for fire from either direction achieving FRL's of up to 120/120/120.

Promat believes that with the introduction of SYSTEMPANEL™ 2G they have developed an economical solution to this problem.

The system uses Fibre Cement sheets together with the Promat SYSTEMPANEL™ 2G on top of floor joists to give a load bearing floor. The ceiling consist of PROMATECT® 100.



- ① One layer of Promat SYSTEMPANEL™ 2G 18mm thick, refer to table on page 7
- ② 18mm Fibre Cement with minimum density of 1250kg/m³ refer to table on page 7
- ③ Mild steel lipped C-Channel framework, timber or LVL joists as table on page 7
- ④ 50mm x 6g Self Tapping Screws at nominal 200mm centres
- ⑤ 25mm Self Tapping Fibre Cement Screw at 400mm centres
- ⑥ PROMATECT® 100 ceiling lining, refer to table on page 7

FRL	Joist size (Minimum size)	Ceiling Lining (Minimum)	Floor lining (Minimum)
60/60/60	Timber 240mm x 45mm or LVL (450mm or 600mm centres)	20mm thick PROMATECT® 100 Note¹	18mm Promat SYSTEMPANEL 2G + 18mm Fibre Cement Sheet (min density 1250kg/m³)
	Steel Channel 200mm x 65mm x 1.5mm or LVL (450mm or 600mm centres)		
90/90/90	Timber 240mm x 45mm (450mm or 600mm centres)	20mm thick PROMATECT® 100 Note¹	18mm Promat SYSTEMPANEL 2G + 18mm Fibre Cement Sheet (min density 1250kg/m³)
	Steel Channel 200mm x 75mm x 2.4mm (450mm centres)		
120/120/120	Timber 240mm x 45mm or LVL (450mm or 600mm centres)	2 x 15mm thick PROMATECT® 100	18mm Promat SYSTEMPANEL 2G + 18mm Fibre Cement Sheet (min density 1250kg/m³)
	Steel Channel 200mm x 75mm x 2.4mm (450mm or 600mm centres)		

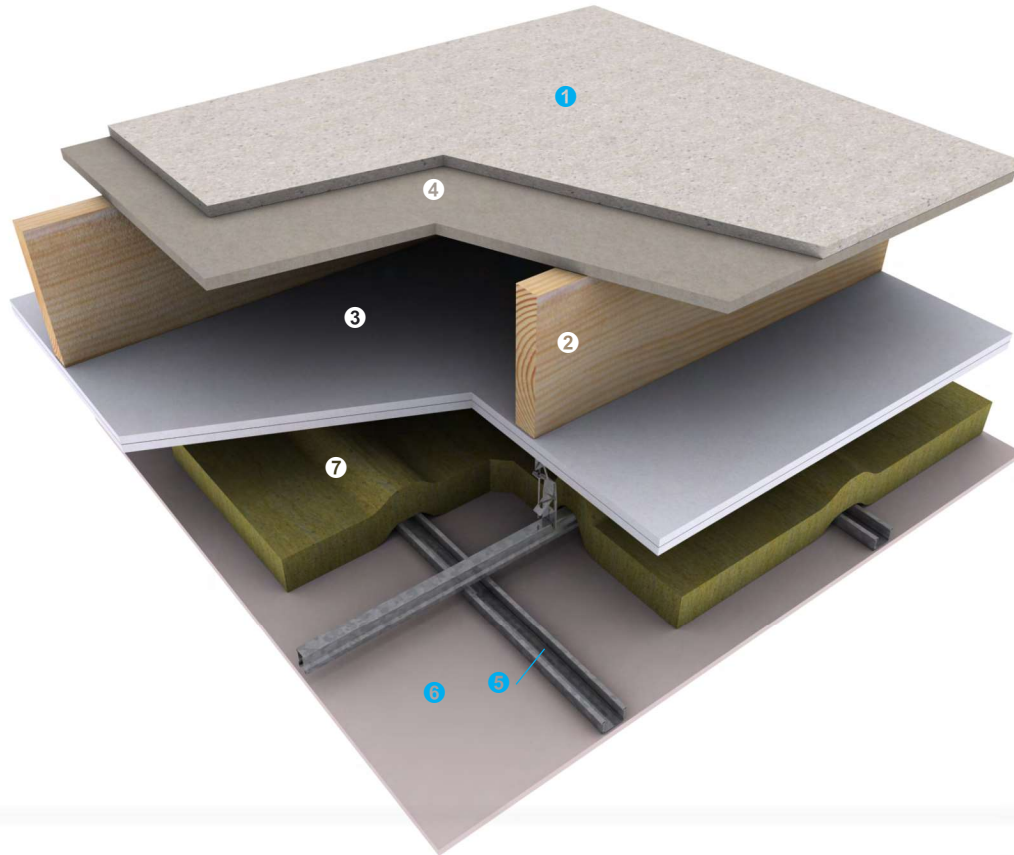
NOTE 1: 100mm wide cover strips of 20mm PROMATECT 100 required for joints that are not backed by framing

Table 2 : Material fixing requirements

Floor		
Fibre cement to timber frame		50mm x 3mm nails & 400mm centres
Fibre cement to steel frame		25mm x 6g self-tapping screws @ 400mm centres
SYSTEMPANEL 2G to timber perimeter and frame		75mm x 3mm nails @ 200mm centres
SYSTEMPANEL 2G to steel perimeter and frame		50mm x 6g self-tapping screws @ 200mm centres
SYSTEMPANEL 2G lap joint		40mm x 7g screws @ 100mm centres
Ceilings		
120 minutes	PROMATECT 100 to timber perimeter and frame	Layer 1 - 30mm x 6g bugle head screws @ 200mm centres
		Layer 2 - 50mm x 6g bugle head screws @ 200mm centres
	PROMATECT 100 to steel perimeter and frame	Layer 1 - 35mm x 6g bugle head screws @ 200mm centres
		Layer 2 - 45mm x 6g bugle head screws @ 200mm centres
90 & 60 minutes	PROMATECT 100 to timber perimeter and frame	30mm x 6g bugle head screws @ 200mm centres
90 minutes	PROMATECT 100 to steel perimeter and frame	35mm x 8g bugle head screws @ 200mm centres
60 minutes	PROMATECT 100 to steel perimeter and frame	35mm x 6g bugle head screws @ 200mm centres
Backing strips		
PROMATECT 100 (100mm wide)		50mm x 12g Laminating screws @ 100mm

Fire and Acoustic Floor/Ceiling System

Where additional acoustic rating are required for Airborne and Impact noise, additional insulation materials are included in the system as per figure below.



Minimum overall depth of system is 420mm.

- ❶ Promat SYSTEMPANEL™ 18mm thick
- ❷ 240mm x 45mm Timber joists floor at 450mm centres
- ❸ PROMATECT® 2 x 15mm thick fire barrier
- ❹ Fibrecement Sheet 18mm thick
- ❺ Rondo suspended ceiling system, including 25mm top cross rail and 28mm furring channel
- ❻ Fire resistant plasterboard ceiling 13mm thick
- ❼ CSR R2.0 SOUNDSCREEN batts installed in the cavity (nominal 100mm vertical depth of cavity)

Acoustic Performance Table	
Airborne	Impact
Rw: 59	Ln,w: 56
C: -2	Cl: 1
Ctr: -6	Ln, w + Cl: 57
Rw + Ctr: 53	

Margin of Error
+/- 3dB

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- The technical data provided in this publication is based on mean values prevalent at time of publication and is thus subject to fluctuation. It should not be regarded as a guarantee to system performance.
- All data contained herein conforms to and frequently surpasses generally accepted fire protection standards recognised by most professional fire science practitioners and regulatory authorities worldwide. The same general principle is equally applicable to all Promat products and systems. Promat has access to a considerable body of test authentication data and this can be provided on a complimentary basis upon request. It should be noted however that this publication replaces all previous editions in its entirety. Any form of reproduction by any means – manual, electronic, digital or otherwise – is strictly prohibited and subject to prior approval in writing from Promat. All rights related or connected to the Promat logo, Promat registered trademarks, featured illustrations, written information and technical reports in this publication are the sole, exclusive and copyright property of Promat and its legal partner companies.

Etex is a Belgian industrial group that specialises and markets high quality building materials and systems. Founded since 1905 and headquartered in Brussels, Belgium, Etex currently operates in 107 factories and 102 subsidiaries across 42 countries, employs more than 15,000 people and is one of the largest fibre cement producers in the world.

Through its subsidiaries, the group offers an extensive range of products: small and large roofing materials, cladding and building boards, passive fire protection systems.

Etex aims to be a professional, solid partner for all kinds of building projects.

