ALUMINIUM

Aluminium is a valuable metal having superior **physical**, **chemical** and **mechanical** properties compared to other commercial metals, such as **steel**, **copper**, **lead**, **titanium** and **zinc**, extensively used in various applications. The features that make Aluminium very valuable are its **light weight**, **strength**, **recycling**, **corrosion resistance**, **ductility**, **ease of forming thermal and electrical conductivity**. Any form can be given to Aluminium by **casting**, **forging**, **rolling** and **extruding**. High corrosion resistance originate from thin layer of oxide film naturally exist on the surface. Even it is distrupted by some means, it regenerates itself very rapidly. Aluminium is widely used in various fields of industry and became important commodity in global commercial acitivity.

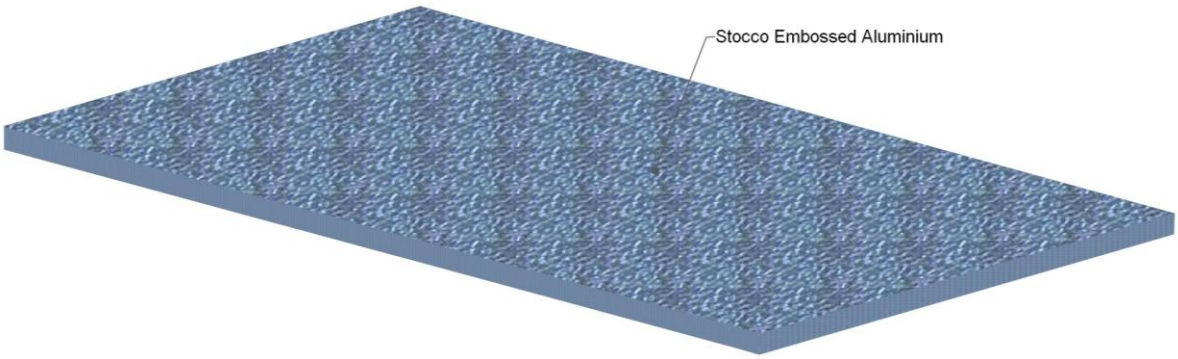
All aluminum rolls used in the production of sandwich panels are in accordance with EN, ASTM and ISO norms. The aluminums preferred in the panels are made from 3000 series. The surface appearance may be conducted as flat or embossed. The painting code may be applied on the flat aluminum sheets with coil-coating process.

Aluminum used as the metallic surface of the sandwich panels must include the following properties:

- Decorative appearance,
- Convenient processing property,
- Corrosion resistance

The corrosion resistance of aluminum depends on its composition, environment, design, and the protective measures. The clean aluminum surface should be active and easily allows the formation of aluminum oxide in the contact with air and water. This oxide is very durable and protects aluminum since it is bonded to the metal surfaces very firmly. The aluminum's corrosion rate will increase in the acidic ambient at which the PH Rate is less than 4 and the alkaline environments at which it is more than 8.5. It also depends on the ions in the ambient. The aggressive ions break the oxide layer and start the corrosion. The most dangerous one of these ions is the chloride which is also contained in the sea waters. Especially in the contact of the aluminum composites containing copper with the sea water (directly or through the air), special protection is required against the granular corrosion.

Aluminium Surface



Physical Features of Aluminium

Thickness Tolerance (EN 10143)	± 0.03 mm
Alloy (EN 485-2)	AW 3000 Series
Temper (EN 485-2)	H 16 – H 26
Yield Strength	150 Mpa
Tensile Strength	175 Mpa
Elongation %	3 (min)
Surface	Stocco Embossed or painted
Density	2.7 g/cm3
Boiling Temperature	2450 ºC
Melting Temperature	566-660 ºC
Vapour Pressure	1 mm Hg 1248 ºC

Chemical Composition of Aluminium

Limit	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Zr
Min	---	---	---	0,30	0,20	0,80	---	---	---
Max	0,60	0,70	0,30	0,80	0,20	0,20	0,40	0,10	---