

COMBI PANEL

STONE WOOL + PIR INSULATION

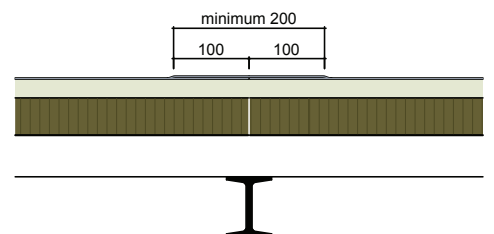
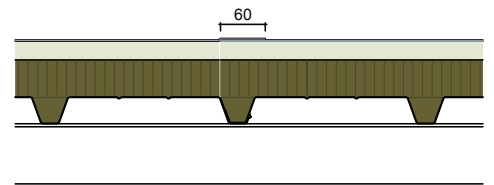
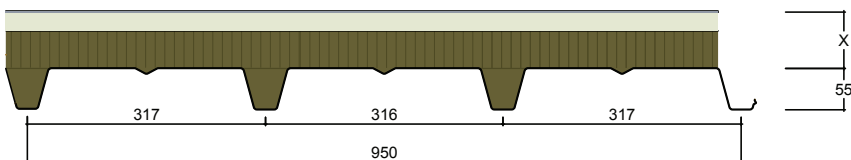
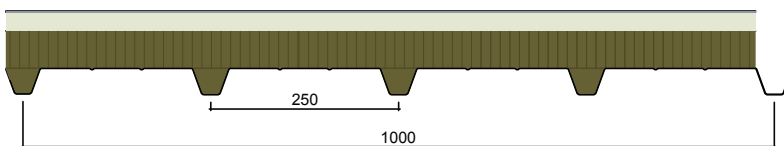
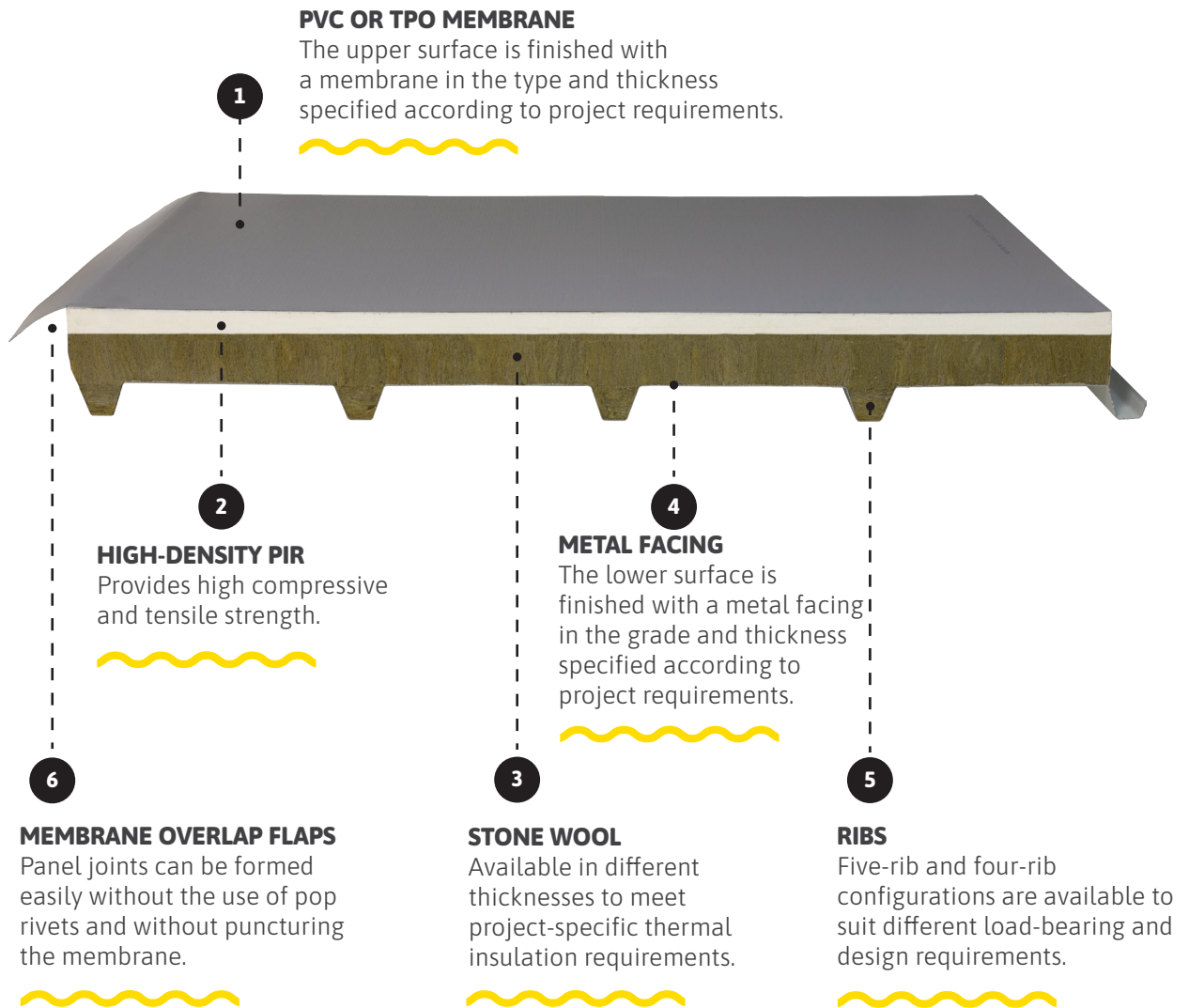


High-performance membrane roof panel with excellent fire resistance, thermal insulation, and waterproofing.



TEKIZ COMBI PANEL

Tekiz Combi Panel is a composite roof panel specially developed for low-slope roof applications. The panel consists of a PVC or TPO membrane on the top surface, a pre-painted galvanised steel sheet on the bottom surface, and an insulation core made of stone wool and high-density PIR layers. This layered structure combines the advantages of both insulation materials. Providing high levels of thermal insulation, waterproofing and fire performance, the panel is suitable for roof applications with slopes as low as 1%. Combi Panel was developed based on extensive know-how and detailed needs analysis, registered and launched into production in 2001, and has since been used in numerous high-quality projects.



WHY COMBI PANEL?



10-Year Warranty Coverage

The composite panel structure ensures system integrity. As a result, not only the individual components but the entire roofing system is covered by a 10-year warranty.



Operational Efficiency at Every Stage

Integrating all roof layers into a single product simplifies procurement, transport, storage and installation, while eliminating the need for separate quality and tolerance checks for individual components.



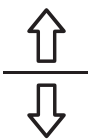
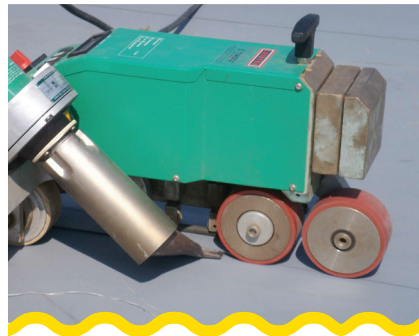
Reduced Risk of Installation Errors

Manufactured as a factory-made composite product, Combi Panel eliminates workmanship-related errors. In site-built systems, each component is exposed to risks such as manufacturing defects, damage during transport and incorrect storage. Moreover, because the final performance of such roofs depends heavily on workmanship quality, the risk of installation errors increases.



Fast Installation, Lower Cost

Installation can be completed up to three times faster on site with reduced labour requirements. This reduces labour costs and the need for consumables while accelerating the overall investment process.



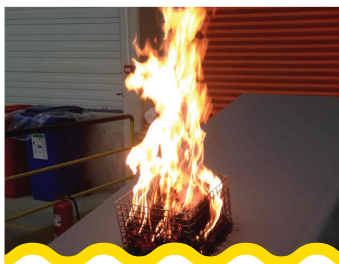
High Tensile and Compressive Strength

Combi Panel offers substantially higher tensile and compressive strength than site-built systems. The stone wool used in the panel is cut into lamellas; each lamella is rotated by 90°, positioning the fibres vertically. This production method significantly increases the system's compressive strength. At the same time, it preserves the integrity of the insulation layer and membrane surface, ensuring continuity of thermal insulation performance over the long term.



High Fire Performance

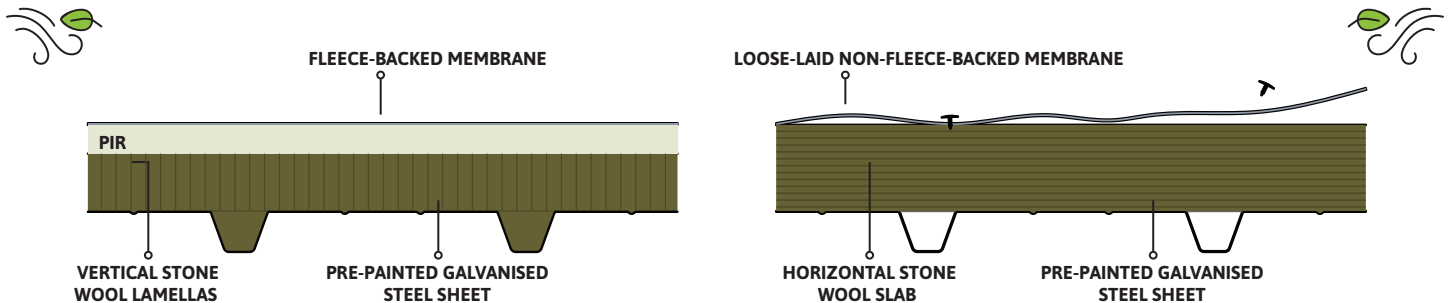
The A1-class non-combustible stone wool layer on the interior face of the structure acts as an effective protective barrier against fires that may originate indoors. The system achieves BROOF classification for external fire performance. FM Approved configurations are also available upon request to meet international fire and property protection requirements.



WHY COMBI PANEL?

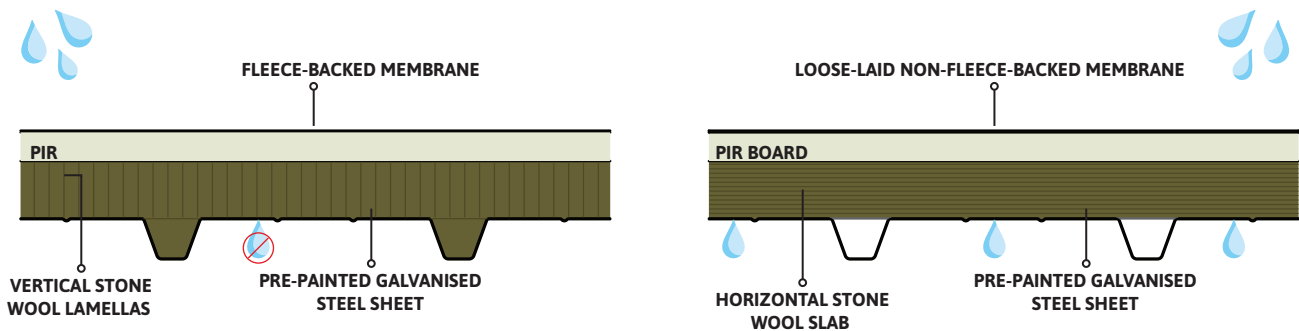
Maintaining Surface Integrity in Harsh Weather Conditions

In Combi Panel, the fleece-backed membrane is homogeneously bonded to the PIR layer. This structure provides high tensile strength and preserves surface integrity even under harsh weather conditions. The uniform bond prevents air from penetrating beneath the membrane, safeguarding long-term durability and waterproofing performance.



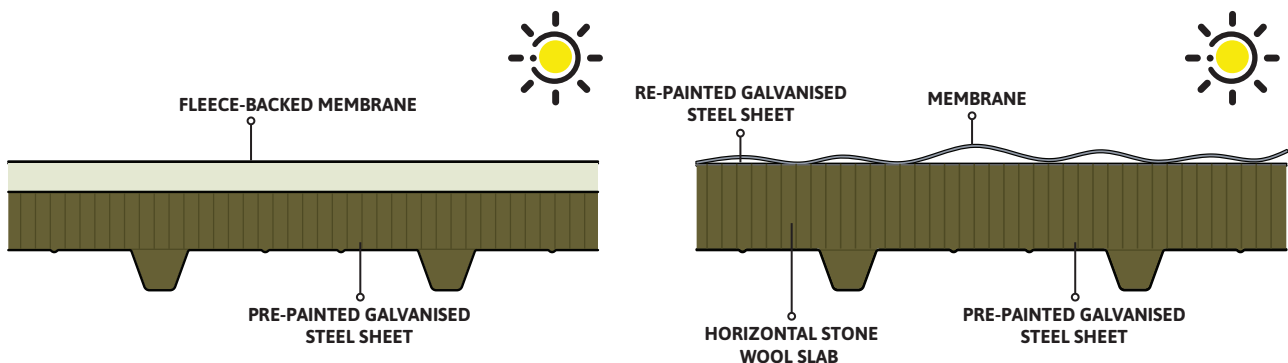
High Watertightness Performance

Because the membrane is homogeneously bonded to the entire surface of the PIR layer in Combi Panel, the PIR layer prevents water from passing through even if the membrane is cut or punctured, effectively protecting the layers below. This integrated structure safeguards both the insulation performance and the panel's long-term structural durability.



Thermal Stability

In Combi Panel, the membrane is homogeneously bonded directly to the flexible PIR layer rather than to the steel sheet, allowing the panel components to act together under different temperature conditions. This prevents separation resulting from the membrane's thermal expansion coefficient being 5 to 7 times higher than that of steel. It also prevents uplift and surface deformation caused by air entering beneath the membrane. By absorbing temperature-induced stresses, the system maintains long-term surface integrity.

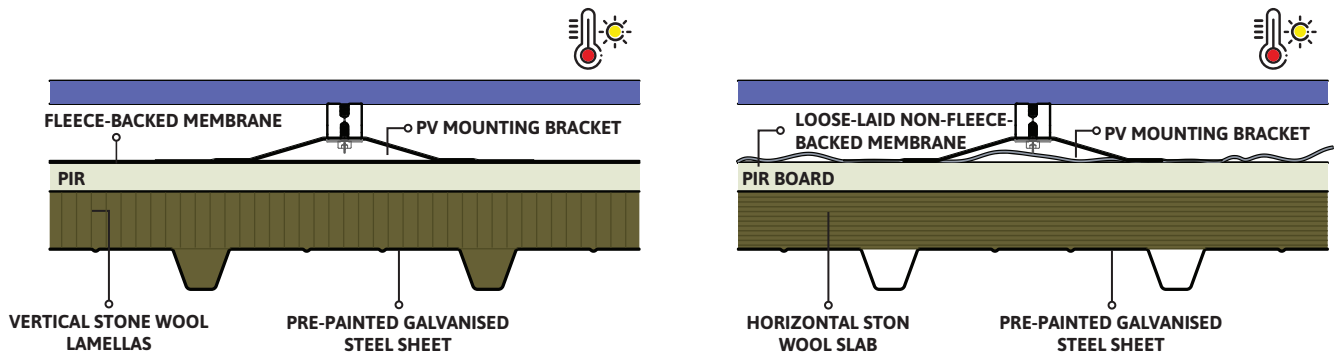


High Compressive Strength for PV System Integration

Combi Panel delivers high compressive strength through the high-density PIR layer beneath the membrane. This construction eliminates the need for additional walkways and enables PV systems to be installed without additional roof-level supporting structures.

The high compressive strength prevents indentation or deformation of the surface under the loads imposed by PV panels, thereby eliminating the risk of ponding.

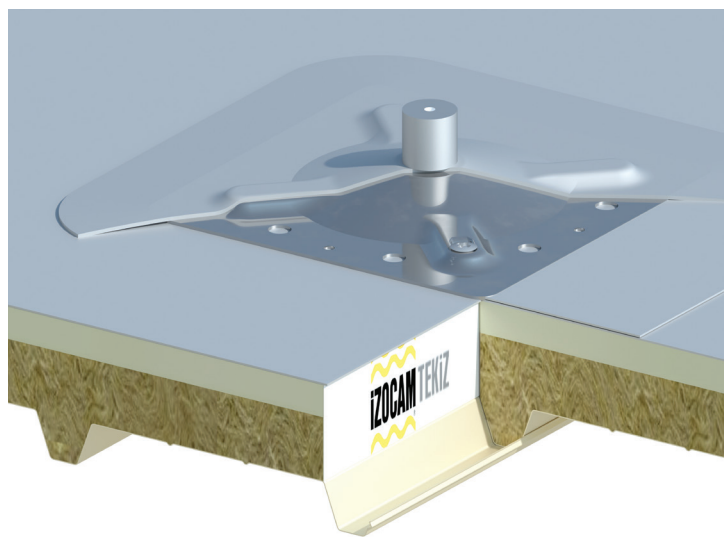
Bonding the membrane to the PIR layer prevents loss of surface form even under high-temperature conditions. The membrane maintains its structural integrity, even during summer and under the additional heat load generated by PV systems; helping to prevent wrinkling, lifting and surface deformation



PV Mounting Bracket Compatible with Combi Panel

The Tekiz Membrane PV Mounting Bracket is fastened to the panel's lower steel sheet through the screw holes in the metal plate. The weldable membrane layer on the bracket is then welded to the membrane on the panel surface, integrating the components.

This application delivers high watertightness without leaving exposed holes or weak points on the external surface. The specially designed bracket integrates with the panel surface and helps preserve the system's waterproofing performance and mechanical strength.



Combi Panel Warranty Remains Valid

The Tekiz Membrane PV Mounting Bracket has been designed to work in full compatibility with Combi Panel. When used together with Combi Panel, it is included within the scope of the **10-year warranty**.

FM APPROVAL

FM Approval is granted to products and systems that successfully meet the applicable testing and certification requirements of FM Approvals. Internal and external fire scenarios are simulated in the tests, and fire spread, the system's behaviour in a fire and heat release are evaluated. In addition to fire performance, many critical environmental effects, including hail impact and wind uplift resistance, are also covered by the tests.

FM APPROVED COMBI PANEL

Combi Panel holds FM Approval certification in 75 mm (50+25 mm) and 100 mm (75+25 mm) insulation thicknesses and has been tested in accordance with FM 4470 and FM 4471, which apply to roof panels and low-slope roof coverings. The approved products are manufactured in accordance with the conditions specified in the FM Approval.

The FM Approval certificate can be viewed at **roofnav.app.fmglobal.com** or by scanning the QR code.



Assured Through Continuous Auditing

Through periodic audits conducted every year at manufacturing plants producing approved products, FM Global assures the continuity and consistency of product performance.

Combi Panel FM Classifications

Test Category	FM Class	Description
Internal Fire	Class 1	Meets the highest level of fire safety performance against fires originating inside the building. Fully compliant with FM Global insurance standards.
External Fire	Class A (maximum 1.5 in 12 slope)	Meets the highest level of fire safety performance against external fire exposure. Fully compliant with FM Global insurance standards on roofs with slopes of 12.5% or less.
Hail Damage	Severe Hail	The panel system demonstrates high mechanical resistance to severe hail impact and is fully compliant with FM Global insurance standards.
Wind Uplift	Class 1-90	The panel system demonstrates high mechanical resistance to wind uplift loads up to 4.3 kPa and provides safe performance even in areas exposed to strong winds. Fully compliant with FM Global insurance standards.
Foot Traffic	Pass	The panel system has successfully passed the foot traffic test in accordance with FM Global standards and can be walked on for service and maintenance purposes. Fully compliant with FM Global insurance standards.
Watertightness	Pass	The panel system has successfully passed the watertightness test in accordance with FM Global standards and is suitable for maintaining roof watertightness under heavy rainfall and pressurised water conditions. Fully compliant with FM Global insurance standards.



Certificate of Compliance

This certificate is issued for the following:

Kombi 950
Kombi 1000

Prepared for:

Izocam Ticaret ve Sanayi AS
Altaycesme Mahallesi, OzSokak
No 19 Kat 6 Maltepe
Istanbul 34843
Turkey

FM Approvals Class: 4470 / 4471

Approval Identification: 3061767

Approval Granted: 11/13/18

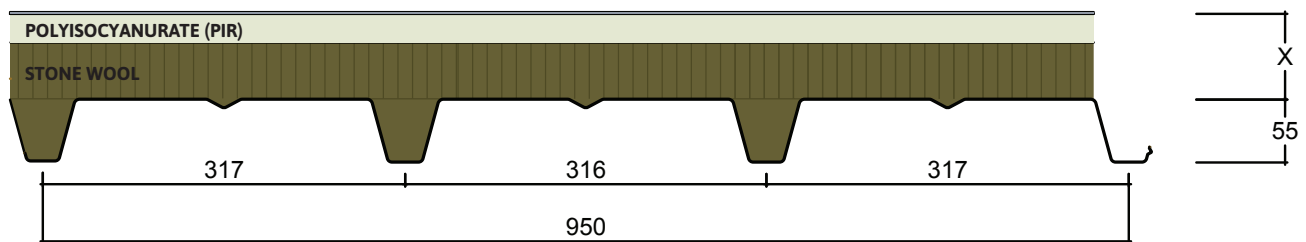
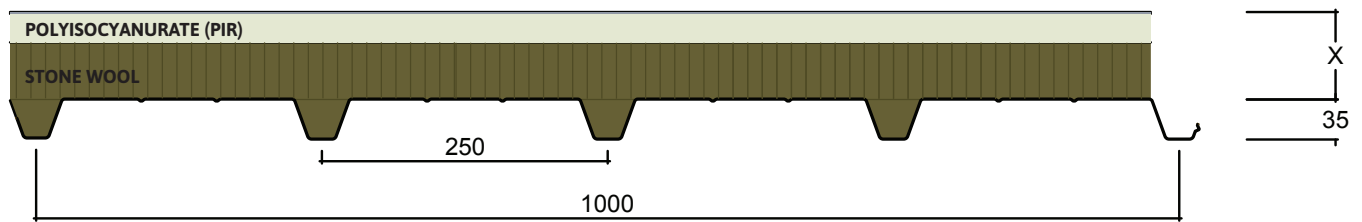
To verify the availability of the Approved products, please refer to www.RoofNav.com.

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in RoofNav, an online resource of FM Approvals.

Phillip J. Smith
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FM Approvals
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Norwood, MA 02062



PANEL DETAILS

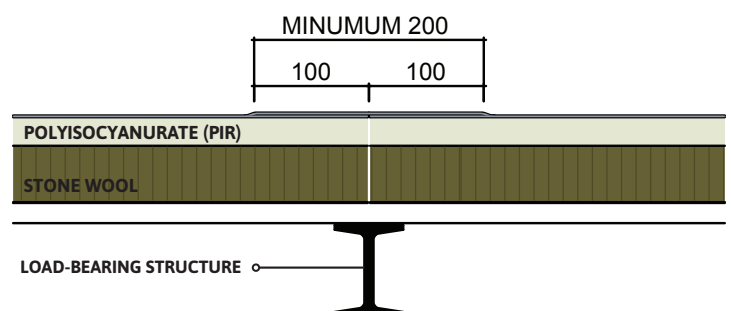
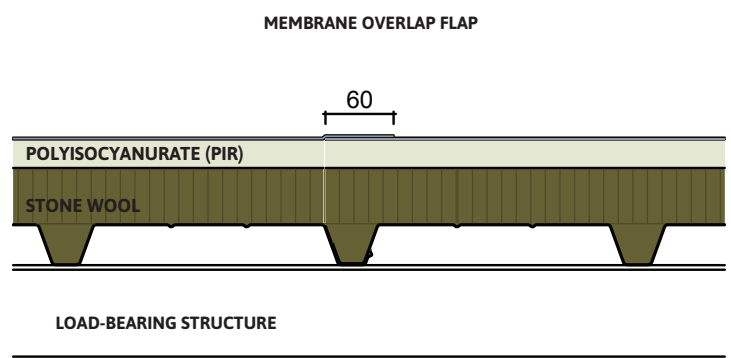


JOINT DETAILS

Combi Panel is installed by fastening the bottom steel facing to the purlins with screws; the fasteners are therefore not visible from inside the building. This preserves architectural integrity while protecting the fasteners from corrosive and abrasive effects inside the building.

At panel side joints, the membrane overlap flaps allow the joints to be formed easily without the use of pop rivets and without puncturing the membrane.

Panel end laps are covered with an additional membrane to achieve complete watertightness.



TECHNICAL SPECIFICATIONS

COMBI PANEL	SPC 1000 5H	SPC 950 4H
Effective Width (mm)	1000	950
Rib Height (mm)	35	55
Number of Ribs	5	4
Bottom Facing Material	Pre-painted Galvanised Steel Sheet; Aluminium; Stainless Steel	
Bottom Facing - Sheet Thickness (mm)	0,60 - 0,70 - 0,80 - 0,90 - 1,00	
Top Facing Material	PVC Membran, TPO Membran	
Top Facing - Membrane Thickness (mm)	1,2 - 1,5 - 1,8 - 2,0	
Insulation	Stone Wool + PIR	
Density (Stone Wool / PIR) (kg/m ³)	Stone Wool 100 (±10%)	
	PIR 75 (±5)	
Paint Type	Polyester, PVdF, Plastisol, PVC	
Insulation Thickness (mm)	60 (40+20)	
	70 (50+20)	
	75 (50+25)	
	80 (60+20)	
	100 (75+25)	
	100 (80+20)	
	120 (100+20)	
	150 (125+25)	
	175 (150+25)	
Maximum Declared Thermal Conductivity at 10°C (W/mK)	≤ 0,041/0,023	
Reaction to Fire Class	B-s1, d0	
External Fire Performance	Broof (t1), Broof (t2)	
FM Approval Certificate	4470, 4471	

LOAD-BEARING TABLE

SPC 950 4H COMBI PANEL

Multi-span support spacing (L/200, L = m). Values indicate uniformly distributed load capacity (P = kg/m ²).							
Sheet Thickness (mm)	1	1,5	2	2,5	3	3,5	4
	Uniformly distributed load capacity (P = kg/m ²)						
0,60	1227	589	389	277	158	110	68
0,70	1585	750	472	336	194	134	82
0,80	1915	896	543	388	224	155	93
0,90	2260	1049	619	441	256	177	104
1,00	2602	1208	709	515	295	205	118

SPC 1000 5H COMBI PANEL

Multi-span support spacing (L/200, L = m)							
Sheet Thickness (mm)	1	1,5	2	2,5	3	3,5	4
	Uniformly distributed load capacity (P = kg/m ²)						
0,60	670	317	200	138	87	53	36
0,70	852	397	235	163	103	63	42
0,80	1016	466	265	184	117	71	47
0,90	1016	545	302	210	134	81	53
1,00	1016	628	346	245	154	94	60

* The values in the table are given for an insulation thickness of 100 mm.



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