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### **PIR Sandwich Panel Specification**

#### **1. GENERAL INFORMATION – THE CONSTRUCTION OF SANDWICH PANELS :**

Al Qatami insulation Company provides wide range of Galvanized steel faced sandwich panels with polyurethane core.

Sandwich panels are composite materials produced of two dyed Galvanized or Aluminum corrugated plates filled With Polyurthane for thermal insulation.

Used as coating materials in the roof, wall and internal partition or cold rooms of the buildings, sandwich panels provide a quite high level of thermal, water, sound insulation; prevent moisture condensation. In addition, they are distinguished with their bearing capacity as well. Bearing capacity of the sandwich panel depends on the density, thickness of its filling material and the form of its metal surfaces. Sandwich panel is an economical solution when assessed within the context of cost-benefit analysis.

Thickness of the metals (PPGI steel , Aluminum) and filling materials is determined in accordance with the area of usage and the amount of load they will bear. The climate conditions of the region of usage should be taken into account while determining the thickness of the filling material. Sandwich panels set the outer shell of the buildings in an aesthetic and affordable way by providing thermal, water and sound insulation without the need for any coating such as plaster or dye. They are procured with the best prices and used in the buildings whose load-bearing system is of steel and prefabricated concrete, such as industrial buildings, military buildings, social buildings, agricultural buildings, sports facilities, construction sites, silos, hypermarkets, shopping malls, cold storage depots and marketplaces.

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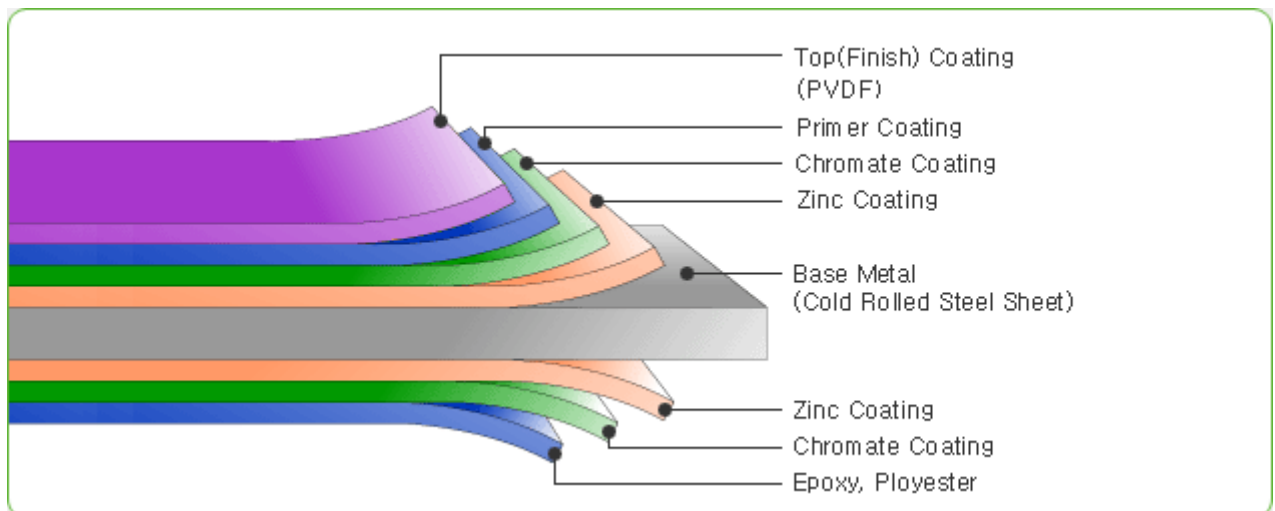
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### 2. PRODUCTION TECHNOLOGY :

Based on European technology PIR panels are filled in one piece under pressure with Polyurethane foam; the insulation foam has got a very high insulation value with density 42 kg/m<sup>3</sup>.

### 3. STEEL COILS SPECIFICATION :

- Base metal = JIS G 3302 SG CC Z12/ (ASTM A755)
- Paint Top = 25 micron regular modified polyester + 5 Mic.universal primer in Ral. 9002 for both sides
- Back Coat = 5-7 Mic. epoxy primer in Mill Std grey color
- Coil ID = 508 mm
- Insulation = Foamed in place.
- Both Side Steel gauge = 24
- Size = 0.6 mm X 1219 mm X Coil
- With PE protecting film.



### 4. PVC Membrane :

- Waterproofing membrane within fully bonded systems

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Thickness	1,2 mm
Field Unit Weight	1,55 kg/m <sup>2</sup>
	±5%
Tensile Strength	≥500 N/cm
Puncture Strength	≥450
Elongation (%)	≥80%
Tensile-80 °C /	≤-0,1%
After 6 hours	
Cold Bending	≤-20 °C
Accelerated aging	No cracks
rays (18.000	
MJ/m <sup>2</sup> )	
Behavior Under	Proof
Hydrostatic	
Pressure, 2 bar/ 24	
hours	
Accelerated aging	≤-2,5%
rays 80 °C / 56 days	
Standard View	Light gray, matt

## 5. PIR SPECIFICATION :

- Polyurethane shall be filled between the sheets having the following properties:

### - Description:

- Overall density of insulation foam 42 kg/m<sup>3</sup>
- Core density 38-42kg/m<sup>3</sup>
- K- Value 0.018 W/m.K
- Compressive strength of insulation 0.21 N/mm<sup>2</sup>
- Closed cell contain 97%
- Water vapor transmission 1.4%
- Water absorbent 1.9 Vol. %

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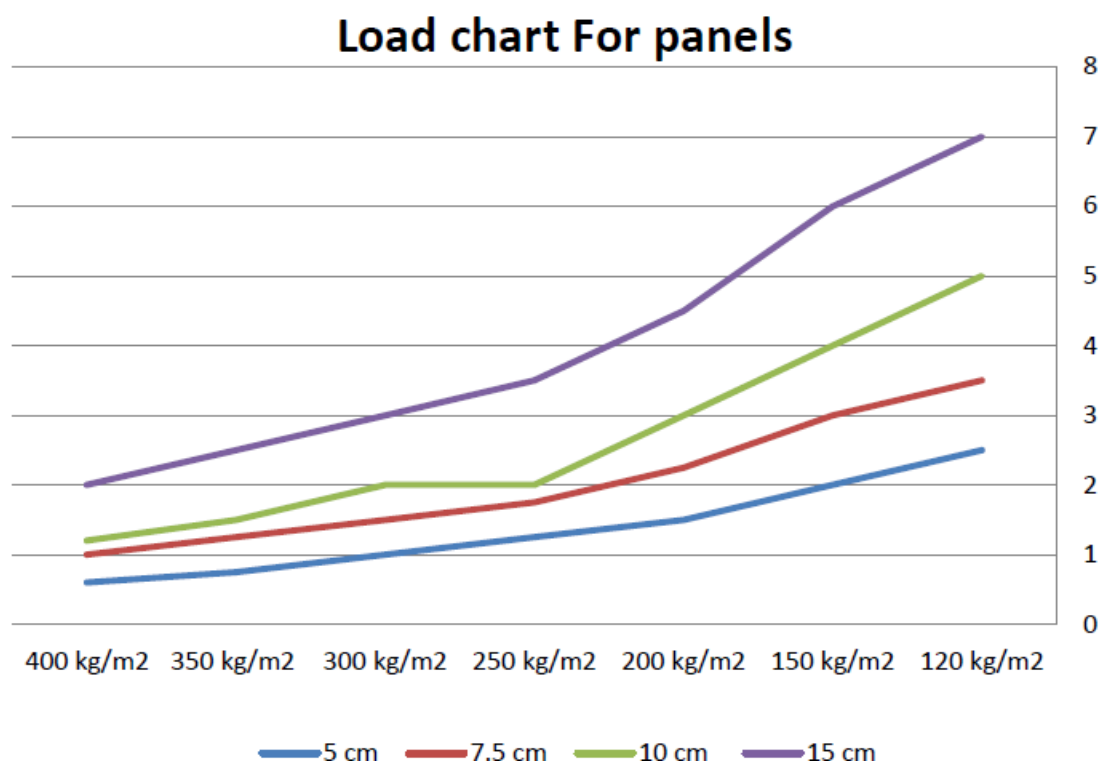
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- Fire Strength DIN to the insulation DIN 4102, B2 , PIR
- Weight of the Panel 9-13 kg/m<sup>2</sup>

### 6. Effect of the Load on Panels:

The following table shows the amount of bearing of the sandwich panels in various thickness and lengths with pre-painted galvanized sheet with thickness of 0.6 mm

Panel Thickness	120 kg/m <sup>2</sup>	150 kg/m <sup>2</sup>	200 kg/m <sup>2</sup>	250 kg/m <sup>2</sup>	300 kg/m <sup>2</sup>	350 kg/m <sup>2</sup>	400 kg/m <sup>2</sup>
5 cm	2.5 m	2 m	1.5 m	1.25 m	1 m	0.75 m	0.6 m
7.5 cm	3.5 m	3 m	2.25 m	1.75 m	1.5 m	1.25 m	1 m
10 cm	5 m	4 m	3 m	2 m	2 m	1.5 m	1.2 m
15 cm	7 m	6 m	4.5 m	3.5 m	3 m	2.5 m	2 m



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### 7. **Advantages of PIR sandwich panels :**

- Fast installation and ease of handling
- Crane assembly therefore no scaffolding required
- No thermal bridges and good thermal insulation properties
- Design flexibility with choice of color finishes
- Panels can be installed horizontally or vertically
- Reliable robust mechanical performance
- Outstanding noncombustible and acoustic performance
- Resistance to weather and aggressive environments
- Ease of installation
- Long life and very low maintenance cost
- Easy repair and replacement in case of damage