

პანექსი



PANEX

# Roof and wall sandwich panels



პანელქსი



PANELX

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# About company

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Panex is the first and only Georgian company that produces polyurethane sandwich panels, which was founded in 2015, established itself in the market with high quality and standards of work in a short time, and it can be safely said that today it is the leader in the field.

At the beginning of 2022, Panex underwent fundamental changes, renewed the production line, invested in the development of the production line, which took the factory to a new, much higher level.

In 2024, the enterprise was equipped with the latest and most modern Italian equipment, which made it possible to improve the quality of sandwich panels and fully comply with European standards.

Production of construction industrial materials in Panex is carried out according to European standards (EN standard 14509), in particular with Italian technology. However, Panex is periodically visited by foreign experts who evaluate production, introduce innovations and help improve quality. The company produces wall and roof sandwich panels, refrigerator doors, accessories, silicon curtains and corrugated sheets.

## What do we produce

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- Wall sandwich panel
- Polyurethane refrigerator (isothermal) door
- Roof sandwich panel
- Accessories
- Corrugated metal sheet
- Silicon curtain

## What is it used for?

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Sandwich panels are an innovative technological achievement in the modern construction industry. It is light, budget, fire and moisture resistant material. It is characterized by high thermal insulation and sound insulation coefficients. Therefore, it is not surprising that wall and roof sandwich panels are increasingly used for the construction of warehouse and commercial buildings, as well as for increasing their thermal insulation.

The sandwich panel is eco-friendly and the only building material that can be easily disassembled, transported and reassembled.

# Technical information properties and drawings

## Top layer

Painted galvanized metal sheet

## Main material

Polyurethane (PUR)

## Bottom layer

Painted galvanized metal sheet

## Structure

Wall panel with vertical stripes.  
Roof panel with vertical stripes,  
with trapezoidal corrugation

## Standard color

Light gray (RAL 9002). Other colors  
available on request

## Width - Length - Polyurethane thickness

Width 1000 mm - Length Max. 16-17m 16-17Ø Polyurethane  
thickness 40mm/50mm/80mm/100mm/120mm/150m

## Metal thickness

Inner/Top - Standard - 0.40mm (from 0.3mm to 0.5mm upon  
request) External/Top - Standard 0.40mm (from 0.3mm to  
0.5mm upon request)

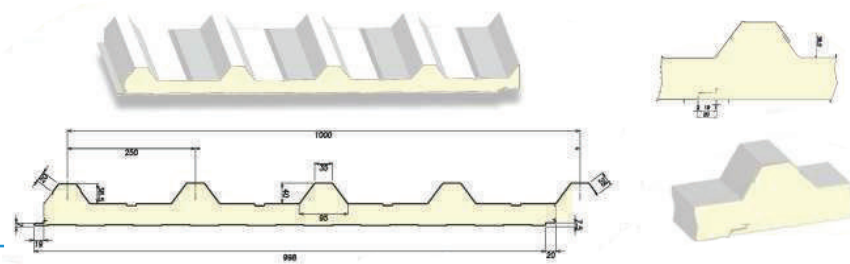
## Polyurethane density

38 (+2) kg/m<sup>3</sup>

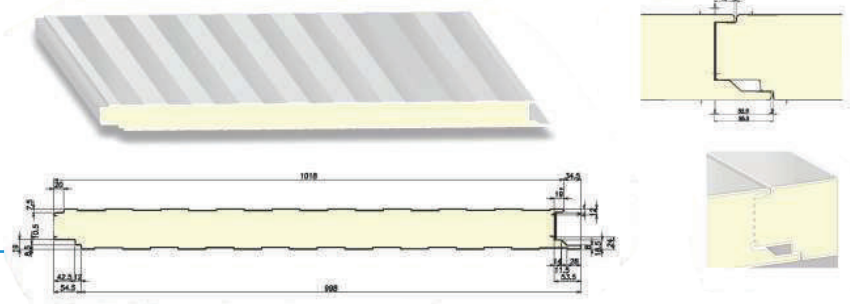
## Fire resistance category

B2

## Roof panel



## Wall panel



# ADVANTAGES OVER OTHER MATERIALS

Thermal  
insulation



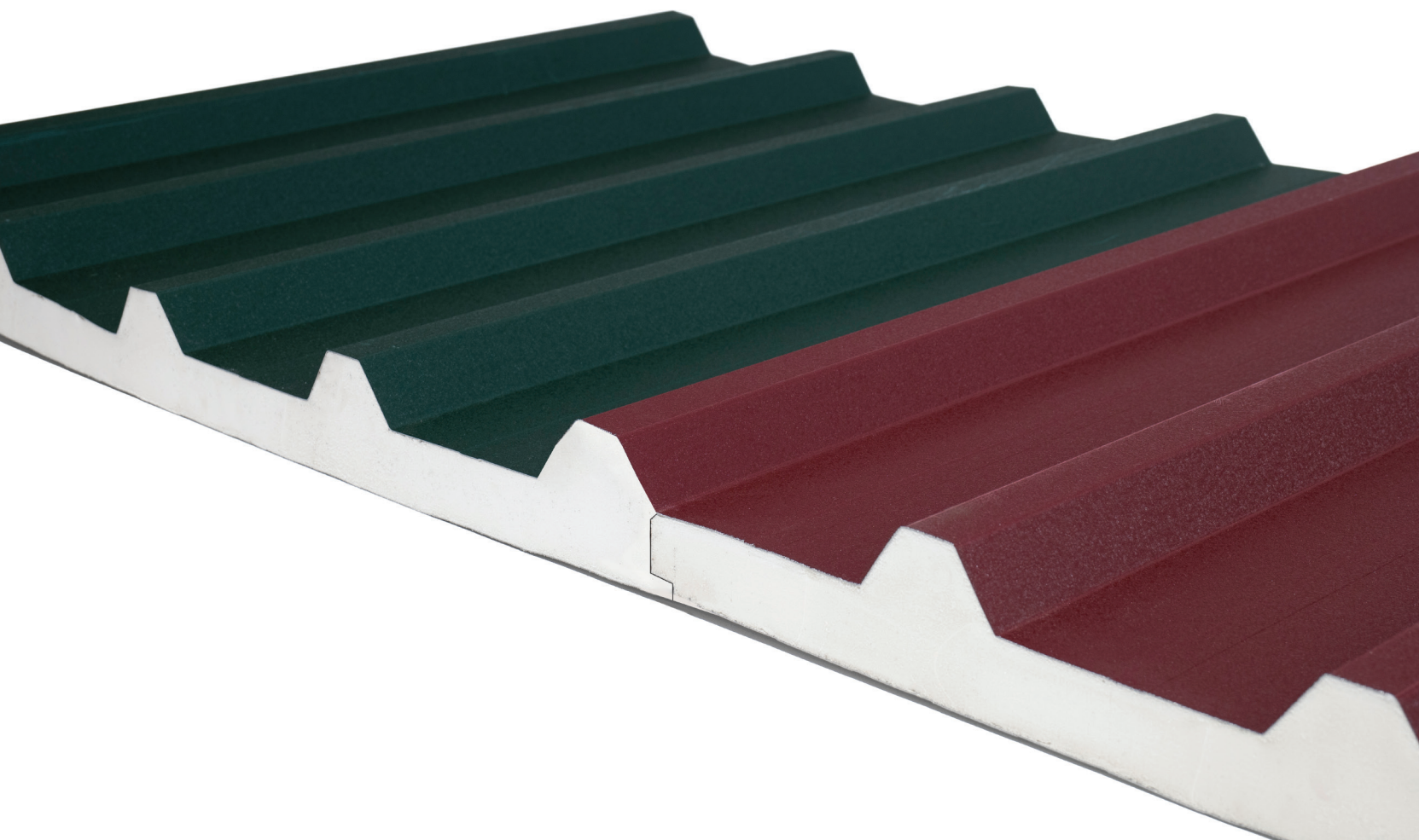
Fire  
resistance



Lightness of  
construction



Moisture  
resistance



Eco - friendly



Flexibility/simplicity / speed  
of erection of the structure



Lightness of  
construction



Economy



## Wall and roof sandwich panels

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High thermal insulation, fire, load, moisture resistance, the ability to build the structure easily, quickly and on a budget - this is a small list of the advantages of Panex sandwich panels.

Polyurethane sandwich panels are divided into 2 types according to purpose: wall sandwich panel and roof sandwich panel.

Panex wall sandwich panels are a reliable, multi-layer construction, the upper layer of which is painted galvanized metal sheets, the main material is solid polyurethane foam, and the lower layer is a metal sheet with a protective layer.

Roof sandwich panels (5 rib - 4 cm high) produced by Panex are the best material for roofing of such types of trade, commercial and public buildings as: shopping centers, industrial buildings, warehouses, sports halls, storage rooms, garages, booths, cold storages and others.

We produce panels that are perfectly fixed during installation, the walls hold tightly together and mounting bolts are totally invisible.



# Sound insulation

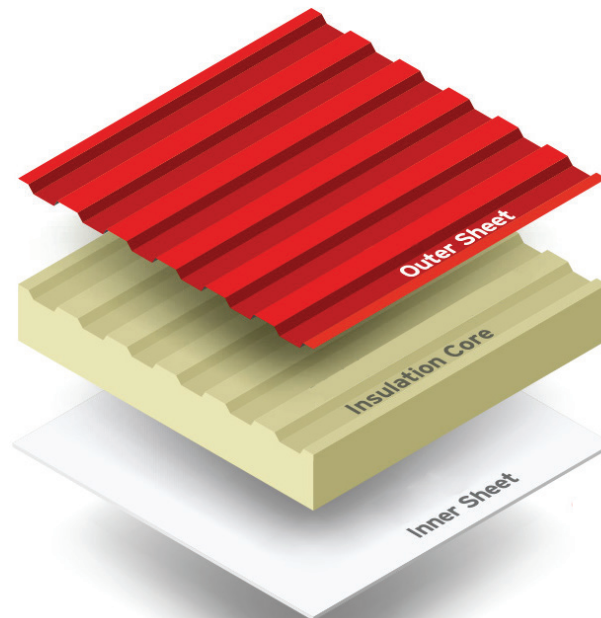
At the stage of projection in roof and wall coverings, the determination of sound insulation is carried out through the calculation of parameters. Part of the waves falling on the surface will be reflected. Part is inspired. Some will pass through it. Relative noise levels depend on surface shape, sound absorption by the material, and sound frequency.

## LOSSES IN SOUND TRANSMISSION DEPENDING ON THE FREQUENCY

PUR kal	Frequencies (hertz)																	
	125	160	200	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000
50 mm	7.3	9.3	11.7	11.4	12.3	13.3	14.4	14.7	15.9	15.3	11.5	11.8	23.4	29.2	32.4	29.8	32.5	36.9
60 mm	8.1	22.1	14.2	13	13.9	13.8	14.6	15.3	16	15.3	13	18.3	24.2	29.2	32.5	29.8	32.5	36.9

## CHANGES IN THE SOUND ABSORPTION COEFFICIENT DEPENDING ON THE FREQUENCY

PUR kal	Frequencies (hertz)											
	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
50 mm	0.08	0.11	0.22	0.2	0.05	0.59	0.09	0.11	0.04	0.07	0.18	0.07
60 mm	0.14	0.21	0.25	0.25	0.06	0.69	0.12	0.12	0.22	0.08	0.2	0.11







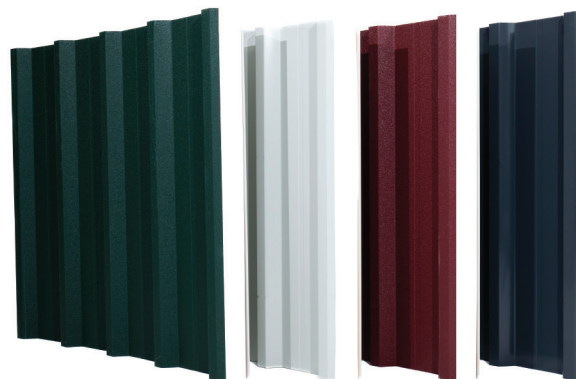
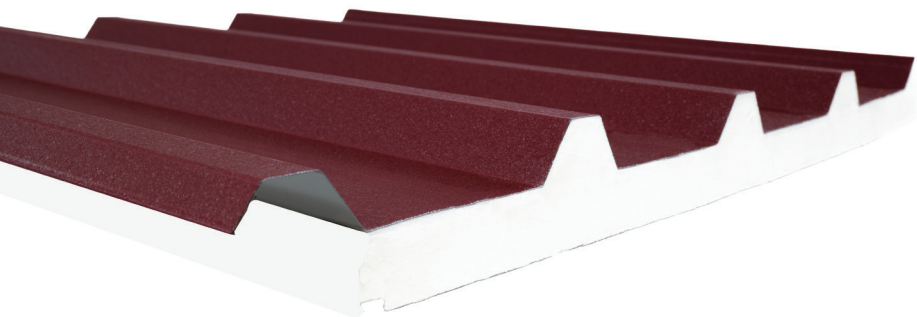
## Fire resistance

NAME	PUR/PIR
IGNITION TEMPERATURE ©	285-310
BURNING TIME INDICATOR (STANDART B2)	GOOD

All standards and test methods are performed using small mock-ups of walls and roofs. This is defined in detail by TS EN 14509 standards. Materials are classified into categories A1 to F. PUR and PIR materials are effective against fire.

Thanks to the correctly composed chemical formula of polyurethane foam.

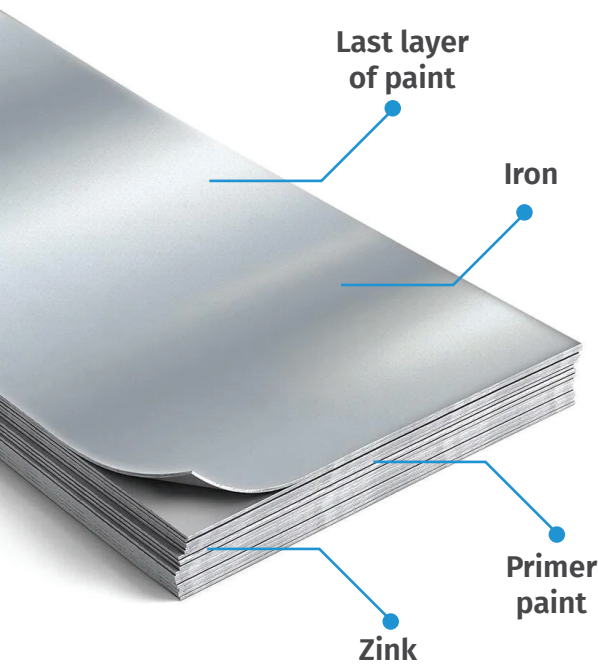
Chemical additives prevent fire and provide high fire resistance of products. By selecting the necessary raw materials, the foaming process, fire retardants and the content of infographic compounds, a variety of fire-resistant products are obtained.



### SANDWICH PANEL FEATURES

Name	Technical indicator	Standard
Density	40 (+2) kg/m <sup>3</sup>	EN 1602
Coefficient of thermal conductivity	1.721 $\vartheta$ C/W 5.17 $\vartheta$ C/W	EN 14509
Application temp limits (° C)	-200/+110 (° C)	
Name	Bending characteristics	
Sandwich panel 50 mm	1.86 mpa	EN 14509
Sandwich panel 80 mm	1.72 mpa	EN 14509
Sandwich panel 150 mm	586 mpa	EN 14509
Application temp limits (° C)	-60/+80 (° C)	

# Characteristic of painted galvanized sheet iron



In the production of sandwich panels, the Panex company uses painted galvanized sheet iron rolls that comply with ECCA (European Roll Coating Association) standards.

One of the most important components that determines the quality of finished sandwich panels is steel. Galvanized metal itself is quite strong, although it is vulnerable to atmospheric influences. Therefore, to increase the durability of the material and protect it from environmental factors, a polymer coating is used to cover the metal plate.

The metal coating of the sandwich panel consists of galvanized sheet iron and an organic coating. The iron plate is covered with zinc, which in turn is covered with the final layers of primer and paint. Zinc coating is 100g/m<sup>2</sup>. Zinc coated steel is resistant to corrosion and rust. It maintains its original appearance for many years and does not require repair.

The thickness tolerance of the all-metal coating is 0.30 to 0.60 mm, and the elongation is 38-42%. The type of paint used by "Panex" combines polyester, PVDF, plastisol, PV and others.

NAME	TECHNICAL INDICATOR	STANDARD
Sheet metal stamp	DX51D + Z / DX51D + Z100	EN 10346
Thickness tolerance (mm)	0.30 ၀၀-၀၁၆ 0.55 ၀၀-၀၅၅	EN 10346
Elongation	38% - 42%	EN 10346
Paint coating (g/m <sup>2</sup> )	120/275	EN 10346
Paint type	polyester; PVDF plastisol; PV and other	EN 10346
RE (N/mm <sup>2</sup> )	274	EN 10346
RM (N/mm <sup>2</sup> )	363	EN 10346
%C - carbon	0.0397	EN 10346
%Si - silicium	0.001	EN 10346
%S - sulfur	0.0035	EN 10346
%P - phosphorus	0.0064	EN 10346
%Mn - manganese	0.201	EN 10346
Oil coating (gr/m <sup>2</sup> )	1	EN 10346
Zinc coating (gr/m <sup>2</sup> )	100	EN 10346

# Characteristic of rigid polyurethane foam



Polyurethane foam has the best thermal insulation properties, does not absorb water and has antibacterial properties. When the ambient temperature changes, the foam does not change shape and remains homogeneous.

Polyurethane foam is one of the most reliable thermal insulators because it has a low thermal conductivity coefficient (0.021 W/mK). Density of polyurethane foam 38 ( $\pm 2$ ) kg/m<sup>3</sup>, fire resistance category: B2.

A sandwich panel of the required thickness can be freely used in a temperature range of up to -200/+110 (°C), making it ideal for refrigerators and freezers.

NAME	TECHNICAL INDICATOR	STANDARD
Coefficient of thermal conductivity	0.022 W/mk	EN 13165
Percentage of closed cells	95%	EN 14509
Breaking load	0.018 Mpa	EN 14509
Dimensional stability	Level DS(TH)11	EN 13165
Water absorption (% by volume)	%2 (168 hours)	Manufacturer`s method
Rate of use. Limits (° C)	-200 / 100 (° C)	

THE VALUE OF THERMAL CONDUCTIVITY		
Panel thickness	Thermal conductivity U (kcal/m <sup>2</sup> ) wall sandwich panel	Thermal conductivity U (kcal/m <sup>2</sup> ) roof sandwich panel
40 mm	0.4973	0.4276
50 mm	0.4056	0.3488
60 mm	0.3424	0.2944
80 mm	0.2611	0.2245
100 mm	0.2110	0.1814
120 mm	0.1771	0.1522
150 mm	0.1426	0.1226

# Polyurethane refrigerator (isothermal) door

The refrigerator (isothermal) door is designed for cold rooms, warehouses, the Horeca sector, distribution and general storage of frozen products in a commercial environment. In order to perform the task assigned to it perfectly, the refrigerator doors must be characterized by thermal insulation, airtightness and high quality. Panex refrigerator doors meet the above requirements and are ideal for your cold storage, they are characterized by high quality, durability and require minimal maintenance.

Long service life

High tightness

Reliable design

Safety

Ease of operation



According to the purpose, the isothermal door is distinguished as follows - a door for plus refrigerators and minus for refrigerators or freezers. Their main distinguishing factor is the heating function.

Minus refrigerator or freezer door has the function of heating the frame, through which ice does not accumulate in the opening, which makes it easier to open the door when necessary.

Panex uses a foam panel for the refrigerator door, which makes the door fire resistant, which means that the refrigerator door manufactured by Panex is fireproof.

It should be noted that Panex allows you to order refrigerator doors on both rollers and hinges, the company produces refrigerator doors tailored to your wishes and needs.

High quality, thermal insulation, airtightness, desired shape and design - this is the list of advantages that Panex offers to any customer.

## Silicone curtain

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Silicone curtains are 20 cm wide silicone material tapes, which are used on the openings of refrigerator rooms or such types of storage rooms, where it is necessary to maintain the current temperature.

Through it, you avoid a significant change in the temperature regime, even when the door is open, and this in turn reduces space heating - air conditioning costs by 25-50 percent. It is also used to wrap a room with a high radiation limit, as it can contain the spread of radiation.

The silicone curtain is placed on its own solid support, is elastic and easily returns to its original position during movement.

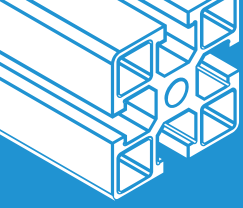


The temperature curtain is used both in minus and plus refrigerators, as well as for openings in shock freezing and cooling rooms.

Panex makes silicone curtains with frost-resistant material, the width of which is 20 cm, and the thickness is 2, 3, 4 mm. It is better if you choose the width, thickness and overlap level of the curtain depending on the purpose, purpose and height of the curtain.

The working temperature range of the silicone curtain varies from - 40 degrees to +15 degrees. Transparent and flexible silicone films are ideal for maintaining the temperature regime even if the door is opened and closed frequently, or when you want to separate the building/room from the rest of the space. For similar situations, standard silicone curtain tapes, whose working temperature range is from -5 degrees to +50 degrees, are ideal.

Panex offers the production of a silicone curtain tailored to your requirements in a short time, with a guarantee of high quality and durability.

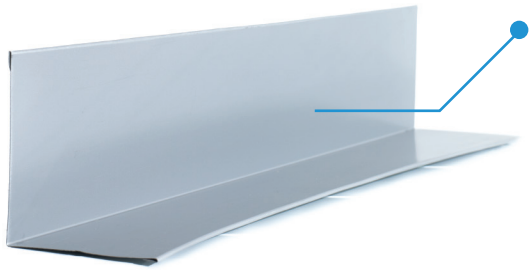


# Accessories

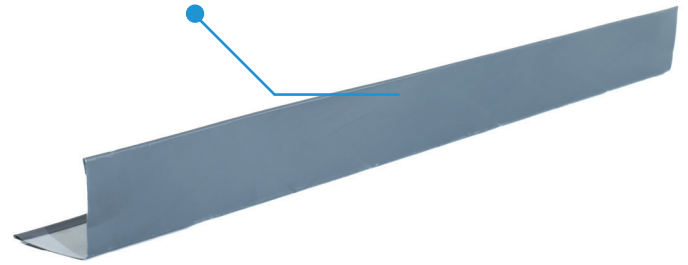
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We offer a wide range of special accessories for sandwich panels. Their sizes and numbers depend on the volume and requirements of a specific sandwich panel.

**outer corner**



**inner corner**



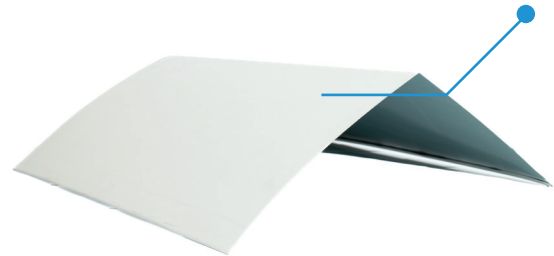
**Z profile**



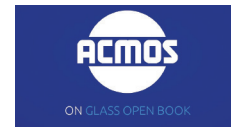
**U profile**



**hump**



# International suppliers



# Partners



# Projects

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**ASKANELI**



**COCA-COLA**



**WINE FACTORY**



**GEORGIAN - AMERICAN SCHOOL**



**ITMC LOGISTIC**



**TBILTARA**



**MERCEDES**



**NEW BRIDGE LILO**





**ANIGOZI**



**BREADFIELD**



**CANNING FACTORY**



**LIVESTOCK FARM**



**COLD STORAGE**



**MC MOTORS WINE FACTORY**



**DASTA**



**ATC**