



معمل المتين  
للصناعات المعدنية و الساندوتش بنل

**AL-Mateen Factory**

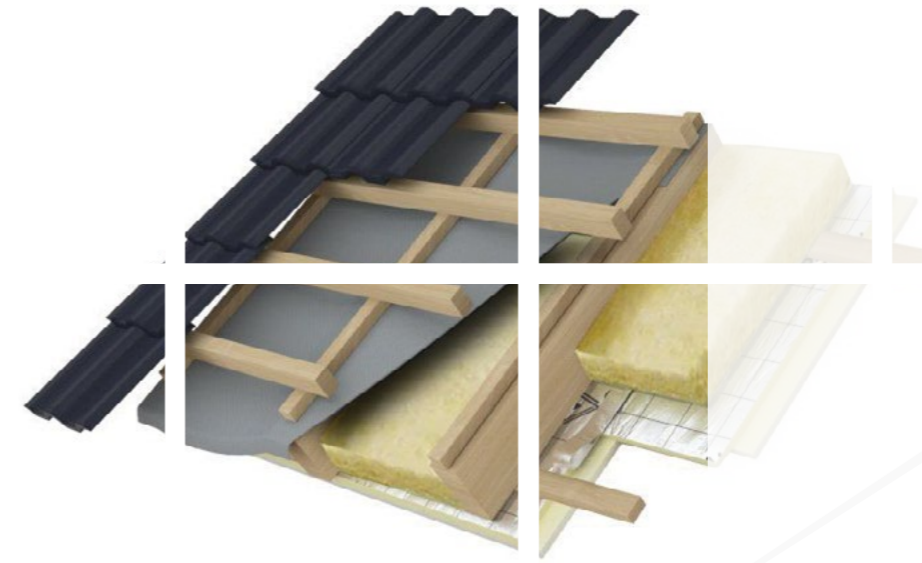
**For Metal Industries & Sandwich Panel**



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## About Mineral wool

Mineral wool is a premium insulation made from volcanic rock melted at high temperatures and spun into a mat of fine fibers. Mineral wool only burns at temperatures in excess of 1000°C so in effect provides a fire barrier for building envelope. The mineral wool insulation used in MATEEN-sandwich panels is certified by regional and international entities.

## Why Use Mineral wool

Mineral wool is a high performing material in regards to thermal insulation, acoustic properties and fire protection.

Thermal insulation and energy saving is one of the main concerns of modern civilization for its positive role in conserving the environment and natural resources. Scientific research and studies proved that use of thermal insulation in buildings will dramatically reduce the heat transferred through the walls and roofs. Hence it has a major contribution in saving electrical power and energy needed to cool and heat the buildings.

Professional studies proves that the thermal insulation cost of a building will not exceed 3.5% of its budget. However, this amount will be paid back in 4 - 5 years as a result of saving in the electricity bill.

# Mineral Wool Sandwich Panel

Mineral wool sandwich panel adopts fibrous mineral wool as the core material glued to pre painted metal sheets as its surface layers on a state of the art continuous production line. Freshly formed panels are then passed through an enclosed temperature controlled conveyor press for curing before the final panels are ready to cut.

Since the metal sheets and the mineral wool are non-combustible, the mineral wool sandwich panel has excellent fireproof property.

MATEEN mineral wool sandwich panels can be used for roof and wall panels as well as internal partitions. MW panels are widely used for envelope of industrial and commercial buildings in addition to other specialized applications Because of their fireproof, heat insulation and acoustic properties.

## MATEEN Mineral Wool Sandwich Panel

- Thermal Insulation
- Acoustic insulation
- Fire Resistance
- Environment Friendly

# Mineral Wool Panel Characteristics



## Thermal Insulation

MATEEN Mineral wool panel helps to restrict heat transfer through building envelope thus reducing the demand for space heating and cooling energy. This in turn reduces a host of negative environmental impacts including the emissions of CO<sub>2</sub> and other pollutants such as sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>).



## 2 Acoustic insulation

The open cell structure of mineral wool makes it an ideal product as a sound absorber and acoustic insulator. Due to its high absorbing and insulating coefficients over a wide sound frequency range, the mineral wool panels provide significant improvement in the Sound Transmission Coefficient (STC) and Noise Reduction Coefficient (NRC>0.95).

The ability to absorb sound energy means reducing the noise transfer within the same building, across buildings, as well as between buildings and the external environment.



## 3 Fire Resistance

The most important characteristic of mineral wool panel is its exceptional fire protection; mineral wool is non-combustible and does not ignite. It has zero flame spread and does not generate toxic smoke and particles. It is therefore internationally specified as a fire rated material, with a fire rating of minimum 2 hours and classified as Non-Combustible Material according to EN ISO 1182, ASTM E136, and also EURO Class fire Rating of A1 in accordance with EN ISO 1182 and EN ISO 1716.

Mineral wool panels restricts the fire to spread from one zone to another; it also acts as a protection for load bearing elements in steel structures and thus prevents the building from collapsing under fire conditions.



## 4 Environment Friendly

Mineral wool insulation is one of the few building materials that saves energy in use and reduces the need for combustion of fossil fuels to provide energy for heating or cooling of buildings. The recycled content and recyclability of the material reduces waste disposal needs and saves valuable resources both now and in future. Mineral wool is 97% recyclable.

### Wider Benefits:

Beside the environmental benefits provided, using mineral wool panels can of course help to reduce energy costs for the buildings and contribute significantly to a comfortable and healthy indoor environment.

### Sustainability:

As an environment conscious company, MATEEN promotes the sustainable production and use of insulation and is committed to a continuous process of environmental impact.



## Advantages of MATEEN Mineral Wool Sandwich Panels

- Outstanding fire protection.
- Excellent acoustic insulation.
- Outstanding thermal insulation.
- High compressive strength.
- Water repellent.
- Recyclable.
- Wide range of thicknesses.
- Easy to handle and install.
- Cost effective.
- Low maintenance.

## Application

Metal surface mineral wool sandwich panel is widely used in various types of buildings based on its excellent treats, such as:

- Industrial Buildings.
- Ware Houses / Storages.
- Multi-purpose buildings such as Health, Education, Leisure Buildings, Exhibition Centers, Shopping Centers, Multiplexes, Airports, Stadiums and many more.
- Commercial buildings.
- Residential Buildings.

## Sustainability Qualities of MATEEN Mineral Wool Sandwich Panels

- Energy Efficient.
- Positive net carbon footprint.
- Fire Safe.
- Noise Control.
- Durable.
- Recyclable.
- High resistance to mold and fungi.
- No Hazardous flame retarders

## Available Lengths

Standard lengths range from 3 to 12 meters. Minimum lengths can start from 1.5 m if panels are cut flush without overlap.

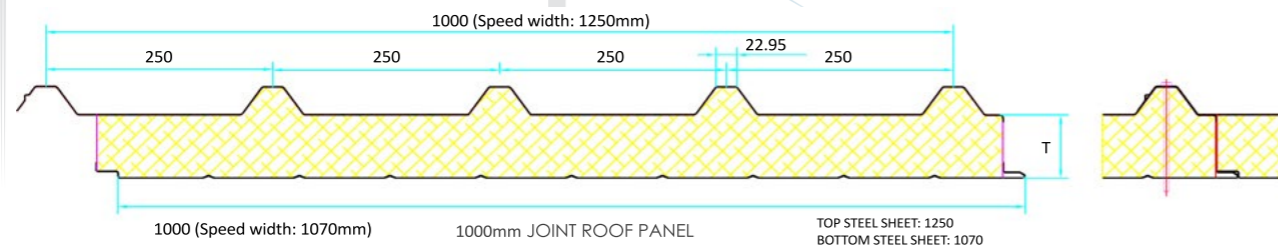
It is recommended to limit the panel length to maximum 10.0 meters for safe handling on site.



# FIREROOF PANELS

MATEEN Fireroof & wall sandwich panels are produced using mineral wool core with external and internal metal sheets in steel or aluminum of varying thickness, coating and colors.

Fireroof is a durable sandwich panel, particularly in industrial buildings suitable for roof and wall for all building applications.



## Dimensions & Thicknesses

Fireroof sandwich panel is available in a single outer and inner profile type in both steel and aluminum; the insulating core can be produced in various thicknesses and thermal insulation values as listed in below drawing.

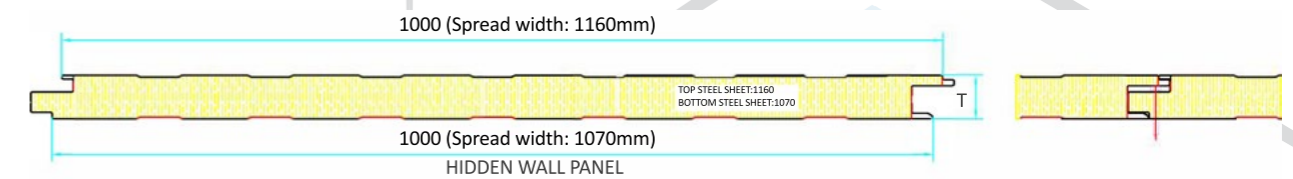
## Thermal Properties

Panel ID	Skin Type		Name Code	Core "T" (mm)	Thermal Transmission U-Value* (W/m <sup>2</sup> .k)	Thermal Resistance R-Value (m <sup>2</sup> K/W)
	Outer	Inner				
FC	5RBS	Equal Rib (Q)	FCSQ-50	50	0.680	1.470
			FCSQ-75	75	0.453	2.206
			FCSQ-100	100	0.340	2.941
			FCSQ-120	120	0.283	3.530
			FCSQ-150	150	0.227	4.411

\* The U-Values in the above table is measured at 24°C and thermal conductivity K=0.034 W/moK at 100 kg/m<sup>3</sup> density.

# FIREWALL Hidden fix PANELS

MATEEN Firewall sandwich panels are produced using mineral wool core with external and internal metal sheets in steel or aluminum of varying thickness and are suitable for walls for all building applications, interior partitions.



## Dimensions & Thicknesses

Panel ID	Outer skin Skin Name	Inner Skin Skin Name	Sandwich panel Thickness (mm)				
FW	Equal Rib	Equal Rib	50	75	100	120	150

## Thermal Properties

Panel ID	Panel Thickness (mm)	Thermal Transmission U-Value* (W/m <sup>2</sup> .k)	Thermal Resistance R-Value m <sup>2</sup> K/W
FW	50	0.302	1.45
	75	0.453	2.206
	100	0.340	2.941
	150	0.227	4.411

\* The U-Values in the above table is measured at 24°C and thermal conductivity K=0.034 W/moK at 100 kg/m<sup>3</sup> density.

## Thermal conductivity values

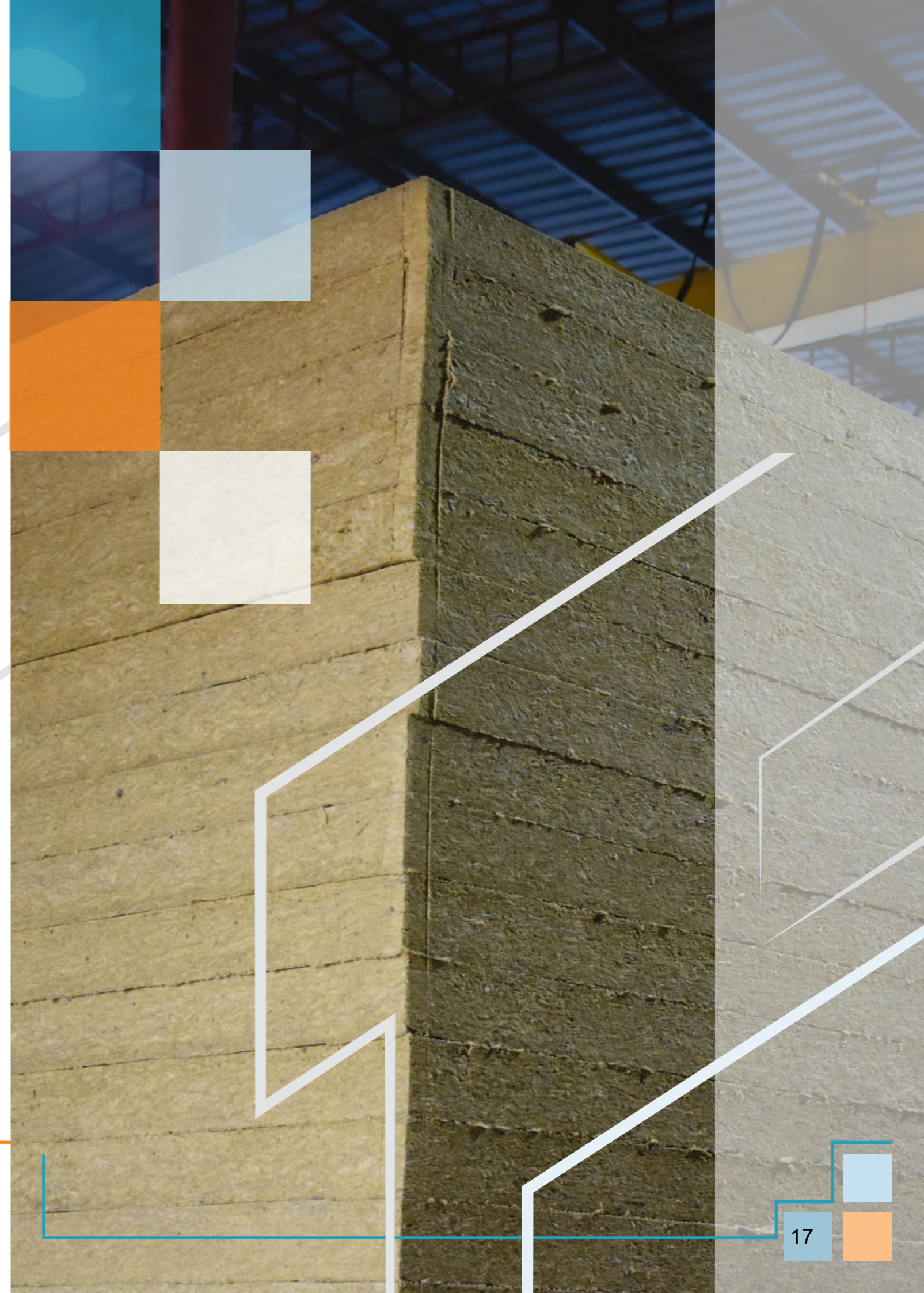
Thermal conductivity values with typical figures shown below as tested in accordance with EN13162 standards.

Mean Temp °C	K-Value W/ m°K 100 kg/m <sup>3</sup>
24	0.034
50	0.038
100	0.044
150	0.050
200	0.058
250	0.067

## Acoustics Properties

Typical sound absorption figures are shown below in accordance with BS 3638.

Hz	100 kg/m <sup>3</sup>
125	0.33
250	0.86
500	1.10
1000	1.10
2000	1.05
4000	0.98



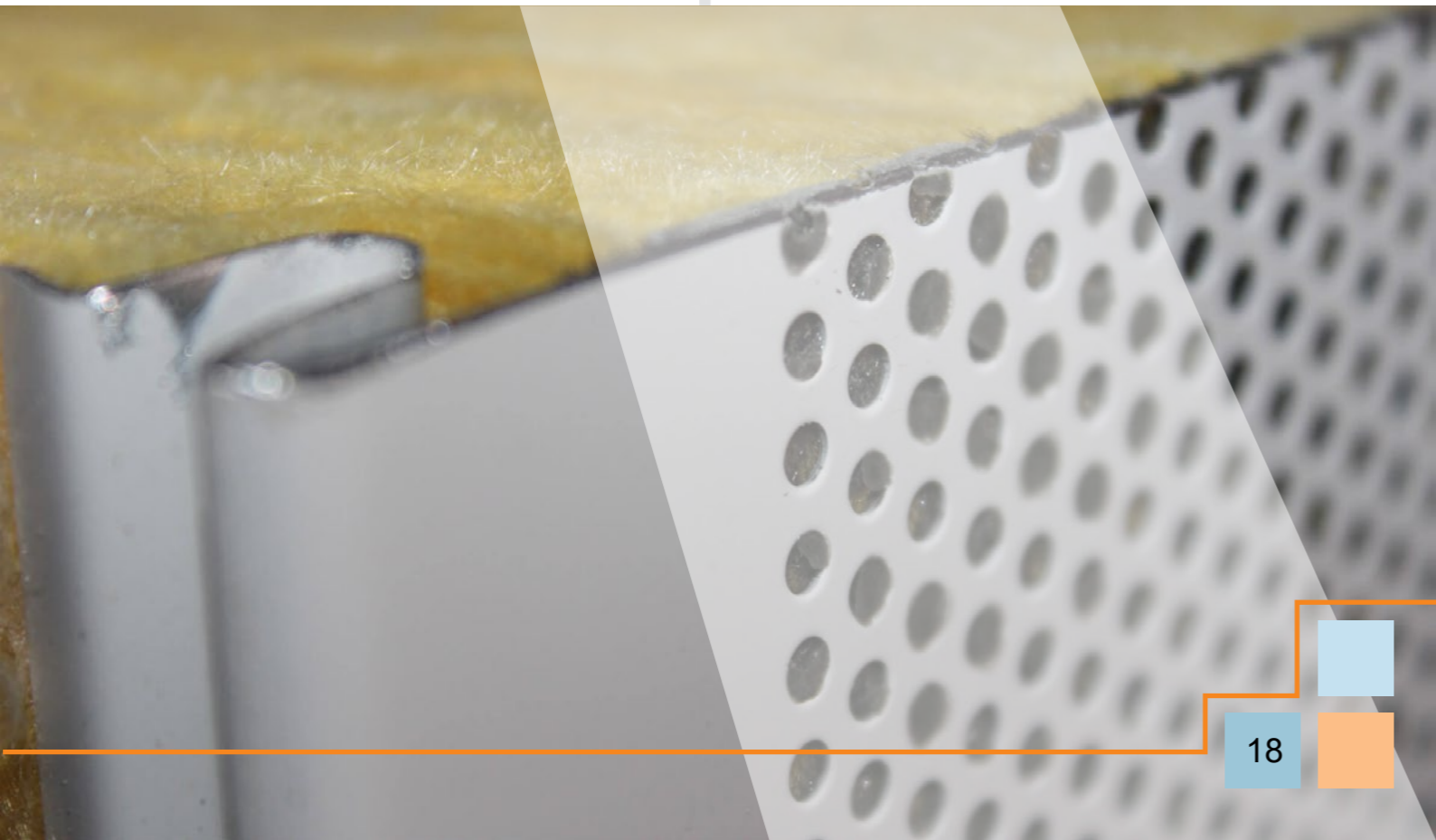


## High performance sound absorption for perforated Mineral Wool Panels

MATEEN Mineral Wool Acoustic Panels are engineered to suit specific roofing and Wall Cladding requirements, where the acoustic and sound absorption properties are the main characteristics of the panels in addition to the fire rating and thermal insulation properties.

The combination of optimized density, fiber direction and excellent fit provides a significant improvement in Class C type sound absorption when used together with apt Mineral Wool density ( $100\text{kg/m}^3$ ) and on perforated metal Galvanized sheets (Standard 1/8" Holes with 30% open area with 7/32" Staggered centres).

The Perforations can be optimized as per customer requirement on the Sound Transmission Coefficient (STC) values required.



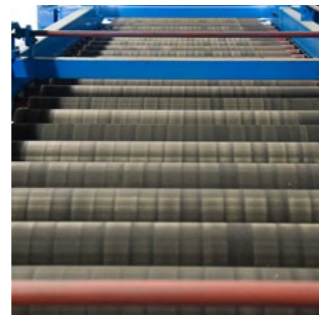
## Panel Finish

Prepainted metal is galvanized steel or aluminum which is painted by coil coating in a continuous and automated process before fabrication. In this process, a coil of galvanized steel or aluminum is first unwound and generally, both sides of the metal are cleared. Oil and other contaminants are removed from the metal. Then the metal surface is chromed in preparation for painting. Before painting, a coat of primer is usually applied on both sides and the primed metal is then sent to an oven for curing. After oven curing, the metal is cooled, a top coat is applied and the fully painted metal is again oven cured, cooled, and rewound. The top coat color is selected from the RAL standard color catalogue.

With coil coating process, a uniform coating thickness can be maintained. As for the top coating, after an epoxy primer is applied, a polyvinylidene Fluoride (PVDF), Plastisol, or Polyurethane resin is used, considering the requirements for geographical location and environmental conditions. Although each of these coatings have different material properties, they all are used as liquid. In Iraq, the use of 5 micron epoxy primer and 15 micron polyester resin as a top coat, is generally accepted as sufficient. Painting assures much longer life span for metals and therefore, it is a cost-effective application. Coil coated metals can easily be bent or formed as required without any damage to coated surfaces.



# We From Inside





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