

Insulated Panels
Australia

KINGSPAN SOLUTIONS FOR FIRE-RATED APPLICATIONS

DESIGN GUIDE

Building smarter with K-Roc®



HOW TO USE THIS GUIDE

The navigation tools in this guide allow you to easily browse content and access additional resources in several ways.

There are links and shortcuts within each page to help you quickly find the information you need.

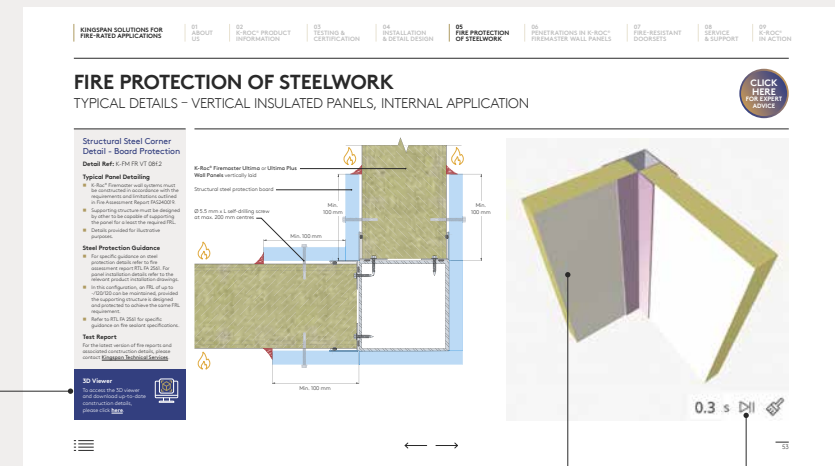
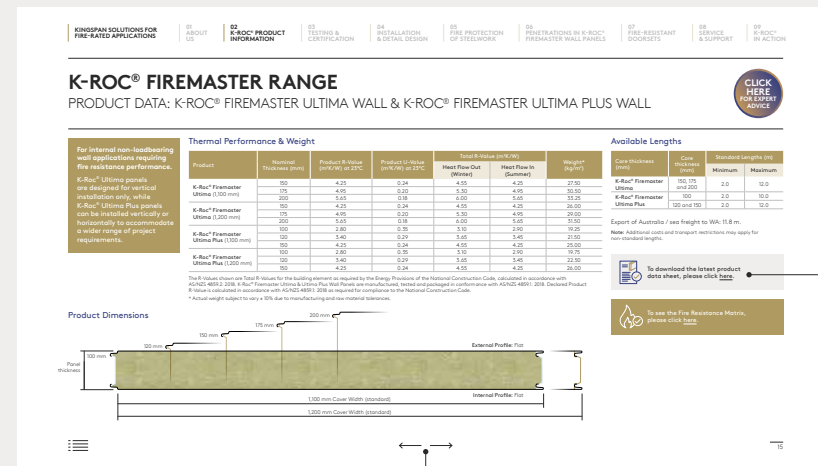
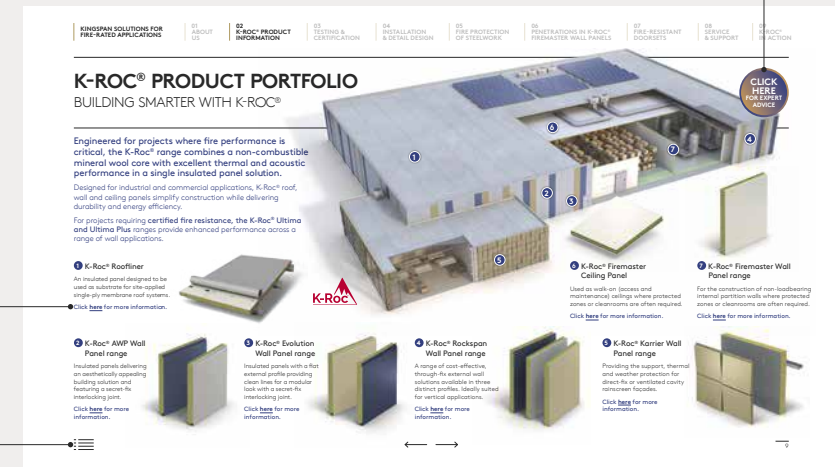
There are shortcuts to specific headings and pages using the interactive table of contents and links for a wide range of resources, including: **3D Viewer - Kingspan's online interactive construction details hub**; product information downloads; such as detailed product data sheets; key contact details and more.

Section shortcuts - click to jump to specific parts of the design guide

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Links to external resources
for each product

Contact a
K-Roc® expert



On each detail page - click here
for the full suite of interactive
3D construction details

Interactive 3D
construction detail

Play button for
detail assembly
animation

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01

ABOUT US

- Kingspan Insulated Panels Australia 5
- K-Roc® Manufacturing Excellence 6
- K-Roc® Production Process 7

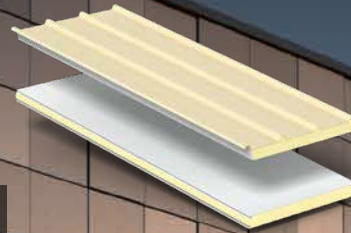


KINGSPAN INSULATED PANELS AUSTRALIA

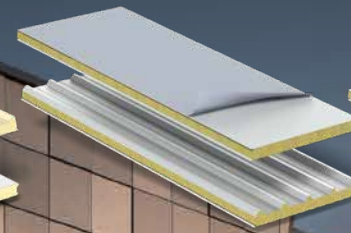
A leading manufacturer of high performance insulated roof, wall and façade systems, Kingspan Insulated Panels combines global innovation with local expertise from our manufacturing facility in St Marys, Sydney.

Our locally manufactured portfolio includes the K-Roc® range, featuring a non-combustible mineral wool core for projects where fire performance is critical, and the K-PIR™ range, engineered with an advanced PIR insulation core to deliver exceptional thermal efficiency and airtightness.

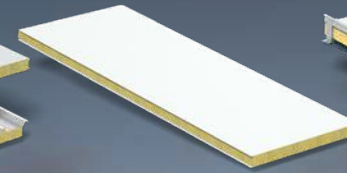
For complex designs, Kingspan Architectural comprises premium metallic façades and the KingZip® standing seam roofing system, providing the flexibility, aesthetics and proven performance needed to bring ambitious visions to life.



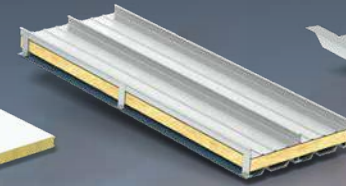
K-PIR® Insulated
Roof Systems



K-Roc® Insulated
Roof Systems



K-Roc® Insulated
Ceiling Systems



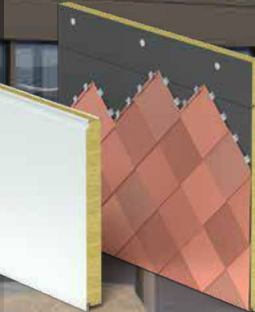
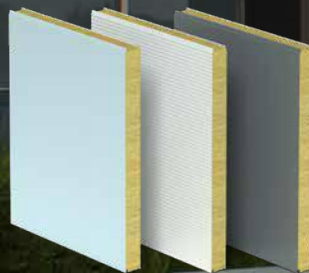
KingZip Architectural
Roofing System



Fabrications



K-Roc® Insulated Wall Panel Systems



K-Roc® Architectural
Façade Systems



K-PIR™ Insulated Wall Systems

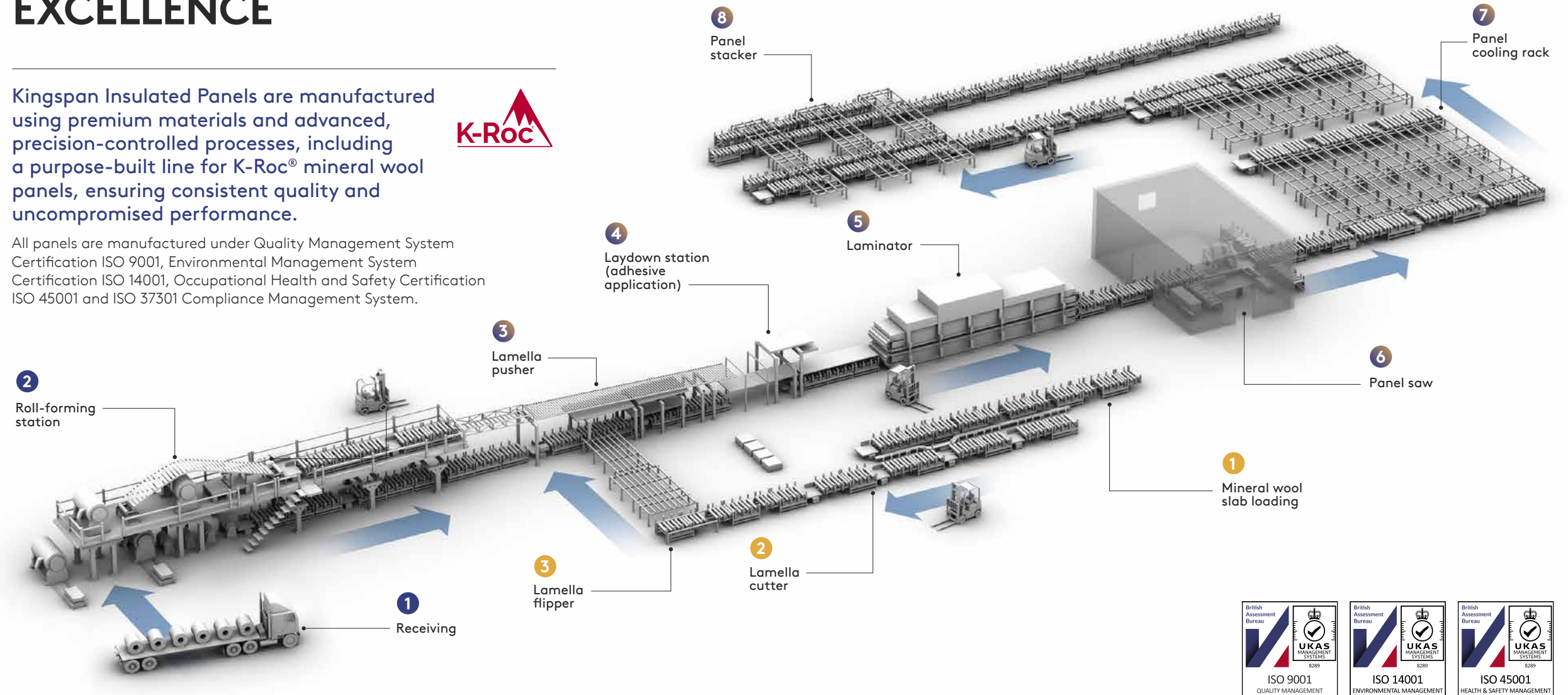


K-PIR™ Architectural
Façade Systems

K-ROC® MANUFACTURING EXCELLENCE

Kingspan Insulated Panels are manufactured using premium materials and advanced, precision-controlled processes, including a purpose-built line for K-Roc® mineral wool panels, ensuring consistent quality and uncompromised performance.

All panels are manufactured under Quality Management System Certification ISO 9001, Environmental Management System Certification ISO 14001, Occupational Health and Safety Certification ISO 45001 and ISO 37301 Compliance Management System.



02

K-ROC® PRODUCT INFORMATION

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K-ROC® PRODUCT PORTFOLIO

BUILDING SMARTER WITH K-ROC®

Engineered for projects where fire performance is critical, the K-Roc® range combines a non-combustible mineral wool core with excellent thermal and acoustic performance in a single insulated panel solution.

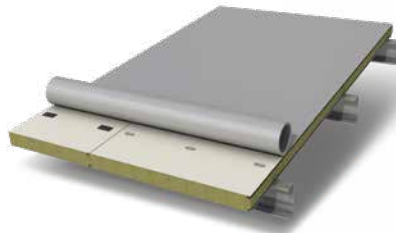
Designed for industrial and commercial applications, K-Roc® roof, wall and ceiling panels simplify construction while delivering durability and energy efficiency.

For projects requiring **certified fire resistance**, the K-Roc® Ultima and Ultima Plus ranges provide enhanced performance across a range of wall applications.

1 K-Roc® Roofliner

An insulated panel designed to be used as a substrate for site-applied single-ply membrane roof systems.

Click [here](#) for more information.



2 K-Roc® AWP Wall Panel range

Insulated panels delivering an aesthetically appealing building solution and featuring a secret-fix interlocking joint.

Click [here](#) for more information.



3 K-Roc® Evolution Wall Panel range

Insulated panels with a flat external profile providing clean lines for a modular look with a secret-fix interlocking joint.

Click [here](#) for more information.



4 K-Roc® Rockspan Wall Panel range

A range of cost-effective, through-fix external wall solutions available in three distinct profiles. Ideally suited for vertical applications.

Click [here](#) for more information.



5 K-Roc® Karrier Wall Panel range

Providing the support, thermal and weather protection for direct-fix or ventilated cavity rainscreen façades.

Click [here](#) for more information.



6 K-Roc® Firemaster Ceiling Panel range

Used as walk-on (access and maintenance) ceilings where protected zones or cleanrooms are often required.

Click [here](#) for more information.



7 K-Roc® Firemaster Wall Panel range

For the construction of non-loadbearing internal partition walls where protected zones or cleanrooms are often required.

Click [here](#) for more information.



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FOR EXPERT
ADVICE



K-ROC® FOR DATA CENTRES



The K-Roc® range is ideally suited to data centre applications, helping to support robust fire safety strategies while delivering excellent thermal efficiency, acoustic performance and long-term durability. Its non-combustible mineral wool core provides an added layer of protection for mission-critical environments where resilience and reliability are essential.



Locally made in St Marys, Sydney

Locally manufactured for maximum efficiency, the K-Roc® range offers shorter lead times than imported products. This supports faster installation, reduces programme risk, and gives design teams greater flexibility to optimise service layouts in data centre projects.



Proven fire protection

The K-Roc® Ultima ranges offer fire resistance capabilities, delivering up to a -/240/240 Fire-resistance Level (FRL)*. Designed to contain heat and prevent flame spread, they safeguard critical infrastructure and help maintain uptime.



Design capabilities

Delivering outstanding fire, thermal and acoustic performance in a lightweight insulated panel solution. Designed to reduce structural loads and simplify transport and installation, K-Roc® panels help support faster construction, lower project costs and greater design flexibility.



Scalability - modular design

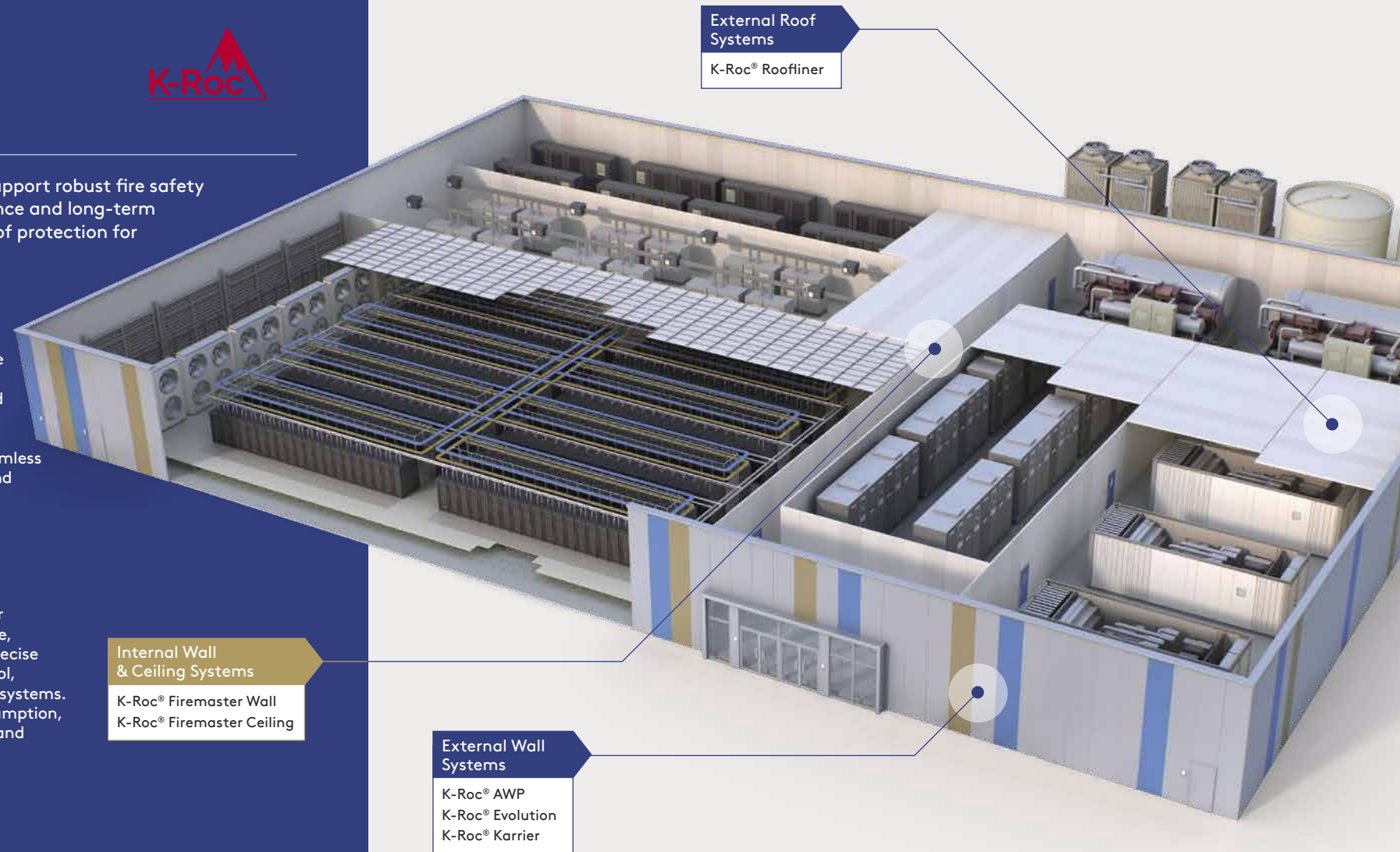
Designed for modern data centre construction, the K-Roc® range delivers a modular, prefabricated insulated panel solution that supports faster installation, greater design flexibility and seamless scalability for both new builds and facility expansions.



Sustainability - thermal efficiency

Kingspan insulated panels deliver exceptional thermal performance, helping data centres maintain precise temperature and humidity control, reducing strain on CRAC / CRAH systems. This results in lower energy consumption, improved operational efficiency and reduced carbon emissions.

* Fire-resistance Levels (FRL) are subject to certain details including panel thickness, width, orientation, distance between supports and method of assembly.



K-ROC® FIREMASTER RANGE

CHOOSING THE RIGHT PRODUCT

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Application

Fire
Performance

Thermal
Performance

Insulation Core
& Panel Thickness

K-Roc® Firemaster Wall Panel & K-Roc® Firemaster Ceiling

- K-Roc® Firemaster Wall: vertical or horizontal panel orientation for internal wall applications.
- K-Roc® Firemaster Ceiling Panel: internal horizontal ceiling application - suitable for maintenance access only.

- ✓ AS 1530.4: 2014.
- ✓ NCC C2D10(6)(g) **Non-combustible** building elements.
- ✓ AS 1530.1: 1994 (R2016) - **Mineral wool core** not deemed combustible.
- ✓ AS/NZS 1530.3: 1999.
- ✓ AS 5637.1: 2015 / ISO 9705: 2003 (R2016): Group 1. SMOGRA_{RC}: < 100 m²/S² x 1,000.

- ✓ Product R-value is calculated in accordance with AS 4859.1: 2018.
- Declared product R-value (m²K/W) at 23°C up to 5.65 (200 mm).

- K-Roc® 115 kg/m³ density mineral wool core.
- **Panel thickness range: 75 - 200 mm.**

K-Roc® Firemaster Ultima Wall Panel



- **Where a fire resistance level (FRL) is required.**
- **For vertical panel-oriented installations only, with a core depth of ≥150 mm.**
- A limited range of options are available for support spacing distances and FRLs.

- ✓ AS 1530.4: 2014.
- ✓ NCC C2D10(6)(g) **Non-combustible** building elements.
- ✓ AS 1530.1: 1994 (R2016) - **Mineral wool core** not deemed combustible.
- ✓ AS/NZS 1530.3: 1999.
- ✓ AS 5637.1: 2015 / ISO 9705: 2003 (R2016): Group 1. SMOGRA_{RC}: < 100 m²/S² x 1,000.

- ✓ Product R-value is calculated in accordance with AS 4859.1: 2018.
- Declared product R-value (m²K/W) at 23°C up to 5.65 (200 mm).

- K-Roc® 115 kg/m³ density mineral wool core.
- **Panel thickness range: 150, 175 and 200 mm.**

K-Roc® Firemaster Ultima Plus Wall Panel



- **Where a fire resistance level (FRL) is required.**
- **For vertical and horizontal panel-oriented installation, with a core depth of ≥100 mm.**
- An extensive range of options are available for support spacing distances and FRLs.

- ✓ AS 1530.4: 2014.
- ✓ NCC C2D10(6)(g) **Non-combustible** building elements.
- ✓ AS 1530.1: 1994 (R2016) - **Mineral wool core** not deemed combustible.
- ✓ AS/NZS 1530.3: 1999.
- ✓ AS 5637.1: 2015 / ISO 9705: 2003 (R2016): Group 1. SMOGRA_{RC}: < 100 m²/S² x 1,000.

- ✓ Product R-value is calculated in accordance with AS 4859.1: 2018.
- Declared product R-value (m²K/W) at 23°C up to 5.65 (200 mm).

- K-Roc® 115 kg/m³ density mineral wool core.
- **Panel thickness range: 100 - 200 mm.**

K-Roc® Firemaster Ultima Plus Ceiling Panel



- **Where a fire resistance level (FRL) is required.**
- **For ceiling systems exposed to fire from the underside, with a core depth of ≥150 mm.**
- An extensive range of options are available, offering various support spacing configurations and FRLs.

- ✓ AS 1530.4: 2014.
- ✓ NCC C2D10(6)(g) **Non-combustible** building elements.
- ✓ AS 1530.1: 1994 (R2016) - **Mineral wool core** not deemed combustible.
- ✓ AS/NZS 1530.3: 1999.
- ✓ AS 5637.1: 2015 / ISO 9705: 2003 (R2016): Group 1. SMOGRA_{RC}: < 100 m²/S² x 1,000.

- ✓ Product R-value is calculated in accordance with AS 4859.1: 2018.
- Declared product R-value (m²K/W) at 23°C up to 5.65 (200 mm).

- K-Roc® 115 kg/m³ density mineral wool core.
- **Panel thickness range: 150, 175 and 200 mm.**

See pages 13-19 for further information on K-Roc® Firemaster product performance.

K-ROC® FIREMASTER RANGE

Key Benefits and Applications

Designed for non-loadbearing internal partition walls and walk-on (access and maintenance) ceilings, the K-Roc® Firemaster range delivers robust fire performance where compartmentation and occupant safety are paramount.

Single component

Accelerated build speed reduces time on site.
Available in 1,100 mm and 1,200 mm widths, and a range of lengths and thicknesses.

Fire performance

Achieves up to FRL -/240/180† Fire-resistance Level tested to AS 1530.4: 2014 (K-Roc® Firemaster Ultima Wall and K-Roc® Firemaster Ultima Plus Ceiling panels only).

Exterior metal skin

Provides lifetime durability performance.
Pre-coated Coolroom White as standard.
Other colours available on request.

Interior metal skin

Perfect vapour barrier. Pre-coated Coolroom White as standard. Other colours available on request.

High performance insulation

Non-combustible 115 kg/m³ density mineral wool insulation.

Durability

Market-leading 25-year performance warranty.



† Fire-resistance Levels (FRL) are subject to certain details including panel thickness, width, orientation, distance between supports and method of assembly.



FIRE RESISTANT INTERNAL WALL & CEILING PANELS



Image for illustrative purposes only.

K-ROC® FIREMASTER RANGE

PRODUCT DATA: GENERAL



The K-Roc® Firemaster Range is ideally suited for the construction of non-loadbearing internal partition walls and walk-on (access and maintenance) ceilings with fire performance requirements.

K-Roc® Firemaster Panels achieve the necessary fire test results, as required by clause C2D10 (6)(g) of the National Construction Code (NCC). Therefore, they can be used wherever a non-combustible material is required by the NCC.

K-Roc® Firemaster Ultima Wall Panels, K-Roc® Firemaster Ultima Plus Wall Panels and K-Roc® Firemaster Ultima Plus Ceiling Panels are designed for use in applications where fire resistance levels are required.

Insulation Core

K-Roc® Firemaster Panels are manufactured with a 115 kg/m³ density mineral wool insulation core with a tolerance of ± 10%.

Fixing Method

Through-fix.

Certification and Testing

Combustibility

K-Roc® Firemaster Panels are a bonded laminated material. They achieve the following fire test results, as required by clause C2D10 (6)(g) of the National Construction Code (NCC). Therefore, it can be used wherever a non-combustible material is required by the NCC.

Product	Test Method	Result
Mineral wool core	AS 1530.1: 1994 (R2016)	Not deemed combustible
Panel steel skin (uncoated)	Combustibility test for materials	

Test	Test Method	Result
Ignitability	AS/NZS: 1530.3: 1999	Index: 0
Flame Spread		
Heat Release		
Smoke Release		Index: ≤ 3

There are two factory-applied adhesive layers applied during the manufacture of the product. Each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm in thickness.

Test	Test Method	Result
NCC Group Number in accordance with AS 5637.1: 2015	AS 5637.1: 2015 / ISO 9705 2003 (R2016)	Group 1
Smoke Growth Rate Index (SMOGR _{RC}) (m²/S² x 1000)		< 100

For further information on Combustibility & Reaction to Fire Testing, please see [pages 22-23](#).

Materials

External Sheet and Internal Liner

- Substrate to be G300S steel with Z275 metallic coating in accordance with AS 1397: 2021.
- Paint coating in accordance with AS / NZS 2728: 2013.

Security. Built in.

K-Roc® panels engineered for high-security environments.

Speak to Kingspan about our alternative material offering, proven across demanding security applications where durability, resilience and long-term performance are critical

Available on one or both sides of K-Roc® Panels, in the standard paint coating offering.

Contact Kingspan to discuss additional coating options and project-specific requirements.

Coatings

External Sheet and Internal Liner

- Standard: Coolroom White (Off White for K-Roc® Firemaster Ceiling range external sheet). Other colours are available on request. Please contact your local area sales manager for further information.

Other Internal Coating Options*

- Kingspan AQUAsafe 25 and Kingspan AQUAsafe 55: The coating has been developed for use as the internal lining of insulated panels to suit high humidity internal environments.

* Please contact Technical Services for further information regarding substrates and coatings. Internal coatings subject to availability and panel cover width.

Product Tolerances

Product tolerances in accordance with EN 14509: 2013.

Length (≤ 3 m)	± 5 mm
Length (> 3 m)	± 10 mm
Width	± 2 mm
Thickness (≤ 100 mm)	± 2 mm
Thickness (> 100 mm)	± 2 %
Squareness	≤ 0.6% of width
Flatness* (L = 200 mm)	0.6 mm
Flatness* (L = 400 mm)	1.0 mm
Flatness* (L = 700 mm)	1.5 mm
Bowing	2 mm per metre length up to max. 20 mm

* Flatness shall be measured at least 100 mm from the edge of panel and 200 mm from the end of panel.

Load / Span

Specific span performance information can be provided by Kingspan Technical Services on a project-by-project basis.

K-ROC® FIREMASTER RANGE

PRODUCT DATA: K-ROC® FIREMASTER WALL

For internal non-loadbearing wall applications, the system can be installed in both vertical and horizontal orientation.

For use in internal spaces where fire resistance performance is not a project requirement.

Thermal Performance & Weight

Panel Nominal Thickness (mm)	Product R-value (m²K/W) at 23°C	Product U-Value (W/m²K) at 23°C	Total R-value (m²K/W)		Weight* (kg/m²)	
			Heat Flow Out (Winter)	Heat Flow In (Summer)	K-Roc® Firemaster Wall - 1,100 mm	K-Roc® Firemaster Wall - 1,200 mm
75	2.10	0.47	2.35	2.20	16.50	17.50
100	2.80	0.35	3.10	2.90	19.25	20.00
120	3.40	0.29	3.65	3.45	21.50	22.50
150	4.25	0.24	4.55	4.25	25.00	26.00
175	4.95	0.20	5.30	4.95	28.00	29.00
200	5.65	0.18	6.00	5.65	30.75	31.50

The R-values shown are Total R-values for the building element as required by the Energy Provisions of the National Construction Code, calculated in accordance with AS/NZS 4859.2: 2018. K-Roc® Firemaster Wall Panels are manufactured, tested and packaged in conformance with AS/NZS 4859.1: 2018. Declared Product R-value is calculated in accordance with AS/NZS 4859.1: 2018 as required for compliance to the National Construction Code.

* Actual weight subject to variation of ± 10% due to manufacturing and raw material tolerances.

Available Lengths

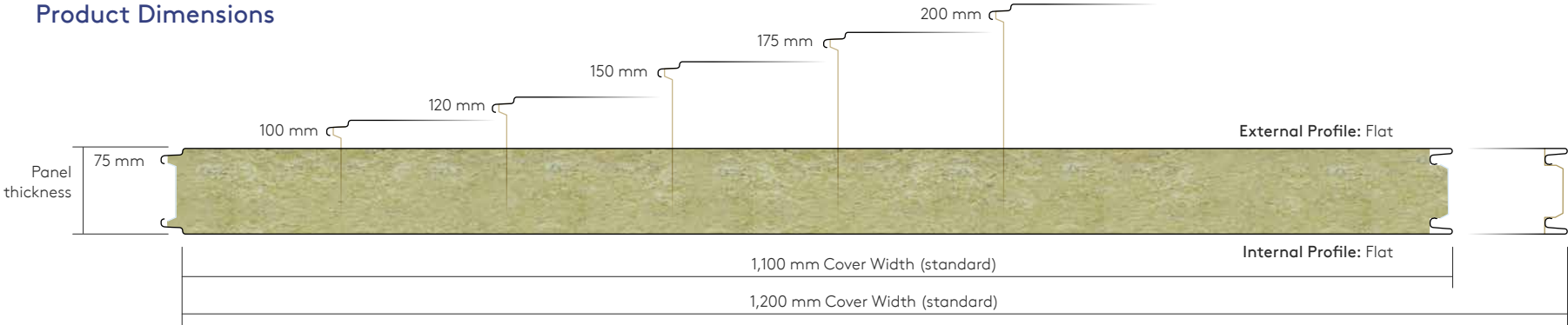
Core thickness (mm)	Standard Lengths (m)	
	Minimum	Maximum
75	2.0	8.5
100	2.0	10.0
120, 150, 175 and 200	2.0	12.0

Export of Australia / sea freight to WA: 11.8 m.

Note: Additional costs and transport restrictions may apply for non-standard lengths.

To download the latest product data sheet, please click [here](#).

Product Dimensions



K-ROC® FIREMASTER RANGE

PRODUCT DATA: K-ROC® FIREMASTER ULTIMA WALL & K-ROC® FIREMASTER ULTIMA PLUS WALL



For internal non-loadbearing wall applications requiring fire resistance performance.

K-Roc® Ultima panels are designed for vertical installation only, while K-Roc® Ultima Plus panels can be installed vertically or horizontally to accommodate a wider range of project requirements.

Thermal Performance & Weight

Product	Nominal Thickness (mm)	Product R-value (m²K/W) at 23°C	Product U-Value (m²K/W) at 23°C	Total R-value (m²K/W)		Weight* (kg/m²)
				Heat Flow Out (Winter)	Heat Flow In (Summer)	
K-Roc® Firemaster Ultima (1,100 mm)	150	4.25	0.24	4.55	4.25	25.00
	175	4.95	0.20	5.30	4.95	28.00
	200	5.65	0.18	6.00	5.65	30.75
K-Roc® Firemaster Ultima (1,200 mm)	150	4.25	0.24	4.55	4.25	26.00
	175	4.95	0.20	5.30	4.95	29.00
	200	5.65	0.18	6.00	5.65	31.50
K-Roc® Firemaster Ultima Plus (1,100 mm)	100	2.80	0.35	3.10	2.90	19.25
	120	3.40	0.29	3.65	3.45	21.50
	150	4.25	0.24	4.55	4.25	25.00
K-Roc® Firemaster Ultima Plus (1,200 mm)	100	2.80	0.35	3.10	2.90	20.00
	120	3.40	0.29	3.65	3.45	22.50
	150	4.25	0.24	4.55	4.25	26.00

The R-values shown are Total R-values for the building element as required by the Energy Provisions of the National Construction Code, calculated in accordance with AS/NZS 4859.2: 2018. K-Roc® Firemaster Ultima & Ultima Plus Wall Panels are manufactured, tested and packaged in conformance with AS/NZS 4859.1: 2018. Declared Product R-value is calculated in accordance with AS/NZS 4859.1: 2018 as required for compliance to the National Construction Code.

* Actual weight subject to variation of ± 10% due to manufacturing and raw material tolerances.

Available Lengths

Core thickness (mm)	Core thickness (mm)	Standard Lengths (m)	
		Minimum	Maximum
K-Roc® Firemaster Ultima	150, 175 and 200	2.0	12.0
	100	2.0	10.0
K-Roc® Firemaster Ultima Plus	120 and 150	2.0	12.0

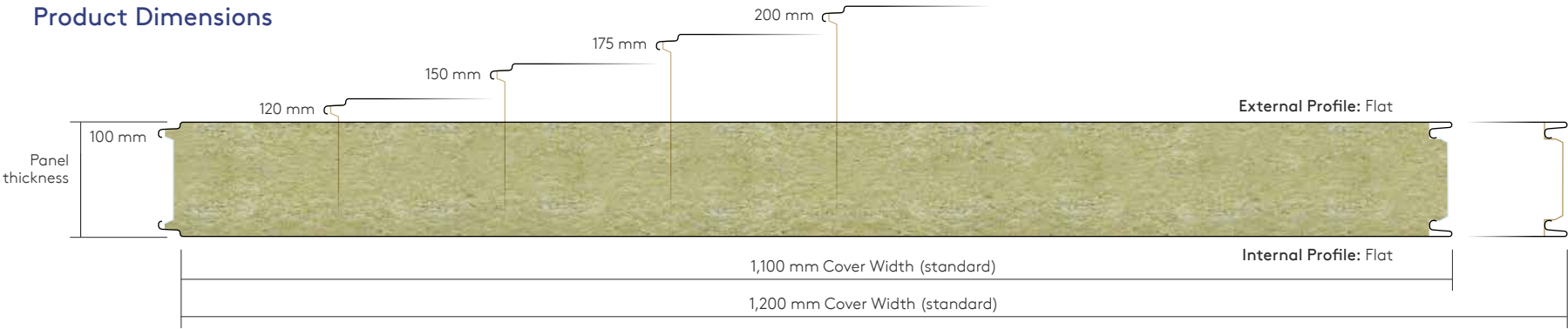
Export of Australia / sea freight to WA: 11.8 m.

Note: Additional costs and transport restrictions may apply for non-standard lengths.

To download the latest product data sheet, please click [here](#).

To see the Fire Resistance Matrix, please click [here](#).

Product Dimensions



K-ROC® FIREMASTER RANGE

PRODUCT DATA: K-ROC® FIREMASTER CEILING

For the construction of non-loadbearing internal walk-on (access and maintenance) ceilings of food processing, data centres, microelectronics and pharmaceuticals facilities, where protected zones or cleanrooms are often required.

Thermal Performance & Weight

Panel Nominal Thickness (mm)	Product R-value (m²K/W) at 23°C	Product U-Value (W/m²K) at 23°C	Total R-value (m²K/W)		Weight* (kg/m²)
			Heat Flow Out (Winter)	Heat Flow In (Summer)	
100	2.80	0.35	3.05	2.90	23.00
120	3.40	0.29	3.65	3.45	25.50
150	4.25	0.24	4.55	4.30	29.00
175	4.95	0.20	5.30	5.00	31.75
200	5.65	0.18	6.00	5.65	34.50

The R-values shown are Total R-values for the building element as required by the Energy Provisions of the National Construction Code, calculated in accordance with AS/NZS 4859.2: 2018. K-Roc® Firemaster Ceiling Panels are manufactured, tested and packaged in conformance with AS/NZS 4859.1: 2018. Declared Product R-value is calculated in accordance with AS/NZS 4859.1: 2018 as required for compliance to the National Construction Code.

* Actual weight subject to variation of ± 10% due to manufacturing and raw material tolerances.

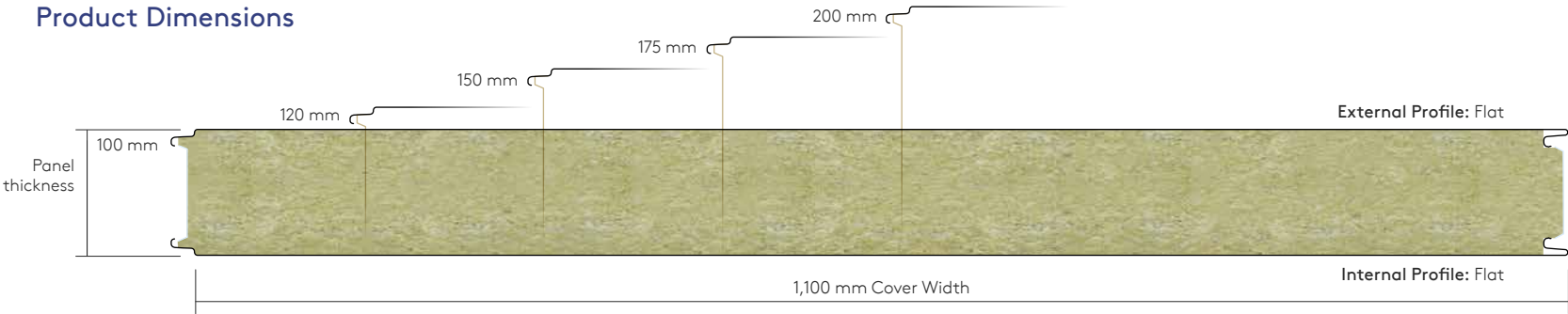
Available Lengths

Core thickness (mm)	Standard Lengths (m)	
	Minimum	Maximum
100	2.0	10.0
120, 150, 175 and 200	2.0	12.0

Export of Australia / sea freight to WA: 11.8 m.

Note: Additional costs and transport restrictions may apply for non-standard lengths.

Product Dimensions



To download the latest product data sheet, please click [here](#).

K-ROC® FIREMASTER RANGE

PRODUCT DATA: K-ROC® FIREMASTER ULTIMA PLUS CEILING



For non-loadbearing internal walk-on (access and maintenance) ceilings applications requiring fire resistance performance.

Suitable for food processing, data centres, microelectronics and pharmaceuticals facilities, where protected zones or cleanrooms are often required.

Thermal Performance & Weight

Panel Nominal Thickness (mm)	Product R-value (m²K/W) at 23°C	Product U-Value (W/m²K) at 23°C	Total R-value (m²K/W)		Weight* (kg/m²)
			Heat Flow Out (Winter)	Heat Flow In (Summer)	
150	4.25	0.24	4.55	4.30	29.00
175	4.95	0.20	5.30	5.00	31.75
200	5.65	0.18	6.00	5.65	34.50

The R-values shown are Total R-values for the building element as required by the Energy Provisions of the National Construction Code, calculated in accordance with AS/NZS 4859.2: 2018. K-Roc® Firemaster Ultima Plus Ceiling Panels are manufactured, tested and packaged in conformance with AS/NZS 4859.1: 2018. Declared Product R-value is calculated in accordance with AS/NZS 4859.1: 2018 as required for compliance to the National Construction Code.

* Actual weight subject to variation of ± 10% due to manufacturing and raw material tolerances.

Available Lengths

Core thickness (mm)	Standard Lengths (m)	
	Minimum	Maximum
150, 175 and 200	2.0	12.0

Export of Australia / sea freight to WA: 11.8 m.

Note: Additional costs and transport restrictions may apply for non-standard lengths.



To download the latest product data sheet, please click [here](#).



To see the Fire Resistance Matrix, please click [here](#).

Product Dimensions



FIRE RESISTANCE MATRIX

K-ROC® FIREMASTER ULTIMA WALL & K-ROC® FIREMASTER ULTIMA PLUS WALL

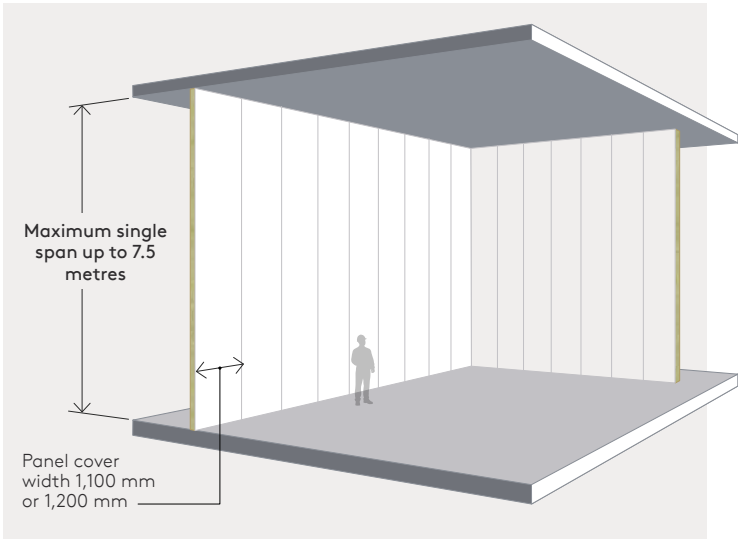
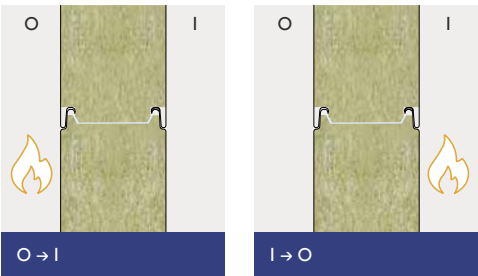
K-Roc® Firemaster Ultima Wall Panels and Ultima Plus Wall Panels are tested in accordance with AS 1530.4: 2014.

Fire-resistance Levels (FRLs) are subject to certain details including panel thickness, width, orientation, distance between supports and method of assembly.

The tables below indicate the direction of fire exposure and how it applies to the K-Roc® Firemaster Wall system. K-Roc® Firemaster Wall systems are tested and certified to provide fire resistance for either direction of exposure, from inside-to-outside (I → O) or from outside-to-inside (O → I), but not for both directions simultaneously.

K-Roc® Firemaster Ultima Wall Panels: Horizontal / Vertical Installation

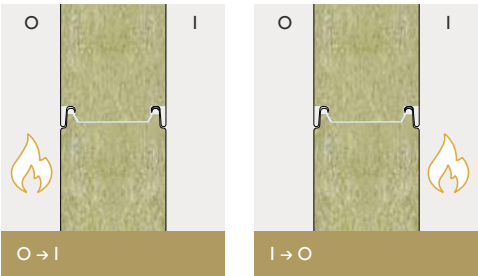
Panel Thickness (mm)	-/60/60		-/90/90		-/120/120		-/180/120		-/180/180		-/240/180		-/240/240	
	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.
100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	-	-	-	-	-	-	-	-	-	-	-	-	-	-
150	-	7.5 m	-	7.5 m	-	6.0 m	-	-	-	-	-	-	-	-
175	-	7.5 m	-	7.5 m	-	7.5 m	-	7.5 m	-	7.5 m	-	6.0 m	-	-
200	-	7.5 m	-	7.5 m	-	7.5 m	-	7.5 m	-	7.5 m	-	6.0 m	-	-



K-Roc® Firemaster Ultima Plus Wall Panels: Horizontal / Vertical Installation

Panel Thickness (mm)	-/60/60		-/90/90		-/120/120		-/180/120		-/180/180		-/240/180		-/240/240	
	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	Vert.
100	-	7.5 m	-	7.5 m	-	7.5 m	-	3.0 m	-	-	-	-	-	-
120	-	7.5 m	-	7.5 m	-	7.5 m	-	7.5 m	-	7.5 m	-	-	-	-
150	7.5 m	7.5 m	7.5 m	7.5 m	7.5 m	7.5 m	6.0 m	7.5 m	6.0 m	7.5 m	-	-	-	-
175	7.5 m	-	7.5 m	-	7.5 m	-	6.0 m	-	6.0 m	-	-	-	-	-
200	7.5 m	-	7.5 m	-	7.5 m	-	6.0 m	-	6.0 m	-	-	-	-	-

Notes: Tables must be read in conjunction with relevant fire resistance report. Stitching of panel to panel joints not required to achieve the stated fire resistance levels. Maximum FRL distance between supports are confirming the maximum from a fire resistance perspective, additional loads anticipated from wind loads or other may result in reductions to maximum allowable distance between supports. Structure has not been included in the tables.



FIRE RESISTANCE CERTIFICATION & SYSTEM COMPATIBILITY



FRL performance must be supported by testing or assessment by an accredited fire laboratory. Always check a chosen product configuration against the relevant evidence to ensure it meets the required FRL.

Fire doorsets, penetration fire protection systems and other interfaces must be tested or assessed for compatibility with the chosen substrate.

See [pages 57-64](#) penetration solutions in Kingspan K-Roc® Firemaster Wall panels and [pages 65-70](#) for fire resistant doorsets.

FIRE RESISTANCE MATRIX

K-ROC® FIREMASTER ULTIMA PLUS CEILING



K-Roc® Firemaster Ultima Plus Ceiling Panels are tested in accordance with AS 1530.4: 2014.

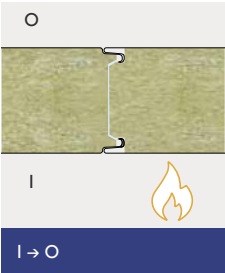
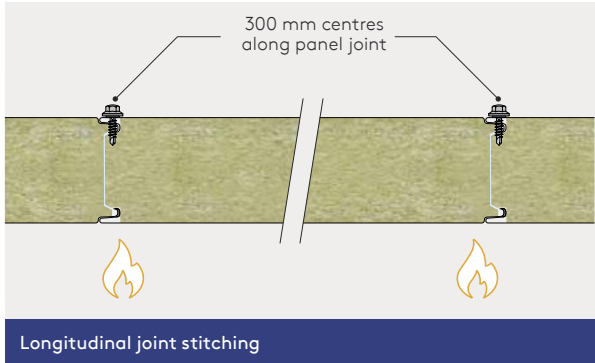
Fire-resistance Levels (FRLs) are subject to certain details including panel thickness, width, orientation, distance between supports and method of assembly.

The table below indicates the direction of fire exposure. Ceiling systems are tested and certified to provide fire resistance for a single direction of exposure, from inside-to-outside (I → O) only.

K-Roc® Firemaster Ultima Plus Ceiling Panel

Panel Thickness (mm)	-/60/60	-/90/90	-/120/120	-/180/120	-/180/180	-/240/180	-/240/240
150	6.8 m	5.1 m	4.4 m	-	-	4.0 m	-
175	-	-	-	-	-	4.0 m	-
200	-	-	-	-	-	4.0 m	-

Notes: Tables must be read in conjunction with relevant fire resistance report. Stitching of panel to panel joints not required to achieve the stated fire resistance levels. Maximum FRL distance between supports are confirming the maximum from a fire resistance perspective, additional loads anticipated from wind loads or other may result in reductions to maximum allowable distance between supports. Structure has not been included in the tables.



K-Roc® Firemaster Ultima Plus Ceiling Panels during AS 1530.4: 2014 fire test

FIRE RESISTANCE CERTIFICATION & SYSTEM COMPATIBILITY



FRL performance must be supported by testing or assessment by an accredited fire laboratory. Always check a chosen product configuration against the relevant evidence to ensure it meets the required FRL.

Fire doorsets, penetration fire protection systems and other interfaces must be tested or assessed for compatibility with the chosen substrate.

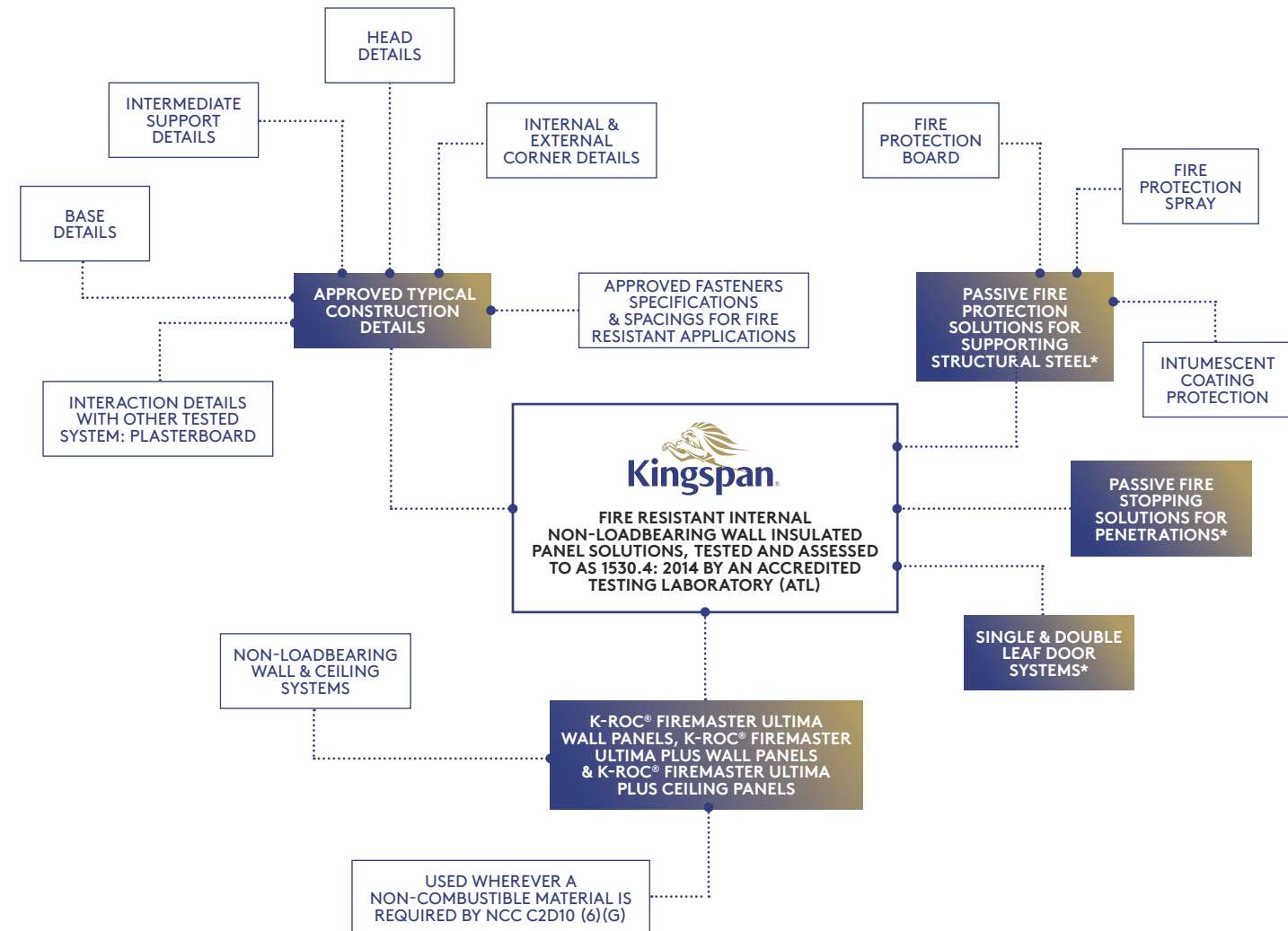
See [pages 57-64](#) penetration solutions in Kingspan K-Roc® Firemaster Wall panels and [pages 65-70](#) for fire resistant doorsets.

K-ROC® FIREMASTER ULTIMA & K-ROC® FIREMASTER ULTIMA PLUS SOLUTIONS PACKAGE

Kingspan is working collaboratively with industry partners to develop fully integrated solutions for compliant internal non-loadbearing partition wall and horizontal ceiling system applications where a non-combustible core and certified fire resistance performance are required.

Kingspan integrated internal fire resistance wall applications, systems and solutions package.

- Fire resistant, internal non-loadbearing insulated panel solutions, tested and assessed to AS 1530.4: 2014.
- Collaboration with third-party passive fire penetration tested systems.
- Collaboration with third-party door supplier.
- Passive fire protection interface solutions for supporting structural steel.
- Typical Construction Details approved for wall conditions:
 - base and head details;
 - intermediate support details;
 - interface with plasterboard wall systems;
 - interface with non-fire resistant K-PIR™ Coldstore wall panel system.



03

TESTING & CERTIFICATION

■ Combustibility & Reaction to Fire Testing

Non-combustibility

AS 1530.1: 1994 (R2016) -

Non-combustibility Test

AS/NZS 1530.3: 1999 Test

Group Number and Smoke
Growth Rate Index

AS 5637.1: 2015

AS ISO 9705: 2003 (2016)

22 ■ Fire Resistance Testing 24

Fire-resistance Level (FRL)

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22 AS 1530.4: 2014 - The 'Standard
22 Fire Test'

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COMBUSTIBILITY & REACTION TO FIRE TESTING

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Non-combustibility

Kingspan K-Roc® insulated panels satisfy Australian National Construction Code (NCC) requirements for use where non-combustible materials are required, demonstrated by testing and assessment at accredited fire testing laboratories*. They are suitable for use in internal wall systems across all building classes and types.

In accordance with NCC Clause C2D10(6)(g), bonded laminated materials such as K-Roc® insulated panels must satisfy several criteria to meet the non-combustibility requirements:

- All layers of the K-Roc® panels independently meet the non-combustibility requirements:
 - the mineral wool core satisfies the AS 1530.1: 1994 (R2016) test requirements and is deemed non-combustible; and
 - the pre-painted steel liner sheet material is tested to AS/NZS 1530.3: 1999, with a Spread-of Flame Index of '0' per C2D10(6)(e). Plain metallic coated steel is deemed to satisfy under C2D10(5)(b), and the AS 1530.3 test ensures the finish coating does not increase fire risk.
- The assembled K-Roc® insulated panels are tested to AS/NZS 1530.3: 1999, to ensure the Spread-of Flame Index does not exceed '0', and the Smoke-Developed Index does not exceed '3'.
- The K-Roc® production process is quality controlled to ensure the adhesive used to bond the liners to the core are not more than 1 mm thick each, with total thickness less than 2 mm.
- All K-Roc® insulated panels are mechanically fixed through all layers to the supporting structure.

* Product Review Report FAS230257.



AS 1530.1 non-combustibility
test apparatus



AS 1530.1: 1994 (R2016) - Non-combustibility Test

The AS 1530.1: 1994 (R2016) test is a small-scale test to determine the combustibility of a material. The specimen (each 45 mm in diameter and 50 mm in height) are dried, weighed and placed individually into a furnace at 750°C for 30 minutes.

The furnace temperature, specimen surface temperature and specimen core temperature are continuously monitored, and the specimen is observed for flaming throughout the test period.

A material is classified as non-combustible only if there is no sustained flaming lasting 5 seconds or more, and neither the furnace nor specimen surface temperature rises by more than 50°C - failure of any single criterion results in a combustible classification.

AS 1530.1 tests homogeneous materials only and not suitable for complete systems such as composite products.



AS/NZS 1530.3: 1999 small-scale fire test for fire hazard properties (image courtesy of AWT Product Testing)



AS/NZS 1530.3: 1999 Test

The AS/NZS 1530.3: 1999 test is another small-scale fire test. It measures four fire-hazard properties of a material:

- **Ignitability:** rated from 0 to 20, (lower numbers mean it is harder to ignite);
- **Flame Spread:** rated from 0 to 10 (lower numbers mean less flame spread);
- **Heat Release:** rated from 0 to 10 (lower numbers mean less heat output);
- **Smoke Release:** rated from 0 to 10 (lower numbers mean less smoke).

During the test a 600 mm x 450 mm specimen of the material is exposed to a radiant heat panel for a period of 20 minutes. The material is slowly moved closer to the heat source, increasing the heat exposure until the specimen ignites. This is designed to simulate conditions during the early stages of a fire.

Once ignition has occurred, the distance to the heat source is then fixed. For the remainder of the test measurements are taken of the distance flames spread across the material surface, the amount of heat released from the material, and the amount of smoke produced.

COMBUSTIBILITY & REACTION TO FIRE TESTING

Group Number and Smoke Growth Rate Index (SMOGR_{RC})

A Group Number is a classification from 1 to 4 that describes the fire growth contribution of a wall or ceiling lining material - specifically, how quickly the material causes heat release to escalate toward flashover. Group 1 materials contribute least to fire growth and are the highest performing; Group 4 materials contribute most. Group Numbers are determined in accordance with AS 5637.1: 2015 and are required under NCC Volume One Specification 7 for internal wall and ceiling linings in certain applications.

For buildings not fitted with a sprinkler system, Specification 7 also requires wall and ceiling lining systems materials to have either:

- A Smoke Growth Rate Index (SMOGR_{RC}) not more than 100; or
- An Average Specific Extinction Area less than 250 m²/kg.

The Group Number and SMOGR_{RC} values must be determined in accordance with AS 5637.1: 2015. For composite materials like insulated panels this requires testing to the AS ISO 9705: 2003 (R2016) full-scale corner room burn test standard.

When tested and assessed by an accredited fire testing laboratory, the K-Roc® Firemaster range achieved the highest possible rating of Group Number 1, and a SMOGR_{RC} not more than 100*. This means the K-Roc® products satisfy the NCC requirements for all wall lining applications including in non-sprinkler protected buildings.

Test	Test Method	Result
NCC Group Number in accordance with AS 5637.1: 2015	AS 5637.1: 2015 / ISO 9705 2003 (R2016)	Group 1
Smoke Growth Rate Index (SMOGR _{RC}) (m ² /S ² x 1000)		< 100

* Report FC18132-02-3.

AS 5637.1: 2015 – Which Test? AS ISO 9705: 2003 (R2016) or AS/NZS 3837: 1998 (2016)?

The AS 5637.1: 2015 standard referenced in the NCC is not a test standard. Instead it provides guidance to fire practitioners on the appropriate test standard required for assessing Group Number, SMOGR_{RC} and Average Specific Extinction Area; depending on the nature of the material to be assessed.

Two test standards are referenced:

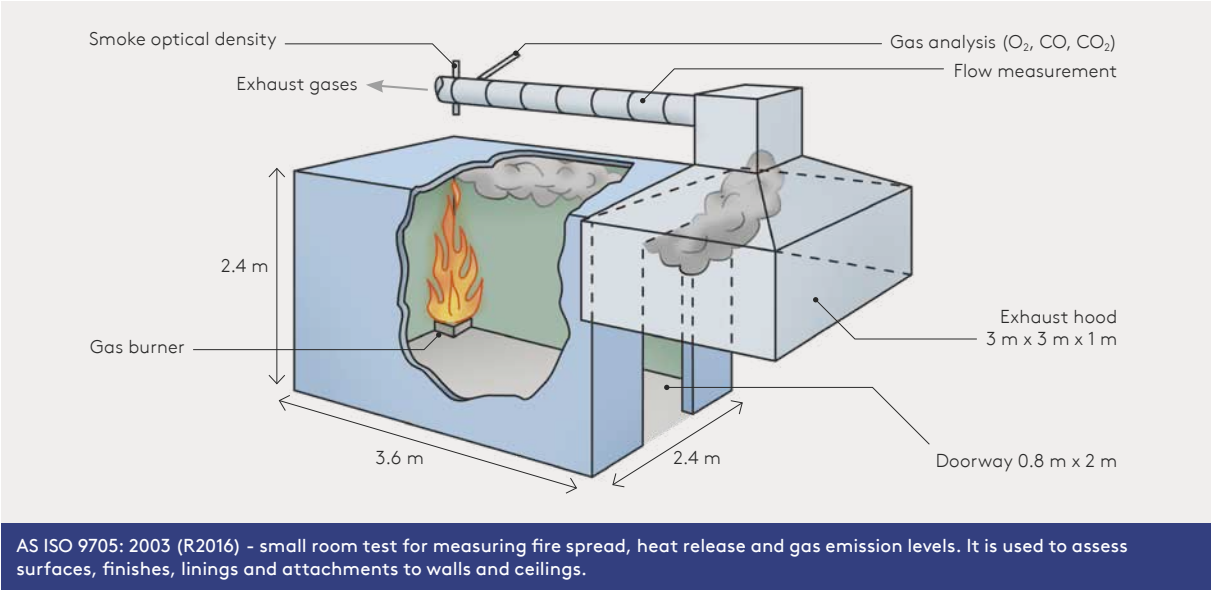
- **AS/NZS 3837: 1998 (2016) cone calorimeter test:** a small-scale test only suitable for a limited range of simple solid materials; and
- **AS ISO 9705: 2003 (R2016) corner room burn test:** a full-scale room test suitable for a wide range of materials including any composites or laminated materials.

As laminated composite materials, K-Roc® insulated panels are tested to AS ISO 9705: 2003 (R2016).

AS ISO 9705: 2003 (2016)

The test is conducted within a full-scale room enclosure measuring approximately 2.4 m × 3.6 m × 2.4 m (W × L × H), see illustration opposite. One wall, incorporating a doorway opening, is typically constructed from non-combustible material such as concrete and provided by the testing laboratory. The remaining three walls and the ceiling are formed using the test specimen. A gas burner is positioned in the corner where two specimen walls intersect.

The test is initiated by ignition of the gas burner, which operates at 100 kW for the first 10 minutes before increasing to 300 kW for a further 10 minutes. Throughout the test, instrumentation continuously monitors heat release rate, smoke density, gas production, and flame spread.



The test duration is 20 minutes, unless terminated earlier upon flashover, defined as a heat release rate of 1 MW.

The Group Number of a material is assigned as follows when tested in accordance with AS ISO 9705: 2003 (R2016):

- Group 1: material that does not reach flashover when exposed to 100 kW for 10 minutes, followed by exposure to 300 kW for another 10 minutes.
- Group 2: material that reaches flashover following exposure to 300 kW within 10 minutes after not reaching flashover after being exposed to 100 kW for 10 minutes.

- Group 3: material that reaches flashover between 2-10 minutes when exposed to 100 kW.
- Group 4: Material that reaches flashover within 2 minutes when exposed to 100 kW.

As smoke is measured during the test it is also used to determine the Smoke Growth Rate Index (SMOGR_{RC}).

FIRE-RESISTANCE TESTING



Fire-resistance Level (FRL)

K-Roc® Ultima and Ultima Plus insulated panels have demonstrated **up to 4-hours integrity and insulation performance**. K-Roc® insulated panels meet FRL requirements in the NCC across all classes and types of building. As K-Roc® panels are non-loadbearing they are assessed for **Integrity** and **Insulation** performance.

The FRL performance achieved by K-Roc® insulated wall panels is influenced by:

- the panel product selected;
- the panel layout (vertical vs horizontal);
- the panel span; and
- the panel thickness.

For example, K-Roc® Firemaster Ultima Wall Panels can achieve an FRL of **-/240/180** from either inside-to-out or outside-to-in fire direction, when panels ≥ 175 mm thick and are installed in a vertical orientation at spans of up to 6 metres*.

AS 1530.4: 2014 testing has also demonstrated that K-Roc® insulated panels are able to contribute to fire protection of structural steel elements, helping the steel to maintain Structural Adequacy**. The exposed sides of the steel must be provided with additional fire protection as designed by the structural engineer.

* Regulatory Information Report FAS240019.

** Regulatory Information Report RTL RIR 2561.

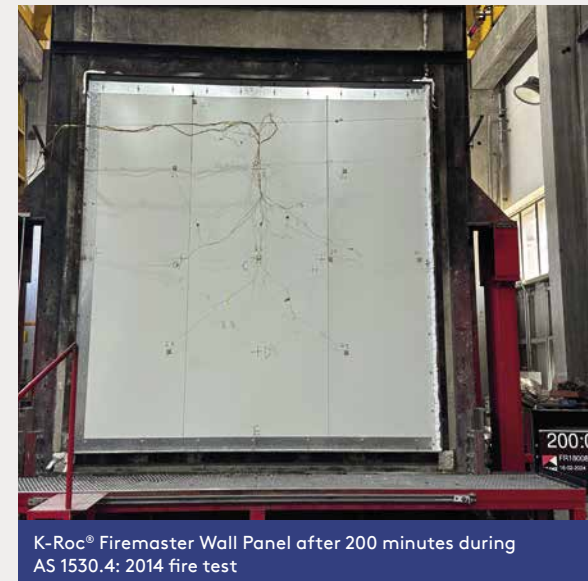
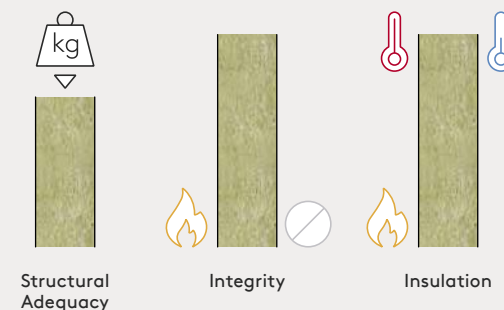
AS 1530.4: 2014 - The 'Standard Fire Test'

This is a large-scale test that measures the duration of time a building element – such as a wall, separating floor, ceiling or roof – is able to resist fire exposure.

Typically a test specimen can be by 3 m x 3 m or larger, although smaller tests are also used to assess specific construction details.

Three criteria are assessed:

- **Structural Adequacy:** for load-bearing structural elements only;
- **Integrity:** the ability to prevent the passage of flames or hot gas; and
- **Insulation:** the ability to prevent heat transfer to the non-fire side.



The results of the test are listed as three numbers representing the duration in minutes the test specimen has survived, typically in increments of 30 or 60 minutes.

For example, **120/120/120** would mean the specimen has survived in the test for at least 120 minutes for all three criteria - **Structure/Integrity/Insulation**.

For non-loadbearing elements, **Structural Adequacy** is not measured, and is instead listed as a '-'. For example, **-/120/120** would mean a non-loadbearing element that maintains **Integrity** and **Insulation** for at least 120 minutes.

To conduct the test a specimen representative of the construction of the building element is installed into an opening in the side or top of a furnace. Thermocouples are attached at multiple locations to measure any heat transfer from the fire side to the non-fire side.

The furnace is ignited and temperature is increased following a specific defined time-temperature profile, rapidly over the first hour and then more slowly for the remainder of the test. After two hours the furnace temperature is in excess of 1,000°C.

The test continues until the target duration is reached or the specimen fails:

- **Structural Adequacy failure:** the specimen can no longer carry the required load or collapses.
- **Integrity failure:** continuous flames pass through the specimen, hot gases ignite a cotton pad placed against cracks or gaps, or gaps exceed a certain size.
- **Insulation failure:** any thermocouple shows a temperature rise more than 180°C, or the average temperature rise exceeds 140°C.

K-ROC® FIRE RESISTANCE CASE STUDY

NATIONAL LIBRARY OF
AUSTRALIA REPOSITORY,
CANBERRA

SECTOR:	Community & Heritage
LOCATION:	Canberra, Australia
COMPLETED:	September 2025
ARCHITECTS:	GHD Design
CONTRACTOR:	PROJEX® Building Group
INSTALLER:	Delnas Metal Roofing
PRODUCTS:	Kingspan K-Roc® Evolution Ultima Plus Wall Panel Kingspan KS1000RW Trapezoidal Roof Panel



To view the full library of case studies, please click [here](#).

04

INSTALLATION & DETAIL DESIGN

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CONSTRUCTION SOLUTIONS

INSULATED PANEL SPAN TERMINOLOGY



K-Roc® Firemaster Wall Panels can be installed in several span configurations depending on the building layout, support arrangement, and fire performance requirements. Panel span terminology is used to describe how the panels are supported and fixed to the structure.

The maximum allowable span is determined by several factors including, but not limited to, internal pressures, temperature loads, panel thickness, fixing specification, and the allowable distance between supports under fire loading conditions, where applicable.

The following span conditions represent common insulated panel installation arrangements used in both new-build and refurbishment applications.

Single Span Condition

In a single-span application, panels are fixed only at the panel ends.



Multi-span Condition

In a multi-span application, panels are fixed at the panel ends and at intermediate support locations.



Multi-panel Condition

In a multi-panel application, upper and lower panels are independently fixed at their ends to form a stack joint arrangement.



CONSTRUCTION SOLUTIONS

VERTICAL APPLICATION

K-Roc® Firemaster Wall Panels provide flexible installation solutions to accommodate a wide range of building layouts, structural requirements, and fire performance requirements.

Depending on project span limitations and support conditions, panels can be installed as full-height spanning systems fixed at base and head locations, or integrated with supporting steel arrangements while maintaining the required Fire-resistance Level (FRL).

The following solutions illustrate common installation approaches for achieving fire-rated wall systems across industrial, commercial, and high-performance building applications.

Full-height Panels: Floor-to-slab Soffit

A typical insulated panel application where panels span from floor level to the underside of the slab soffit.

For fire resistance applications, K-Roc® Firemaster Wall Panels can achieve FRLs at spans up to 7.5 metres floor-to-soffit. At this span, 150 mm K-Roc® Firemaster Ultima Plus Wall Panels can provide up to -/180/180 FRL, subject to application conditions.

Additional steel framing may be required to support wall openings.



Please refer to [pages 29-35](#) for typical installation details.

Intermediate Supporting Steel

Where full-height floor-to-slab soffit applications are not achievable, or where vertically stacked panels are required, K-Roc® Firemaster Wall Panels can be through-fixed to intermediate structural steel supports while maintaining the required panel Fire-resistance Level (FRL).



Please refer to [pages 43-52](#) for typical installation details.

In-plane Supporting Steel

An increasingly common solution in new-build and refurbishment applications, where K-Roc® Firemaster Wall Panels are installed between supporting steelwork to achieve the required fire-rated wall construction.

Where full-height spanning is not achievable, or where vertically stacked panels are required, panels may be integrated with in-plane steel supports while maintaining the required Fire-resistance Level (FRL). In this configuration, FRLs of up to -/120/120 can be achieved, provided the supporting steel structure is designed and protected to the same FRL requirement.



Please refer to [pages 53-56](#) for typical installation details.

DETAIL DESIGN

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



K-Roc® Firemaster Wall Panel Deflection Head Detail

Detail Ref: K-FM FR VT 07a

Typical Panel Detailing

■

Kingspan K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.

■

Supporting structure must be designed by other to be capable of supporting the panel for at least the required FRL.

■

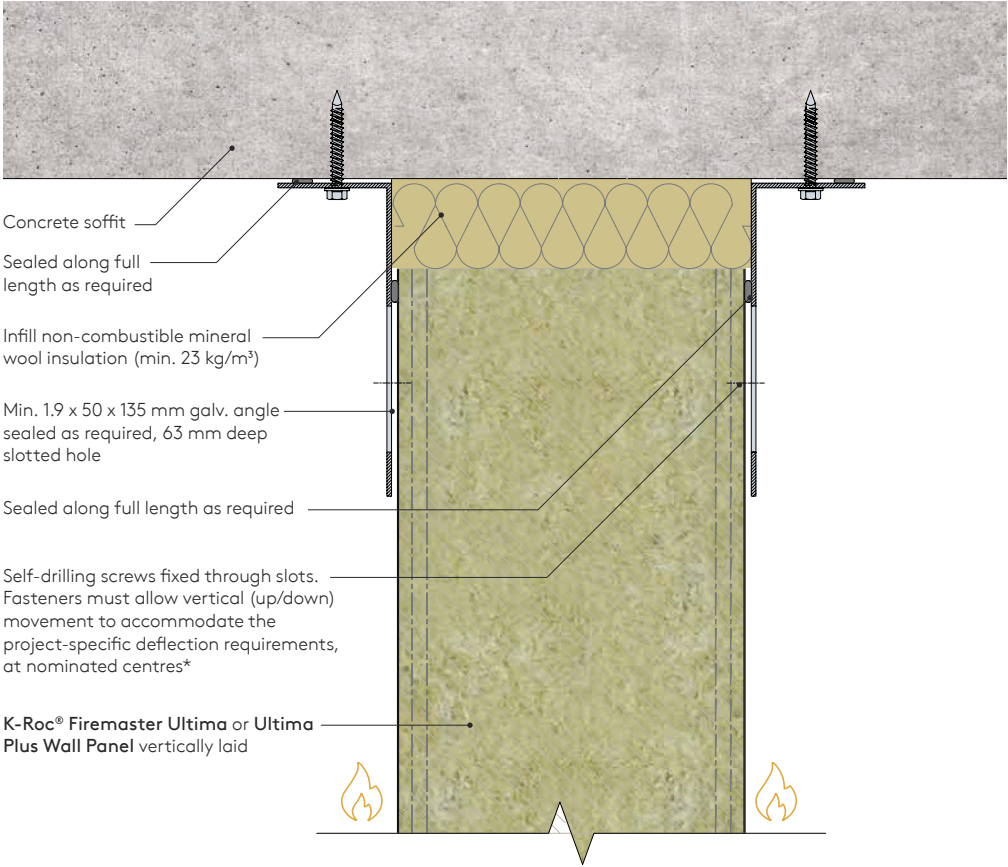
Details provided for illustrative purposes.

Test Report

For the latest version of Fire Assessment Report FAS240019 and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



* Requirement for fixing specification, fixing centers, and distance between supports determined based on Fire-resistance Level (FRL) required. Refer to tables 1, 2, 7, 8, 11 and 12 of assessment FAS240019.

DETAIL DESIGN

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION

K-Roc® Firemaster Wall Panel Base Detail

Detail Ref: K-FM FR VT 04b

Typical Panel Detailing

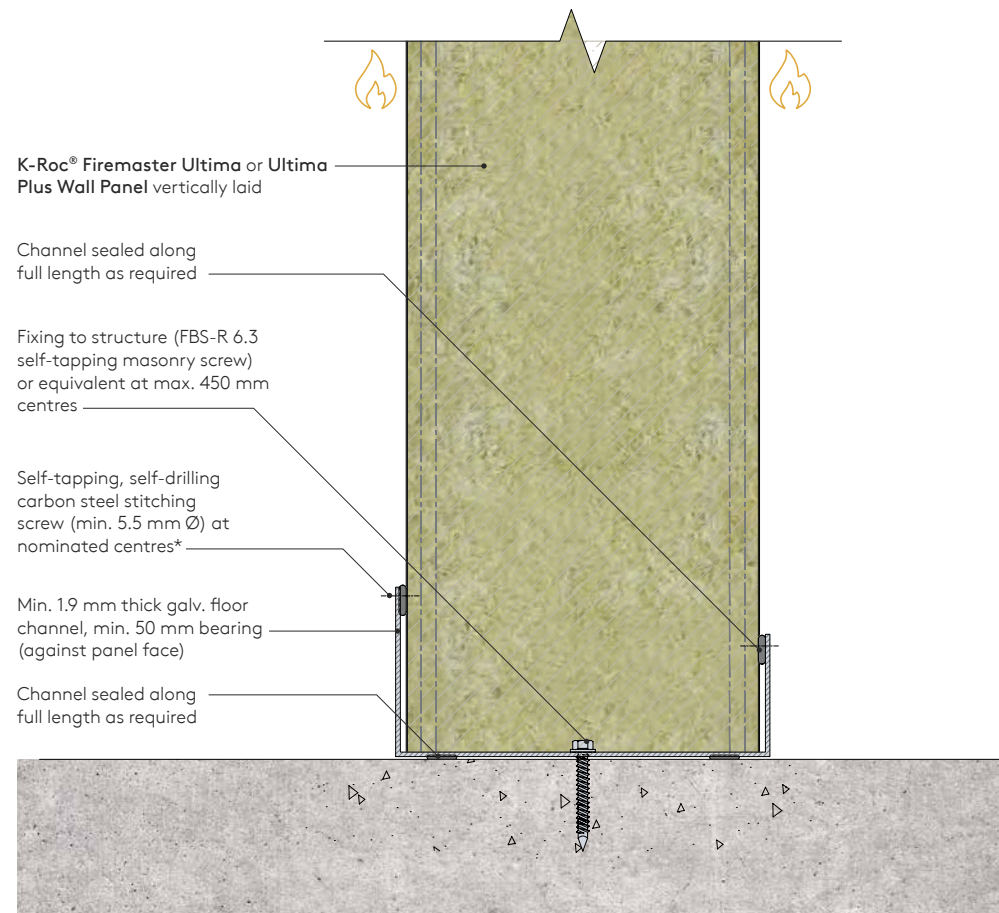
- Kingspan K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Test Report

For the latest version of Fire Assessment Report FAS240019 and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



* Requirement for fixing specification, fixing centers, and distance between supports determined based on Fire-resistance Level (FRL) required. Refer to tables 1, 2, 7, 8, 11 and 12 of assessment FAS240019.

DETAIL DESIGN

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



K-Roc® Firemaster Wall Panel Vertical External / Internal Corner Detail

Detail Ref: K-FM FR VT 08a

Typical Panel Detailing

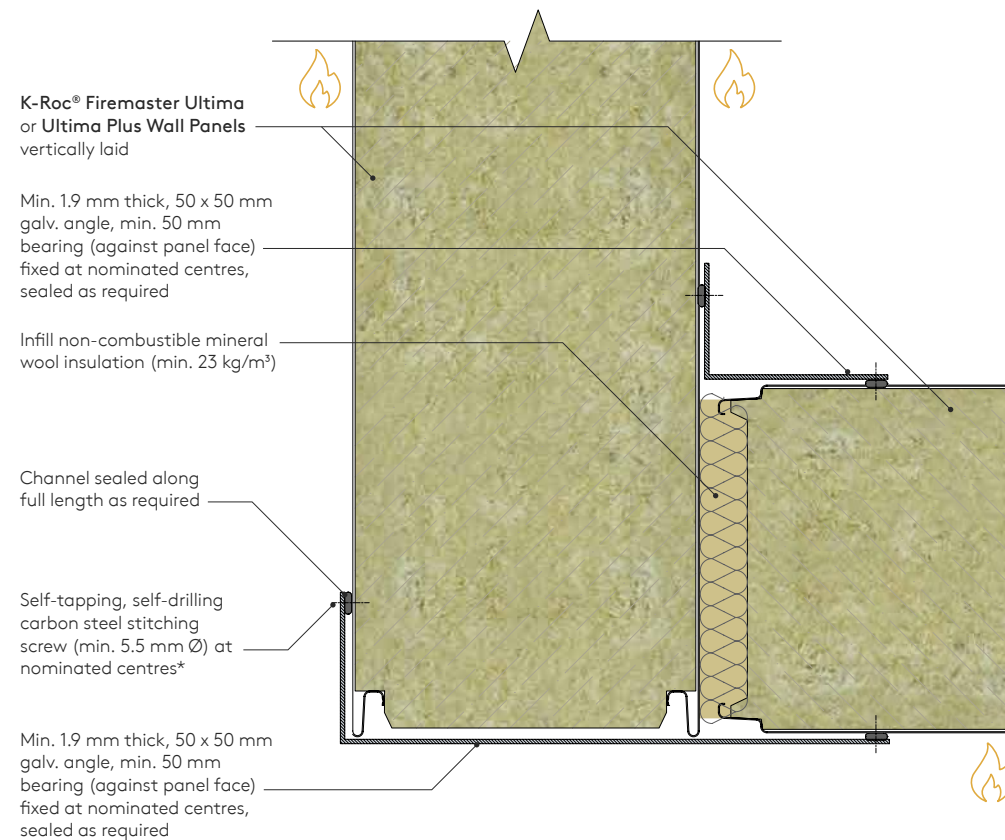
- Kingspan K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Test Report

For the latest version of Fire Assessment Report FAS240019 and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



* Requirement for fixing specification, fixing centers, and distance between supports determined based on Fire-resistance Level (FRL) required. Refer to tables 1, 2, 7, 8, 11 and 12 of assessment FAS240019.

DETAIL DESIGN

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION

K-Roc® Firemaster Wall Panel Abutment to Masonry Wall Detail (1)

Detail Ref: K-FM FR VT 10a

Typical Panel Detailing

■ Kingspan K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.

■ Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.

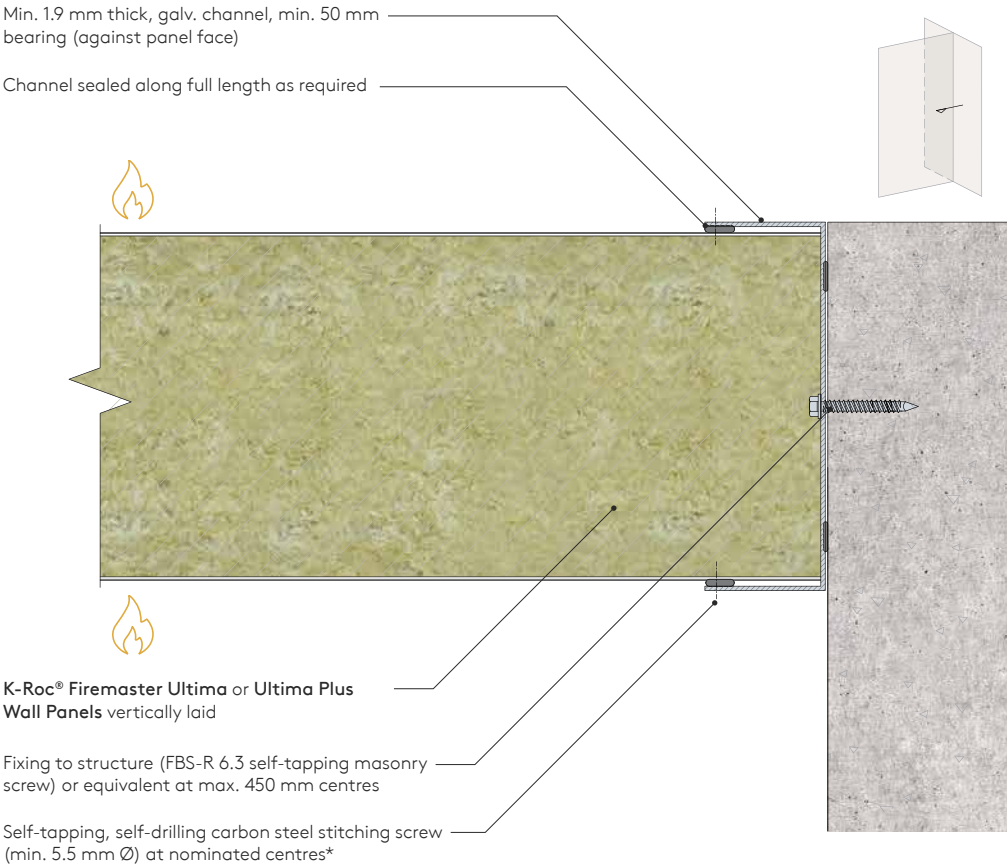
■ Details provided for illustrative purposes.

Test Report

For the latest version of Fire Assessment Report FAS240019 and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



* Requirement for fixing specification, fixing centers, and distance between supports determined based on Fire-resistance Level (FRL) required. Refer to tables 1, 2, 7, 8, 11 and 12 of assessment FAS240019.

DETAIL DESIGN

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



K-Roc® Firemaster Wall Panel Abutment to Masonry Wall Detail (2)

Detail Ref: K-FM FR VT 10a

Typical Panel Detailing:

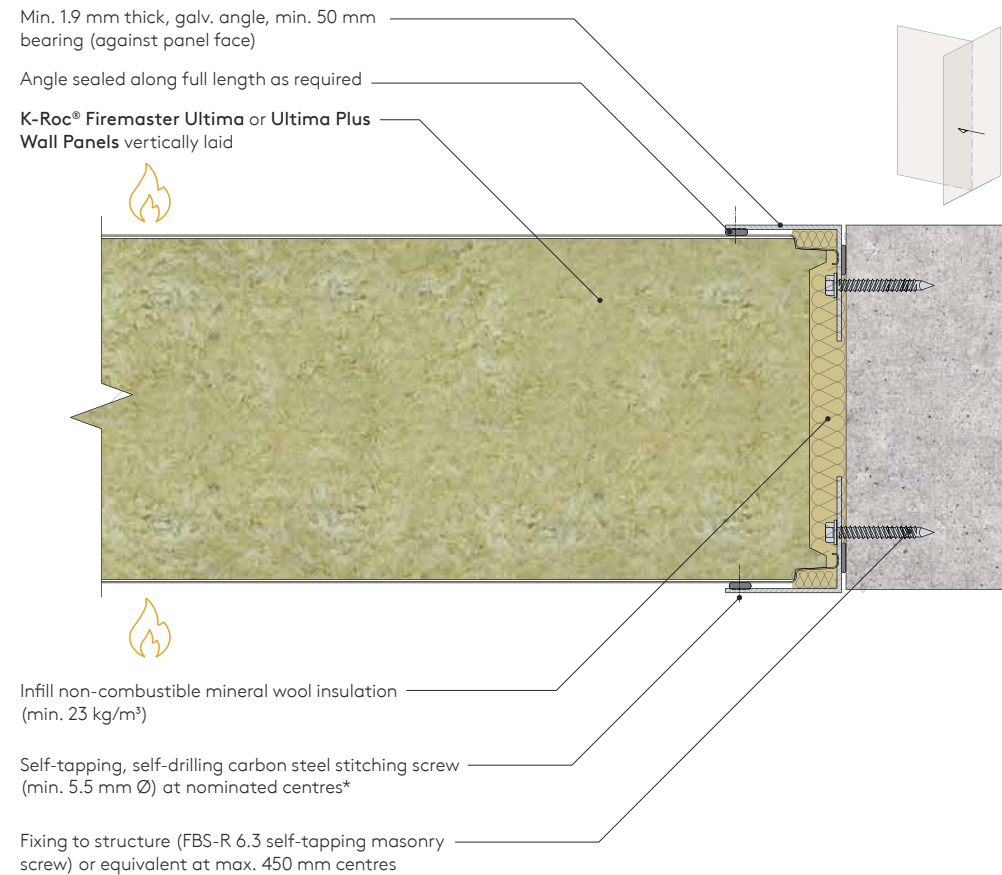
- Kingspan K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Test Report

For the latest version of Fire Assessment Report FAS240019 and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



* Requirement for fixing specification, fixing centers, and distance between supports determined based on Fire-resistance Level (FRL) required. Refer to tables 1, 2, 7, 8, 11 and 12 of assessment FAS240019.

DETAIL DESIGN

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION

K-Roc® Firemaster Wall Panel Corner to K-PIR™ Coldstore Panel Detail

Detail Ref: K-FM FR VT 08d

Typical Panel Detailing:

■ Kingspan K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.

■ Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.

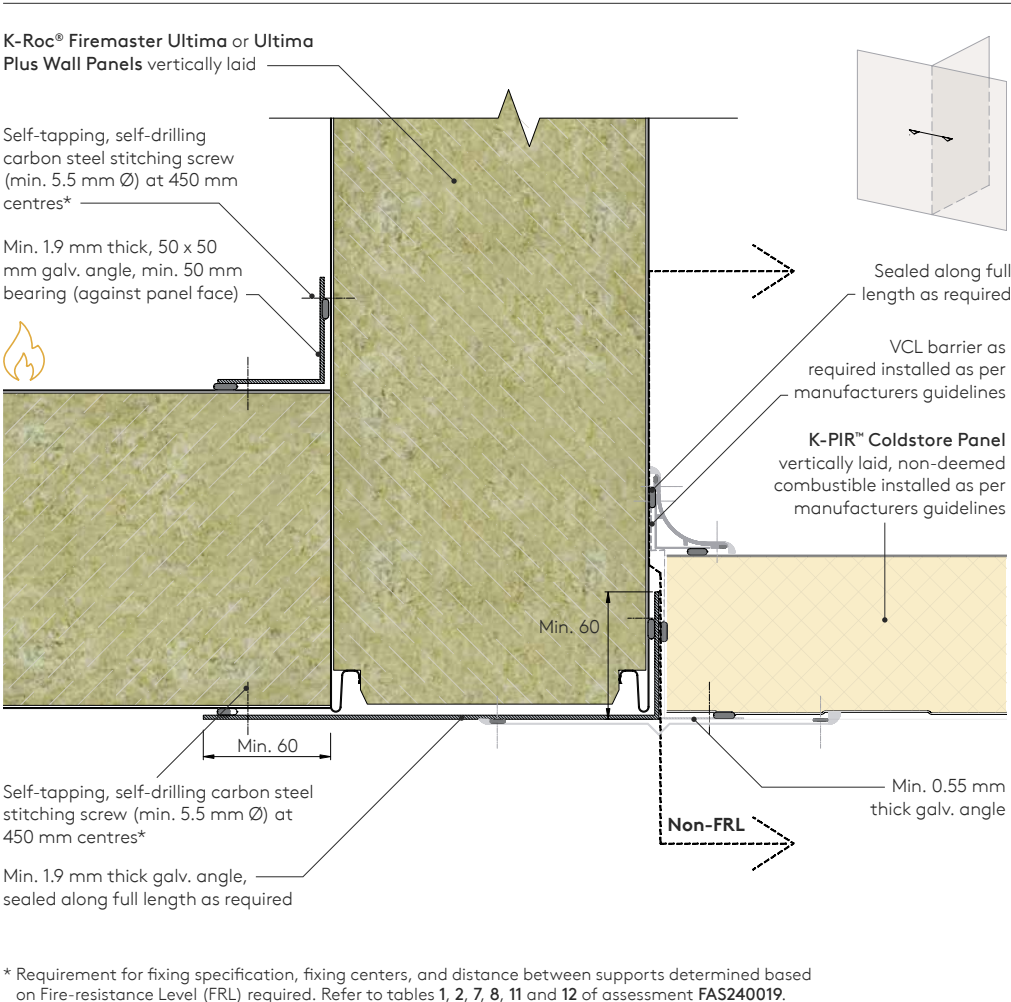
■ Details provided for illustrative purposes.

Test Report

For the latest version of Fire Assessment Report FAS240019 and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



DETAIL DESIGN

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



K-Roc® Firemaster Wall Panel T-Corner Detail

Detail Ref: K-FM FR VT 08b

Typical Panel Detailing:

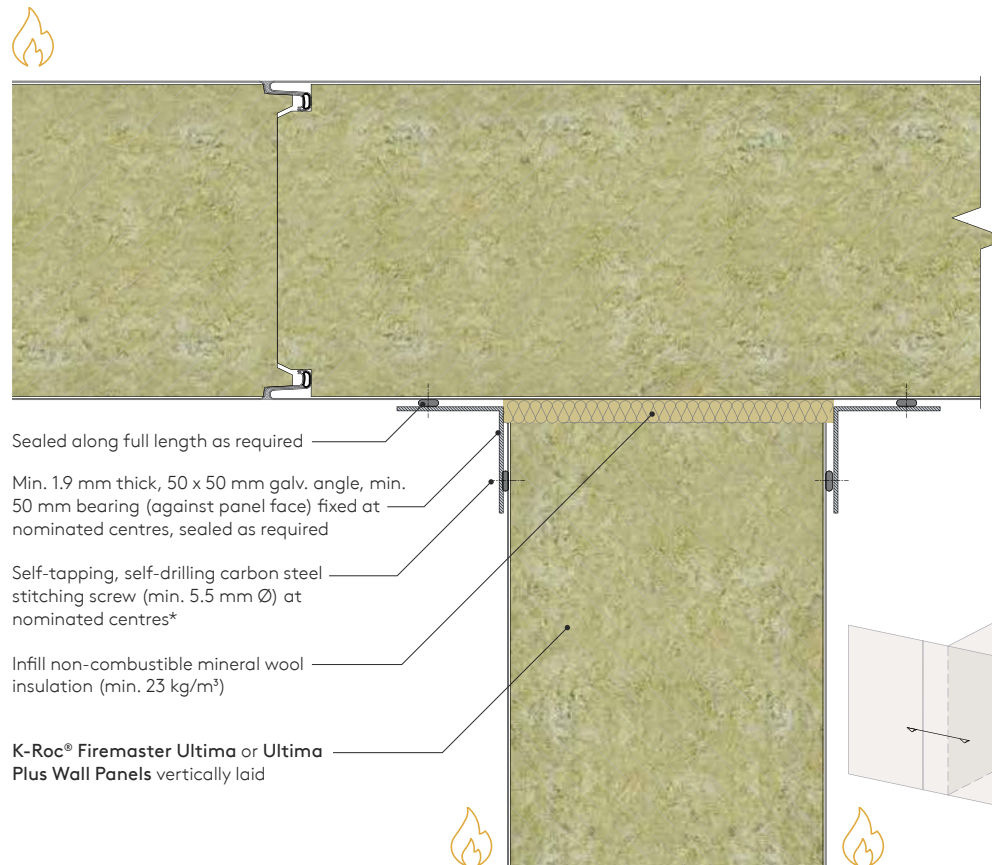
- Kingspan K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Test Report

For the latest version of Fire Assessment Report FAS240019 and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



Sealed along full length as required

Min. 1.9 mm thick, 50 x 50 mm galv. angle, min. 50 mm bearing (against panel face) fixed at nominated centres, sealed as required

Self-tapping, self-drilling carbon steel stitching screw (min. 5.5 mm Ø) at nominated centres*

Infill non-combustible mineral wool insulation (min. 23 kg/m³)

K-Roc® Firemaster Ultima or Ultima Plus Wall Panels vertically laid

* Requirement for fixing specification, fixing centers, and distance between supports determined based on Fire-resistance Level (FRL) required. Refer to tables 1, 2, 7, 8, 11 and 12 of assessment FAS240019.

05

FIRE PROTECTION OF STEELWORK

■ Fire Resistance Performance	37	■ Limitations and Requirements	42
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■ Intermediate, Corner, Side and Base Supports	40	Structural Steel Intermediate	46-48
■ Integrated Steel Supports	41	Structural Steel External Corner	49-50
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■ Two-sided Fire Exposure	42	Structural Steel Corner	53-54
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FIRE PROTECTION OF STEELWORK



K-Roc® Firemaster Wall Panels are fire resistant and have demonstrated fire resistance levels (FRL) of up to -/240/240 in accordance with AS 1530.4: 2014, depending on the system configuration.

These systems frequently connect to structural steel elements including beams, columns, and integrated steel supports, which are required to maintain structural adequacy during fire exposure.

This section has been prepared to provide clear guidance on the fire resistance performance of K-Roc® Firemaster Wall Panels when interfaced with structural steel members. The guidance is based on Regulatory Information Report (RIR) RTL FA 2561 and is intended to assist designers, certifiers, builders, and fire engineers in understanding acceptable steel protection methods, allowable products, construction requirements, and limitations necessary to ensure that the required FRL of the overall system is achieved and maintained.

Fire Resistance Performance

In conventional construction, where steel members support or interface with building elements other than concrete or masonry, the steel members are generally required to be protected on all sides in order to maintain the required FRL.

However, fire testing and subsequent fire assessment have demonstrated that K-Roc® Firemaster Wall Panels provide inherent fire protection to the steel on the connecting face, provided that the remaining exposed faces of the steel are protected using one of the allowable steel protection systems outlined in this section.



Traditional approach - steel member protected on all sides



Optimised solution - K-Roc® Firemaster Wall Panel protects the connecting face

Conclusion

It has been established that connections between K-Roc® Firemaster Wall Panels and structural steel, when constructed in accordance with the recommendations and limitations outlined herein, do not compromise the integrity or insulation performance of the K-Roc® Firemaster Wall Panels or the structural adequacy of the protected steel members.

FIRE PROTECTION OF STEELWORK

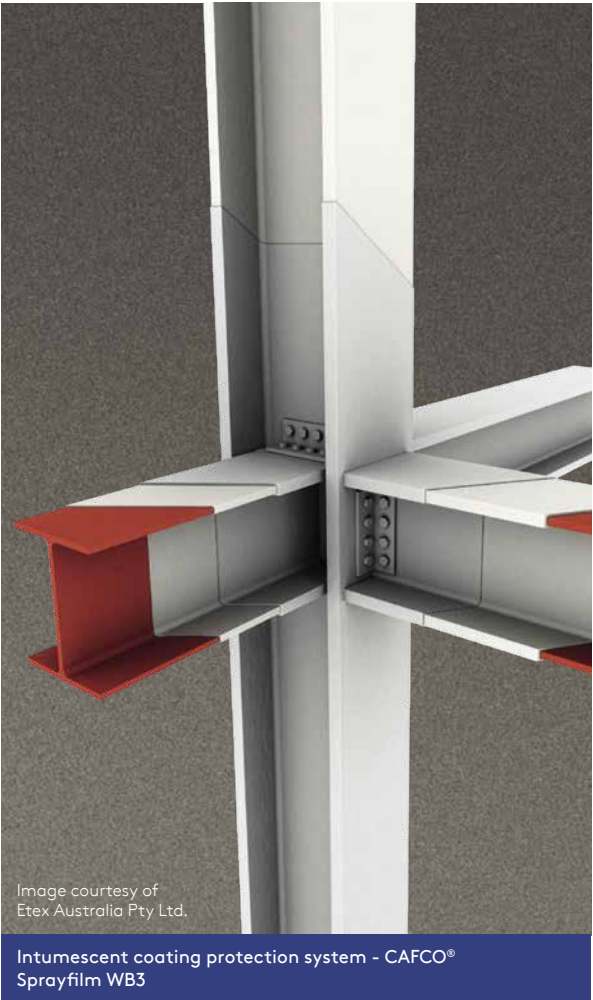
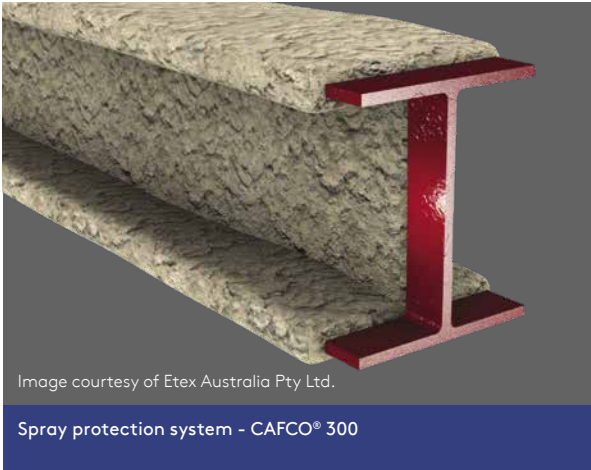
Approved Steel Protection Products

The table below shows the steel protection products that are permitted for use where structural steel members connect to K-Roc® Firemaster Wall Panels.

All products must be AS 4100: 2020 compliant and installed strictly in accordance with the relevant manufacturer's fire assessment.

Product type	Product	Density range (kg/m²)	Applicable details
Board	PROMATECT® 100, PROMATECT® 250 or any AS 4100:2020 compliant calcium silicate board	637.5 – 977.5	All connection details
Spray	CAFCO® 300 or any AS 4100: 2020 compliant vermiculite and gypsum-based spray	263.5 – 356.5	All connection details
Intumescent coating	CAFCO® Sprayfilm WB3 or any AS 4100: 2020 compliant water-based intumescent coating	1,249.0 – 1,451.0	Head connection details only

Note: Where board protection ends at the panel, a bead of sealant must be applied with a thickness equal to 25 mm or the thickness of the board protection, whichever is less.



FIRE PROTECTION OF STEELWORK



Head Steel Supports

Examples of structural steel protection at the head of a K-Roc® Firemaster Wall Panel are shown on pages 43 – 45.

For head support applications:

- Any approved board protection, spray-applied fire protection or intumescent coating protection may be used.
- Steel protection must extend a minimum of 100 mm below the bottom flange or exposed surface of the steel member.
- The required thickness of steel protection shall be determined on the basis of:
 - 3-sided fire exposure, and
 - the critical steel temperature nominated by the project structural engineer.



Board protection to steel header



Spray protection to steel header



Intumescent coating protection to steel header

FIRE PROTECTION OF STEELWORK

Intermediate, Corner, Side and Base Supports

Examples of structural steel protection at the intermediate, corner, side, and base supports of a K-Roc® Firemaster Wall Panel are shown on [pages 46 – 54](#).

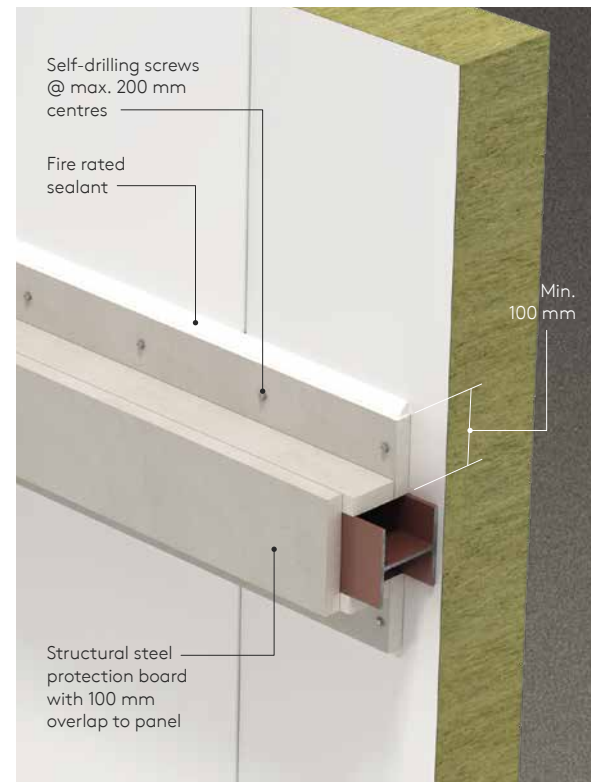
For these applications, any approved board protection or spray-applied fire protection system may be used. The general fire protection detail requires the fire protection to extend a minimum of 100 mm onto the K-Roc® Firemaster Wall Panel.

Where board-based protection is used:

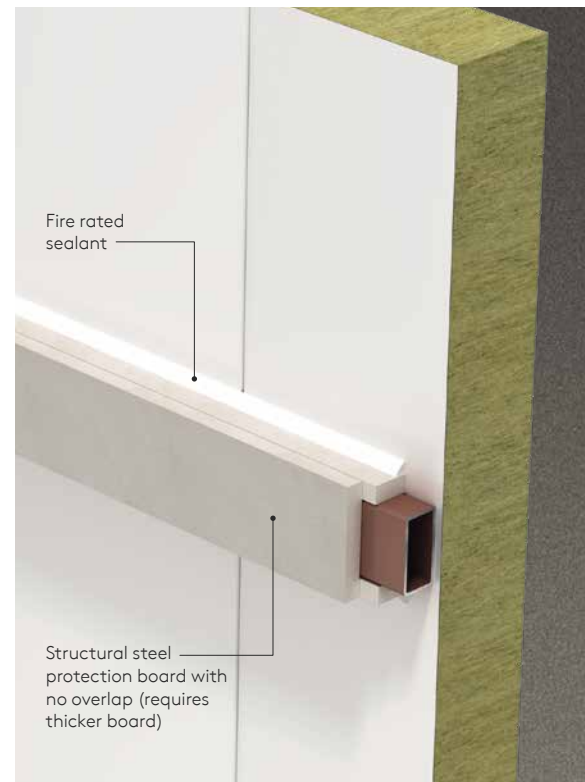
- The required thickness of steel protection shall be determined on the basis of:
 - 4-sided fire exposure, and
 - the critical steel temperature nominated by the project structural engineer.
- An alternative detail without a 100 mm overlap onto the K-Roc® Firemaster Wall Panel is permitted, as shown on [page 47](#), provided that the critical steel temperature adopted in the design is taken as 100°C lower than the value nominated by the structural engineer

Where spray-applied fire protection is used:

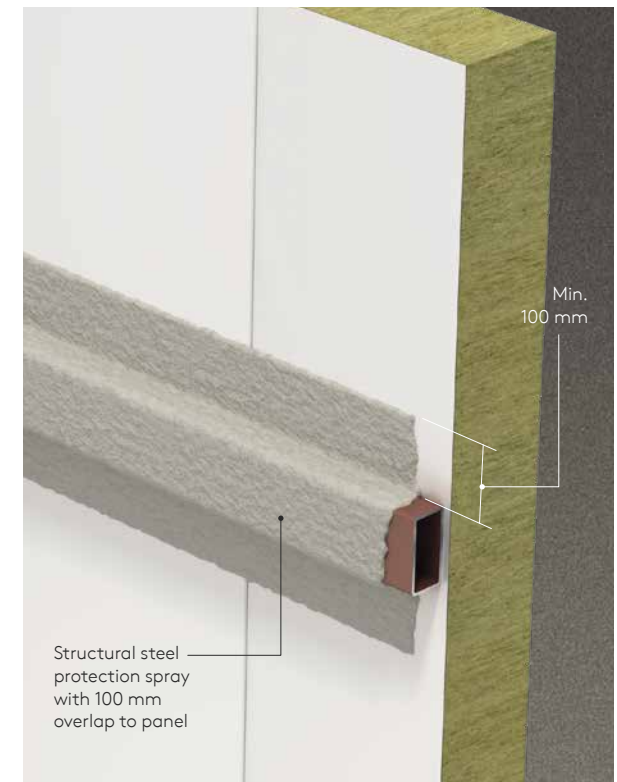
- The required thickness of protection shall be determined on the basis of:
 - 4-sided fire exposure, and
 - a critical steel temperature reduced by 100°C from the value nominated by the project structural engineer.



Board protection of intermediate steel support with 100mm overlap onto K-Roc® Firemaster Wall Panel



Board protection of intermediate steel support with no overlap onto K-Roc® Firemaster Wall Panel



Spray protection of intermediate steel support - 100mm overlap onto K-Roc® Firemaster Wall Panel required

FIRE PROTECTION OF STEELWORK

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FOR EXPERT
ADVICE](#)

Integrated Steel Supports

Examples of structural steel protection where steel members are integrated within K-Roc® Firemaster Wall Panels are shown on pages 55 and 56.

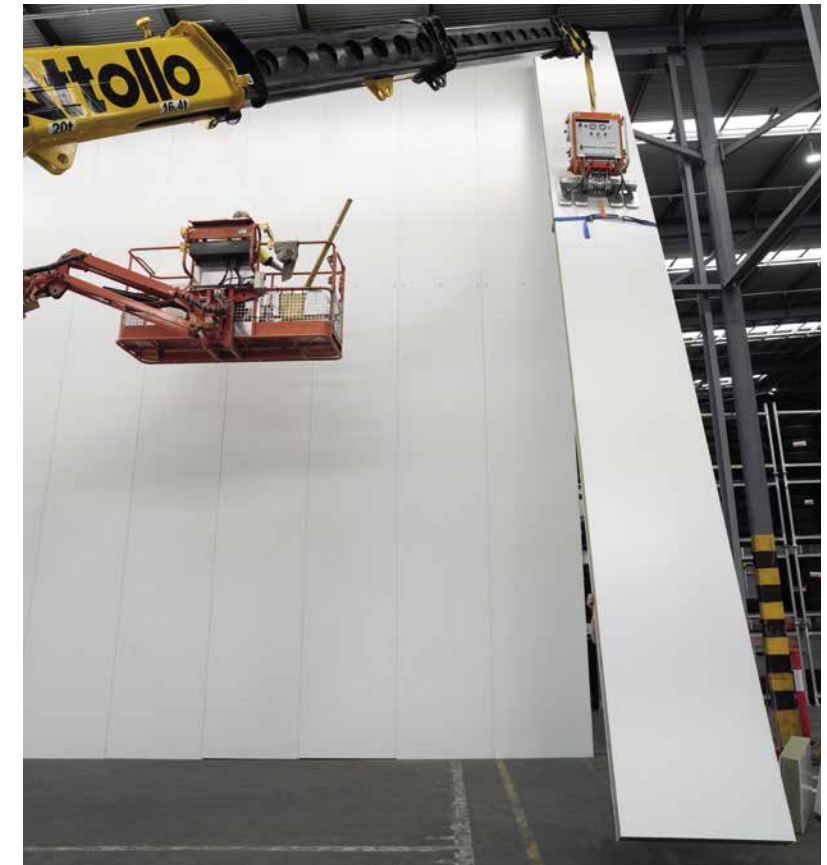
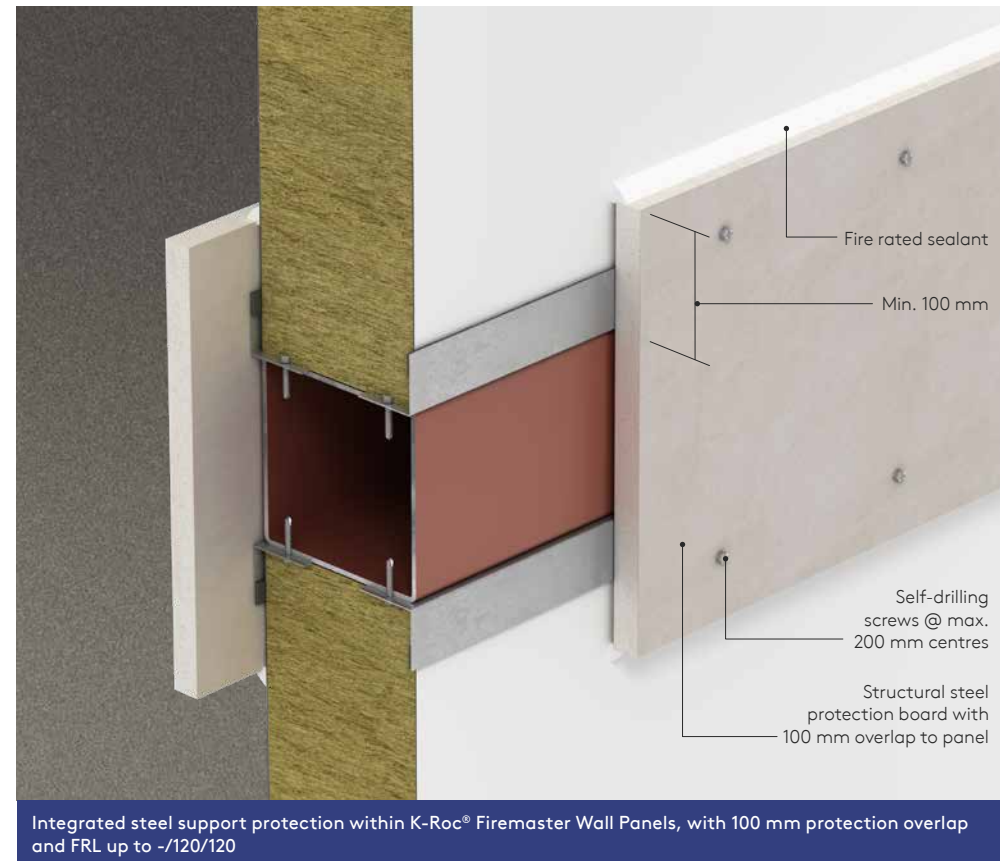
For these applications, only PROMATECT® 100, PROMATECT® 250 boards, or CAFCO® 300 spray-applied fire protection may be used. The fire protection detail requires the fire protection to extend a minimum of 100 mm onto the K-Roc® Firemaster Wall Panel. **These details are limited to a maximum Fire-resistance Level (FRL) of -/120/120.**

Where PROMATECT® 100 or PROMATECT® 250 board protection is used:

- The required thickness of steel protection shall be determined on the basis of:
 - 4-sided fire exposure, and
 - the critical steel temperature nominated by the project structural engineer.
- The thickness must not be less than 20 mm.

Where CAFCO® 300 spray is used:

- The required thickness of protection shall be determined on the basis of:
 - 4-sided fire exposure, and
 - a critical steel temperature reduced by 100°C from the value nominated by the project structural engineer.
- The thickness must not be less than 30 mm.



FIRE PROTECTION OF STEELWORK

One-sided Fire Exposure

As outlined in this guide, K-Roc® Firemaster Wall Panel systems can be used in applications where fire protection is required from either side of the wall. K-Roc® Firemaster Wall Panels have been tested and assessed to provide fire resistance in both directions, although not simultaneously.

Where fire exposure is required from one side only, and the structural steel members supporting the panels are located on the non-fire-exposed side of the wall, additional fire protection to those steel members is not required, provided the installation is consistent with the tested or assessed system.

The test evidence demonstrates that K-Roc® Firemaster Wall Panel are capable of providing the required level of protection to the supporting steel members.

Two-sided Fire Exposure

Where fire exposure is from both sides of the wall, the structural steel members supporting the panels must be protected with fire protection in accordance with the guidance set out in this section.

Conclusion

For one-sided fire exposure, the K-Roc® Firemaster Wall Panel system provides sufficient protection to adjoining structural steel, eliminating the need for additional fire protection.

However, the structural adequacy of the steel must still be verified to meet project requirements and relevant standards.



K-Roc® Firemaster Wall Panel protecting steelwork under one-sided fire exposure



Fire protection board protecting steelwork under two-sided fire exposure

Limitations and Requirements

- Structural steel members interfacing with the K-Roc® Firemaster Wall Panels must be protected such that their structural adequacy period is not less than the required FRL of the K-Roc® Firemaster Wall Panels.
- The design of structural steel elements is outside the scope of Kingspan and must be undertaken by the project structural engineer.
- The selection of the steel fire protection system and determination of the required protection thickness are outside the scope of Kingspan and must be undertaken by other qualified personnel.
- All connection details must be installed strictly in accordance with the relevant manufacturer's fire assessment, the K-Roc® Firemaster Wall Panels fire assessment, and the limitations set out in RTL FA 2561.

For more information

For full details of the assessed products, configurations, and fire-rating limitations, please refer to the fire assessment report or regulatory information report (RIR), available from Kingspan Insulated Panels.

FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



Structural Steel Head Detail - Board Protection

Detail Ref: K-FM FR VT 07b.1

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

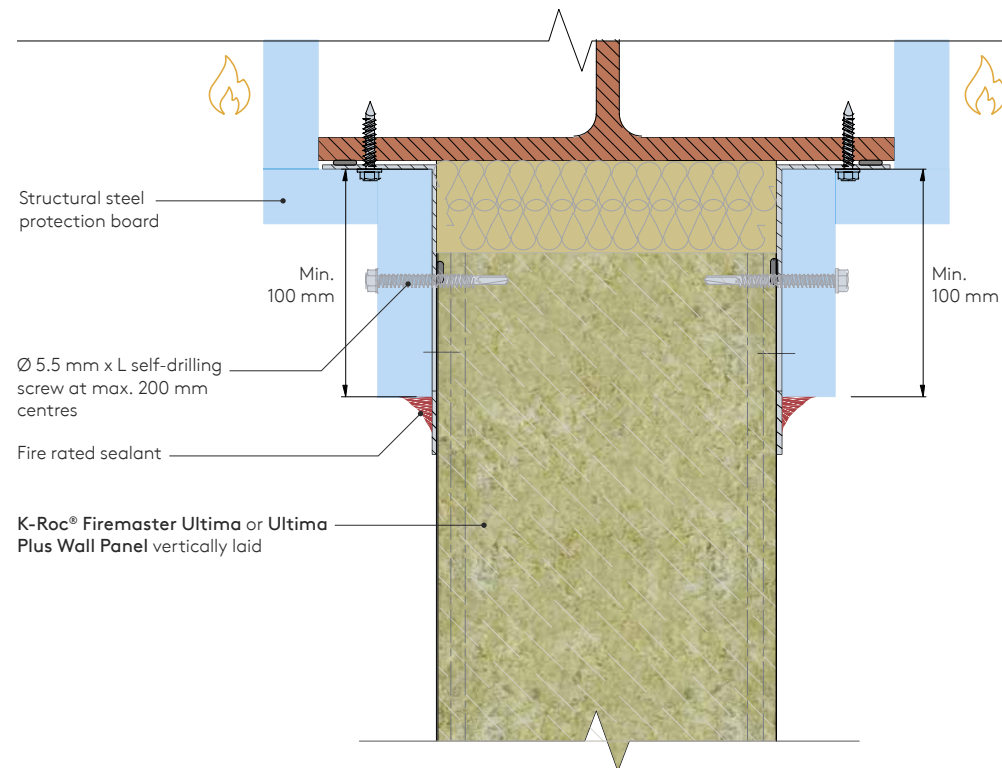
- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.
- Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

For the latest version of fire reports and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION

Structural Steel Head Detail - Spray Protection

Detail Ref: K-FM FR VT 07b.2

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

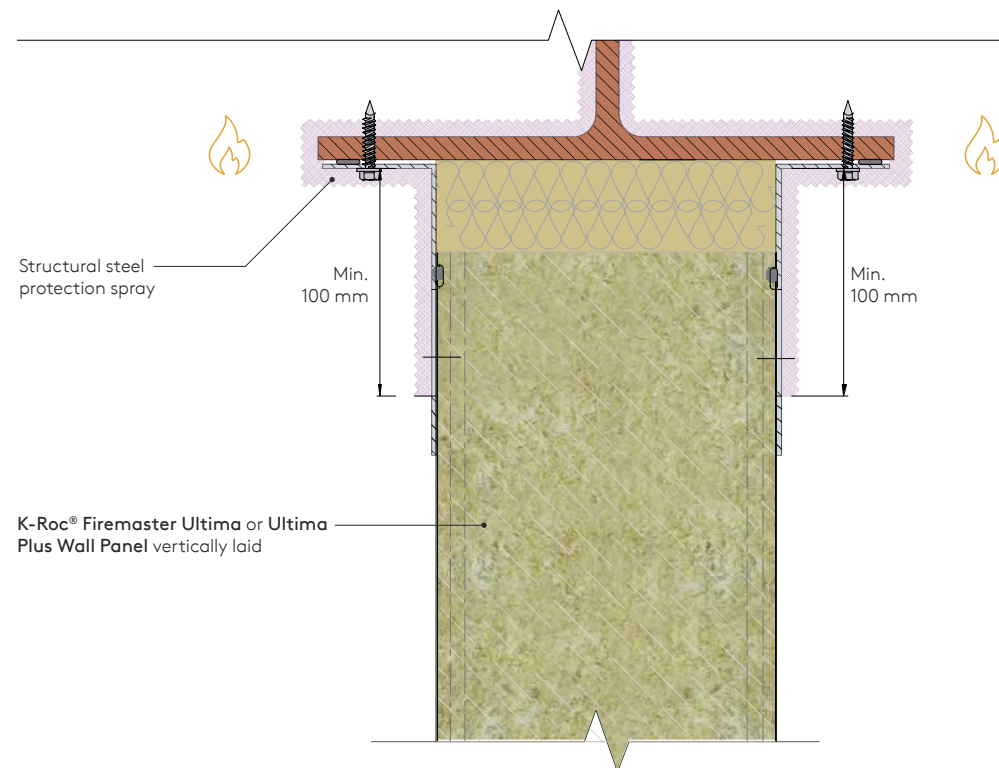
- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.
- Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

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3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



Structural Steel Head Detail - Intumescent Paint

Detail Ref: K-FM FR Vt 07b.2-A

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for at least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

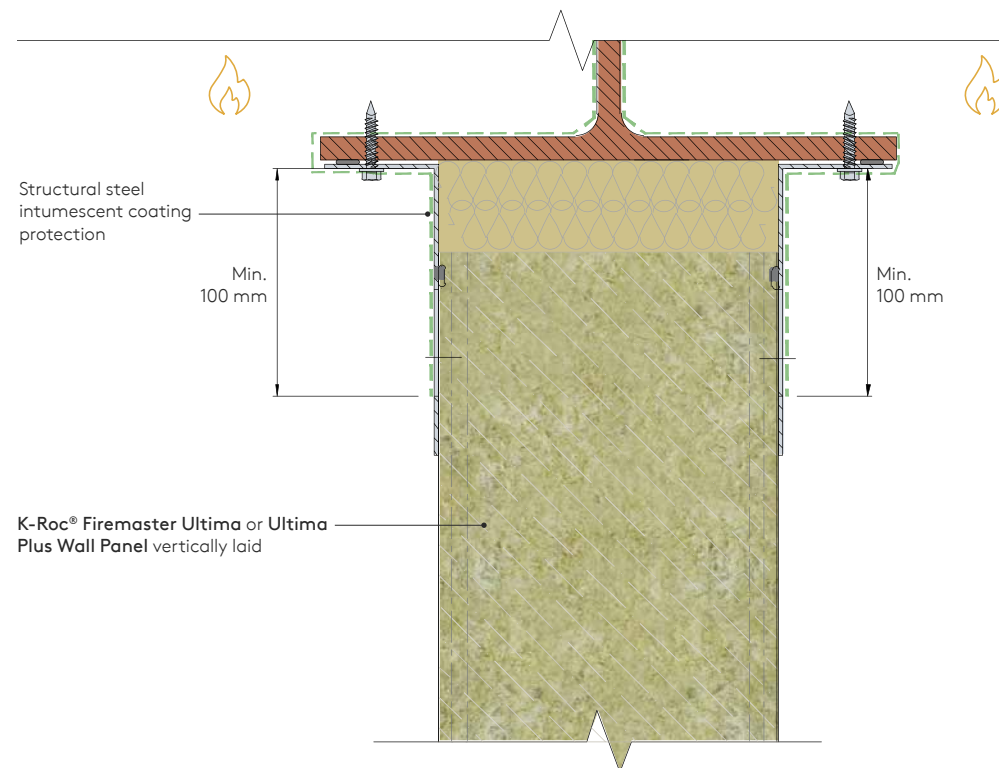
- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.
- Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

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3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION

Structural Steel Intermediate Detail - Board Protection

Detail Ref: K-FM FR VT 03a.1

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for at least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

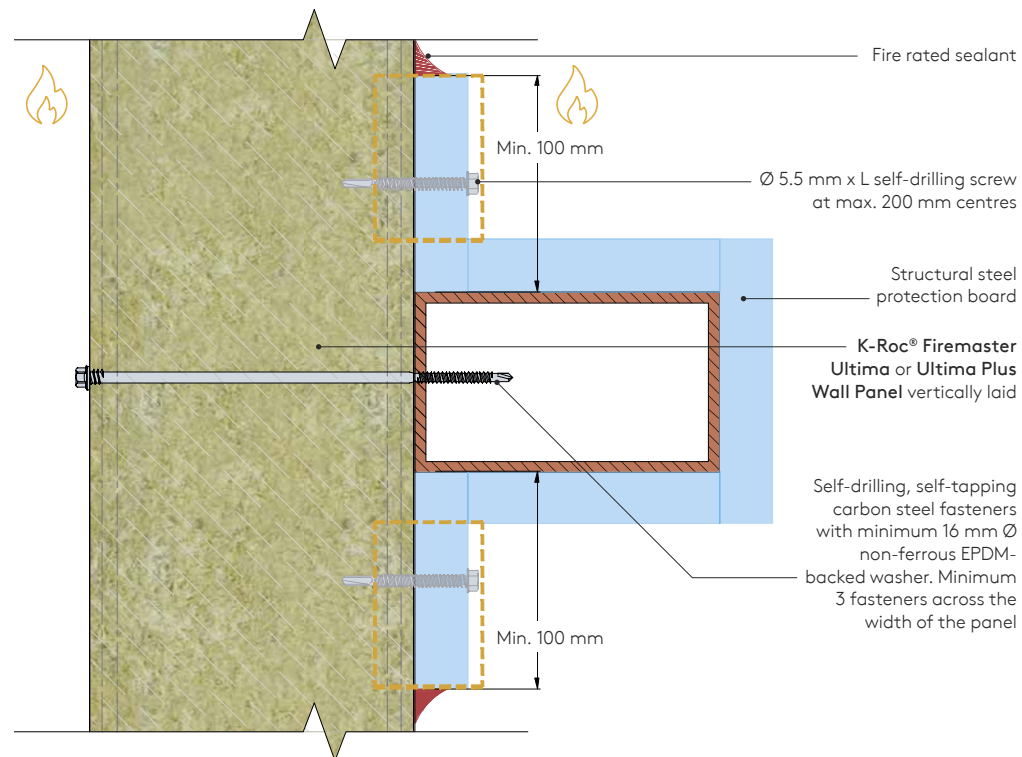
- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.
- Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

For the latest version of fire reports and associated construction details, please contact **Kingspan Technical Services**.

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click **here**.



FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



Structural Steel Intermediate Detail - Board Protection

Detail Ref: K-FM FR VT 03a.2

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

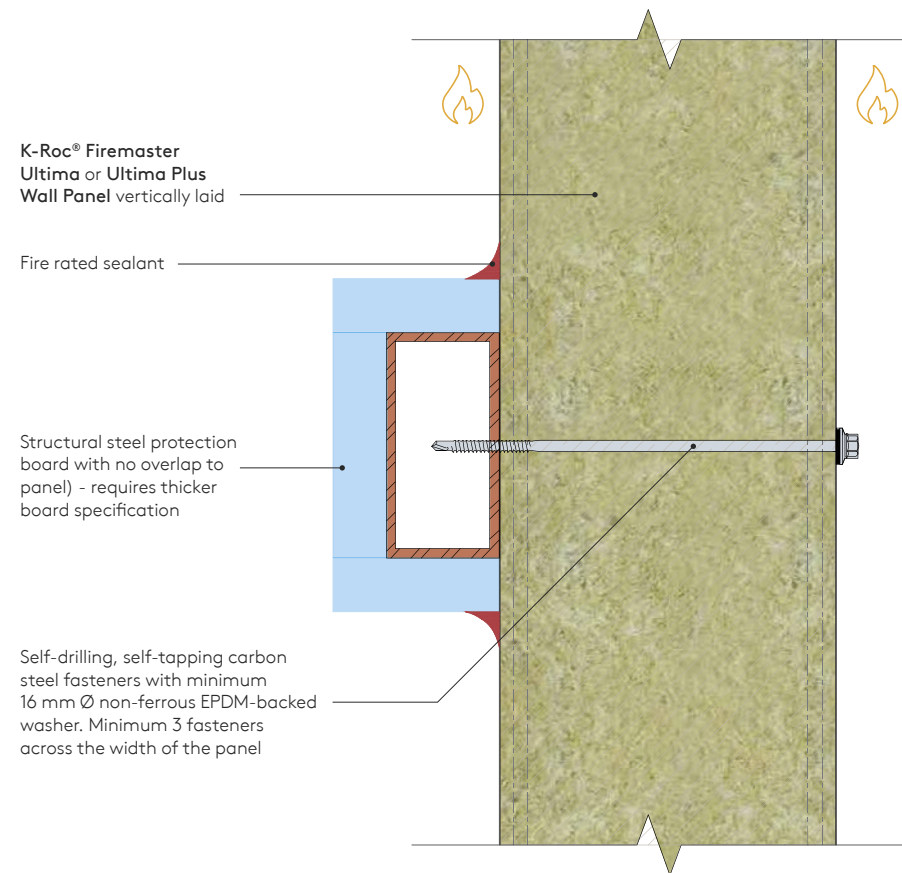
- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.
- Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

For the latest version of fire reports and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION

Structural Steel Intermediate Detail - Spray Protection

Detail Ref: K-FM FR VT 03a.4

Typical Panel Detailing

K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.

Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.

Details provided for illustrative purposes.

Steel Protection Guidance

For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.

Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

For the latest version of fire reports and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).

Min. 100 mm

K-Roc® Firemaster Ultima or Ultima Plus Wall Panel vertically laid

Structural steel protection spray

Min. 100 mm

←

→

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FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



Structural Steel External Corner Detail - Board Protection

Detail Ref: K-FM FR VT 08f.1 A

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

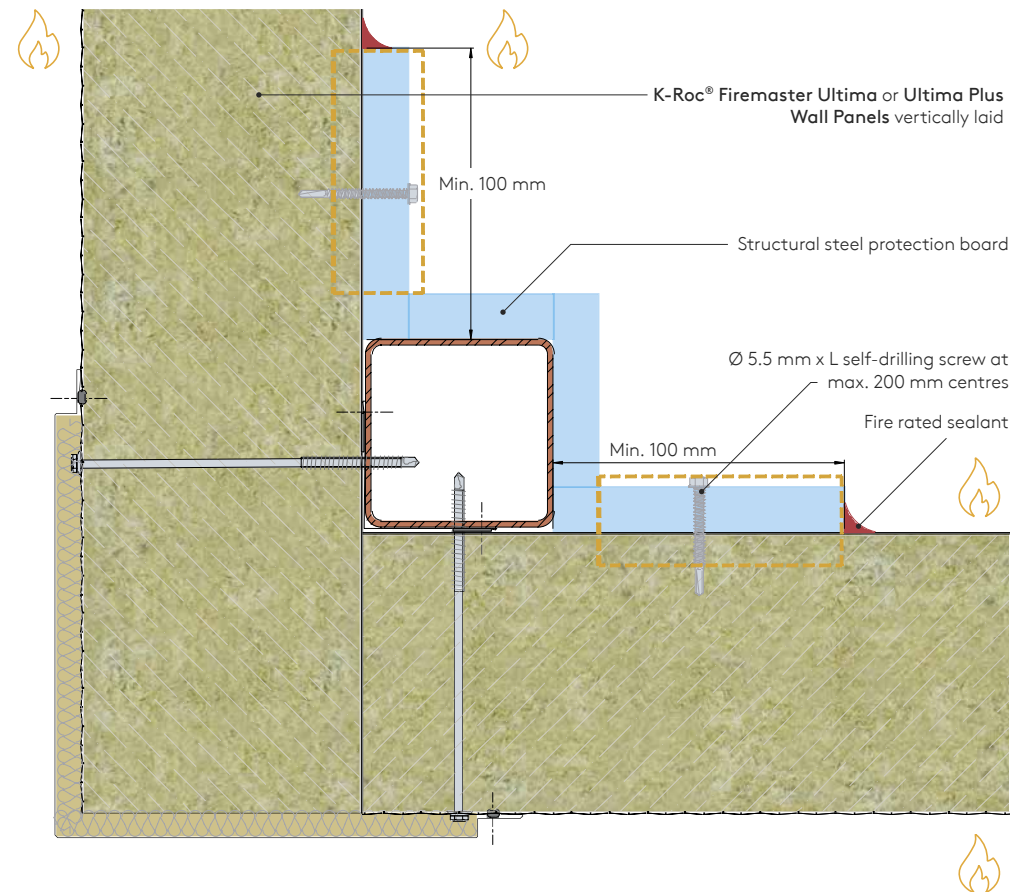
- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.
- Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

For the latest version of fire reports and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



Structural Steel Internal Corner Detail - Board Protection

Detail Ref: K-FM FR Vt 08f.1-B

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

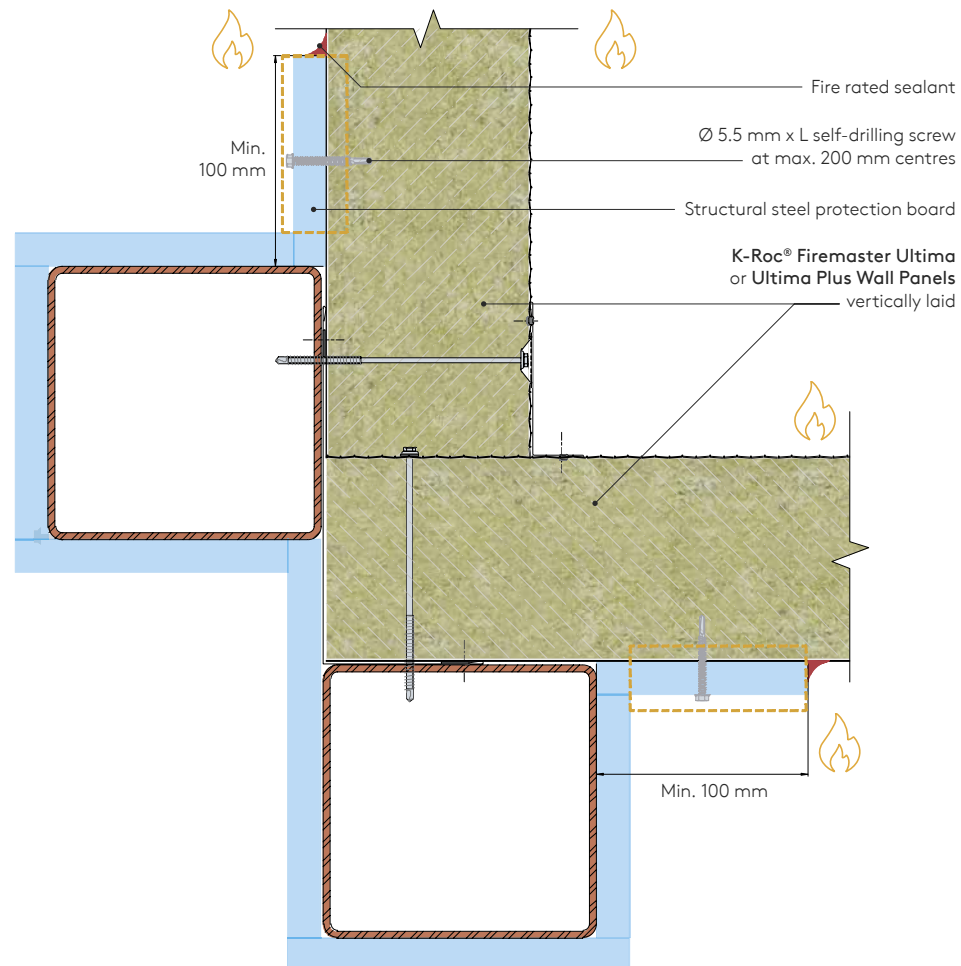
- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.
- Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

For the latest version of fire reports and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION

Structural Steel Internal Corner Detail - Spray Protection

Detail Ref: K-FM FR VT 08f.3

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

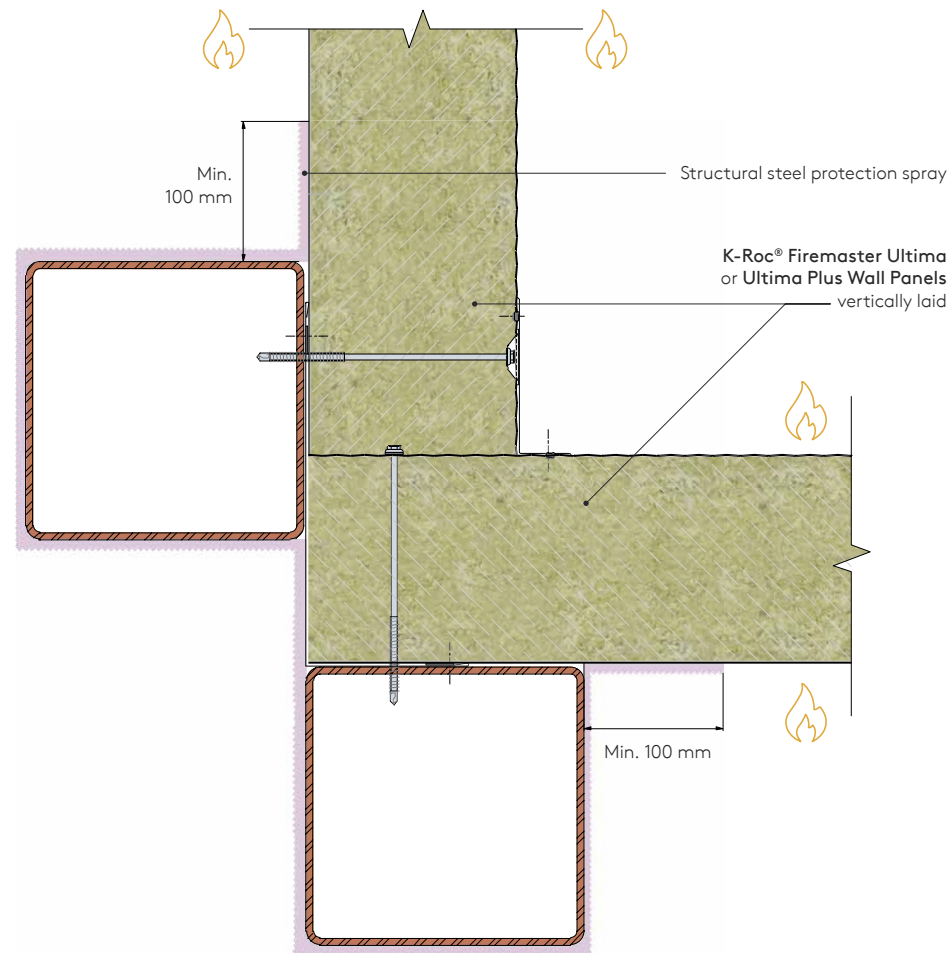
- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.
- Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

For the latest version of fire reports and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



Structural Steel Corner Detail - Board Protection

Detail Ref: K-FM FR VT 08f.2

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for at least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

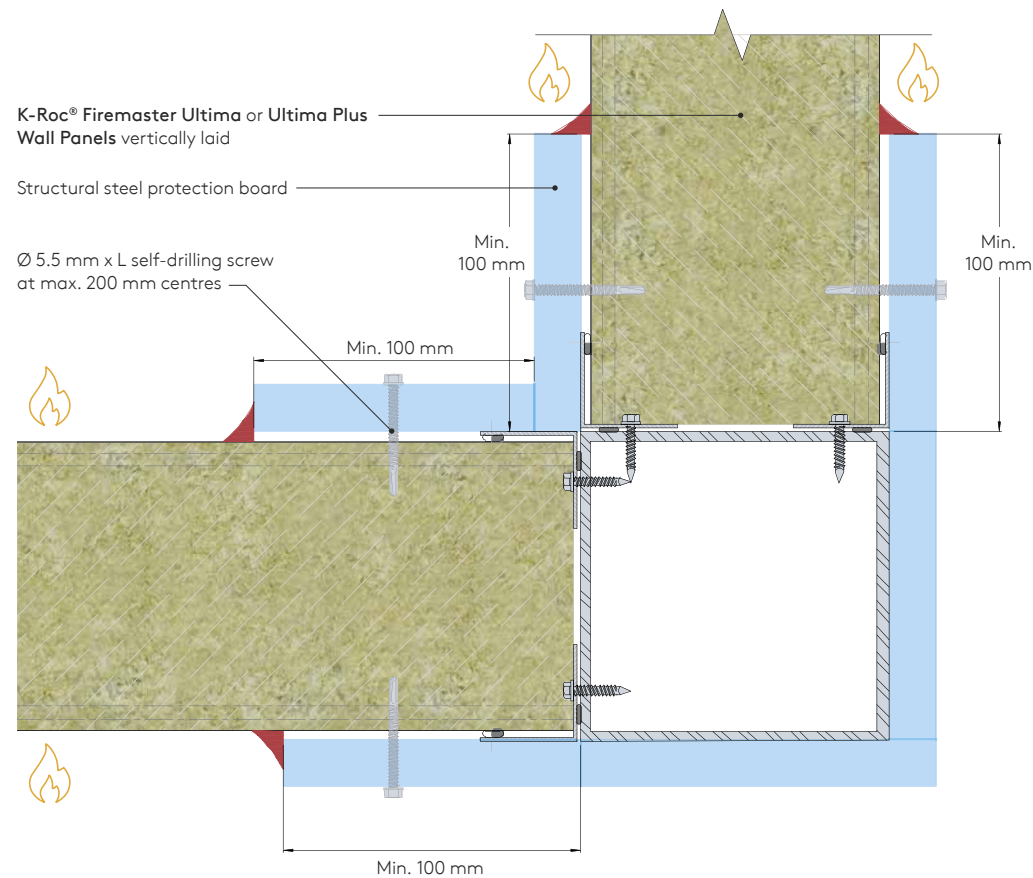
- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.
- In this configuration, an FRL of up to -/120/120 can be maintained, provided the supporting structure is designed and protected to achieve the same FRL requirement.
- Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

For the latest version of fire reports and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION

Structural Steel Corner Detail - Spray Protection

Detail Ref: K-FM FR VT 10d.1

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for at least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

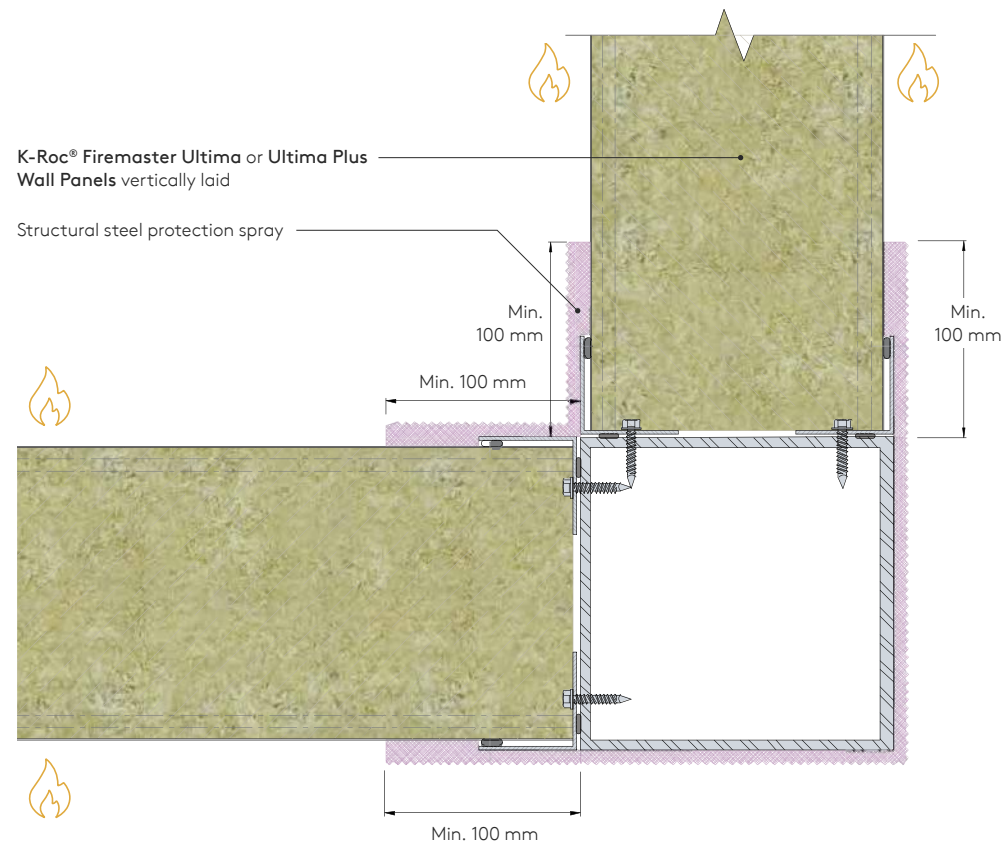
- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.
- In this configuration, an FRL of up to -/120/120 can be maintained, provided the supporting structure is designed and protected to achieve the same FRL requirement.
- Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

For the latest version of fire reports and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



Structural Steel to Panel Detail - Board Protection

Detail Ref: K-FM FR VT 10c.1-A

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.
- In this configuration, an FRL of up to -/120/120 can be maintained, provided the supporting structure is designed and protected to achieve the same FRL requirement.
- Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

For the latest version of fire reports and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

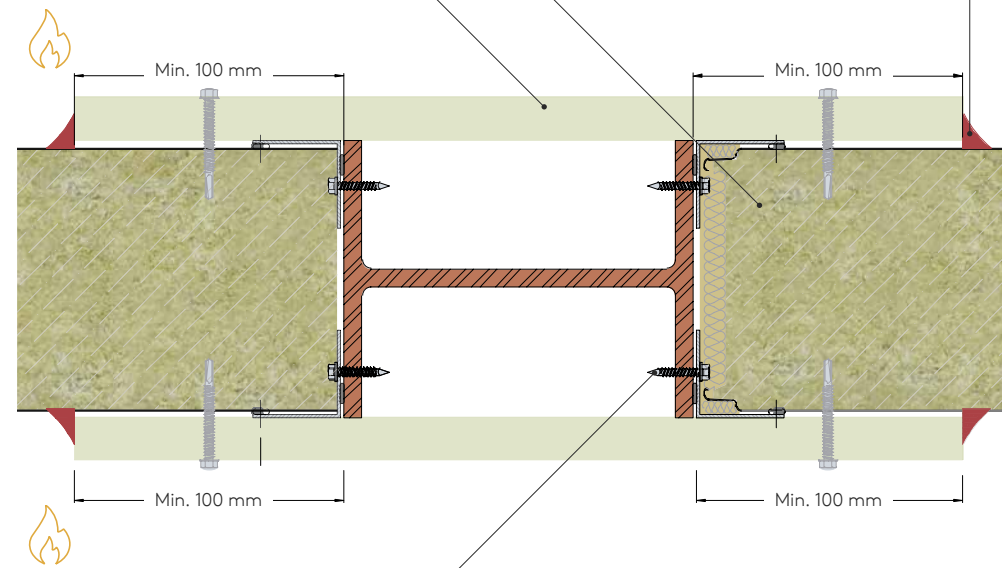
To access the 3D viewer and download up-to-date construction details, please click [here](#).



K-Roc® Firemaster Ultima or Ultima Plus
Wall Panels vertically laid

Structural steel protection board

Fire rated sealant



Ø 5.5 mm x L self-tapping, self-drilling
screws installed @ max. 200 mm centres

FIRE PROTECTION OF STEELWORK

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION

Structural Steel to Panel Detail - Spray Protection

Detail Ref: K-FM FR VT 10d.1

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.
- In this configuration, an FRL of up to -/120/120 can be maintained, provided the supporting structure is designed and protected to achieve the same FRL requirement.
- Refer to RTL FA 2561 for specific guidance on fire sealant specifications.

Test Report

For the latest version of fire reports and associated construction details, please contact [Kingspan Technical Services](#).

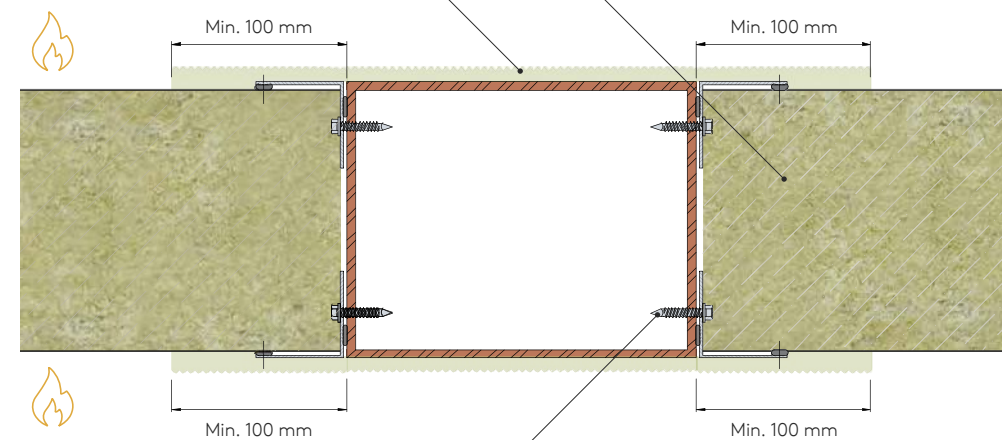
3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



K-Roc® Firemaster Ultima or Ultima Plus
Wall Panels vertically laid

Structural steel protection spray



Ø 5.5 mm x L self-tapping, self-drilling
screws installed @ max. 200 mm centres



06

PENETRATIONS IN K-ROC® FIREMASTER WALL PANELS

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PENETRATIONS IN K-ROC® FIREMASTER WALL PANELS



Penetrations through building envelope systems are a common feature in most construction projects. K-Roc® Firemaster Wall Panels can accommodate a wide range of openings, including those required for pipes, cables, ducts and doorsets.

When designing with K-Roc® Firemaster Wall Panels it should be recognised that the panels are non-loadbearing; the introduction of penetrations or cut-outs will reduce their structural capacity. The extent of this reduction is governed by the size, location, and arrangement of the opening(s).

Panels incorporating penetrations shall therefore be assessed to ensure they are capable of accommodating the loads while maintaining the required system structural integrity.

Where necessary, appropriate reinforcement measures, load redistribution or additional supporting structure may be required, depending on the scale of the opening and associated loads.



PENETRATIONS IN K-ROC® FIREMASTER WALL PANELS

Small Penetrations

Minor penetrations for services such as pipes or cables are typically small relative to the panel size and may be formed without additional reinforcement where confirmed by project-specific structural assessment.

Structural Assessment

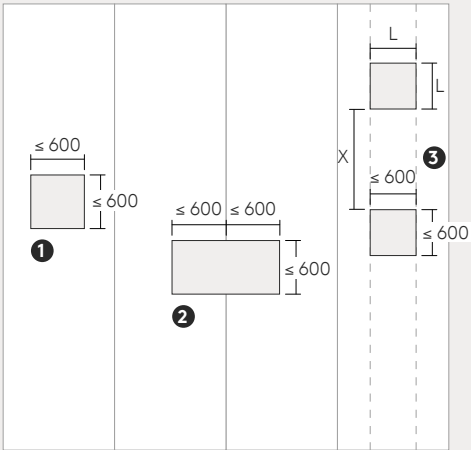
The opening arrangements shown can be accommodated within K-Roc® Firemaster Wall Panel systems. However, the structural adequacy of each arrangement shall be verified by project-specific structural calculation, considering the size, location and grouping of openings, panel orientation and span, applied loads, remaining panel capacity, load transfer through longitudinal joints and adjacent panels, and any required reinforcement or secondary steelwork. Therefore, Kingspan should be consulted at the design stage.

Fire-stopping Requirements

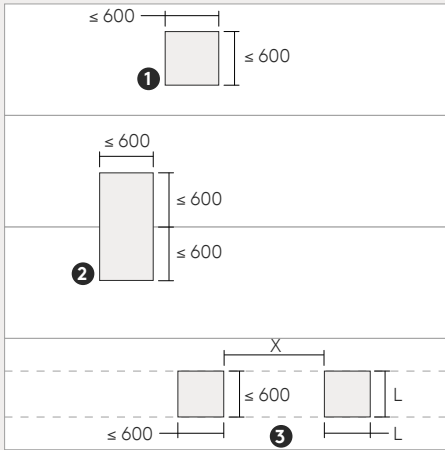
The opening dimensions and arrangements shown relate to structural assessment only and do not represent the maximum sizes permitted for fire resistance. The allowable size and configuration of each fire-stopped penetration shall be confirmed against the relevant tested or assessed passive fire protection system.

For comprehensive details on configuration requirements and fire rating limitations, please contact the selected passive fire protection supplier.

K-Roc® Firemaster Wall Panels vertically installed

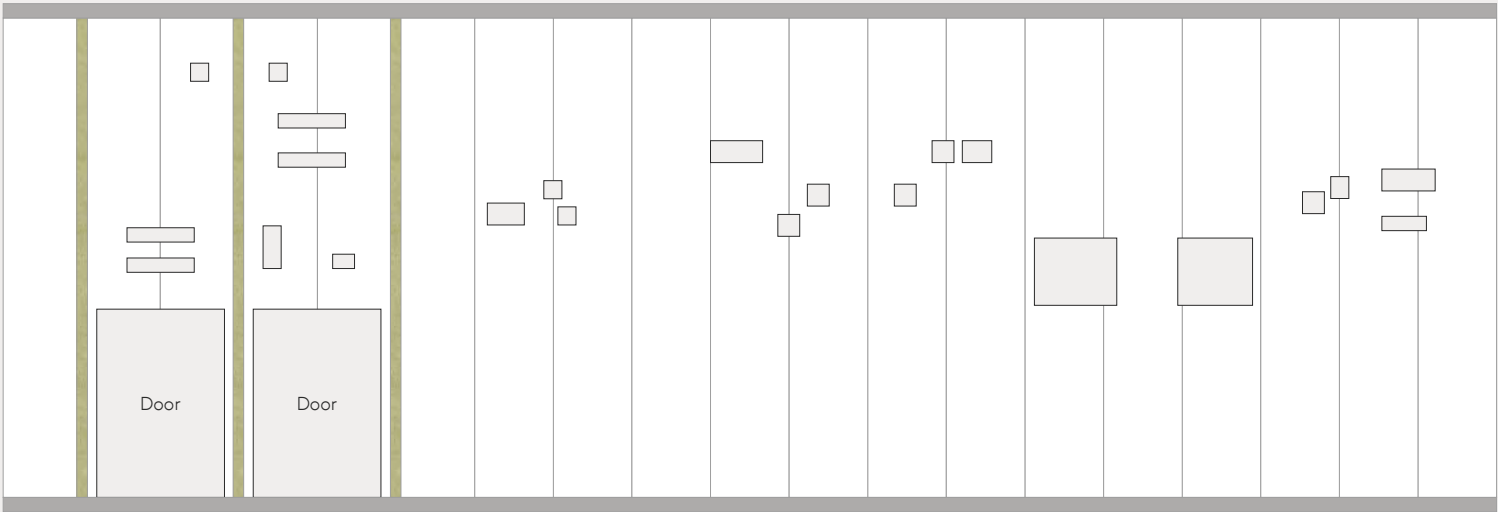


K-Roc® Firemaster Wall Panels horizontally installed



- 1 Penetrations up to 600 mm x 600 mm.
- 2 Load and penetration size can be shared across panels to facilitate larger penetrations. Penetration across interlocking joint.
- 3 Additional penetrations in the same 600 mm width when L is ≤ 600 mm and X is > L.

Indicative opening arrangements in a K-Roc® Firemaster Wall System



Example of grouped penetrations through a K-Roc® Firemaster Wall System assessed on a project specific basis

PENETRATIONS IN K-ROC® FIREMASTER WALL PANELS



Penetration Testing and System Development

To support the development of emerging markets and applications, K-Roc® Firemaster Wall Panels have undergone extensive fire resistance testing in accordance with AS 1530.4: 2014, in conjunction with leading passive fire protection systems.

As part of this ongoing programme, Kingspan has partnered with innovative fire-stopping solution providers to evaluate the performance of service penetrations within K-Roc® Firemaster Wall Panels per the requirements of AS 4072.1: 2005.

A comprehensive series of third-party fire tests has been conducted to assess a wide range of penetration types, ensuring that the highest performance standards are achieved and maintained across different applications.



Scope of Tested Penetrations

Testing and certification covers a broad range of penetration types commonly associated with data centre and industrial applications. These have been developed in collaboration with market / industry specialists and clients, and include:

- Telecommunications services;
- Steel, copper, and plastic pipe penetrations;
- Fire and HVAC dampers;
- Insulated pipe-in-pipe systems;
- Data and power cabling;
- Busbar systems; and
- Movement joints.

Performance and Application

The test programme has been designed to reflect real-world conditions, recognising the complexity and variability of penetrations within modern building envelopes.

Where configured within the scope of the relevant test or assessment, the penetration system maintains the required fire performance of the K-Roc® Firemaster Wall Panel assembly.

PENETRATIONS IN PARTITION WALLS: FIRE STOPPING

KINGSPAN & FIREFLY - FIRE TESTING COLLABORATION

About FIREFLY

FIREFLY, a subsidiary of TBA Protective Technologies Ltd with over 140 years of industry experience, combines advanced technology and specialist expertise in fire-resistant textiles and passive fire-stopping solutions, with a strong focus on safety and compliance.

The FIREFLY range is developed with a commitment to quality, performance, and regulatory compliance, offering a comprehensive portfolio of fire-stopping products designed to support safe environments for people to live, work, and occupy.

A continued focus on innovation supports the delivery of practical, project-specific fire protection solutions. When used alongside the FIREFLY PFP passive fire protection app, the system offers over 85,000 installation combinations, helping to ensure flexibility in specification without compromising safety or performance.

A Collaborative Solution

A complete Passive Fire Strategy for Critical Infrastructure resulting from a five year collaboration.

FIREFLY's approach to passive fire protection for data centres is built around the areas that matter most in mission-critical environments: high FRL performance, practical installation, system reliability, and compatibility with complex penetrations and construction details.

Solutions include:

- a wide range of busduct firestopping systems for major manufacturers;
- FIREFLYBatt large penetration protection;
- service penetration solutions for cable trays and many other services;
- core hole firestopping systems; and
- control and seismic joint solutions.

The FIREFLY fire stopping range includes:



FIREFLYMastic™



FIREFLYMasticHP™



FIREFLYMasticBG™



FIREFLY Penowrap®



FIREFLYSpan



FIREFLYBatt



FIREFLYStrap



FRF Fire Collars

Fire Testing

Passive fire protection systems must be tested and assessed in the intended substrate.

The performance of the service penetrations and control joints is tested and assessed against AS 4072.1: 2005 via the AS 1530.4: 2014 standard fire test.



FIREFLY penetration solutions in K-Roc® Firemaster Wall Panels at 2 hours into an AS 1530.4: 2014 test



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PENETRATIONS IN PARTITION WALLS: FIRE STOPPING

KINGSPAN & FIREFLY - FIRE TESTING COLLABORATION

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Services through FIREFLYBatt



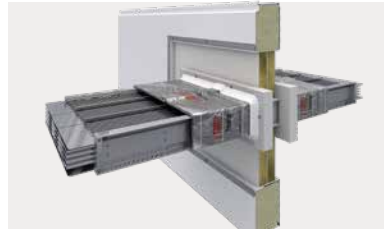
Suitable for friction fit into apertures up to 1,200 mm x 600 mm x 50 mm in size installed within min. 100 mm thick K-Roc® Firemaster Wall Panels with an established FRL of ~240/180.

Products: FIREFLYBatt
FIREFLYMastic™



Suitable for electrical power and data cables, with or without cable trays, with no limitation on size and the number of cables. Installed within two layers of FIREFLYBatt.

Products: FIREFLY Penowrap®
FIREFLYMastic™
FIREFLYMasticHP™



Refer to the various brands of busducts covered, including IPD, ABB, EAE, VASS.

Products: FIREFLYBatt
FIREFLY Penowrap®
FIREFLYMastic™



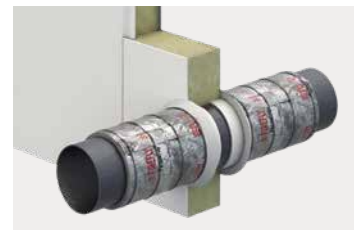
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tbafirefly.com.au

Services through core holes



Suitable for electrical power and data cables, with or without cable trays, with no limitation on size and the number of cables passing through K-Roc® Firemaster Wall Panels.

Products: FIREFLY Penowrap®
FIREFLYMastic™
FIREFLYMasticHP™



Suitable for steel pipes passing through K-Roc® Firemaster Wall Panels.

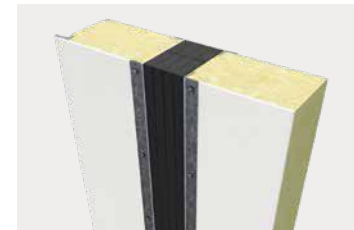
Products: FIREFLY Penowrap®
FIREFLYMastic™

Control and seismic joint solutions



Suitable for head of wall control joint.

Product: FIREFLYSpan 50



Suitable for installation in vertical control joints which require movement between minimum 51 mm up to a maximum of 100 mm wide.

Product: FIREFLYSpan 100

Services through FIREFLY Fox



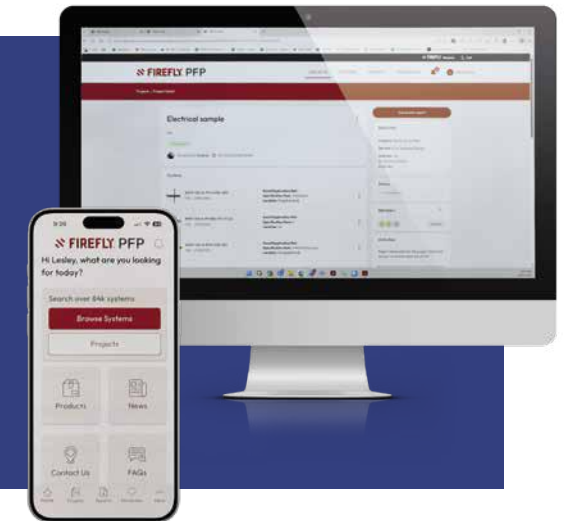
Suitable for various services passing through one single device, through the body of the wall.

Products: FIREFLY Fox
FIREFLYMastic™



FIREFLY PFP app

For a full list of approved systems and services in K-Roc® Firemaster Wall Panel system, refer to the [FIREFLY PFP app](#) to gain access to fully tested and assess passive fire protection systems.



PENETRATIONS IN PARTITION WALLS: FIRE STOPPING

KINGSPAN & TRAFALGAR - FIRE TESTING COLLABORATION

About Trafalgar

Trafalgar Group is an Australian business that has been developing specialty building products and solutions since 1945.

As a leading manufacturer of passive fire protection systems in Australia, Trafalgar Fire produces a significant proportion of its products locally, supporting compliance with Australian standards and project requirements.

Trafalgar has recently collaborated with Kingspan on fire testing to support a number of tested systems within the K-Roc® Firemaster Ultima Wall Panels range.



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tfire.com.au

The Trafalgar fire stopping range includes:



SuperSTOPPER Maxi



Ryanbatt 502



Ryanfire Servowrap

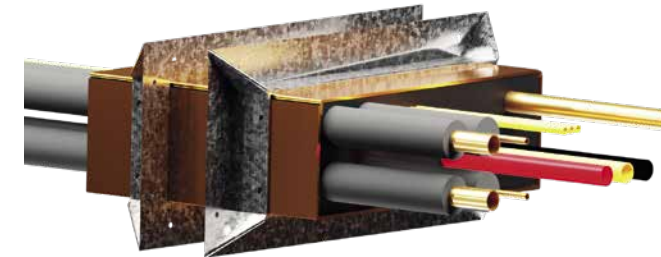
Services through SuperSTOPPER Maxi

SuperSTOPPER Maxi is a retro-fit multi-service penetration system, rigorously tested against fire, smoke, acoustic and seismic requirements.

The intumescent lining expands when exposed to fire, closing the penetration, forming a tight seal around the services and crushing plastic pipes and cable jackets.

Approved services include:

- electrical: power cables, data cables and conduits;
- hydraulic: steel and copper pipes, PVC pipes, PEX and PEX-AL-PEX pipes;
- HVAC & R: insulated pipes and pair coil; and
- active fire: sprinkler pipes and fire cables.



Intumescent foam plugs give SuperSTOPPER Maxi superior smoke leakage and acoustic properties, as well as the ability to add, move and change service penetrations – ideal for projects like data centres.

SuperSTOPPER Maxi has been tested for FRLs of up to -/120/120 in 150 mm Kingspan K-Roc® Firemaster Ultima Wall Panels.

PENETRATIONS IN PARTITION WALLS: FIRE STOPPING

KINGSPAN & TRAFALGAR - FIRE TESTING COLLABORATION



Services through Ryanbatt 502

Ryanbatt 502

Ryanbatt 502 is a high-density rock fibre board designed to protect large openings whilst accommodating a wide variety of service penetrations.

Ryanbatt 502 is now offered to treat large, oversized openings in K-Roc® Firemaster Ultima Wall Panels. Approved in both 100 mm and 150 mm thick wall panels, with apertures up to 600 mm x 1,100 mm.

Where building services penetrate a fire barrier, Ryanbatt 502 can easily be cut to shape and fit around the services to maintain the FRL of the substrate, with simple applications of Ryanfire Mastic, Ryanfire HP-X intumescent sealant and / or Ryanfire ServoWrap sealing around the services.

Ryanfire Servowrap

Ryanfire Servowrap is a thin (15 mm thickness), foil faced high-temperature fibreglass matt which significantly reduces the conduction of heat through penetrating services when exposed to fire for up to 120 minutes.

Ryanfire Servowrap thermal wrap is less itchy compared to traditional stonewool and ceramic fibre based thermal wraps.

2 layers of Ryanbatt 502 are approved to be friction fit into an aperture, with a wide variety of service penetrations, for FRLs of up to -/120/120, as follows:

Electrical Services

- cable trays up to 900 mm wide;
- aluminium or copper power cables;
- large bundles of communications cables;
- small cable bundles (wrap free!);
- PVC conduits; and
- ‘anaconda’ steel conduits.

Hydraulic Services

- PVC stack pipes (wrap free!);
- PEX pipes and PEX-AL-PEX pipes (wrap free!);
- metal pipes including copper and steel pipes; and
- sprinkler pipes.

HVAC & R Services

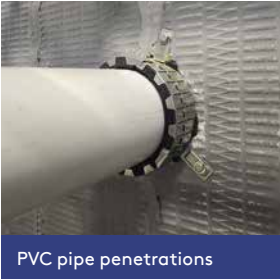
- copper CHW pipes: and
- pair coil bundles, including power and data cables, PVC drains.

Structural Penetrations

- C-channels;
- steel purlins;
- I-beams;
- timber purlins; and
- head of wall penetrations.



Cable tray penetrations



PVC pipe penetrations



Metal pipe penetrations



Steel purlin penetrations



Pair coil penetrations

For a full list of approved systems and services in K-Roc® Firemaster Ultima Wall Panel systems, please visit the [Trafalgar Easy Passive Fire Stopping for Kingspan Insulated Wall Systems](#) page [here](#), to gain access to fully tested and assessed passive fire protection systems.



For technical guides, installation manuals and compliance documentation, please [click here](#).

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tfire.com.au

07

FIRE-RESISTANT DOORSETS

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■ Installation within K-Roc® Firemaster Wall Panels	66
■ Further information	66
■ Structural Support to Wall Openings	67
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FIRE-RESISTANT DOORSETS



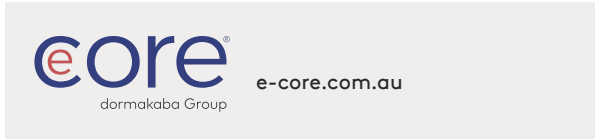
Introduction

Kingspan have collaborated with E-Core® Doors, a market-leader in fire-resistant door systems, to deliver tested door solutions specifically designed for use within fire-rated wall constructions.

Through this partnership, K-Roc® Firemaster Wall Panels have been tested, with certification available from E-Core® Doors covering both single and double leaf door systems within K-Roc® Firemaster wall assemblies. These systems have been tested and assessed in accordance with AS 1530.4: 2014, AS 1905.1: 2015, AS 4072.1: 2015, and NZS 4520: 2010, achieving fire performance up to -/120/30.

These solutions provide a practical and commercially viable approach to integrating door openings within fire-rated wall systems. Door configurations can be installed either in-plane or out-of-plane relative to the wall system, depending on the door type and wall assembly configuration.

These integrated solutions have been developed to ensure compatibility with K-Roc® Firemaster Wall Panels, while maintaining the required fire performance, efficient installation, and high-quality aesthetic finish expected in industrial, commercial, and controlled-environment applications.



Installation within K-Roc® Firemaster Wall Panels

E-Core® Maxi Doorsets for installation within K-Roc® Firemaster Wall Panels (≥ 150 mm thickness) have been tested and assessed in accordance with relevant fire resistance standards to permit the following maximum door leaf configurations:

- **Single leaf doorsets** up to 3,000 mm (H) × 1,500 mm (W);
- **Double leaf doorsets** up to 3,000mm (H) × 1,500 mm (W) (two equal leaves).

These maximum leaf dimensions apply where E-Core® doorsets are installed in combination with K-Roc® Firemaster Wall Panels, using system-approved componentry, including panel edge protection, fixings, and fire-rated sealing in accordance with the tested configuration.

Installation shall be carried out by an approved installer to ensure compliance with the certified system requirements and to maintain the required fire performance of the overall wall and door assembly.

Further Information

For more information on certified door systems, E-Core® provides technical support, certification and guidance on approved local licensees for manufacture and distribution, ensuring solutions align with project specific requirements.



FIRE-RESISTANT DOORSETS

Structural Support to Wall Openings

Where larger openings are introduced, consideration must be given to the structural support of the surrounding wall system, as significant apertures may influence overall stability, size of opening and expected load / pressure.

A common solution is the use of a goal post support structure to frame the opening and provide independent support to both the wall and the aperture (e.g. doorsets, louvres, fire-stopping systems), as illustrated on [pages 69 and 70](#).



In-plane single doorset without additional structural support



Out-of-plane double doorset with fire protected structural support

The design and suitability of any support system shall be assessed in line with project specific requirements, including panel type, span, loading conditions, fixing arrangements, and the size, weight, and position of the opening relative to panel joints.

Accordingly, all apertures should be reviewed on a case by case basis by the technical team to ensure the most appropriate and efficient solution is adopted.

FIRE-RESISTANT DOORSETS

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



E-Core® Fire Door Detail

Detail Ref: K-FM VT 12e

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for a least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.

Door Guidance & Certification

- For the latest certification and installation guidance, contact your nearest E-Core® Licensee - Door Manufacturer* for use with K-Roc® Firemaster Wall Panels.

Test Report

For the latest version of fire reports and associated construction details, please contact [Kingspan Technical Services](#).

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).

K-Roc® Firemaster Ultima or Ultima Plus Wall Panels vertically laid

Min. 1.9 mm thick, 40 x 150 x 40 mm galv. C-profile

Sealed along its full length with 6 mm bead of HILTI CP606 acrylic sealant, forming a fillet installed as per manufacturers guidelines

Door system

Min. 4.8 Ø steel rivets @ max. 100 mm centres

Min. 1.9 mm thick, 100 x 100 x 130 mm galv. angle bracket

Min. 4.8 Ø steel rivets

Min. 1.9 mm thick, 40 x 150 x 40 mm galv. C-profile

Min. 4.8 Ø steel rivets @ max. 100 mm centres

K-Roc® Firemaster Ultima or Ultima Plus Wall Panels vertically laid

150 mm (subject to panel thickness)

Door

100 mm

100 mm

Sealed along its full length with 6 mm bead of HILTI CP606 acrylic sealant, forming a fillet installed as per manufacturers guidelines

K-Roc® Firemaster Ultima or Ultima Plus Wall Panels vertically laid

Door system

Min. 1.9 mm thick, 40 x 150 x 40 mm galv. C-profile

Min. 4.8 Ø steel rivets @ max. 100 mm centres

To access this detail on 3D viewer, please click [here](#).

* E-Core® Distributors can be found on the E-Core® website, [e-core.co.au](#).

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FIRE-RESISTANT DOORSETS

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION

Door / Window / Other System to Steel Detail

Detail Ref: K-FM VT 12g (Rev. A) (1)

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for at least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.

Door Guidance & Certification

- For the latest certification and installation guidance, contact your nearest E-Core® Licensee - Door Manufacturer* for use with K-Roc® Firemaster Wall Panels.

Other Systems

- Detail shown indicatively and may be applicable to louvres, access doors, windows and similar elements. For FRL applications, please consult the specific product supplier.

Test Report

For the latest version of fire reports and associated construction details, please contact [Kingspan Technical Services](#).

K-Roc® Firemaster Ultima or Ultima Plus Wall Panels vertically laid

Self-tapping, self-drilling carbon steel fasteners with minimum 16 mm Ø non-ferrous EPDM backed washer, min. 3 fasteners across the width of panel*

Continuous ledger angle fixed with low profile head fasteners, width of ledger angle min. half of panel thickness

Continuous structural support. Structural adequacy and any additional fire resistance to be verified by relevant parties based on project specifics

Structural steel protection board

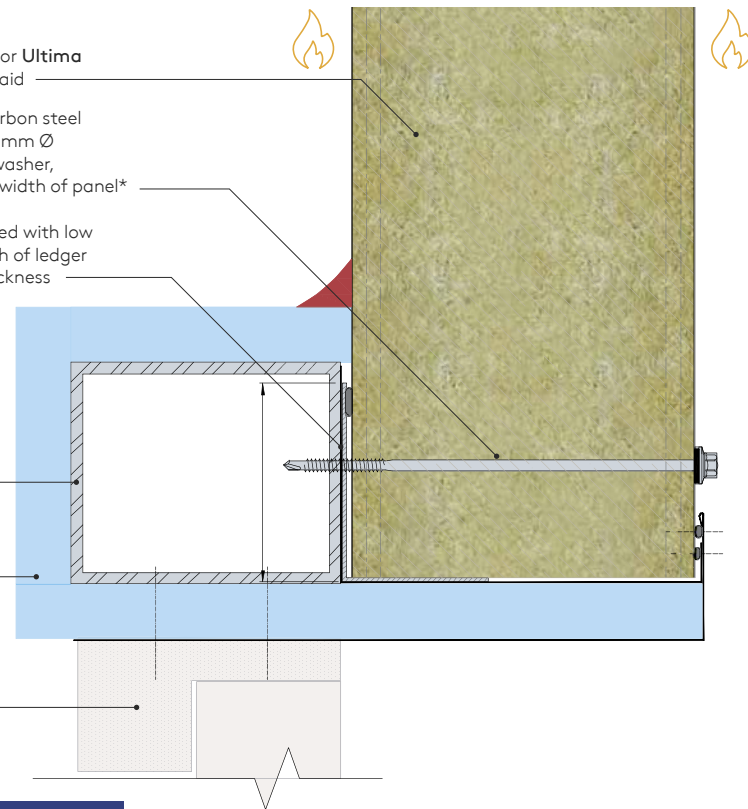
Door / window system by others

3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



* E-Core® Distributors can be found on the E-Core® website, e-core.co.au.



FIRE-RESISTANT DOORSETS

TYPICAL DETAILS – VERTICAL INSULATED PANELS, INTERNAL APPLICATION



Other System to Panel Detail

Detail Ref: 108 (Rev. A) (2)

Typical Panel Detailing

- K-Roc® Firemaster wall systems must be constructed in accordance with the requirements and limitations outlined in Fire Assessment Report FAS240019.
- Supporting structure must be designed by other to be capable of supporting the panel for at least the required FRL.
- Details provided for illustrative purposes.

Steel Protection Guidance

- For specific guidance on steel protection details refer to fire assessment report RTL FA 2561. For panel installation details refer to the relevant product installation drawings.

Door Guidance & Certification

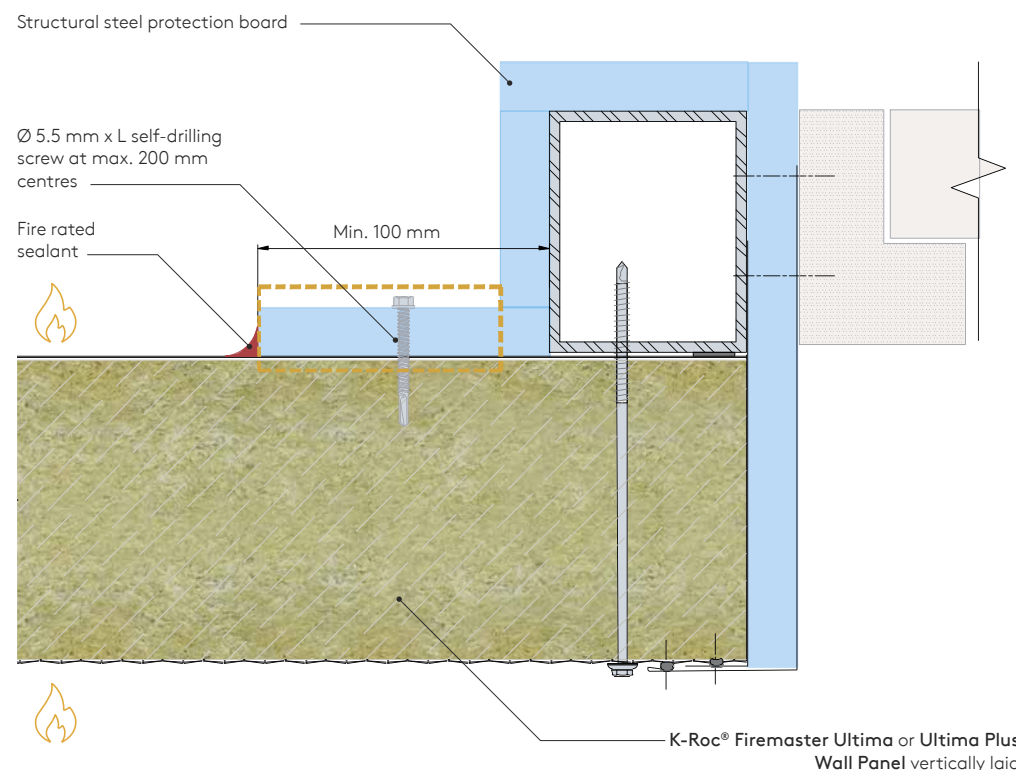
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3D Viewer

To access the 3D viewer and download up-to-date construction details, please click [here](#).



* E-Core® Distributors can be found on the E-Core® website, e-core.co.au.

08

SERVICE & SUPPORT

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SERVICE & SUPPORT

Kingspan Technical Services offers support for the full project cycle, from early-stage concept design to post-construction support Australia-wide.

Architects, developers, engineers, specifiers, builders and installers can access expert advice on our full range of insulated panels, façades and roofing products.

From design concepts to value engineering, and through project execution, we have you covered.

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Technical Services

Developers, architects and specifiers can receive product and project specific guidance, recommendations and support with the following:

- fire performance;
- thermal performance;
- air leakage;
- product / coating selection;
- warranties;
- application of approved details;
- attending design meetings;
- case-by-case detail reviews and advice.

Panel span checks

Fastener calculations

Value engineering advice

R-values

Acoustic calculations

Façade span and fixing checks

Technical Specification

Design guidance and support for architects, specifiers and design teams, including the following:

- attending design meetings;
- technical appraisals and video consultations;
- product recommendation to suit project requirements;
- conceptual design sketches and drawings;
- Revit models and BIM content sharing;
- 3rd-party fire solutions approved for use in panels

Product specifications

Technical consultations

Product NCC compliance

Conceptual details

3rd-party complimentary fire solutions

Revit BIM content

Field Services

Builders and installers can access support from project initiation through post-project completion via Kingspan Field Services Australia-wide, including the following:

- design meetings;
- on-site installation training for the full product range;
- best practice product storage and handling recommendations;
- installation inspections throughout the project stages;
- post-construction inspections and installation verifications;
- risk-assessment, mitigation and corrective action recommendations.

On-site installation training

Installation guidance

Product handling best practice

Site inspections

Post-inspection reports

Warranty documentation

09

K-ROC® IN ACTION

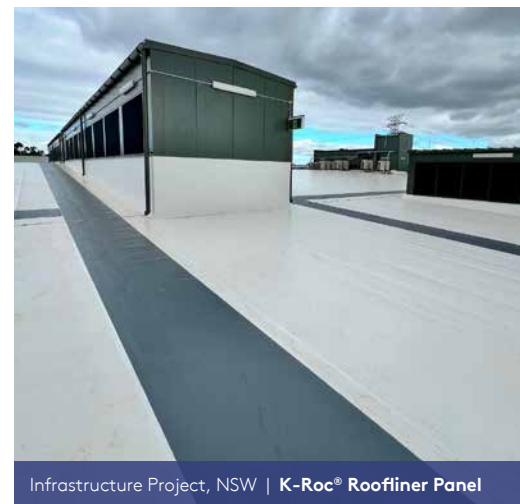
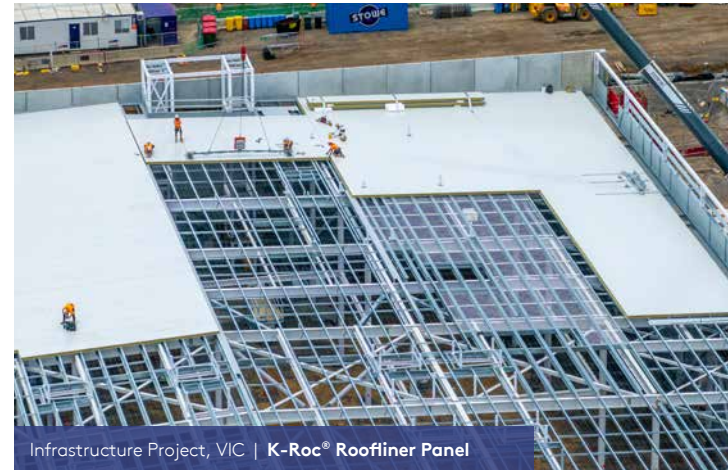
■ Project Gallery

74-75



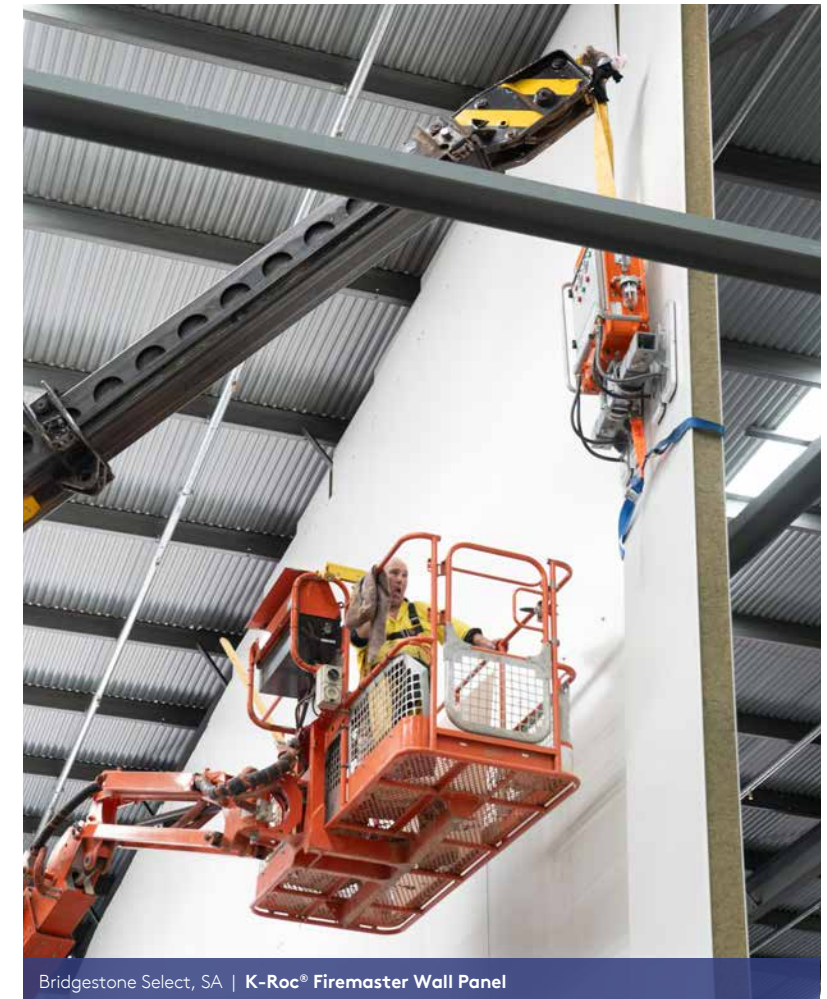
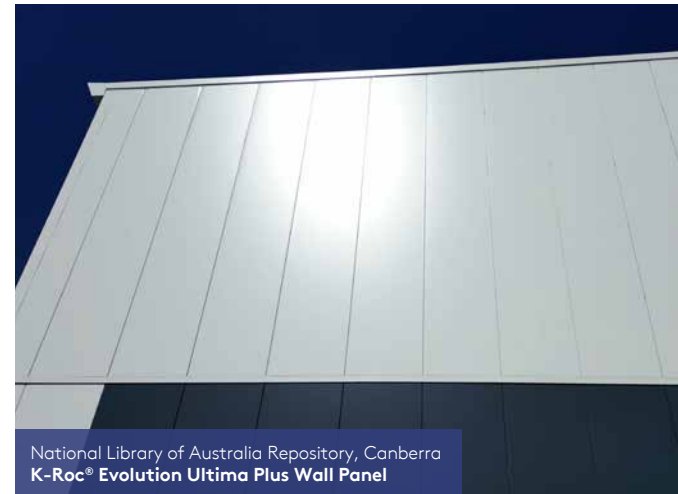
K-ROC® IN ACTION

PROJECT GALLERY



K-ROC® IN ACTION

PROJECT GALLERY



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For the product offering in other markets please
contact your local sales representative or visit
www.kingspanpanels.com

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for errors or for information that is found to be misleading. Suggestions for, or
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