

Promat



PASSIVE FIRE PROTECTION SYSTEMS

Application & Technical Manual: Ceilings & Floors



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Promat carries a wide range of fire rated ceiling and floor systems with fire resistance of up to 240 minutes. Generally, Promat's ceiling and floor systems provide horizontal fire barriers to prevent vertical spread of fire.

Promat's ceiling and floor systems have been extensively tested and assessed to provide resistance to fire from above, below or above and below. They satisfy the integrity and insulation criteria of BS 476: Parts 20, 21, 22 and 23: 1987 and/or AS 1530 Part 4: 2005. The flooring systems not only meet the integrity and insulation criteria but also meet the loadbearing capacity (structural adequacy) criteria of the British and Australian national standards.

The system design depends on performance requirements but in overall terms, Promat's ceiling and floor systems can be divided into the following categories.

1 Self-supporting Membrane Ceilings

These are normally non loadbearing and, depending on the type of construction, are used to provide protection from fire attack from below and/or above. Ceiling panels are fixed into a steel or timber framing system spanning and supported between two walls.

Self-supporting membrane ceilings should normally be tested or assessed in accordance with BS 476: Part 22: 1987 and/or AS 1530: Part 4: 2005 to satisfy the failure criteria of integrity and insulation.

These ceiling systems allow for the protection to or from services contained within the ceiling void. They will also provide protection to steel beams that are required to meet the criteria of BS 476: Parts 21 and 23: 1987 where exposure to fire is from below.

2 Suspended Membrane Ceilings

These are normally non loadbearing and are used to provide protection from fire attack from below. The ceilings generally incorporate steel grid systems suspended from a structure.

Suspended membrane ceilings should normally be tested or assessed in accordance with BS 476: Part 22: 1987 and/or AS 1530: Part 4: 2005 to satisfy the failure criteria of integrity and insulation.

These ceiling systems allow for the protection to or from services contained within the ceiling void. They also provide protection to steel beams that are required to meet the criteria of BS 476: Parts 21 and 23: 1987 where exposure to fire is from below.

3 Loadbearing Floor Systems

The flooring can be of timber or chipboard floor boards supported by either timber joists or steel joists system. Promat boards can be directly fixed onto these joists or fixed to a suspended exposed or concealed metal grid system.

This type of ceiling should normally be tested or assessed in accordance with BS 476: Part 21: 1987 and/or AS 1530: Part 4: 2005 and are required to satisfy the three failure criteria of loadbearing capacity (structural adequacy), integrity and insulation.

4 Suspended Ceiling Protection To Steel Beams

This type of ceiling is used mainly for protection of steel beams supporting a loadbearing concrete floor slab and should be tested or assessed to BS 476: Part 23: 1987 and AS 1530: Part 4: 2005. Promat boards are fixed to a metal exposed or concealed grid system suspended from the structure above.

Advantages

Promat's ceiling and floor systems require less material to achieve similar fire resistant levels when compared to the industry average. This can lead to more simplified construction methods than the standard equivalent. Use of Promat boards therefore helps to increase productivity and reduce overall installation costs.

Promat's ceiling and floor systems have been developed by Promat International to satisfy standard requirements for internal applications. Benefits include:

Time & Cost Effectiveness

Simple construction methods reduce installation cost and time compared to traditional systems.

Lightweight

Lighter loads on structures compared to industry average systems for equivalent fire rating.

Thermal Resistance

Excellent thermal resistance performance.

Design Flexibility

Lighter weight allows increased ceiling span, reduced support structure sizes and/or reduced system thickness.

Acoustic Performance

Tested and assessed to ISO140-3 1995 and ISO717-1 1996 to meet the needs of the industry. Please refer to the PARTITIONS & EXTERNAL WALLS section for more details.

Board Fixing

Longitudinal board joints must coincide with framing members. If the boards are in one layer, the transverse joints must be backed with fillet strips made of Promat boards or timber noggings for traditional timber joist construction. For boards laminated in two layers, the joints must be staggered by at least 600mm.

Promat boards may be fixed to the steel members using No.8 bugle head self-drilling and self-tapping screws. No.8 woodscrews shall be used to fix boards to a timber frame. For boards laminated in two layers, the outer layer boards may be stitched to the preceding layer with No. 10 laminating screws. PROMATECT®-S may be fixed to the steel framework using M5.5 self-tapping/drilling Teks screws.

Minimum edge distance to fasteners and the maximum spacing between screws must be maintained. Please refer to system details for screw spacing requirements.

General Design Considerations

Following are some of the factors to consider when determining correct specifications that ensure a ceiling or floor system provides the required design performance, under both fire and ambient conditions. Comprehensive advice is available from local Promat offices.

1 Supporting Structure Design

The design of the framing system should be adequate for the design loads of the ceiling and floor. Promat systems are designed for timber or steel framing as described in the system specification.

Timber framing systems used in loadbearing floor applications must be designed in accordance with BS 5268: 2006, AS 1720: Part 1: 2010 and/or AS 1684: 1999. The width, depth and spacing of joists must be carefully specified to ensure that the timber floor serves its intended fire performance.

For steel framed ceiling systems, it is critical to precisely follow the dimensions of the steel sections, the grid spacing, the suspension members (if any) and the fastening methods employed. Framing members could change depending on factors such as ceiling span, movement and deflection, and local regulations.

Larger or more frequent frame sections can often improve the fire and structural performance. The framing for the ceiling systems must be securely fixed back to a substrate that has an equal or greater fire performance than the ceiling. All fixings must be non-combustible and must be similar to those listed in the approval documents.

2 Non Loadbearing Ceilings

Promat non loadbearing ceiling systems can be generally divided into steel frame suspended ceiling and self-supporting membrane ceilings. The steel framing as noted in the system specification is appropriate for the given span. Larger dimension of steel sections or more frequent spacing will be required for a ceiling span larger than specified.

At wall connections, mechanical joints are required and these joints must be carefully designed so that they accommodate the required expansion of steel at elevated temperature.

Non loadbearing ceilings in this handbook are not trafficable. Trafficable ceilings for maintenance purposes can be designed and installed. Please consult Promat for complete information.

3 Loadbearing Ceilings

Two types of Promat loadbearing floor systems are available. One is comprised of timber joists while the other is of steel joists. Flooring material, timber type, thickness and jointing are all critical. Timber framing, of solid timber only, must be designed in accordance with BS 5268: 2006, AS 1720.1: 2010 and/or AS 1684: 1999 whereas for steel framing, members must be designed in accordance with BS 5950: 2000 and/or AS 4600: 2005.

4 Acoustics

Promat ceiling and floor systems also meet specific acoustic requirements. These include ratings for sound transmission, sound impact and sound absorption. Please refer to [pages 78 and 79](#) for further information.

5 Movement Joint

Movement stress from dimensional changes due to varying temperature or moisture conditions can cause cracking and other symptoms of distress in ceiling linings.

Other external forces such as impact or vibration can directly affect structural movement of ceilings. This movement can be controlled through a variety of design techniques such as introducing perimeter relief and slip connections to reduce the transfer of stress from the structure to other building sub elements and/or through the use of expansion joints, control joints and construction joints.

Expansion joints are needed when a ceiling abuts a rigid mass. Where ceiling dimensions exceed 10m in either direction, a control joint should be used. Control joints should also be located to intersect column penetrations, light fixtures and air diffusers. It is however, the introduction of a control joint into a fire resistant system when an opening for flame and temperature transmission is created. This and similar openings have to be properly treated with approved fire stopping materials from Promat.

6 Caulking & Service Penetrations

To maintain fire performance and, where applicable, acoustic performance of ceiling systems, perimeter and other gaps must be appropriately filled with suitable caulking material. PROMASEAL® AN Acrylic Sealant or other tested fire and acoustic rated material of equivalent or better performance must be used.

Care needs to be taken in detailing a suitable fire stopping system around any penetration of the ceiling by services to ensure:

- the fire stopping material remains in situ,
- fire and smoke do not penetrate the floor cavity,
- and a premature collapse of the joists and/or penetration of fire and smoke through the time flooring does not occur.

Allowance should be made for thermal movement of the services in both ambient and fire conditions to ensure unacceptable loads are not applied to the ceiling assembly. Some examples of service penetrations include penetrations by electrical cables, conduits or wires, plastic and metal pipes, air conditioning and ventilation ductwork. Further guidance on the sealing of service penetrations can be obtained from the PENETRATION SEALS section.

7 Light Fittings

Light fittings located within a ceiling cavity should normally be enclosed in an adequately supported fire protection box to prevent fire spreading rapidly into the ceiling cavity. Most light fittings will require ventilation in normal use and this consideration should certainly be factored into light box design. Please consult Promat for details.

8 Access Panels & Hatches

Where access into a ceiling void is required, panels and hatches will need to be installed. Please refer to [pages 3 to 5](#) of the ACCESS PANELS section or consult Promat for details.

9 Impact Resistance

PROMATECT®-H offers a particularly robust system which is highly resistant to impact and abrasion. The high strength of PROMATECT®-S permits light loads such as the foot traffic of maintenance personnel. PROMATECT®-S ceiling systems are highly resistant to impact and provide excellent resistance to high pressure hose streams during fire.

Conclusion

Most building regulations stipulate limitations on the use of fire protecting suspended ceilings in certain situations. Care should be therefore taken that the use of a suspended ceiling system is acceptable to the approval authorities.

Steel Frame Components

Components Selection

In order to maintain the fire and acoustic performance of Promat ceiling systems, the type of profile used for framing is important. Construction of fire resistant steel framed ceilings can be achieved using standard steel section components. Steel framing may be C or I-sections, furring channels, top hats, trusses or similar members which in all cases should be designed in accordance with BS 5950: 2000, AS 4600: 2005 and/or equivalent standard.

The profiles described in the system specification should be strictly followed at all times. However, the profiles may be amended as long as they possess comparable performances to the specified profiles.

Perimeter Tracks & Steel Joists For Self-supporting Ceilings

This system is appropriate in most situations, particularly where it is difficult to install a suspended ceiling and/or within narrow rooms or corridors. No hangers are required, creating shorter installation times and provision of a completely free cavity for the accommodation of ductwork and services.

NOTE: For Australia, suitable framing profiles can be obtained from Rondo Building Services who provide comprehensive documentation for ceiling framing systems.

The framing system generally consists of a perimeter track profile and steel joists. During the design stage, choosing the right depth of the profile takes into account the maximum allowable span. The main function of perimeter tracks is to provide friction joints that hold the joists in position until the Promat board is fitted. They also provide allowance for movement of building structure under ambient conditions.

Under fire conditions, perimeter tracks of this nature allow the steel joists to expand, minimising deflection of the ceiling construction that may cause excessive cracking and then delamination of the lining boards. This type of joint is suitable for ceiling membrane systems of up to 3000mm span. Track sections should be fixed to the supporting structure using suitable masonry anchors at maximum 500mm intervals. Fixings should be located not more than 100mm from either end of the track section.

For membrane ceilings with a span of more than 3,000mm, mounting brackets are required at both ends of the steel joists. The mounting brackets will be attached to the wall, at the same time, and shall be designed to allow for expansion of the steel joists.

Please refer to [pages 5 to 7](#) for further details.



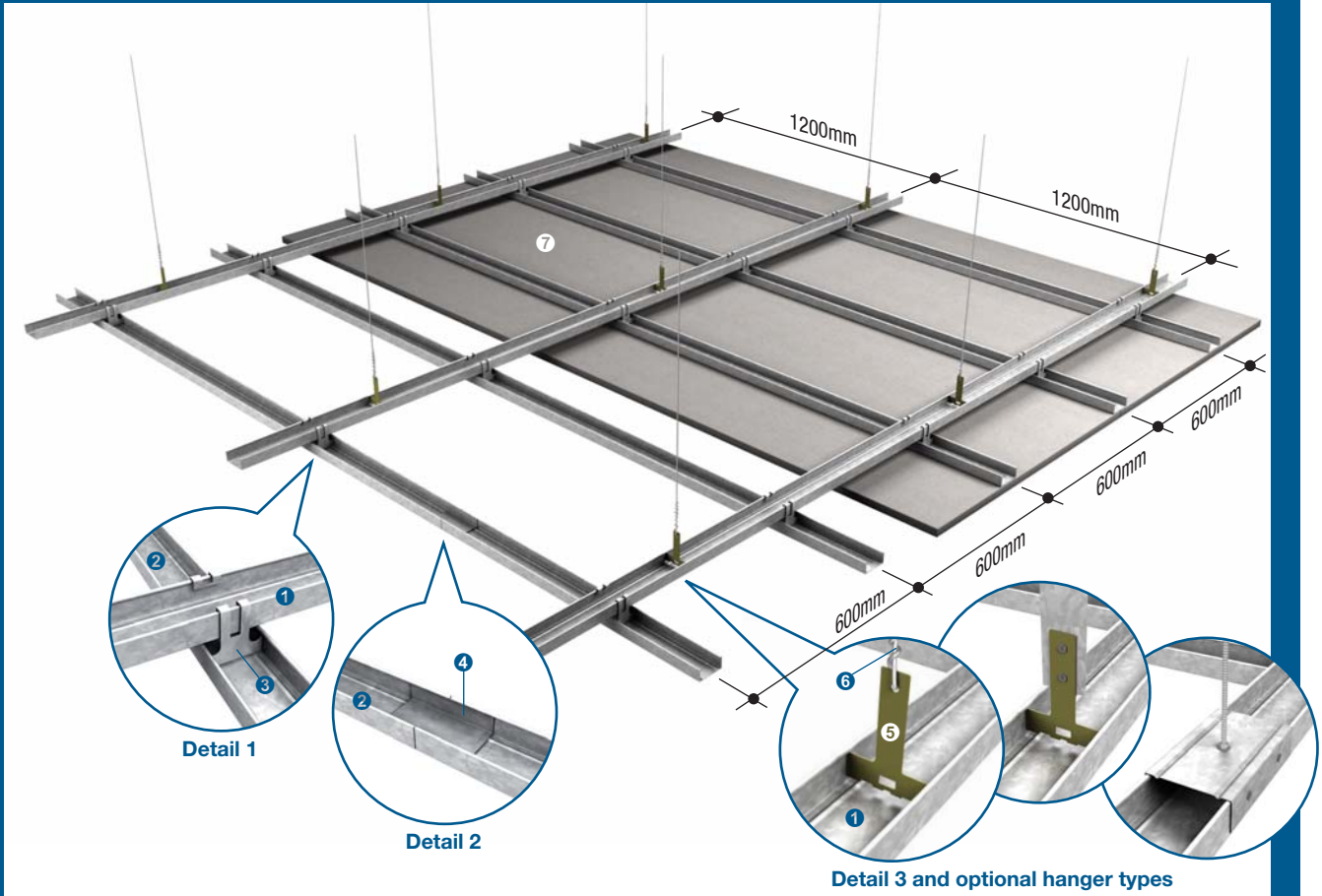
Fixing of primary and secondary profiles

- ① Wall U-profile
- ② Horizontal C-profile
- ③ Fixing point

Steel Frame Components

Steel Framing System For Suspended Ceiling

This system is the most appropriate for the installation of large area suspended ceilings. The steel structure of the suspended ceiling is composed of a grid of C-profiles and accessories, made of galvanised steel. The standard length of the C-profile is either 3000mm or 6000mm.



- | | | | |
|---------------------|----------------|---------------|----------------|
| ① Primary profile | ③ Fixing hooks | ⑤ Hanger | ⑦ Promat board |
| ② Secondary profile | ④ Connector | ⑥ Hanger wire | |

NOTE: For details of framing requirements for the installation of access panels and hatches, please refer to the Access Panels section of this handbook.

Typical Profiles For Ceiling Construction



Type: C-60 profile
Dimension: 60mm x 27mm
Application: Primary profile, secondary profile or cross profile



Type: Cross fixer
Dimension: 27mm x 55mm x 25mm (0.8mm)
Application: Fix cross profile to secondary profile



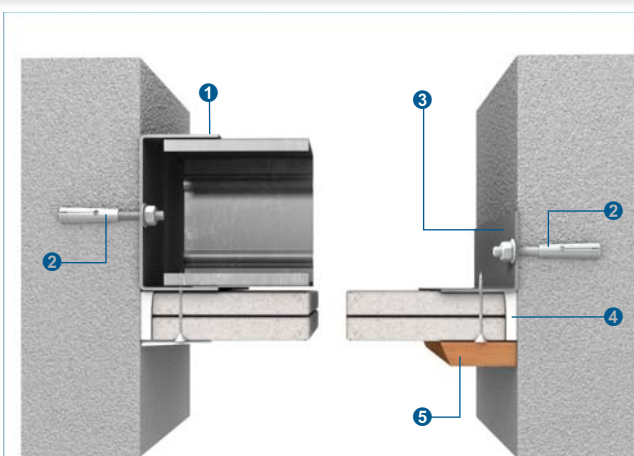
Type: Connector
Dimension: 27mm x 61.5mm x 100mm (0.8mm)
Application: To link two C-60 profiles



Type: Fixing hooks
Dimension: 50mm x 58mm x 0.8mm
Application: Fix secondary profile to primary profile



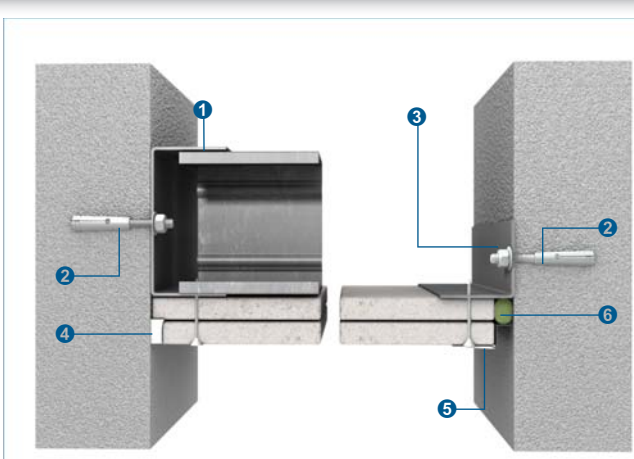
Type: Cross fixer
Dimension: 27mm x 55mm x 25mm (0.8mm)
Application: Fix cross profile to ceiling



Self-supporting ceiling perimeter to wall intersection (case 1)

Please refer to pages 16, 17, 18, 19, 20, 21, 22, 27, 28, 29 and 31 for applicable fire resistance and installation details

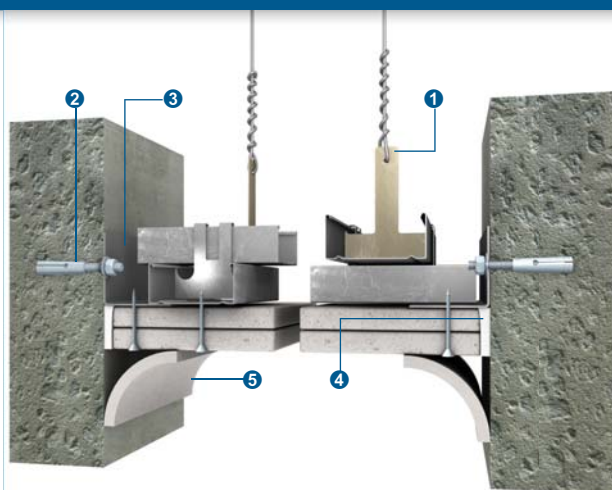
- ① Galvanized steel perimeter channel
- ② 50mm x M6 expansion bolts at 500mm centres
- ③ Galvanized steel perimeter angle
- ④ PROMASEAL® AN Acrylic Sealant to maintain fire and acoustic performance
- ⑤ Ceiling trim or coving to perimeter



Self-supporting ceiling perimeter to wall intersection (case 2)

Please refer to pages 16, 17, 18, 19, 20, 21, 22, 27, 28, 29 and 31 for applicable fire resistance and installation details

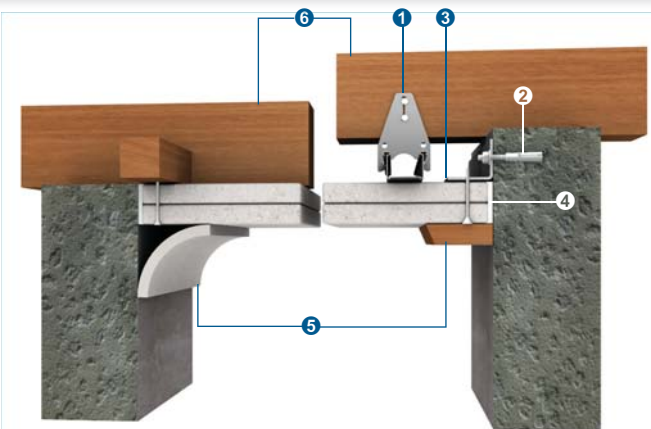
- ① Galvanized steel perimeter channel
- ② 50mm x M6 expansion bolts at 500mm centres
- ③ Galvanized steel perimeter angle
- ④ PROMASEAL® AN Acrylic Sealant to maintain the fire and acoustic performance
- ⑤ RONDO P50 Shadowline Trim and set over
- ⑥ PROMASEAL® IBS™ Ø 22mm diameter to maintain fire performance (not suitable if acoustic integrity is required)



Suspended ceiling perimeter to wall intersection

Please refer to pages 33, 38, 39 and 60 for applicable fire resistance and installation details

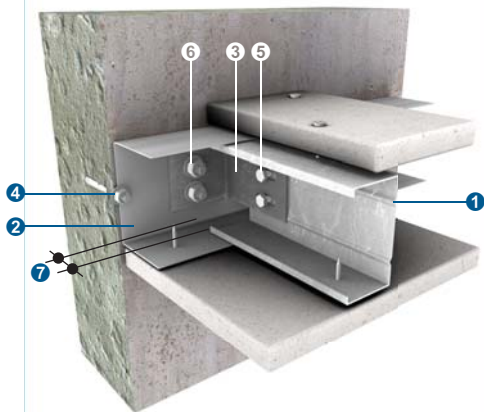
- ① Concealed grid suspended ceiling system
- ② 50mm x M6 expansion bolts at 500mm centres
- ③ Galvanized steel perimeter angle
- ④ PROMASEAL® AN Acrylic Sealant to maintain fire and acoustic performance
- ⑤ Ceiling trim or coving to perimeter



Suspended ceiling perimeter to wall intersection (for timber floor protection)

Please refer to page 61 for applicable fire resistance and installation details

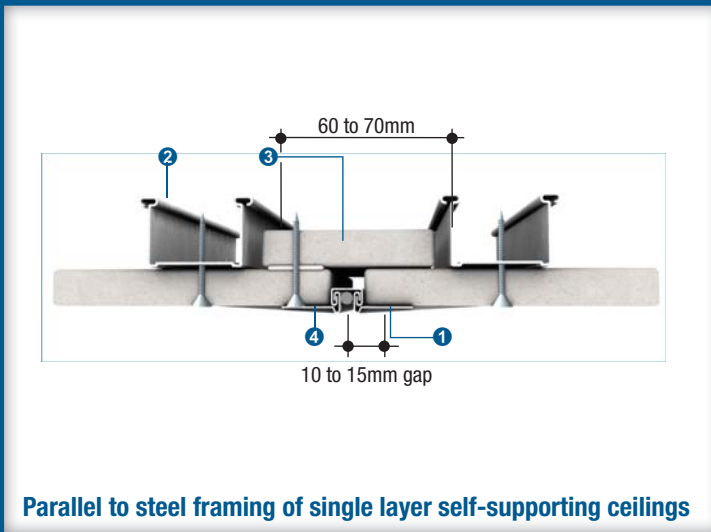
- ① Concealed grid suspended ceiling system
- ② 50mm x M6 expansion bolts at 500mm centres
- ③ Galvanised steel perimeter angle
- ④ PROMASEAL® AN Acrylic Sealant to maintain fire and acoustic performance
- ⑤ Ceiling trim or coving to perimeter
- ⑥ Timber joists etc



Self-supporting ceiling perimeter framing at masonry wall junction (for ceiling span above 3000mm)

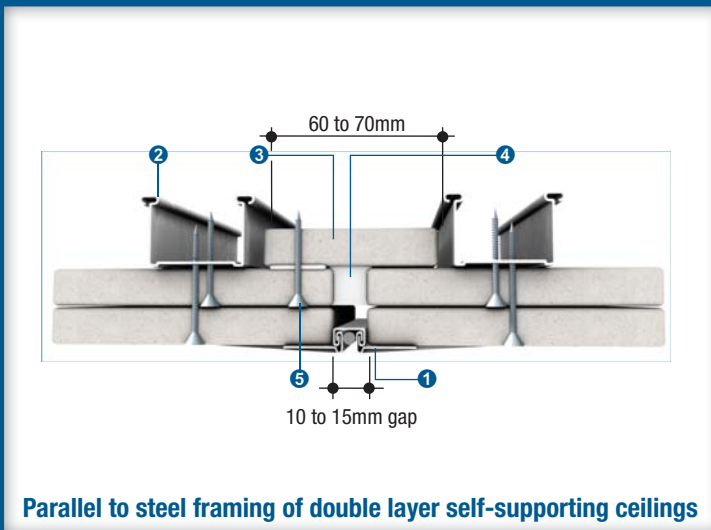
Please refer to pages 16, 17, 18, 19, 20, 21, 22, 27, 28, 29 and 31 for applicable fire resistance and installation details

- ① Steel joists at 600mm or 610mm nominal centres
- ② Galvanised steel perimeter channel
- ③ Galvanised steel angle bracket 3mm thick
- ④ 50mm x M6 expansion bolts at 500mm centres
- ⑤ Two pieces of M8 bolts at each end of joist
- ⑥ Two pieces of 60mm x M8 expansion bolts per bracket
- ⑦ Expansion allowance according to system specification



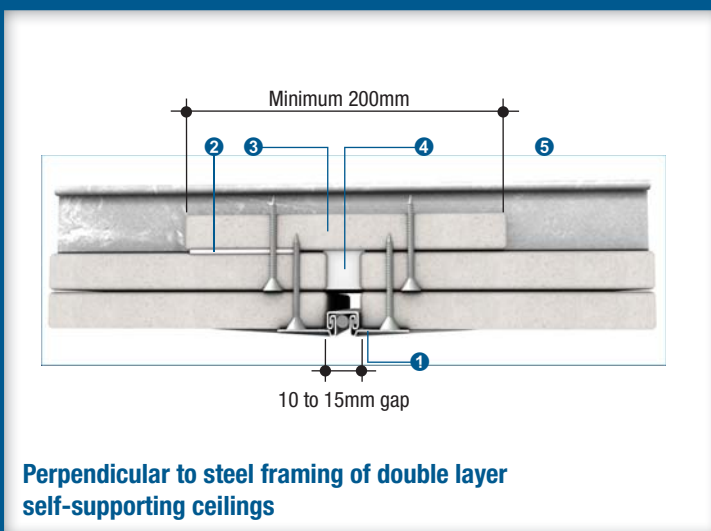
Please refer to pages 16, 17, 18, 19, 20, 21, 22, 27, 28, 29 and 31 for applicable fire resistance and installation details

- 1 RONDO P35 control joint with set finish
- 2 Concealed steel grid framing sections
- 3 Continuous Promat board strips
- 4 Fix one side of Promat board strips with laminating screws at 200mm centres



Please refer to pages 16, 17, 18, 19, 20, 21, 22, 27, 28, 29 and 31 for applicable fire resistance and installation details

- 1 RONDO P35 control joint with set finish
- 2 Concealed steel grid framing sections
- 3 Continuous Promat board strips
- 4 Continuously fill gap with PROMASEAL® AN Acrylic Sealant to minimum depth of 1st layer board thickness
- 5 Fix one side of Promat board strips with laminating screws at 200mm maximum centres or plaster based adhesive



Please refer to pages 16, 17, 18, 19, 20, 21, 22, 27, 28, 29 and 31 for applicable fire resistance and installation details

- 1 RONDO P35 control joint with set finish
- 2 Fix one side of Promat board strips with laminating screws at 200mm maximum centres or plaster based adhesive
- 3 Promat board strips between galvanised steel channel
- 4 Continuously fill gap with PROMASEAL® AN Acrylic Sealant to minimum depth of 1st layer board thickness
- 5 Continuous galvanised steel channel





Opposite
PROMATECT®-H integrity only suspended membrane ceiling at Hospital Pantai Ayer Keroh, Malacca, Malaysia.

Above
PROMATECT®-H 120 minute fire resistant self-supporting membrane ceiling at 750 Kwun Tong Road, Hong Kong.

Right
PROMATECT®-H suspended membrane ceiling at the main branch of Asrama Cheras Hospital, Kuala Lumpur, Malaysia.





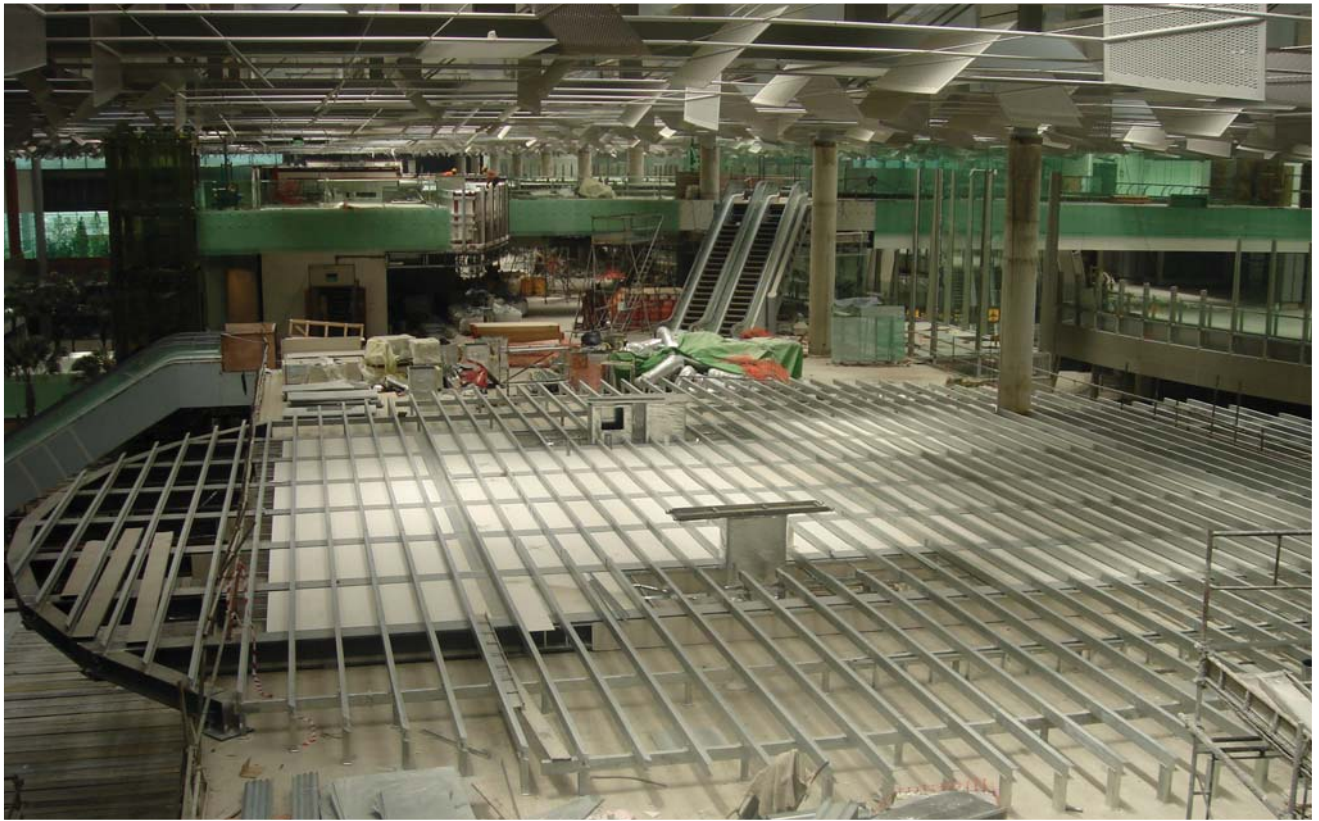
Above
Installation of PROMATECT®-H suspended membrane ceiling at Chevron Phillips Cherrit International in Boon Lay, Singapore.



Left
PROMATECT®-H integrity only 120 minute fire resistant self-supporting membrane ceiling at Comfort Delgro Driving Centre, Singapore.

Below
PROMATECT®-H 120 minute fire resistant self-supporting membrane ceiling linings to the underside of an escalator in Liang Court Complex, Singapore.





Above
PROMATECT®-H self-supporting ceiling membrane, at time of construction of Terminal 3, Changi International Airport, Singapore.

Right
PROMATECT®-H self-supporting membrane ceiling at Marina Square, Singapore.

Below
PROMATECT®-H 60 minute fire resistant timber floor protection for a heritage building in Beach Road, Singapore.














Ceiling type	Fire resistance performance	Mineral wool thickness x density	Total ceiling thickness	Test/Approval no.	Page no.
 <p>PROMATECT®-H self-supporting membrane ceiling</p>	-/60/60 -/120/120	50mm x 40kg/m ³ 80mm x 100kg/m ³	From 96mm	BRE CC 90656A and WF 174649 to the requirements of BS 476: Part 22: 1987 and/or AS 1530: Part 4: 2005	16
 <p>PROMATECT®-H self-supporting membrane ceiling</p>	-/240/240	2 x 50mm x 100kg/m ³	From 148mm	WF 174649, CSIRO FSH1126 and WARRES 58350 to the requirements of BS 476: Part 22: 1987 and/or AS 1530: Part 4: 2005	17
 <p>PROMATECT®-H self-supporting membrane ceiling</p>	-/60/60 -/120/120	50mm x 40kg/m ³ 80mm x 100kg/m ³	From 96mm	WF 174649 to the requirements of BS 476: Part 20: 1987 and AS 1530: Part 4: 2005	19
 <p>PROMATECT®-H self-supporting membrane ceiling</p>	-/120/-	Not required	From 110mm	BRE CC 90656A to the requirements of BS 476: Part 22: 1987 and AS 1530: Part 4: 2005	20
 <p>PROMATECT®-S self-supporting membrane ceiling</p>	Up to -/240/240	Please consult Promat	From 112mm	BRE CC 205223 to the requirements of BS 476: Part 22: 1987	23
 <p>PROMATECT®-S self-supporting membrane ceiling</p>	-/240/120	Please consult Promat	From 106mm	BRE CC 205223 to the requirements of BS 476: Part 22: 1987	24
 <p>PROMATECT®-S self-supporting membrane ceiling</p>	Up to -/120/-	Not required	From 106mm	BRE CC 261676 to the requirements of BS 476: Part 22: 1987	25
 <p>PROMATECT® 100 self-supporting membrane ceiling</p>	-/120/120	Not required	From 150mm	BRE CC 232157B to the requirements of AS 1530: Part 4: 2005	27
 <p>PROMATECT® 100 self-supporting membrane ceiling</p>	-/120/120	Not required	From 150mm	BRE CC 232157A to the requirements of AS 1530: Part 4: 2005	28



Ceiling type	Fire resistance performance	Mineral wool thickness x density	Total ceiling thickness	Test/Approval no.	Page no.
 <p>PROMATECT® 100 self-supporting membrane ceiling</p>	-/120/120	Not required	From 105mm	CSIRO FCO2515 and BRANZ FAR 2885 to the requirements of AS 1530: Part 4: 2005	29
 <p>PROMATECT® 50 self-supporting membrane ceiling</p>	-/30/30	Not required	From 126mm	BRANZ FR 4198 and BRANZ FR 4118 to the requirements of BS 476: Part 22: 1987	31
 <p>PROMATECT®-H suspended membrane ceiling</p>	-/240/-	Not required	41mm	LPC TE89437 and FSRG 2013/023 to the requirements of BS 476: Part 22: 1987 and BS EN 1364: Part 2: 1999	33
 <p>PROMATECT®-S suspended membrane ceiling</p>	Up to -/240/120	Please consult Promat	From 126mm	Tested to the requirements of BS 476: Part 22: 1987 Please consult Promat	35
 <p>PROMATECT®-S suspended membrane ceiling</p>	Up to -/240/-	Not required	From 56mm	LPC TE83934 and BRE CC 214487 to the requirements of BS 476: Part 22: 1987	36
 <p>PROMATECT®-H suspended membrane ceiling for steel beam protection (exposed grid type)</p>	30/30/30	Not required	38mm	WARRES 36213 to the requirements of BS 476: Part 23: 1987	38
 <p>PROMATECT®-H suspended membrane ceiling for steel beam protection (concealed grid type)</p>	120/120/120	50mm x 45kg/m ³	62mm	FIRTO TE5763 and BRE CC 81584B to the requirements of BS 476: Part 23: 1987	39

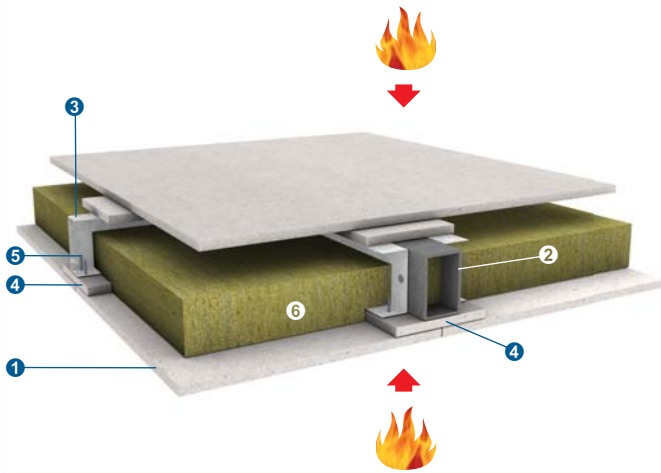


Floor type	Fire resistance performance	Mineral wool thickness x density	Total floor thickness	Test/Approval no.	Page no.
 PROMATECT®-H timber floor protection with cover strip	60/60/60	40mm x 60kg/m ³	From 259mm	BRE CC 82043G to the requirements of BS 476: Part 21: 1987	41
 PROMATECT®-H timber floor protection	60/60/60	40mm x 60kg/m ³	From 253mm	BRE CC 82043G to the requirements of BS 476: Part 21: 1987	42
 PROMATECT®-H exposed joist timber floor protection	60/60/60	40mm x 60kg/m ³	From 241mm	BRE CC 82043G to the requirements of BS 476: Part 21: 1987	43
 PROMATECT®-H timber floor protection with cover strip	120/120/120	Not required	280mm	BRE letter FRO 512/2 FT 92/309/BS (22 nd Dec 1992) to the requirements of BS 476: Part 21: 1987	44
 PROMATECT®-H timber floor protection	120/120/120	Not required	274mm	WARRES 48333 to the requirements of BS 476: Part 21: 1987	45
 PROMINA® 60 timber floor protection	30/30/30	Not required	249mm	LPC TE200478 to the requirements of BS 476: Part 21: 1987	47
 PROMATECT® 100 timber floor protection	60/60/60	Not required	267mm	BRANZ FAR 2886 to the requirements of BS 476: Part 21: 1987	49
 PROMATECT® 100 timber floor protection	90/90/90	Not required	267mm	LPC TE90019 to the requirements of BS 476: Part 21: 1987	50
 PROMATECT® 100 mezzanine floor	60/60/60	Not required	253mm	BRE CC 234724 to the requirements of AS 1530: Part 4: 2005	52



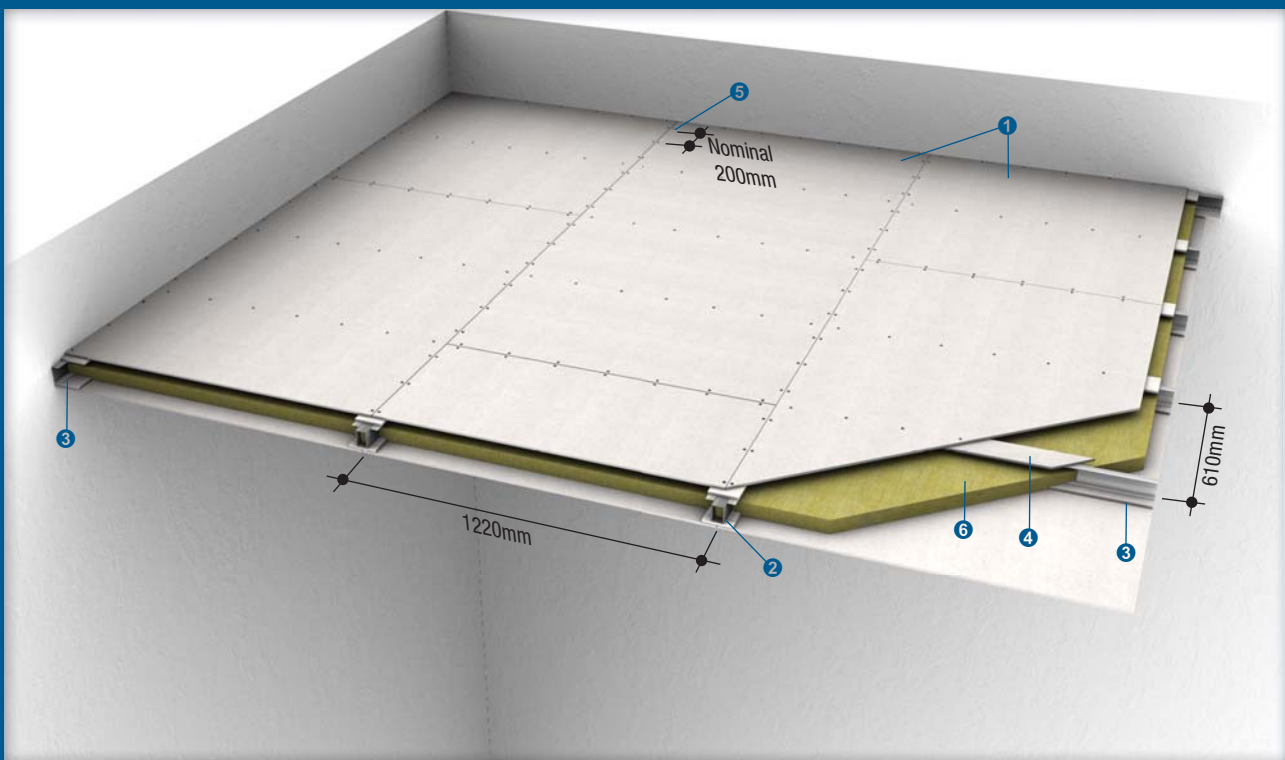
Ceiling/Floor type	Fire resistance performance	Mineral wool thickness x density	Total ceiling thickness	Test/Approval no.	Page no.
 <p>PROMATECT® 100 mezzanine floor</p>	120/120/120	Not required	278mm	BRE CC 234729 to the requirements of AS 1530: Part 4: 2005	53
 <p>PROMATECT® 50 mezzanine floor</p>	60/60/60	Not required	235mm	BRANZ FR 4120 to the requirements of BS 476: Part 21: 1987	55
 <p>PROMATECT® 250 mezzanine floor</p>	60/60/60	Not required	253mm	WF 148829 to the requirements of BS 476: Part 21: 1987	57
 <p>PROMATECT® 250 mezzanine floor</p>	120/120/120	Not required	268mm	WF 148830 to the requirements of BS 476: Part 21: 1987	58
 <p>PROMATECT®-H suspended membrane ceiling for timber floor protection (exposed grid type)</p>	60/60/60	30mm x 60kg/m ³	From 444mm	WARRES 37128 to the requirements of BS 476: Part 21: 1987	60
 <p>PROMATECT®-H suspended membrane ceiling for timber floor protection (concealed grid type)</p>	60/60/60	50mm x 60kg/m ³	From 300mm	BRE CC 82043G to the requirements of BS 476: Part 21: 1987	61
 <p>PROMATECT®-H upgraded timber floor (constructed from above)</p>	30/30/30	Not required	From 264mm	BRE letter (6 th Jun 1988) to the requirements of BS 476: Part 21: 1987	63
 <p>PROMATECT®-H upgraded timber floor (constructed from above)</p>	60/60/60	80mm x 23kg/m ³	From 264mm	WARRES 36910 BRE letter (27 th Jul 1987) to the requirements of BS 476: Part 21: 1987	64
 <p>PROMATECT®-H upgraded timber floor (constructed from below)</p>	60/60/60	Not required	From 264mm	WARRES 36909 BRE letter (27 th Jul 1987) to the requirements of BS 476: Part 21: 1987	65

Fire attack from above and below / Non loadbearing



Fire Resistance	FRL	-/60/60 -/120/120
	STANDARD	BS 476: Part 22: 1987 AS 1530: Part 4: 2005
	APPROVAL	BRE CC 90656A WF 174649
Acoustic	# STC # R _w	From 44dB to 50dB From 43dB to 50dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 16th Aug 2007
Construction	CEILING THICKNESS	From 96mm
	CEILING MASS	From 27kg/m ² (for -/60/60) From 33kg/m ² (for -/120/20)

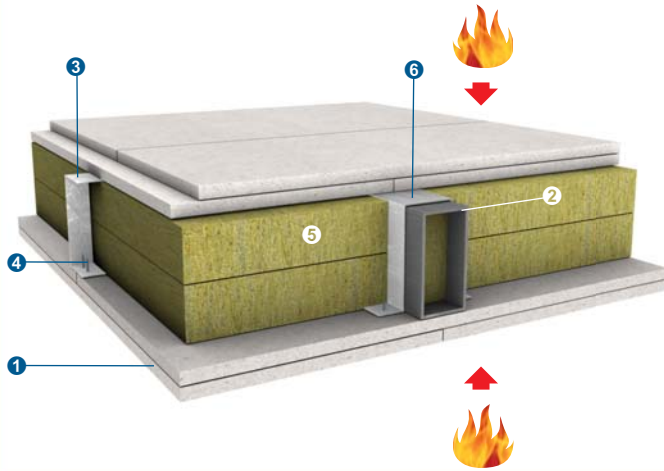
Margin of error is generally within ± 3 dB, depending on cavity depth



- ❶ PROMATECT®-H board 9mm thick to each side
- ❷ Steel joist at nominal 1220mm centres. See Table 1 on page 21 for ceiling spans from 2500mm to 6000mm
- ❸ Steel channel, minimum 0.6mm thick with flanges at least 32mm thick, at nominal 610mm centres. Depth of channel to suit depth of main joist
- ❹ PROMATECT®-H cover strip 100mm wide x 9mm thick to each side of steel framework
- ❺ 38mm self-tapping screws at nominal 200mm centres to secure board to steel channel
- ❻ Mineral wool
For FRL of -/60/60 50mm x 40kg/m³
For FRL of -/120/120 80mm x 100kg/m³

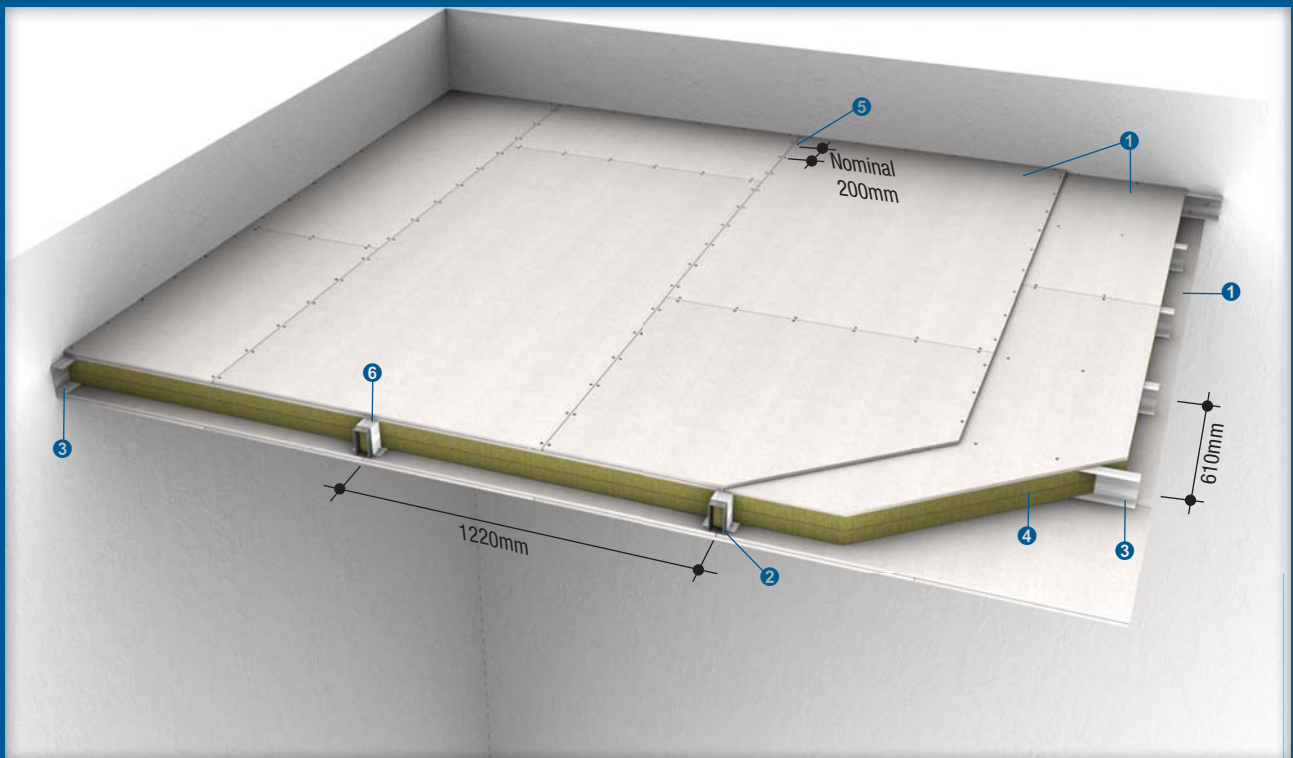
Please refer to page 18 for alternative framing construction and pages 5 to 7 for details of perimeter and control joints

Fire attack from above and below / Non loadbearing



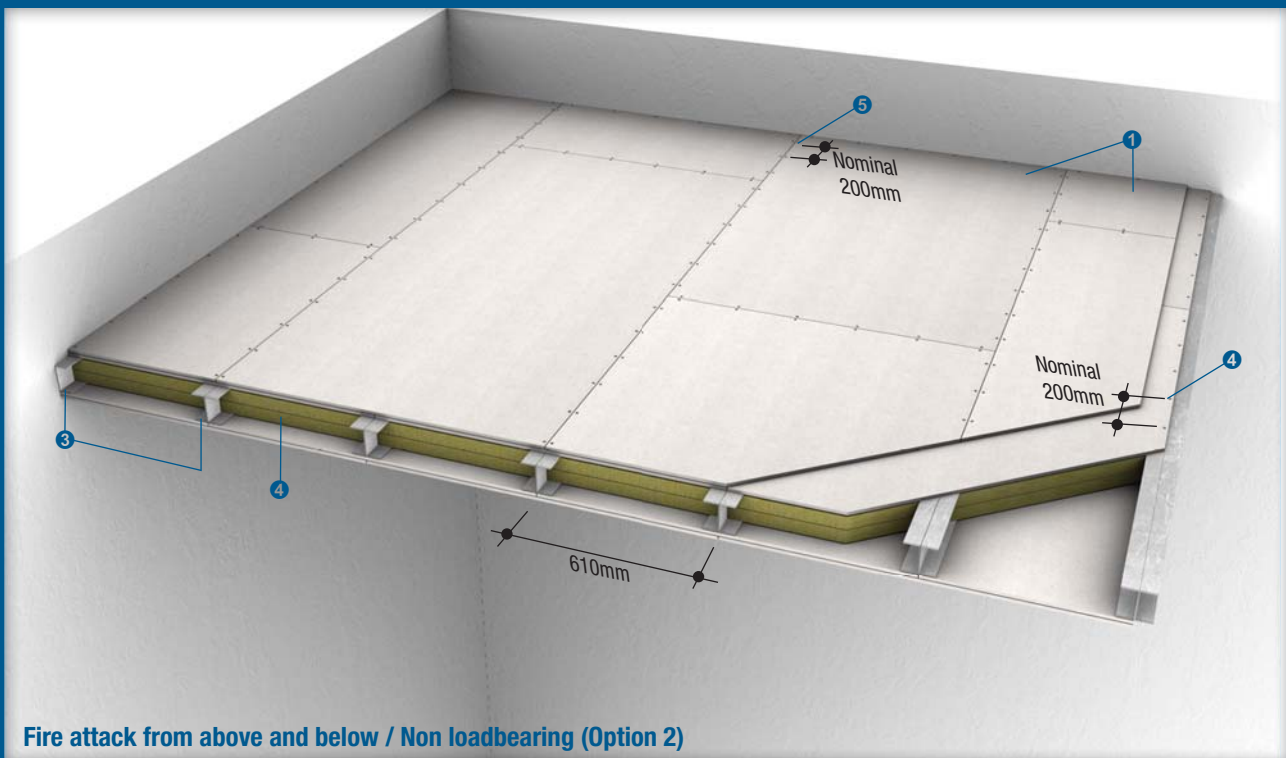
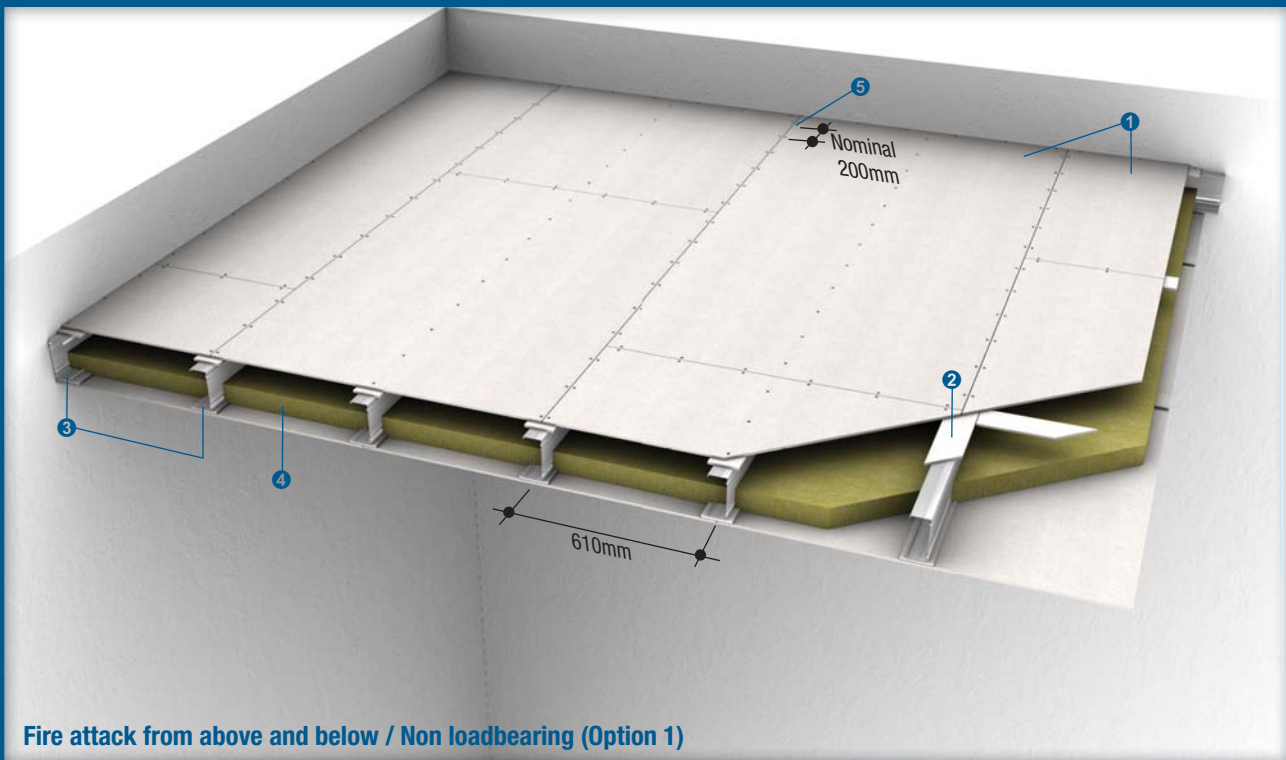
Fire Resistance	FRL	-/240/240
	STANDARD	BS 476: Part 22: 1987 AS 1530: Part 4: 2005
	APPROVAL	WF 174649 CSIRO FSH1126 WARRES 58350
Acoustic	# STC # R _w	From 56dB to 59dB From 57dB to 60dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 16th Aug 2007
Construction	CEILING THICKNESS	From 148mm
	CEILING MASS	From 69.5kg/m ²

Margin of error is generally within ±3dB



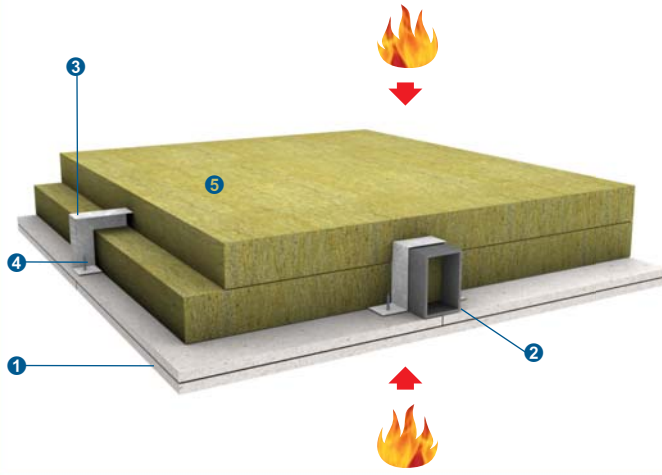
- 1 Two layers of PROMATECT®-H board, each 12mm thick to each side with joints staggered at least 500mm between layers
- 2 Steel joist at nominal 1220mm centres. See Table 2 on page 22 for ceiling spans from 3000mm to 6000mm
- 3 Steel cross channels 100mm x 50mm x 1.2mm thick at nominal 610mm centres. For ceiling spans larger than 3000mm, depth of channel to suit main joist depth
- 4 25mm self-tapping screws to fix inner layer at 300mm centres, and 38mm self-tapping screws to fix outer layer at 200mm centres
- 5 Two layers of mineral wool 50mm x 100kg/m³ each
- 6 Steel top hat sections, minimum 1.2mm thick, with flanges at least 30mm wide. Top hat sections need not be continuous

Please refer to page 18 for alternative framing construction and pages 5 to 7 for details of perimeter and control joints



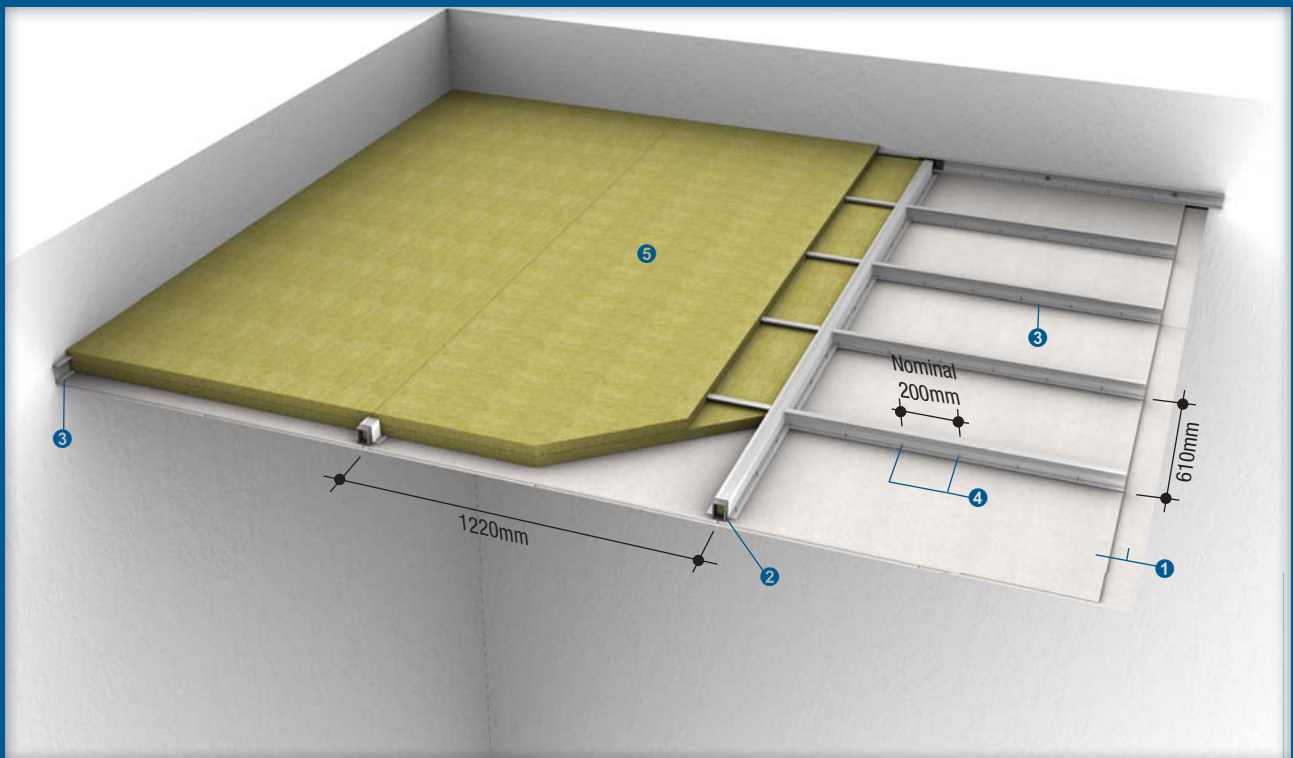
- ❶ PROMATECT®-H board, number of layer and thickness in accordance with system specifications on page 16 or 17
- ❷ PROMATECT®-H cover strip 100mm wide x 9mm thick to each side of steel framework
- ❸ Steel channel at nominal 610mm centres, size in accordance with system specifications on page 16 or 17
- ❹ Mineral wool, thickness and density in accordance with system specifications on page 16 or 17
- ❺ 38mm self-tapping screws at nominal 200mm centres to secure board to steel channel

Fire attack from above and below / Non loadbearing



Fire Resistance	FRL	-/60/60 -/120/120
	STANDARD	BS 476: Part 20: 1987 AS 1530: Part 4: 2005
	APPROVAL	WF 174649
Acoustic	# STC # R _w	33dB 33dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 16th Aug 2007
Construction	CEILING THICKNESS	From 96mm
	CEILING MASS	From 25.5kg/m ² (for -/60/60) From 31.5kg/m ² (for -/120/120)

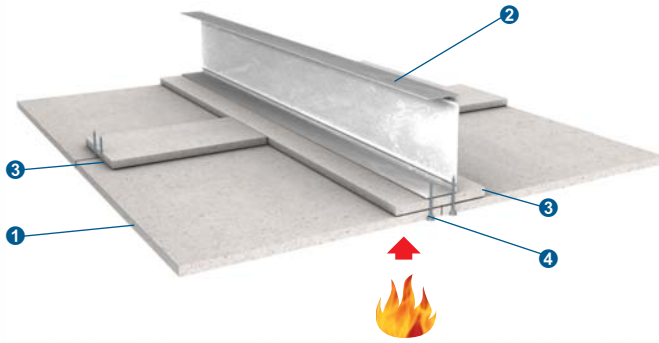
Margin of error is generally within ±3dB



- ❶ Two layers of PROMATECT®-H board, each 9mm thick
- ❷ Steel joist at nominal 1220mm centres. See Table 1 on page 21 for ceiling spans from 2500mm to 6000mm
- ❸ Steel channel at nominal 610mm centres. See Table 1 on page 21 for ceiling spans from 2500mm to 6000mm
- ❹ 38mm self-tapping screws at nominal 200mm centres to secure board to steel channel
- ❺ Mineral wool
For FRL of -/60/60 50mm x 40kg/m³
For FRL of -/120/120 80mm x 100kg/m³

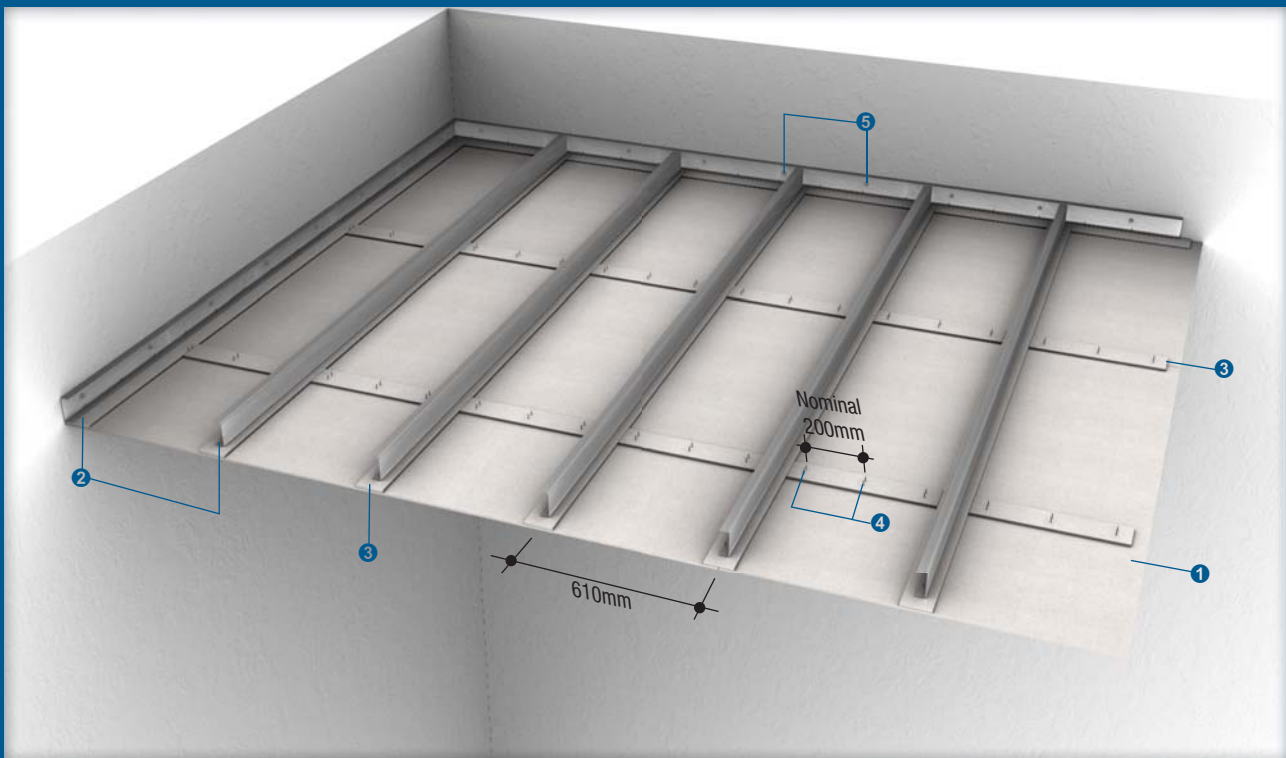
Please see pages 5 to 7 for details of perimeter and control joints

Fire attack from below / Non loadbearing



Fire Resistance	FRL	-/120/-
	STANDARD	BS 476: Part 22: 1987 AS 1530: Part 4: 2005
	APPROVAL	BRE CC 90656A
Acoustic	# STC # R _w	27dB 27dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 16th Aug 2007
Construction	CEILING THICKNESS	From 110mm
	CEILING MASS	From 14kg/m ²

Margin of error is generally within $\pm 3\text{dB}$



- ❶ PROMATECT®-H board 9mm thick
- ❷ Steel channel at nominal 610mm centres. See Stud Table on page 22 for ceiling spans from 2600mm to 4000mm
- ❸ PROMATECT®-H cover strip 100mm wide x 9mm thick to the underside of the framework and at transverse joints
- ❹ 38mm self-tapping screws at nominal 200mm centres
- ❺ 30mm x M6 masonry anchors at 300mm centres

Please see pages 5 to 7 for details of perimeter and control joints

The following are standard Architectural Specifications for self-supporting membrane ceiling 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 Above & Below / Fire Attack From Below / Non Loadbearing

Up to _____ minute⁽¹⁾ fire resistance, integrity and _____ minute⁽²⁾ insulation or integrity only⁽³⁾ in accordance with the criteria of BS 476: Part 22: 1987 and/or AS 1530: Part 4: 2005⁽³⁾.

Supporting Structure

Care should be taken that any structural element by which the membrane ceiling system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than _____ minutes⁽¹⁾ and is capable of supporting the system for the required fire resistance.

Lining Boards

9mm or 12mm⁽³⁾ thick PROMATECT®-H matrix engineered mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1220mm x 2440mm x 9mm or 12mm⁽³⁾ thick.

Fixing

Perimeter galvanised steel channels are fastened to the wall with M6 metal anchors at 500mm maximum centres. Main steel joists spanning across the wall will be positioned and adequately fixed at 610mm or 1220mm⁽³⁾ nominal intervals. Cross channels, where applicable, will be positioned at nominal 610mm centres between the main joists. Steel framework components, according to the type of ceiling listed in the tables below, will be followed.

Steel Joist Table 1: For -/60/60 and -/120/120 fire resistance

Single layer 9mm or 12mm ⁽³⁾ thick PROMATECT®-H board fixed at either side of the joist and stud					
Ceiling span	Measurement of galvanised steel joist, RHS type, at 1220mm intervals	Sectional modulus, Z _x	Measurement of galvanised steel stud, C type, at 610mm intervals	Expansion allowance at one or both ends of the joist	
				-/60/60	-/120/120
Up to 2500mm	50mm x 50mm x 4mm thick	10,000mm ³	50mm x 50mm x 0.6mm thick	18.5mm	22.5mm
Up to 3000mm	60mm x 60mm x 3.2mm thick	14,800mm ³	60mm x 50mm x 0.6mm thick	22.2mm	27.0mm
Up to 3500mm	70mm x 70mm x 3.6mm thick	20,500mm ³	70mm x 50mm x 0.6mm thick	25.9mm	31.5mm
Up to 4000mm	70mm x 70mm x 5.5mm thick	27,400mm ³	70mm x 50mm x 0.6mm thick	29.6mm	36.0mm
Up to 4500mm	70mm x 70mm x 8mm thick	36,500mm ³	70mm x 50mm x 0.6mm thick	33.3mm	40.5mm
Up to 5000mm	80mm x 80mm x 8mm thick	49,500mm ³	80mm x 50mm x 0.6mm thick	37.0mm	45.0mm
Up to 5500mm	100mm x 100mm x 6.3mm thick	60,000mm ³	100mm x 50mm x 0.6mm thick	40.7mm	49.5mm
Up to 6000mm	100mm x 100mm x 8mm thick	76,200mm ³	100mm x 50mm x 0.6mm thick	44.4mm	54.0mm

NOTE: Alternative steel sections may be used on condition that they possess at least similar effective sectional modulus as listed in the above table. Please consult Promat.

Steel channels, the same web depth as the RHS x nominally 50mm flange width x minimum 0.6mm thick, are fastened to the sides of RHS.

Alternatively steel top hat sections, whose depth and width match the RHS members and with minimum 30mm flanges x minimum 0.5mm thick are laid over the RHS members.

Continued on next page

Continued on next page

Steel Joist Table 2: For -/240/240 fire resistance

Ceiling span	Main steel joist		Cross channels (C) at 610mm intervals	Expansion allowance
	Section size	Sectional modulus, Z_x		
Up to 3000mm	RHS – 100mm x 50 x 3mm thick at 1220mm intervals	22,400mm ³	100mm x 50mm x 1.2mm thick	30mm
Up to 3500mm	RHS – 90mm x 90 x 5.5mm thick at 1220mm intervals	47,500mm ³	90mm x 50mm x 1.2mm thick	35mm
Up to 4000mm	RHS – 100mm x 100 x 6.3mm thick at 1220mm intervals	62,500mm ³	100mm x 50mm x 1.2mm thick	40mm
Up to 4600mm	RHS – 100mm x 100 x 8.0mm thick at 1220mm intervals	84,000mm ³	100mm x 50mm x 1.2mm thick	46mm
Up to 5000mm	RHS – 120mm x 120 x 6.3mm thick at 1220mm intervals	107,000mm ³	120mm x 50mm x 1.2mm thick	50mm
Up to 5700mm	RHS – 120mm x 120 x 10mm thick at 1220mm intervals	133,000mm ³	120mm x 50mm x 1.2mm thick	57mm
Up to 6000mm	RHS – 140mm x 140 x 8mm thick at 1220mm intervals	175,000mm ³	140mm x 50mm x 1.2mm thick	60mm

NOTE: Alternative steel sections may be used on condition that they possess at least similar effective sectional modulus as listed in the above table. Please consult Promat.

Studs Table: For -/120/- fire resistance

The expansion allowance may be provided at one or both ends of the RHS members.

Single layer 9mm thick PROMATECT®-H board fixed at bottom side of the stud			
Ceiling span	Measurement of galvanised steel stud at 610mm intervals	Sectional modulus, Z_x	Expansion allowance at one end
Up to 2600mm	92mm x 34mm x 0.8mm thick (C type)	35.3mm ³	15mm
Up to 4000mm	100mm x 100mm x 2.3mm thick (SHS type)	286.1mm ³	23mm

PROMATECT®-H cover strips, 100mm wide x 9mm thick will be fixed to the underside or both sides⁽³⁾ of the steel framework with self-tapping screws at 500mm centres as required. The boards 9mm or 12mm⁽³⁾ thick, in single or double⁽³⁾ layers, will be fixed to the underside or both sides⁽³⁾ of the framework with self-tapping screws at 200mm maximum centres, a minimum of 12mm from the board edge. Board joints must coincide with the steel framing.

Mineral wool of 50mm, 80mm or 100mm⁽³⁾ thick x 40kg/m³ or 100kg/m³ ⁽³⁾ nominal density, as required by the system specification, will be placed within the ceiling system.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 22: 1987 and/or AS 1530: Part 4: 2005⁽³⁾.

Jointing

Plain butt joints between machined edges of boards. ⁽⁴⁾

Joints filled in preparation for painting. ⁽⁵⁾

Joints filled and taped in preparation for decoration. ⁽⁶⁾

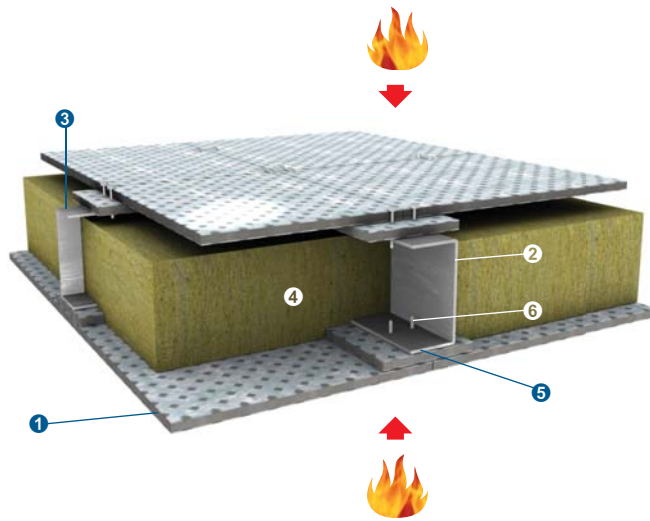
Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁷⁾ in accordance with manufacturer's recommendations.

NOTES:

- ⁽¹⁾ insert required fire resistance level not exceeding 240 minutes.
- ⁽²⁾ insert required insulation level not exceeding the fire resistance level⁽¹⁾.
- ^{(3), (4), (5), (6), (7)} delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

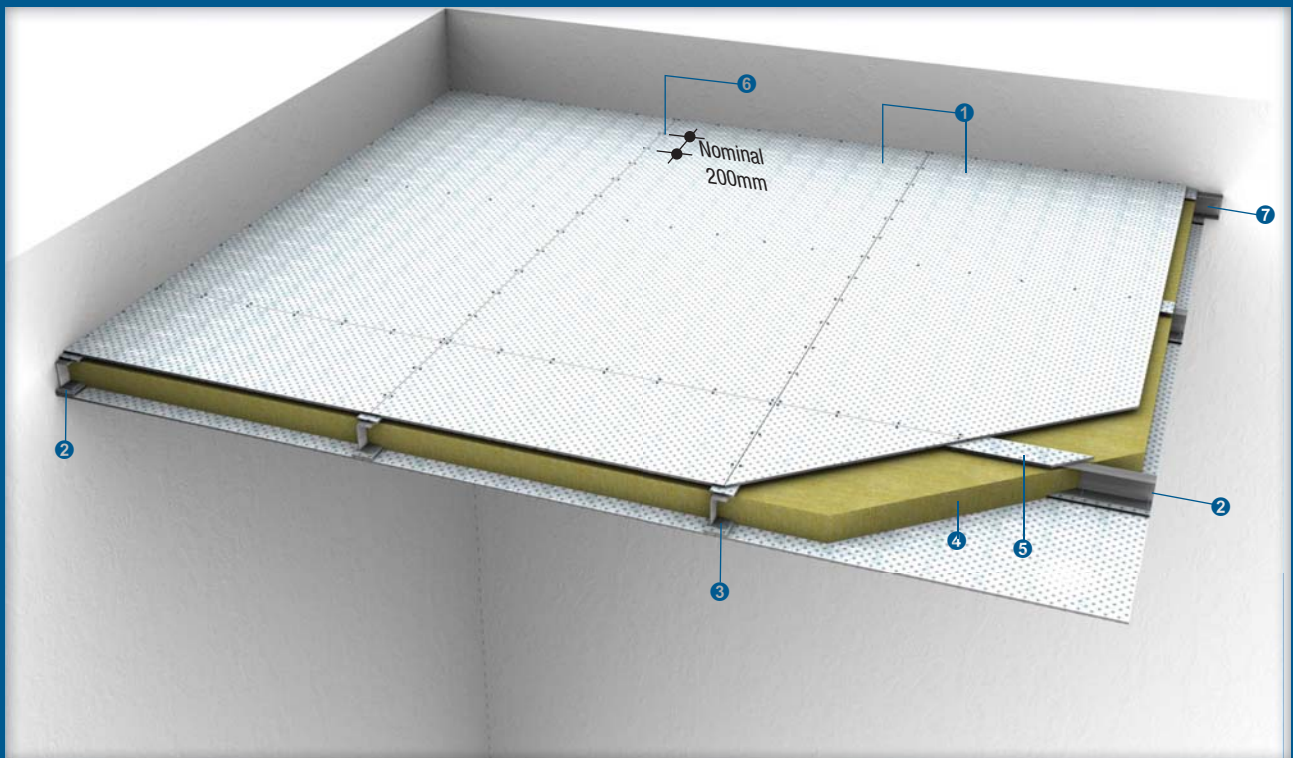
Fire attack from above and below / Non loadbearing



Fire Resistance	FRL*	Up to -/240/240
	STANDARD	BS 476: Part 22: 1987
	APPROVAL*	BRE CC 205223
Acoustic	# STC # R _w	From 44dB From 46dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 23rd Aug 2007
Construction	CEILING THICKNESS	From 112mm
	CEILING MASS	From 27.83kg/m ²

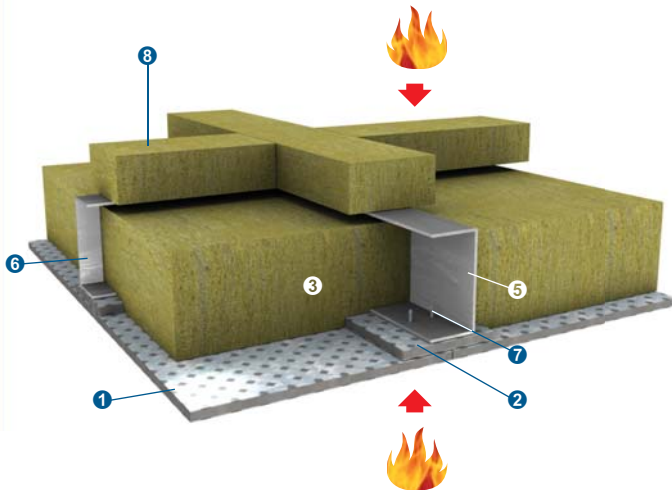
Margin of error is generally within ± 3 dB

* Please consult Promat for details of specific requirements



- ❶ PROMATECT®-S board 6mm or 9.5mm thick to each side, depending on required fire resistance
- ❷ Steel channel 50mm x 100mm x 50mm x 3mm thick located at every board to board joint, or depending on the size and performance in accordance with system specifications
- ❸ Steel channel 50mm x 100mm x 50mm x 3mm thick located at every board to board joint
- ❹ Mineral wool, thickness and density depending on required fire resistance
- ❺ PROMATECT®-S cover strip 100mm wide, thickness and number depending on required fire resistance level of system specifications
- ❻ M5.5 Teks screws at nominal 200mm centres
- ❼ Steel perimeter channel fixed to substrate using M10 expansion bolts at nominal 500mm centres

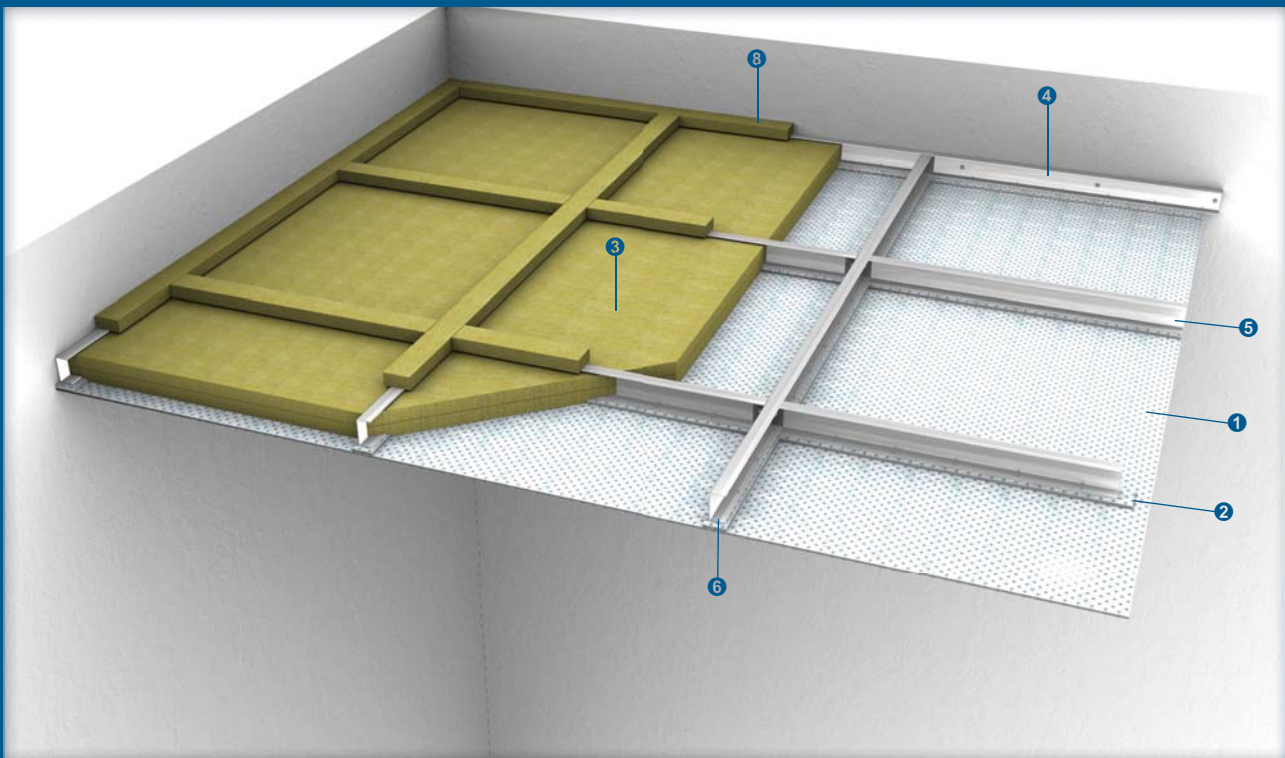
Fire attack from above and below / Non loadbearing



Fire Resistance	FRL*	-/240/120
	STANDARD	BS 476: Part 22: 1987
	APPROVAL*	BRE CC 205223
Acoustic	# STC *	From 29dB
	# R _w	From 29dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
PREDICTED ASSESSMENT	Marshall Day 23rd Aug 2007	
Construction	CEILING THICKNESS	From 106mm
	CEILING MASS	From 20.07kg/m ²

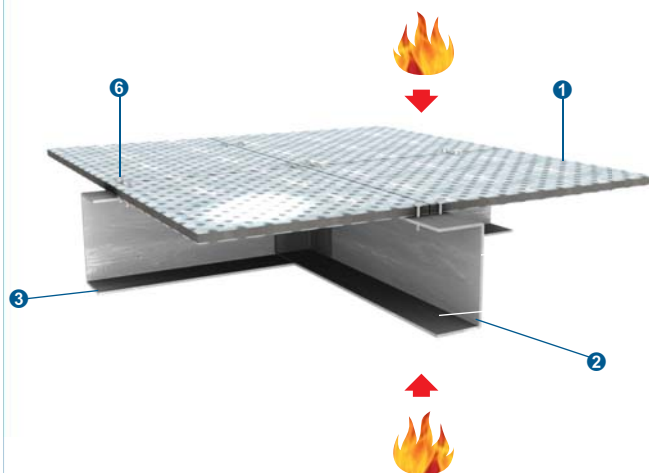
Margin of error is generally within ± 3 dB

* Please consult Promat for details of specific requirements



- ❶ PROMATECT®-S board, 9mm thick
- ❷ PROMATECT®-S board cover strip 100mm wide x 9.5mm thick
- ❸ Mineral wool 100mm x 100kg/m³
- ❹ Perimeter steel channel 100mm x 50mm x 3mm
- ❺ Main supporting channel 100mm x 50mm x 3mm at 1200mm intervals
- ❻ Intermediate supporting channel 100mm x 50mm x 1250mm intervals
- ❼ Teks screws 38mm x M5.5 of nominal 200mm centres
- ❽ Stone mineral wool cover strips 50mm x 100mm wide x 100kg/m³ at all steel channels

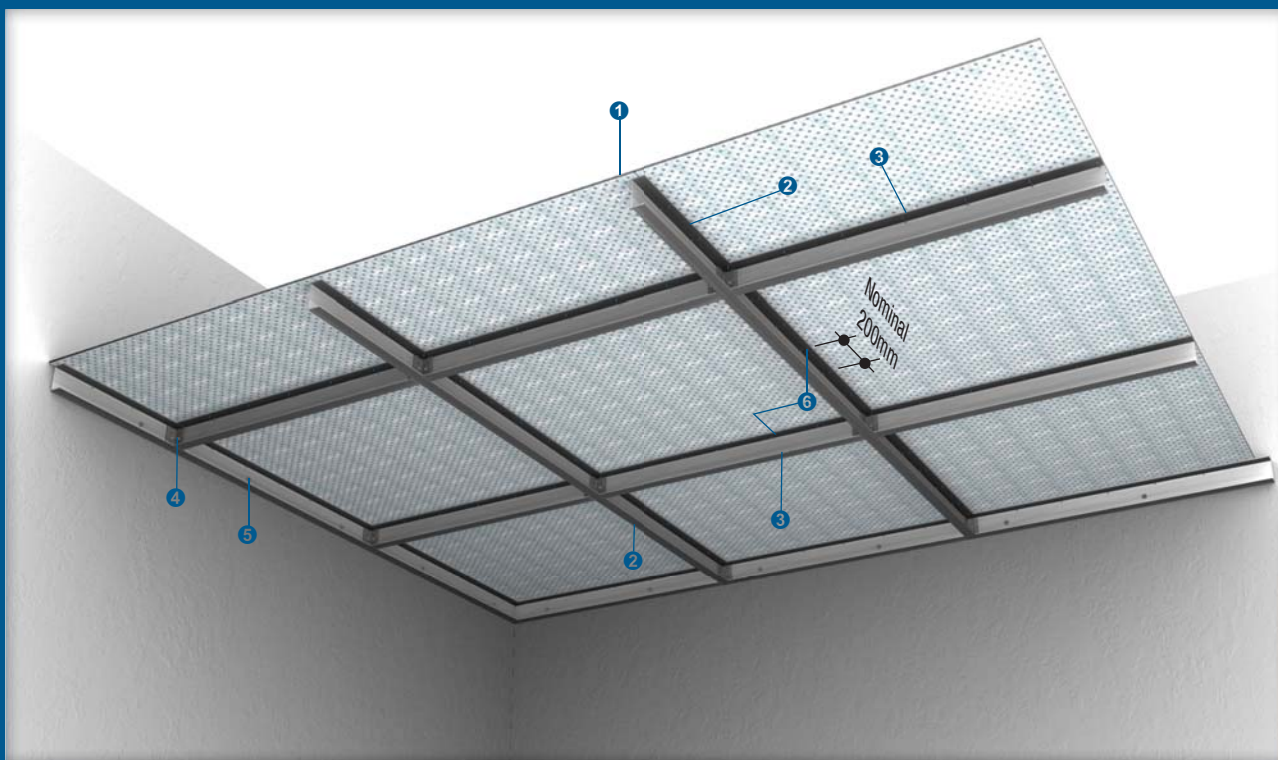
Fire attack from above and below / Non loadbearing



Fire Resistance	FRL*	Up to -/120/-
	STANDARD	BS 476: Part 22: 1987
	APPROVAL*	BRE CC 261676
Acoustic	# STC # R _w	From 29dB From 29dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 23rd Aug 2007
Construction	CEILING THICKNESS	From 106mm
	CEILING MASS	From 20.07kg/m ²

Margin of error is generally within ± 3 dB

* Please consult Promat for details of specific requirements



- ❶ PROMATECT®-S board 6mm or 9.5mm thick depending on required fire resistance
- ❷ Steel channel 50mm x 100mm x 50mm x 3mm thick located at every board to board joint
- ❸ Steel channel 50mm x 100mm x 50mm x 3mm thick located at every board to board joint, or depending on size and required fire resistance level of system specifications
- ❹ Steel angle cleat 90mm x 90mm x 4mm thick joining ❷, ❸ and ❺
- ❺ Steel perimeter channel fixed to substrate using M10 expansion bolts at nominal 600mm centres
- ❻ 38mm x M5.5 Teks screws at nominal 200mm centres

The following are standard Architectural Specifications for self-supporting membrane ceiling systems using PROMATECT®-S. 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 Above & Below / Fire Attack From Below / Non Loadbearing

Up to _____ minute⁽¹⁾ fire resistance, integrity and _____ minute⁽²⁾ insulation or integrity only⁽³⁾ in accordance with the criteria of BS 476: Part 22: 1987.

Supporting Structure

Care should be taken that any structural element by which the membrane ceiling system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than _____ minutes⁽¹⁾ and is capable of supporting the system for the required fire resistance.

Lining Boards

6mm or 9.5mm⁽³⁾ thick PROMATECT®-S cement/steel composite boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1200mm x 2500mm x 6mm or 9.5mm⁽³⁾ thick.

Fixing

Wall tracks are anchored to the wall using 60mm x M6 steel expanding anchors at maximum 500mm centres. Ceiling joists comprising steel lipped channels are then positioned at 600mm maximum centres. The ends of each of the steel joists are friction fitted between the flanges of the steel perimeter channels.

Wall tracks and ceiling joists section sizes are to be selected as appropriate according to the ceiling span according to the ceiling span, and the stress and bending moment calculation. Please refer to assessment BRE CC 205223 (Appendix A) for detailed calculation.

Whenever cover strips are needed, PROMATECT®-S cover strips 100mm wide x 6mm or 9.5mm⁽³⁾ thick, will be fixed to the underside or both sides⁽³⁾ of the steel framework with self-drilling screws at 500mm centres. The boards 6mm or 9.5mm⁽³⁾ thick, in single or double⁽³⁾ layers, will be fixed to the underside or both sides⁽³⁾ of the framework with self-drilling screws at 200mm maximum centres, a minimum of 12mm from the board edge. Board joints must coincide with the steel framing.

Whenever an insulation criterion is required, mineral wool (thickness and density in accordance with system specifications below) is placed within the ceiling system.

Fire resistance	PROMATECT®-S board thickness		PROMATECT®-S cover strip	Mineral wool thickness x density
	Top	Bottom		
-/240/240	9.5mm	9.5mm	2 x 100mm x 9.5mm thick	120mm x 140kg/m ³
-/240/180	9.5mm	9.5mm	100mm x 9.5mm thick	120mm x 140kg/m ³
-/240/120	—	9.5mm	100mm x 9.5mm thick	100mm x 100kg/m ³
-/240/120	6mm	6mm	100mm x 6mm thick	100mm x 80kg/m ³
-/120/60	—	6mm	100mm x 6mm thick	50mm x 80kg/m ³

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 22: 1987.

Jointing

Plain butt joints between machined edges of boards. ⁽⁴⁾

Joints filled in preparation for painting. ⁽⁵⁾

Joints filled and taped in preparation for decoration. ⁽⁶⁾

Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁷⁾ in accordance with manufacturer's recommendations.

NOTES:

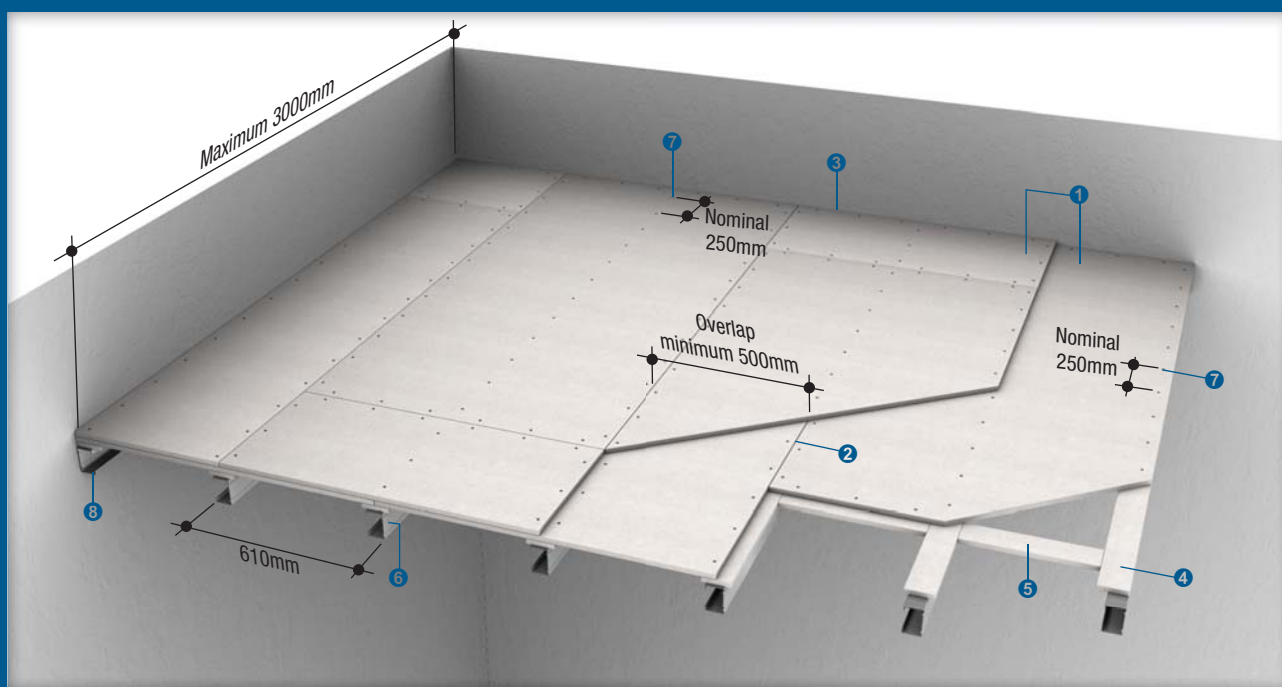
- ⁽¹⁾ insert required fire resistance level not exceeding 240 minutes.
- ⁽²⁾ insert required insulation level not exceeding the fire resistance level⁽¹⁾.
- ^{(3), (4), (5), (6), (7)} delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

Fire attack from above / Non loadbearing



Fire Resistance	FRL	-/120/120
	STANDARD	AS 1530: Part 4: 2005
	APPROVAL	BRE CC 232157B
Acoustic	# STC	36dB
	# R _w	36dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 16th Aug 2007
Construction	MAXIMUM SPAN	3000mm
	CEILING THICKNESS	From 150mm
	CEILING MASS	From 39kg/m ²

Margin of error is generally within ±3dB



- 1 Two layers of PROMATECT® 100 board, each 20mm thick
- 2 All longitudinal board joints must be coincident with the steel framework, longitudinal board joints between the two layers must be staggered by 500mm
- 3 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- 4 PROMATECT® 100 cover strip 50mm x 20mm thick above of perimeter channel
- 5 PROMATECT® 100 cover strip 50mm x 20mm thick at transverse joints in the first layer
- 6 Steel joist at 600mm centres
- 7 No. 8 steel screws at nominal 250mm centres
 - 32mm long to secure cover strips to steel
 - 50mm long to secure first layer board to steel
 - 72mm long to secure second layer board to steel
 - 35mm long laminating screws to stitch transverse joints in second layer board to first layer board
- 8 Steel wall channel fixed to substrate at nominal 500mm centres

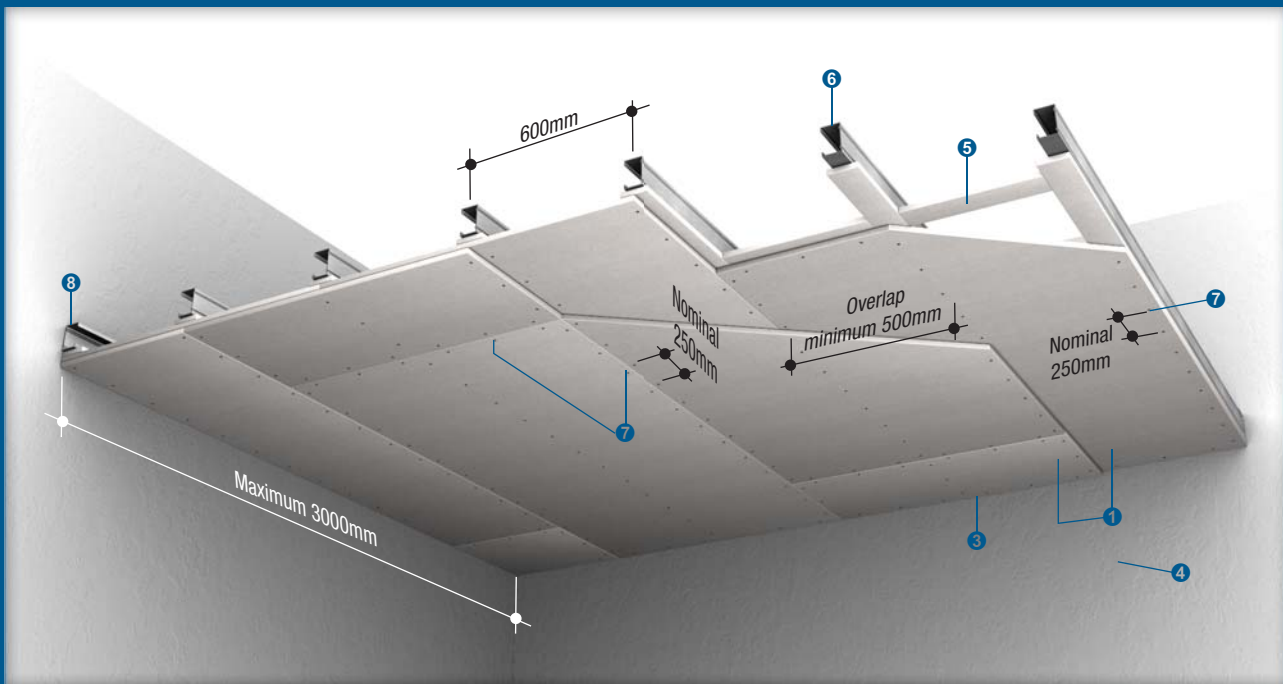
Please see pages 5 to 7 for details of perimeter and control joints

Fire attack from below / Non loadbearing



Fire Resistance	FRL	-/120/120
	STANDARD	AS 1530: Part 4: 2005
	APPROVAL	BRE CC 232157A
Acoustic	# STC	36dB
	# R _w	36dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
PREDICTED ASSESSMENT	Marshall Day 16th Aug 2007	
Construction	MAXIMUM SPAN	3000mm
	CEILING THICKNESS	From 150mm
	CEILING MASS	From 39kg/m ²

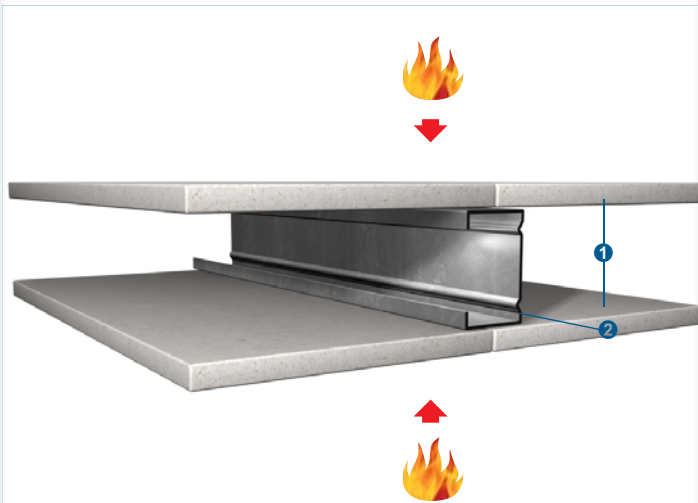
Margin of error is generally within ±3dB



- 1 Two layers of PROMATECT® 100 board, each 20mm thick
- 2 All longitudinal board joints must be coincident with the steel framework, longitudinal board joints between the two layers must be staggered by 600mm
- 3 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- 4 PROMATECT® 100 cover strip 85mm x 20mm thick
- 5 PROMATECT® 100 cover strip 50mm x 20mm thick at transverse joints in the first layer
- 6 Steel joist at 600mm centres
- 7 No. 8 steel screws at nominal 250mm centres
 - 332mm long to secure cover strips to steel
 - 50mm long to secure first layer board to steel
 - 72mm long to secure second layer board to steel
 - 35mm long laminating screws to stitch transverse joints in second layer board to first layer board
- 8 Steel wall channel

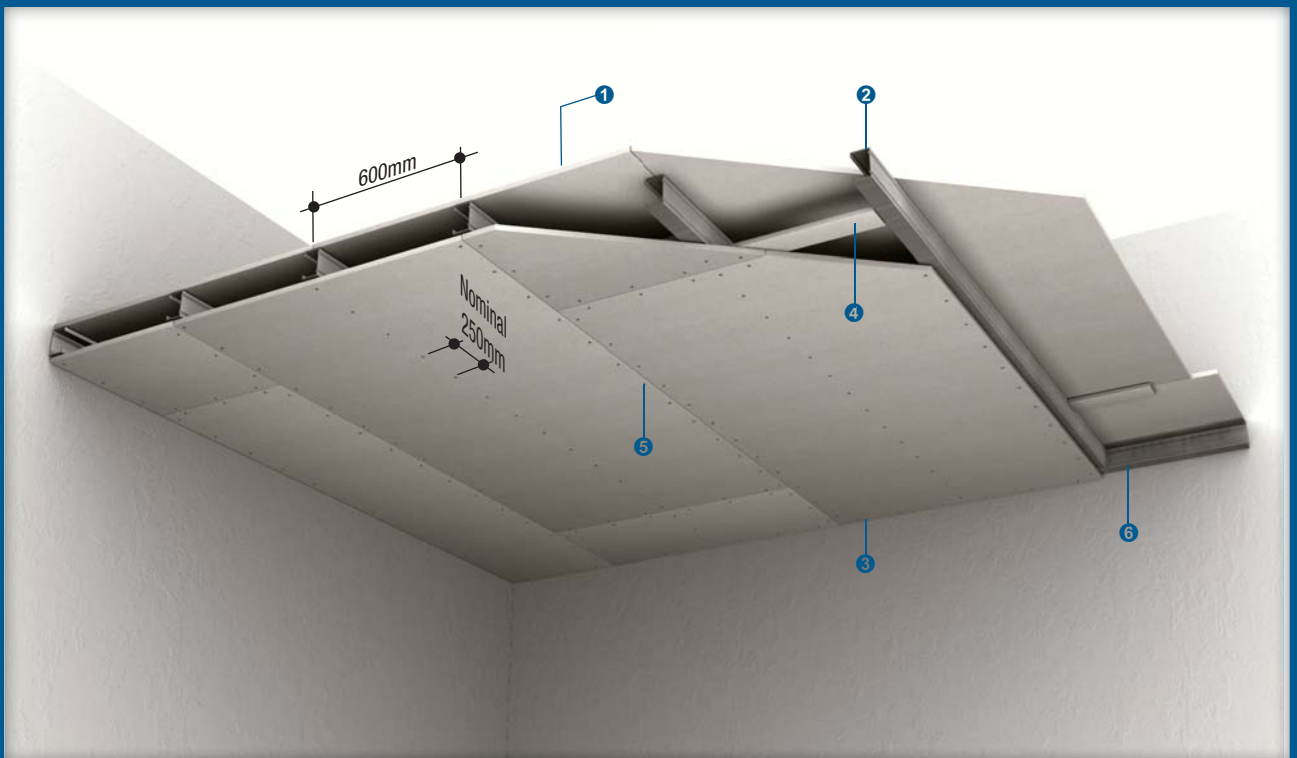
Please see pages 5 to 7 for details of perimeter and control joints

Fire attack from above and below / Non loadbearing



Fire Resistance	FRL	-/120/120
	STANDARD	AS 1530: Part 4: 2005
	APPROVAL	CSIRO FCO2515 BRANZ FAR 2885
Acoustic	# STC	39dB
	# R _w	39dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 16th Aug 2007
Construction	MAXIMUM SPAN	Please consult Promat
	CEILING THICKNESS	From 105mm
	CEILING MASS	From 38.8kg/m ²

Margin of error is generally within ±3dB



- ① PROMATECT® 100 board 20mm thick to each side
- ② Steel joists at 600mm nominal centres. For up to 2.5m span, use lipped channel 64mm x 38mm x 13mm x 2.5mm
- ③ Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- ④ PROMATECT® 100 cover strip 100mm x 20mm thick at transverse joints in the top and bottom boards
- ⑤ 35mm long screws
 - No. 8 self tapping/drilling screws at 200mm centres to secure board to steel
 - No. 10 laminating screws at 100mm centres to stitch joints to cover strips
- ⑥ Steel wall channel

Please see pages 5 to 7 for details of perimeter and control joints

The following are standard Architectural Specifications for self-supporting membrane ceiling systems using PROMATECT® 100. 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 Above / Fire Attack From Below / Fire Attack From Above & Below / Non Loadbearing

Up to 120 minute fire resistance, integrity and insulation in accordance with the criteria of AS 1530: Part 4: 2005. Non loadbearing.

Supporting Structure

Care should be taken that any structural element by which the membrane ceiling system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than 120 minutes and is capable of supporting the system for the required fire resistance.

Lining Boards

One or two⁽¹⁾ layers of 20mm thick PROMATECT® 100 PromaX® mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to coincide with steel framing. Standard board dimension 1200mm x 2500mm x 20mm thick.

Fixing

Wall tracks are anchored to the wall using 60mm x M6 steel expanding anchors at maximum 500mm centres. Ceiling joists comprising steel lipped channels are then positioned at 600mm maximum centres. The ends of each of the steel joists are friction fitted between the flanges of the steel perimeter channels. Wall tracks and ceiling joists section sizes are to be selected as appropriate, according to the ceiling span outlined in the steel joist table below.

Ceiling span	Proposed steel joist	Proposed wall track
Up to 1.5m	Lipped C-92 x 35mm x 5mm x 0.55mm thick	C-94 x 32mm x 0.55mm thick
Up to 2.0m	Lipped C-92 x 35mm x 5mm x 1.15mm thick	C-94 x 32mm x 0.55mm thick
Up to 2.5m	Lipped C-102 x 51mm x 12.5mm x 1.2mm thick	C-100 x 40mm x 0.6mm thick
Up to 3.0m	Lipped C-102 x 51mm x 12.5mm x 1.5mm thick	C-100 x 40mm x 0.6mm thick

For fire exposure from above, the topside of the steel joists and perimeter channels are covered with 20mm thick PROMATECT® 100 fillets, minimum width 50mm for the perimeter channels and 85mm for the steel joists. The fillets are fixed in position using minimum 32mm x No. 8 screws at 250mm centres. Two layers of 20mm thick PROMATECT® 100 boards are then fixed to the topside of the steel framework and fillets using minimum 50mm x No. 8 screws at maximum 250mm centres. All longitudinal board joints must be coincident with the steel framework. The second layer is fixed in a similar manner using minimum 72mm x No. 8 screws, ensuring that all joints in the two layers are staggered by 600mm. Each transverse joints in second layer are fixed using 35mm laminating screws.

For the fire exposure from below, the PROMATECT® 100 boards and fixing are similar to the above but the boards are laid at the bottom of the steel joists and perimeter channels.

As for the fire exposure from either side, 20mm thick PROMATECT® 100 is fixed to either side of the steel joists and perimeter channels. The fixing uses 32mm x No. 8 screws at 200mm centres. One layer of PROMATECT® 100 cover strip 100mm x 20mm thick is fixed at transverse board joints in the top and bottom boards. The stitch joints at the cover strips are then fixed using No. 10 laminating screws.

Ceiling span	Proposed steel joist	Minimum sectional modulus
Up to 1.5m	C-channel 65mm x 50mm x 0.6mm thick	2314mm ³
Up to 2.0m	C-channel 65mm x 50mm x 1.15mm thick	4330mm ³
Up to 2.5m	Lipped C-channel 65mm x 38mm x 13mm x 2.5mm thick	7110mm ³
Up to 3.0m	Lipped C-channel 76mm x 44mm x 16mm x 2.5mm thick	10300mm ³
Up to 3.5m	C-channel 103mm x 34mm x 3.0mm thick	12840mm ³
Up to 4.0m	Lipped C-channel 102mm x 51mm x 18mm x 2.5mm thick	17400mm ³
Up to 5.0m	Two back to back lipped C-channel 102mm x 51mm x 18mm x 2.5mm thick	34800mm ³
Up to 6.0m	Two back to back lipped C-channel 127mm x 51mm x 18mm x 2.5mm thick	46800mm ³
Up to 7.4m	Lipped C-channel 203mm x 76mm x 24mm x 3.0mm thick	70100mm ³
Up to 8.3m	Lipped C-channel 250mm x 75mm x 20mm x 2.3mm thick	91600mm ³
Up to 9.0m	Two back to back lipped C-channel 225mm x 75mm x 20mm x 2.3mm thick	124360mm ³
Up to 10.0m	Two back to back lipped C-channel 250mm x 75mm x 20mm x 3.0mm thick	183200mm ³

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of AS 1530: Part 4: 2005.

Jointing

Plain butt joints between machined edges of boards. ⁽²⁾

Joints filled in preparation for painting. ⁽³⁾

Joints filled and taped in preparation for decoration. ⁽⁴⁾

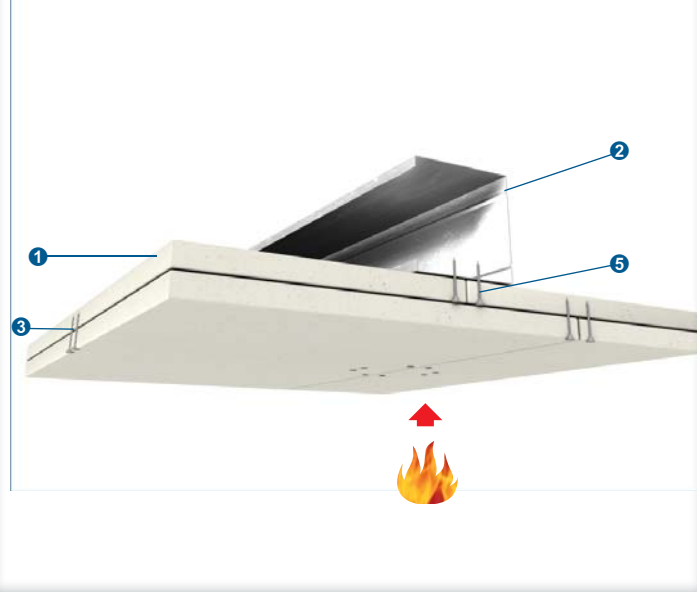
Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁵⁾ in accordance with manufacturer's recommendations.

NOTES:

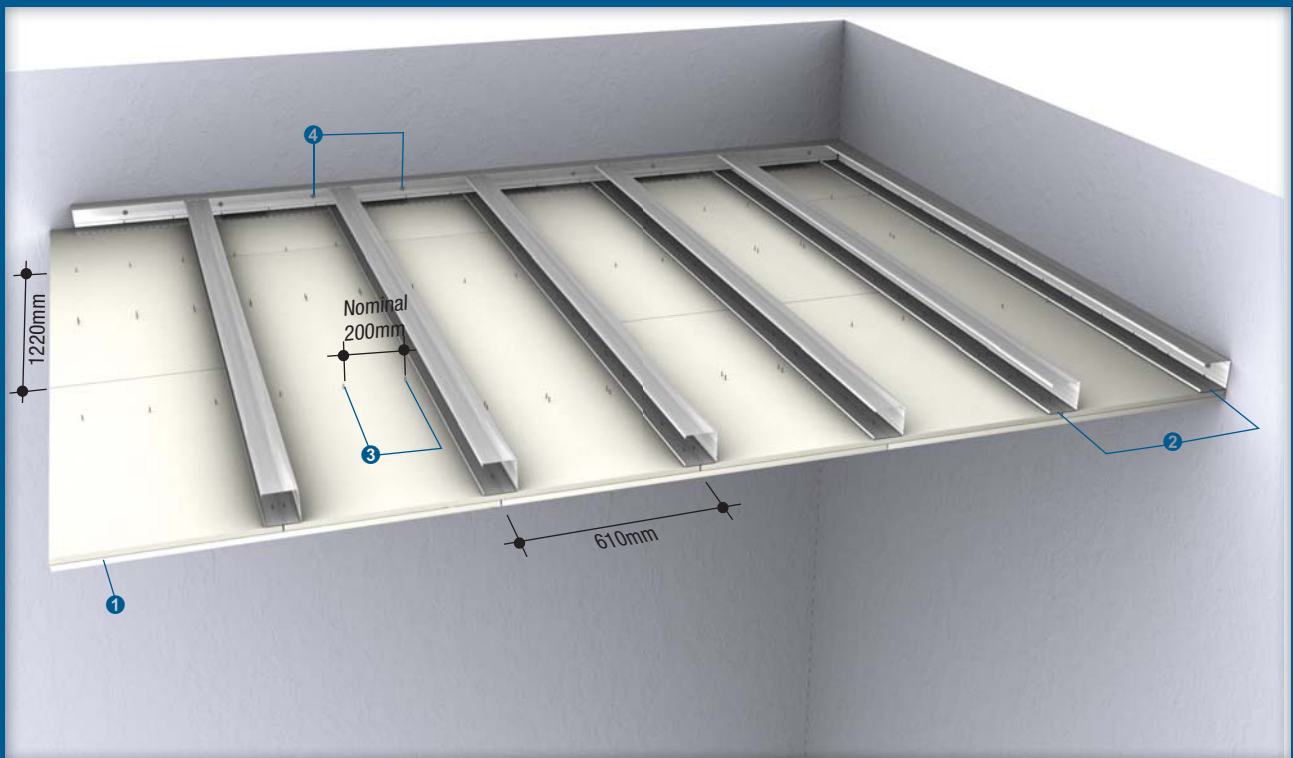
- ⁽¹⁾, ⁽²⁾, ⁽³⁾, ⁽⁴⁾, ⁽⁵⁾ delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

Fire attack from below / Non loadbearing



Fire Resistance	FRL	-/30/30
	STANDARD	BS 476: Part 22: 1987
	APPROVAL	BRANZ FR 4198 BRANZ FR 4118
Acoustic	# STC # R _w	41 dB 41 dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 24th June 2011
Construction	CEILING THICKNESS	From 126mm
	CEILING MASS	From 28.8kg/m ²

Margin of error is generally within ±3dB



- ① Two layers of PROMATECT® 50 board, each 12mm thick
- ② Steel channel 102mm x 76mm x 1.6mm thick at nominal 610mm centres for 3000mm span
- ③ 35mm stitching screws at nominal 200mm centres at all joints, not coincident with steel frame
- ④ 50mm x M10 masonry anchors at 500mm centres
- ⑤ First layer fixed with 35mm self-drilling, self-tapping screws into steel frame at nominal 200mm centres
Second layer fixed with 50mm self-drilling, self-tapping screws into steel frame at nominal 200 centres

Please see pages 5 to 7 for details of perimeter and control joints

The following are standard Architectural Specifications for self-supporting membrane ceiling systems using PROMATECT® 50. 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 Below / Non Loadbearing

Up to 30 minute fire resistance, integrity and insulation in accordance with the criteria of BS 476: Part 22: 1987. Non loadbearing.

Supporting Structure

Care should be taken that any structural element by which the membrane ceiling system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than 30 minutes and is capable of supporting the system for the required fire resistance.

Lining Boards

Two layers of 12mm thick PROMATECT® 50 cement bound matrix boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to coincide with steel framing. Standard board dimension 1220mm x 2440mm x 12mm thick.

Fixing

Perimeter galvanised steel channels will be fastened to the wall with M10 metal anchors at 500mm maximum centres. Main steel joists spanning across the wall will be positioned and adequately fixed at 610mm nominal intervals. Cross channels, where applicable, will be positioned at nominal 610mm centres between the main joists. Steel framework components, according to the type of ceiling listed in the tables below, will be followed.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 22: 1987.

Jointing

Plain butt joints between machined edges of boards. ⁽¹⁾

Joints filled in preparation for painting. ⁽²⁾

Joints filled and taped in preparation for decoration. ⁽³⁾

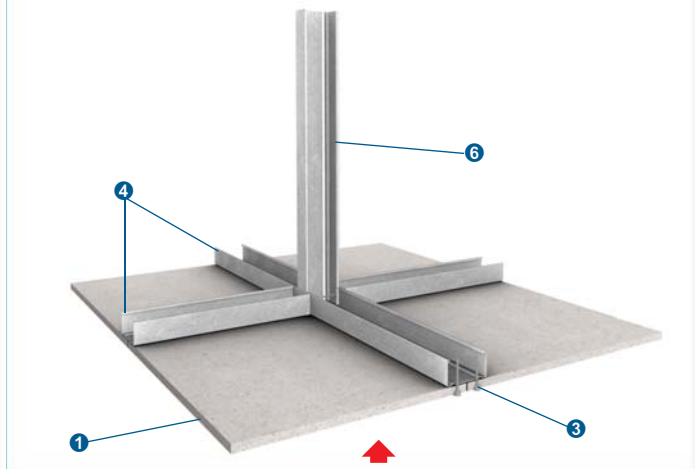
Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁴⁾ in accordance with manufacturer's recommendations.

NOTES:

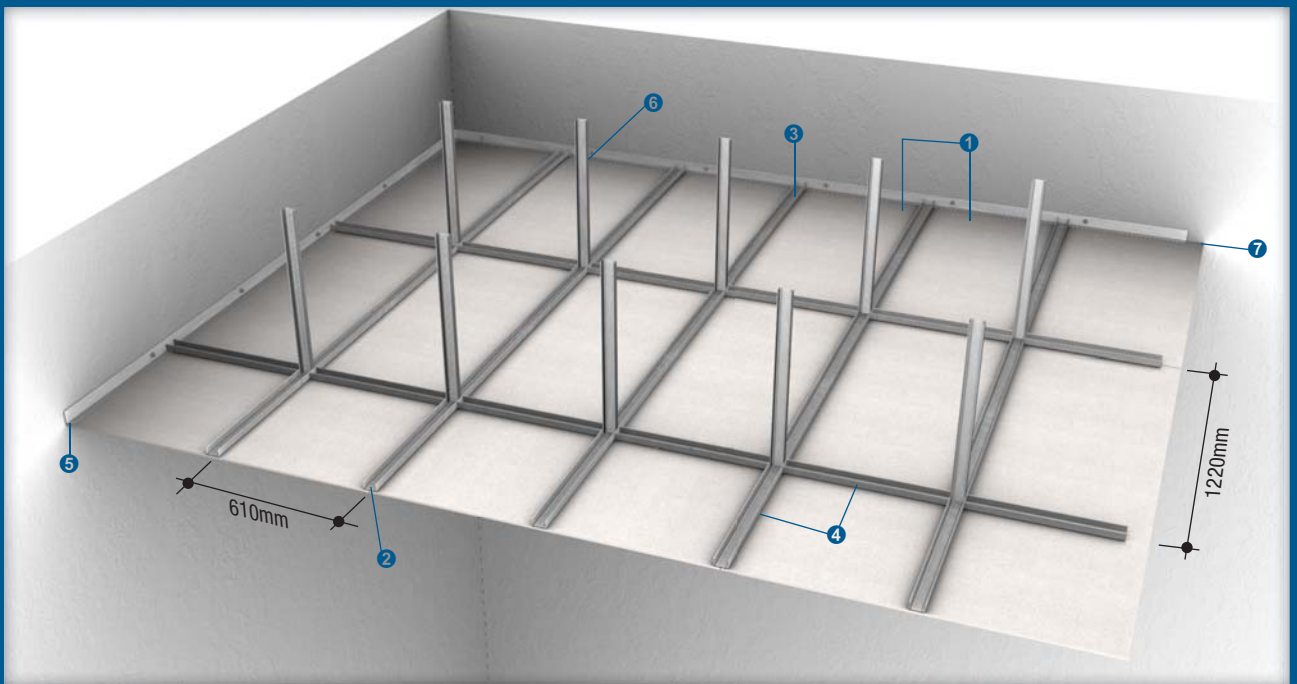
- ^{(1), (2), (3), (4)} delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

Fire attack from below / Non loadbearing



Fire Resistance	FRL	-/240/-
	STANDARD	BS 476: Part 22: 1987 BS EN 1364: Part 2: 1999
	APPROVAL	LPC TE89437 FSRG 2013/023
Acoustic	# STC # R _w	27dB 27dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 16th Aug 2007
Construction	CEILING THICKNESS	41mm
	CEILING MASS	From 10.92kg/m ²

Margin of error is generally within ±3dB. Deeper air cavity generally improves acoustic performance



- ❶ PROMATECT®-H board 9mm thick
- ❷ Longitudinal board joints to coincide with steel framework
- ❸ 25mm self-tapping screws at nominal 200mm centres
- ❹ Steel channel 50mm x 31mm x 0.6mm thick at 610mm by 1220mm centres
- ❺ Steel angle 23mm x 48mm x 0.6mm thick
- ❻ Hanger at 1220mm centres constructed from ❹
- ❼ Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant

Please see page 5 for details of perimeter and control joints

The following are standard Architectural Specifications for suspended membrane ceiling 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 Below / Non Loadbearing

Up to 240 minute fire resistance, integrity and insulation in accordance with the criteria of BS 476: Part 22: 1987 and BS EN 1364: Part 2: 1999. Non loadbearing.

Supporting Structure

Care should be taken that any structural element by which the membrane ceiling system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than 240 minutes and is capable of supporting the system for the required fire resistance.

Lining Boards

9mm thick PROMATECT®-H matrix engineered mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1220mm x 2440mm x 9mm thick.

Fixing

Perimeter galvanised steel angles will be fastened to the wall with M6 metal anchors at 500mm maximum centres. Steel channels C-50mm x 31mm x 0.6 will be used to form a ceiling grid of 610mm (primary) x 1220mm (secondary). Ceiling hangers will be suspended at 1220mm centres and fixed to all the 610mm centres primary channels to complete the framework.

9mm thick PROMATECT®-H, in single layer, will be fixed to the underside side of the framework with self-tapping screws at 200mm maximum centres, a minimum of 12mm from the board edge. Board joints must coincide with the steel channels.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 22: 1987.

Jointing

Plain butt joints between machined edges of boards. ⁽¹⁾

Joints filled in preparation for painting. ⁽²⁾

Joints filled and taped in preparation for decoration. ⁽³⁾

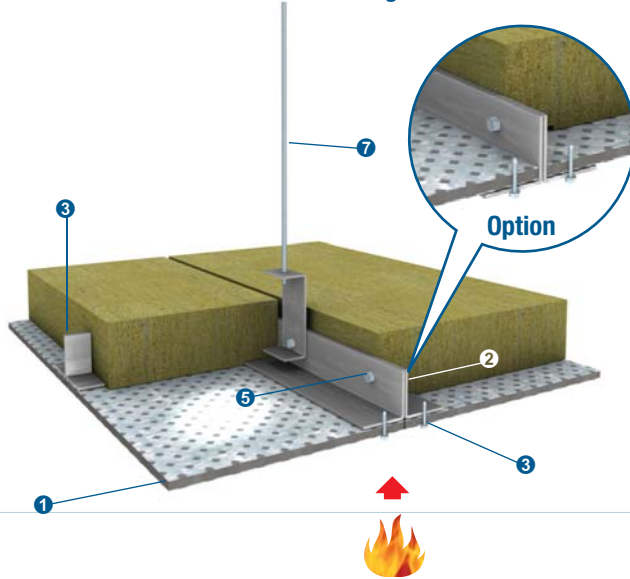
Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁴⁾ in accordance with manufacturer's recommendations.

NOTES:

- ⁽¹⁾, ⁽²⁾, ⁽³⁾, ⁽⁴⁾ delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

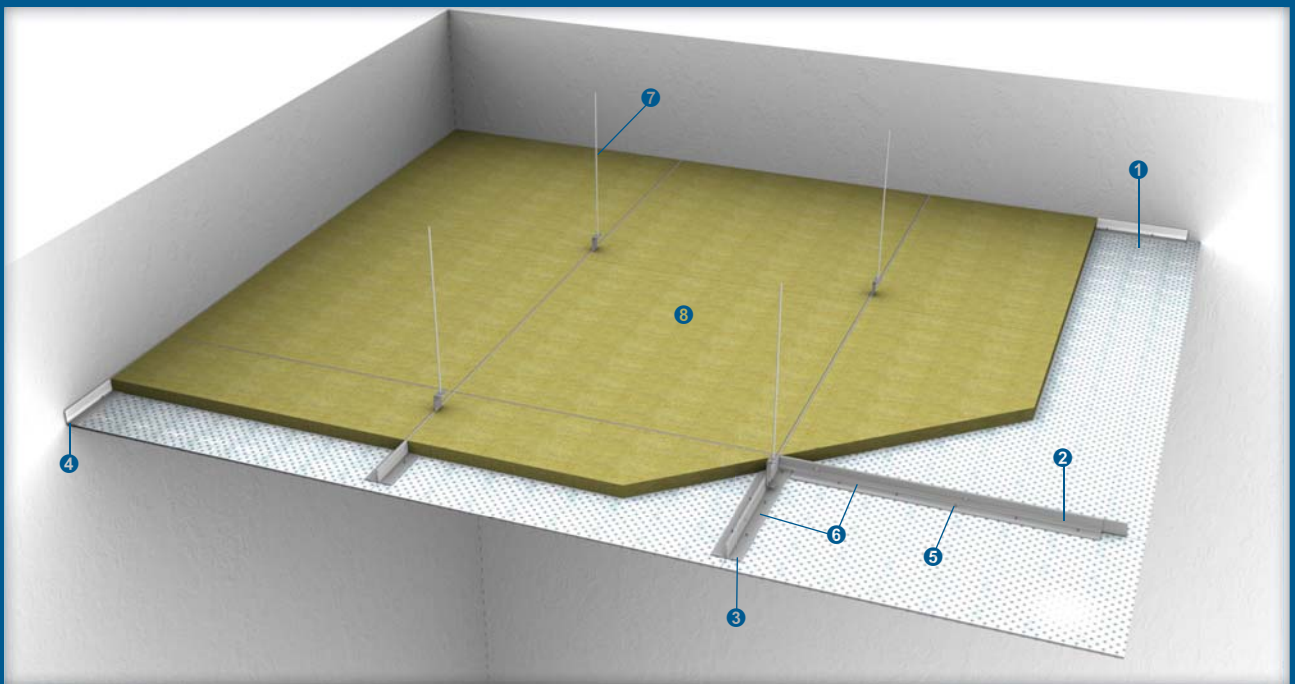
Fire attack from below / Non loadbearing



Fire Resistance	FRL*	Up to -/240/120
	STANDARD	BS 476: Part 22: 1987
	APPROVAL	Please consult Promat
Acoustic	# STC # R _w	From 31dB From 31dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 23rd Aug 2007
Construction	CEILING THICKNESS	From 126mm
	CEILING MASS	From 30.17kg/m ²

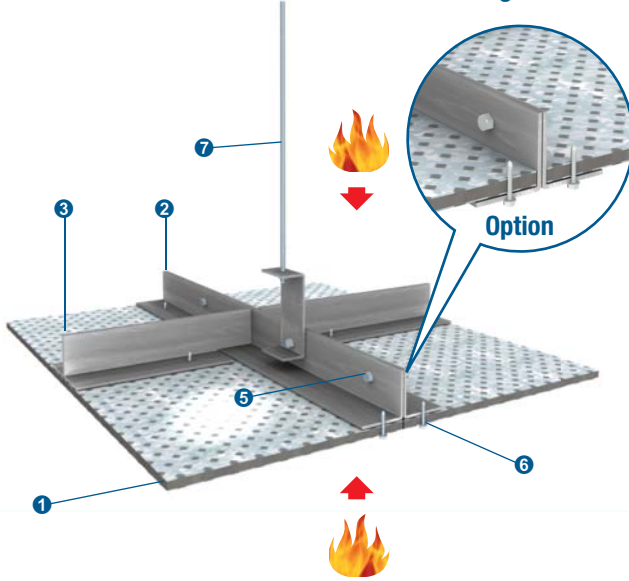
Margin of error is generally within ± 3 dB

* Please consult Promat for details of specific requirements



- 1 PROMATECT®-S board 6mm or 9.5mm thick depending on required fire resistance
- 2 Steel angles 50mm x 50mm x 3mm thick, bolted or welded back to back to form a T-section, located at every board to board joint, or depending on the size and performance in accordance with system specifications
- 3 Steel angles 50mm x 50mm x 3mm thick secured to the main angle, bolted or welded back to back located at every board to board joint
- 4 Steel angle fixed to the concrete at nominal 500mm centres with M10 bolts
- 5 M10 nuts, washers and bolts at nominal 250mm centres joining angles back to back to form T-sections
- 6 35mm x M5.5 Tek screws at nominal 200mm centres
- 7 Hanger with threaded rod, diameter depending on the fire resistance level of the system specifications, and supported by steel channel 50mm x 100mm x 30mm x 4mm thick bolted or welded to the T-section at 1200mm centres
- 8 1 layer of mineral wool, thickness and density depending on required fire resistance (please consult Promat for details)

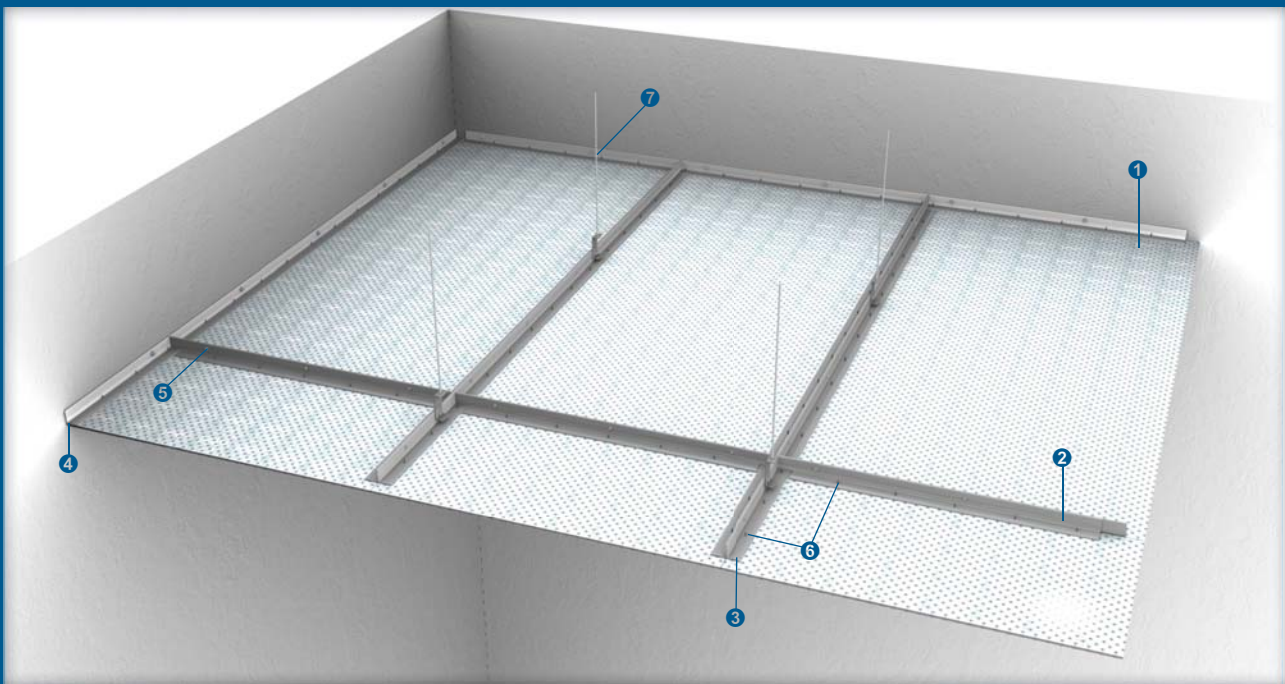
Fire attack from above and below / Non loadbearing



Fire Resistance	FRL*	Up to -/240/-
	STANDARD	BS 476: Part 22: 1987
	APPROVAL*	LPC TE83934 BRE CC 214487
Acoustic	# STC # R _w	From 29dB From 29dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 23rd Aug 2007
Construction	CEILING THICKNESS	From 56mm
	CEILING MASS	From 20.2kg/m ²

Margin of error is generally within ± 3 dB

* Please consult Promat for details of specific requirements



- ❶ PROMATECT®-S board 6mm or 9.5mm thick depending on required fire resistance
- ❷ Steel angles 50mm x 50mm x 3mm thick, bolted or welded back to back to form a T-section, located at every board to board joint, or depending on the size and performance in accordance with system specifications
- ❸ Steel angles 50mm x 50mm x 3mm thick secured to the main angle, bolted or welded back to back located at every board to board joint
- ❹ Steel angle fixed to the concrete at nominal 500mm centres
- ❺ M10 nuts, washers and bolts at nominal 250mm centres joining angles back to back to form T-sections
- ❻ 35mm x M5.5 Teks screws at nominal 200mm centres
- ❼ Hanger with threaded rod, diameter depending on the fire resistance level of the system specifications, and supported by steel channel 50mm x 100mm x 30mm x 4mm thick bolted or welded to the T-section at 1200mm centres

The following are standard Architectural Specifications for suspended membrane ceiling systems using PROMATECT®-S. 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 Below / Fire Attack From Above & Below / Non Loadbearing

Up to 240 minute fire resistance, integrity and insulation or integrity only⁽¹⁾ in accordance with the criteria of BS 476: Part 22: 1987.

Supporting Structure

Care should be taken that any structural element by which the membrane ceiling system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than 240 minutes and is capable of supporting the system for the required fire resistance.

Lining Boards

6mm or 9.5mm⁽¹⁾ thick PROMATECT®-S cement/steel composite boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1200mm x 2500mm x 6mm or 9.5mm⁽¹⁾ thick.

Fixing

Wall tracks are anchored to the wall using 60mm x M6 steel expanding anchors at maximum 500mm centres. Ceiling joists comprising steel lipped channels are then positioned at 600mm maximum centres. The ends of each of the steel joists are friction fitted between the flanges of the steel perimeter channels.

Wall tracks and ceiling joists section sizes are to be selected as appropriate according to ceiling span, and stress and bending moment calculations.

6mm or 9.5mm⁽¹⁾ thick PROMATECT®-S boards, depending on fire resistance required, will be fixed to the underside of the framework with self-drilling screws at 200mm maximum centres, a minimum of 12mm from the board edge. Board joints must coincide with the steel framing.

Whenever an insulation criterion is required, mineral wool (thickness and density in accordance with the system's specification) will be placed within the ceiling system.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 22: 1987.

Jointing

Plain butt joints between machined edges of boards. ⁽²⁾

Joints filled in preparation for painting. ⁽³⁾

Joints filled and taped in preparation for decoration. ⁽⁴⁾

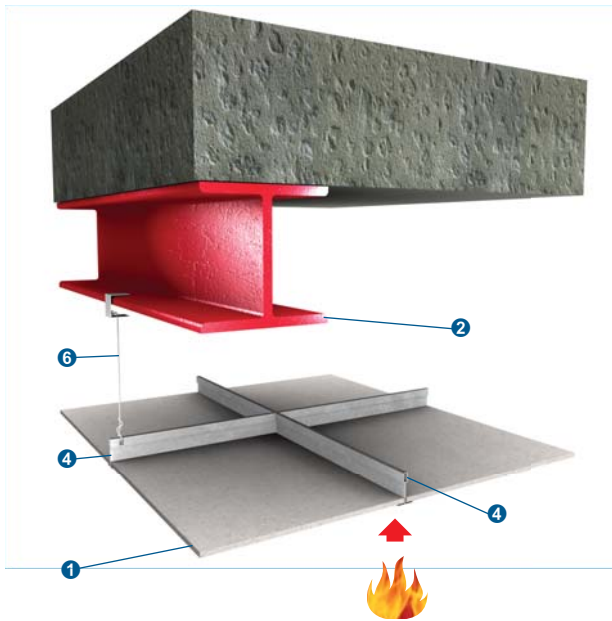
Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁵⁾ in accordance with manufacturer's recommendations.

NOTES:

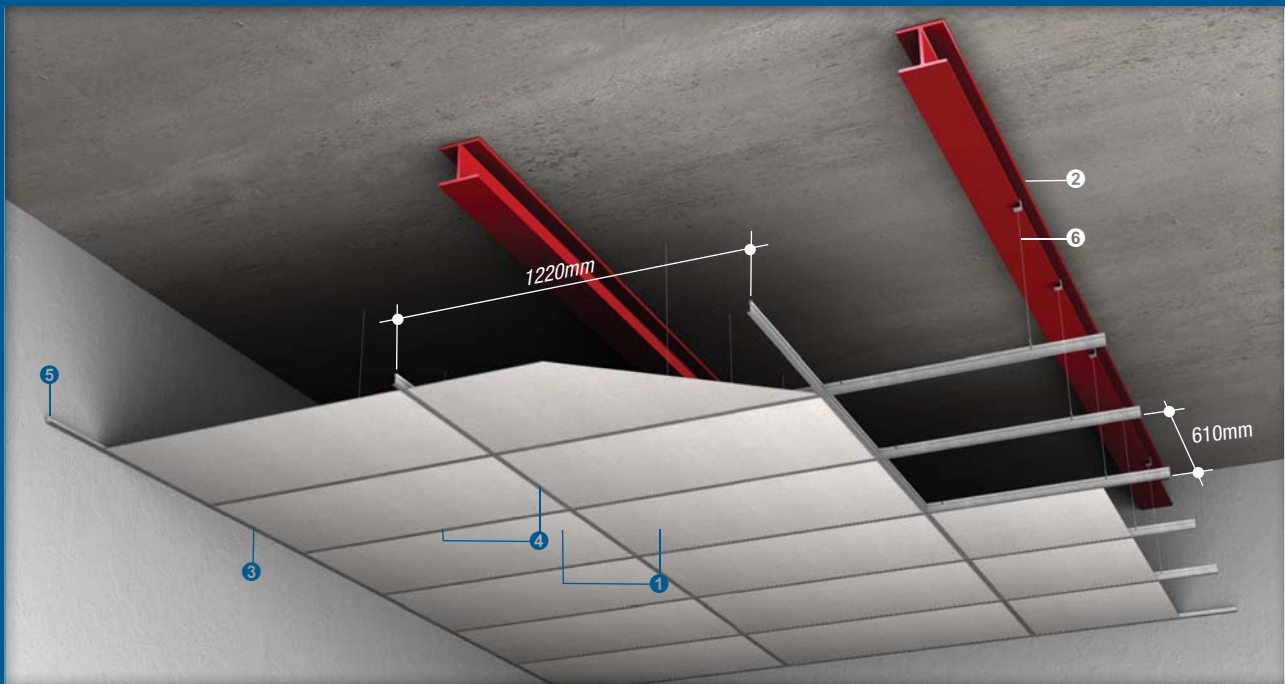
- ⁽¹⁾, ⁽²⁾, ⁽³⁾, ⁽⁴⁾, ⁽⁵⁾ delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

Fire attack from below / Loadbearing



Fire Resistance	FRL	30/30/30
	STANDARD	BS 476: Part 23: 1987
	APPROVAL	WARRES 36213
Acoustic	# STC	24dB
	# R _w	25dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 16th Aug 2007
Construction	CEILING THICKNESS	38mm
	CEILING MASS	From 6.8kg/m ²

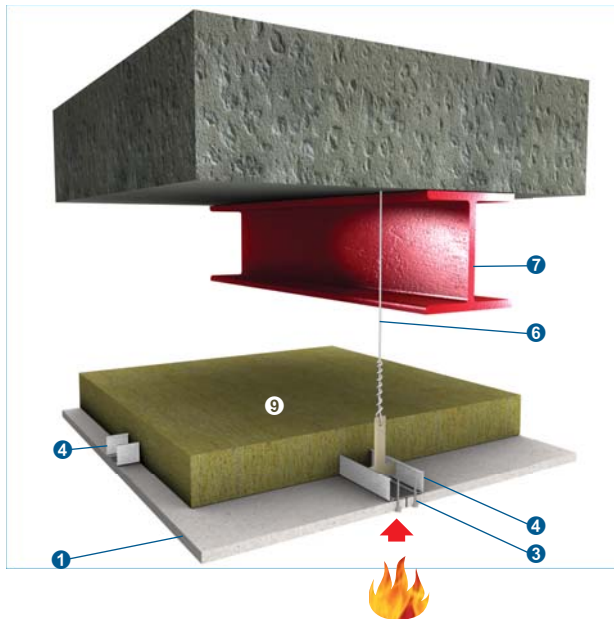
Margin of error is generally within ± 3 dB



- ❶ PROMATECT®-H board 9mm thick and 1195mm x 595mm or 595mm x 595mm, located at least 200mm from underside of structural steel beams
- ❷ Structural steel beam
- ❸ Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- ❹ Fire rated exposed T-grid, main T-grid at 600mm centres
- ❺ Steel perimeter angle 32mm x 19mm x 0.5mm thick
- ❻ Hanger at maximum 1220mm by 600mm centres with hanger wire at minimum diameter of 2mm

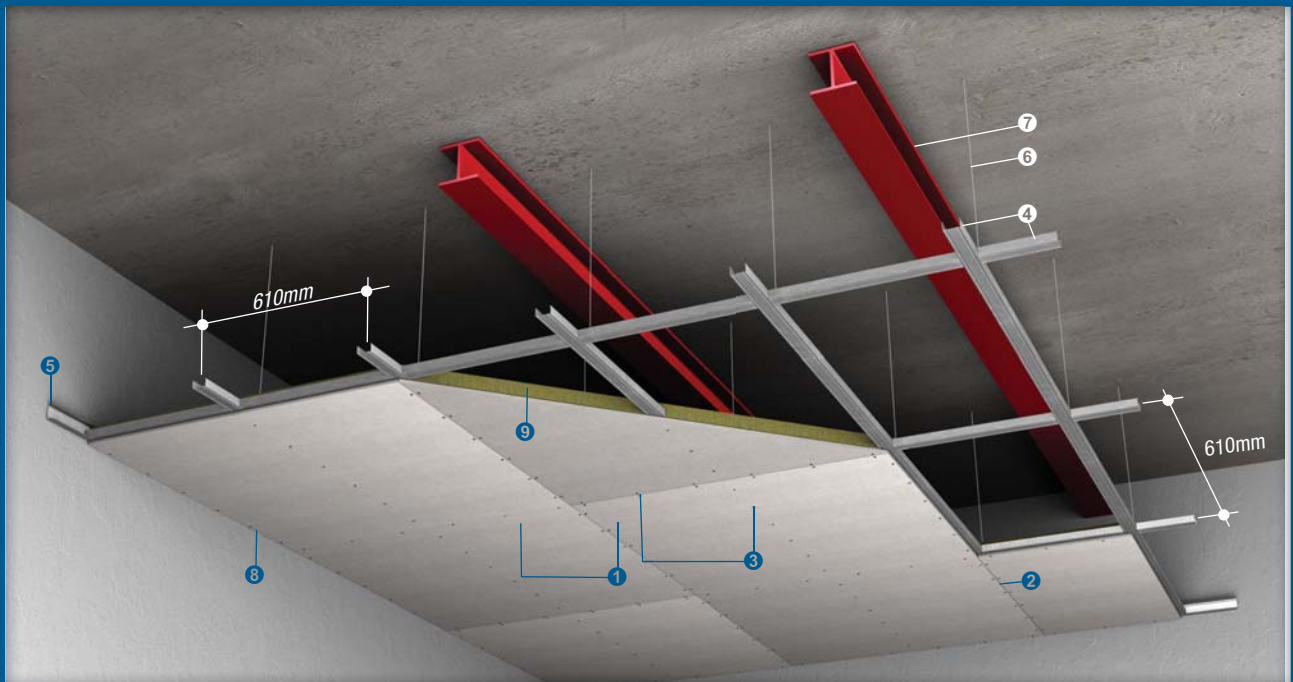
Please see page 5 for details of perimeter and control joints

Fire attack from below / Loadbearing



Fire Resistance	FRL	120/120/120
	STANDARD	BS 476: Part 23: 1987
	APPROVAL	FIRTO TE5763 BRE CC 81584B
Acoustic	# STC	29dB
	# R _w	29dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 16th Aug 2007
Construction	CEILING THICKNESS	62mm
	CEILING MASS	From 14.6kg/m ²

Margin of error is generally within ± 3 dB



- 1 PROMATECT®-H board 12mm thick
- 2 Longitudinal board joints to coincide with steel framework
- 3 32mm x No. 6 self-tapping screws at nominal 200mm centres
- 4 Steel channel 50mm x 27mm x 0.6mm thick at 610mm by 1220mm centres
- 5 Steel angle 38mm x 19mm x 0.5mm thick
- 6 Hanger at 1220mm centres with hanger rod of 6mm diameter
- 7 Structural steel beam
- 8 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- 9 Mineral wool minimum 50mm x 45kg/m³

Please see page 5 for details of perimeter and control joints

The following are standard Architectural Specifications for steel beam protection suspended membrane ceiling 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 Below / Loadbearing

Up to _____ minute⁽¹⁾ fire resistance, loadbearing capacity, integrity and _____ minute⁽²⁾ insulation in accordance with the criteria of BS 476: Part 23: 1987.

Supporting Structure

Care should be taken that any structural element by which the membrane ceiling system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than _____ minutes⁽¹⁾ and is capable of supporting the system for the required fire resistance.

Lining Boards

9mm or 12mm⁽³⁾ thick PROMATECT®-H matrix engineered mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1220mm x 2440mm x 9mm or 12mm⁽³⁾ thick.

Fixing

For exposed grid type steel beam protection suspended ceiling, perimeter galvanised steel angles 32mm x 19mm x 0.5mm thick will be fastened to the wall with 50mm x M6 metal anchors at 500mm maximum centres. Exposed primary T-grid will be positioned at 600mm nominal centres and suspended by steel wire of minimum 2mm diameter at 1200mm centres. Secondary T-grid will be positioned at 1200mm centres, simply resting on the primary T-grid at both ends. Exposed grid system should include expansion cut-outs in main T-grids.

The boards 9mm thick will be fitted within the T-grid.

For concealed grid type steel beam protection suspended ceiling, perimeter galvanised steel angles 38mm x 19mm x 0.5mm thick will be fastened to the wall with 50mm x M6 metal anchors at 500mm maximum centres. Steel primary channels 50mm x 27mm x 0.6mm will be positioned at 610mm nominal centres and suspended by steel hangers at 1200mm centres. Secondary channels will then be positioned at 1220mm centres and fixed to the primary channels.

The boards 12mm thick will be fixed to the underside side of the framework with self-tapping screws at 200mm maximum centres, a minimum of 12mm from the board edge. Board joints must coincide with the steel channels.

Mineral wool, 50mm thick x 45kg/m³ nominal density will be placed over the ceiling.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 23: 1987.

Jointing

Plain butt joints between machined edges of boards. ⁽⁴⁾

Joints filled in preparation for painting. ⁽⁵⁾

Joints filled and taped in preparation for decoration. ⁽⁶⁾

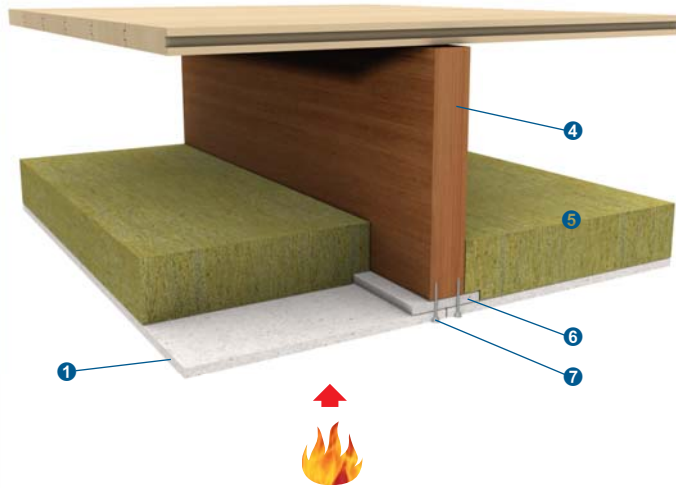
Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁷⁾ in accordance with manufacturer's recommendations.

NOTES:

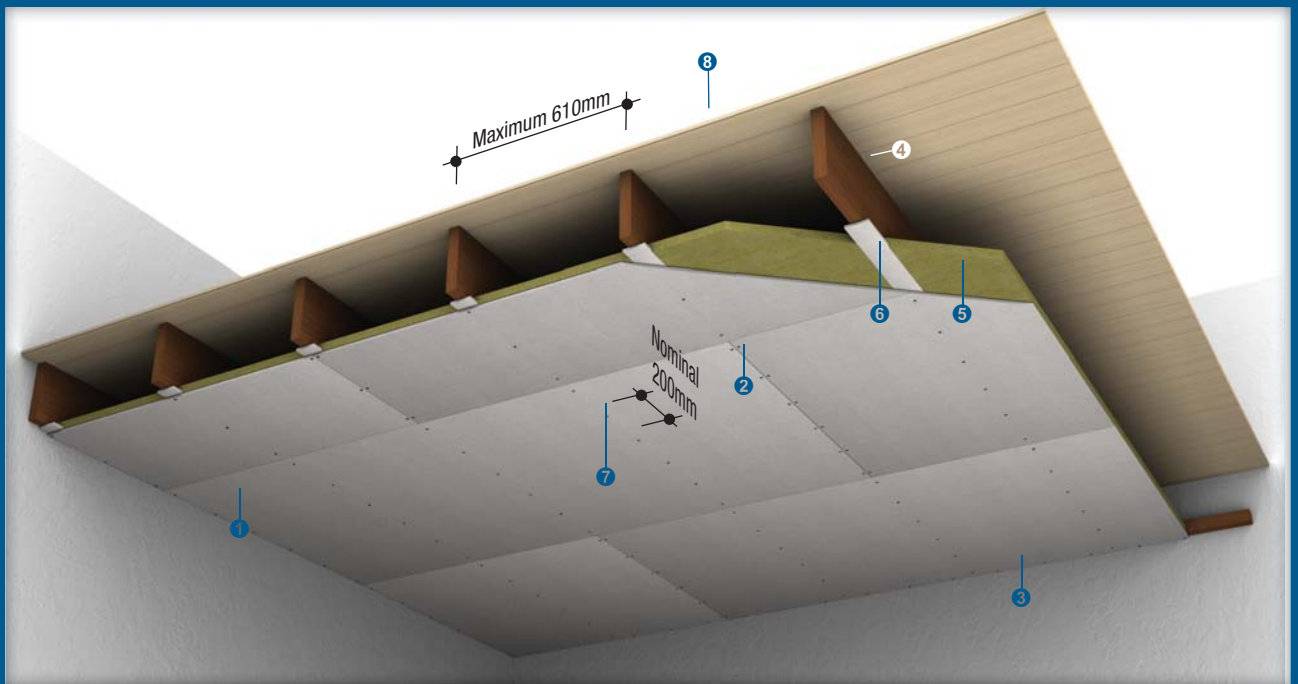
- ⁽¹⁾ insert required fire resistance level not exceeding 120 minutes.
- ⁽²⁾ insert required insulation level not exceeding the fire resistance level⁽¹⁾.
- ^{(3), (4), (5), (6), (7)} delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

Fire attack from below / Loadbearing



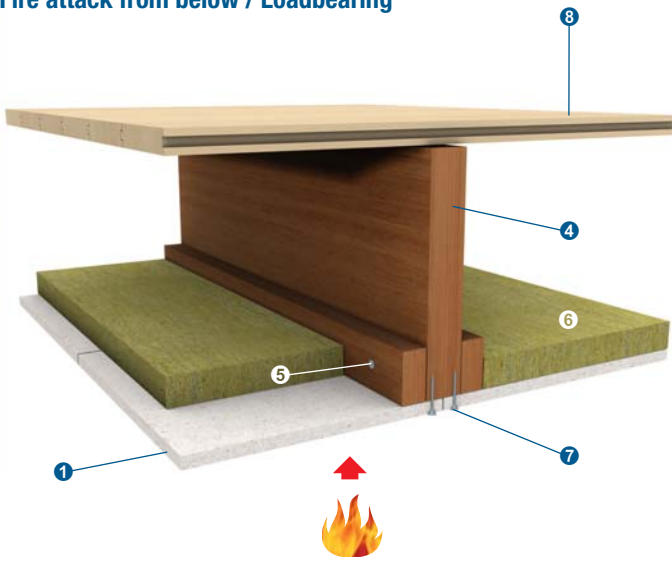
Fire Resistance	FRL	60/60/60
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	BRE CC 82043G
Acoustic	# STC	42dB
	# R _w	42dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 17th Aug 2007
Construction	FLOOR THICKNESS	From 259mm
	FLOOR MASS	From 13kg/m ²

Margin of error is generally within ± 3 dB



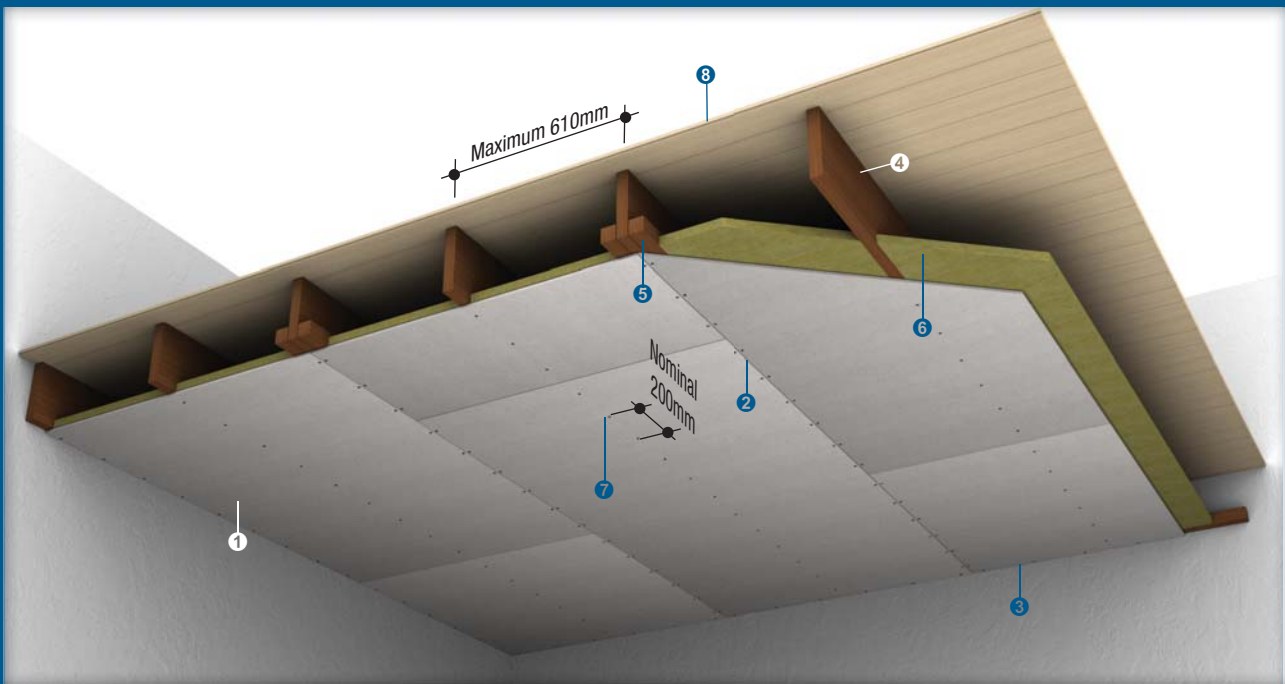
- 1 PROMATECT®-H board 9mm thick
- 2 Longitudinal butt joints to coincide with timber joists
- 3 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- 4 Timber joist minimum 225mm x 38mm at maximum 610mm centres
- 5 Mineral wool 40mm x 60kg/m³
- 6 PROMATECT®-H cover strip 75mm x 9mm thick fixed to the underside of joists and at tranverse board joints
- 7 75mm galvanised clout nails at nominal 200mm centres or 63mm x No. 8 woodscrews at nominal 300mm centres
- 8 Tongue-and-groove floorboards minimum 16mm thick

Fire attack from below / Loadbearing



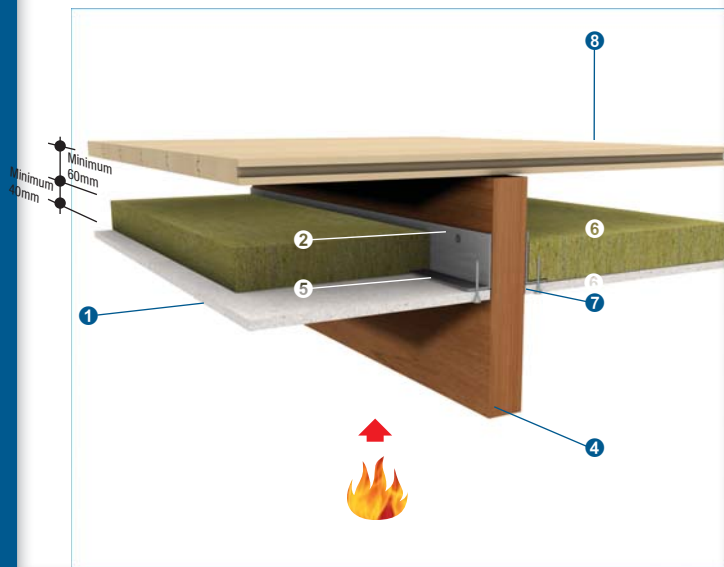
Fire Resistance	FRL	60/60/60
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	BRE CC 82043G
Acoustic	# STC	42dB
	# R _w	42dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 17th Aug 2007
Construction	FLOOR THICKNESS	From 253mm
	FLOOR MASS	From 14.9kg/m ²

Margin of error is generally within ± 3 dB



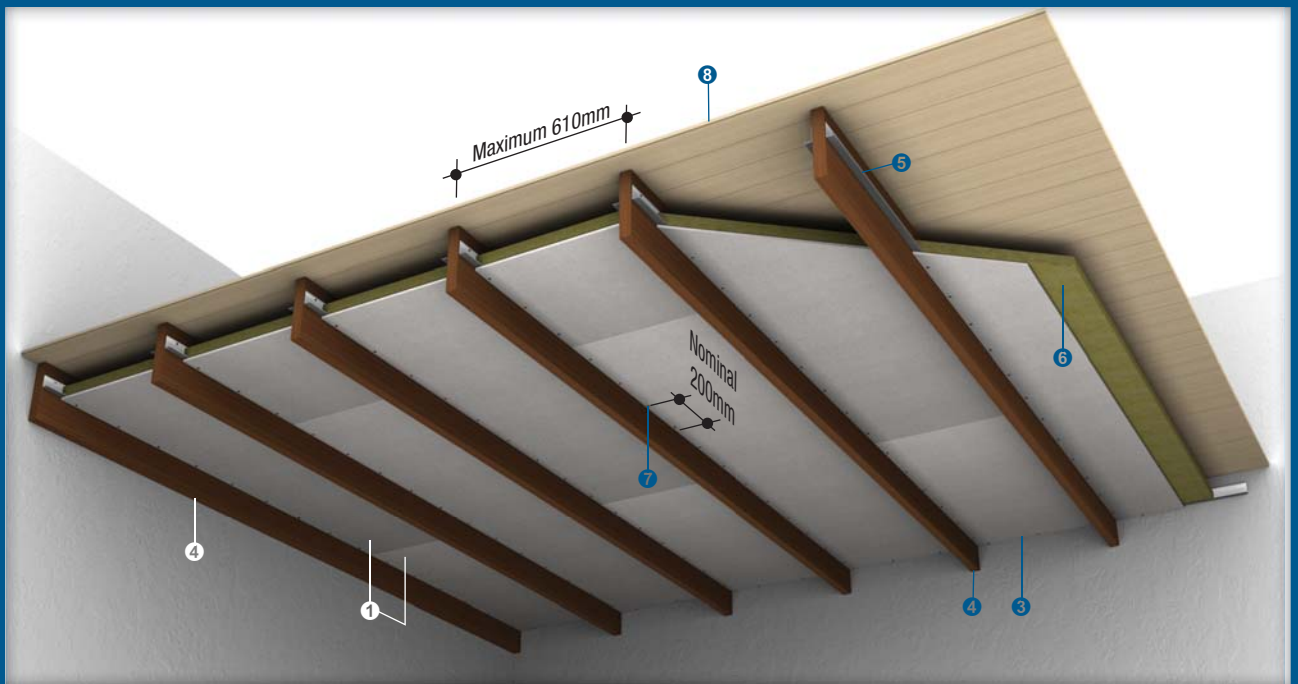
- ❶ PROMATECT®-H board 12mm thick
- ❷ Longitudinal butt joints to coincide with timber joists
- ❸ Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- ❹ Timber joist minimum 225mm x 38mm at maximum 610mm centres
- ❺ Softwood strip 50mm x 25mm, where joint coincides with timber joists. Not required if timber joist is at least 50mm wide
- ❻ Mineral wool 40mm x 60kg/m³
- ❼ 75mm galvanised clout nails or 63mm x No. 8 woodscrews, fix board to timber joists at nominal 300mm centres through the softwood strips to the joists
- ❽ Tongue-and-groove floorboards minimum 16mm thick

Fire attack from below / Loadbearing



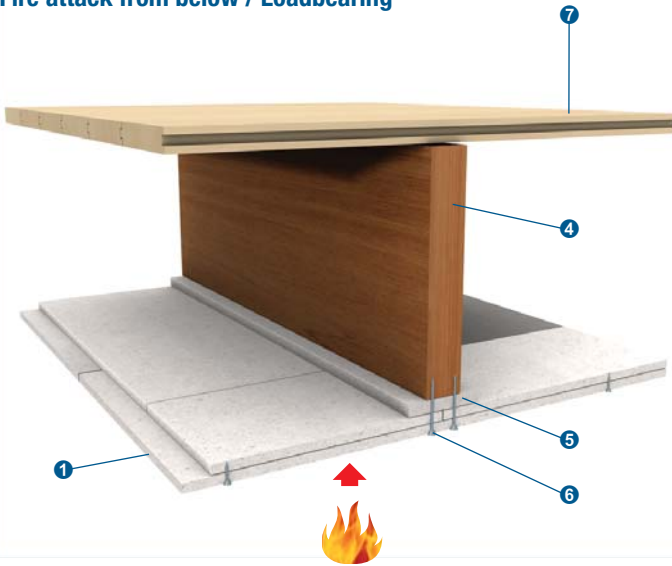
Fire Resistance	FRL	60/60/60
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	BRE CC 82043G
Acoustic	# STC	41dB
	# R _w	41dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
Construction	PREDICTED ASSESSMENT	Marshall Day 17th Aug 2007
	FLOOR THICKNESS	From 241mm
	FLOOR MASS	From 12.9kg/m ²

Margin of error is generally within ± 3 dB



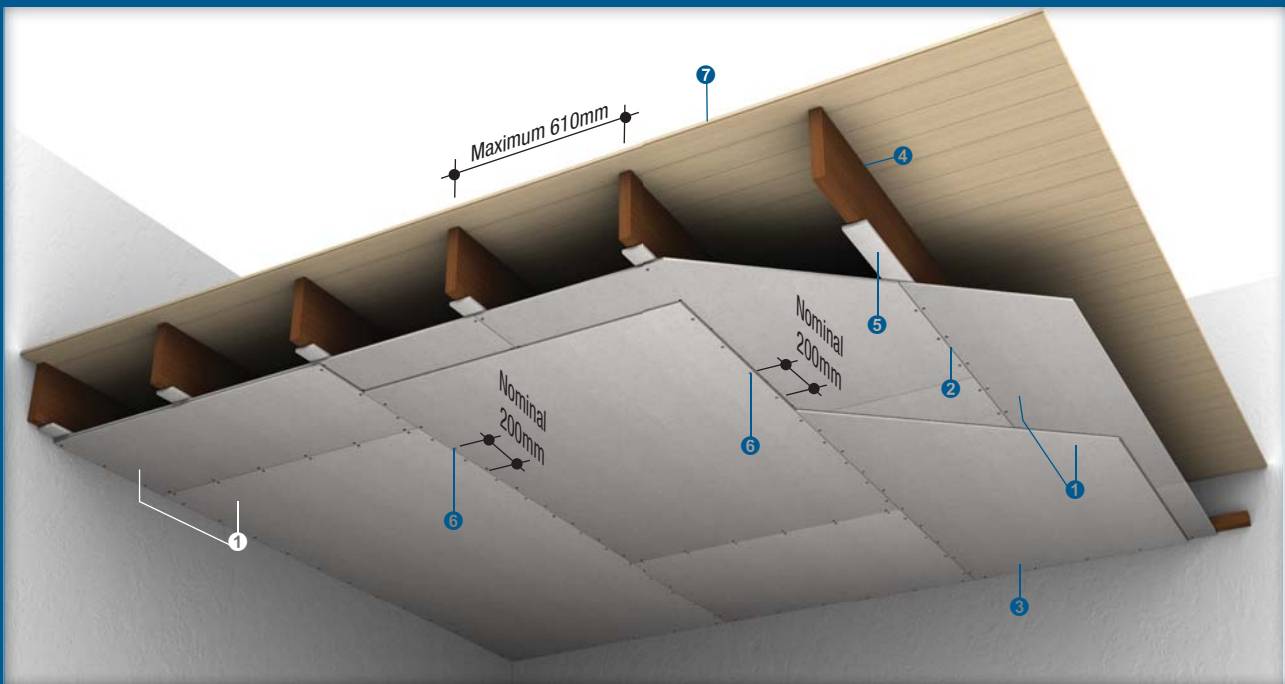
- 1 PROMATECT®-H board 9mm thick
- 2 25mm woodscrews fixed at upward angle of 10-15° at 300mm centres and located at least 40mm from the lower flange
- 3 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- 4 Timber joist minimum 225mm x 38mm at maximum 610mm centres. All joists must be designed in accordance with BS 5268: Part 4: Section 4.1. The residual section of the joists must be sufficient to meet the requirements of Clause 5.1 regarding the residual strength and deflection of the joists. If the joists are not strong enough to meet these requirements, they must either be increased in size or the ceiling boards must be moved lower down the joists
- 5 Steel angle 50mm x 25mm x 0.6mm thick
- 6 Mineral wool 40 x 60kg/m³
- 7 25mm self-tapping screws at 200mm centres
- 8 Tongue-and-groove floorboards minimum 16mm thick

Fire attack from below / Loadbearing



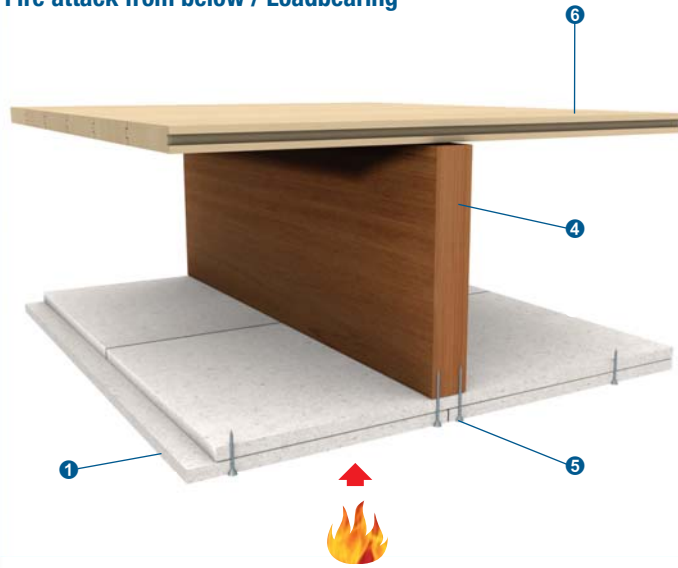
Fire Resistance	FRL	120/120/120
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	BRE letter FRO 512-2 FT 92-309-BS (22 nd Dec 1992)
Acoustic	# STC # R _w	45dB 45dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 17th Aug 2007
Construction	FLOOR THICKNESS	280mm
	FLOOR MASS	From 30kg/m ²

Margin of error is generally within ± 3 dB



- 1 Two layers of PROMATECT®-H board, each 12mm thick and stitched to one another at board joints using 38mm x No. 8 screws at 300mm centres. Stagger joints by at least 300mm
- 2 Longitudinal butt joints to coincide with timber joists
- 3 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- 4 Timber joist minimum 225mm x 50mm at maximum 610mm centres
- 5 PROMATECT®-H cover strip 100mm x 12mm thick fixed to the underside of joists and at transverse board joints
- 6 Galvanised clout nails or woodscrews at nominal 300mm centres
 - 63mm long to fix inner layer boards
 - 100mm long to fix outer layer boards
- 7 Tongue-and-groove floorboards minimum 19mm thick

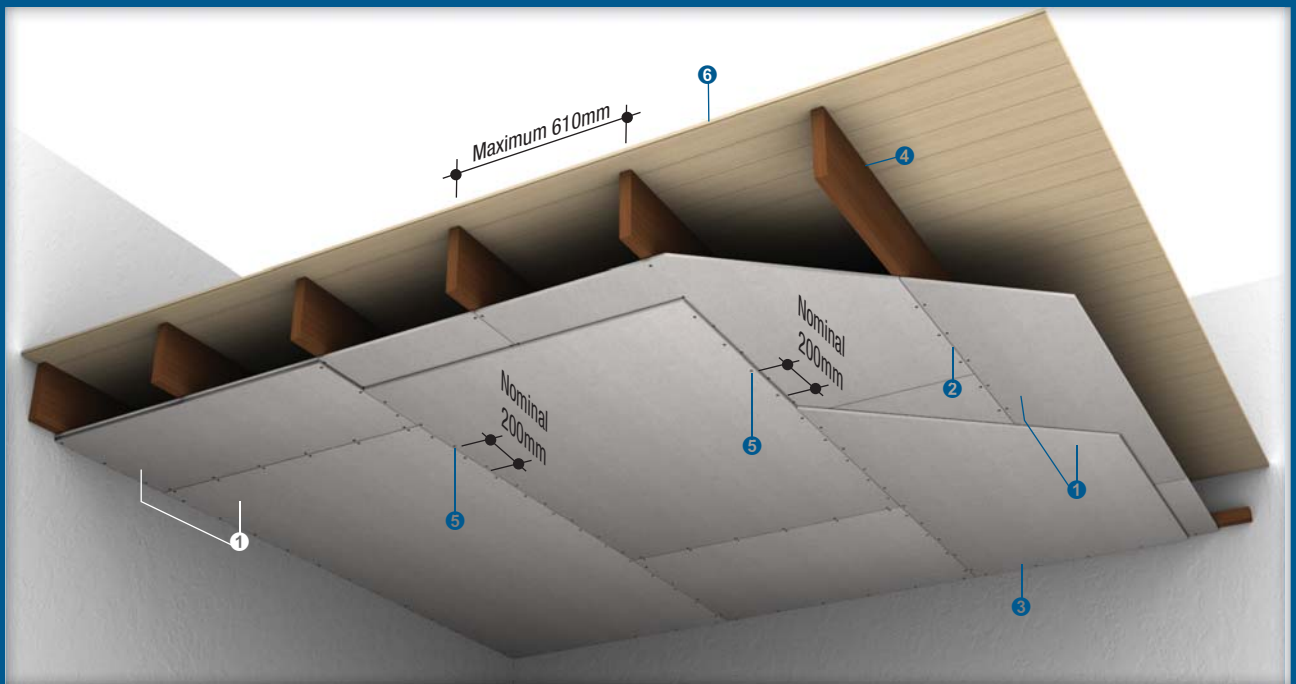
Fire attack from below / Loadbearing



Fire Resistance	FRL	120/120/120
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	WARRES 48333
Acoustic	# STC	45dB
	# R _w	45dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 17th Aug 2007
Construction	FLOOR THICKNESS	274mm
	FLOOR MASS*	From 31.2kg/m ²

Margin of error is generally within ± 3 dB

* Based on nominal weight of the board



- 1 Two layers of PROMATECT®-H board, each 15mm thick and stitched to one another at board joints using No. 8 screws 38mm long at 300mm centres. Stagger joints by at least 300mm
- 2 Longitudinal butt joints to coincide with timber joists
- 3 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- 4 Timber joist minimum 225mm x 50mm at maximum 610mm centres
- 5 Galvanised clout nails 63mm long fixed through first layer of boards to timber joists at 400mm centres, No. 10 screws 100mm long fixed through second layer to timber joists at 300mm centres
- 6 Tongue-and-groove floorboards minimum 19mm thick

The following are standard Architectural Specifications for timber floor protection 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 Below / Loadbearing

Up to _____ minute⁽¹⁾ fire resistance, loadbearing capacity, integrity and _____ minute⁽²⁾ insulation in accordance with the criteria of BS 476: Part 21: 1987.

Supporting Structure

Care should be taken that any structural element by which the floor protection system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than _____ minutes⁽¹⁾ and is capable of supporting the system for the required fire resistance.

Lining Boards

One or two⁽³⁾ layers of 9mm, 12mm or 15mm⁽³⁾ thick PROMATECT®-H matrix engineered mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1220mm x 2440mm x 9mm, 12mm or 15mm⁽³⁾ thick.

Fixing

Timber joists of minimum dimension 225mm deep x 38mm wide for fire rating up to 60 minutes, or 50mm wide for fire resistance up to 120 minutes, will be located at 610mm nominal intervals, spanning between two walls. Floor boards of minimum thickness 16mm or 19mm⁽³⁾ (according to the system specification) will be laid over the top side of the timber joists.

Where required and in accordance with the system specification, PROMATECT®-H cover strips, will be fixed to the underside of the timber joist with clout nails or woodscrews. For single layer board system, these cover strips will be located and fixed at the transverse board joints.

One or two⁽³⁾ layers of 9mm, 12mm or 15mm⁽³⁾ thick PROMATECT®-H will be fixed to the underside of the floor with clout nails or screws according to the system specification. For double layer system, the joints between the adjacent layers will be staggered by at least 300mm.

Where required and in accordance with the system specification, mineral wool of 40mm thick x 60kg/m³ nominal density will be placed over the PROMATECT®-H boards.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 21: 1987.

Jointing

Plain butt joints between machined edges of boards. ⁽⁴⁾

Joints filled in preparation for painting. ⁽⁵⁾

Joints filled and taped in preparation for decoration. ⁽⁶⁾

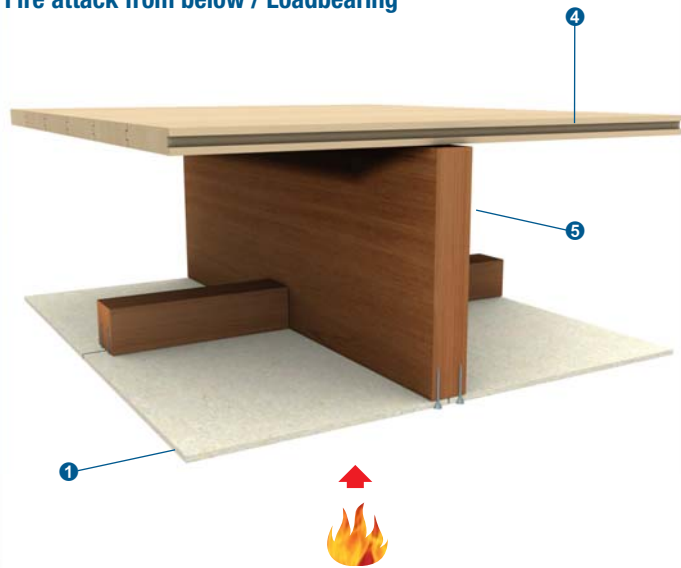
Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁷⁾ in accordance with manufacturer's recommendations.

NOTES:

- ⁽¹⁾ insert required fire resistance level not exceeding 120 minutes.
- ⁽²⁾ insert required insulation level not exceeding the fire resistance level⁽¹⁾.
- ^{(3), (4), (5), (6), (7)} delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

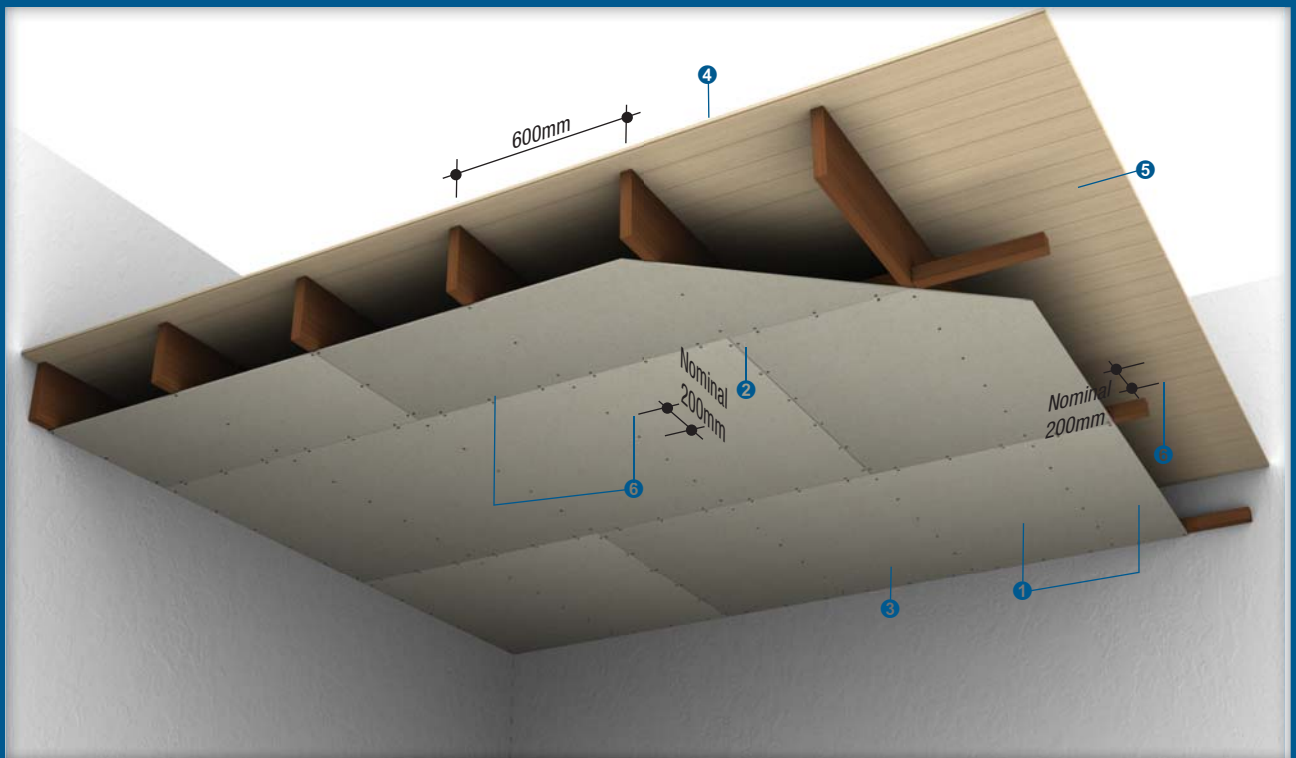
Fire attack from below / Loadbearing



Fire Resistance	FRL	30/30/30
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	LPC TE200478
Acoustic	# STC	39dB
	# R _w	39dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
Construction	PREDICTED ASSESSMENT	Marshall Day 20th Aug 2007
	FLOOR THICKNESS	249mm
	FLOOR MASS*	6.5kg/m ²

Margin of error is generally within ± 3 dB

* Based on nominal weight of the board



- 1 PROMINA® 60 board 6mm thick
- 2 Longitudinal butt joints to coincide with timber joists
- 3 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- 4 Timber joist minimum 225mm x 38mm at 610mm centres
- 5 Timber cross-nogging, minimum 50mm x 50mm located above transverse board joints at nominal 1220mm centres
- 6 Tongue-and-groove floorboards minimum 18mm thick
- 7 50mm galvanised clout nails or woodscrews fixed through board to timber joists at nominal 200mm centres

The following are standard Architectural Specifications for timber floor protection systems using PROMINA® 60. 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 Below / Loadbearing

Up to 30 minute fire resistance, loadbearing capacity, integrity and insulation in accordance with the criteria of BS 476: Part 21: 1987.

Supporting Structure

Care should be taken that any structural element by which the floor protection system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than 30 minutes and is capable of supporting the system for the required fire resistance.

Lining Boards

6mm thick PROMINA® 60 matrix engineered mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1220mm x 2440mm x 6mm thick.

Fixing

Timber joists of minimum dimension 225mm deep x 38mm wide for fire rating up to 30 minutes will be located at 610mm nominal intervals, spanning between two walls. Timber cross noggings minimum 50mm x 50mm are fixed to the timber joists and positioned at 1220mm centres. Floorboards of minimum thickness 18mm will be laid over the top side of the timber joists.

The boards 6mm thick will be fixed to the underside side of the timber framework with 50mm long galvanised clout nails or woodscrews at 200mm maximum centres, a minimum of 12mm from the board edge. Board joints must coincide with the timber framework.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 21: 1987.

Jointing

Plain butt joints between machined edges of boards. ⁽¹⁾

Joints filled in preparation for painting. ⁽²⁾

Joints filled and taped in preparation for decoration. ⁽⁴⁾

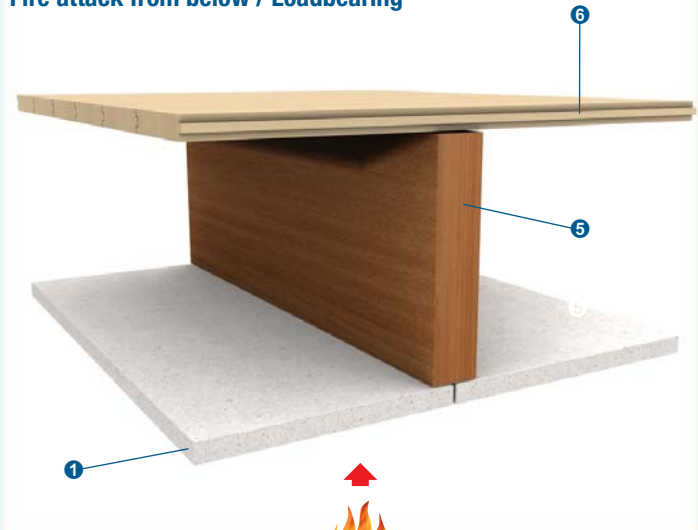
Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁴⁾ in accordance with manufacturer's recommendations.

NOTES:

- ^{(1), (2), (3), (4)} delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

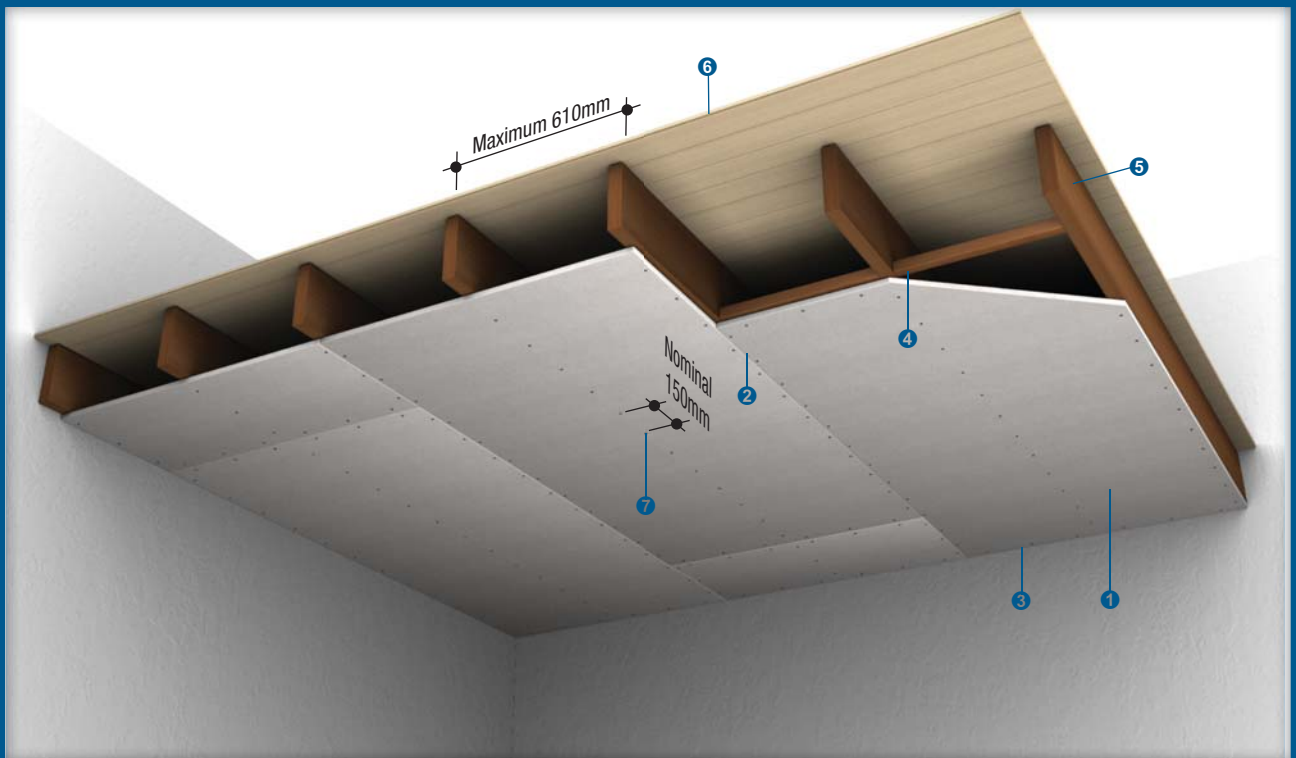
Fire attack from below / Loadbearing



Fire Resistance	FRL	60/60/60
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	BRANZ FAR 2886
Acoustic	# STC	43dB
	# R _w	43dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 20th Aug 2007
Construction	MAXIMUM SPAN	300mm
	FLOOR THICKNESS	267mm
	FLOOR MASS*	16.6kg/m ²

Margin of error is generally within ± 3 dB

* Based on nominal weight of the board



- ❶ PROMATECT® 100 board 20mm thick
- ❷ Longitudinal board joints to coincide with timber joists
- ❸ Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- ❹ Timber nogging 38mm x 38mm at 1250mm centres and to coincide with transverse board joints
- ❺ Timber joist minimum 225mm x 48mm at maximum 600 centres
- ❻ Tongue-and-groove floorboards 22mm thick
- ❼ 50mm long galvanised clout nails or woodscrews at nominal 150mm centres

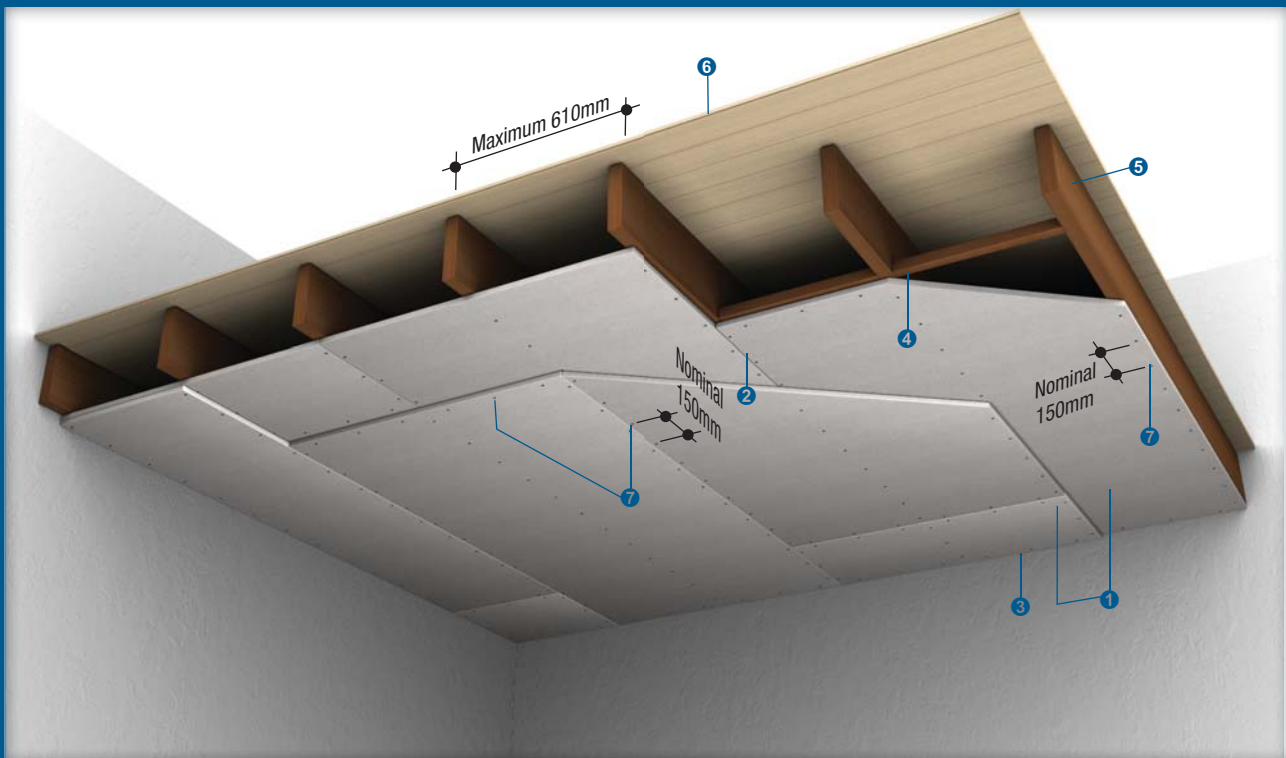
Fire attack from below / Loadbearing



Fire Resistance	FRL	90/90/90
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	LPC TE90019
Acoustic	# STC	43dB
	# R _w	43dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 20th Aug 2007
Construction	MAXIMUM SPAN	300mm
	FLOOR THICKNESS	267mm
	FLOOR MASS*	16.6kg/m ²

Margin of error is generally within ± 3 dB

* Based on nominal weight of the board



- ❶ Two layers of PROMATECT® 100 board, each 10mm thick
- ❷ Longitudinal board joints to coincide with timber joists, longitudinal board joints between the 2 layers must be staggered by 600mm
- ❸ Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- ❹ Timber noggings 38mm x 38mm at 1250mm centres and to coincide with transverse board joints in the 1st layer
- ❺ Timber joist minimum 225mm x 48mm at maximum 600 centres
- ❻ Tongue-and-groove floorboards 22mm thick
- ❼ 50mm long galvanised clout nails or woodscrews at nominal 150mm centres

The following are standard Architectural Specifications for timber floor protection systems using PROMATECT® 100. 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 Below / Loadbearing

Up to _____ minute⁽¹⁾ fire resistance, loadbearing capacity, integrity and _____ minute⁽²⁾ insulation in accordance with the criteria of BS 476: Part 21: 1987.

Supporting Structure

Care should be taken that any structural element by which the floor protection system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than _____ minutes⁽¹⁾ and is capable of supporting the system for the required fire resistance.

Lining Boards

One or two⁽³⁾ layers of 10mm or 20mm⁽³⁾ thick PROMATECT® 100 PromaX® mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1200mm x 2500mm x 10mm or 20mm⁽³⁾ thick.

Fixing

Timber floor comprising of timber joists, 225mm x 48mm, at 600mm centres with tongue-and-groove chipboard flooring of 22mm thickness. Timber cross noggings, 38mm x 38mm, are to be located between the joists and spaced at 1250mm intervals such that they coincide with the transverse 60 minutes joints of the first layer of the PROMATECT® 100 boards.

For 60 minute fire resistance, one layer of 20mm thick PROMATECT® 100 is fixed to the timber framework using either galvanised clout nails or woodscrews of 50mm long at nominal 150mm centres, and a minimum of 12mm from board edge.

For 90 minute fire resistance, first layer of PROMATECT® 100 boards is fixed to the timber framework using either galvanised clout nails or woodscrews of 50mm long at nominal 150mm centres, and a minimum of 12mm from the board edge. The second layer of PROMATECT® 100 boards is then lined against the first layer and fixed to the timber framework with 50mm long nails or screws in a similar manner.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 21: 1987.

Jointing

Plain butt joints between machined edges of boards. ⁽⁴⁾

Joints filled in preparation for painting. ⁽⁵⁾

Joints filled and taped in preparation for decoration. ⁽⁶⁾

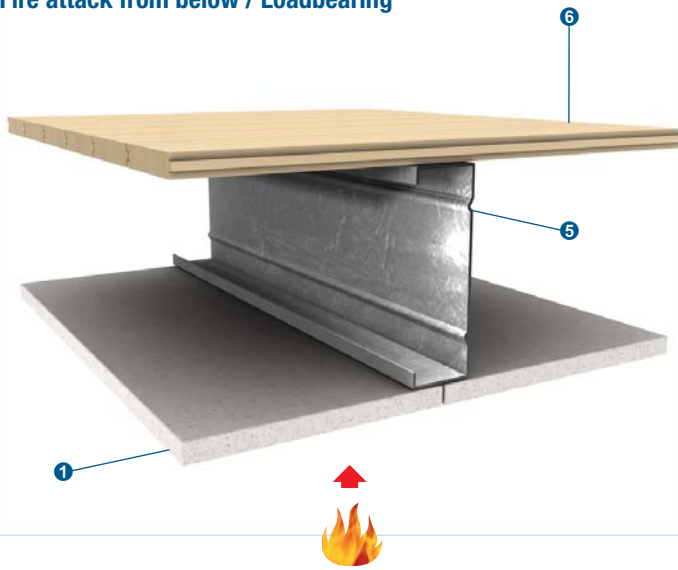
Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁷⁾ in accordance with manufacturer's recommendations.

NOTES:

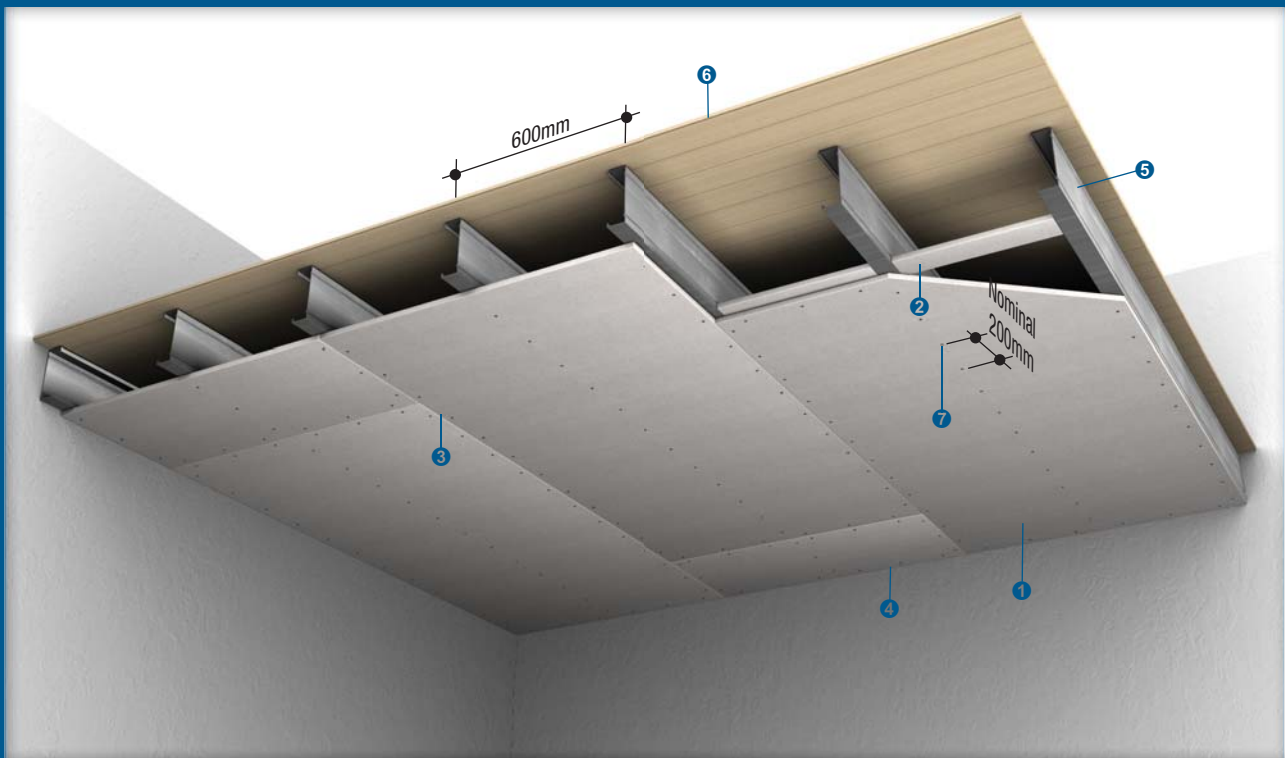
- ⁽¹⁾ insert required fire resistance level not exceeding 90 minutes.
- ⁽²⁾ insert required insulation level not exceeding the fire resistance level⁽¹⁾.
- ⁽³⁾, ⁽⁴⁾, ⁽⁵⁾, ⁽⁶⁾, ⁽⁷⁾ delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

Fire attack from below / Loadbearing



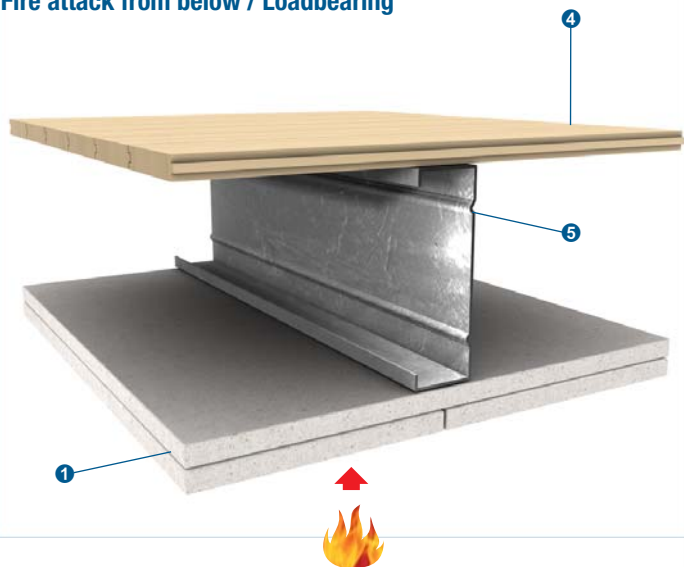
Fire Resistance	FRL	60/60/60
	STANDARD	AS 1530: Part 4: 2005
	APPROVAL	BRE CC 237274
Acoustic	# STC	36dB
	# R _w	36dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 20th Aug 2007
Construction	FLOOR THICKNESS	253mm
	FLOOR MASS	From 19.44kg/m ²

Margin of error is generally within ± 3 dB



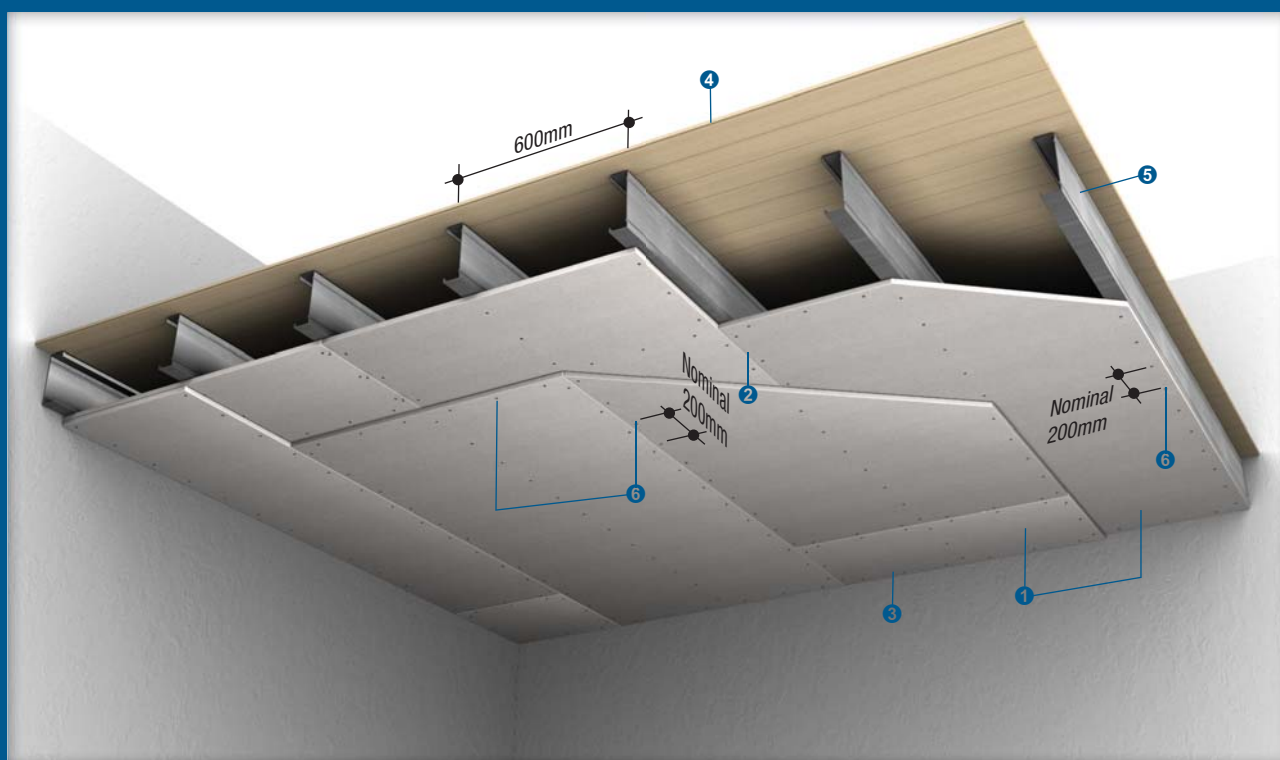
- ❶ PROMATECT® 100 board 20mm thick
- ❷ PROMATECT® 100 cover strip 100mm wide x 20mm thick located behind transverse board joint
- ❸ Longitudinal board joint to coincide with steel framework
- ❹ Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- ❺ Steel joist channel 200mm x 65mm x 15mm x 1.5mm thick at 600mm centres
- ❻ Tongue-and-groove floorboards 38mm thick
- ❼ 35mm x No. 8 steel screws at nominal 200mm centres along all joists

Fire attack from below / Loadbearing



Fire Resistance	FRL	120/120/120
	STANDARD	AS 1530: Part 4: 2005
	APPROVAL	BRE CC 234729
Acoustic	# STC	39dB
	# R _w	39dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
Construction	PREDICTED ASSESSMENT	Marshall Day 20th Aug 2007
	FLOOR THICKNESS	278mm
	FLOOR MASS	31.9kg/m ²

Margin of error is generally within ±3dB



- 1 Two layers of PROMATECT® 100 board, each 20mm thick
- 2 All longitudinal board joints must be coincident with the steel framework, longitudinal board joints between the 2 layers must be staggered by 600mm.
- 3 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- 4 Tongue-and-groove floorboards 38mm thick
- 5 Steel channel 200mm x 65mm x 15mm x 1.5mm thick at 600mm centres
- 6 No. 8 steel screws at nominal 200mm centres along all joists
 - 35mm long to screw first layer to joists
 - 50mm long to screw second layer to joists

The following are standard Architectural Specifications for mezzanine floor systems using PROMATECT® 100. 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 Below / Loadbearing

Up to _____ minute⁽¹⁾ fire resistance, loadbearing capacity, integrity and _____ minute⁽²⁾ insulation in accordance with the criteria of AS 1530: Part 4: 2005.

Supporting Structure

Care should be taken that any structural element by which the mezzanine floor system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than _____ minutes⁽¹⁾ and is capable of supporting the system for the required fire resistance.

Lining Boards

One or two⁽³⁾ layers of 20mm thick PROMATECT® 100 PromaX® mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1200mm x 2500mm x 20mm thick.

Fixing

Mezzanine floor comprising of steel joists, 200mm x 65mm x 15mm x 1.5mm, at 600mm centres with tongue-and-groove chipboard flooring of 38mm thickness.

The first layer of PROMATECT® 100 boards is fixed to the steel framework using 35mm x No. 8 steel screws at nominal 200mm centres, and a minimum of 12mm from the board edge. Where required, one layer of PROMATECT® 100 cover strips 100mm wide x 20mm thick is located behind the transverse board joints. The second layer of PROMATECT® 100 boards, where required, is then lined against the first layer and fixed to the steel framework with 50mm x No. 8 steel screws at nominal 200mm centres.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of AS 1530: Part 4: 2005.

Jointing

Plain butt joints between machined edges of boards. ⁽³⁾

Joints filled in preparation for painting. ⁽⁴⁾

Joints filled and taped in preparation for decoration. ⁽⁵⁾

Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁶⁾ in accordance with manufacturer's recommendations.

NOTES:

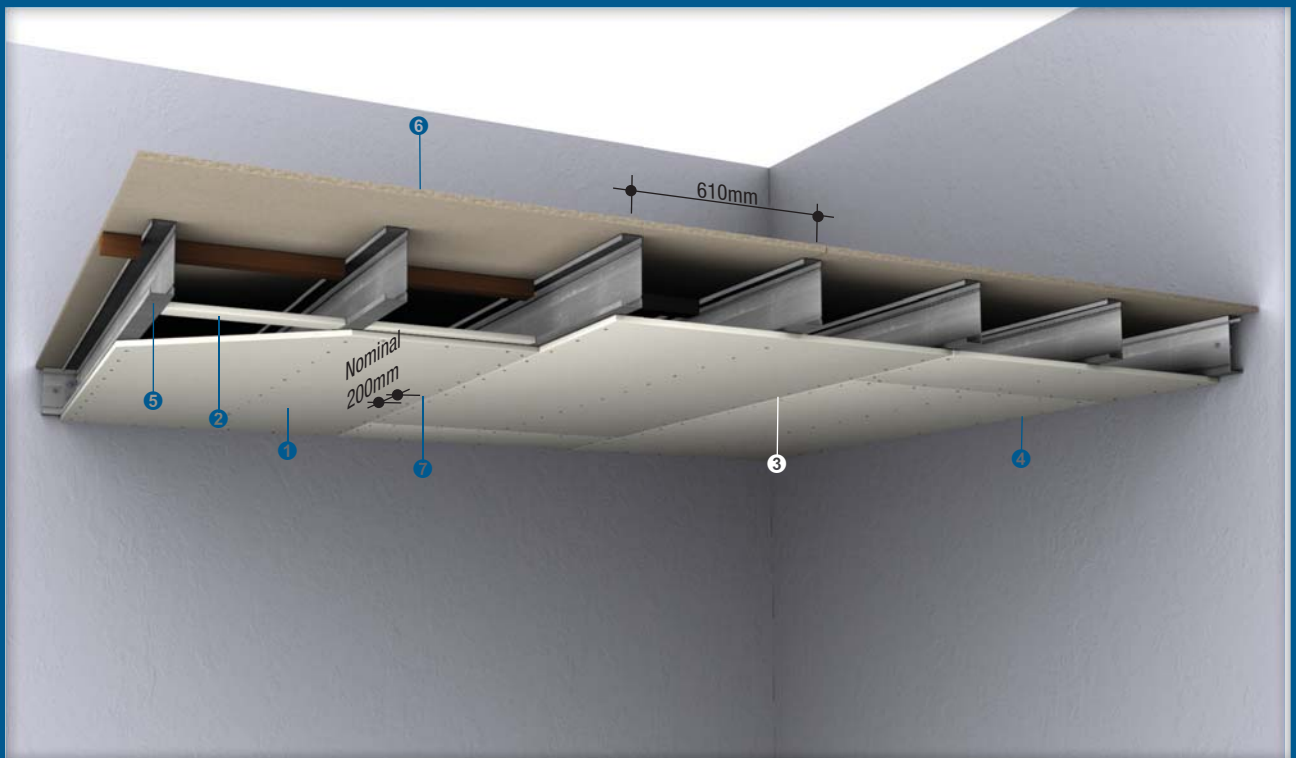
- ⁽¹⁾ insert required fire resistance level not exceeding 120 minutes.
- ⁽²⁾ insert required insulation level not exceeding the fire resistance level⁽¹⁾.
- ^{(3), (4), (5), (6)} delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

Fire attack from below / Loadbearing



Fire Resistance	FRL	60/60/60
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	BRANZ FR 4120
Acoustic	# STC	47dB
	# R _w	47dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 20th Aug 2007
Construction	FLOOR THICKNESS	235mm
	FLOOR MASS	From 36kg/m ²

Margin of error is generally within ±3dB



- ❶ PROMATECT® 50 board 15mm thick
- ❷ PROMATECT® 50 cover strip 100mm wide x 20mm thick located behind transverse board joint
- ❸ Board joint to coincide with steel framework
- ❹ Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- ❺ Steel joist channel 200mm x 75mm x 1.45mm thick at 610mm centres
- ❻ Particle board flooring 20mm thick
- ❼ 40mm x No. 8 steel screws at nominal 200mm centres into steel joists

The following are standard Architectural Specifications for mezzanine floor systems using PROMATECT® 50. 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 Below / Loadbearing

Up to 60 minute fire resistance, loadbearing capacity, integrity and insulation in accordance with the criteria of BS 476: Part 21: 1987.

Supporting Structure

Care should be taken that any structural element by which the mezzanine floor system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than 60 minutes and is capable of supporting the system for the required fire resistance.

Lining Boards

15mm thick PROMATECT® 50 cement bound matrix boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1220mm x 2440mm x 15mm thick.

Fixing

Mezzanine floor comprising of steel joists, 200mm x 75mm x 1.45mm, at 610mm centres with tongue-and-groove chipboard flooring of 20mm thickness.

PROMATECT® 50 boards are fixed to the steel framework using 40mm x No. 8 self-tapping screws at nominal 200mm nominal centres and a minimum of 12mm from the board edge. Where required, one layer of PROMATECT® 50 cover strips 100mm wide x 15mm thick are located behind the transverse board joints.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 21: 1987.

Jointing

Plain butt joints between machined edges of boards. ⁽³⁾

Joints filled in preparation for painting. ⁽⁴⁾

Joints filled and taped in preparation for decoration. ⁽⁵⁾

Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁶⁾ in accordance with manufacturer's recommendations.

NOTES:

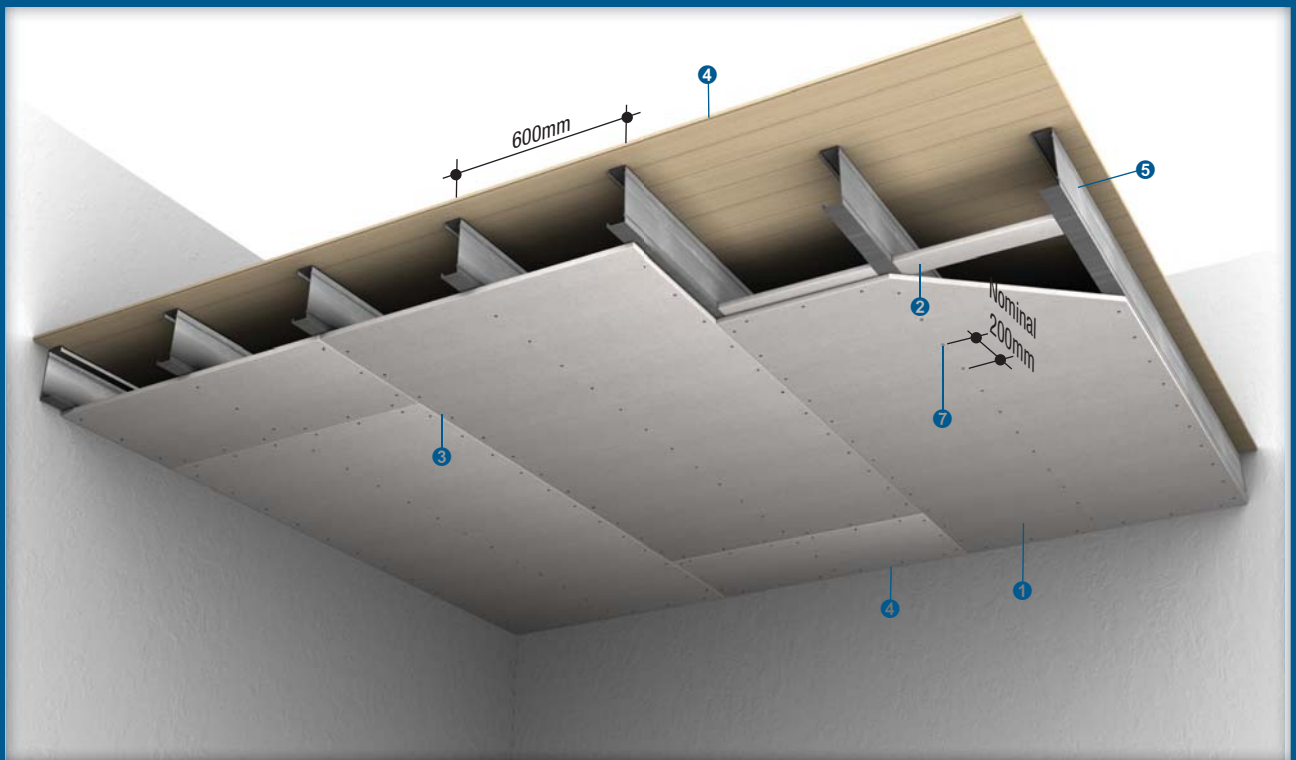
- (3), (4), (5), (6) delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

Fire attack from below / Loadbearing



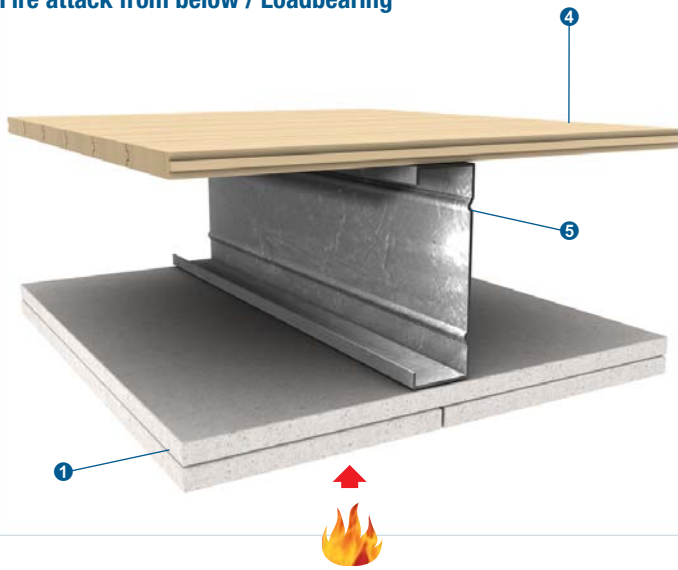
Fire Resistance	FRL	60/60/60
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	WF 148829
Acoustic	# STC	42dB
	# R _w	42dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
Construction	PREDICTED ASSESSMENT	Marshall Day 20th Aug 2007
	FLOOR THICKNESS	253mm
	FLOOR MASS	From 21.32kg/m ²

Margin of error is generally within ±3dB



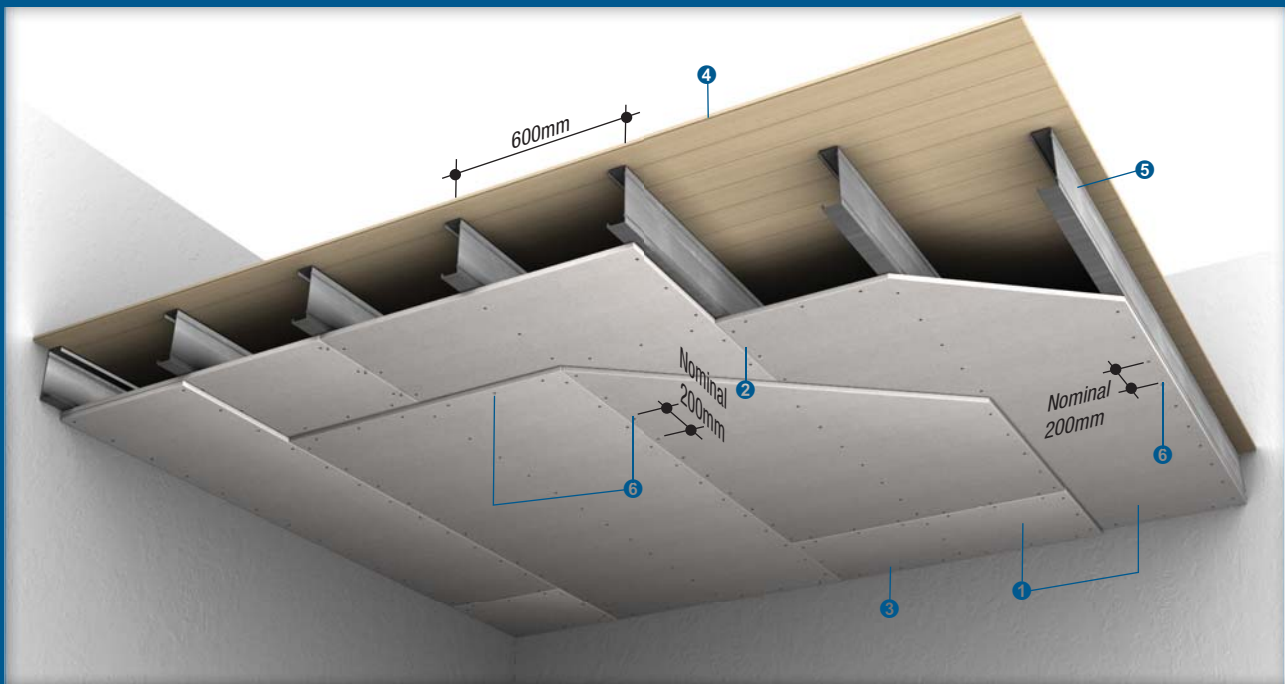
- 1 PROMATECT® 250 board 15mm thick
- 2 PROMATECT® 250 cover strip 100mm wide x 15mm thick located behind transverse board joint
- 3 Longitudinal board joint to coincide with steel framework
- 4 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- 5 Steel joist channel 200mm x 65mm x 15mm x 1.5mm thick at 600mm centres
- 6 Tongue-and-groove floorboards 38mm thick
- 7 35mm x No. 8 steel screws at nominal 200mm centres along all joists

Fire attack from below / Loadbearing



Fire Resistance	FRL	120/120/120
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	WF 148830
Acoustic	# STC	44dB
	# R _w	44dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 20th Aug 2007
Construction	FLOOR THICKNESS	268mm
	FLOOR MASS	29.6kg/m ²

Margin of error is generally within ± 3 dB



- 1 Two layers of PROMATECT® 250 board, each 15mm thick
- 2 All longitudinal board joints must be coincident with the steel framework, longitudinal board joints between the 2 layers must be staggered by 600mm
- 3 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- 4 Tongue-and-groove floorboards 38mm thick
- 5 Steel channel 200mm x 65mm x 15mm x 1.5mm thick at 600mm centres
- 6 No. 8 steel screws at nominal 200mm centres along all joists
 - 35mm long to screw first layer to joists
 - 50mm long to screw second layer to joists

The following are standard Architectural Specifications for mezzanine floor systems using PROMATECT® 250. 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 Below / Loadbearing

Up to _____ minute⁽¹⁾ fire resistance, loadbearing capacity, integrity and _____ minute⁽²⁾ insulation in accordance with the criteria of BS 476: Part 21: 1987.

Supporting Structure

Care should be taken that any structural element by which the mezzanine floor system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than _____ minutes⁽¹⁾ and is capable of supporting the system for the required fire resistance.

Lining Boards

One or two⁽³⁾ layers of 15mm thick PROMATECT® 250 PromaX® mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1200mm x 2500mm x 15mm thick.

Fixing

Mezzanine floor comprising of steel joists, 200mm x 65mm x 15mm x 1.5mm, at 600mm centres with tongue-and-groove chipboard flooring of 38mm thickness.

The first layer of PROMATECT® 250 boards is fixed to the steel framework using 35mm x No. 8 steel screws at nominal 200mm centres and a minimum of 12mm from the board edge. Where required, one layer of PROMATECT® 250 cover strip 100mm wide x 15mm thick is located behind the transverse board joints. The second layer of PROMATECT® 250 boards, where required, is then lined against the first layer and fixed to the steel framework with 50mm x No. 8 steel screws at nominal 200mm centres.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 21: 1987.

Jointing

Plain butt joints between machined edges of boards. ⁽⁴⁾

Joints filled in preparation for painting. ⁽⁵⁾

Joints filled and taped in preparation for decoration. ⁽⁶⁾

Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁷⁾ in accordance with manufacturer's recommendations.

NOTES:

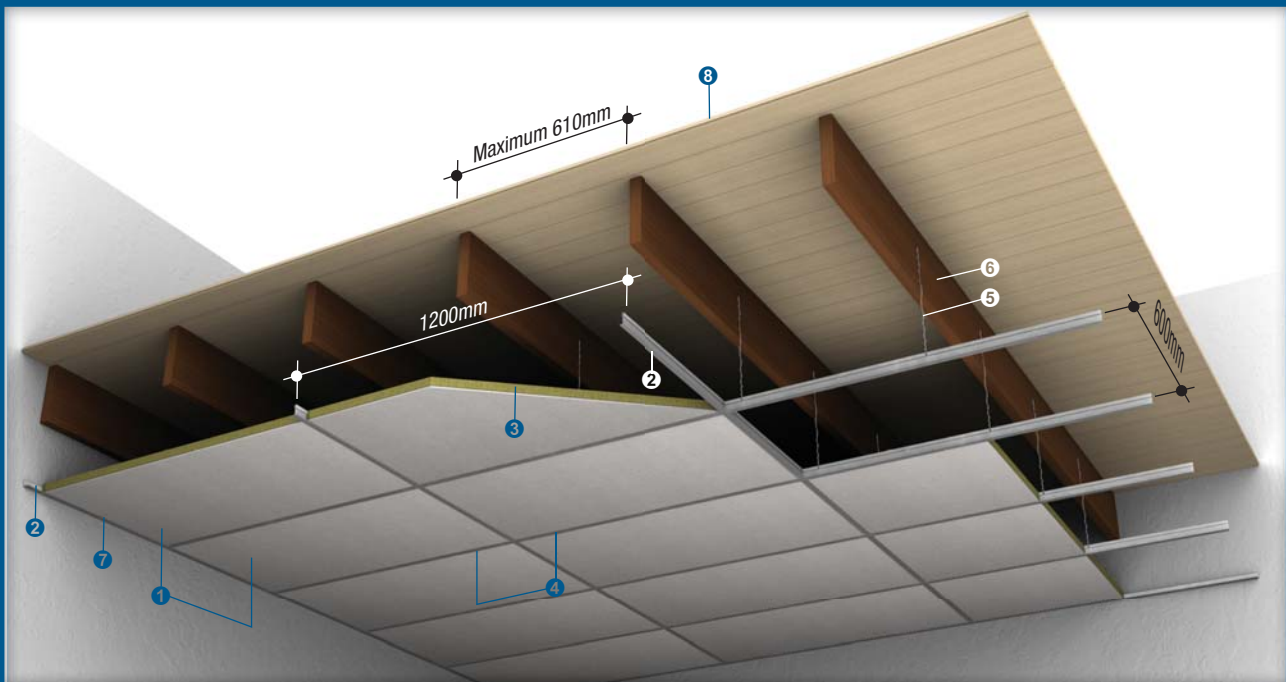
- ⁽¹⁾ insert required fire resistance level not exceeding 120 minutes.
- ⁽²⁾ insert required insulation level not exceeding the fire resistance level⁽¹⁾.
- ^{(3), (4), (5), (6), (7)} delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

Fire attack from below / Loadbearing



Fire Resistance	FRL	60/60/60
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	WARRES 37128
Acoustic	# STC	50dB
	# R _w	49dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 17th Aug 2007
Construction	CEILING THICKNESS	From 444mm
	CEILING MASS	From 11.72kg/m ²

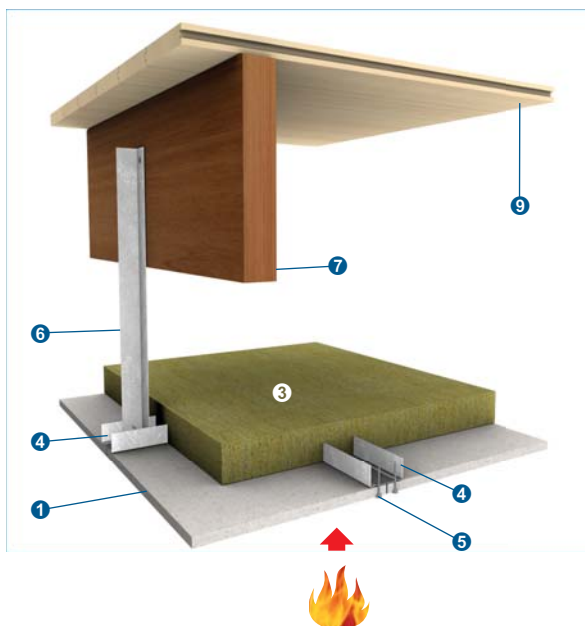
Margin of error is generally within ± 3 dB. Acoustic rating assumes air cavity depth at least 425mm. Deeper air cavity generally improves acoustic performance



- ① PROMATECT®-H board 9mm thick and 1195mm x 595mm or 595mm x 595mm, located at least 200mm from underside of timber joists
- ② Steel angle 32mm x 19mm x 0.5mm thick
- ③ Mineral wool 30mm x 60kg/m³
- ④ Fire resistant exposed T-grid, main T-grid at 600mm centres
- ⑤ Hanger at 1220mm centres with hanger wire diameter of 2mm
- ⑥ Timber joist minimum 225mm x 50mm at maximum 610mm centres
- ⑦ Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- ⑧ Tongue-and-groove floorboards minimum 19mm thick

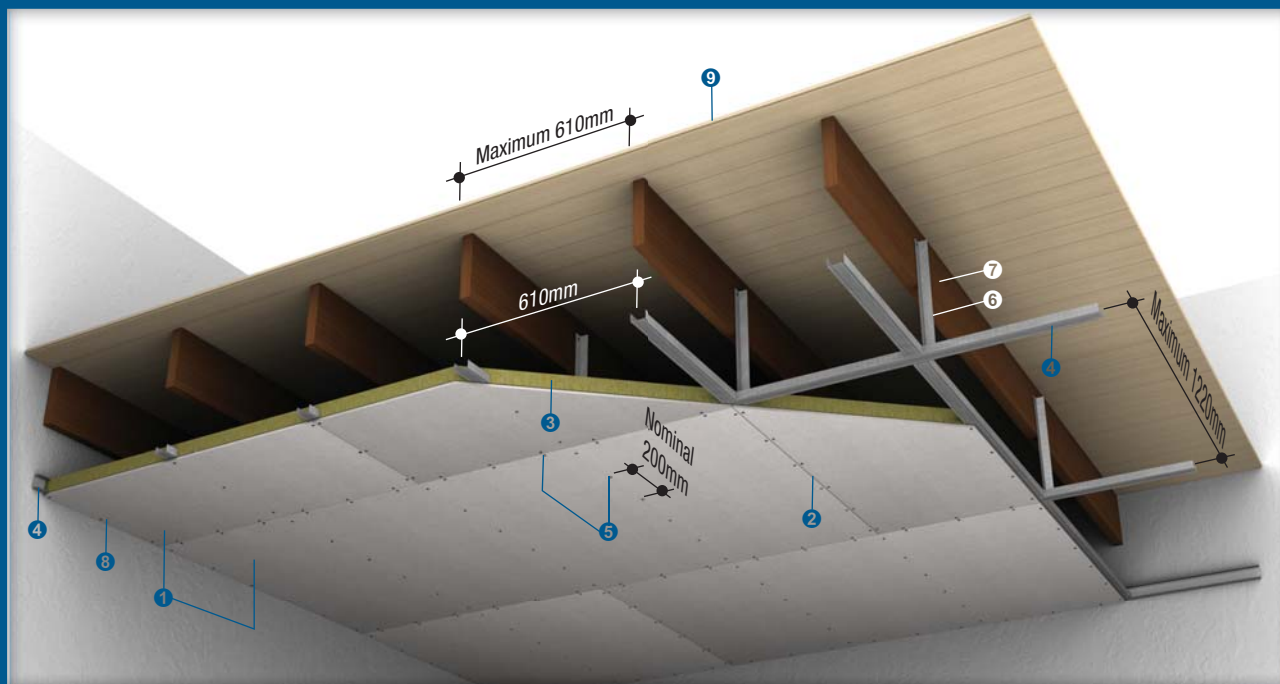
Please see page 5 for details of perimeter and control joints

Fire attack from below / Loadbearing



Fire Resistance	FRL	60/60/60
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	BRE CC 82043G
Acoustic	# STC # R _w	50dB 50dB
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	Marshall Day 17th Aug 2007
Construction	CEILING THICKNESS	From 300mm
	CEILING MASS	From 12.6kg/m ²

Margin of error is generally within ± 3 dB. Acoustic rating assumes air cavity depth at least 300mm. Deeper air cavity generally improves acoustic performance



- 1 PROMATECT®-H board 9mm thick
 - 2 Board joints to coincide with steel framework
 - 3 Mineral wool 50mm x 60kg/m³
 - 4 Steel channels 50mm x 27mm x 0.6mm thick at 610mm by 1220mm centres, with expansion joints at approximately 3000mm centres
 - 5 25mm self-tapping screws at nominal 200mm centres
 - 6 Rigid hangers at maximum 1220mm centres secured to sides of timber joists, using 38mm galvanised clout nails or woodscrews located at least 100mm above joist base
 - 7 Timber joist minimum 225mm x 38mm at maximum 610mm centres
 - 8 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
 - 9 Tongue-and-groove floorboards minimum 16mm thick
- Please see page 6 for details of perimeter and control joints

The following are standard Architectural Specifications for timber floor protection suspended membrane ceiling 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 Below / Loadbearing

Up to 60 minute fire resistance, loadbearing capacity, integrity and insulation in accordance with the criteria of BS 476: Part 22: 1987.

Supporting Structure

Care should be taken that any structural element by which the membrane ceiling system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than 60 minutes and is capable of supporting the system for the required fire resistance.

Lining Boards

9mm thick PROMATECT®-H matrix engineered mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1220mm x 2440mm x 9mm thick.

Fixing

Timber joists of minimum dimension 225mm deep x 38mm or 50mm⁽¹⁾ wide for fire rating up to 60 minutes will be located at 610mm nominal intervals, spanning between two walls. Floorboards of minimum thickness 16mm or 19mm⁽²⁾ will be laid over the top side of the timber joists.

For suspended ceiling exposed grid type, perimeter galvanised steel angles 32mm x 19mm x 0.5mm thick will be fastened to the wall with 50mm x M6 metal anchors at 500mm maximum centres. Exposed primary T-grid will be positioned at 600mm nominal centres and suspended by steel wire of minimum 2mm diameter at 1200mm centres. Secondary T-grid will be positioned at 1200mm centres, simply resting on the primary T-grid at both ends. Exposed grid system should include expansion cut-outs in the main T-grids.

9mm thick PROMATECT®-H boards will be fitted within the T-grid. Mineral wool, 30mm thick x 60kg/m³ nominal density will be placed over the ceiling.

For normal suspended ceiling, perimeter galvanised steel channels 50mm x 27mm x 0.6mm thick will be fastened to the wall with 50mm x M6 metal anchors at 500mm maximum centres. Steel primary channels 50mm x 27mm x 0.6mm will be positioned at 610mm nominal centres and suspended by steel hangers at 1200mm centres. Secondary channels will then be positioned at 1220mm centres and fixed to the primary channels.

9mm thick PROMATECT®-H boards will be fixed to the underside side of the framework with self-tapping screws at 200mm maximum centres, a minimum of 12mm from the board edge. Board joints must coincide with the steel channels. Mineral wool, 50mm thick x 60kg/m³ nominal density will be placed over the ceiling.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 22: 1987.

Jointing

Plain butt joints between machined edges of boards. ⁽³⁾

Joints filled in preparation for painting. ⁽⁴⁾

Joints filled and taped in preparation for decoration. ⁽⁵⁾

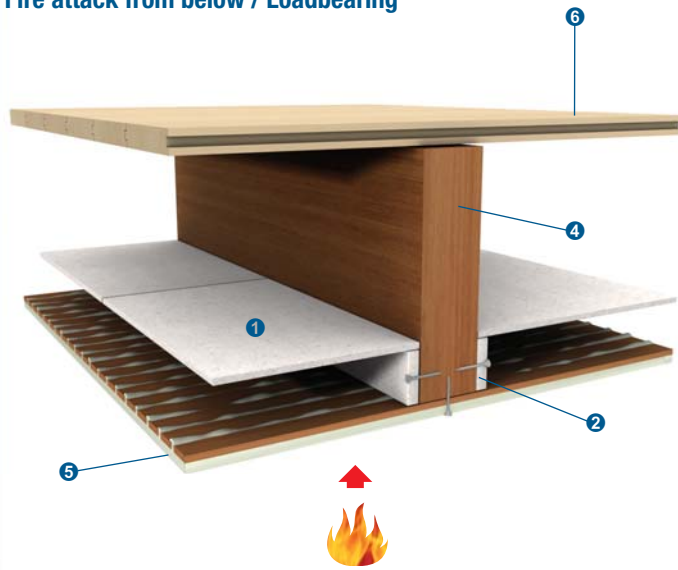
Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁶⁾ in accordance with manufacturer's recommendations.

NOTES:

- (1), (2), (3), (4), (5), (6) delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

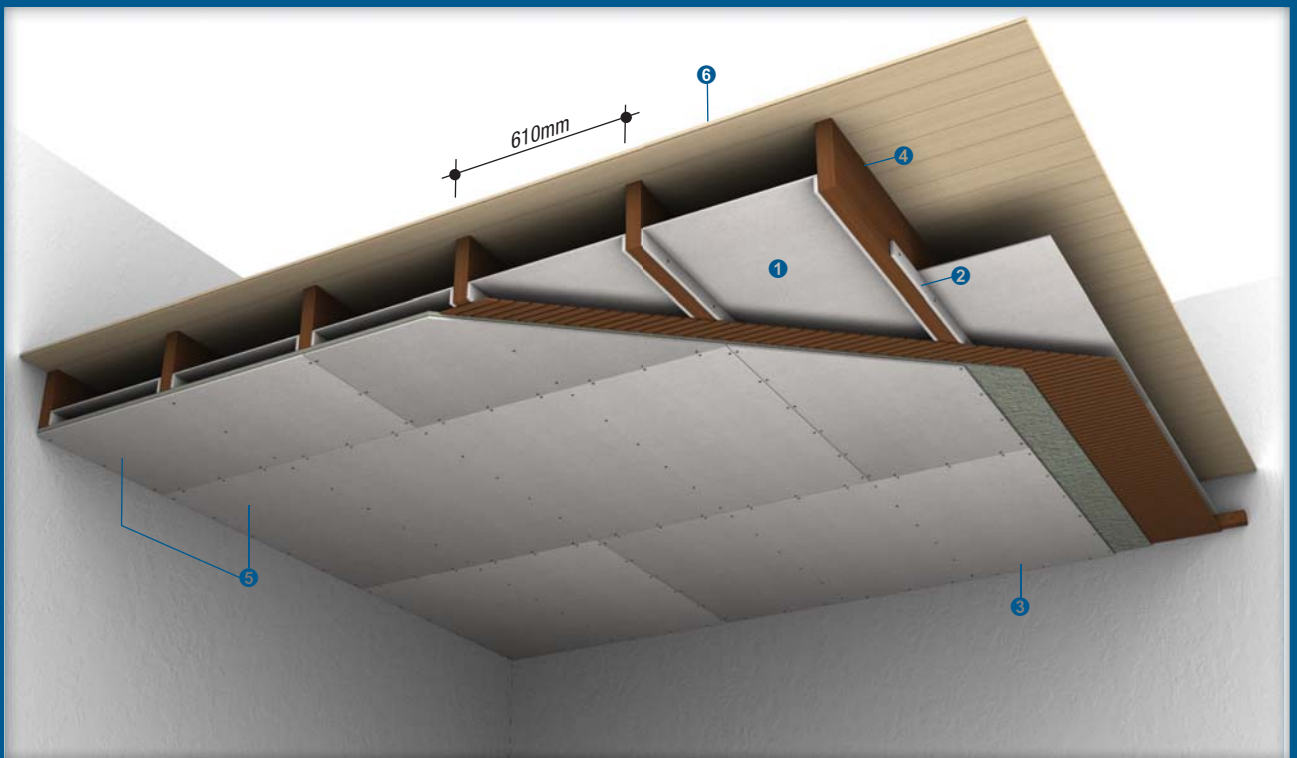
Fire attack from below / Loadbearing



Fire Resistance	FRL	30/30/30
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	BRE letter (6 th Jun 1988)
Acoustic	# STC # R _w	For acoustic rating, please consult Promat.
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	-
Construction	FLOOR THICKNESS	From 264mm
	FLOOR MASS*	From 11.41kg/m ²

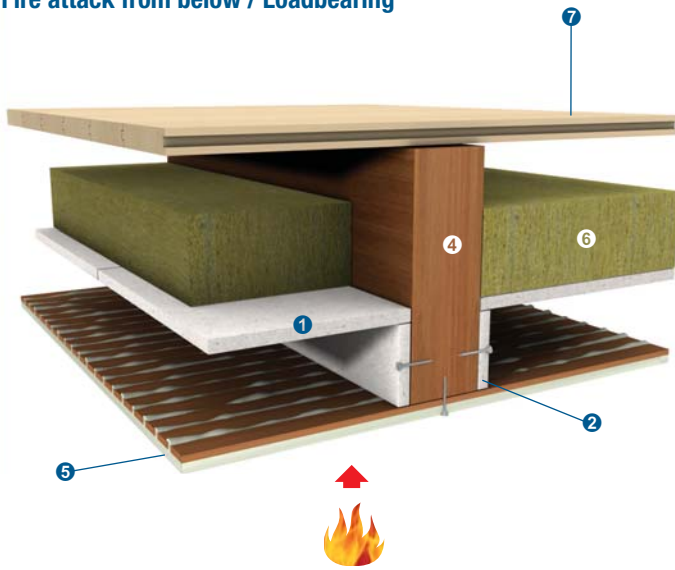
Margin of error is generally within $\pm 3\text{dB}$

* Based on nominal weight of the board



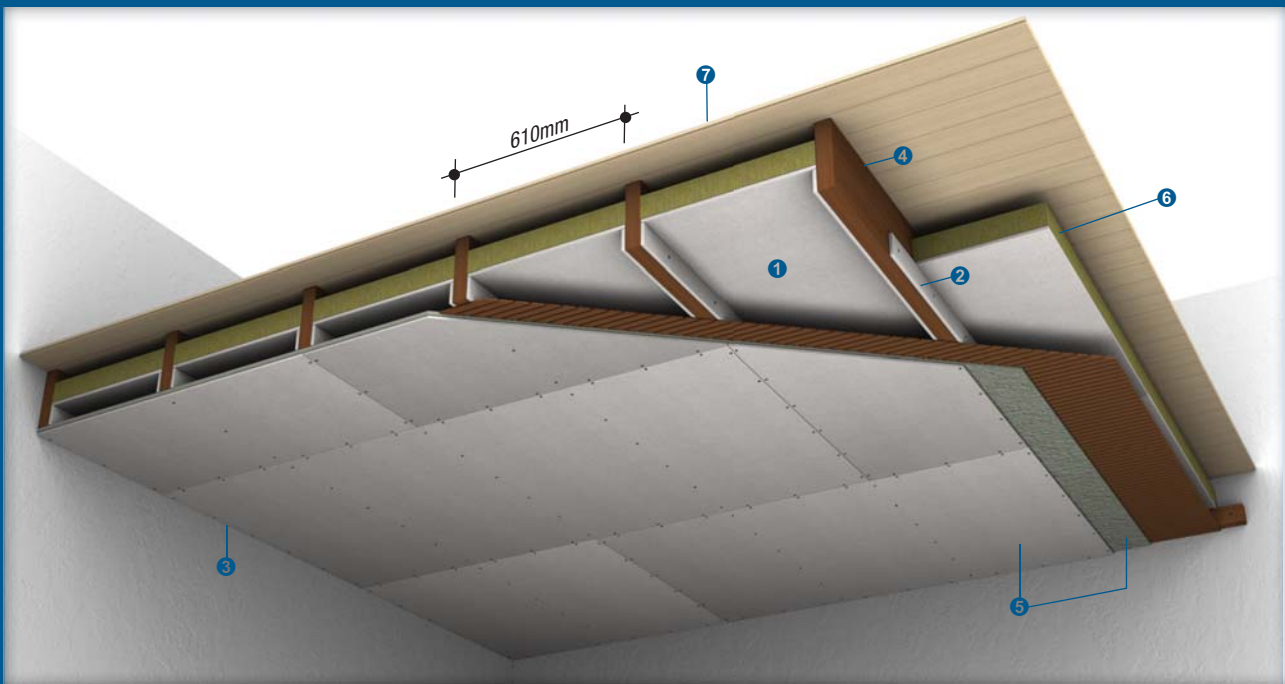
- ① PROMATECT®-H board 9mm thick, laid on top of supporting strips between timber joists
- ② PROMATECT®-H support strip, 1 layer of minimum 50mm x 12mm thick or 2 layers of minimum 50mm x 6mm each, secured to sides of timber joists using 38mm x No. 8 screws at 300mm centres
- ③ Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- ④ Timber joist minimum 225mm x 63mm at maximum 610mm centres
- ⑤ Existing ceiling consisting of gypsum board wallboard or lath and plaster
- ⑥ Tongue-and-groove floorboards minimum 19mm thick

Fire attack from below / Loadbearing



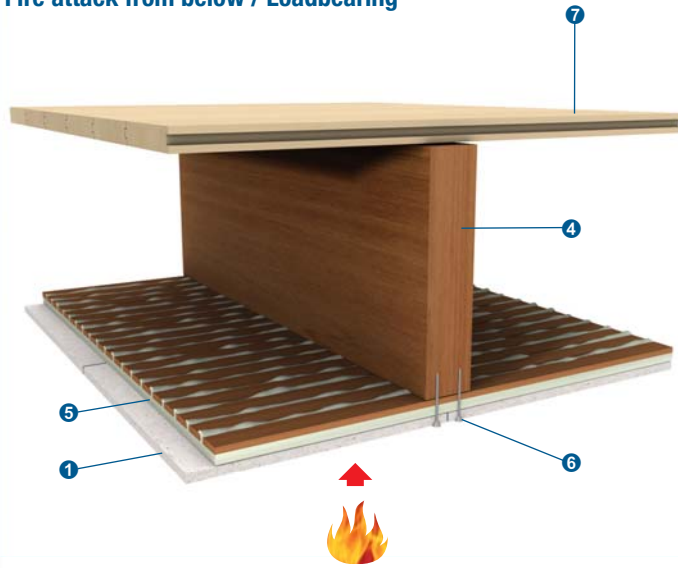
Fire Resistance	FRL	60/60/60
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	WARRES 36910 BRE letter (27 th Jul 1987)
Acoustic	# STC # R _w	For acoustic rating, please consult Promat.
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	-
Construction	FLOOR THICKNESS	From 264mm
	FLOOR MASS	From 18.5kg/m ²

Margin of error is generally within ±3dB



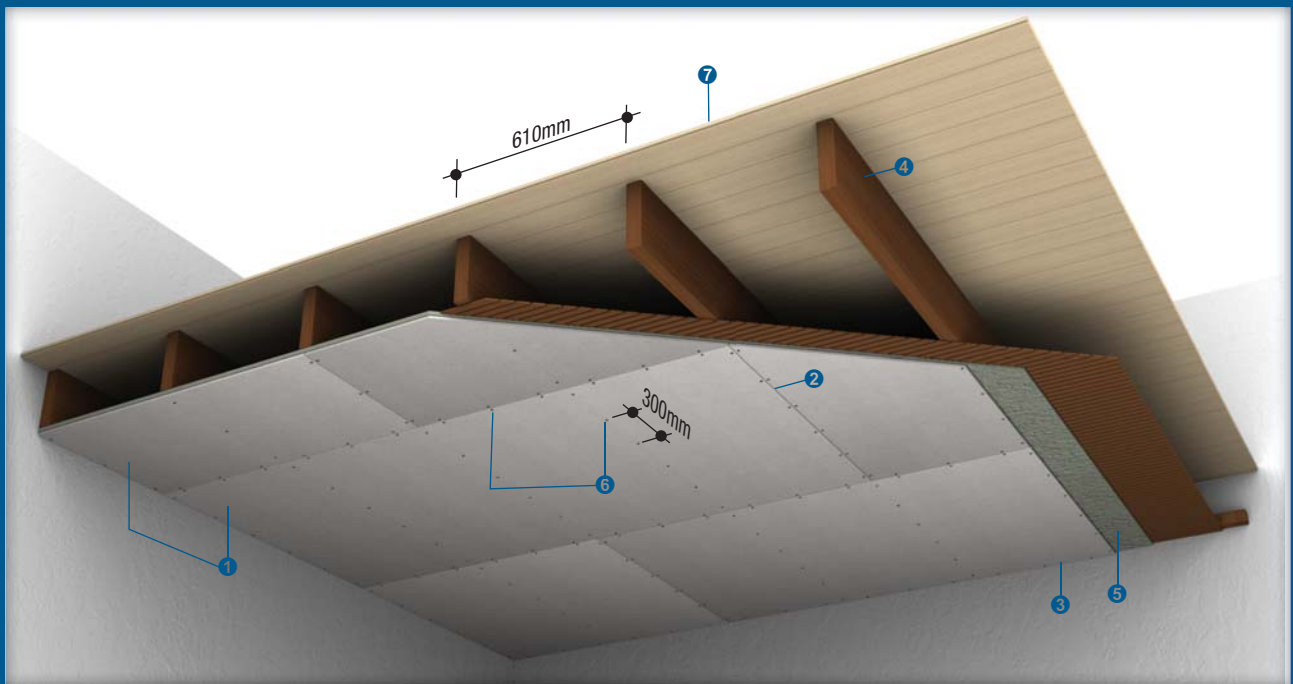
- ❶ PROMATECT®-H board 12mm thick, laid on top of supporting strips between timber joists
- ❷ PROMATECT®-H support strip of minimum 75mm x 12mm thick, secured to sides of timber joists using 62mm x No. 8 screws at 300mm centres
- ❸ Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- ❹ Timber joist minimum 225mm x 75mm at maximum 450mm centres
- ❺ Existing ceiling consists of gypsum wallboard or lath and plaster
- ❻ Mineral wool 80mm x 23kg/m³, not required if existing ceiling is gypsum wallboard 12.5mm thick
- ❼ Tongue-and-groove floorboards minimum 20mm thick. To retard the passage of cold smoke, it is advisable to lay 3mm hardboard over square-edged floorboards

Fire attack from below / Loadbearing



Fire Resistance	FRL	60/60/60
	STANDARD	BS 476: Part 21: 1987
	APPROVAL	WARRES 36910 BRE letter (27 th Jul 1987)
Acoustic	# STC # R _w	For acoustic rating, please consult Promat.
	STANDARD	ISO 140: Part 3: 1996 ISO 717: Part 1: 1996
	PREDICTED ASSESSMENT	-
Construction	FLOOR THICKNESS	From 264mm
	FLOOR MASS	From 18.5kg/m ²

Margin of error is generally within ± 3 dB



- 1 PROMATECT®-H board 12mm thick, laid on top of supporting strips between timber joists
- 2 PROMATECT®-H support strip of minimum 75mm x 12mm thick, secured to sides of timber joists using 62mm x No. 8 screws at 300mm centres
- 3 Gap at perimeter to be caulked with PROMASEAL® AN Acrylic Sealant
- 4 Timber joist minimum 225mm x 75mm at maximum 450mm centres
- 5 Existing ceiling consist of gypsum wallboard or lath and plaster
- 6 Mineral wool 80mm x 23kg/m³, not required if existing ceiling is gypsum wallboard 12.5mm thick
- 7 Tongue-and-groove floorboards minimum 20mm thick. To retard the passage of cold smoke, it is advisable to lay 3mm hardboard over square-edged floorboards

The following are standard Architectural Specifications for upgraded timber floor 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 Above / Fire Attack From Below / Loadbearing

Up to _____ minute⁽¹⁾ fire resistance, loadbearing capacity, integrity and _____ minute⁽²⁾ insulation in accordance with the criteria of BS 476: Part 21: 1987.

Supporting Structure

Care should be taken that any structural element by which the upgraded floor protection system is supported, e.g. a beam, floor or wall, has a fire resistance equal to or greater than _____ minutes⁽¹⁾ and is capable of supporting the system for the required fire resistance.

Lining Boards

9mm or 12mm⁽³⁾ thick PROMATECT®-H matrix engineered mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1220mm x 2440mm x 9mm or 12mm⁽³⁾ thick.

Fixing

Timber joists of minimum dimension 225mm deep x 63mm wide for fire rating up to 30 minutes, or 75mm wide for fire rating up to 60 minutes will be located at 610mm nominal intervals for fire rating up to 30 minutes, or 450mm intervals for fire rating up to 60 minutes, spanning between two walls. Floor boards of minimum 9mm or 12mm⁽³⁾ thick will be laid over the top side of the timber joists.

Where required and in accordance with the system specification, PROMATECT®-H cover strips will be fixed to the sides of the timber joist with clout nails or woodscrews.

Single layer PROMATECT®-H with thickness 9mm/12mm will be fixed to the underside of the floor with clout nails or screws according to the system specification.

Where required and in accordance with the system specification, mineral wool of thickness 80mm x 23kg/m³ nominal density will be placed over the PROMATECT®-H boards.

Tests & Standards

The complete system along with material and framing is tested and/or assessed to meet the requirements of BS 476: Part 21: 1987.

Jointing

Plain butt joints between machined edges of boards. ⁽⁴⁾

Joints filled in preparation for painting. ⁽⁵⁾

Joints filled and taped in preparation for decoration. ⁽⁶⁾

Follow-on Trades

Surface of boards to be prepared for painting/plastering/tiling⁽⁷⁾ in accordance with manufacturer's recommendations.

NOTES:

- ⁽¹⁾ insert required fire resistance level not exceeding 60 minutes.
- ⁽²⁾ insert required insulation level not exceeding the fire resistance level⁽¹⁾.
- ^{(3), (4), (5), (6), (7)} delete as appropriate.
- All perimeter gaps caulked with PROMASEAL® AN Acrylic Sealant.

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