

Promat



Compartmentation

Passive Fire Protection Ceilings

Technical manual

Hong Kong version



www.promat.com

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Contents

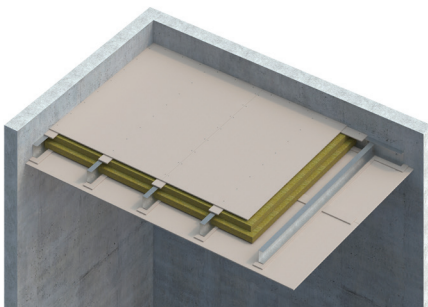
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Introduction

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

Promat's 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, 22 and 23: 1987. The ceiling 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.

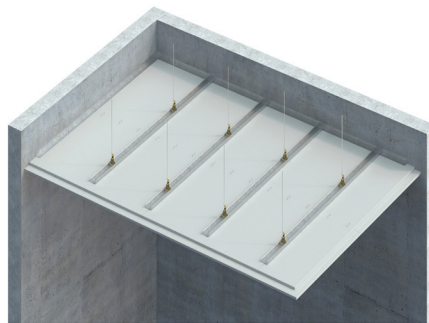
The system design depends on performance requirements but in overall terms, Promat's ceiling and floor systems can be divided into the following categories.



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 or above. Ceiling panels are fixed into a steel or timber framing system spanning and supported between two walls.

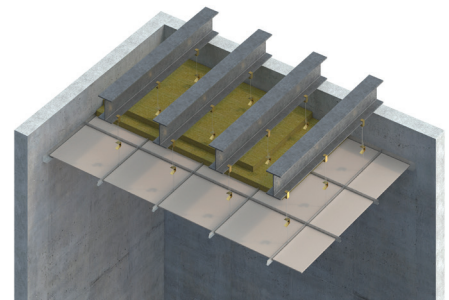
Self-supporting membrane ceilings should normally be tested or assessed in accordance with BS 476: Part 22: 1987, EN 1364-2 and/or AS 1530: Part 4: 2005 to satisfy the failure criteria of integrity and insulation.



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, EN1364-2 to satisfy the failure criteria of integrity and insulation.



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. Promat boards are fixed to a metal exposed or concealed grid system suspended from the structure above.



Advantages

Promat's ceiling 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 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.

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 provides the required design performance, under both fire and ambient conditions. Comprehensive advice is available from local Promat offices.

Supporting Structure Design

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

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.

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.

Loadbearing Ceilings

Promat's loadbearing ceiling systems are usually comprised of steel joists. Flooring material, joist type, thickness and jointing are all critical for a specified design performance. The steel joist framing members must be designed in accordance with the criteria of BS 5950: 2000.

Acoustics

Promat ceiling and floor systems also meet specific acoustic requirements. These include ratings for sound transmission, sound impact and sound absorption.

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.

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® Intumescent 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:

- a) the fire stopping material remains in situ,
- b) fire and smoke do not penetrate the floor cavity,
- c) 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.

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.

Access Panels & Hatches

Where access into a ceiling void is required, panels and hatches will need to be installed. Please refer to access panels & hatches section or consult Promat for details.

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.

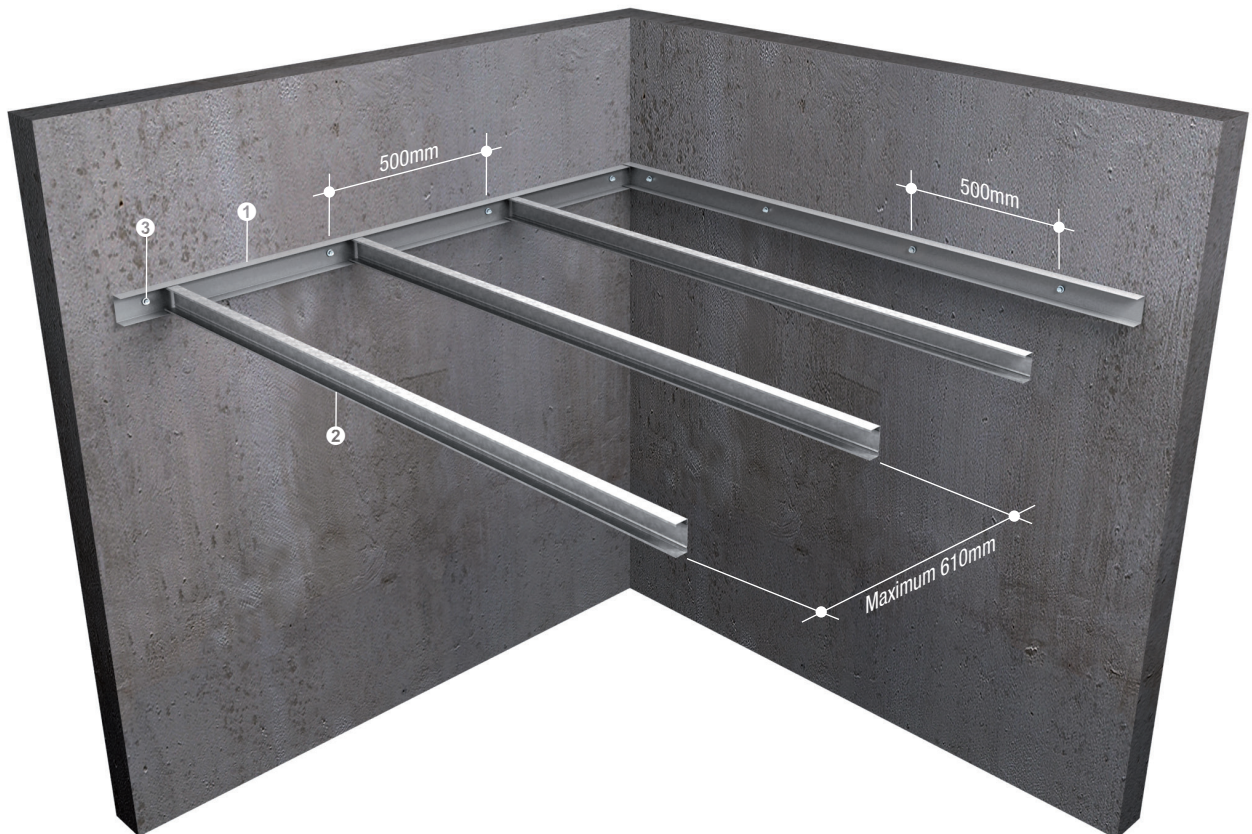
NOTE: For Australia, suitable framing profiles can be obtained from Rondo Building Services who provide comprehensive documentation for ceiling framing systems.

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 21 & 22 for further details.

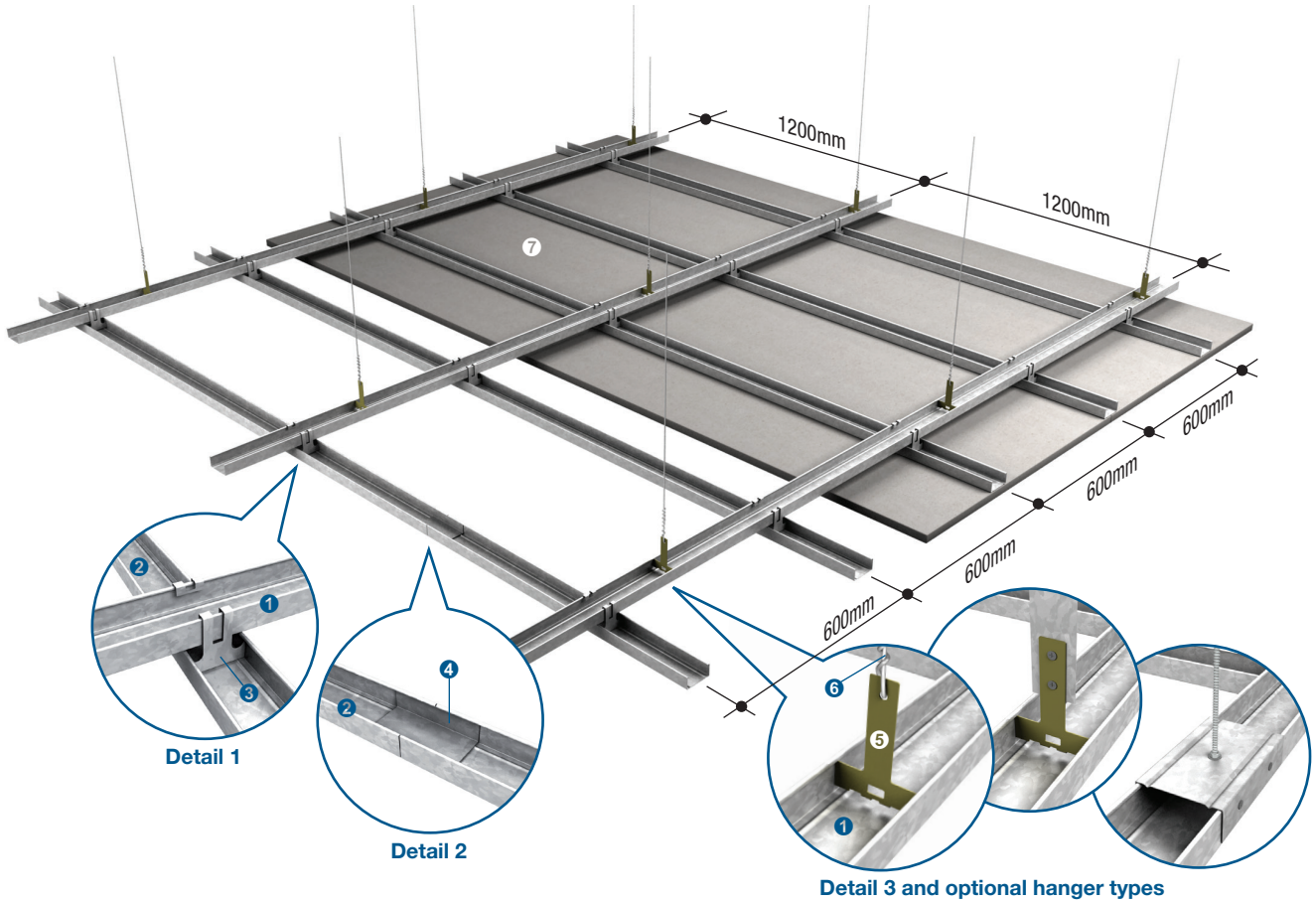


Fixing of primary and secondary profiles

1. Fixing points at maximum 500mm intervals
2. Primary/perimeter U-profile
3. Secondary/horizontal C-profile

Steel Framing System For Suspended Ceiling

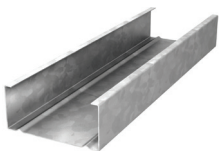
This system is the most appropriate for the installation of large area suspended ceilings. The steel structure of the suspended ceiling is composed of a grid of C-profiles and accessories, made of galvanised steel. The standard length of the C-profile is either 3000mm or 6000mm.



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

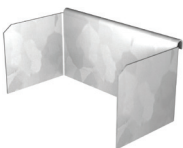
Typical Profiles For Ceiling Construction



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



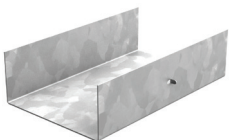
Type: Fixing hooks
 Dimension: 50mm x 58mm x 0.8mm
 Application: Fix secondary profile to primary profile



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

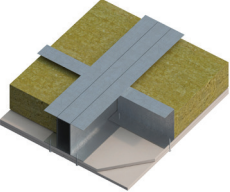
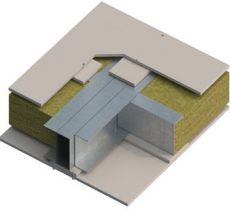
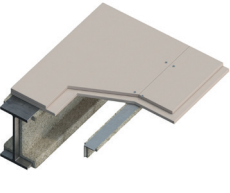
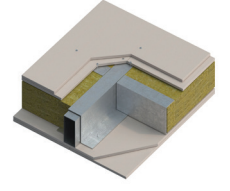
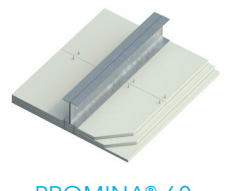


Type: Cross fixer
 Dimension: 27mm x 55mm x 25mm (0.8mm)
 Application: Fix cross profile to ceiling



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

Self-supporting membrane ceilings

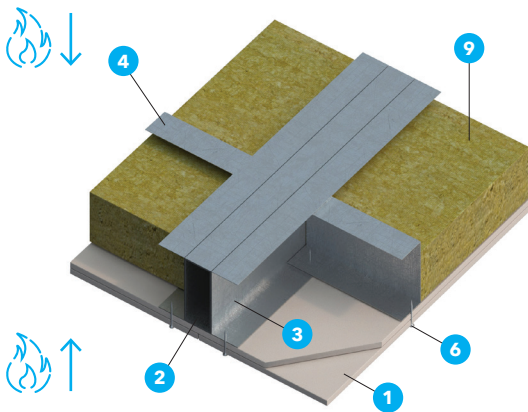
Ceiling type	Model number	Fire resistance performance	Test standard	Test assessment report no.	Page no.
 <p>PROMATECT®-H 2-hour fire rated</p>	PH.14.12	-/120/120	BS 476: Part 22: 1987	SIRIM 2023FE0315	12
 <p>PROMATECT®-H 2-hour fire rated</p>	PH.14.12	-/120/120	BS 476: Part 22: 1987	SIRIM 2023FE0315	13
 <p>PROMATECT®-H 2-hour fire rated</p>	PH.14.12	-/120/120	BS 476: Part 22: 1987	RED R23H33-A	14
 <p>PROMATECT®-H 4-hour fire rated</p>	PH.14.24	-/240/240	BS 476: Part 22: 1987	SIRIM 2023FE0315	15
 <p>PROMINA® 60 1-hour fire rated</p>	PMF.14.60	-/60/60	BS EN 1361-1: 2012 BS EN 1364-2: 1999	FSRG 2018/057	16

Suspended ceiling membrane

Partition type	Model number	Fire resistance performance	Test standard	Test assessment report no.	Page no.
 <p>PROMATECT®-H 1, 2 & 4-hour fire rated</p>	PH.14.60-S	-/60/-	BS 476: Part 22: 1987	WF 196073 Issue 2	17
	PH.14.12-S	-/120/-			
	PH.14.24-S	-/240/-			
 <p>PROMATECT®-H 1-hour fire rated</p>	PH.14.60-S	-/60/60	BS 476: Part 22: 1987	Branz 99/1514-2	18
 <p>PROMATECT®-H 1 & 2-hour fire rated</p>	PH.14.60-S	-/60/60	BS 476: Part 22: 1987	SIRIM 2022FE0251	19
	PH.14.12-S	-/120/120			
 <p>PROMINA® 60 2-hour fire rated</p>	PMF.14.60-S	-/120/-	BS 476: Part 22: 1987	RED R07H18	20

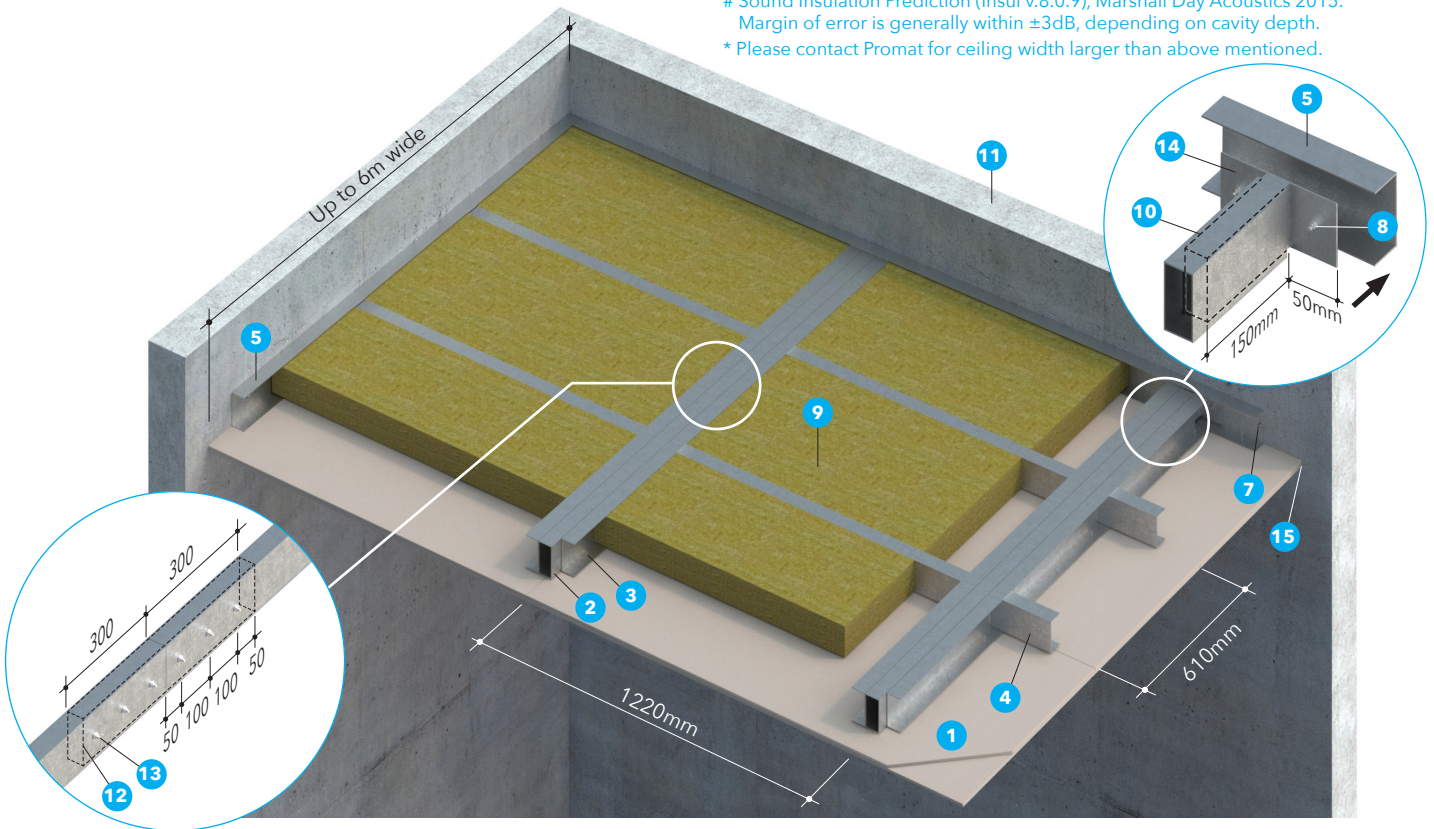
PROMATECT®-H – 2-hour fire rated self-supporting membrane ceilings

Resisting fire from below / Non loadbearing



Fire Resistance	FRR	-/120/120	Model number: PH.14.12
	Standard	BS 476: Part 22: 1987	
	Approval	SIRIM 2023FE0315	
Acoustic	# STC	37	
	# Rw	38dB	
Construction	Standard	ASTM E492, E413 ISO 717: Part 1: 1996	
	Width	Up to 6m*	
	Thickness	Nominal 136mm	

Sound Insulation Prediction (Insul v.8.0.9), Marshall Day Acoustics 2015. Margin of error is generally within ± 3 dB, depending on cavity depth.
* Please contact Promat for ceiling width larger than above mentioned.



1. Two layer of PROMATECT®-H 9mm thick.

2. Steel RHS at nominal 1220mm centres, size refer to table below

Span up to (mm)	Min. section modulus, Z (mm ³)	Proposed depth (mm)	Proposed width (mm)	Proposed thickness (mm)
3500	20500	101	43.00	3.0
4000	27400	101	67.00	3.0
4500	36500	125	65.00	3.0
5000	49500	150	69.00	3.0
5500	60000	150	93.00	3.0
6000	76200	150	76.00	4.5

3. Steel channel, RHS depth x 50 x 0.6mm thick are fastened on each side of the RHS members.

4. Cross steel channel RHS depth x 50 x 0.6mm thick at nominal 610mm centres.

5. Perimeter steel channel RHS depth x 50 x 0.6mm thick.

6. No. 8 steel self-tapping screws at nominal 200mm centres.

7. M6 expansion bolts at nominal 600mm.

8. M10 expansion bolts or M12 expansion bolts for spans greater than 5m.

9. Mineral wool 80mm x 100kg/m³.

10. Short stub RHS x 150mm long.

11. Concrete or masonry wall.

12. Steel RHS min. 600mm long.

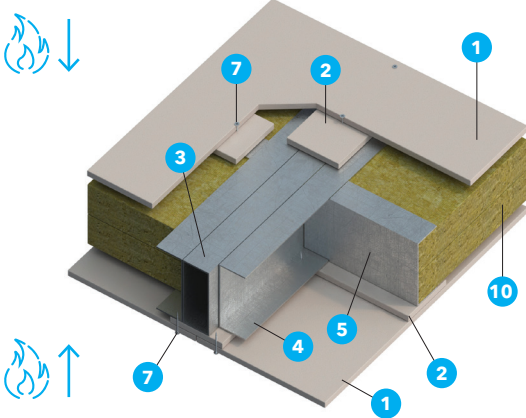
13. Min. M8 steel bolt and nut fixing with washers.

14. Steel plate min. 3mm thick.

15. PROMASEAL® Intumescent Acrylic Sealant to seal gaps on irregularities surface.

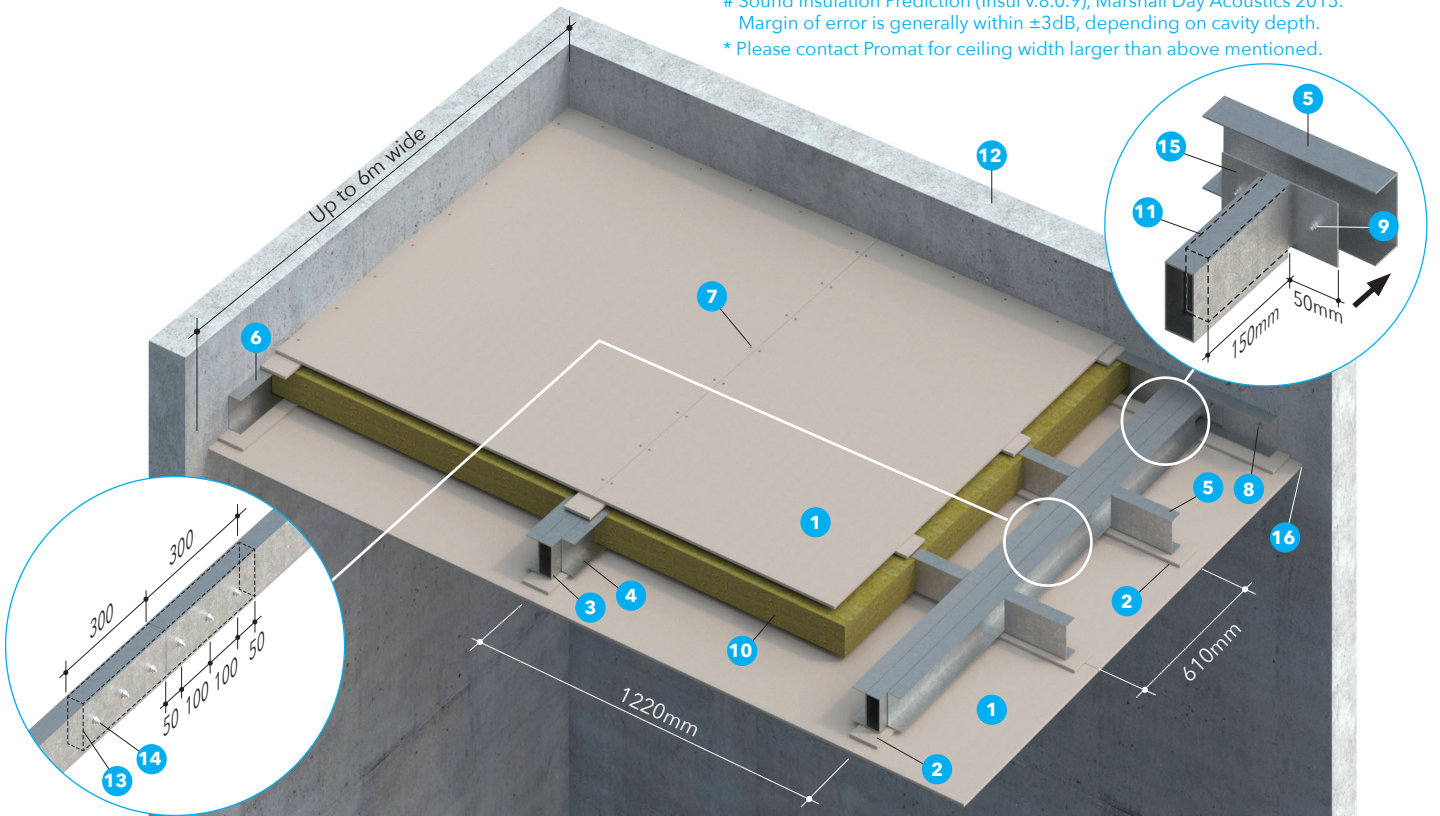
PROMATECT®-H – 2-hour fire rated self-supporting membrane ceilings

Resisting fire from above and below / Non loadbearing



Fire Resistance	FRR	-/120/120	Model number: PH.14.12
	Standard	BS 476: Part 22: 1987	
	Approval	SIRIM 2023FE0315	
Acoustic	# STC	32	
	# Rw	32dB	
Construction	Standard	ASTM E492, E413 ISO 717: Part 1: 1996	
	Width	Up to 6m*	
	Thickness	Nominal 136mm	

Sound Insulation Prediction (Insul v.8.0.9), Marshall Day Acoustics 2015.
Margin of error is generally within ± 3 dB, depending on cavity depth.
* Please contact Promat for ceiling width larger than above mentioned.



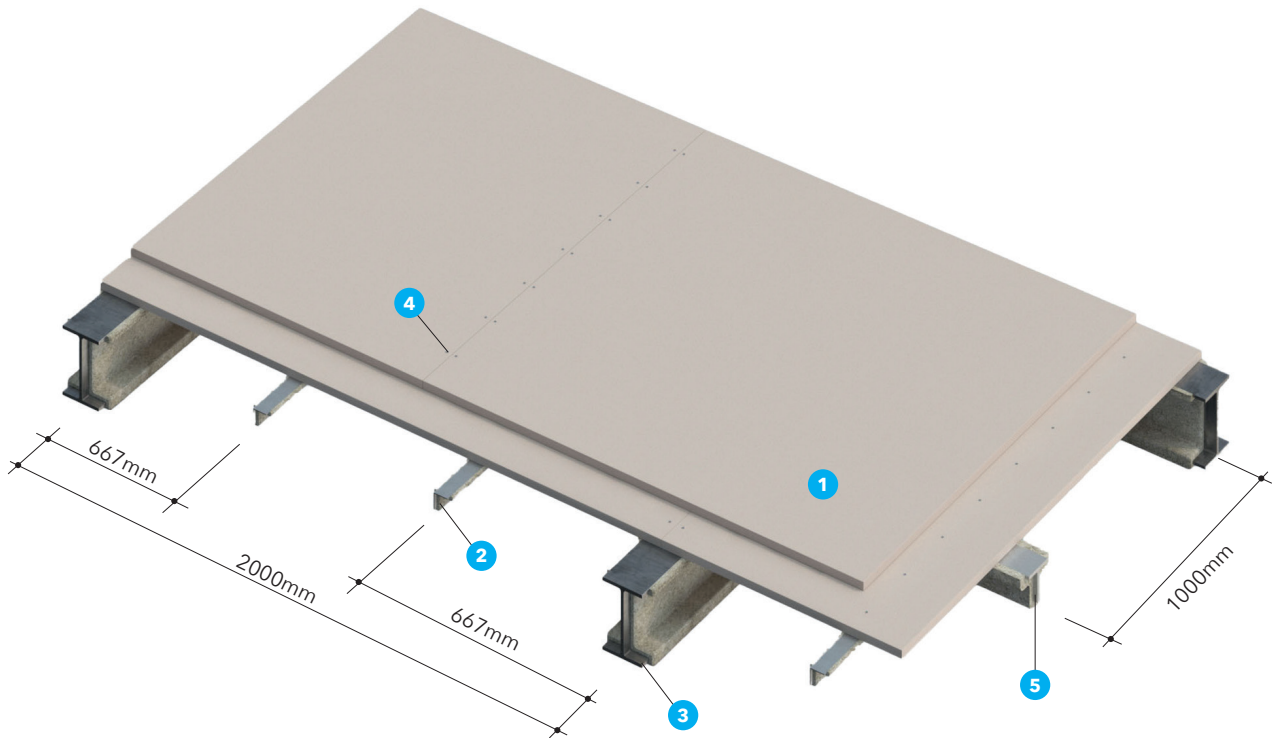
1. One layer of PROMATECT®-H 9mm thick
2. PROMATECT®-H 100 (w) x 9mm thick.
3. Steel RHS at nominal 1220mm centres, size refer to table below
4. Steel channel, RHS depth x 50 x 0.6mm thick are fastened on each side of the RHS members.
5. Cross steel channel RHS depth x 50 x 0.6mm thick at nominal 610mm centres.
6. Perimeter steel channel RHS depth x 50 x 0.6mm thick.
7. No. 8 steel self-tapping screws at nominal 200mm centres.
8. M6 expansion bolts at nominal 600mm.
9. M10 expansion bolts or M12 expansion bolts for spans greater than 5m.
10. Mineral wool 80mm x 100kg/m³.
11. Short stub RHS x 150mm long.
12. Concrete or masonry wall.
13. Steel RHS min. 600mm long.
14. Min. M8 steel bolt and nut fixing with washers.
15. Steel angle min. 3mm thick.
16. PROMASEAL® Intumescent Acrylic Sealant to seal gaps on irregularities surface.

Span up to (mm)	Min. section modulus, Z (mm ³)	Proposed depth (mm)	Proposed width (mm)	Proposed thickness (mm)
3500	20500	101	43.00	3.0
4000	27400	101	67.00	3.0
4500	36500	125	65.00	3.0
5000	49500	150	69.00	3.0
5500	60000	150	93.00	3.0
6000	76200	150	76.00	4.5

PROMATECT®-H – 2-hour fire rated self-supporting membrane ceilings

Resisting fire from above and below / Loadbearing											
	Fire Resistance	<table border="1"> <tr> <td>FRR</td> <td>-/120/120</td> <td>Model number: PH.14.12</td> </tr> <tr> <td>Standard</td> <td colspan="2">BS 476: Part 22: 1987</td> </tr> <tr> <td>Approval</td> <td colspan="2">RED R23H33-A</td> </tr> </table>	FRR	-/120/120	Model number: PH.14.12	Standard	BS 476: Part 22: 1987		Approval	RED R23H33-A	
	FRR	-/120/120	Model number: PH.14.12								
	Standard	BS 476: Part 22: 1987									
Approval	RED R23H33-A										
Acoustic	<table border="1"> <tr> <td># STC</td> <td>36</td> </tr> <tr> <td># Rw</td> <td>37dB</td> </tr> <tr> <td>Standard</td> <td>ASTM E492, E413 ISO 717: Part 1: 1996</td> </tr> </table>	# STC	36	# Rw	37dB	Standard	ASTM E492, E413 ISO 717: Part 1: 1996				
# STC	36										
# Rw	37dB										
Standard	ASTM E492, E413 ISO 717: Part 1: 1996										
Construction	<table border="1"> <tr> <td>Thickness</td> <td>Nominal 50mm</td> </tr> </table>	Thickness	Nominal 50mm								
Thickness	Nominal 50mm										

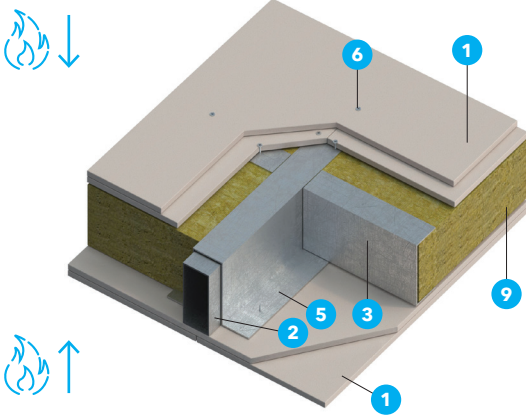
Sound Insulation Prediction (Insul v.8.0.9), Marshall Day Acoustics 2015. Margin of error is generally within ±3dB, depending on cavity depth.



1. Two layers of PROMATECT®-H 25mm thick or two layers of 15mm + one layer of 20mm thick PROMATECT®-H.
2. Steel angles 50 x 50 x 3mm thick fire rated with spray.
3. Exposed structural I-section fire rated with spray.
4. M4 steel screws at 300mm centre.
5. Exposed structural T-section fire rated with spray.

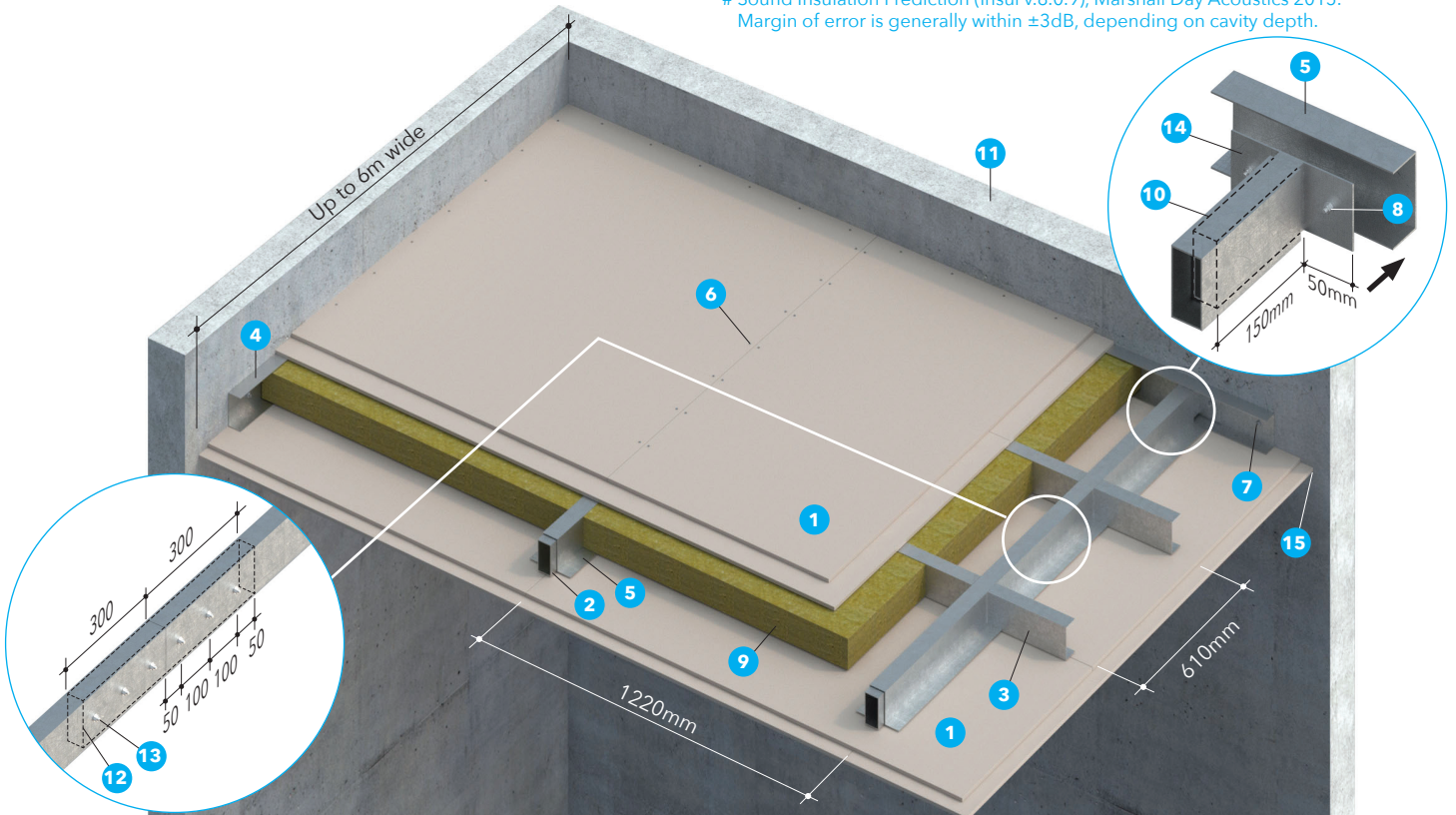
PROMATECT®-H – 4-hour fire rated self-supporting membrane ceilings

Resisting fire from above and below / Non loadbearing



Fire Resistance	FRR	-/240/240	Model number: PH.14.24
	Standard	BS 476: Part 22: 1987	
	Approval	SIRIM 2023FE0315	
Acoustic	# STC	61	
	# Rw	60dB	
Construction	Standard	ASTM E492, E413 ISO 717: Part 1: 1996	
	Width	Up to 6m*	
	Thickness	Nominal 173mm	

Sound Insulation Prediction (Insul v.8.0.9), Marshall Day Acoustics 2015. Margin of error is generally within ±3dB, depending on cavity depth.



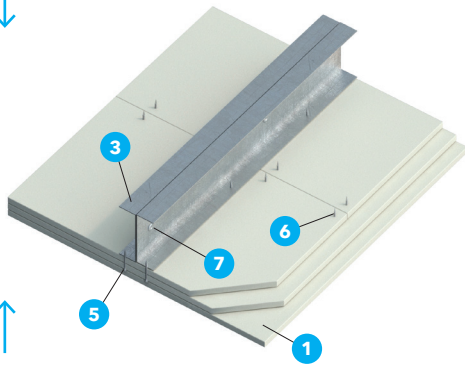
- Two layer of PROMATECT®-H 12mm thick.
- Steel RHS at nominal 1220mm centres, size refer to table below
- Cross steel channel RHS depth x 50 x 1.2mm thick at nominal 610mm centres.
- Perimeter steel channel RHS depth x 50 x 1.2mm thick.

Span up to (mm)	Min. section modulus, Z (mm ³)	Proposed depth (mm)	Proposed width (mm)	Proposed thickness (mm)
3500	47500	125	96.00	3.0
4000	62500	150	99.00	3.0
4500	84000	200	82.00	3.0
5000	107000	200	122.00	3.0
5500	133000	200	166.00	3.0
6000	175000	200	143.00	4.5

- Steel top hat section, depth and width match RHS and with min. 30mm flanges x 1.2mm thick, are laid over the RHS members.
- No. 8 steel self-tapping screws at nominal 200mm centres.
- M6 expansion bolts at nominal 600mm.
- M10 expansion bolts or M12 expansion bolts for spans greater than 4m.
- Mineral wool 100mm x 100kg/m³.
- Short stub RHS x 150mm long.
- Concrete or masonry wall.
- Steel RHS min. 600mm long.
- Min. M10 steel bolt and nut fixing with washers.
- Steel plate min. 3mm thick.
- PROMASEAL® Intumescent Acrylic Sealant to seal gaps on irregularities surface.

PROMINA®-60 – 1-hour fire rated self-supporting membrane ceilings

Resisting fire from above and below / Non loadbearing



Fire Resistance	FRR	-/60/60	Model number: PMF.14.60
	Standard	BS EN 1364-2: 1999 BS EN 1364-1: 2012	
	Approval	FSRG 2018-057	
Acoustic	# STC	39	
	# Rw	39dB	
Construction	Standard	ASTM E492, E413 ISO 717: Part 1: 1996	
	Width	Up to 3100m*	
	Thickness	Nominal 112mm	

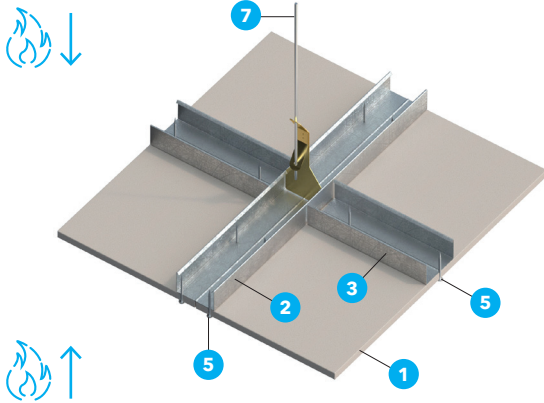
Sound Insulation Prediction (Insul v.8.0.9), Marshall Day Acoustics 2015.
Margin of error is generally within ± 3 dB, depending on cavity depth.
* Please contact Promat for ceiling width larger than above mentioned.



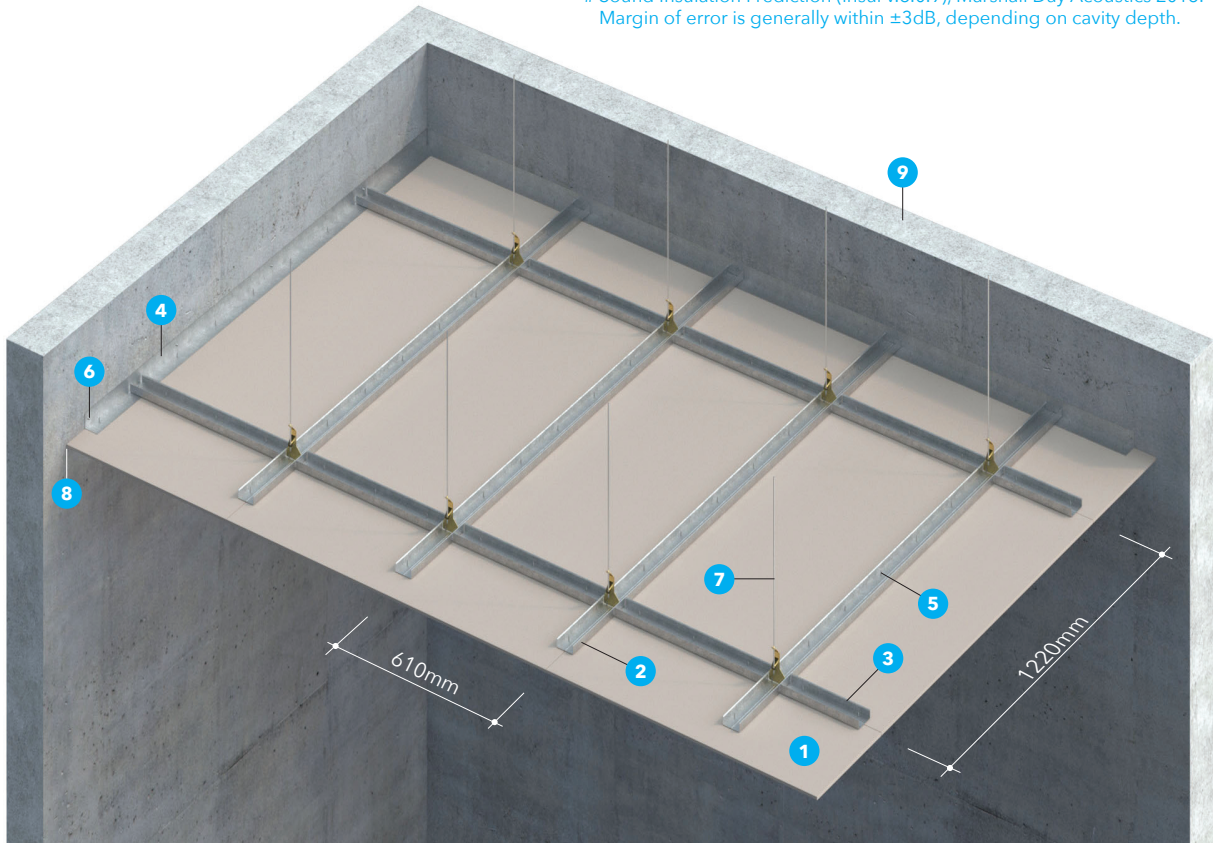
1. Three layers of PROMINA®-60 12mm thick
2. Steel track 76 x 32 x 0.55mm thick.
3. Back to back C-channel 76 x 32 x 0.55mm thick
4. M8 expansion bolts.
5. Drywall screws
First layer No. 8 x 25mm at nominal 600mm centres.
Second layer No. 8 x 38mm at nominal 400mm centres.
Third layer No. 8 x 50mm at nominal 200mm centres.
6. Stitching screws \varnothing 5.5 x 40mm long.
7. Steel rivet \varnothing 4 x 100 long at nominal 300mm centres.
8. PROMASEAL® Intumescent Acrylic Sealant to seal gaps on irregularities surface.
9. Masonry wall.

PROMATECT®-H – 1, 2 & 4-hour fire rated suspended ceiling membrane

Resisting fire from below / Non loadbearing			
Fire Resistance	FRR	-/60/-	Model number: PH.14.60-S
		-/120/-	Model number: PH.14.12-S
		-/240/-	Model number: PH.14.24-S
Standard	BS 476: Part 22: 1987		
Approval	WF 196073 Issue 2		
Acoustic	# STC	27	
	# Rw	27dB	
Standard	ASTM E492, E413 ISO 717: Part 1: 1996		
Construction	Thickness	Nominal 36mm	



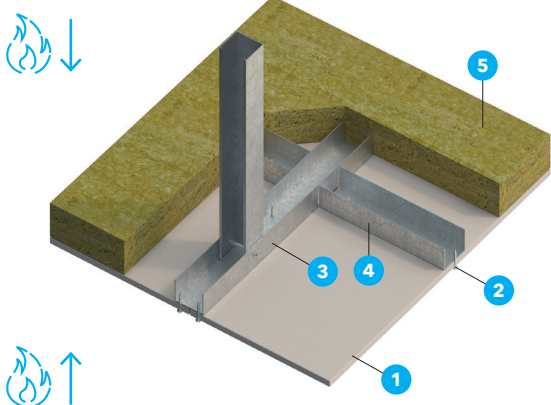
Sound Insulation Prediction (Insul v.8.0.9), Marshall Day Acoustics 2015. Margin of error is generally within ± 3 dB, depending on cavity depth.



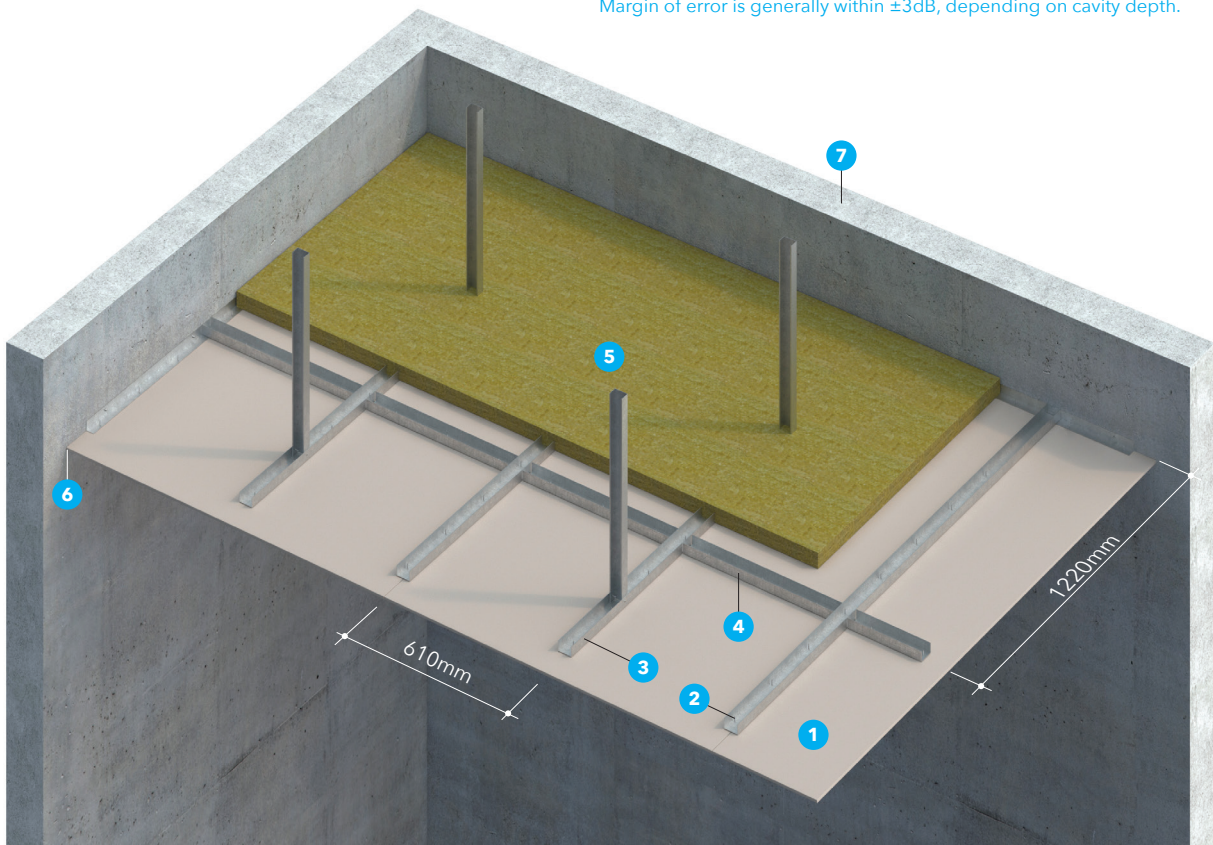
1. One layer of PROMATECT®-H board 9mm thick.
2. Steel channel 50 x 27 x 0.6mm at 610mm centres.
3. Steel channel 50 x 27 x 0.6mm at 1220mm centres.
4. Steel angle 50 x 50 x 0.6mm.
5. 38mm long M4 self-tapping screws at 200mm centres.
6. M6 steel anchor bolts at nominal 500mm centres or M8 steel anchor bolts at nominal 600mm centres.
7. Steel hanger 6N/mm² (max. stress) at nominal 1220mm centres with hanger wire of at least 3mm diameter or steel channel with same dimension to item 2.
8. PROMASEAL® Intumescent Acrylic Sealant to seal gaps on irregularities surface.
9. Masonry wall.

PROMATECT®-H – 1-hour fire rated suspended ceiling membrane

Resisting fire from below / Non loadbearing			
Fire Resistance	FRR	-/60/60	Model number: PH.14.60-S
	Standard	BS 476: Part 22: 1987	
	Approval	Branz 99/1514-2	
Acoustic	# STC	31	
	# Rw	31dB	
Construction	Standard	ASTM E492, E413 ISO 717: Part 1: 1996	
	Thickness	Nominal 129mm	



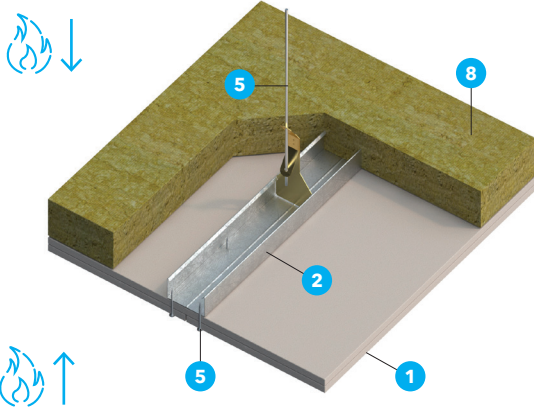
Sound Insulation Prediction (Insul v.8.0.9), Marshall Day Acoustics 2015. Margin of error is generally within ± 3 dB, depending on cavity depth.



1. One layer of PROMATECT®-H 9mm thick.
2. M4 self-tapping screws at 200mm centres.
3. Steel channel 50 x 25 x 0.6mm at 610mm centres.
4. Steel channel 50 x 25 x 0.6mm at 1220mm centres.
5. Mineral wool 120mm thick x 45kg/m³.
6. PROMASEAL® Intumescent Acrylic Sealant to seal gaps on irregularities surface.
7. Masonry wall.

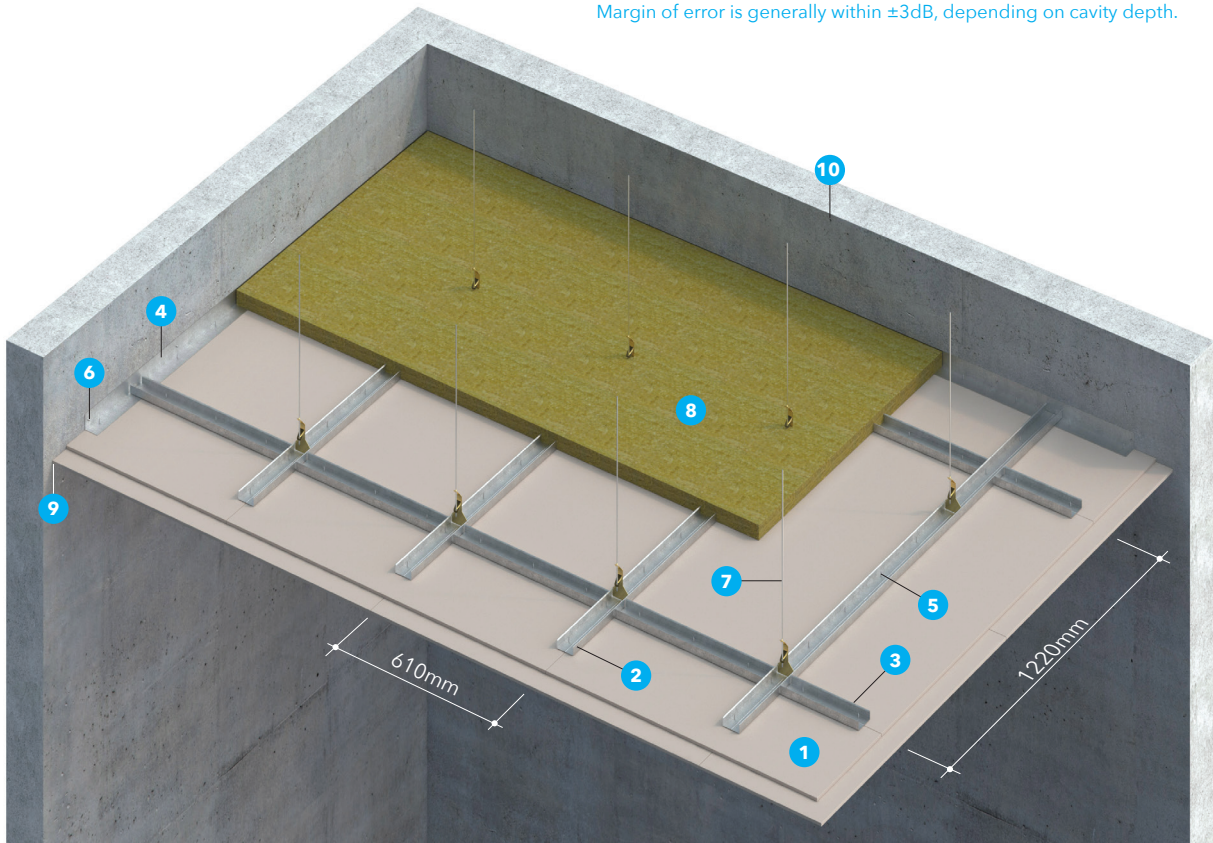
PROMATECT®-H – 1 & 2-hour fire rated suspended ceiling membrane

Resisting fire from below / Non loadbearing



Fire Resistance	FRR	-/60/60	Model number: PH.14.60-S
		-/120/120	Model number: PH.14.12-S
	Standard	BS 476: Part 22: 1987	
Approval	SIRIM 2022FE0251		
Acoustic	# STC	32 (-/60/60), 37 (-/120/120)	
	# Rw	32dB (-/60/60), 38dB (-/120/120)	
Standard	ASTM E492, E413 ISO 717: Part 1: 1996		
Construction	Thickness	Nominal 62mm (-/60/60)	
		Nominal 118mm (-/120/120)	

Sound Insulation Prediction (Insul v.8.0.9), Marshall Day Acoustics 2015. Margin of error is generally within ±3dB, depending on cavity depth.



1. PROMATECT®-H board, thickness in accordance with table below.

FRR (hour)	Board thickness	Mineral wool
1	1 layer of 12mm	50mm x 60kg/m ³
2	2 layers of 9mm	100mm x 100kg/m ³

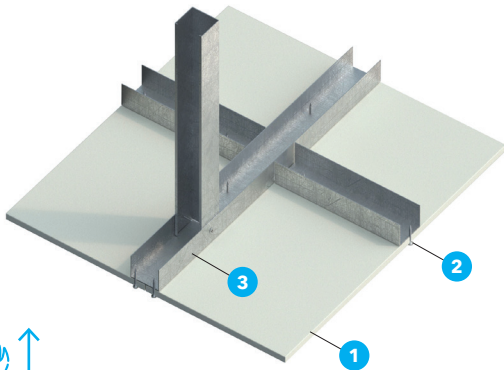
- Steel channel 50 x 25 x 0.6mm at 610mm centres.
- Steel channel 50 x 25 x 0.6mm at 1220mm centres.
- Steel angle 30 x 30 x 0.6mm.
- 38mm long M4 self-tapping screws at 200mm centres.
- M6 steel anchor bolts at 500mm centres or M8 steel

anchor bolts at 600mm centres.

- Steel hanger 10N/mm² (max. stress) at nominal 1220mm centres with hanger wire of at least 3mm diameter or steel channel with same dimension to item 2.
- Mineral wool, thickness in accordance with table above.
- PROMASEAL® Intumescent Acrylic Sealant to seal gaps on irregularities surface.
- Masonry wall.

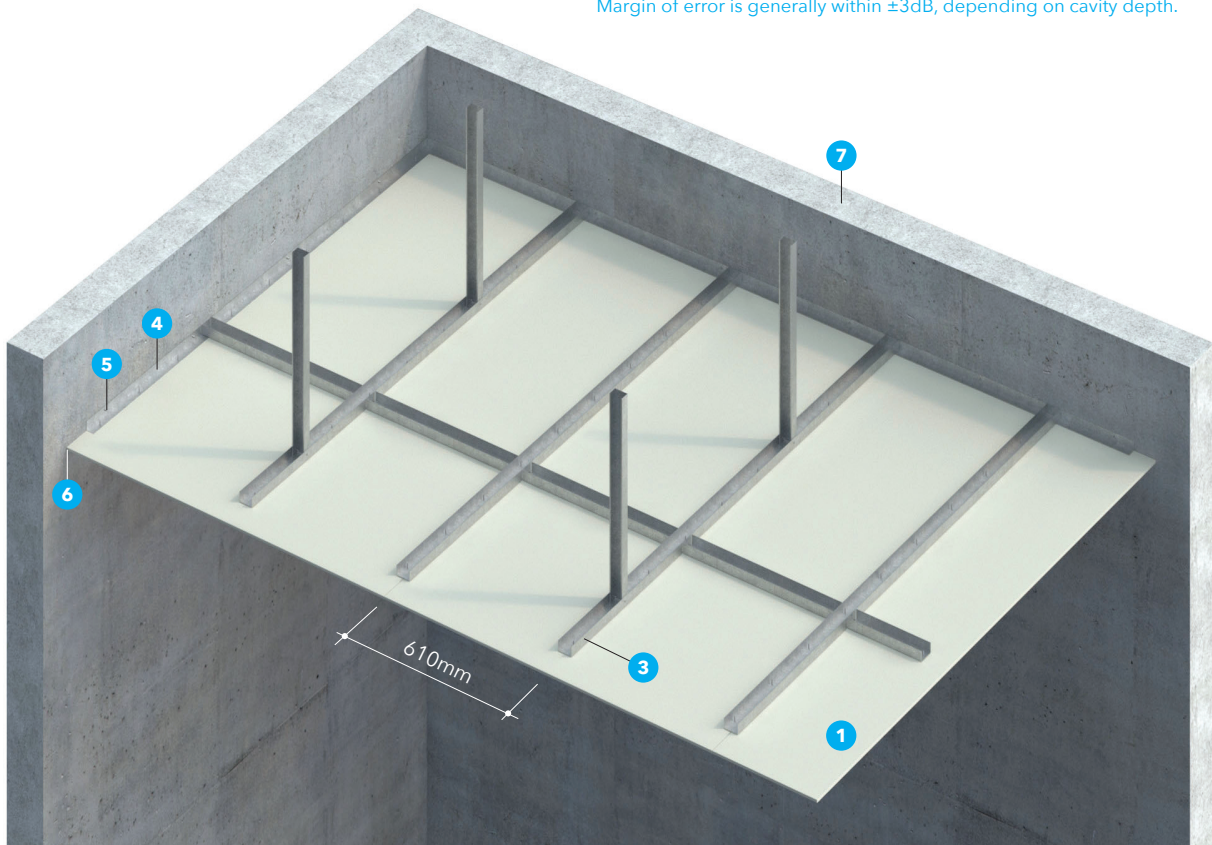
PROMINA®-60 – 2-hour fire rated suspended ceiling membrane

Resisting fire from below / Non loadbearing



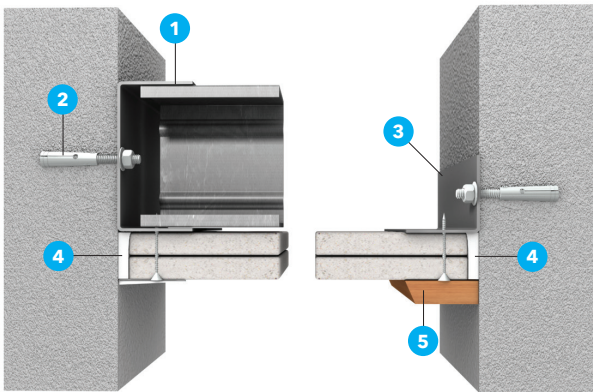
Fire Resistance	FRR	-/120/-	Model number: PMF.14.12-S
	Standard	BS 476: Part 22: 1987	
	Approval	RED R07H18	
Acoustic	# STC	28	
	# Rw	28dB	
Construction	Standard	ASTM E492, E413 ISO 717: Part 1: 1996	
	Thickness	Nominal 39mm	

Sound Insulation Prediction (Insul v.8.0.9), Marshall Day Acoustics 2015. Margin of error is generally within ± 3 dB, depending on cavity depth.



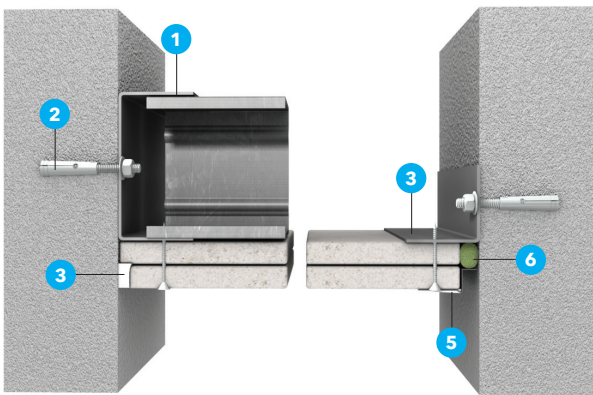
1. One layer of PROMINA®-60 9mm thick.
2. M4 self-tapping screws at 200mm centres.
3. C-channel 50 x 30 x 0.6mm.
4. Perimeter L angle 50 x 50 x 0.6mm thick.
5. M6 steel anchor bolts at 500mm centres.
6. PROMASEAL® Intumescent Acrylic Sealant to seal gaps on irregularities surface.
7. Masonry wall.

Ceiling perimeter details



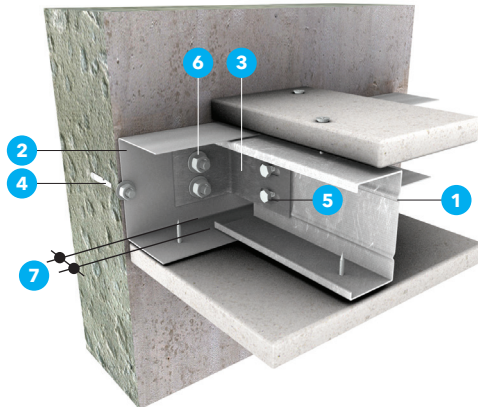
Self-supporting ceiling perimeter to wall intersection (case 1)

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



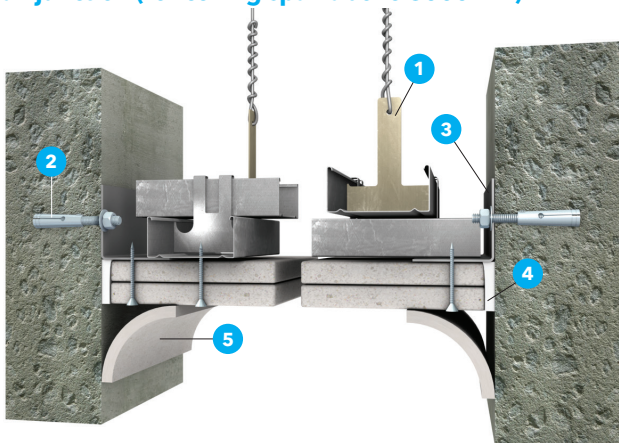
Self-supporting ceiling perimeter to wall intersection (case 2)

1. Galvanised steel perimeter channel
2. 50mm x M6 expansion bolts at 500mm centres
3. Galvanised steel perimeter angle
4. PROMASEAL® Intumescent 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)



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

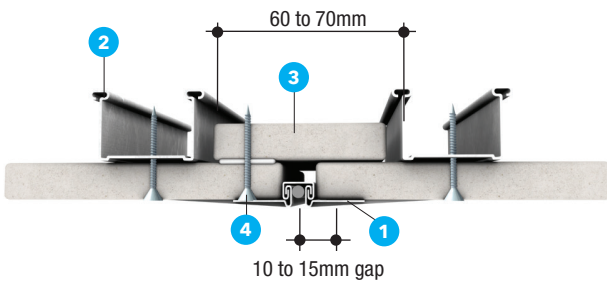
1. Steel joists at 600mm or 610mm nominal centres
2. Galvanised steel perimeter channel
3. Galvanised steel angle bracket 3mm thick
4. 50mm x M6 expansion bolts at 500mm centres
5. Two pieces of M8 bolts at each end of joist
6. Two pieces of 60mm x M8 expansion bolts per bracket
7. Expansion allowance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



Suspended ceiling perimeter to wall intersection

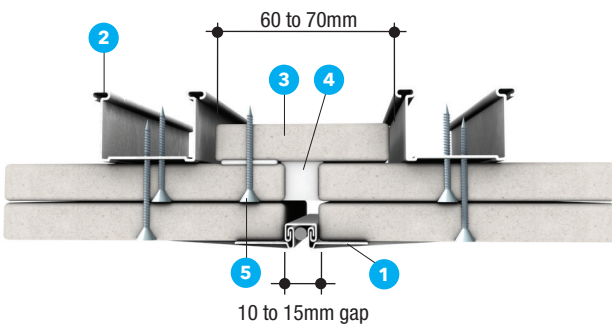
1. Concealed grid suspended ceiling system
2. 50mm x M6 expansion bolts at 500mm centres
3. Galvanised steel perimeter angle
4. PROMASEAL® Intumescent Acrylic Sealant to maintain fire and acoustic performance
5. Ceiling trim or coving to perimeter

Ceiling control joint details



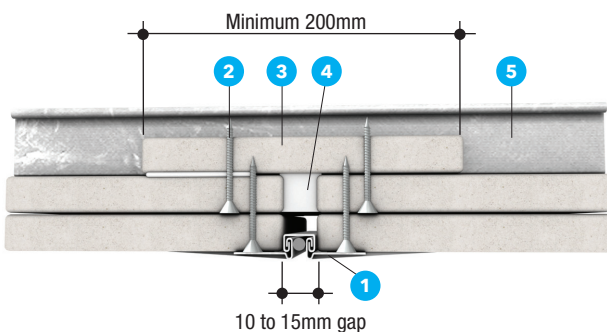
Parallel to steel framing of single layer self-supporting ceilings

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



Parallel to steel framing of double layer self-supporting ceilings

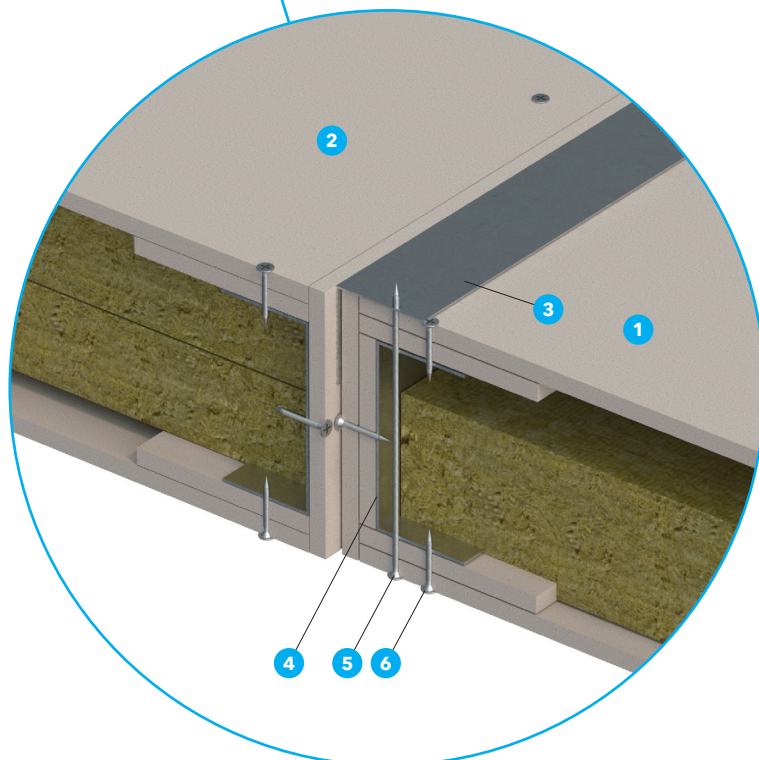
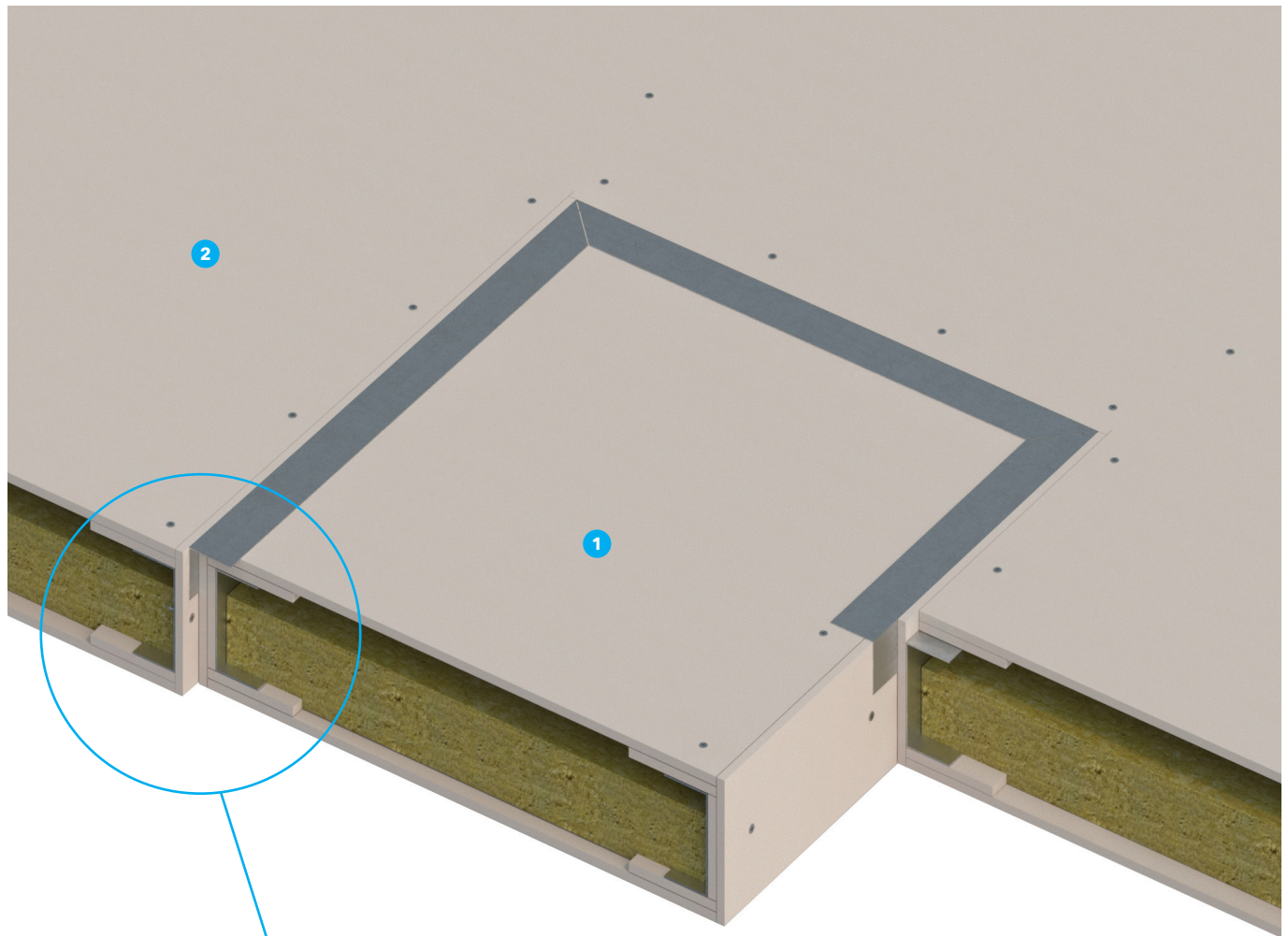
1. RONDO P35 control joint with set finish
2. Concealed steel grid framing sections
3. Continuous Promat board strips
4. Continuously fill gap with PROMASEAL® Intumescent Acrylic Sealant to minimum depth of 1st layer board thickness
5. Fix one side of Promat board strips with laminating screws at 200mm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



Perpendicular to steel framing of double layer self-supporting ceilings

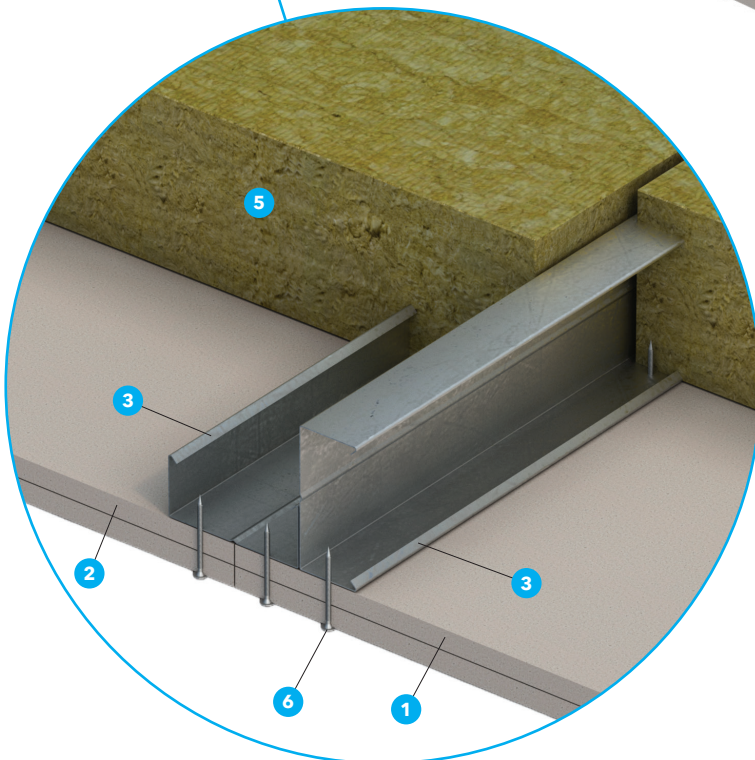
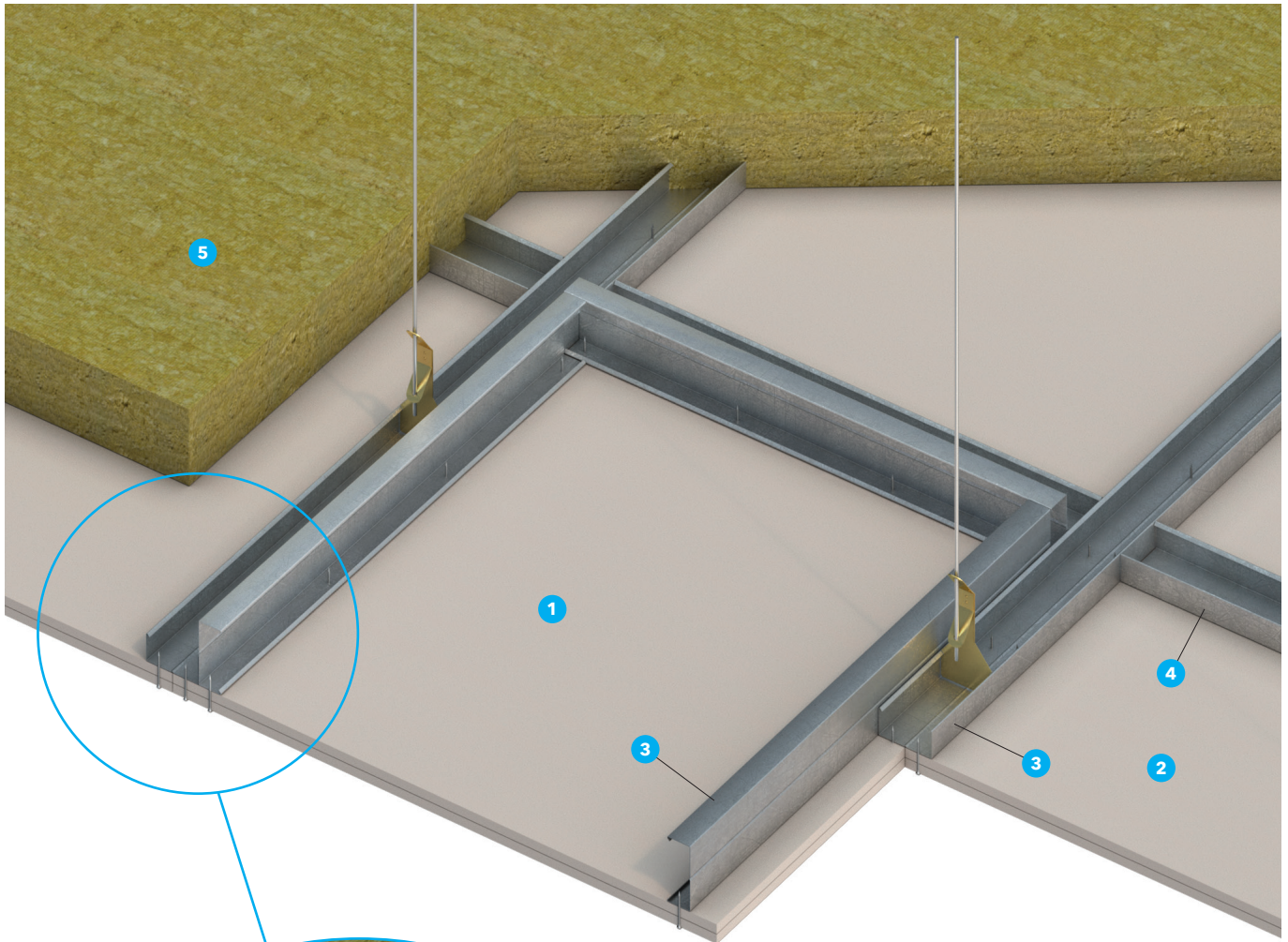
1. RONDO P35 control joint with set finish
2. Fix one side of Promat board strips with laminating screws at 200mm maximum centres or plaster based adhesive
3. Promat board strips between galvanised steel channel
4. Continuously fill gap with PROMASEAL® Intumescent Acrylic Sealant to minimum depth of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

Access panel details – Self-supporting membrane ceilings



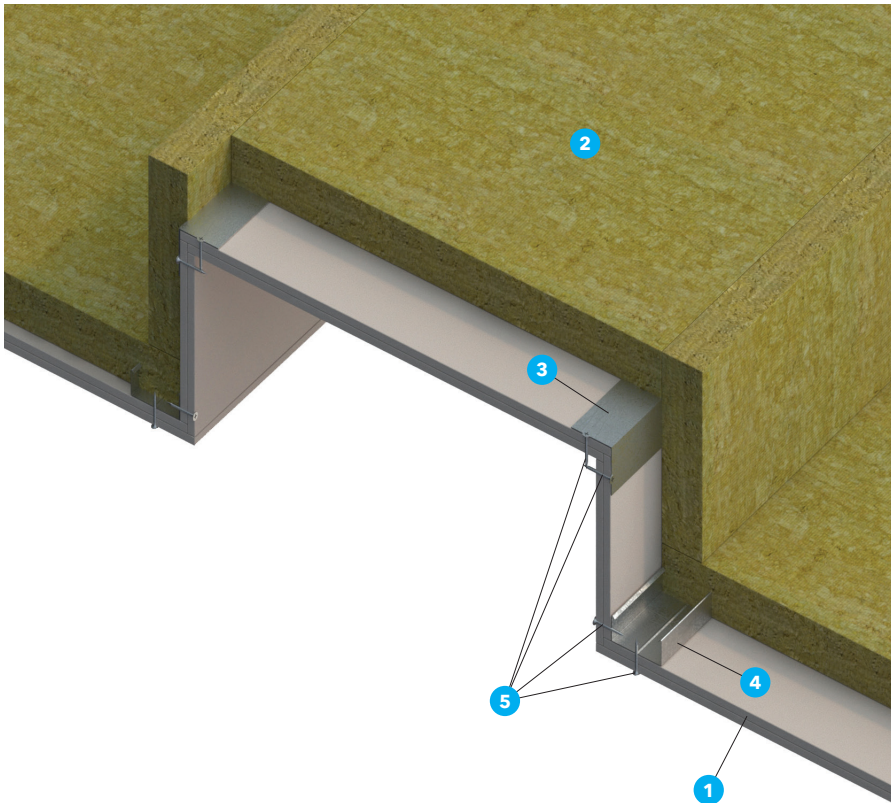
1. Access panel.
2. Promat fire rated ceiling.
3. Steel angle min. 50 x 50 x 3mm thick.
4. Steel channel, same depth as ceiling depth x 50 x 0.6mm
5. M6 screw at nominal 200mm.
6. Self tapping screws at nominal 200mm.

Access panel details – Suspended ceiling membrane



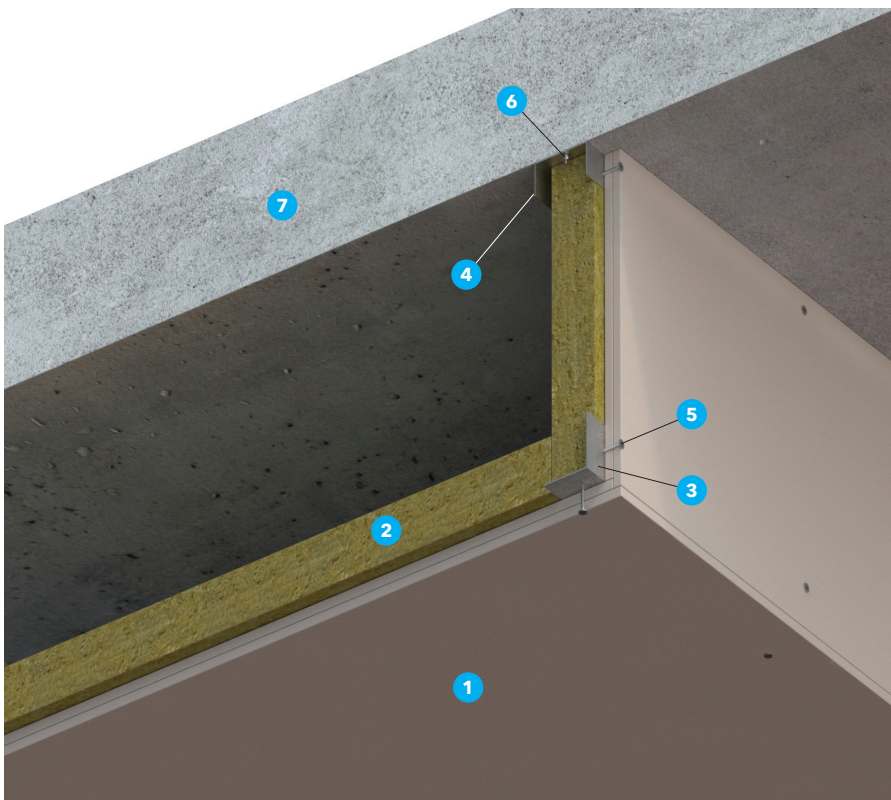
1. Access panel.
2. Promat fire rated ceiling.
3. Steel channel 50 x 25 x 0.6mm thick.
4. Steel channel 50 x 25 x 0.6mm thick at nominal 1220mm centres.
5. Mineral wool.
6. Self tapping screws at nominal 200mm.

Ceiling recess box-up details



1. Promat fire rated ceiling.
2. Mineral wool.
3. Steel angle 30 x 30 x 0.6mm thick.
4. Steel channel, 50 x 25 x 0.6mm.
5. Self tapping screws at nominal 200mm.

Ceiling vertical up-turn details



1. Promat fire rated ceiling.
2. Mineral wool.
3. Steel angle 30 x 30 x 0.6mm thick.
4. Steel channel, 50 x 25 x 0.6mm.
5. Self tapping screws at nominal 200mm.
6. M6 steel anchor bolts at nominal 500mm centres or M8 steel anchor bolts at nominal 600mm centres.
7. Concrete floor.

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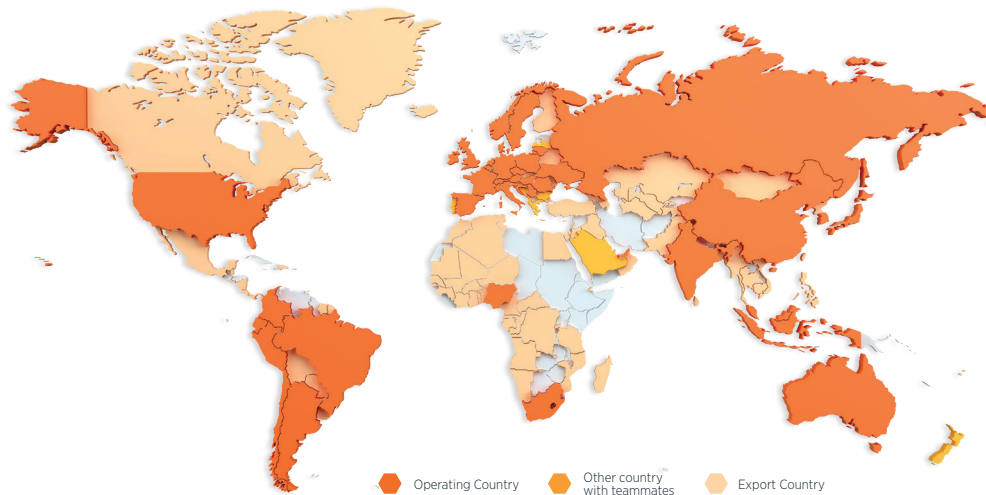


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Etex is a global building material manufacturer and pioneer in lightweight construction. Etex wants to inspire people around the world to build living spaces that are ever more safe, sustainable, smart and beautiful.

Founded in 1905, headquartered in Zaventem, Belgium, Etex is a family-owned company with more than 13,500 employees globally. It operates more than 160 sites in 45 countries and recorded a revenue of EUR 3.7 billion in 2022. Etex fosters a collaborative and caring culture, a pioneering spirit and a passion to always do better for its customers.

Etex has five R&D centres supporting five global divisions:

- Building Performance: dry construction solutions including plasterboards and fibre cement boards, plasters and formulated products, passive fire protection and associated products.
- Exteriors: a range of aesthetic fibre cement materials for use in agriculture, architectural and residential exteriors.
- Industry: fire protection and high-performance insulation products for the construction and OEM (Original Equipment Manufacturer) industries.
- Insulation: glass mineral wool and extruded polystyrene (XPS) for thermal and acoustic insulation.
- New Ways: high-tech offsite modular solutions based on wood and steel framing.

Etex's global portfolio includes leading commercial brands such as Promat, Kalsi, Siniat, Equitone, Eternit, Cedral, Durlock, Gyplac, Pladur, Superboard and URSA.

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