



# Roof Sandwich Panels

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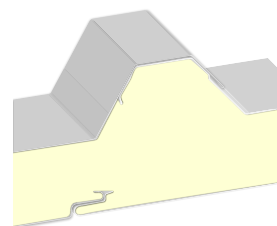
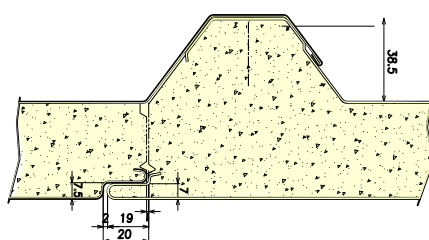
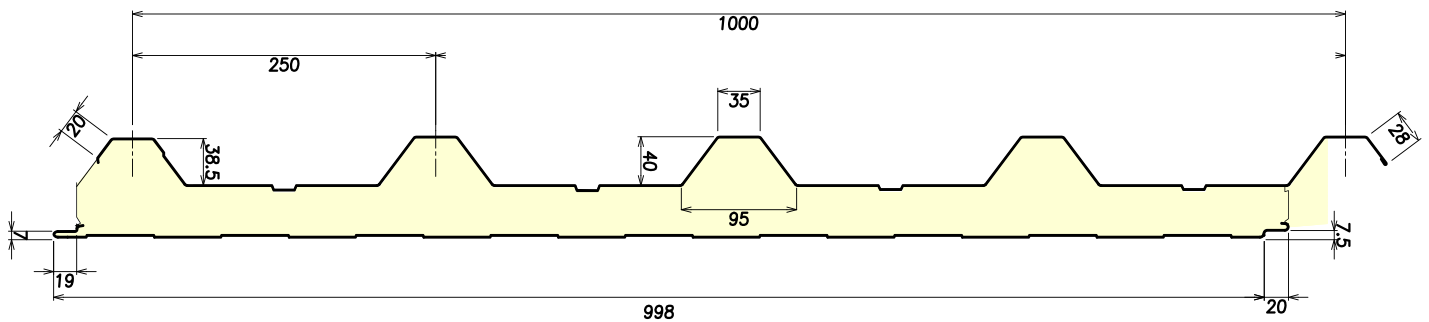
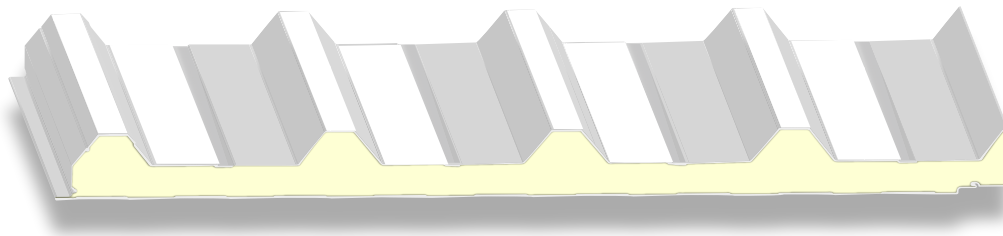
5 Ribs Roof sandwich panels are great construction materials for all types of buildings, including leisure, hospitals, industrial, retail, commercial, equipment storage, garages, boxes, cold and freeze stores houses and for thermal insulating packing for existing buildings.

#### Advantages of PU Sandwich Panels:

- Strong heat isolation
- High level of fire resistance
- High density
- Weather resistance
- Design flexibility/simplicity
- Easy superficial cleaning
- Construction lightness (building opportunity without the foundation in several cases)
- Materials multiple usage ability
- Stands out for economy of construction (does not need additional repair working)

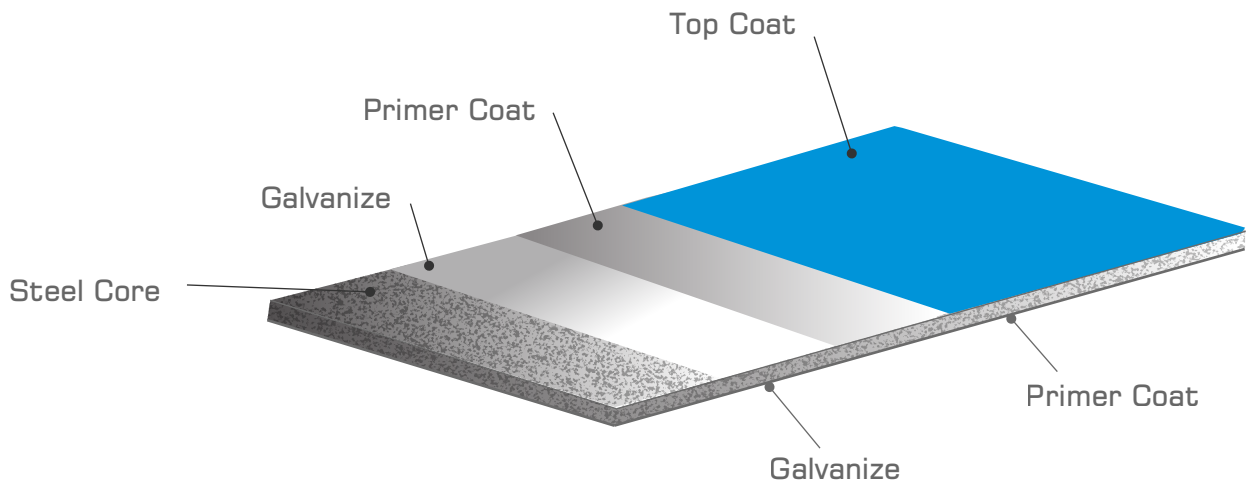
- Applications: For roofs
- Upper side cover material: Prepainted galvanized steel with protective layer
- Core material: Core material: polyurethane (PUR)
- Lower side cover material: Prepainted galvanized steel or cardboard with protective layer
- Design: vertical ribbon, trapeze corrugated
- Standard Colour: White grey (RAL 9002 ). Other colours are also available upon request
- Width: 1000 mm
- Length: Max. 15 m
- Polyurethane Thickness: 40 - 50 - 60 - 80 - 100 mm
- Thickness of Metal Surface: 0.35 mm - 0.6 mm
- Polyurethane Density: 40 ( $\pm 2$ ) kg/m<sup>3</sup>
- Flammability Class: B2

mm	Weight kg/m <sup>2</sup>	Heat Transfer Efficiency W/m <sup>2</sup> K	Purlin distance					
			1.05 m	1.4 m	1.75 m	2.1 m	2.45 m	2.28 m
50	9.740	0.44	595 kg	407 kg	297 kg	221 kg	174 kg	148 kg



\* Dimensions given on the drawing may vary between  $\pm 2/3$  mm

Sandwich panel metal surface consists of galvanized iron sheet and organic covering. Organic covering is characterized with corrosion stability that contributes long service life of the material. According to the corrosion type upper site metal cover of sandwich panel consists of: organic layer 25µm and galvanized layer 20 µm that can be raised up to 200 µm upon requirements.



## Prepainted Galvanized Sheet Iron

Panex uses prepainted galvanized sheet iron in coils that is produced according to ECCA (The European Coil Coating Association) standards.

Sheet iron mark	DX51D + Z	EN 10327
Thickness tolerance (0,35 mm < iron thickness 0,6 mm)	+0.05 mm	EN 10143
Tensile Strength	500 (max.)	EN 10327
Elongation,%	22 (min.)	EN 10327
Paint amount	100-275 gr/m	EN 10327
Paint type	Polyester Polyester, PVdf, Plastisol, PVC, Polyurethane etc	



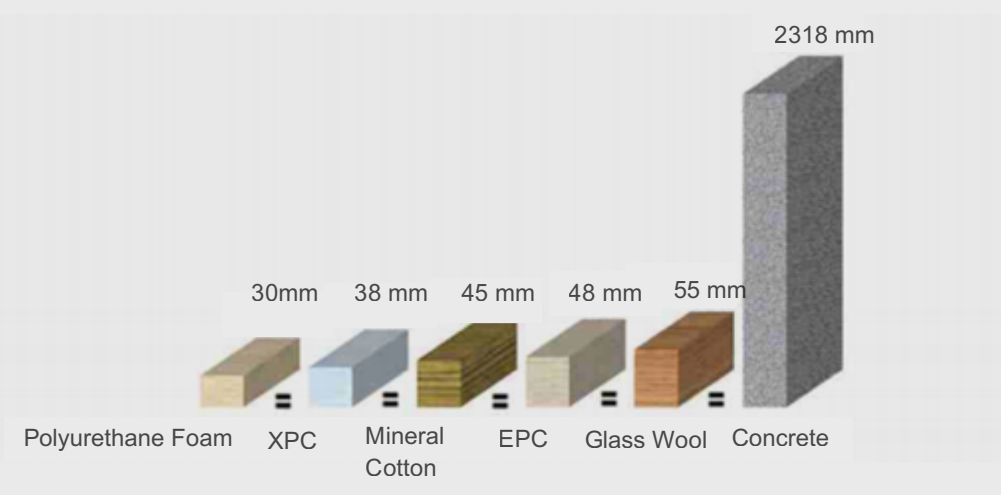
## Polyurethane Solid Foam

In sandwich panels we use polyurethane foam with the best heat isolation performance. Polyurethane foam is waterproof material and has antibacterial characteristics.

Density	40 (+2) kg/m <sup>3</sup>	EN 1602
Thermal conductivity ratio	0.022 – 0.024 W/mk	EN 13165
Closed cell percentage	95%	EN 14509
Steam diffusion	30-100	EN 12086
Stability in sizes	Level DS(TH)11	EN 13165
Stability to pressure (Mpa) (10)	min. 0,095	EN826
Water absorption (vol. %)	2% (168 hours)	Producer method
Usage tem. margins (° C)	-200/+ 110 (° C)	

## Heat Isolation

To achieve the desired results in case of low thermal insulation materials it is necessary to increase material thickness. While in case of polyurethane foam the minimum thickness of material is remained. According to thermal insulation values, multifunctional usage and exploitation durability, today polyurethane foam is the optimal solution.



### Thermal conductivity value

Panel thickness	Thermal conductivity U(W/m <sup>2</sup> )	Thermal conductivity U (KCAL/m <sup>2</sup> )
40 mm	0.4973	0.4276
45 mm	0.4468	0.3842
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

## Mechanical Stability

Lifting capacity is an important issue while sandwich panel selection for the specific building. Factors such as own weight, wind load, snow load and temperature can effect on building as together as separately.

Sandwich panel consistent metal sheets and fillers between these two sheets have low lifting capacity but composition which is made by these materials is a new system and its lifting capacity is compatibly improved.

## Fire Resistance Rating

PUR material is effective while fire. Polyurethane foam with its chemical components can reduce and prevent fire from spreading that increase product efficiency. Panex polyurethane panels are classified with B2 fire resistance rate (based on TS EN 14509 standards).

Stability in sizes while heating

+100 C° PUR

Inflammation temperature

+285 C° PUR

## Sound Isolation

Sound transfer lost according to frequency

PUR kal	Frequency (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	14.41	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

Sound absorption ratio according to change frequency

PUR Kal.	Frequency (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



Feel free to contact us, our professional team is always ready to offer a qualified consultation

**JSC Panex**

Red Bridge Highway 17th km, Tbilisi, Georgia

E-mail: [info@panex.ge](mailto:info@panex.ge)

**Sales Department**

E-mail: [sales@panex.ge](mailto:sales@panex.ge)

Phone: (+995) 591 076007