

BUILDING ENVELOPE SYSTEM

SHANDONG APEX METAL PRODUCTS CO.,LTD

Headquarter of group
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INTELLIGENT MANUFACTURING BASE

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Energy-saving Insulation System



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WALL
SYSTEMS



ROOF
SYSTEMS



STEEL
STRUCTURE



CLEANROOM
SYSTEMS



COLD STORAGE
SYSTEMS

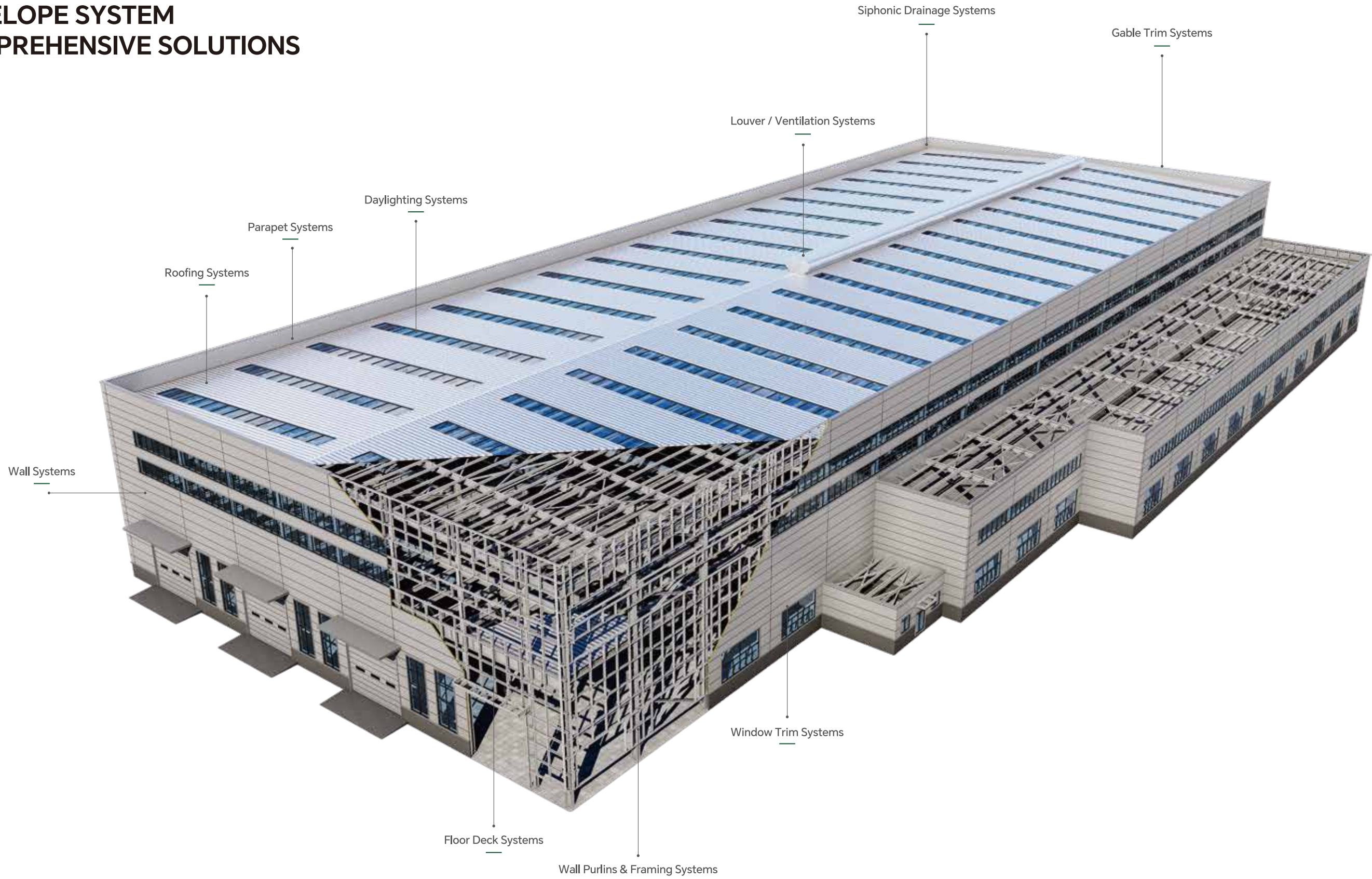
www.cnapex.net / Catherine.yu@cnapex.net

GloStar

**A LEADING METAL CLADDING SYSTEM IN CHINA
SOLUTION SERVICE PROVIDER**



ENVELOPE SYSTEM COMPREHENSIVE SOLUTIONS



SYSTEMATIC ADVANTAGES



Class A fire-resistance, Superb thermal insulation



Air tightness, water tightness, and wind pressure resistance are increased by 19.4%



The panels offer flexible dimensions, horizontal/vertical installation options, and a variety of colors to suit diverse architectural forms.



Safe and eco-friendly, Sustainable development



Integrated assembly, Quick and easy installation



PRODUCT APPLICATIONS



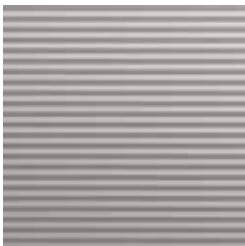
Industrial Buildings



Public Buildings

EXTERIOR PANEL OPTIONS

SURFACE PATTERN



Lishui corrugation



Mirror surface



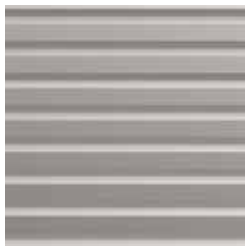
Embossing patterns



Mini corrugation



Square bar reinforced



V shaped reinforce beam



T shaped reinforce beam

TYPES OF METAL SHEET



Color coated steel sheet



Color coated aluminum sheet



Stainless steel sheet



Metal galvanized steel sheet



Film laminated steel sheet



Plated steel sheet

COATING MATERIAL SELECTION FOR COLOR-COATED METAL SHEETS

01. Nano-particle reinforced PE

02. High Durability Polyester (HDP)

03. PVDF

04. Silicon-modified polyester (SMP)

05. Polyester (PE)

COLOR-COATED STEEL SHEET PAINT PARAMETERS

Paint	Neutral salt spray test (h)	UV light accelerated aging test (h)		Pencil hardness	Life span (years)	Coating standard
		UVA-340	UVA-313			
Nano-particle reinforced PE	≥1000	≥2000		≥HB	20	Aluminum-Zinc-Magnesium coated steel coil (AZM150)
PVDF	≥960	≥1800	≥1000	≥HB	20	
High Durability Polyester (HDP)	≥720	≥960	≥600	≥HB	15	Aluminum-Zinc coated steel coil (AZ150)
Silicon-modified polyester (SMP)	≥600	≥720	≥480	≥F	10	Zinc coated steel coil (Z180)
Polyester (PE)	≥480	≥600	≥400	≥F	5	

COLOR-COATED ALUMINUM SHEETS INFORMATION

Paint	Neutral salt spray test (h)	UV light accelerated aging test (h)		Pencil hardness	Life span (years)	Yield strength	Metal sheet material
		UVA-340	UVA-313				
PVDF	≥960	≥1800	≥1000	≥HB	20	≥195MPa	Hot rolled 3003/3004
PE polyester	≥480	≥600	≥400	≥F	5		

CORE MATERIAL OPTIONS

Depending fire-proof, thermal insulation or environmental regulations, rock wool or glass wool can be used.

COMPARISON BETWEEN DIFFERENT CORE MATERIALS

Core material	Rock wool	Polystyrene board(EPS)	Polyurethane (PU/PIR)	Mineral wool	Glass wool
Illustration					
Flammability	Class A	Class B	Class B	Class A	Class A
Smoke or toxic gases	Nonpoisonous	Black smoke	Black smoke	Nonpoisonous	Nonpoisonous
Highest temperature tolerable	<600	<85	< 170	<300	<200
Fire resistance limit	30-240min	Easily flammable	Easily flammable	< 60min	30-120min
Thermal conductivity	0.036-0.043	0.039-0.041	0.022-0.024	0.038-0.048	0.033-0.043

After comprehensive comparisons, high quality rock wool is highly recommended by Glostar.

ADVANTAGES OF HIGH-QUALITY ROCK WOOL

PH

When pKa is greater than 1.8, the pH value of the leachate is neutral or weakly alkaline, causing no corrosion to various metals.

Hydrophobicity

The hydrophobicity reaches over 98%. Even after getting soaked, its insulation performance can fully recover after drying and long-term usability is not affected.

Fiber diameter

Thin and flexible diameter, which is less than 6 microns, has low thermal conductivity, hence excellent thermal insulation.

Weather resistance

Resistant to high temperatures, rock wool possesses good thermal stability at high temperatures, durability, and the ability to resist high-temperature expansion.

Eco-friendly

Green and environmentally friendly, rock wool has been recognized by international cancer research authorities as a non-carcinogenic substance.

ADVANTAGES OF HIGH-QUALITY ROCK WOOL

Eco-friendly

Eco-friendly and carcinogenic substance and formaldehyde free – totally safe for long-term usage.

Thermal insulation

According to test results, for every 1µm reduction in the diameter of glass fibers, the thermal conductivity can decrease by 9.2%. Glass wool typically has a diameter of 5µm for its fibers, which significantly surpasses the national standard requirement of ≤8µm. This leads to a lower thermal conductivity and superior insulation performance.

Structural shock resistance

The long and thin glass fiber has excellent tensile strength and shock resistance.

Hebei Tieke Yichen New Material Technology Co., Ltd.



PRODUCTION PROCESS



-
- 1 Raw Materials
-
- 2 Take the Initiative
-
- 3 Coated Steel Sheets
-
- 4 Plasma Surface Treatment
-
- 5 Four-Blade Cotton Cutter
-
- 6 Hinged Cotton Pad
-
- 7 Targeted Spray Adhesive via Atomization
-
- 8 Targeted Spray Adhesive via Atomization
-
- 9 High-Temperature Dual-Track Composite
-
- 10 Finished Product Cutting
-
- 11 Finished Product Palletizing
-
- 12 Automatic Packaging

HW INDUSTRIAL BUILDING CURTAIN WALL CLADDING

PERFORMANCE FEATURES



01.

The stiff claddings are very resistant to bending, making the whole structure mechanically strong.

02.

The system offers an excellent even surface which shows an elegant appearance that the visual effect of a metal curtain wall is fully displayed.

03.

Core materials are fully wrapped to guarantee durability.

04.

The system offers an excellent even surface which shows an elegant appearance that the visual effect of a metal curtain wall is fully displayed.

ILLUSTRATION FOR THE JOINT



Center Joints

TECHNICAL SPECIFICATIONS

Size	L < 15000mm500mm ≤ W ≤ 1200mm	
Thickness	50mm, 75mm, 80mm, 100mm, 150mm	
Skin thickness	Inner/Outer Steel Sheets: 0.4–0.6mm/0.6–0.8mm Inner/Outer Aluminum Sheets: 0.4–0.7mm/0.7–1.0mm	
Joint width	20mm	
Core material	Rock wool, PU and rock wool	PU and glass wool
Core material density	Rockwool: 120–140(Kg/m3)	Glass wool: 64(Kg/m3)
Flammability	Class A	



TABLE OF LOAD WITHOUT EXTRA SUPPORT AND THERMAL PERFORMANCE SPECIFICS FOR HW INDUSTRIAL BUILDING CURTAIN WALL CLADDING

Core material	Thickness (mm)	Type of support	Load(KN/m²)/rafter spacing(mm)						Panel weight	Thermal conductivity
			0.5	1.0	1.5	2.0	2.5	3.0		
Rock wool	50	Single-span /multi-span	5400	3713	2866	2332	1961	1689	16.35	0.76
	75		7216	5029	3923	3220	2727	2360	19.35	0.53
	80		7550	5269	4 116	3382	2866	2482	19.95	0.50
	100		8807	6169	4833	3981	3380	2932	22.35	0.40
	120		9956	6978	5470	4508	3830	3323	24.75	0.34
	150		11508	8044	6292	5176	4390	3805	28.35	0.27
PU+ Glass Wool	50	Single-span /multi-span	5522	3855	3013	2476	2099	1818	13.55	0.60
	75		7365	5204	4107	3404	2905	2530	15.15	0.41
	80		7704	5450	4307	3573	3052	2660	15.47	0.39
	100		8982	6375	5051	4200	3594	3138	16.75	0.31
	120		10152	7210	5716	4755	4071	3555	18.03	0.26
	150		11739	8317	6580	5464	4671	4074	19.95	0.21

Note: Calculations in the table are based on the following assumptions:
Rock wool of a density of 120Kg/m³, glass wool of a density of 64kg/m³, thickness of front sheet 0.6mm, thickness of the back sheet 0.5mm, deflection span ratio L/100.

IW ROCK WOOL COMPOSITE PANEL

PERFORMANCE FEATURES



- 01.**
The composite panels are 100% filled with rock wool for better thermal insulation.
- 02.**
Spaced reinforced beams are placed on the back of the panels for more strength and easier installation.
- 03.**
A unique design is added to the nail fixing point for better stability.
- 04.**
At the joints between panels, connectors and clamps are fitted for rigidity and stability.

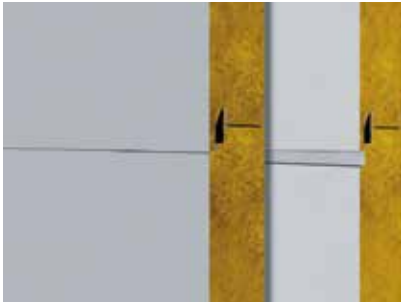
ILLUSTRATION FOR THE JOINT



Interlocking Joints



Center Joints



Decorative Joints

TECHNICAL SPECIFICATIONS

Size	L < 15000mm	500mm ≤ W ≤ 1200mm
Thickness	50mm, 75mm, 80mm, 100mm, 150mm	
Skin thickness	Inner/Outer Steel Sheets: 0.4–0.6mm/0.6–0.8mm Inner/Outer Aluminum Sheets: 0.4–0.7mm/0.7–1.0mm	
Joint width	0mm, 10mm, 15mm, 20mm, 25mm, 40mm	
Core material	Rock wool	
Core material density	Rockwool: 120–140(Kg/m3)	
Flammability	Class A	



TABLE OF LOAD WITHOUT EXTRA SUPPORT AND THERMAL PERFORMANCE SPECIFICS FOR IW ROCK WOOL COMPOSITE PANEL

Core material	Thickness (mm)	Type of support	Load(KN/m²)/rafter spacing(mm)						Panel weight	Thermal conductivity
			0.5	1.0	1.5	2.0	2.5	3.0		
Rock wool	50	Single-span /multi-span	5630	4202	3479	3008	2667	2402	16.16	0.76
	75		7441	5584	4646	4037	3594	3250	19.16	0.53
	100		9043	6801	5670	4935	4400	3985	22.16	0.40
	150		11835	8894	7408	6444	5742	5197	28.16	0.27

Note: Calculations in the table are based on the following assumptions:
Rock wool of a density of 120Kg/m³, glass wool of a density of 64kg/m³, thickness of front sheet 0.6mm, thickness of the back sheet 0.5mm, deflection span ratio L/100.

IW PU EDGE-SEALED COMPOSITE PANEL

PERFORMANCE FEATURES



- 01.**
Fire resistance:
Using non-combustible or flame-retardant core materials to meet various fire protection requirements.
- 02.**
Thermal insulation and energy saving:
High quality core materials are working in conjunction with specifically designed joints to minimize heat loss.

Sealing performance:
Ensuring the overall airtightness and watertightness of the entire wall through interlocking joints and sealed end connections.

- 03.**
Strong and durable:
Side sealing by using PU enhances the overall structural rigidity, facilitates installation, and increases moisture resistance.
- 04.**
Elegant and beautiful appearance:
Concealed fasteners and colorful panels bestow an attractive appearance to the building.

ILLUSTRATION FOR THE JOINT



Decorative Joints



Center Joints



Interlocking Joints



Knee Walls



Window Lintels / Window Sills

TECHNICAL SPECIFICATIONS

Size	L < 15000mm	500mm ≤ W ≤ 1200mm
Thickness	50mm, 75mm, 100mm, 150mm, 200mm, 250mm	
Skin thickness	Inner/Outer Steel Sheets: 0.4-0.6mm/0.5-0.8mm Inner/Outer Aluminum Sheets: 0.4-0.7mm/0.7-1.0mm	
Joint width	0mm, 10mm, 15mm, 20mm, 25mm, 40mm	
Core material	PU and glass wool	PU and rock wool
Core material density	Glass wool: 64(Kg/m3)	Rockwool: 120-140(Kg/m3)
Flammability	Class A	



TABLE OF LOAD WITHOUT EXTRA SUPPORT AND THERMAL PERFORMANCE SPECIFICS FOR IW PU EDGE-SEALED COMPOSITE PANEL

Core material	Thickness (mm)	Type of support	Load(KN/m²)/rafter spacing(mm)						Panel weight	Thermal conductivity
			0.5	1.0	1.5	2.0	2.5	3.0		
Rock wool	50	Single-span /multi-span	5400	3713	2866	2332	1961	1689	16.35	0.76
	75		7216	5029	3923	3220	2727	2360	19.35	0.53
	80		7550	5269	4 116	3382	2866	2482	19.95	0.50
	100		8807	6169	4833	3981	3380	2932	22.35	0.40
	120		9956	6978	5470	4508	3830	3323	24.75	0.34
	150		11508	8044	6292	5176	4390	3805	28.35	0.27
Glass wool	50	Single-span /multi-span	5522	3855	3013	2476	2099	1818	13.55	0.60
	75		7365	5204	4107	3404	2905	2530	15.15	0.41
	80		7704	5450	4307	3573	3052	2660	15.47	0.39
	100		8982	6375	5051	4200	3594	3138	16.75	0.31
	120		10152	7210	5716	4755	4071	3555	18.03	0.26
	150		11739	8317	6580	5464	4671	4074	19.95	0.21

Note: Calculations in the table are based on the following assumptions:
Rock wool of a density of 120Kg/m³, glass wool of a density of 64kg/m³, thickness of front sheet 0.6mm, thickness of the back sheet 0.5mm, deflection span ratio L/100.

IW PU EDGE-SEALED TONGUE AND GROOVE COMPOSITE PANEL

PERFORMANCE FEATURES

01.

Classic dovetail joints simple and fast installation.
02.

Simple shapes,high material utilization, cost-effective.
03.

A flexible selection for surface skin, highly adaptable.



ILLUSTRATION FOR THE JOINT



Interlocking Joints

TECHNICAL SPECIFICATIONS

Size	L < 15000mm	500mm ≤ W ≤ 1000mm
Thickness	50mm, 75mm, 80mm, 100mm, 150mm	
Skin thickness	Inner/Outer Steel Sheets: 0.4–0.6mm/0.5–0.8mm	
Joint width	0mm, 10mm, 15mm, 20mm, 25mm, 40mm	
Core material	PU and glass wool	PU and rock wool
Core material density	Glass wool: 64(Kg/m3)	Rockwool: 120–140(Kg/m3)
Flammability	Class A	



TABLE OF LOAD WITHOUT EXTRA SUPPORT AND THERMAL PERFORMANCE SPECIFICS FOR IW PU EDGE-SEALED TONGUE AND GROOVE COMPOSITE PANEL

Core material	Thickness (mm)	Type of support	Load(KN/m²)/rafter spacing(mm)						Panel weight	Thermal conductivity
			0.5	1.0	1.5	2.0	2.5	3.0		
Rock wool	50	Single-span /multi-span	5568	4158	3445	2982	2645	2383	15.35	0.76
	75		7357	5526	4601	4000	3563	3223	18.19	0.53
Glass wool	50	Single-span /multi-span	5462	4028	3299	2826	2482	2217	12.79	0.74
	75		7230	5368	4424	3810	3364	3018	14.35	0.52

Note: Calculations in the table are based on the following assumptions:
rock wool of a density of 120Kg/m³, glass wool of a density of 64kg/m³, thickness of front sheet 0.6mm, thickness of the back sheet 0.5mm, deflection span ratio L/100.

VW ROCK WOOL COMPOSITE PANEL

PERFORMANCE FEATURES

- 01.
A sloped bottom side is designed to have better water drainage.
- 02.
Pre-designed nail fixing groove for easier installation.
- 03.
For better water proof performance, V-shaped caps are specifically designed to be compatible with the seams and corners.
- 04.
With protruding corner covering pieces, nails are concealed inside.
- 05.
Compatible with multiple kinds of panels for various visual effects.



ILLUSTRATION FOR THE JOINT



External Corner Joints



Center Joints



Window Jambs

TW ROCK WOOL COMPOSITE PANEL

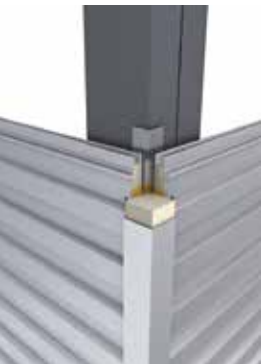
PERFORMANCE FEATURES

TW rock wool composite panel varies in structural design and surface pattern for a rich facade effect on the wall. It adopts an outward convex middle seam and corner covering components with insulation material filled inside for waterproofing as well as thermal insulation performance at those locations.

For decorative purposes, the color of the middle seam can be individually specified. It can also be used in conjunction with other products in the series to enrich the visual effect of the wall while ensuring corner compatibility.



LUSTRATION FOR THE JOINT



External Corner Joints



Center Joints



Window Jambs

EW INSULATION AND DECORATION INTEGRATED PANEL

PERFORMANCE FEATURES



01. Fire resistance:
Non-combustible or flame-retardant core materials are employed under building fire protection regulations. Other fire protection requirements also can be met.

02. Thermal insulation and energy-saving:
Thanks to its superior thermal insulation performance, a 75% required energy reduction level is obtained thereby creating a more comfortable living space.

03. Sealing performance:
Ensuring the overall airtightness and watertightness of the entire wall through interlocking joints and sealed end connections.

04. Wind resistance:
With a special joint design, the composite panel has an excellent resistance to deformation and wind.

Built tough:
Side sealing by using PU enhances the overall structural rigidity, facilitates installation, and increases moisture resistance.

Elegant and beautiful appearance:
Decorative seams enhance the layering of the wall surface by providing various visual effects through either single colors or prints, or embossing.

Easy installation:
Its light weightiness is friendly to installation and no construction wastes are produced. Wall surface leveling would be unnecessary.

ILLUSTRATION FOR THE JOINT



Interlocking with Framing



Interlocking without Framing

TECHNICAL SPECIFICATIONS

Size	L < 15000mm		350mm ≤ W ≤ 500mm
Thickness	50mm, 75mm, 100mm		
Skin thickness	Inner/Outer Steel Sheets: 0.4–0.6mm/0.5–0.8mm Outer Aluminum Sheets: 0.5–0.8mm		
Joint width	0mm, 15mm		
Core material	PU and glass wool	PU and rock wool	
Core material density	Glass wool: 64(Kg/m3)	Rockwool: 120–140(Kg/m3)	
Flammability	Class A		



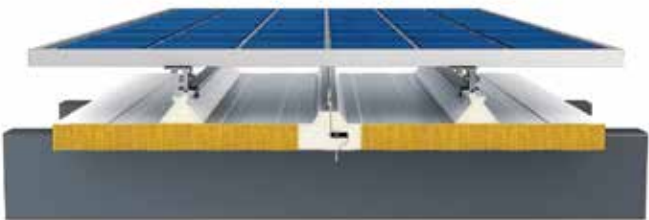
TABLE OF LOAD WITHOUT EXTRA SUPPORT AND THERMAL PERFORMANCE SPECIFICS FOR EW INSULATION AND DECORATION INTEGRATED PANEL

Core material	Thickness (mm)	Type of support	Load(KN/m²)/rafter spacing(mm)						Panel weight	Thermal conductivity
			0.5	1.0	1.5	2.0	2.5	3.0		
Rock wool	50	Single-span /multi-span	5554	4149	3438	2976	2640	2379	15.44	0.76
	75		7339	5513	4591	3992	3556	3218	18.35	0.53
	80		7669	5764	4803	4178	3724	3371	18.93	0.50
	100		8919	6714	5601	4878	4353	3945	21.26	0.40
Glass wool	50	Single-span /multi-span	5448	4019	3293	2821	2478	2214	12.78	0.74
	75		7212	5356	4414	3802	3358	3013	14.36	0.52
	80		7538	5602	4620	3982	3519	3159	14.68	0.49
	100		8771	6530	5394	4656	4120	3704	15.94	0.39

Note: Calculations in the table are based on the following assumptions:
Rock wool of a density of 120Kg/m³, glass wool of a density of 64kg/m³, thickness of front sheet 0.6mm, thickness of the back sheet 0.5mm, deflection span ratio L/100.

PVR1000 PHOTOVOLTAIC METAL THERMAL INSULATED ROOFING SYSTEM

PERFORMANCE FEATURES



01.
Adjacent edges are vertically rolled by 360°to form an interlocked seam

Edges are double-folded to lock the roof together as a unified whole and the seam is concealed, as a result, the product has good water tightness and wind resistance. Seams are automatically locked by the machine, so the installation process is easy. Capillary action is avoided by a specially designed structure and the whole system is perfectly sealed.

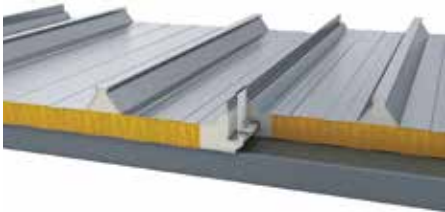
02.
High strength

In addition to reinforced beams on both sides, there are 3 ridges on the sheets to give the roof more load capacity. Metal roof panels are connected to purlins through brackets, and a unique concealed bracket structure enhances installation strength without the need to penetrate the roof surface. This design effectively absorbs the loads of wind, frost, rain, snow, and vacuum pressure for reliable safety.

03.
Safe to use

Those ridges on the panel are designed such that connecting clamps can be easily fitted. Depending on what type of facility is needed, either solar modules or snow guards, or hurricane protection devices can be mounted onto the clamps. Those installations do not require surface penetration therefore roof integrity and concealment remain uncompromised. The roof system is effectively wired to the overall lightning protection system to make sure lightning electric current is guided to the ground to prevent it from penetrating the metal roof and entering the building. This effectively eliminates problems related to lightning damage and static electricity buildup.

ILLUSTRATION FOR THE JOINT



TECHNICAL SPECIFICATIONS

Size	L < 15000mm	W 1000mm
Thickness	50mm, 60mm, 75mm, 80mm, 100mm,150mm (other customized)	
Surface pattern	3 Ridges	
Skin thickness	Inner/Outer Steel Sheets: 0.4–0.6mm/0.5–0.7mm	
Type of joint	Adjacent edges are vertically rolled by 360°to form an interlocked seam	
Core material	PU and glass wool	PU and rock wool
Core material density	Glass wool: 64(Kg/m3)	Rockwool: 100–140(Kg/m3)
Flammability	Class A	

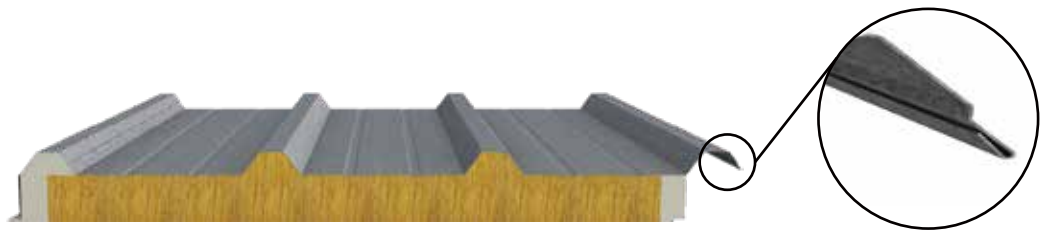
TABLE OF LOAD WITHOUT EXTRA SUPPORT AND THERMAL PERFORMANCE SPECIFICS FOR PVR1000 PHOTOVOLTAIC METAL THERMAL INSULATED ROOF SYSTEM

Core material	Thickness (mm)	Type of support	Load(KN/m²)/rafter spacing(mm)						Panel weight	Thermal conductivity
			0.5	1.0	1.5	2.0	2.5	3.0		
Rock wool	50	Single-span /multi-span	5825	4403	3688	3223	2886	2623	16.62	0.76
	75		7259	5450	4537	3944	3512	3177	19.47	0.53
	80		7528	5647	4696	4079	3629	3281	20.03	0.50
	100		8561	6403	5311	4602	4085	3685	22.31	0.40
	120		9545	7129	5906	5111	4533	4085	24.58	0.34
	150		10967	8195	6793	5882	5219	4705	27.99	0.27
Glass wool	50	Single-span /multi-span	5736	4293	3563	3089	2744	2476	14.06	0.74
	75		7133	5294	4362	3756	3315	2974	15.62	0.52
	80		7394	5482	4511	3880	3422	3068	15.93	0.49
	100		8402	6206	5091	4366	3840	3434	17.18	0.39
	120		9364	6905	5656	4844	4255	3800	18.43	0.33
	150		10760	7940	6508	5577	4901	4380	20.30	0.27

Note: Calculations in the table are based on the following assumptions:
Rock wool of a density of 120Kg/m³, glass wool of a density of 64kg/m³, thickness of front sheet 0.6mm, thickness of the back sheet 0.5mm, deflection span ratio L/150.

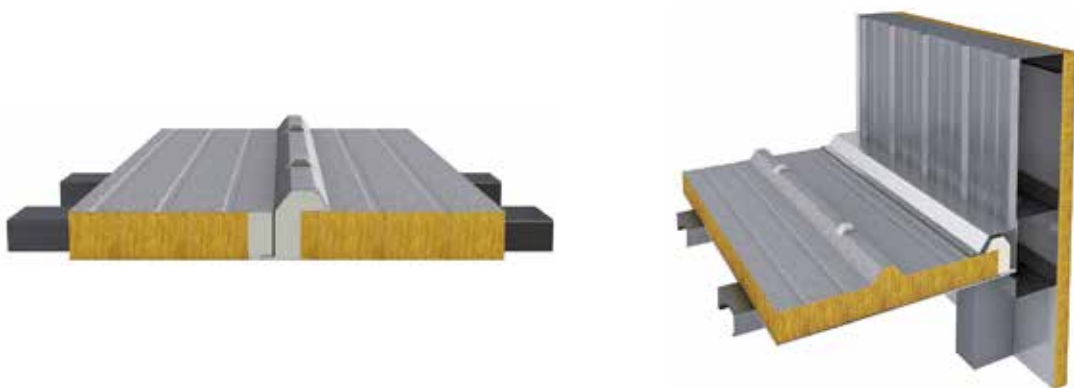
SR1000 METAL THERMAL INSULATED ROOF SYSTEM

PERFORMANCE FEATURES



- 01.**
Thermal insulation and waterproofing are in one
- 02.**
The tall ridges not only strengthen the load-bearing capacity of the panels but also, to a certain extent, evenly guide water flow.
- 03.**
The overlapping and folding process at the female port ensures a tighter connection and prevents rusting on the edges, thus a prolonged lifespan of the system.
- 04.**
The core material, filled with rock wool (with PU side-sealing) or glass wool (with PU side-sealing) along the edges, enhances the strength of the panels, ensuring their flatness and tight joints, while also facilitating installation.
- 05.**
The straightforward overlapping design simplifies installation and improves construction efficiency.

ILLUSTRATION FOR THE JOINT



TECHNICAL SPECIFICATIONS

Size	L < 15000mm	W 1000mm
Thickness	50mm, 75mm, 100mm,150mm (other customized)	
Surface pattern	3 Ridges	
Skin thickness	Inner/Outer Steel Sheets: 0.4~0.6mm/0.5~0.7mm	
Type of joint	Overlap joint	
Core material	PU and glass wool	PU and rock wool
Core material density	Glass wool: 64(Kg/m3)	Rockwool: 100~140(Kg/m3)
Flammability	Class A	

TABLE OF LOAD WITHOUT EXTRA SUPPORT AND THERMAL PERFORMANCE SPECIFICS FOR SR1000 METAL THERMAL INSULATED ROOF SYSTEM

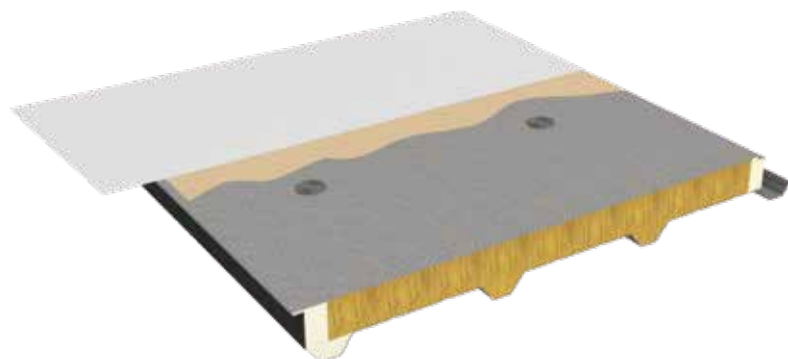
Core material	Thickness (mm)	Type of support	Load(KN/m²)/rafter spacing(mm)						Panel weight	Thermal conductivity
			0.5	1.0	1.5	2.0	2.5	3.0		
Rock wool	50	Single-span /multi-span	5768	4133	3301	2764	2380	2088	16.43	0.76
	75		7172	5066	3997	3312	2826	2461	19.43	0.53
	80		7334	5240	4127	3415	2910	2532	20.03	0.50
	100		8444	5916	4635	3819	3243	2813	22.43	0.40
	120		9417	6579	5143	4 229	3586	3107	24.83	0.34
Glass wool	150	Single-span /multi-span	10858	7596	5945	4893	4152	3600	28.43	0.27
	50		5862	4246	34 24	2891	2507	2213	13.63	0.60
	75		7304	5223	4165	3483	2995	2625	15.23	0.41
	80		7573	5406	4304	3594	3086	2702	15.55	0.39
	100		8611	6113	4844	4029	3448	3010	16.83	0.31
PUR/ PIR	120	Single-span /multi-span	9607	6803	5380	4466	3817	3328	18.11	0.26
	150		11075	7852	6216	5165	4417	3854	20.03	0.21
PUR/ PIR	50	Single-span /multi-span	5892	4282	3463	2932	2549	2255	12.43	0.43

Note: Calculations in the table are based on the following assumptions:
Rock wool of a density of 120Kg/m³, glass wool of a density of 64kg/m³, thickness of front sheet 0.6mm, thickness of the back sheet 0.5mm, deflection span ratio L/150.

SR1000 FLEXIBLE ROOF SYSTEM

PERFORMANCE FEATURES

SR1000 flexible roofing system is suitable for architectures with large spans, unique shapes, and high waterproofing requirements in their steel structure roofs, such as industrial plants, airports, logistics centers, sports arenas, exhibition halls, and train stations.



01.
Lightweight and easy installation

02.
Quick installation and excellent waterproof performance

04.
Wind-resistant

05.
Strong load-bearing capacity



PVMR1025 SOLAR ROOF

PERFORMANCE FEATURES



- 01.**
Solar modules can be fixed either by adhesive bonding or clamps.

02.
Horizontal reinforced beams rather than vertical ones are used for better wind resistance.

03.
Water gutters are designed on both ends to extend the adhesive failure time.
- 04.**
Comparatively higher utilization.

05.
Wind resistance is further enhanced by central supporting brackets which are easy to be installed.

LIST OF COMPONENTS

- Roofing profiled sheet

Aluminum clipping strip

Ridge cap
- Mounting bracket

Ridge back sheet

Cornice cap
- Central supporting bracket

Side supporting bracket

Connecting back sheet

TECHNICAL SPECIFICATIONS

Effective width (mm)	Width at full expansion (mm)	Utilization	Thickness (mm)	Weight per square meter (kg/m²)	Sectional moment of inertia (cm⁴/m)	Section Modulus (cm³/m)	
						Wx1	Wx2
1025	1025	82%	0.6	5.74	27.61	22.05	4.80
			0.7	6.70	32.12	25.58	5.57
			0.8	7.66	36.63	29.08	6.35

TABLE OF LOAD WITHOUT EXTRA SUPPORT AND THERMAL PERFORMANCE SPECIFICS FOR PVMR1025 SHEET SYSTEM UNSUPPORTED SPAN SELECTION TABLE

Thickness (mm)	Yield strength (N/mm ²)	Supporting condition	Load direction	Load(KN/m ²)/rafter spacing(mm)					
				0.5	1.0	1.5	2.0	2.5	3.0
0.6	345	Multi-span	External force	3409	2866	2340	2026	1812	1654
			Internal force	2892	2296	2005	1822	1691	1592
0.7			External force	3625	3048	2526	2188	1957	1786
			Internal force	3039	2412	2107	1915	1777	1673
0.8			External force	3746	3150	2699	2337	2090	1908
			Internal force	3175	2520	2202	2000	1857	1747

Note: strength is calculated under both positive and negative pressure conditions, whereas deflection span is only considered for positive pressures. The selected deflection-span ratio is L/150.

MR468 METAL PREFABRICATED ROOF SYSTEM

PERFORMANCE FEATURES



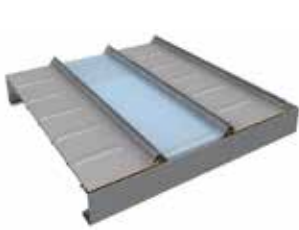
- 01.**
Hidden mounting brackets, no screw penetration on the surface.
- 02.**
Roof panels, fasteners, and other accessories are pre-punched for accurate alignment and neat finishing.
- 03.**
The bracket features a sliding structure, which allows a slight movement caused by thermal expansion and contraction of the metal panel after engagement, thereby preventing structural damage caused by stress buildup that cannot be released.

- 04.**
The panel features vertical ridges on one side and corresponding grooves on the other for engagement. Ridges are 70mm tall, which gives it a good drainage ability and our adhesive equipment can provide pre-applied sealing adhesive for joints to prevent leakage under any harsh weather conditions.
- 05.**
Experienced engineers working with equipment that is safely transported in crates to guarantee reliable on-site installation.

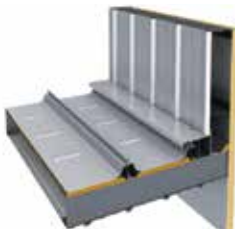
ILLUSTRATION FOR THE JOINT



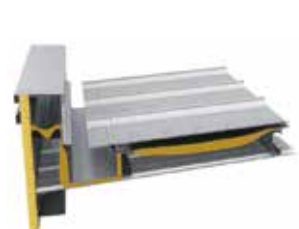
Lapping Methods



Daylighting Strips



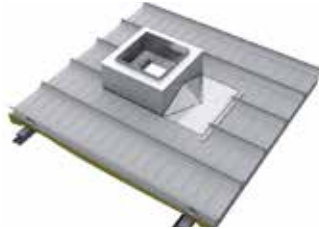
Gable Ends



Gutters



Ridge



Roof Openings

TECHNICAL SPECIFICATIONS

Effective width (mm)	Width at full expansion (mm)	Utilization	Thickness (mm)	Weight per square meter (kg/m²)	Sectional moment of inertia (cm⁴/m)	Section Modulus (cm³/m)
						Wx1
468	600	78%	0.5	5.03	34.91	21.67
			0.6	6.04	41.82	25.90
			0.7	7.04	48.74	30.11

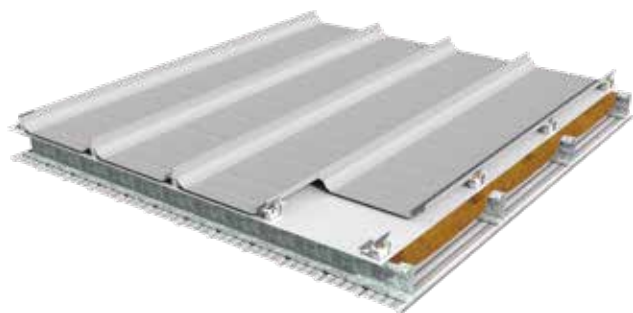
TABLE OF LOAD WITHOUT EXTRA SUPPORT AND THERMAL PERFORMANCE SPECIFICS FOR MR468 PREFABRICATED ROOF SYSTEM

Thickness (mm)	Yield strength (N/mm2)	Supporting condition	Load direction	Load(KN/m2)/rafter spacing(mm)					
				0.5	1.0	1.5	2.0	2.5	3.0
0.5	345	Multi-span	External force	3701	2785	2274	1969	1761	1608
			Internal force	3196	2536	2216	1969	1761	1608
0.6			External force	3872	3052	2492	2158	1930	1762
			Internal force	3394	2694	2353	2138	1930	1762
0.7			External force	4023	3294	2690	2329	2083	1902
			Internal force	3571	2835	2476	2250	2083	1902

Note: strength is calculated under both positive and negative pressure conditions, whereas deflection span is only considered for positive pressures. The selected deflection-span ratio is L/150.

GF228 ROOFING SYSTEM

PERFORMANCE FEATURES



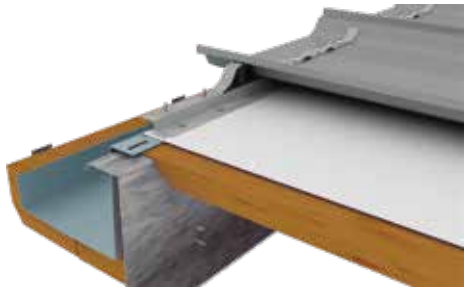
- 01. 360°, 450°, and 540° lockseam adaptability for global climate scenarios, delivering ultra-high wind uplift resistance.
- 02. Fixed-width technology, pre-cutting processes, and systematic sliding design.

- 03. Pittsburgh lock seam + dual pre-applied sealant technology ensures extreme water and air tightness.
- 04. Modular customization, anti-dust accumulation design, penetration-free accessories, and deep compatibility.

ILLUSTRATION FOR THE JOINT



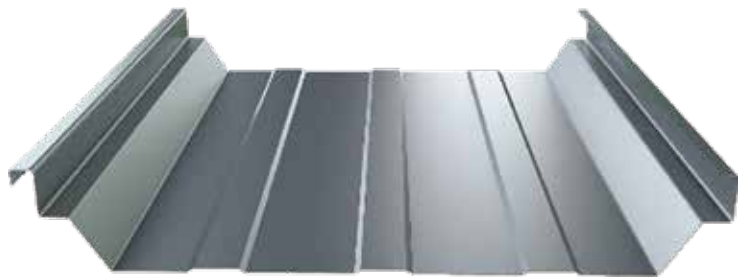
540° Standing Seam



Gutter & Eave

470 STAINLESS STEEL ROOFING SYSTEM

PERFORMANCE FEATURES



- 01. Suitable stainless steel material can be selected based on environmental and architectural requirements.
- 02. High-rib continuous welding ensures integrated joints and exceptional waterproofing performance.
- 03. Welded strong connections + high-strength bracket design achieve wind uplift resistance ≥ 19.6 kPa.
- 04. Breakthroughs in drainage, corrosion resistance, and thermal expansion adaptability, combined with ultra-long service life and cost-effectiveness.



CASES



Haier (Tianjin) Industrial Park



Chongqing Zonsen High Tech Industrial Park



CASES



Creative Energy Valley



Jinan International Standard Land Investment Industrial Park



South China Sea Resources Center, Ocean University of China



Shandong Xinhua Medical Instrument Co.,Ltd.



Shandong Fuding Industrial Park

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