

The Passive Fire Protection Handbook



Appendix Section 7

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COMPARTMENTATION

- **SUPALUX®**
Up to 240 minutes
fire resistance
 - 1 Compartment walls
 - 2 Timber floors
 - 3 Protected zones
- **MASTERBOARD®**
Up to 30 minutes
fire resistance
 - 4 Timber floors
 - 5 Timber stud partitions

- **PROMATECT®-250**
Up to 120 minutes
fire resistance
 - 6 Mezzanine floors

THERMAL UPGRADE

- **PROMAT TLFR®**
 - 7 Concrete slab

STRUCTURAL PROTECTION

- **VERMICULUX®-S**
Up to 240 minutes
fire protection
 - 8 Structural steel
- **PROMATECT®-XW**
Up to 60 minutes
fire protection
 - 9 Structural steel

- **PROMATECT®-H**
Up to 240 minutes
fire protection
 - 10 Concrete slab
and beams
 - 11 Concrete columns
and walls

- **PROMATECT®-250**
Up to 120 minutes
fire protection
 - 12 Wind posts
 - 13 Structural steel

DUCT PROTECTION

- **PROMATECT®-L500**
Up to 120 minutes
fire protection
 - 14 Duct protection

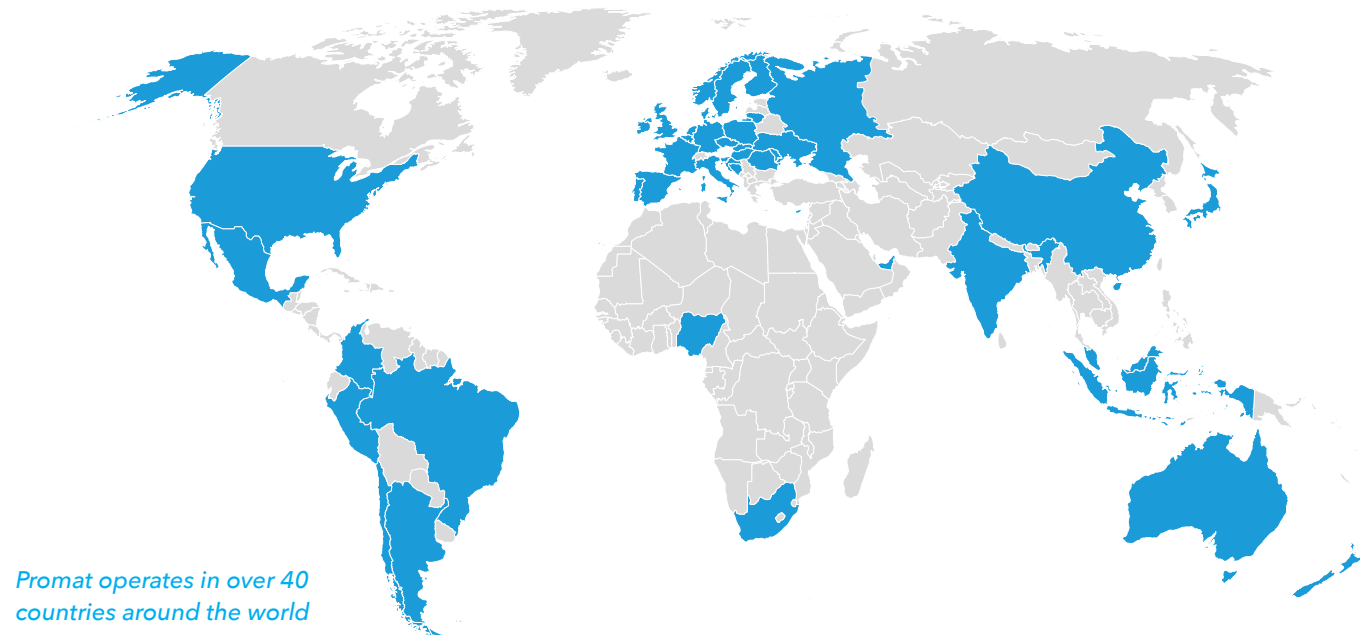
Promat from top to bottom

An overview of Promat applications



Who are Promat?

For more than 60 years, Promat has been designing, testing and manufacturing specialist fire protection systems. This means that our customers benefit from a complete portfolio from which to build a certified fire safety solution that is right for their project.



Promat operates in over 40 countries around the world

Why choose Promat?

Our fire testing culture

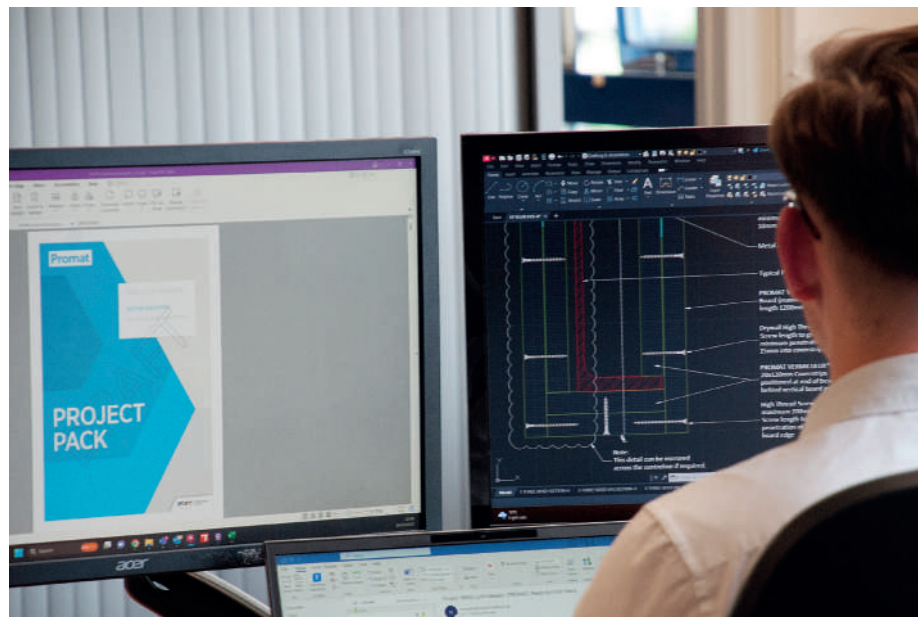
Our team of fire test engineers work with certified laboratories to undertake an impressive program of global and local fire tests to ensure our systems perform at their best.

Our research and development

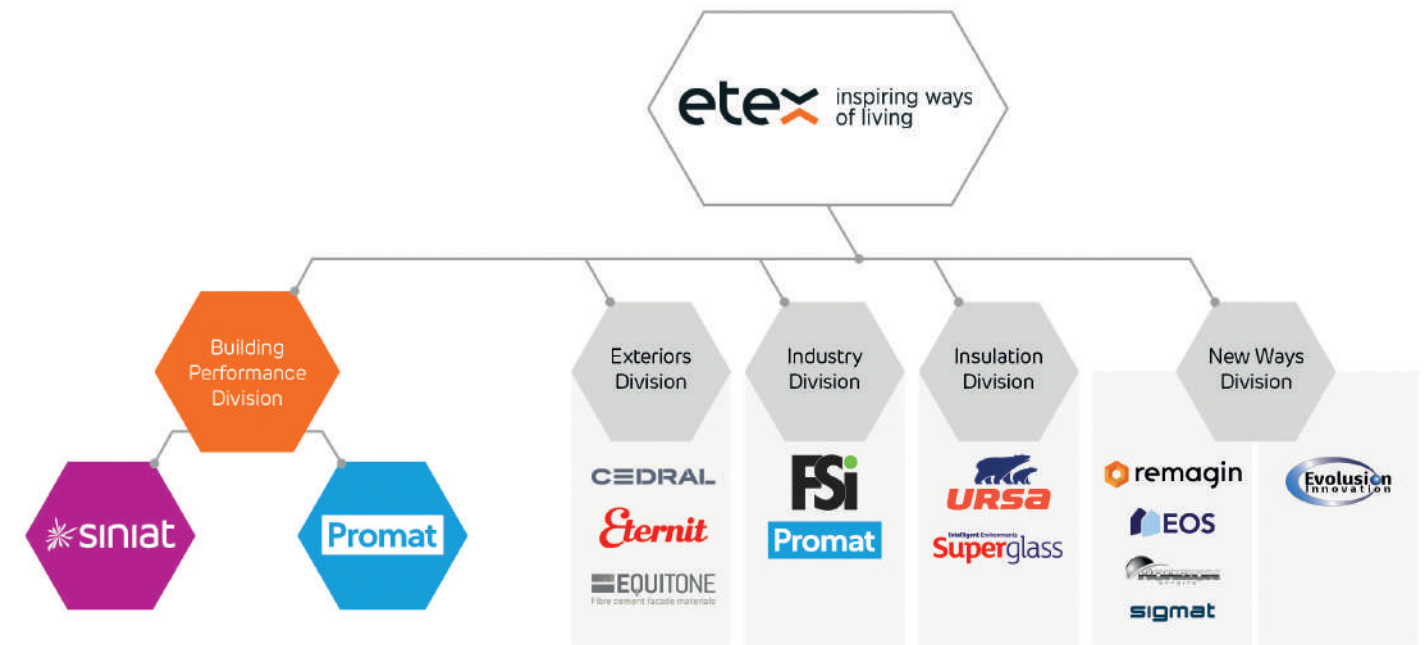
Our researchers constantly look for solutions to develop new, lightweight fire protection solutions that will help reduce our impact on the planet and contribute to the circular economy.

Our expertise

Our dedicated Technical Support team along with our extensive testing, certification and design support tools enable us to provide a superior level of support at every stage of your project.



Who are Etex?



Etex is the UK's leading provider of lightweight construction solutions. Our combined expertise in drywall, passive fire protection and firestopping has created a range of unique solutions from the building envelope to internal linings, partitions and penetrations.

Part of the Etex group

We are proud to be part of Etex, playing a key role in its mission to build living spaces that are ever safer, smarter, and more sustainable. This means that our customers benefit from the certainty and choice from working with a key global manufacturer of interior and exterior building solutions.



FSi Promat

Our fire stopping range is now available via our sister company FSi under the joint branding of FSi Promat. FSi have over 23 years of specialist knowledge in fire stopping and offer a large range of both fire stopping and cavity barrier products and systems. Visit [FSilttd.com](https://fsilttd.com) to find out more.

“WE’RE COMMITTED TO MAKING SURE OUR CUSTOMER’S PROJECTS BENEFIT FROM HIGH QUALITY FIRE PROTECTION PRODUCTS AND SYSTEMS THAT ARE TESTED, CERTIFIED AND TRUSTED. COMBINED WITH OUR COMMITTED TECHNICAL SUPPORT, WE ENABLE THE BUILDING OF EVER SAFER LIVING AND WORKING SPACES, AS WELL AS MORE SUSTAINABLE INDUSTRIES AND ENERGY SOURCES.

WE’RE EXTREMELY PROUD OF THE HARD-EARNED TRUST OUR CUSTOMERS HAVE IN US AND OUR SOLUTIONS.”

JOSH SLACK, – PROMAT COMMERCIAL DIRECTOR.

Services Offered



Whilst our literature has details of most typical systems and installations, we understand that every project is different and there are bound to be situations when you or your customer need access to expert advice. For this reason, our Promat Technical Services team is on hand to help.

Our highly experienced team can provide advice on any query you may have related to the specification or installation of Promat products and systems.

We also operate a training centre based at our UK headquarters in Bristol. We are able to offer practical training to demonstrate the speed and simplicity of installation. It allows you to get advanced knowledge of our product capabilities, meaning it is ideal for specifiers, main contractors, distributors and sub-contractors. For more information please contact technical@promat.co.uk

Online resources

The Promat website contains a wealth of information that help you to:

- Choose which fire protection system would best suit your fire protection requirements, with online access to The Passive Fire Protection Handbook.
- Obtain technical documentation and Declarations of Performance.
- Find information about the sustainability of our products and EPDs.
- Gain inspiration from our library of case studies, visit: promat.com/case-studies

We also have a comprehensive set of FAQs which answers the most common questions and can be filtered by Product, Performance, Application and Installation: promat.com/knowledge-base

Fire Testing and Golden Thread

The highest testing standards

Our materials, products and systems are the result of a rigorous research and testing process, validated by independent certification authorities. This testing regime goes beyond basic regulatory requirements and our systems are tested in real-world conditions to ensure that they live up to their promise.

At the global Promat Research and Technology Centre, we perform more than 200 fire tests a year to ensure our products and systems will comply with the most stringent international standards and regulations. This is supplemented by local testing at our UKAS accredited test facility in Heywood, Manchester. Where possible, our fire test lab methods go beyond what is demanded by regulations and replicate the real-life context where our products can be installed. When a Promat system passes the required series of testing, we have 3rd-party certification or classification reports to provide evidence that our systems perform as stated and meet the appropriate standards.

Supporting the Golden Thread

The Building Safety Act 2022 sets out requirements for the collection and maintenance of building information across its lifecycle. This is known as the Golden Thread.

Product information is a key element of the Golden Thread and as a manufacturer this is a responsibility we take very seriously. Our strong testing culture means we are well positioned to help ensure the right performance information is available in a digital format when needed – whether that is needed during the design, construction or operation of a building.

This information is provided across multiple documents such as 3rd party certification, classification reports, ETAs, DoPs, Safety Data Sheets, Product Data sheets, drawings and ISO Certificates. The required information for specification is captured in Promat Project Packs which contains installation guidance, specification clauses, standard detail drawings and supporting evidence, assisting the project team in demonstrating full traceability of what has been installed. This pack can then also be used by the Accountable Person(s) during the use of the building.



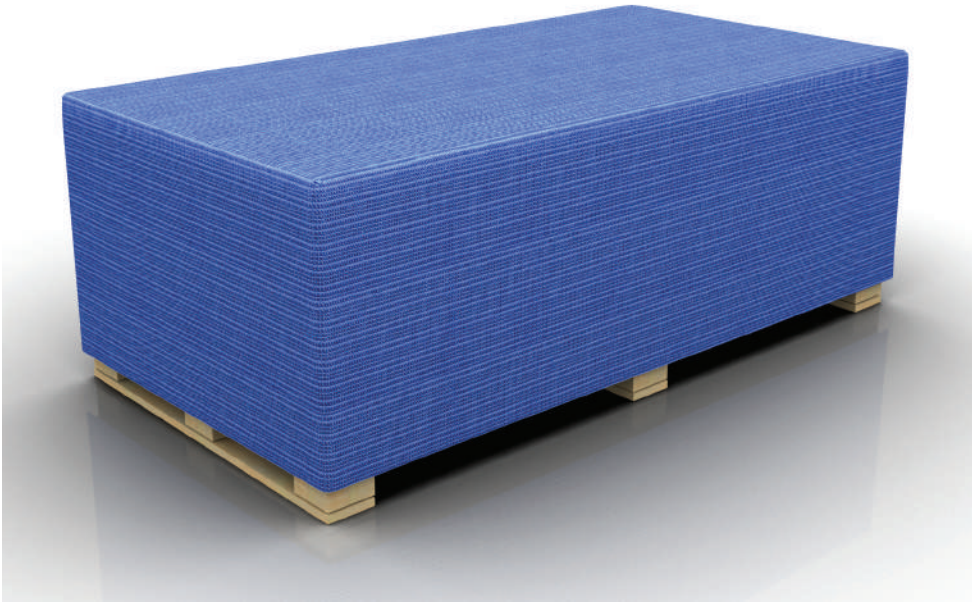
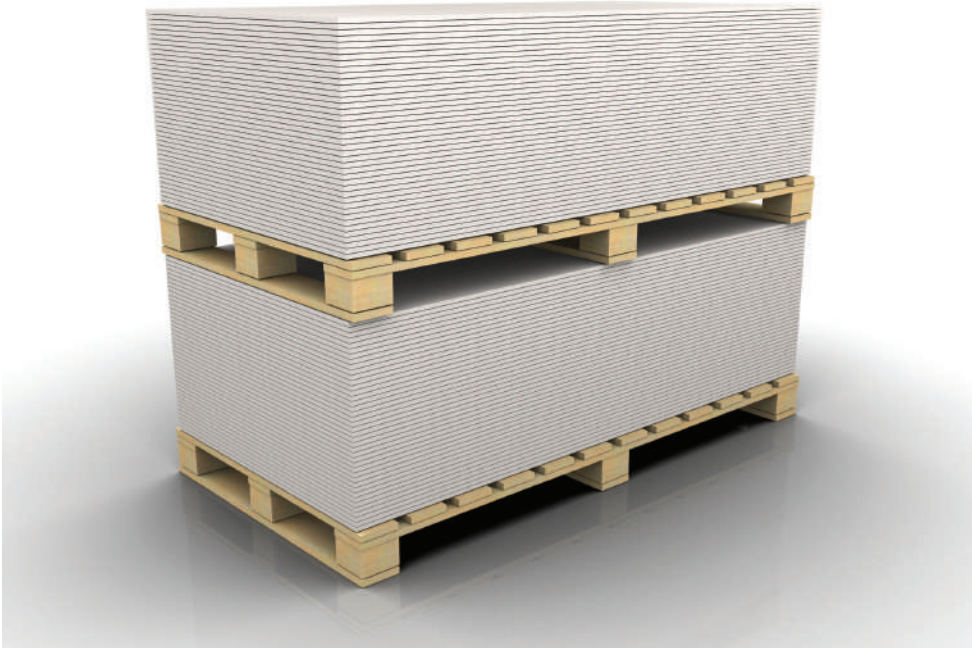
Promat boards are supplied on pallets suitable for forklift unloading. If unloading by crane and the use of slings is envisaged, care should be taken to avoid damaging the edges of the boards. All pallets can be safely handled by using a forklift or hoisting equipment and straps. Steel cables or chains should not be used as they will damage both the pallet and the boards. Where pallets are removed from a box container, care should be taken not to subject them to any impact shock, as this could result in cracking of the boards.

Always drive the delivery vehicle as close as possible to where the boards are to be used or stored. When transporting the boards, it is essential to secure the pallets to prevent sliding. If the boards are subsequently moved around the site, they should be placed on a rigid base suitable for lifting by forklift. Promat boards should always be stored on a rigid base.



Promat boards are supplied on pallets with a cardboard shroud. This protection should not be removed until the boards are ready for use. In general, the following steps should be taken to ensure that the boards remain in good condition during storage.

- a) The boards should be stored and stacked on covered and dry, level ground.
- b) Pallets should be a maximum of 800mm height ($h \leq 800\text{mm}$) on firm level ground.
It is possible to stack multiple pallets on top of each other, please follow guidance based on local conditions.
- c) The stacked boards must be stored completely under cover, for protection from inclement weather.



The following recommendations must be always considered when handling Promat boards:



a) Wherever possible, always lift the boards from the underside rather than sliding the boards on each other on the stack, to prevent damage or scratches on surface of the boards.



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

Promat boards are easy to handle and work using conventional tools. However, basic standard safety precautions should be routine at all times during installation. This section highlights some general guidance on fixing and fabrication of the Promat boards. The following fixings are recommended. Promat recommends that all cutting be carried out in well-ventilated spaces, using dust extraction facilities. Operators should always wear protective face masks.

There are a wide variety of applications and fixing methods possible with Promat boards. The cutting method to be used is dependent on a number of factors, including:

- a) The shape of the board for the final application: square, rectangular or circular, etc.
- b) The location where the work is to be carried out: on or off site.
- c) The quality of workmanship required.

Promat boards can be cut on site fairly easily, however, if a large number of boards are to be cut, it is recommended that cutting is carried out off site under controlled conditions as much as possible, to ensure good quality of finished edges and consistency of board preparation.

A few general rules should be observed when working with the boards, as follows:

- For factory quality cutting and extended cutting life of tools, working with diamond tipped saws is recommended. Experience also shows that tools with tungsten carbide blades provide an adequate cut. In addition, it is not recommended to use the same blade to cut other materials then Promat products. Keeping a blade specifically for Promat products will extend the life of the blade and continue to give a clean cut.
- High speed electric tools generate very fine dust. Inhaling fine dust can be harmful to health, dust extraction equipment is therefore necessary.
- Although Promat boards contain no harmful fibres, inhalation of excessive nuisance dust can be detrimental to health. It is recommended that when cutting or drilling the boards, appropriate face masks and personal protection equipment (PPE) should always be worn.
- Slow running tools produce coarse dust or chips but are not as efficient at cutting.
- Boards must be held securely during cutting, to avoid slippage and vibration which can lead to chipping of the board edges.
- The choice of the most appropriate tool for use in each installation will depend on experience, site rules and any applicable local regulations, e.g. noise restrictions.

Tungsten Carbide Blades

Tungsten carbide tipped saws can be used with either a high or low speed electric motor. The cutting is done in a dry state, so dust extraction is essential. The tungsten carbide teeth of the saw have a shorter lifespan than diamond tipped blades, but they can be re-sharpened by a skilled professional.

Diamond Tipped Blades

Cutting with diamond tipped blades is carried out using a high speed electric motor at 2500-3000rpm, depending on the diameter of the blade. There are two types of cutting machine:

- a) With fixed table and moving saw support
- b) With fixed saw support and moving table

The saw support can be equipped with several parallel saws for multi cutting in a single pass of the blades over the boards. Whilst a diamond tipped blade can be used in either a wet or dry state, Promat boards should not be wet cut.

The boards should be cleaned after cutting, to avoid leaving any dust on the surface. Diamond tipped blades can be used to cut more than one board at a time, depending on the diameter of the saw blade and the thickness of the boards.

Industrial Machines

Industrial machines are used for continuous cutting over long periods of time, for large quantities and for better efficiency. The standard industrial machine is for dry cutting and is available with high and low speed electric motors.

High speed electric motors with diamond tipped blades can be used for other building materials such as concrete, natural stone, brick, etc. Low speed motors with tungsten carbide tipped blades are more suitable for cutting calcium silicate materials.

Cutting Promat boards with a low speed motor provides a neat cut and smooth edges.

On-site Machines

While working on site, hand tools and low speed electric tools are generally recommended. When high speed electric tools are used, dust extraction is essential.

Power Tools with Dust Extraction Equipment

Sawing machines such as FESTO, Bosch, Makita, etc. work with a tungsten carbide tipped saw blade on a low speed electric motor and move over a fixed working table. These are typical machines for occasional use on site, producing very good results and can cut boards 55mm thick.

A vacuum cleaner is recommended for use while cutting, especially when using power saws. As an additional safety precaution, always wear eye, ear and dust protection when using power tools of any type. Portable working tables are available for the convenience of board cutting on site.

While working with power saws, the following important points should be observed:

- Ensure that the boards to be cut are continuously and well supported on either side of the cut.
- A straight edge should be clamped in position to guide the cutting operation.
- Care must be taken to ensure the tool remains against the straight edge during the cutting operation.
- The cutting rate should be such that the blade is not labouring or over-heating. Feed speed for calcium silicate boards is normally slower than for natural timber.

Plunge Saw



A plunge saw is applicable for boards up to 50mm thick. Blades with special hardened teeth are available for cutting Promat boards. As with all power tools, care should be taken to cut within the capacity of the tool and blade. Do not force the cutting speed.

Hand Saw



Hand sawing is suitable for general cutting operations and for small cuts, notching boards or small penetrations. However, this method of cutting can be rather time intensive. The fastest way is to allow the saw to work at its own speed, trying to force the tool to cut faster merely blunts the teeth.

Rasp/surform

A rasp or surform can be used for edge finishing where necessary in order to trim away rough edging.

Jigsaw



A jigsaw is applicable for boards up to 55mm thick. The boards can be cut easily with a jigsaw to form various shapes. Blades with special hardened teeth are available for cutting Promat boards. As with all power tools, care should be taken to cut within the capacity of the tool and blade. Do not force the cutting speed.

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 boards, the use of drills with point angles of 60° to 80° rather than the more usual 120° type, are preferable and more efficient.

The type of fixings used when installing Promat boards are important as they determine the support of joints and stability of a structure. In general, a fixing should meet these rules and requirements:

- 1) Corrosion resistant.
- 2) Stainless steel, zinc or other plated self-drilling screws are recommended for steel framing.
- 3) Stainless steel or galvanised nails are recommended for timber framing.
- 4) Fixing points should be located nominally 12mm to 20mm from the board edges and 40mm from board corners. Nominal centres of fixing are according to the tested system being installed, as detailed within the previous sections of this handbook. Exceptions to this are for systems with edge fixings into boards less than 24mm thick, which have been tested with the specific fixings noted for each system. i.e. edge-stapling of PROMATECT®-XW boards 15mm thick, edge stapling of PROMATECT®-H boards 12mm thick, edge screwing of PROMATECT®-L500 boards 20mm thick, edge screwing of VERMICULUX®-S boards 20mm thick.

Fixings should be driven straight into the board and fixing heads embedded no more than 0.5mm below the board surface. Do not damage the board around the fixing or at its edges. Cracked boards should be replaced.

Screw Fixing

When fixing Promat boards, especially to steel frames, the following should be noted:

- Always pre-drill and counter sink, where required, fixing holes unless using specially designed self-drilling screws suitable for fixing calcium silicate boards to steel.
- Use a high torque, variable speed screw gun fitted with a depth gauge.
- Do not over drive, as this may reduce the holding capacity of the screw. Reduce drill speed as the screw pulls the board against the framing. Impact drivers should not be used.

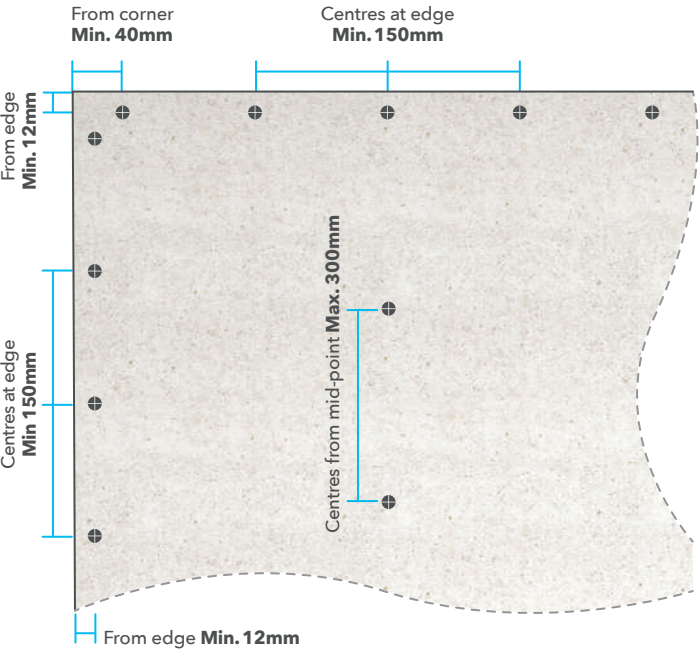
Pilot holes should be pre-drilled not less than 12mm from the edge of the boards and countersunk if required. Use self-drilling or self-tapping screws when securing boards to steel.

In most other situations, drywall screws (e.g. Siniat) are generally suitable.





Self-tapping screws are suitable for metal framing thicknesses of up to 0.7mm, self-drilling screws are suitable for use for metal framing thicknesses over 0.7mm up to a maximum of 2.5mm. If fixing board to board, minimum screw penetration should be 25mm or twice the board thickness, whichever is greater, unless specifically stated within the system notes. If screws do not have a deep thread, pilot holes should be drilled and care should be taken not to over tighten or over drive. Screws should be nominally 40mm from board corners.










Staple Fixing









Promat boards, namely PROMATECT®XW, PROMATECT®-250 & PROMATECT®-H, may be staple fixed using an industrial staple gun. Details of the size of staples and fixing centres should be taken from the relevant tested system drawings and specifications.









When fixing into masonry construction, always check with the fixing manufacturer that the fixings in our general guide are suitable for the substrate and, where required, that pull-out testing is carried out.

Generic Fixings	Fixing Type	Image
Fixing board / steel framing to timber SUPALUX® (Timber Floors, Timber Partitions) MASTERBOARD® (Timber Floors, Timber Partitions)	Round / Flat Head Stainless Steel Nails	
	Steel Zinc Woodscrews	
Fixing timber to steel framing PROMATECT®-250 (Mezzanine Floors)	M5.5 Timberdeck Winged Self-Drilling Screws	
Fixing board to steel framing SUPALUX® (Steel/Solid/Partitions, Ceiling Membranes, Protected Zones) PROMATECT®-XW (Structural Steel Protection) PROMATECT®-250 (Structural Steel Protection, Mezzanine Floors) VERMICULUX®-S (Structural Steel Protection) PROMATECT®-L500 (Service Enclosures)	CSK Self-Tapping Screws	

Generic Fixings	Fixing Type	Image
Fixing framing to concrete/blockwork SUPALUX® (Timber Floors, Partitions, Ceiling Membranes, Protected Zones) MASTERBOARD® (Timber Floors, Partitions) PROMATECT®-250 (Mezzanine Floors) PROMATECT®-L500 (Service Enclosures) DURASTEEL® (Barriers, Shaftwalls, Ceiling Membranes, Service Enclosures)	M6, M8, M10, M12 Anchor Bolt	
	M8, M10, M12 Expanding Sleeve Anchor Bolt	
	M6 Through Bolt	
Fixing board to concrete/blockwork PROMATECT®-XW (Structural Steel Protection) PROMATECT®-250 (Structural Steel Protection) VERMICULUX®-S (Structural Steel Protection)	Concrete Screws	
	M6 Concrete Screws	
	Metal / Non-combustible plugs	
	M4 Expanding Sleeve Anchor Bolt	
Fixing steel framing to structural steel PROMATECT®-XW (Structural Steel Protection) PROMATECT®-250 (Structural Steel Protection) VERMICULUX®-S (Structural Steel Protection)	3.7 x 16mm Shot Fire Nails	
	M4 x 10mm Wafer Head Screws	

Generic Fixings	Fixing Type	Image
Fixing steel framing to steel framing PROMATECT®-L500 Service Enclosures	M4 Blind Rivets	
	M5 Blind Rivets	
	No.8 Self-Drilling / Tapping Screws	
	M4 Self-Tapping Screws	
Board to board fixings PROMATECT®-XW (Structural Steel) PROMATECT®-250 (Structural Steel) VERMICULUX®-S (Structural Steel) PROMATECT®-H (Concrete Column/Beam Upgrade) PROMATECT®-L500 (Service Enclosures)	Chisel Point Staples	
	M4 Drywall High Thread Screws	
	Galvanised Chisel Staples	
	M6 Steel Zinc Woodscrews	

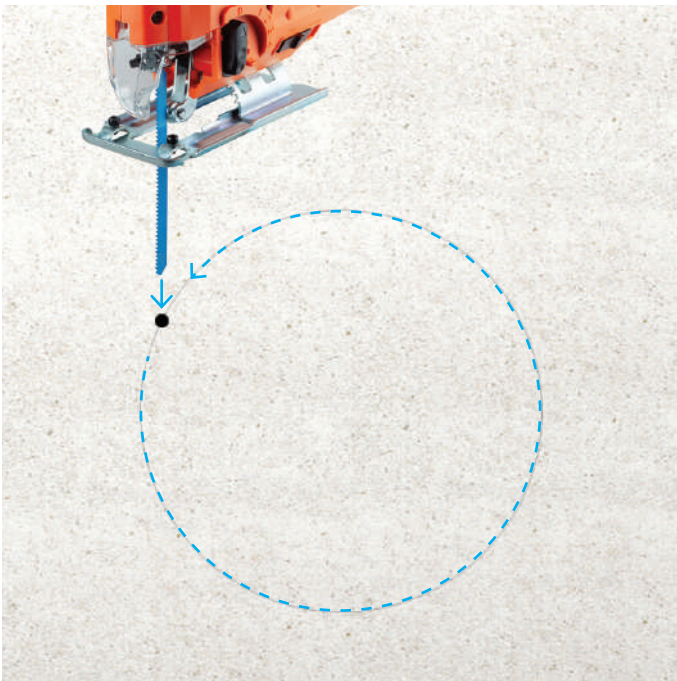
System Specific Fixings	Fixing Type	Image
DURASTEEL® Systems	M5.5 Self-Drill & Tap TEK Screws Hex head	
PROMATECT®-H concrete upgrades	Fischer FNA II 6 x 30.30 Nail Anchors	
TLFR Board® concrete soffit thermal upgrade	Spit ISOMET Fire resistant insulation anchor	
	Rawlplug MBA-SS Stainles Steel Fixing	
Supalux self-supporting ceiling membranes	M6.3 x 25mm Hilti Hex Head Large Washer TEK Screw S-MD23Z	
	M6 x 60mm Hilti Hex Head Screw Anchor HUS3-H	

Apertures often need to be cut within a board to allow for penetration of services such as switchboxes, lights, access panels etc. The following procedures therefore serve as general guidelines only. Any method that allows for cutting of holes without damaging the board is acceptable. You will need to speak to your firestopping manufacturer, to ensure that you use an adequate firestopping system to reinstate the fire performance of the Promat board system. This typically involves framing out the aperture created in our boards.



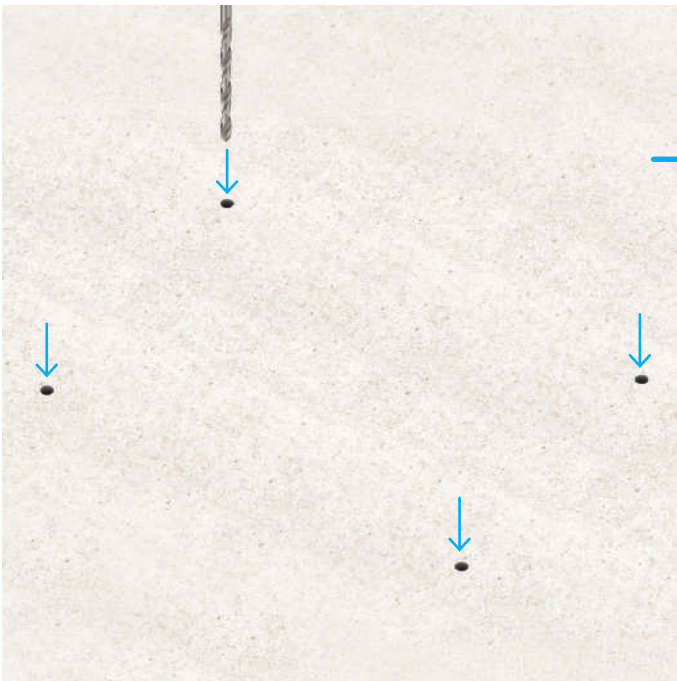
1) For small circular holes (up to 127mm diameter):

- Mark the centre of the hole on the board.
- Locate the centre of the core drill using the pilot drill. Cut the hole to the required diameter.
- A heavy-duty drill will be required where large diameter holes are being formed.



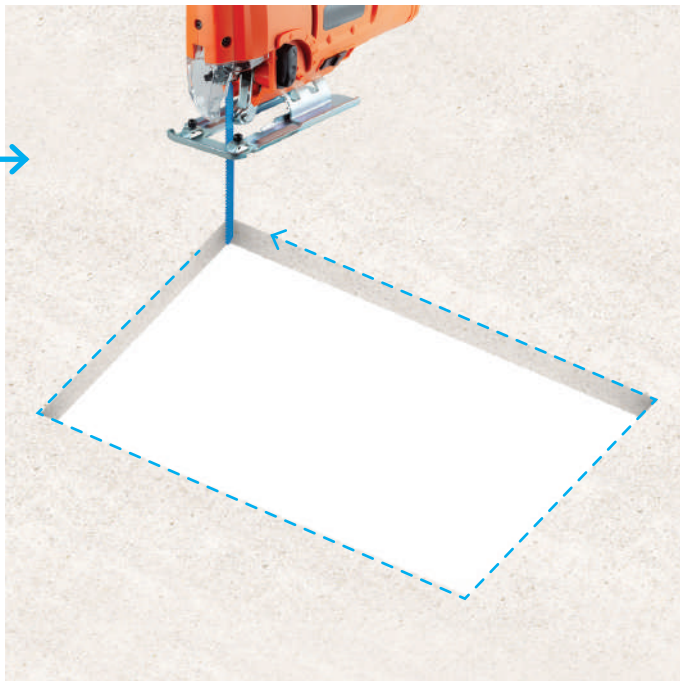
2) For large, circular holes:

- Mark the diameter of the circle on the board.
- Drill a hole on the edge of the circle.
- Using a jigsaw, cut from the drilled hole around the diameter of the circle to form the opening.



3) For large openings and apertures:

- Predrill a hole of at least 10mm diameter at all corners of the openings. Mark lines from hole to hole (forming a rectangular shape) as a guide and cut along the lines using a jigsaw.



- Clean rough edges of the hole with a rasp, surform or with 40 grit glass paper.
- Never make holes by using heavy hammers, cold chisels or other 'aggressive' methods. This will damage the underside of the boards and adversely affect the fire performance of the system.

Decorative Coatings

Please consult the manufacturer of your decorative coating to ensure its suitability with the Promat board you are using. Surfaces should be dry, free of oil, loose surface layers and dust. If required, screw holes and board joints may be filled with Promat MOISTURE RESISTANT READY-MIXED JOINT FILLER® and sanded accordingly. Board joints can be reinforced using a plasterboard reinforcing tape and Promat MOISTURE RESISTANT READY-MIXED JOINT FILLER® feathered in each side of the tape to minimise the crown. If corners of the installed system require protection, metal dry wall corner beading can be used.

Paint

Typically, water based paints such as emulsions may be used with a watered down first coat, to seal the surface. Alternatively, other paint types may require a proprietary sealer, primer or undercoat depending upon the paint system. Consult with the paint manufacturers for their recommendations for use on calcium silicate boards.

Note: It is recommended that for all board installations which may be subject to long-term moisture exposure, all cut and prepared surfaces of the boards are sealed prior to installation, to prevent long-term moisture ingress and prolong the working life of the installation.

**SUPALUX®, MASTERBOARD®, PROMATECT®-L500, PROMATECT®-250
and VERMICULUX®-S boards.**

Promat fire protection boards have a high suction and therefore more care and preparation is required when applying a gypsum plaster skim compared to plasterboard. You should not use a lime based plaster with Promat boards. If plastering is essential, please use the following guidance.

Traditionally we have recommended using PVA to prime our boards as detailed below. Alternative bonding coats are available to control suction and improve the adhesion of plaster and other finishes. One example is Parex Micro Gobetis 3000. It is recommended that a small test area is plastered initially to ensure that the boards have been adequately sealed. We recommend that paper jointing tape is used.

If a skim coat is desired:

- Apply a sealing coat of diluted universal primer / PVA (1 part PVA & 5 parts water).
- Sealing coat should be allowed to dry thoroughly (approximately 24 hours).
- Apply bonding coat (3 parts PVA & 1 part water).
- Apply plaster skim (maximum 5mm thick) while the bonding coat is wet and tacky.

Promat boards have a high suction and while successful skim coats are relatively easy to obtain, some care is needed to retard the rapid drying of plaster coats, especially in areas of high temperature.

The bonding agent and plaster manufacturer's recommendations for high suction surfaces must be followed at all times.

TILING

Promat boards are not suitable for tiling where fire resistance is required.

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GB Orderline

For placing orders, delivery enquiries and local stockists etc.

0800 373 636 (Select option 1)

sales.construction@promat.co.uk

Customer Support

For any problems with invoices or deliveries

0800 373 636 (Select option 2)

customersupport@promat.co.uk

Technical Services

For technical support and advice

0800 145 6033 (Select option 2)

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