



InsulatedPanel  
ROOF & WALL PANELS



NovaPanel  
ROOF PANLES

SKY light  
POLYCARBONATE / GRP / FRP

[www.jmbpanel.com](http://www.jmbpanel.com)

“

“ We know that remaining as a leader is as important as becoming a leader. With all the values we adopt, continuously improving technology, and quality standards on which we never compromise, we strive for the better each day and inspire our followers in the industry.”

**“We are the Future”**

”

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# THE SMART SOLUTION FOR EVERY BUILDING: JMB SANDWICH PANEL

## ABOUT US

JMB Panel is a top Qatari company, specializing in manufacturing and distributing Sandwich Panel. Our objective is to establish long term relations and strong partnerships with the company customers, reason for which the quality of the services and the customer satisfaction are the principles that guide our daily activity.

Our products come from the newest and most modern production line for Sandwich Panels in State of Qatar. This is a 12 million USD investment, with state of the art machinery (Italian Brand) which are among the most modern sandwich panel production facilities in GCC that provides high quality to the company products. With a strategic location in the middle of the GCC, the new production line provides the best costs for the end-product, being the most logical choice.

JMB Panel AL-Buhsain Steel Industries produces the entire range of Sandwich panels with polyurethane (PUR) & Polyisocyanurate (PIR). Moreover, it provides best fit and best researched solutions for almost any type of application, using either sandwich Panels or combined products.

We proudly carry the leadership flag of sandwich panel production in Qatar with our 50 employees

and an annual total production of 3.5 million m<sup>2</sup> of sandwich panel on our production line at our facility of advanced technology.

### **Our Offer Includes:**

- A wide range of eco-friendly products, which can be recycled for building industrial halls.
- Production centers near the market, with prompt delivery.
- Well-motivated and qualified employees who can provide specialized consultancy.
- High quality products at convenient prices.

*Innovation has been a main feature of the company since its incorporation, and we are currently the most modern and high-performance producer of Sandwich Panel systems in the country: **PANEL MASTERS.***



# OUR COMPANIES



البو حسين للتجارة والمقاولات  
Al-Buhsain Trad. & Cons.



Al Buhsain Trading and Contracting engages in bearing full responsibility for engineering, procurement and construction.



نفايات و خدمات عالم البيئة  
Environment World Transport and Services



Believing in making Qatar neat and clean , We are one of the leading suppliers of skip hire and Waste Management Solutions.



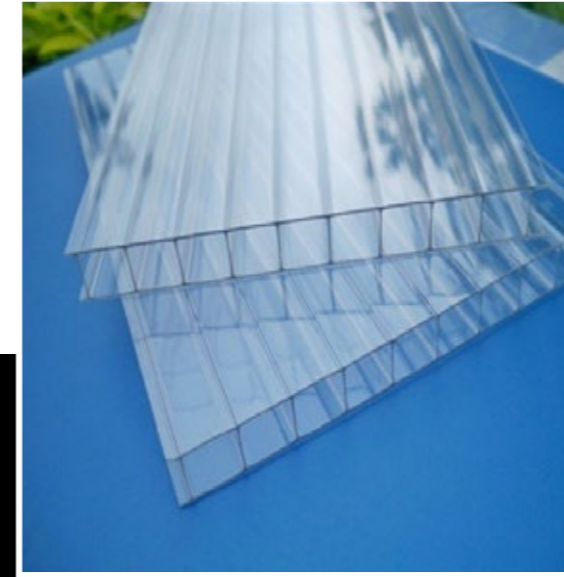
المراني للخدمات الزراعية والبيوتانية  
Al Marani For Agricultural Services



LET'S GREENIFY OUR WORLD TOGETHER, Almarani seeks to consolidate the values of agriculture and benefit from modern technology in developing agricultural work in Qatar



المراني للفيبر جلاس  
Al-Marani Fiber Glass



Minimum Energy Cost Maximum Lightening, let's make our country Sustainable.



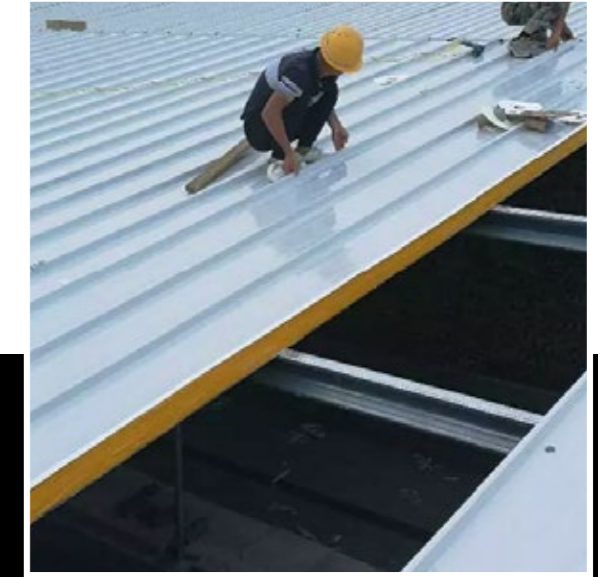
الرمادي لقطع الغيار  
Al-Ramadi Spare Parts



Our belief in customer service and attention to their interests, the idea of the establishment of Ramadi for spare parts heavy equipment,



البو حسين للصناعات الحديدية ذ.م.م  
Al Buhsain Steel Factory W.L.L



WE CARE ABOUT Supplying products with unprecedented thermal performance, reliability, durability and sustainability. That future is ours!

# WHY JMB SANDWICH PANEL



## ECHO SOLUTION FOR EVERY BUILDING

From factories to stadiums, from malls to swimming pools, sandwich panel is a durable and economic solution for many buildings. Along with industrial buildings and social areas, sandwich panel comes to the forefront as a product, preferred increasingly day by day with its new areas of implementation such as military buildings, agricultural buildings, prefabricate, housings, worksite buildings, silos and warehouses.



Industrial Buildings



Power Plants



Commercial Buildings



Cold Storages



Residential Buildings



Aggricultral Farms



## QUICK INSTALLATION

Contrary to the traditional systems, continuous line manufactured sandwich panels are in fully compatible and ready to assemble pieces that are prepared in the required dimensions, insulation types and colors based on the structure of your facility, with engineering and quality control processes conducted before hand at the factory. Installation of the sandwich panels is very easy with the few joints on wide surfaces. By means of advanced transport opportunities and mechanical lifting equipment, the duration of carrying and cladding is remarkably shortened. Therefore, your project is delivered in a short span of period, allowing you to save time.



## THERMAL INSULATED

Thermal insulation means reducing the energy spent in winter for warming and in summer for cooling; and taking measures to prevent heat transmission with the objective to live in comfortably environments. Sandwich panel is a building material, which is very suitable for thermal insulation. Sandwich panel provides high thermal insulation by means of PUR and PIR insulation materials. Thermal insulation with sandwich panels prevents problems such as mold and humidity resulting from heat and condensation and ensure your building to be robust and long lasting. Thickness of the insulation material in the sandwich panel varies according to the load bearing capacity, regional conditions, the usage purpose of the building, and the thermal insulation value.



## ECONOMY

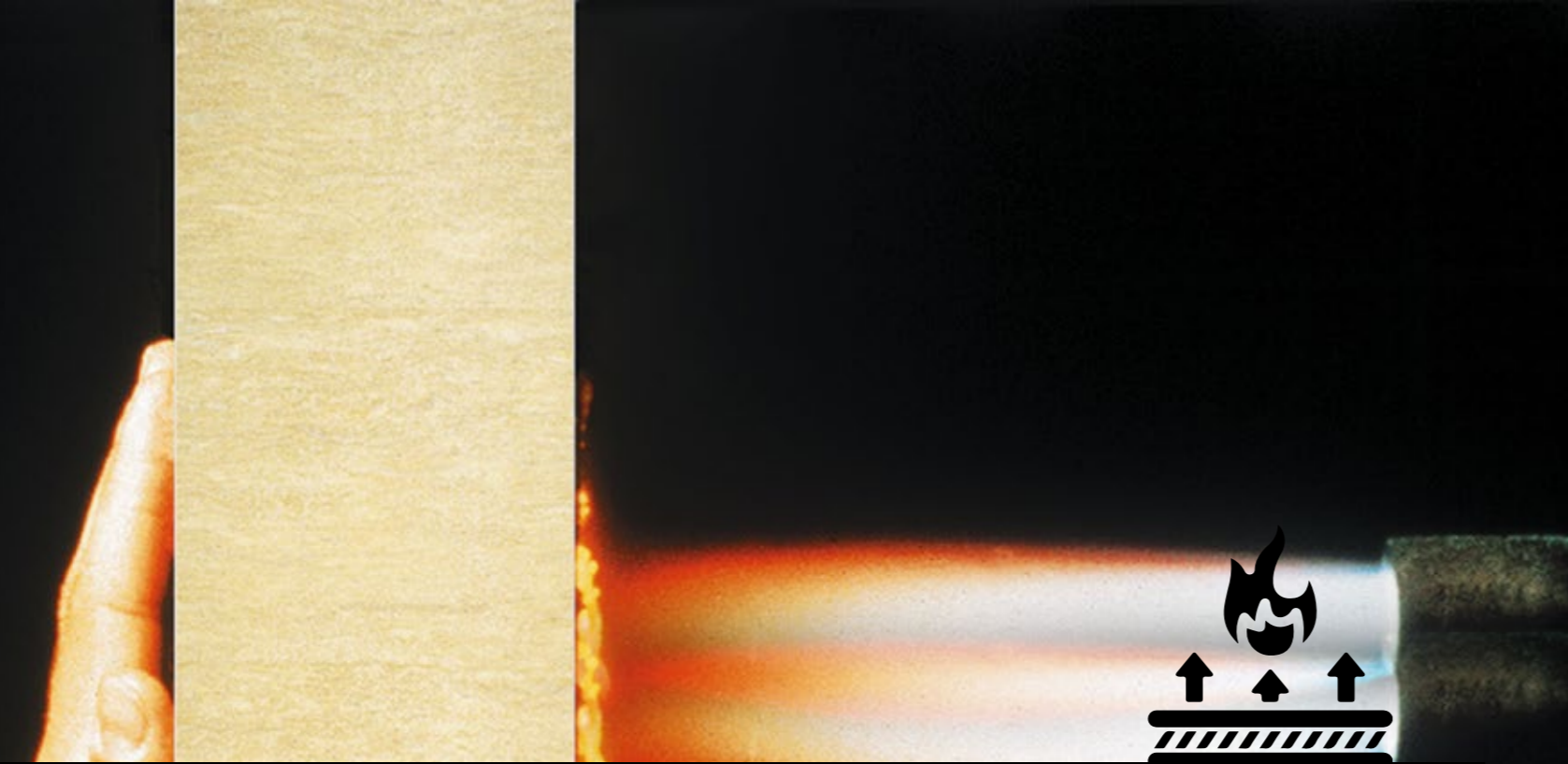
In many types of buildings, you can save up on both building and installation time by selecting the appropriate sandwich panel. Thanks to its feature of easy mounting, you can conduct expansion and renovation works without interrupting everyday activities in the building. Moreover, the panels are both economic and practical as they can be disassembled and reused. The lightweight of sandwich panels allows you to gain advantage with regards to transport and main building costs. Also, their maintenance costs are low thanks to their durable structure. In brief, sandwich panel is both a fast and aesthetic solution and budget-friendly for its longevity.



## AIR & WATER PROOF

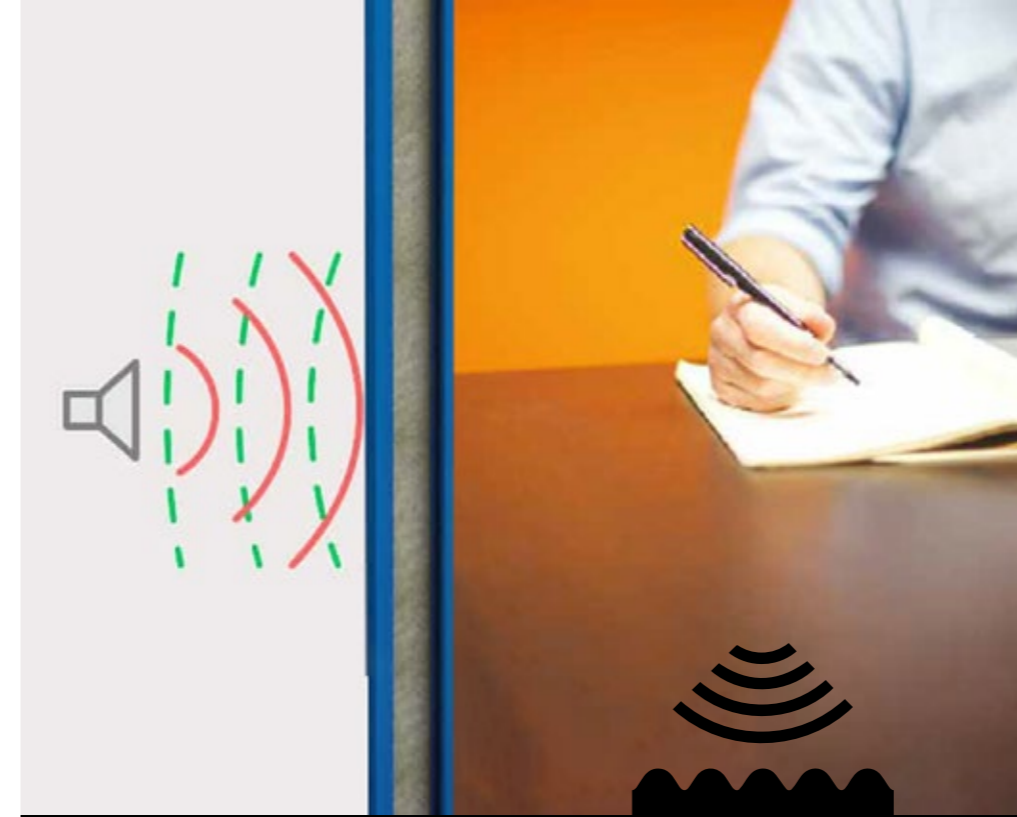
Thanks to their perfect joint detail, JMB Sandwich panels prevent air and water leakage. While they ensure the continuity of thermal insulation, heat is not lost at any point of your building. Therefore, you take the heating and cooling in your building under control and ensure energy efficiency. With a watertight structure, sandwich panels ensure active hydro-insulation against natural conditions such as snow and rain and prevent humidity and mold. As they hinder corrosion on the load-bearing structures, they provide a healthy and comfortable environment in your building. Your building becomes stronger and more durable.





## HIGH FIRE RESISTANCE

If you choose a sandwich panel fit for your building in terms of fire insulation, you will be able to slow down the spreading of fire within the building and its surroundings, and to ensure the safety of life and property in the building. While choosing sandwich panels for fire insulation, you should take into consideration the factors such as fire resistance and its duration, as well as the size and height of your building, and prefer sandwich panels with PUR and PIR-cores.



## SOUND INSULATION

Sound insulation is a must in order to minimize the harmful effects of noise on humans, to leave out the unwanted sounds, and to reduce the sound spreading around from noisy areas. PU sandwich panels used on the roof and walls increase productivity by creating healthy and comfortable spaces free from noise and prevent workplace accident.



## AESTHETIC VIEW

The outlook of your building is just like the mirror of your dreams. That is why we add new ideas to our sandwich panels every day for the aesthetic of your buildings. You can enliven the outer walls of your building and obtain an aesthetic appearance with the sandwich panels designed in different colors and in a structure that enables them to be positioned horizontally, vertically, or angular. Thanks to their feature to be used in the internal sections as well, you can create different designs with the sandwich panels.

# TECHNICAL INFORMATION

Raw Materials and Semi-Finished Details



# TECHNICAL INFORMATION

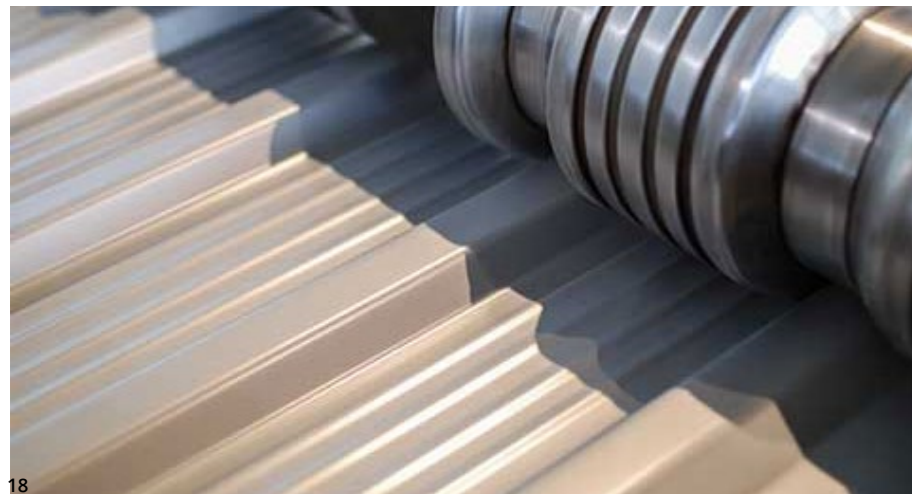
Raw Materials and Semi-Finished Details



## METALS

### Galvanized Sheet

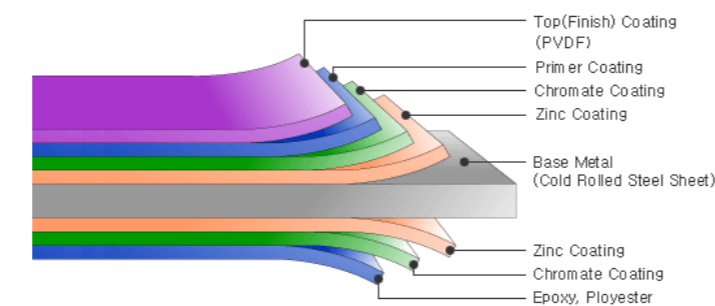
JMB PANEL employs in its products, dyed galvanized sheets that globally prominent sheet manufacturers produce in conformity with ECCA (European Coat Coil Association) standards. Galvanized in continuous lines by means of the hot-dipping method, the rolls have superior corrosion strength. Galvanized sheet is rigid and resistant against impacts and wear. All desired visual and physical resistance performances are achieved with surface finishes such as polyester and pvdf.



### Pre - Painted Galvanized Sheet Techniques Properties

Steel Quality	DX51 D+Z	EN 10346
Tensile Strength	500-270Mpa	EN 10346
Elongation	Min % 22	EN 10346
Steel Grades (hot dip coated)	275-100 gr/m2	EN 10346
Coating Types	Polyester, PVdF, Plastisol, PVC, Polyurethane	

### Pre - Painted Galvanized Sheet Layers



## METALS

### Aluminium

All aluminum rolls employed in the manufacture of sandwich panels and corrugated sheets are constructed in strict accordance with international standards (EN, ASTM and ISO). Aluminum materials preferred for sandwich panels are the 3000-series. Surface appearance may be plain or embossed. Paint coat may be applied to plain aluminum sheet by means of the coil-coating process.



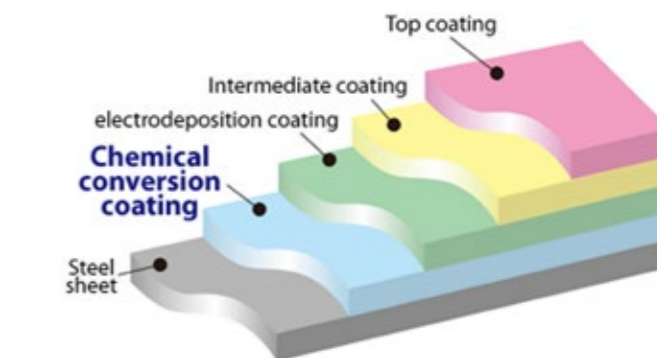
### Aluminium Techniques Properties

Alloy	AW 3000 Serisi	EN 573-3
Temper	H 16 - H 26	EN 485-2
Yield Point Elongation	150 Mpa	EN 485-2
Tensile Strength	175 Mpa	EN 485-2
Elongation (%)	3 (min)	EN 485-2

### Chemical Composition of the Aluminum Employed in Manufacturing Sandwich Panels

Limit	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Zr
Min (%)	---	---	---	0.3	0.2	---	---	---	---
Max (%)	0.6	0.7	0.3	0.8	0.8	0.2	0.4	0.1	---

### Painted Aluminum Layers



# TECHNICAL INFORMATION

Raw Materials and Semi-Finished Product Details

# TECHNICAL INFORMATION

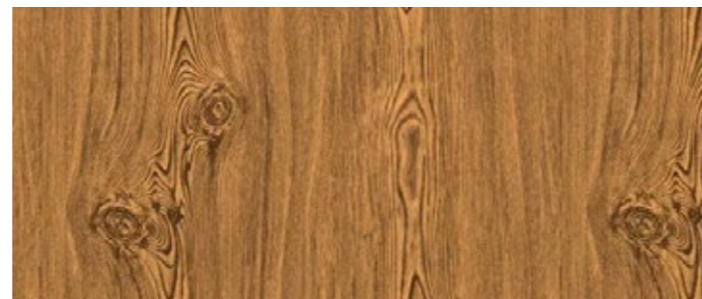
Coating Types

## STAINLESS STEEL

Where a hygienic performance or resistance against interior impacts is sought, stainless steel may be applied on sandwich panels. On such high-quality and maintenance-free surfaces, no additional layer is necessary for corrosion strength.

## ALUZINC

Another metal type with high corrosion strength is Aluzinc (Galvalum) that is the combination of aluminum and zinc coating. Its constituents are aluminum by 55%, zinc by 43.4% and zinc by 1.6%. Manufactured by hot-dipping method, aluzinc offers a 6-folds higher corrosion strength compared to conventional galvanized steel, so is highly preferred in particularly petrochemical plants. Furthermore, high aluminum content of the material ensures long-time preservation of aesthetic features.



**World-Class Raw Material**

## Polyester

Ensures resistance against ambient conditions, high flexibility and thermal stability. The most common paint type. It may be used for different applications in interior and exterior spaces.

## PVDF

It ensures high resistance against ambient conditions, high corrosion strength, and resistance against chemical oils. Ensures high resistance against chemicals and UV resistance. This is the coat type with highest color persistence and light strength. It may be employed in distinguished roof and wall claddings.

## Plastisol

Has excellent plasticity. Resistant against humidity and wear, and is food grade. Superior performance in cold and humid conditions.

## PVC Film

Applied by lamination. Suitable for dense plasticity and flexibility. Food grade thanks to its hygienic and easily cleanable nature.

## WOOD PATTERNED METAL

In JMB Panel workshops, aluminum and galvanized sheet metals are painted in a single and continuous automated process. Metals complete with desired paint coat are rolled to obtain coils which are then employed in the construction of sandwich panels and corrugate sheets.

### Paint Properties

Properties	Polyester	PVdF	Plastisol	PVC Film
Average Thickness	25 μ	25 μ	100-200 μ	100-200 μ
Thermal Resistance	80 °C	110 °C	60 °C	60 °C
Gloss	10-80	20-40	45-70	5-15
Surface Hardness	1	2	4	3
UV Resistancea	3	1+	4	4
Corrosion Strength	2	1	1	1+

# STANDARD COLORS

Raw Materials and Semi-Finished Product Details



# TECHNICAL INFORMATION

Heat Insulation in Sandwich Panels



 RAL 1015 Light Ivory	 RAL 3005 Wine Red	 RAL 3012 Beige Red	 RAL 3014 Antique Pink	 RAL 3015 Light Pink
 RAL 4005 Blue Lilac	 RAL 5012 Light Blue	 RAL 5017 Traffic Blue	 RAL 6019 Pastel Green	 RAL 6021 Pale Green
 RAL 9002 Grey White	 RAL 9003 Signal White	 RAL 9004 Signal Black	 RAL 1001 Beige	 RAL 7040 Window Grey



## Thermal Conductivity of Sandwich Panels

Thermal conductivity (U) is the amount of heat perpendicularly crossing unit m<sup>2</sup> in 1 hour when thermal difference between the two parallel surfaces of a d(m)-thick material is 1K (Kelvin). Thermal conductivity is considered when the thickness of the filler for the Sandwich Panel is determined.

Heat Transmission Values of Polyurethane			
Polyurethane Thickness	Heat Transmission Value (W/m <sup>2</sup> K)	R Heat Transmission (m <sup>2</sup> K/W)	R Heat Transmission (ft <sup>2</sup> ·°F·h/Btu)
40 mm	0,497	2,011	11,418
45 mm	0,447	2,238	12,709
50 mm	0,406	2,465	14,000
60 mm	0,342	2,921	16,584
80 mm	0,261	3,830	21,747
100 mm	0,211	4,739	26,911
120 mm	0,177	5,650	32,081
150 mm	0,143	6,993	39,708

Heat Transmission Value depends on the thickness of metal, the number of ribs and the joint type.

# TECHNICAL INFORMATION

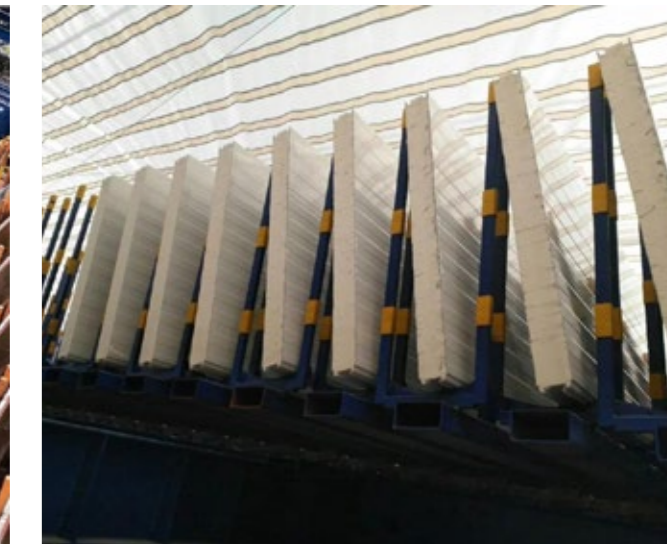
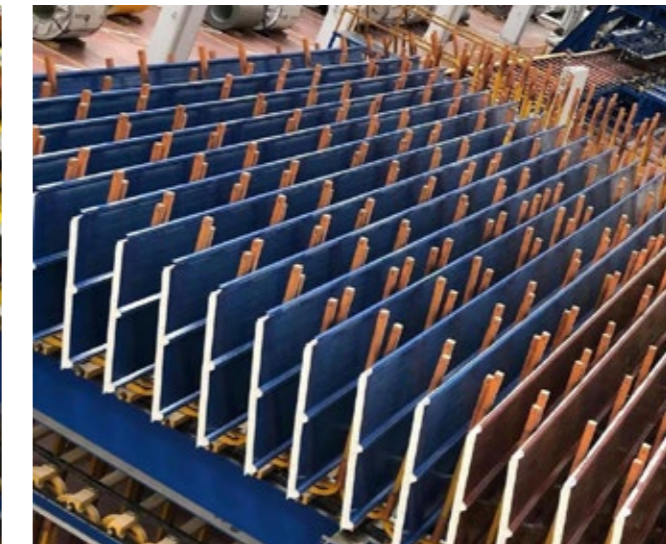
Insulating Agents Used in Sandwich Panels

## PU RIGID FOAM

Density (kg/m <sup>3</sup> )	40 (± 2)	EN 1602
Thermal Conductivity Coefficient λ (W/mK)	0,022	EN 13165
Closed cell ratio (%)	95	EN 14509
Steam Diffusion (μ)	30-100	EN 12086
Dimensional Stability	Level DS(TH) 11	EN 13165
Compression Strength (Mpa) (σ <sub>10</sub> )	min. 0,095	EN 826
Water absorption (by volume %)	2	Manufacturer's Method
Temperature Strength (° C)	-200/110	

Polyurethane (PUR) is the most popular foam employed in sandwich panel construction. It is obtained by mixing four raw materials as polyol, isocyanate, inflating gas (N-pentane) and catalyst.

Employed for around 50 years in sandwich panel construction, polyurethane is known to be the most reliable insulating agent; it does not retain water and host any bacteria or pests. It provides savings up to 40% against the gradually growing heating and cooling costs of structures. Investors always expect high performance with least cost, and it is polyurethane that best satisfies this expectation.



# TECHNICAL INFORMATION

Fire Performance of Sandwich Panels



# TECHNICAL INFORMATION

Sound insulation of sandwich panel



Fire Performance Values of JMB Panel's Products		
Polyurethane-Filled Sandwich Panels	B.s2.d0	EN 1-13501
Rockwool-Filled Sandwich Panels	A2.s1.d0	EN 1-13501

	PUR	PIR	EPS/XPS	ROCKWOOL
Temperature at which Dimensional Stability is lost (°C)	-180	-200	-190	-
Ignition Temperature (°C)	285	500	245	-
Fire Performance	Good	Good	Poor	Very Good



## Rockwool

It is classified as an inorganic fireproof material. The best performance for fireproof facade, roof or interior partition wall applications is yielded by the rockwool-filled sandwich panels. Fire strength of the rockwool-filled sandwich panel may vary between 30-120 minutes based on the type, thickness, and joint type of the rockwool.

## PUR/PIR

Right chemical formulation offers advantages in plastic foams in terms of fire performance. High isocyanate content and fire-retardant additive is decisive in the performance of polyurethanes. By varying the mixing ratio of polyurethane foam constituents, polyisocyanurate (PIR) foams with good fire strength are obtained.

## XPS/EPS

Both expanded polystyrene (EPS) and extruded polystyrene (XPS) are plastic foams with lowest fire strength. At 100°C, they start to melt and form fire droplets.

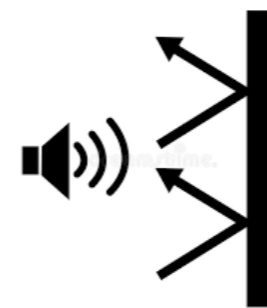


Variation of Acoustical Transmission Loss by Frequency (dB) - Frequency (Hz)

PUR Kal.	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000
50 mm	7,3	9,3	11,7	8,5	11,4	12,3	13,3	14,1	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	11,2	14,2	14,5	13,0	13,9	13,8	14,6	15,3	16,0	15,3	13,0	18,3	24,2	29,2	32,5	29,8	32,5	36,9

Variation of Acoustical Absorption Coefficient by Frequency (dB) - Frequency (Hz)

PUR Kal.	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	2000
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	11,8
60 mm	0,14	0,21	0,25	0,49	0,06	0,69	0,12	0,12	0,22	0,08	0,2	0,11	18,3





# Advanced Fire Resistance

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**JMB FIREPROOF SANDWICH PANELS**

# TECHNICAL INFORMATION

Advanced Fire Resistance

## JMB Fireproof Sandwich Panels

# TECHNICAL INFORMATION

Advanced Fire Resistance

### What is JMB Fireproof ?

A new macro molecular structure called polyisocyanurate (PIR) is formed by making isocyanate, one of the main components of polyurethane foam, enter into reaction with other isocyanate molecules like itself, and fire resistance of this constructed structure is higher than the current polyurethane systems. Therefore, PIR systems have been more widely used at fire insulation in Europe and all over the world.

High isocyanate rates and fire-retardant additives are decisive in fire performances of PIR foams. For example, the critical fire resistance duration has exceeded 30 minutes, at the tests conducted with foams of certain thicknesses.

PIR structures are constituted of the polyisocyanurate chains (trimer) formed by the reaction of three MDI molecules with each other.

In general, the first reaction in PIR formulation is the reaction of MDI with water and polyols. And then, the liberated MDI groups enter into reaction with each other and perform trimerization. This polymeric structure (PIR) formed is one with three dimensions and many cross-links, and has a very high dissociation energy since it is constructed of a combination of isocyanurates and strong chemical bonds of cross-linked structures. The fact, the higher aromatic content in a material, the better the resistance against fire, is an issue well known by the organic chemistry industry. The required temperature to dissociate the isocyanurate bonds is higher than 400 oC. And this explains why the PIR is a good solution for the applications requiring high heat and fire resistance.

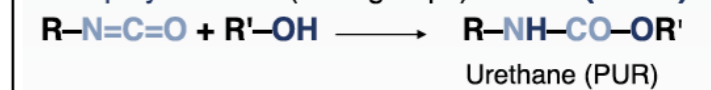
### Why JMB FireProof Panel ?

- Fireproof sandwich panel is designed with features to meet fire regulations.
- JMB Panel FireProof sandwich panel systems do not contribute in the spread of fire to different areas in the buildings in which they are used.
- The smoke resulting from JMB Panel FireProof sandwich panels' being affected by fire is less than the smoke resulting from combustion of many conventional construction materials.
- Its dimensional stability value is high.
- FireProof sandwich panels do not contribute in the fire load by not dripping during the fire.
- It has a high R value (heat flow resistance) and high thermal performance.
- PIR foam used in FireProof sandwich panel systems acts as a burnt apron at the surfaces it is exposed to fire.

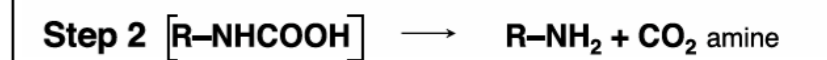
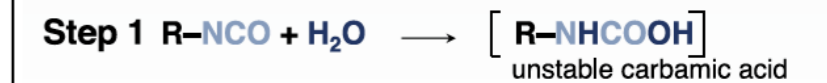
### PIR Formulation

#### Reactions of isocyanate

with poly-alcohols (–OH groups) **PUR (main) reactions**

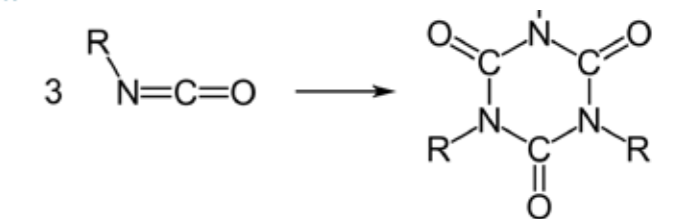


with water (–OH groups)



#### PIR (main) reactions

##### Trimerisation





# TECHNICAL INFORMATION

Advanced Fire Resistance

# TECHNICAL INFORMATION

Advanced Fire Resistance

## Fire Performance of PIR / FireProof Sandwich Panels

Fire Performance of PIR / FireProof Sandwich Panels			
Sandwich Panels with PIR Insulation	B.s1.d0	EN 13501-1	
	PUR	PIR	EPS
The Temperature at which dimensional durability is lost (°C)	≈180	≈200	≈90
Combustion Temperature (°C)	285	500	245
Fire Performance	Well	Well	Poor

## Structural Features of PIR / FireProof Foam

Density (kg/m <sup>3</sup> )	40 (+ - 2)	EN 1602
Coefficient of Thermal Conductivity λ (W/mK)	0,022	EN 13165
Closed cell percentage (%)	95	EN 14509
Vapour diffusion resistance (μ)	30-100	EN 12086
Dimensional Durability	DS(TH) 11	EN 13165
Compression Strength (Mpa) (σ <sub>10</sub> )	min. 0,095	EN 826
Water Absorption (% Volume )	2	Mill Test

## FireProof JMB Sandwich Panel



### Large Scale Test

EI - 30

The preservation duration of the insulating character and integration of the sandwich panel is checked.



### Medium Scale Test

B, s<sub>1</sub>, d<sub>0</sub>

The addition of the material to the fire mass, the amount of smoke to be released by the material at time of fire, and whether the droplets causing fire growth are formed, are checked at this test.



### Small Scale Test

5-7 cm Flame Height

This test is conducted to observe the burning behavior of the core insulation material used in the panel system.

# TECHNICAL INFORMATION

## Mechanical Strength of Sandwich Panels

# TECHNICAL INFORMATION

## Physical Inspection of Sandwich Panels

Within the scope of factory process inspections, JMB Panel tests polyurethane filled sandwich panels for mechanical strength in accordance with TS EN14509.

Mechanical Strength of JMB Polyurethane-Filled Panels	
Test Type	Strength (MPa)
Compression Strength	min. 0,095
Tensile Strength	min. 0,018
Shear Strength	min. 0,11

### Dimensional Controls

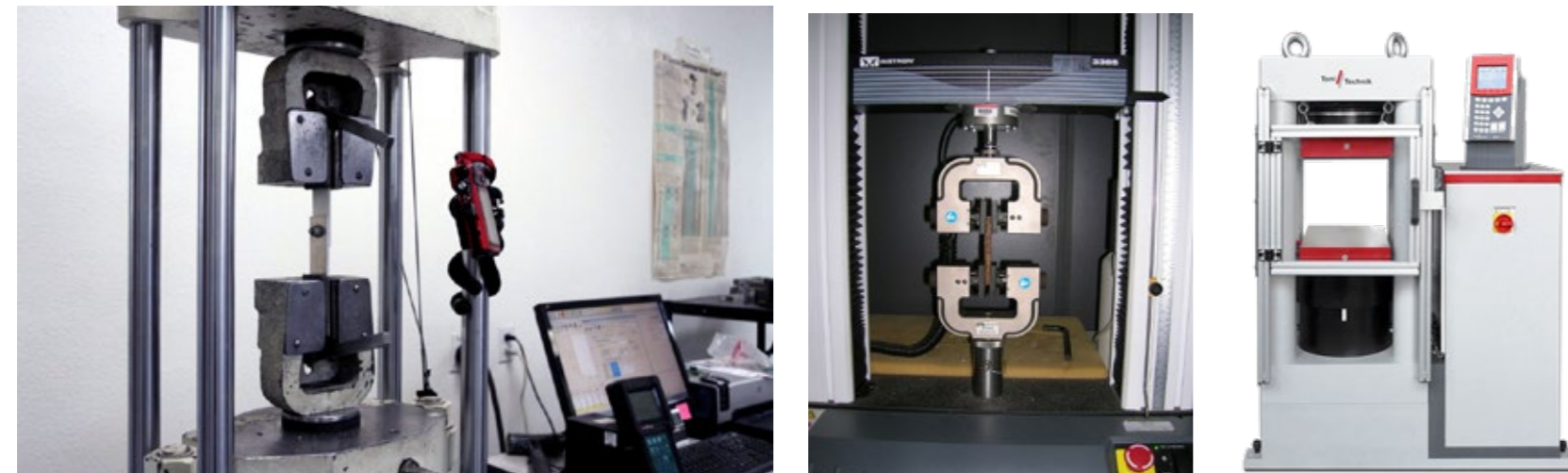
JMB Panel respects dimensional tolerances prescribed by EN standards in manufacturing its polyurethane filled sandwich panels.

Dimensional Tolerances of JMB Sandwich Panels			
Thickness	Length	Width	Deviation from Squareness
±% 4	± 5 mm	± 3 mm	± 3 mm

### Density

During factory process inspections, JMB Panel tests density, the decisive parameter for material quality, in accordance with EN standards in both polyurethane filled sandwich panels.

Density of JMB Panels		
Polyurethane-Filled Sandwich Panels	40 (± 2) kg/m <sup>3</sup>	EN 1602



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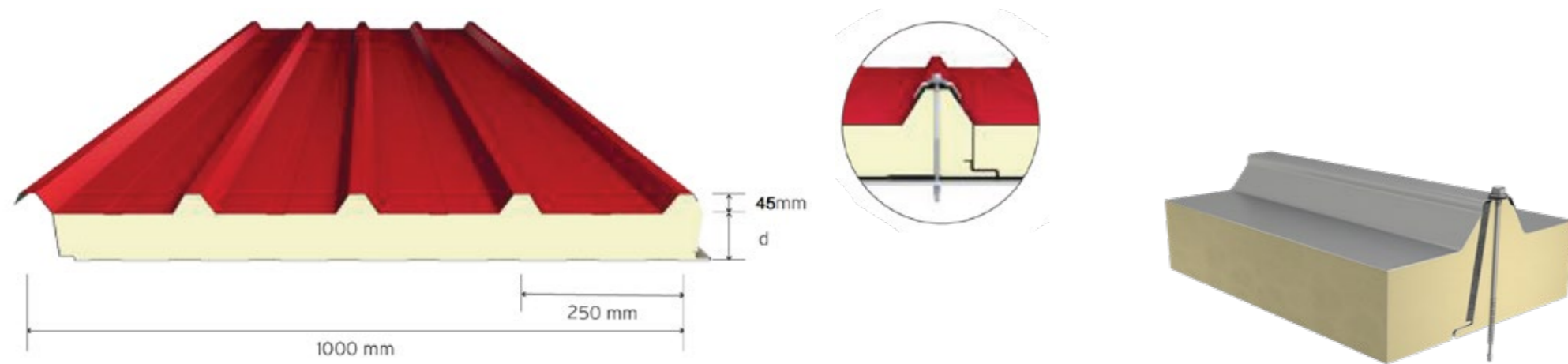
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 Coldstore  
Sandwich Panel



# Roof Panel PUR/PIR Insulated 5 Ribs "1000JMBR5"



The roof of a building is one of the most important parts of the architecture of the building, while being the part that is affected the most from natural conditions such as rain, Snow, and storm. Thanks to JMB Panel sandwich roof panels, you can ensure thermal, humidity, water, sound insulation and fire resistance especially on the roof claddings of industrial buildings. Therefore, you make your building stronger against tough natural conditions.

According to the needs investors and designers feel for the buildings, JMB Panel produces PUR, PIR, insulated roof panels in 5 rib forms, in its product range, it offers membraned roof panels for low-slope terrace roofs, and GRP roof panels for modern animal and poultry husbandry facilities.

- Location** - Doha Qatar
- Application** - Roof and Wall Claddings
- Net Coverage Width** - 1000 mm
- Minimum Length** - 2,40 m
- Maximum Length** - Depends on Transport Conditions
- PIR / PUR** - Density (EN 1602) 40 (±2) kg/ m<sup>3</sup>
- PIR / PUR** - Thickness 30-40-50-60-80-100 mm
- Reaction to Fire (EN 13501)** PUR: B.s2.d0 PIR FireProof: B.s1.d0
- Metal Type** - PPGS or PPAZ or Prepainted Aluminium
- External Facing Thickness** - 0.40 - 0.50 - 0.60 - 0.70mm
- Internal Facing Thickness** - 0.40 - 0.50 - 0.60 - 0.70mm

- Original 5-rib design.
- Extra-sound construction for wide clearances.
- High performance in low-gradient roofs.
- Fast and seamless installation.
- Maximum thermal insulation thanks to the high-density PUR/PIR foam fill.(λ : 0.022 w/mK)
- Extra fire strength certified with TS/EN/13501 (PUR: B.s2.d0 PIR FireProof: B.s1.d0) fire rating
- Aesthetics and different color options.



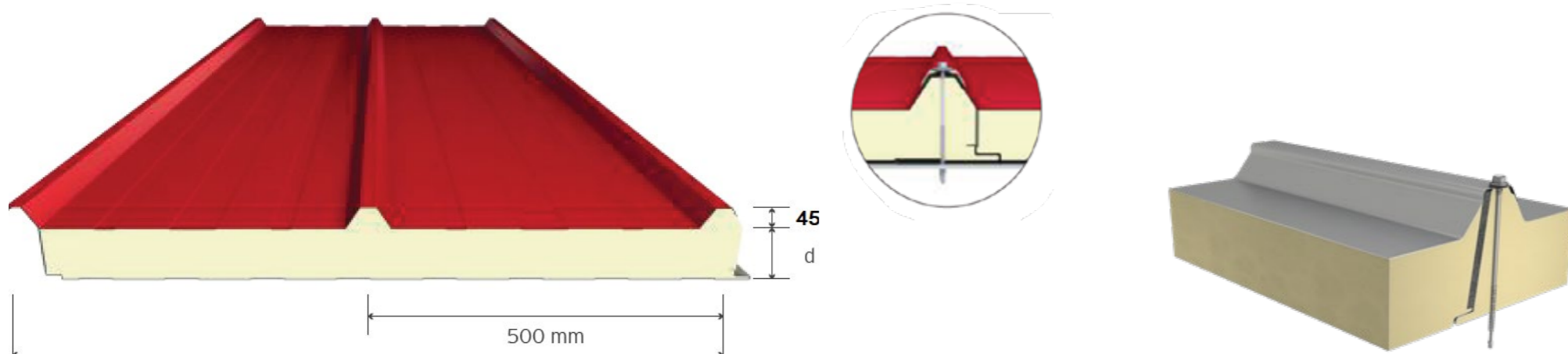
Load Span Table

BGS/PPGS	BGS/PPGS	Multi Span									
		PUR/PIR mm	150 cm	175 cm	200 cm	225 cm	250 cm	275 cm	300 cm	325 cm	350 cm
0,5	0,4	40	494	396	322	260	220	181	155	132	113
0,5	0,4	50	683	546	442	363	304	251	214	182	155
0,5	0,4	60	874	697	566	458	391	321	272	227	197
0,5	0,4	70	1081	862	700	571	480	399	339	286	248
0,5	0,4	80	1135	906	735	600	504	419	356	300	260
0,5	0,4	100	1248	996	809	660	555	461	391	330	286

Load Span Table

Aluminum	Aluminum	Multi Span									
		PUR/PIR mm	150 cm	175 cm	200 cm	225 cm	250 cm	275 cm	300 cm	325 cm	350 cm
0,5	0,4	40	392	293	227	176	141	116	92	77	64
0,5	0,4	50	519	343	297	232	189	153	125	102	85
0,5	0,4	60	643	417	363	284	235	183	151	126	104
0,5	0,4	70	788	518	449	354	287	232	192	155	130
0,5	0,4	80	828	544	472	372	301	244	201	163	137
0,5	0,4	100	910	598	519	409	331	268	222	179	150
0,7	0,5	40	574	428	330	256	206	164	134	111	94
0,7	0,5	50	752	560	431	335	267	214	175	146	123
0,7	0,5	60	939	703	533	417	332	276	216	181	153
0,7	0,5	70	1140	850	655	510	407	326	266	221	186
0,7	0,5	80	1197	892	688	535	428	343	279	232	196
0,7	0,5	100	1316	982	757	589	471	377	307	255	215

# Roof Panel PUR/PIR Insulated 3 Ribs "1000JMBR3"



The roof of a building is one of the most important parts of the architecture of the building, while being the part that is affected the most from natural conditions such as rain, Snow, and storm. Thanks to JMB Panel sandwich roof panels, you can ensure thermal, humidity, water, sound insulation and fire resistance especially on the roof claddings of industrial buildings. Therefore, you make your building stronger against tough natural conditions.

According to the needs investors and designers feel for the buildings, JMB Panel produces PUR, PIR, insulated roof panels in 3 rib forms, in its product range, it offers membraned roof panels for low-slope terrace roofs, and GRP roof panels for modern animal and poultry husbandry facilities.

- Location** - Doha Qatar
- Application** - Roof and Wall Claddings
- Net Coverage Width** - 1000 mm
- Minimum Length** - 2,40 m
- Maximum Length** - Depends on Transport Conditions
- PIR / PUR** - Density (EN 1602) 40 (±2) kg/ m<sup>3</sup>
- PIR / PUR** - Thickness 30-40-50-60-80-100 mm
- Reaction to Fire (EN 13501)** PUR: B.s2.d0 PIR FireProof: B.s1.d0
- Metal Type** - PPGS or PPAZ or Prepainted Aluminium
- External Facing Thickness** - 0.40 - 0.5 - 0.6 - 0.7mm
- Internal Facing Thickness** - 0.40 - 0.5 - 0.6 - 0.7mm

- Original 3-rib design
- Optimized sound construction
- High-performance in low-gradient roofs
- Effective thermal insulation thanks to high-density PIR/PUR( $\lambda$  : 0.022 w/mK )
- Extra effective fire strength certified with the EN/13501 (PUR: B.s2.d0 PIR FireProof: B.s1.d0) rating
- Aesthetics and different color options.



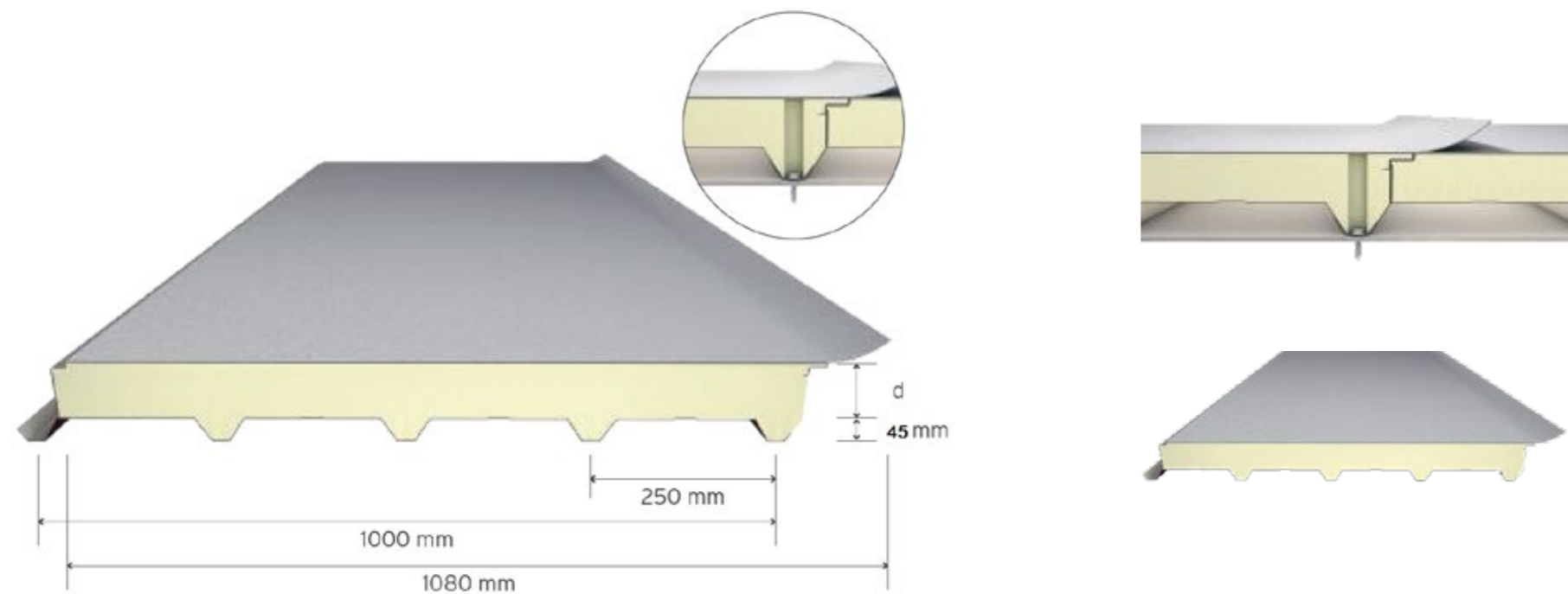
## Load Span Table

BGS/PPGS	BGS/PPGS	Multi Span									
		PUR/PIR mm	150 cm	175 cm	200 cm	225 cm	250 cm	275 cm	300 cm	325 cm	350 cm
0,5	0,4	40	353	283	230	186	157	129	111	94	81
0,5	0,4	50	488	390	316	259	217	179	153	130	111
0,5	0,4	60	624	498	404	327	279	229	194	162	141
0,5	0,4	80	849	678	550	449	377	314	266	224	195
0,5	0,4	100	934	746	605	494	415	345	293	246	215
0,5	0,5	40	348	282	232	191	162	135	115	100	88
0,5	0,5	50	465	378	311	256	217	182	155	133	117
0,5	0,5	60	579	471	386	318	269	224	190	164	143
0,5	0,5	80	771	628	516	426	361	301	256	222	194
0,5	0,5	100	848	691	568	469	397	331	282	244	213

## Load Span Table

Aluminum	Aluminum	Multi Span									
		PUR/PIR mm	150 cm	175 cm	200 cm	225 cm	250 cm	275 cm	300 cm	325 cm	350 cm
0,5	0,4	40	280	209	162	126	101	83	66	55	46
0,5	0,4	50	371	245	212	166	135	109	89	73	61
0,5	0,4	60	459	298	259	203	168	131	108	90	74
0,5	0,4	80	619	407	353	278	226	183	151	122	102
0,5	0,4	100	681	448	388	306	249	201	166	134	112
0,7	0,5	40	410	306	236	183	147	117	96	79	67
0,7	0,5	50	537	400	308	239	191	153	125	104	88
0,7	0,5	60	671	502	381	298	237	197	154	129	109
0,7	0,5	80	895	668	515	400	320	256	209	174	146
0,7	0,5	100	985	735	567	440	352	282	230	191	161

# Roof Panel PUR/PIR Insulated 5 Ribs "1000JMBR5\KRF"



Location - Doha Qatar  
 PUR / PIR - Density (EN 1602) - 40 (±2) kg/m<sup>3</sup>  
 PUR / PIR - Thickness - 30 - 40 - 50 - 75 - 100mm  
 Reaction to Fire ( EN 13501) - PUR: B.s2.d0 PIR FireProof: B.s1.d0  
 Metal Type - PPGS or PPAZ or Pre-painted Aluminum  
 External Facing Thickness - 0.40 - 0.50 - 0.60 - 0.70 mm  
 PVC - TPO Membrane Thickness - 1,20 mm  
 KRF \ FSK Thickness 0.06mm

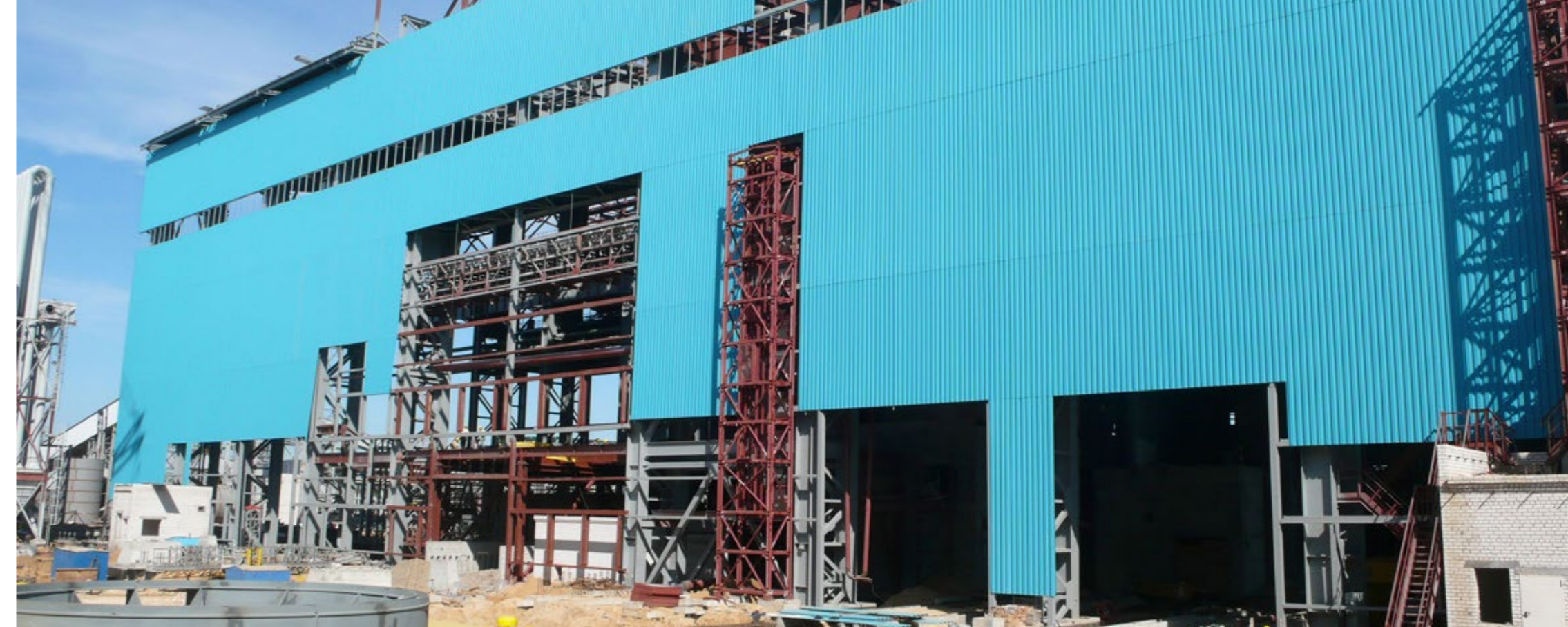
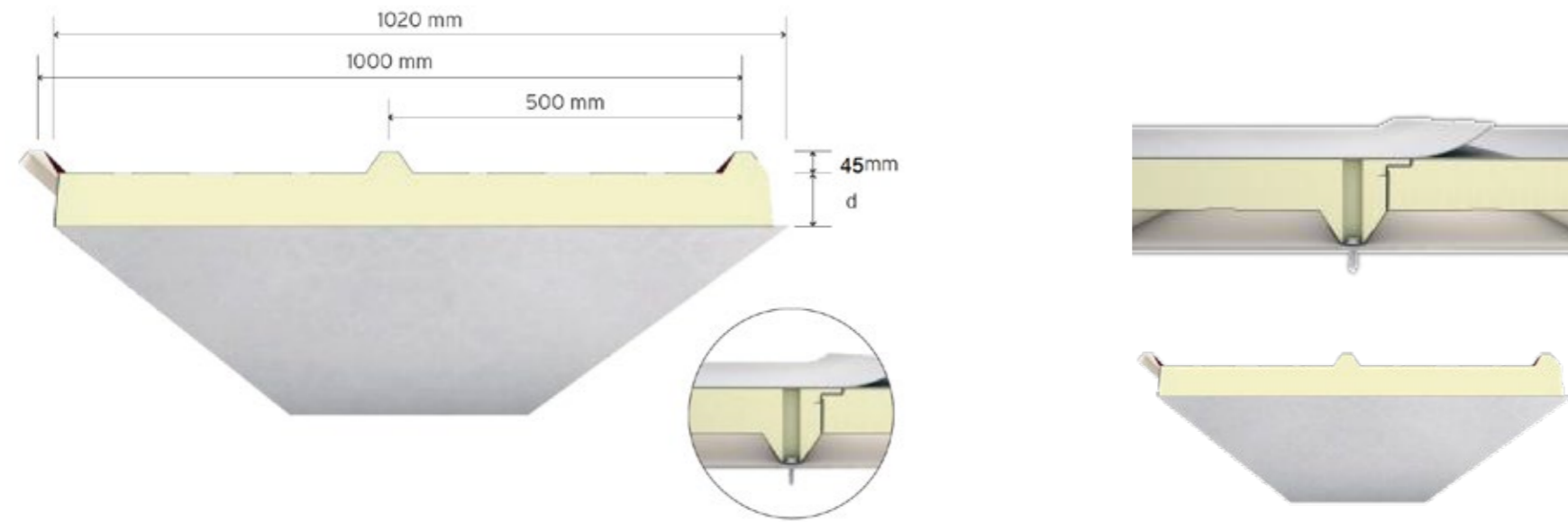
- High-strength performance in wide clearances thanks to its original 5-rib composition.
- PVC and TPO membrane options of superior quality.
- Fast and seamless installation.
- Maximum thermal insulation thanks to the highdense PUR/PIR foam fill. ( λ : 0,022 w/mK )
- Extra effective fire strength certified with the EN/13501 (PUR: B.s2.d0 PIR FireProof : B.s1.d0) rating
- Original supplemental materials and flashings that may be manufactured in length of 6 m.



## Load Span Table

PVC (Membrane Thickness) (mm)	BGS/PPGS (External Sheet Thickness) (mm)	Multi Span				
		150 cm	200 cm	250 cm	300 cm	325 cm
1,2	0,5	232	126	80	56	-
1,2	0,6	272	158	100	63	-
1,2	0,7	328	188	121	84	59
1,2	0,8	385	220	140	98	72

# Roof Panel PUR/PIR insulated 3 Ribs "1000JMBR3/KRF"



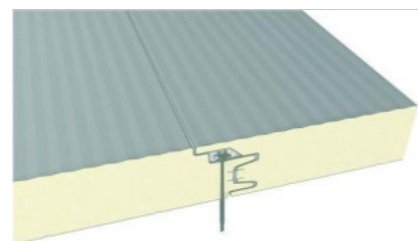
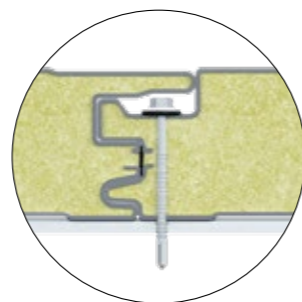
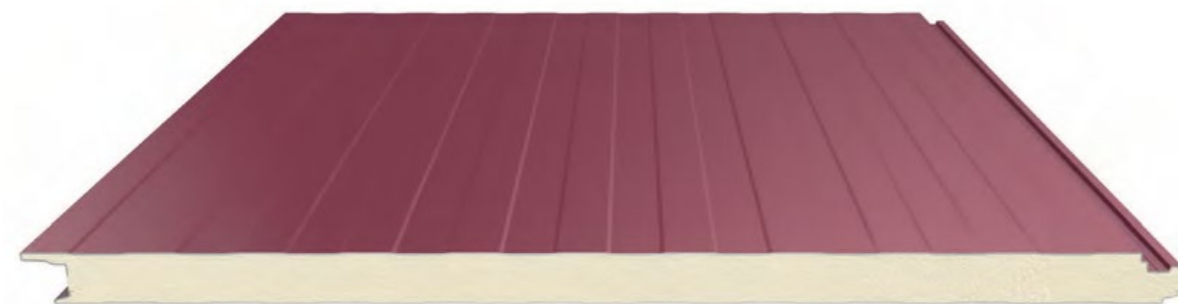
Location - Doha Qatar  
 PUR / PIR - Density (EN 1602) - 40 (±2) kg/m<sup>3</sup>  
 PUR / PIR - Thickness - 30-40-50-75-100 mm  
 Reaction to Fire ( EN 13501) - PUR: B.s2.d0 PIR FireProof: B.s1.d0  
 Metal Type - PPGS or PPAZ or Pre-painted Aluminum  
 External Facing Thickness - 0.40 - 0.50 - 0.60 - 0.70mm  
 PVC - TPO Membrane Thickness - 1,20 mm  
 KRF \ FSK Thickness 0.06mm

- High-strength performance in wide clearances thanks to its original 3-rib composition.
- PVC and TPO membrane options of superior quality.
- Fast and seamless installation.
- Maximum thermal insulation thanks to the highdense PUR/PIR foam fill. ( λ : 0,022 w/mK )
- Extra effective fire strength certified with the EN/13501 (PUR: B.s2.d0 PIR FireProof: B.s1.d0) rating
- Original supplemental materials and flashings that may be manufactured in length of 6 m.

## Load Span Table

PVC (Membrane Thickness) (mm)	BGS/PPGS (External Sheet Thickness) (mm)	Multi Span				
		150 cm	200 cm	250 cm	300 cm	325 cm
1,2	0,5	232	126	80	56	-
1,2	0,6	272	158	100	63	-
1,2	0,7	328	188	121	84	59
1,2	0,8	385	220	140	98	72

# Wall Panel PUR/PIR Hidden Screw "1000JMBWHS"



Wall sandwich panels Suitable for every need and architecture, "JMB PANEL" sandwich wall panels offer reliable and aesthetic solutions for both investors and designers. "JMB PANEL" produces wall panels of various insulation, function, and color alternatives while putting its signature under many national and international projects with its products and services. Sandwich wall panels are used in many areas – from malls to factories, from industrial facilities to storages.

According to the thermal, humidity, sound insulation and fire resistance requirements, "JMB PANEL" has PUR, PIR insulated sandwich wall panels. Implemented vertically or horizontally for the external appearance of your building, the sandwich wall panels can be used indoors as partition wall and ceiling. With its sandwich wall panels with external or secret fixing joint detail, "JMB PANEL" offers both reliable and aesthetic wall solutions for your building with various surface types and profiles to choose from.

**Location** - Doha Qatar

**PUR / PIR - Density** (EN 1602) - 40 (±2) kg/m<sup>3</sup>

**PUR / PIR - Thickness** - 50-60-75-80-100-120-150mm

**Reaction to Fire** ( EN 13501) - PUR: B.s2.d0 PIR FireProof: B.s1.d0

**Metal Type** - PPGS or PPAZ or Prepainted Aluminium

**External Facing Thickness** - 0.40-0.50-0.60-0.70mm

**Internal Facing Thickness** - 0.40-0.50-0.60-0.70mm

- Excellent strength thanks to original double tongue-and-groove design.
- Original double tongue-and-groove joint guaranteeing excellent water insulation performance in horizontal wall panel applications.
- Aesthetic flush design of fittings
- Fast and seamless installation.
- Maximum thermal insulation thanks to the highdense PUR/PIR foam fill. (  $\lambda$  : 0,022 w/mK )
- Extra effective fire strength certified with EN/13501 (PUR: B.s2.d0 PIR FireProof: B.s1.d0) fire rating.
- Aesthetics and different color options.
- Original supplementary materials and flashings that may be manufactured in length of 6 m.

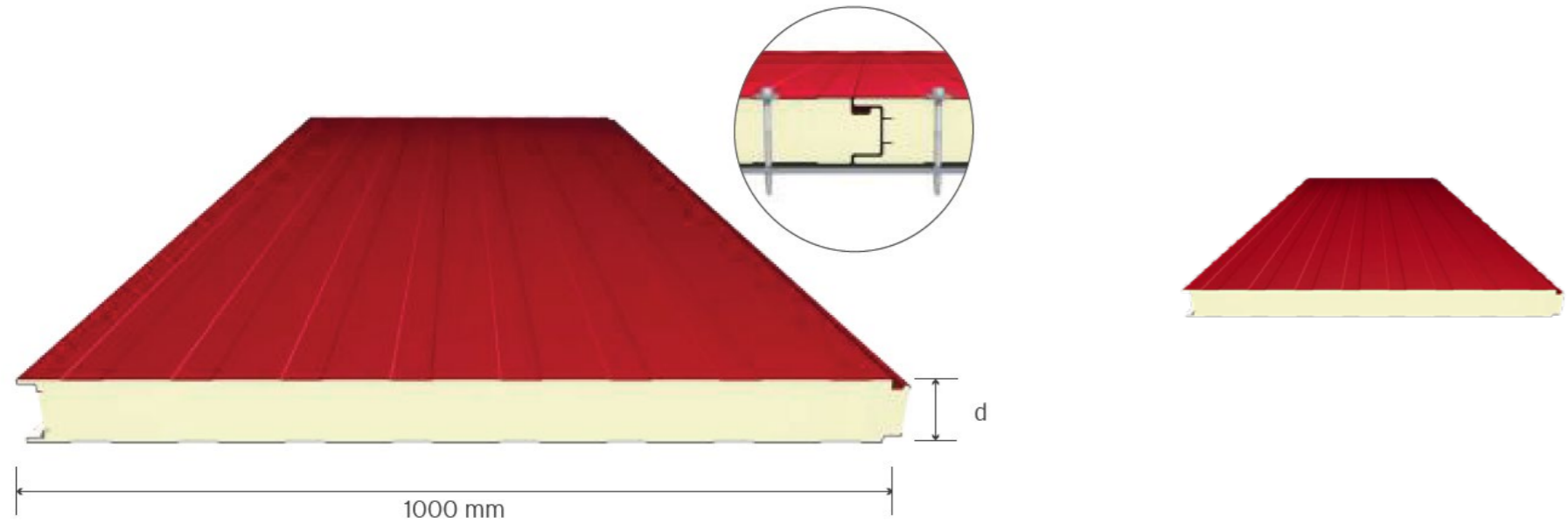


## Load Span Table

BGS/PPGS	BGS/PPGS	Multi Span				
		PUR / PIR mm	100 cm	150 cm	200 cm	250 cm
0,5	0,4	50	302	215	149	121
0,5	0,4	60	337	263	179	134
0,5	0,4	70	349	272	185	139
0,5	0,4	80	400	320	245	145



# Wall Panel PUR/PIR Screw Profile "1000JMBWHS"



Wall sandwich panels Suitable for every need and architecture, "JMB PANEL" sandwich wall panels offer reliable and aesthetic solutions for both investors and designers. "JMB PANEL" produces wall panels of various insulation, function, and color alternatives while putting its signature under many national and international projects with its products and services. Sandwich wall panels are used in many areas – from malls to factories, from industrial facilities to storages.

According to the thermal, humidity, sound insulation and fire resistance requirements, "JMB PANEL" has PUR, PIR insulated sandwich wall panels. Implemented vertically or horizontally for the external appearance of your building, the sandwich wall panels can be used indoors as partition wall and ceiling. With its sandwich wall panels with external or secret fixing joint detail, "JMB PANEL" offers both reliable and aesthetic wall solutions for your building with various surface types and profiles to choose from.

- Location** - Doha Qatar
- PUR / PIR** - Density (EN 1602) - 40 (±2) kg/m<sup>3</sup>
- PUR / PIR** - Thickness - 50-60-75-80-100-120-150-200mm
- Reaction to Fire** (EN 13501) - PUR: B.s2.d0 PIR FireProof: B.s1.d0
- Metal Type** - PPGS or PPAZ or Prepainted Aluminium
- External Facing Thickness** - 0.40-0.50-0.60-0.70mm

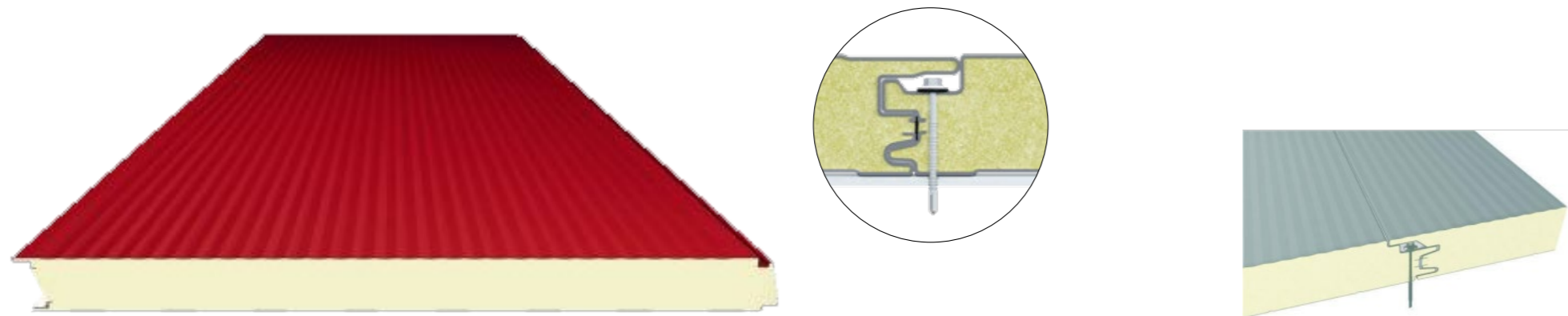
- Excellent strength thanks to original double tongue and groove design.
- Original double tongue-and-groove joint guaranteeing excellent water insulation performance in horizontal wall panel applications.
- Fast and seamless installation.
- Maximum thermal insulation thanks to the highdense PUR/PIR foam fill. ( $\lambda$  : 0,022 w/mK )
- Extra effective fire strength certified with EN/13501 (PUR: B.s2.d0 PIR FireProof: B.s1.d0) fire rating.
- Aesthetics and different color options.
- Original supplementary materials and flashings that may be manufactured in length of 6 m.



## Load Span Table

BGS/PPGS	BGS/PPGS	PUR / PIR mm	Multi Span			
			100 cm	150 cm	200 cm	250 cm
0,5	0,4	50	302	215	149	121
0,5	0,4	60	337	263	179	134
0,5	0,4	70	349	272	185	139
0,5	0,4	80	400	320	245	145

# Wall Panel PUR/PIR Hidden Screw with Micro-Line "1000JMBWHS.M"



Wall sandwich panels Suitable for every need and architecture, "JMB PANEL" sandwich wall panels offer reliable and aesthetic solutions for both investors and designers. "JMB PANEL" produces wall panels of various insulation, function, and color alternatives while putting its signature under many national and international projects with its products and services. Sandwich wall panels are used in many areas – from malls to factories, from industrial facilities to storages.

According to the thermal, humidity, sound insulation and fire resistance requirements, "JMB PANEL" has PUR, PIR insulated sandwich wall panels. Implemented vertically or horizontally for the external appearance of your building, the sandwich wall panels can be used indoors as partition wall and ceiling. With its sandwich wall panels with external or secret fixing joint detail, "JMB PANEL" offers both reliable and aesthetic wall solutions for your building with various surface types and profiles to choose from.

- Location** - Doha Qatar
- Application** - Wall Claddings
- Net Coverage Width** - 1000 mm
- Minimum Length** - 2,40 m
- Maximum Length** - Depends on Transport Conditions
- PUR / PIR** - Density (EN 1602) 40 (±2) kg/m<sup>3</sup>
- PUR / PIR** - Thickness 50-60-75-80-100-120-150mm
- Reaction to Fire (EN 13501)** PURB.s2.d0 PIR FireProof: B.s1.d0
- Metal Type** - PPGS or PPAZ or Prepainted Aluminium
- External Facing Thickness** - 0.40-0.50-0.60-0.70mm
- Internal Facing Thickness** - 0.40-0.50-0.60-0.70mm

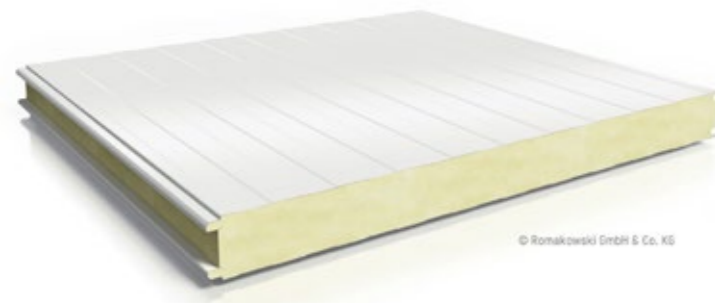
- Aesthetic results with micro-form surface construction.
- Excellent strength thanks to the original double tongue-and-groove joint.
- Original double tongue-and-groove joint guaranteeing excellent water insulation performance in horizontal wall panel applications
- Aesthetic flush design of fittings.
- Fast and seamless installation.
- High-density PUR/PIR foam fill ensuring maximum thermal insulation. (  $\lambda$  : 0.022 w/mK )
- Extra fire strength certified with EN/13501 (PUR: B.s2.d0 PIR FireProof: B.s1.d0) fire rating.
- Aesthetics and different color options.
- Original supplementary materials and flashings that may be manufactured in a length of 6 m.



**Load Span Table**

PPGS	PPGS	Multi Span				
		PUR/ PIR mm	100cm	150cm	200cm	250cm
Metal (External Sheet Thickness) (mm)	Metal (Internal Sheet Thickness) (mm)					
0,5	0,4	50	302	215	149	121
0,5	0,4	60	337	263	179	134
0,5	0,4	70	349	272	185	139
0,5	0,4	80	400	320	245	145

# Cold Store Panel PUR/PIR "1000JMBCS" Single Joint



Qatar Cold Store panel leader "JMB Panel" allows you to make perfect thermal insulation at your cold storages. With "JMB Panel" the heat is controlled only by you. With their perfect joint feature, "JMB Panel" Cold Store come to the forefront as the most correct choice in the cladding and thermal insulation processes of the cold rooms or cold storage areas needed by sectors such as food, pharmaceutical, chemistry, health, etc. Cold storage sandwich panels protect the heat you desire and take under control the heating and cooling processes. Therefore, it ensures energy efficiency. Along with their airtight structure preventing heat loss, cold storage sandwich panels offer smart solutions for your cold storage areas by being an economic investment, as well as with their features of easy assembling and quick installation.

In order to ensure the best thermal insulation, PUR and PIR insulation cores compatible with the international standards are used for "JMB Panel" cold storage sandwich panels. With different joint detail alternatives, cold storage sandwich panels offer you energy-efficient, hygienic, and safe environments. Produced at various thicknesses ranging from 50 mm to 200 mm, cold storage sandwich panels have lined and flat surface types, as well as stainless steel and PVC film laminated surface options.

- Location** - Doha Qatar
- Application** - Cold Stores, Chillers, Refrigeration and freezers
- Net Coverage Width** - 1000 mm
- Minimum Length** - 2,40 m
- Maximum Length** - Depends on Transport Conditions
- PUR / PIR** - Density (EN 1602) 40 (±2) kg/m<sup>3</sup>
- PUR / PIR** - Thickness 75-80-100-120-150-200 mm
- Reaction to Fire (EN 13501)** PUR: B.s2.d0 PIR FireProof: B.s1.d0
- Metal Type** - PPGI or PPAZ or Prepainted ALuminum
- External Facing Thickness** - 0.50-0.60-0.70mm
- Internal Facing Thickness** - 0.50-0.60-0.70mm

- Excellent sealing and thermal insulation thanks to the original double tongue-and-groove joint.
- Excellent strength thanks to the original double tongue-and-groove joint.
- Applicability as facade cladding.
- Fast and seamless installation.
- Maximum thermal insulation thanks to the highdense PUR/PIR foam fill. ( λ : 0.022 w/mK )
- Extra fire strength certified with the EN/13501 (PUR: B.s2.d0 PIR FireProof: B.s1.d0) rating
- Aesthetics and different color options.
- Original supplementary materials and flashings that may be constructed in 6-m length



## Installation Lengths:

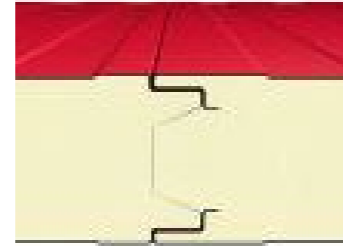
Metal (External Sheet Thickness) (mm)	Metal (Internal Sheet Thickness) (mm)	PUR/PIR mm	Max. Interior Wall (m)	Ceiling Span (m)
0,5	0,5	80	6,5	4
0,5	0,5	100	8	5
0,5	0,5	120	10	6
0,5	0,5	150	12	7
0,5	0,5	200	13	8

## Coefficient of Thermal Conductivity

PUR (mm)	UCS Panel (W/ m2K)	(°C)													
		10	15	20	25	30	35	40	45	50	55	60	65	70	80
80	0,247	2,5	3,7	4,9	6,2	7,4	8,6	9,9	<10 W/ m2						
100	0,199	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	<10 W/ m2					
120	0,167	1,7	2,5	3,3	4,2	5,0	5,8	6,7	7,5	8,3	9,2	<10 W/ m2			
150	0,134	1,3	2,0	2,7	3,4	4,0	4,7	5,4	6,0	6,7	7,4	8,1	8,7	9,4	<10 W/ m2

PUR Thickness is determined under values of 10 W/m2 heat transmission

# Cold Store Panel PIR/PUR "1000JMBCS" Double Joint



Qatar Cold Store panel leader "JMB Panel" allows you to make perfect thermal insulation at your cold storages. With "JMB Panel" the heat is controlled only by you. With their perfect joint feature, "JMB Panel" Cold Store come to the forefront as the most correct choice in the cladding and thermal insulation processes of the cold rooms or cold storage areas needed by sectors such as food, pharmaceutical, chemistry, health, etc. Cold storage sandwich panels protect the heat you desire and take under control the heating and cooling processes. Therefore, it ensures energy efficiency. Along with their airtight structure preventing heat loss, cold storage sandwich panels offer smart solutions for your cold storage areas by being an economic investment, as well as with their features of easy assembling and quick installation.

In order to ensure the best thermal insulation, PUR and PIR insulation cores compatible with the international standards are used for "JMB Panel" cold storage sandwich panels. With different joint detail alternatives, cold storage sandwich panels offer you energy-efficient, hygienic, and safe environments. Produced at various thicknesses ranging from 50 mm to 200 mm, cold storage sandwich panels have lined and flat surface types, as well as stainless steel and PVC film laminated surface options.

**Location** - Doha Qatar

**Application** - Cold Stores, Chillers, Refrigeration and freezers

**Net Coverage Width** - 1000 mm

**Minimum Length** - 2,40 m

**Maximum Length** - Depends on Transport Conditions

**PUR / PIR** - Density (EN 1602) 40 (±2) kg/m<sup>3</sup>

**PUR / PIR** - Thickness 75-80-100-120-150-200 mm

**Reaction to Fire (EN 13501)** PUR: B.s2.d0 PIR FireProof: B.s1.d0

**Metal Type** - PPGI or PPAZ or Prepainted ALuminum

**External Facing Thickness** - 0.50-0.60-0.70mm

**Internal Facing Thickness** - 0.50-0.60-0.70mm

- Excellent sealing and thermal insulation thanks to the original double tongue-and-groove joint.
- Excellent strength thanks to the original double tongue-and-groove joint.
- Applicability as facade cladding.
- Fast and seamless installation.
- Maximum thermal insulation thanks to the highdense PUR/PIR foam fill. ( $\lambda$  : 0.022 w/mK)
- Extra fire strength certified with the EN/13501 (PUR: B.s2.d0 PIR FireProof: B.s1.d0) rating
- Aesthetics and different color options.
- Original supplementary materials and flashings that may be constructed in 6-m length



## Installation Lengths:

Metal (External Sheet Thickness) (mm)	Metal (Internal Sheet Thickness) (mm)	PUR/PIR mm	Max. Interior Wall (m)	Ceiling Span (m)
0,5	0,5	80	6,5	4
0,5	0,5	100	8	5
0,5	0,5	120	10	6
0,5	0,5	150	12	7
0,5	0,5	200	13	8

## Coefficient of Thermal Conductivity

PUR (mm)	UCS Panel (W/ m2K)	(°C)														90	
		10	15	20	25	30	35	40	45	50	55	60	65	70	80		
80	0,2470	2,5	3,7	4,9	6,2	7,4	8,6	9,9	<10 W/ m2								
100	0,1993	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	<10 W/ m2							
120	0,167	1,7	2,5	3,3	4,2	5,0	5,8	6,7	7,5	8,3	9,2	<10 W/ m2					
150	0,1343	1,3	2,0	2,7	3,4	4,0	4,7	5,4	6,0	6,7	7,4	8,1	8,7	9,4	<10 W/ m2		
200	0,1013	1,0	1,5	2,0	2,5	3,0	3,5	4,1	4,6	5,1	5,6	6,1	6,6	7,1	8,1	<10 W/ m2	

PUR Thickness is determined under values of 10 W/m2 heat transmission

# Cold Store Projects





All RAL colors available Upon Request

# JMB Ducting System

Since its inception, JMB-Panel a primary member of JMB Group is a leading manufacturer of Insulation materials in the State of QATAR and has been setting manufacturing benchmarks with its engineering excellence. With over 5 decades of manufacturing legacy, JMB-Panel has forged a strong reputation for its quality, dependability, customer service and has partnered in building some of the most prestigious projects in the State of Qatar.

JMB-Panel has long been a pioneer in the manufacture of polyurethane injected/laminated panels and specializes in the manufacture of PUR/PIR Preinsulated Duct Panels. These panels are an innovative technology and a suitable alternative to the traditional air duct systems.

The company follows international standards in manufacturing its diverse range of products, follows ISO 9001:2008 quality management system and the products carry individual product certificates. With state of the art of manufacturing facility. JMB-Panel has one of the largest production capacities in the Middle East and maintains its leadership position with its ability to meet any volume and delivery requirements.

## Product Overview



Low thermal conductivity



Easy to handle



Fire resistance



Noise protection



Easy to install



JMB-Panel Preinsulated Duct are the exciting latest addition to our family of insulated panels Roof Wall and Cold Store Panel. Preinsulated duct panel is an innovative technology for HVAC ductwork system. JMB-Panel Preinsulated ductwork system is used as an alternative for operation such as fresh air, supply, return and as an exhaust air ductwork for HVAC system.

These panels feature a unique sandwich construction that is the result of injecting PUR (Polyurethane) or PIR (Polyisocyanurate) as the core material laminated with aluminum facing on both sides. These panels are suitable for the construction of air distribution ducts in air-conditioning and heating systems.

JMB-Panel Preinsulated Duct panels have been specially developed for use in residential, commercial, and industrial units of HVAC duct system to satisfy the thermal, Fire and acoustical requirements.

## Advantages

- Fire classification class "O" (as per BS 476 Part 6 & 7)
- Less labour and material reduce fabrication & installation cost
- Low thermal conductivity 0.021 W/m<sup>2</sup>K at 23°C
- Water repellent
- Ideal for HVAC ductwork in new buildings and refurbishment
- Excellent thermal insulation
- Foam CFC/HCHC Free
- Negligible smoke obscuration
- Chemically inert
- Unaffected by air infiltration
- Prevents growth of bacteria and fungi
- Higher compressive strength
- Lightweight compared to conventional ducts
- Manufactured with a blowing agent that has zero ODP and low GWP No
- No release of particles due to internal aluminum surface

## Panel Types: -

		JMBD20	JMBD30
Colour		BLUE	Salmon
Density	Kg/m <sup>3</sup>	35	45
ALUM THIC	µm	60	80
SIZE	Mm	3000X1200X20	4000X1200X20
Presentation	Units/Package	12	10

## Description: -

JMB-Panel Preinsulated duct panels feature a unique sandwich construction that is the result of injecting PUR (Polyurethane) or PIR (Polyisocyanurate) as the core material laminated with aluminum facing on both sides.

## Specification: -

Product Code	Foam Thic	Density	Thermal Conductivity	Dimension
JMBD20	20.5mm (+/- 0.5)	45Kg/m <sup>3</sup> (+/- 3Kg/m <sup>3</sup> )	0.021W/m <sup>2</sup> K	4000mmX1200
JMBD30	30mm (+/- 0.5)	48Kg/m <sup>3</sup> (+/- 3Kg/m <sup>3</sup> )	0.021W/m <sup>2</sup> K	4000mmX1200

## Temperature Range: -

JMB-Panel Preinsulated Duct panels can be used constantly in fabricated duct work installations with temperatures ranging from -25°C to +80°C. No substantial difference on the insulation, chemical or physical characteristics of the panel will be observed with this temperature range.





**Compliance: -**

JMB – Panel Preinsulated duct panels comply with British & American Standards: -

Properties	Standard
Water Absorption	ASTM C 209:1998
Thermal Conductivity	ASTM C518:2010
Water Vapor Transmission	ASTM E96-00
Compressive Strength	Bs En 826:1996
Flexural Strength	ASTMC203
Fire Classification	Bs EN 13501-1:2007
Fire Propagation Index	BS 476 Part 6
Surface Spread of Flame	BS 476 Part 7
Toxicity Index	Defence Standard
Resistance To Fungi	ASTM G21-15



**Packaging: -**

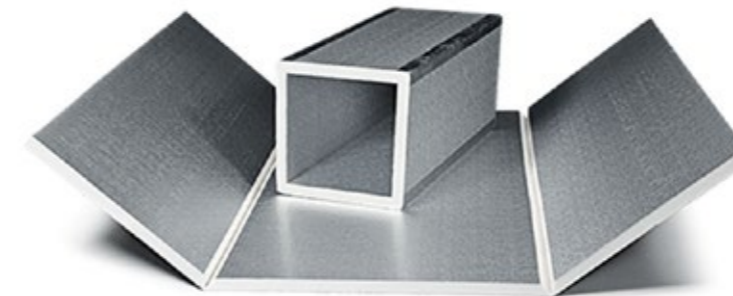
JMB-Panel Preinsulated duct panels are delivered with an adequate polyethylene packaging and stacked in packs of 10 panels for 20.5mm thickness and 10 panels for 30mm thickness.

The packaging should not be considered for storage and panels should be stored inside a building. If internal storage is not possible, care should be taken to stack the panels clear of the ground and cover with weatherproof tarpaulin. Panels that have been allowed to get wet should not be used.



**Disclaimer: -**

JMB-Panel reserves the right to amend product specifications without prior notice. The information and data contained in the document is given in good faith and applies to the uses described. Recommendations for use should be verified as to the suitability and compliance with actual requirements, specifications and any applicable laws and regulations.



# Z & C Purlins & Accessories

Al-Buhsain Steel Industries "JMB Panel" manufacture a complete range of structural C and Z section purlins and girts for a wide range of applications. Made from quality, high tensile galvanized steel, Al-Buhsain Steel Industries "JMB Panel" purlins and girts can be supplied plain or punched.

## PURLINS

### General Data

The "Z"- and "C" shaped sections of Al-Buhsain Steel Industries "JMB Panel" are accurately roll formed via cold forming from high-strength zinc-alloy coated steel in order to provide an efficient, lightweight and cost-efficient roofing, cladding and walling support system, for framed structures. (Purling and girt system).

### Range of products and services

- The full range of "Z" and "C"- shaped profiles.
- Technical information for cleat less connections.
- Bolting systems to suit all project requirements.
- Corrosion protection warranty.
- Technical advice on improving the life expectancy of purling systems in corrosive environments.
- Access to a network of experienced engineers.

### Applications

Al-Buhsain Steel Industries "JMB Panel" "Z" shaped section may be used over single spans, un-lapped continuous spans and lapped continuous spans in multi-bay buildings. Lapped spans result in a considerable load bearing capacity increase in the system. Al-Buhsain Steel Industries "JMB Panel" "C" shaped section may be used over single spans and un-lapped continuous spans in multi-bay buildings. They are ideal as eave purlins or where compact sections are required. The "C" shaped section cannot be used in overlapping structures.

### Material specifications – standards

The "Z" and "C" shaped section structural elements are manufactured through cold forming procedure from zinc-alloy coated steel Zinc-hi-ten® which minimum yield stress is by 60% higher than the respective profiles formed through hot forming. This means that we can use sections of minimum thickness and weight, resulting in reduction of the time and the cost of the construction. They are classified as "thin gauge member" profiles and the study as well as the analysis concerning their application is conducted according to the provisions of the European standard EN 1993-1.3.

### Base Metal Thickness (BMT) 1.5mm - 2.0mm - 2.5mm - 3.0mm

Steel Quality: G450 (according to AS 1397-93) or S450GD (according to EN 10147-2000) with guaranteed minimum yield stress of 450 N/mm<sup>2</sup>.

### Corrosion protection

In standard production the material used is hot-dipped galvanized, type Z275, zinc-alloy coated (with a minimum coating density of 275 gr./m<sup>2</sup>) steel (according to AS 1937-93 & EN 10147-100). Upon request, purlins can also be manufactured from hot dipped galvanized, type Z350, zinc alloy coated (with a minimum coating density of 350 gr/m<sup>2</sup>) steel, for applications in aggressive and severely corrosive environments.

### Dimensions

Al-Buhsain Steel Industries "JMB Panel" "Z" and "C" shaped section are produced in standard dimension and length upon request from 2.000mm to 12.000mm according to the engineering design data. Are produced according to the desired hole punching with the following restriction:

- Minimum distance from the end section 35mm.
- Minimum center holes distance in perpendicular axe 65mm.

### "Z"- shaped profiles

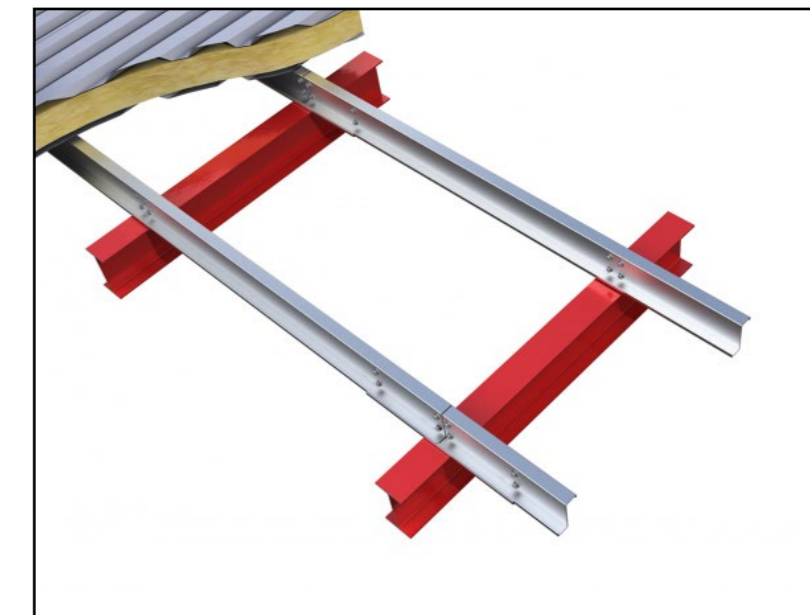
The "Z" shaped sections structural elements of Al-Buhsain Steel Industries "JMB Panel" feature two flanges of different width so that two elements with the same static height can overlap, fitting perfectly to each other. In this way, we achieve to bridge multiple spans with continuous purlins. This purlin fixing method is called continuous and provides the advantage of practically doubling the purlin thickness at its fixing points, where bending moments and shear forces have maximum values, thus improving the load bearing capacity as well as the rigidity of the system. The structural elements of "Z" profiles with the same static height but different thickness can be overlapped in any combination.

Other fixing methods:

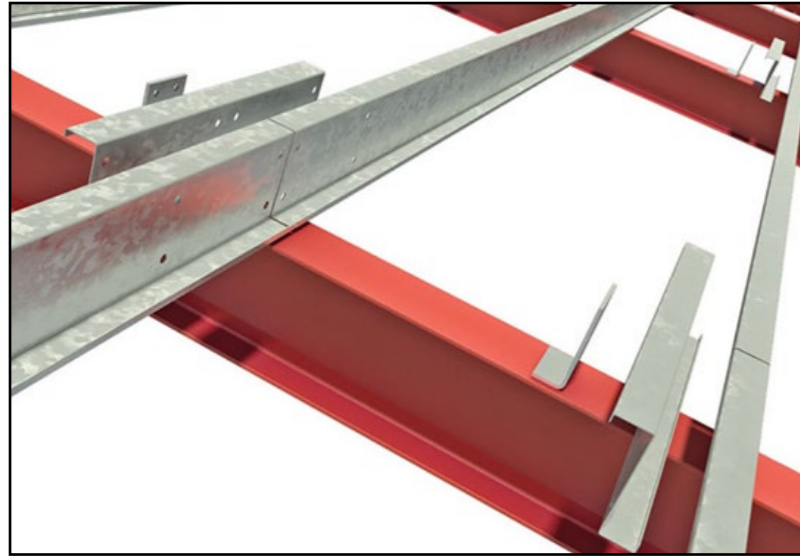
- Sleeve system.
- Freely supported continuous fixing

### "C" shaped sections

The "C" shaped sections structural elements of Prime Insulated Panels feature two equally sized flanges and are ideal for use as purlins, girths as well as door and window frames. They cannot be overlapped, and they are only installed freely supported over single spans or continuous spans with the ends butted.

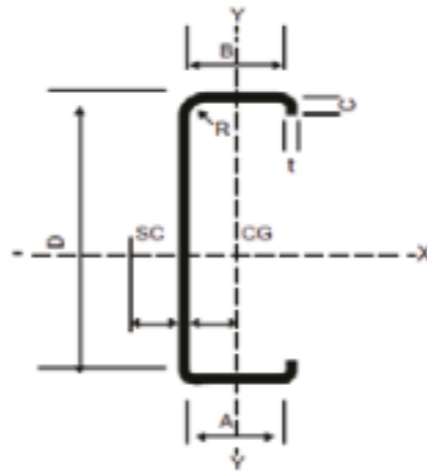


# Z & C Purlins & Accessories



## C Purlin

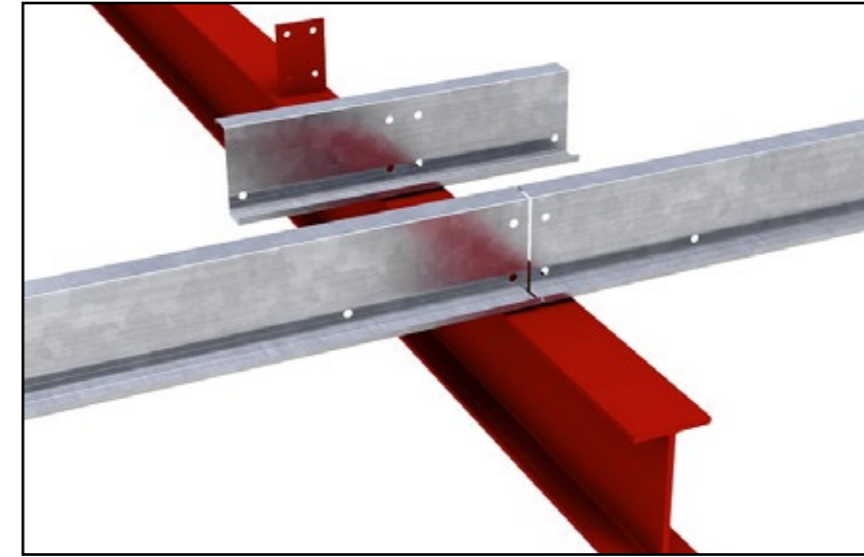
C Purlin are horizontal structures that are used to support the load from the roof deck or the sheathing. The plane surface of this purlin on one side has made it a preferred material for cladding due to its easy installation on concrete structures or steel. Our range purling is light in weight and perfect for simple span construction.



C Purlin

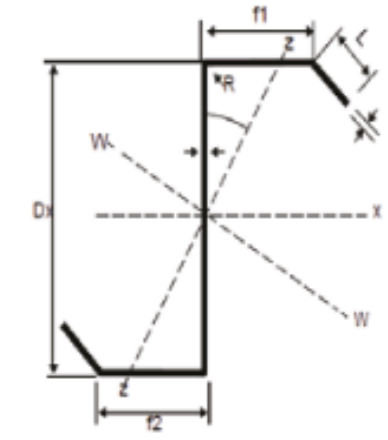
### C Purlin SPECIFICATION

Web	Flange	Lip	Thickness
100	50	20	1.5 to 2mm
140	70	20	1.5 to 2mm
180	70	20	1.5mm/2mm/2.5mm
210	80	20	1.6 to 3mm
250	80	20	1.6 to 3mm
300	80	20	1.6 to 3mm



## Z Purlin

Z Purlin are made using cold-formed or rolled sheets for supporting roof. The flexible shape of these beams facilitates various designs solutions. These purling are extensively used in huge roofing solutions such as godowns, workshops, industrial sheds and many more. The range is known for saving up to 50% on structural sheet in comparison with hot rolled angles. Our purling is crisp and clean in design and do not allow the scope of inaccurate lengths



Z Purlin

### Z Purlin SPECIFICATION

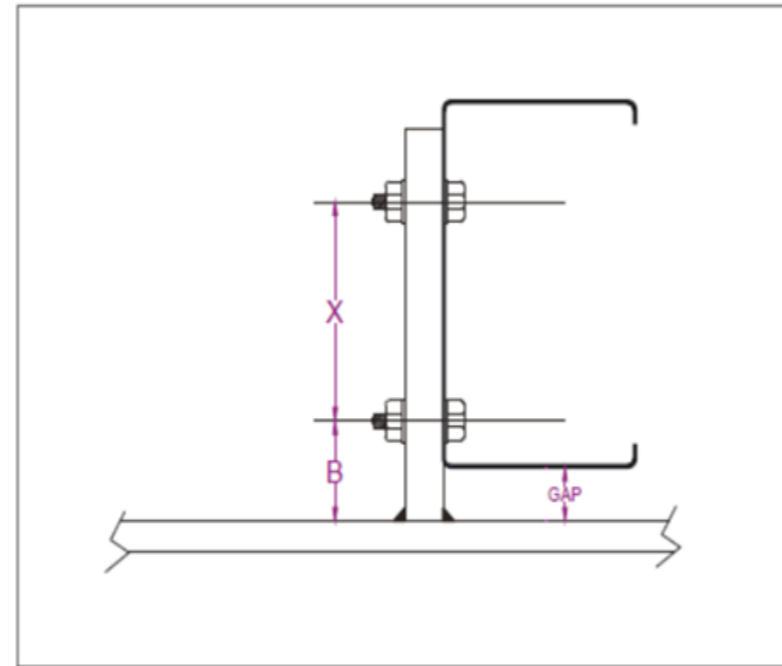
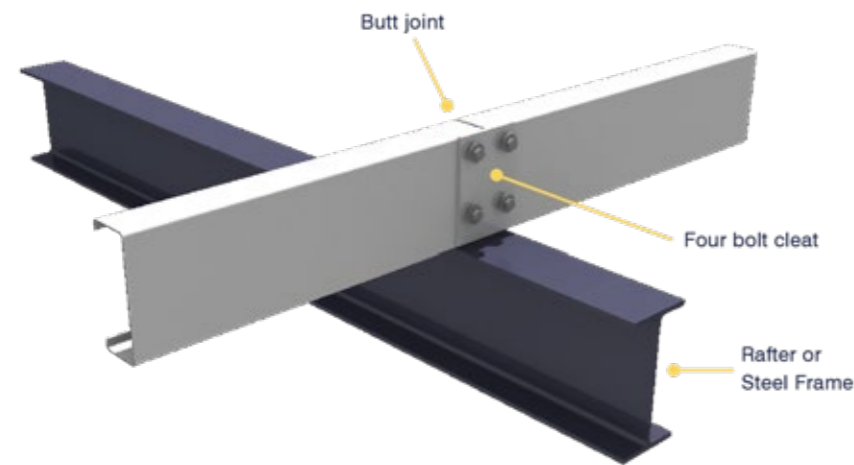
Web	Flange	Lip	Thickness	
100	50	54	20	1.5 to 2mm
140	70	60	20	1.5 to 2mm
180	70	60	20	1.5mm/2mm/2.5mm
210	80	70	20	1.6 to 3mm
250	80	70	20	1.6 to 3mm
300	80	70	20	1.6 to 3mm

# Z & C Purlins & Accessories

## Z & C Purlins Rail Cleats data sheet

Purlins, Both C and Z, are available in various sizes rolled. They can be ordered plain or with Holes pre-punched, as per standard end punching or punched to any layout required. The standard maximum length for delivery of purlins is 12 meters. Lengths that are greater than 12 meters long are obtainable. However, they then require special delivery vehicles, pre-arranged delivery times and on-site handling capabilities.

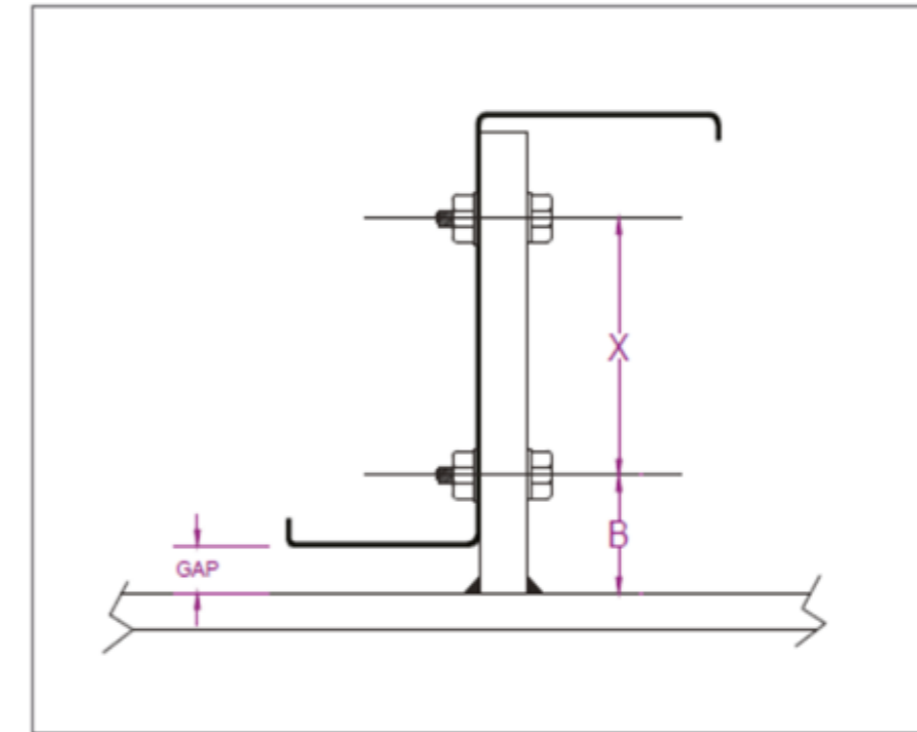
**C PURLINS:** Sections have flanges which are equal in size and are commonly used for simple supported spans. C sections are not lapped together, for continuous spans they are end butted.



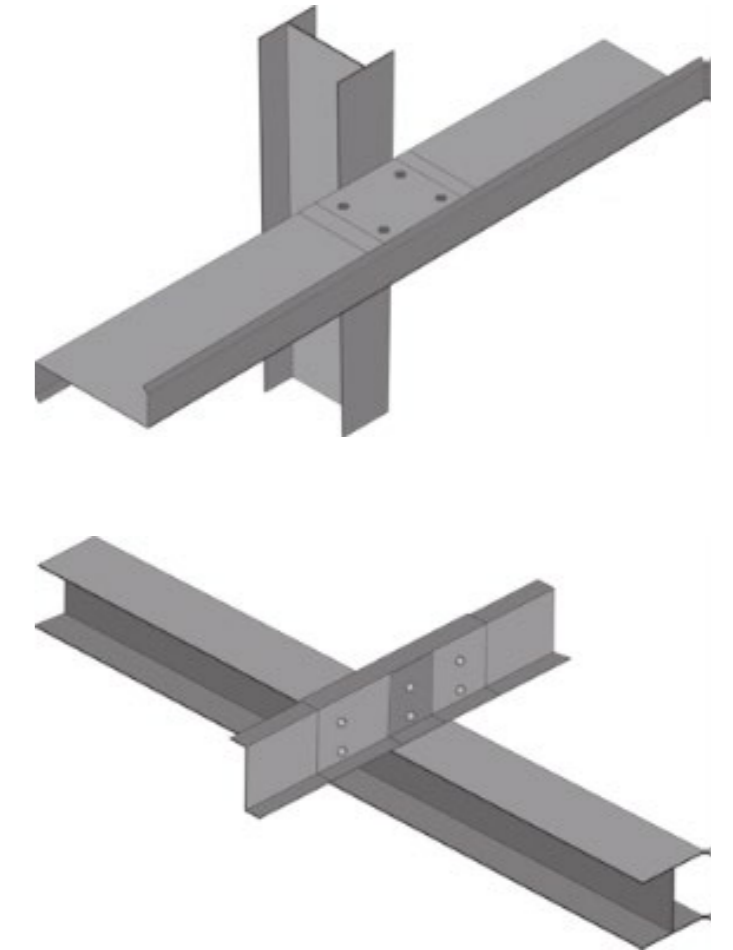
C purlin Standard

**Z PURLINS:** Sections are made with one flange broader than the other. When one purlin is rotated 180° two sections can be bolted together enabling them to be lapped. Lapping the purlins over interior supports improves the load capacity and rigidity of the purlins. Z sections purlins can also be used, like C sections, in the application of simple spans.

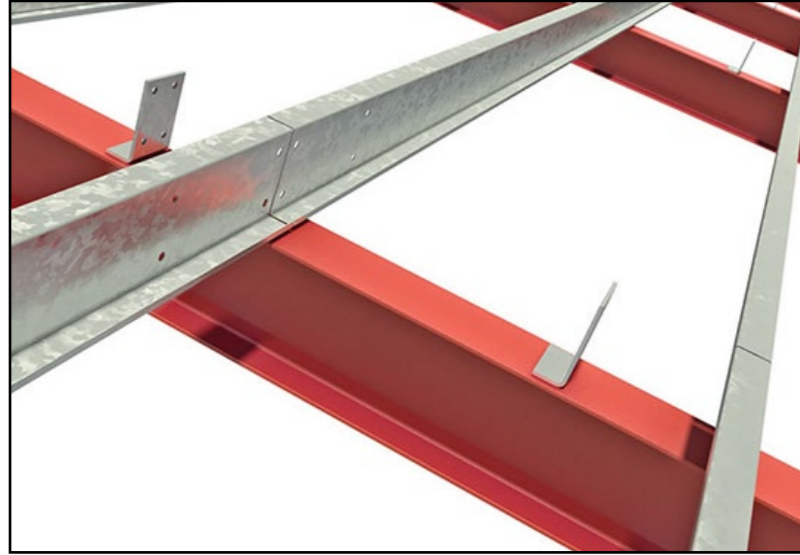
Standard Purlin/Rail Cleats  
All holes 14 mm for 12 mm bolts.



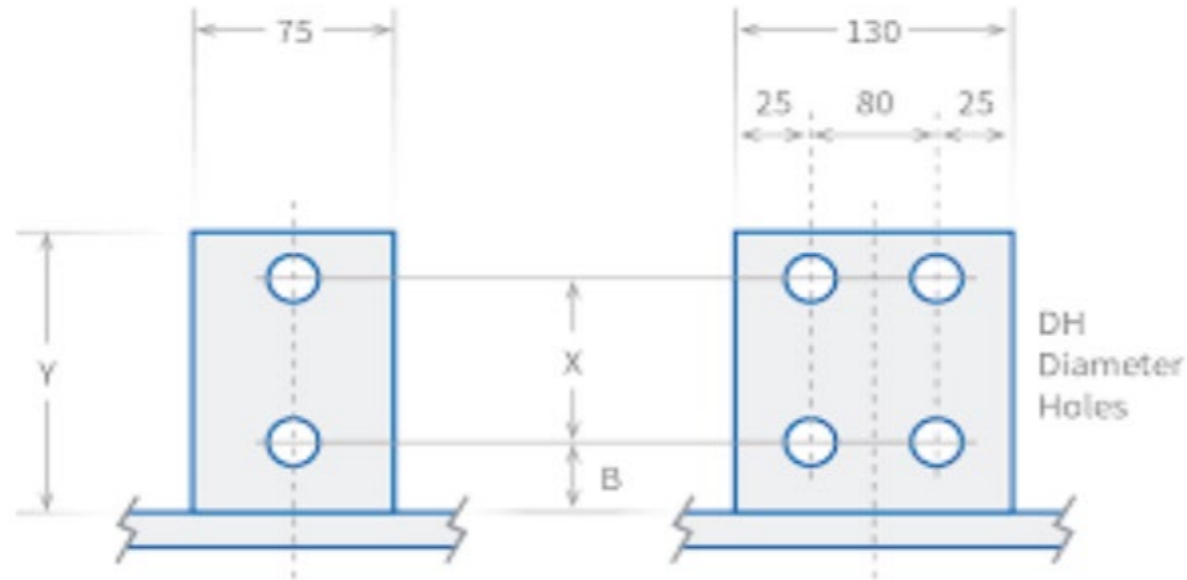
Z purlin Standard



# Z & C Purlins & Accessories



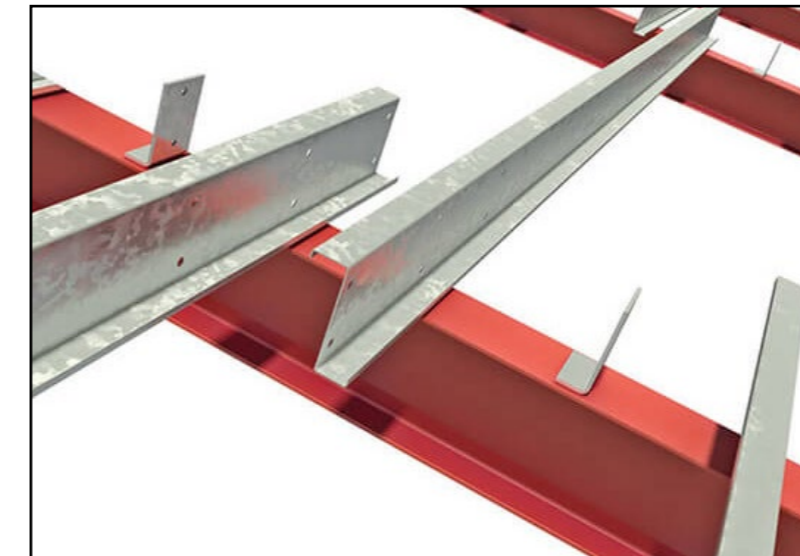
Standard cleats are normally supplied back bare metal suitable for welding to rafters. By arrangement cleats can be supplied with additional holes in the base leg of angle cleats for bolting to rafters on site and supplied with a finish hot dipped galvanized/or painted with standard primer.



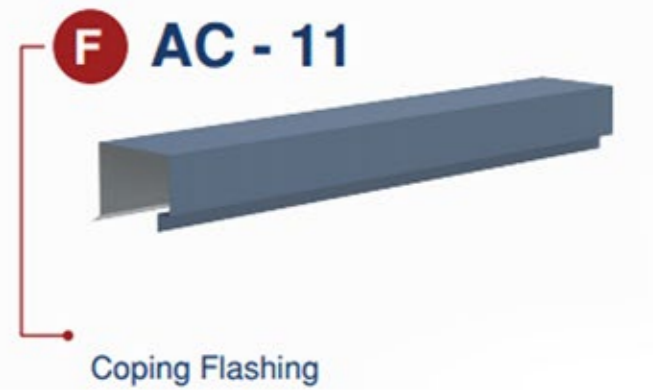
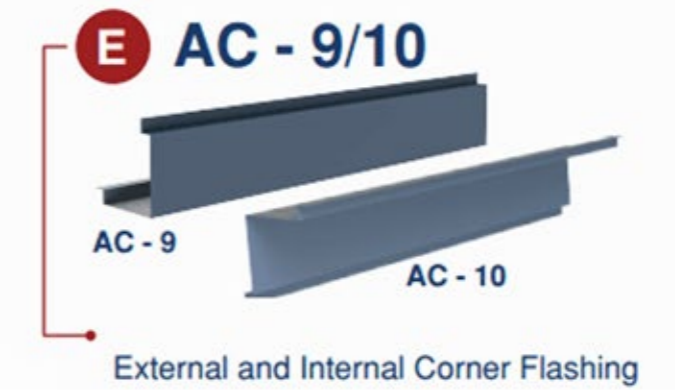
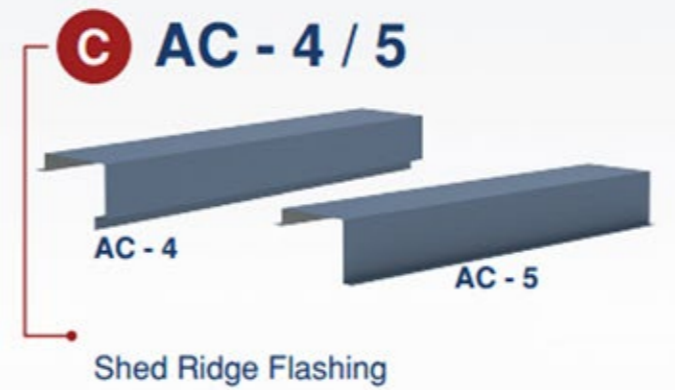
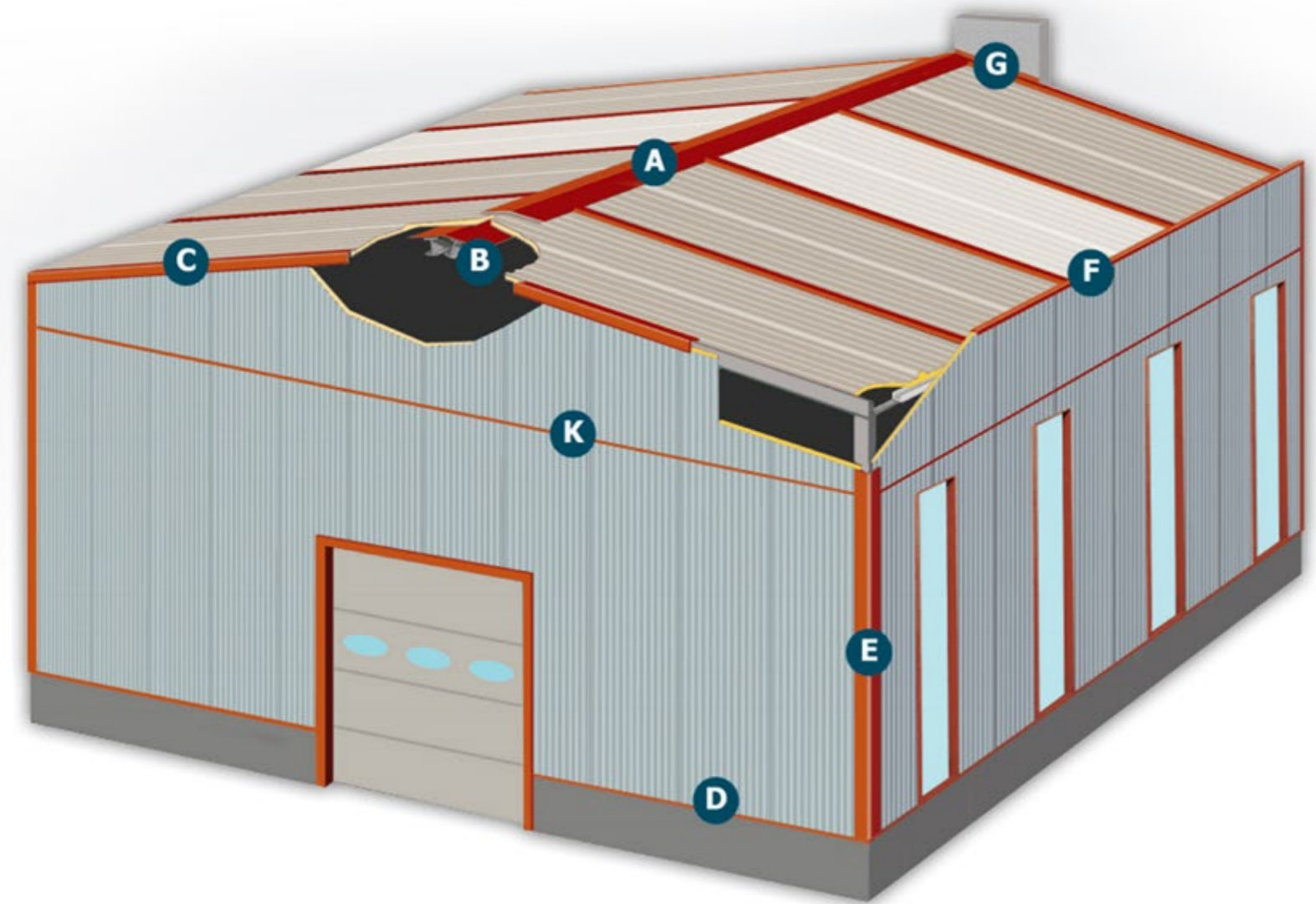
## Z & C Fasteners data sheet

SET SCREWS - ZINC PLATED CLASS 8.8 METRIC FINE	
Name	ASTM F593 bolt
Size	M4-M100 1/4 - 4" or non-standard (request & design)
Finish	Plain, Zinc Plated, Black Oxide, Hot Dip Galv.et
Head Type	Hex head
Material	Carbon steel, stainless steel, alloys steel etc.
Grade	a2, a4, 4.8, 8.8, 10.9, 12.9.etc, A2 -70, A4 -80 etc..
Standard	GB, DIN, ISO, ANSI/ASTM, BS, BSW, JIS etc.
Non-Standards	OEM is available, according to drawing or samples

SIZE
M12 X 35
M12 X 40
M12 X 45
M12 X 50
M12 X 60
M12 X 90
M12 X 100



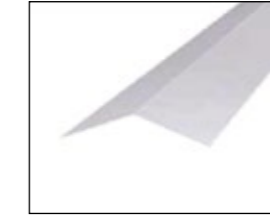
# Flashings & Accessories



# Flashings & Accessories



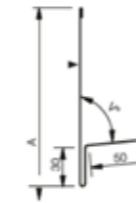
Interior ridge plate



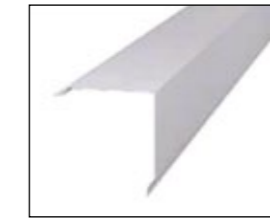
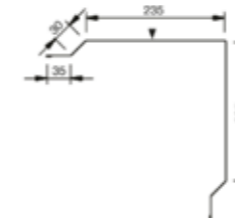
Eaves profile  
(1.2mm galv)



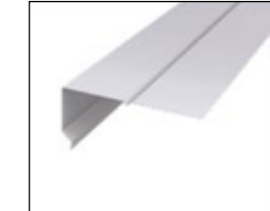
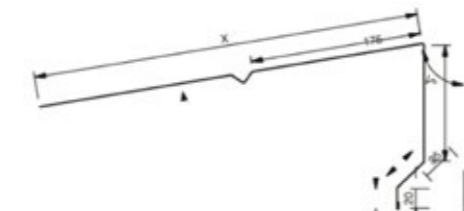
Front flashing



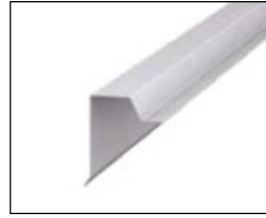
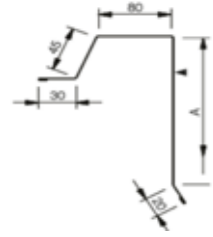
Corner flashing



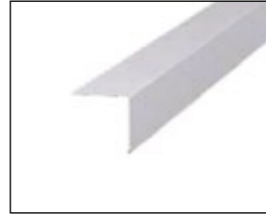
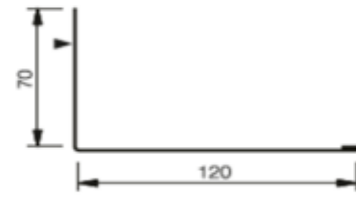
Sill flashing long side



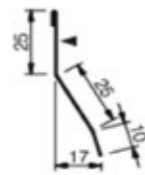
Gable flashing



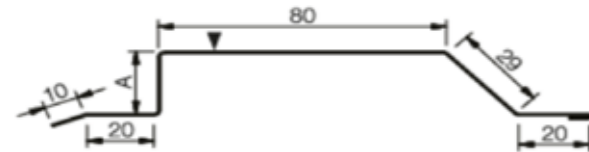
Angled gable flashing



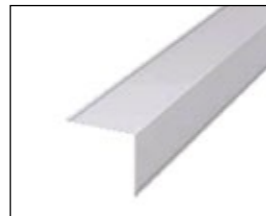
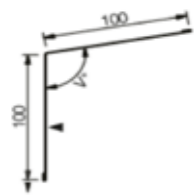
Base cover flashing interior



Case flashing



Sill flashing interior



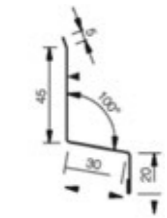
Case flashing



Drip flashing



Sill ledge



Pilaster





# Handling – Storage - Installation

Panels produced by **Al-Buhsain Steel Industries “JMB PANEL”** are produced with great consideration and caution in order to achieve the Customer Satisfaction, and the materials are delivered to the vehicles of the Customers and the Dealers with caution. Because, the materials and products should be handled with duly care in the transportation and unloading in the execution sites, and they should be protected against natural conditions (rain, mud, and etc.).

The proper handling, stacking and protection of these materials are specified in this instruction.

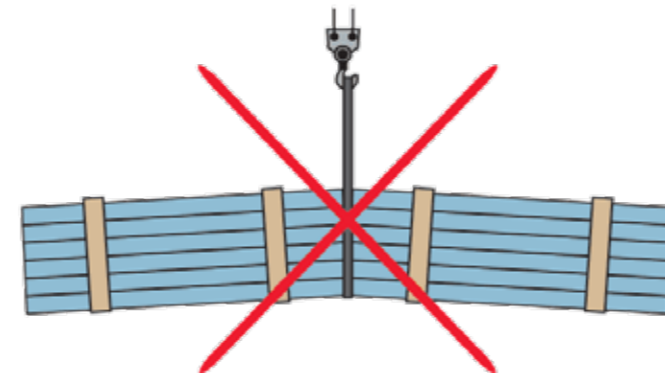
## a) Unloading from Vehicle

A crane should be used when unloading the materials brought to the application site as stacked on the vehicles in bundles and taking them to the roof directly from the vehicles. Especially, for the bundles with heights more than 8 meters the usage of a crane will minimize any possible damages to the materials during the handling.

If the length of the bundle is between 6 and 8 meters, then a forklift with wide forks (~3.5 m) should be used, and for the bundles with length less than 6 meters a forklift with narrow forks (~1.2 m) shall be used. When handling with forklifts, the projected parts of the bundles should not exceed 2 to 2.5 meters from the forks.

The matters which should be considered when using crane:

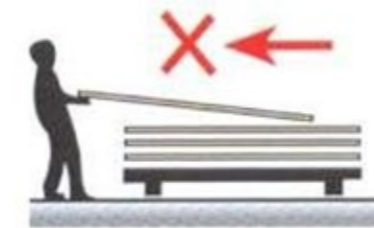
1. The below measurements and adapter length should be complied with in order to insure the balanced handling and transportation will be conducted through a crane.
2. The ropes should be made of nylon, hemp or silk, and steel or chain ropes will not be used.
3. The wooden wedges should be inserted at the places of the ropes to prevent any harm from the ropes to the materials, and the wedges should be projected as 3 to 5 cm from the bundle.
4. If the materials are moved to the roof in bundles, then the bundles should be loaded to the system balanced and no bundle should be inserted on the scissors. If the gaps between the bundles are set to provide the lowest vertical bearing, then it will be convenient for occupational safety and speed.



## b) Stacking Manually

If the material is pulled from the stack in the Site manually, then the following issues should be considered in order to prevent the scratching probability in the painted sheet panel and single layer corrugated.

1. The material should not be pulled by gripping from only one side.
2. The materials should not be slid or dragged on the purlins when putting on the materials.
3. When the material is pulled from the stack or put in the place on the roof, the short materials ( $\leq 6-7$  m) should be gripped from both sides, and long materials ( $> 7$  m) should be gripped from both sides and the center as balanced.
4. When the material is moved the material beneath the other one should not be stepped up or walked over.
5. If any side is projected or ear is left on the panels over the roof, the panel should not be gripped from this part by gripping it.



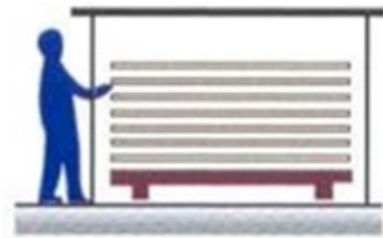
Do not drag panel's in a pile, or on the roof purlins. Lift panel's from both ends when moving or laying in place.



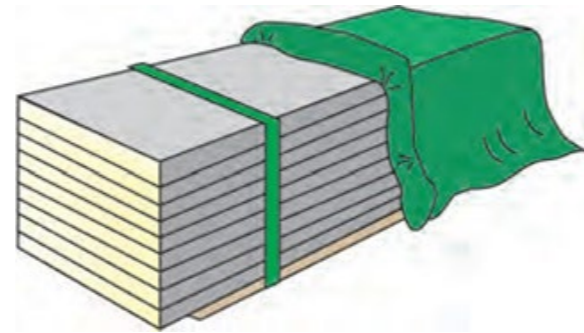
### c) Stocking

If the materials are not taken to the roof directly, then they should be stacked in a suitable place not leading to re-stacking in this area.

1. The first preference is the stock area in the long term storing. In addition to this, the materials in the closed stock area should not be deprived of the air (the excessive heat difference in the stocking area is  $\Delta T 10\text{ }^{\circ}\text{C}$ ) and they should not be stored in the areas with the relative humidity more than 70%). The most important aim in the closed stacking and not preventing the air circulation are to prevent the water and wet permeability, leading fade-out in the contact points. These fade-outs shall not damage the structure of the materials and lead bad appearance esthetically.
2. In the event of storing for few days, a nylon or tint should be put on the panels not to touch with the material and not to prevent air circulation.
3. Especially protective film coated painted metal sheets should be protected from the direct sun ray. The thin polyethylene films on the painted metal sheet will be bonded with the panels firmly under the direct sun.



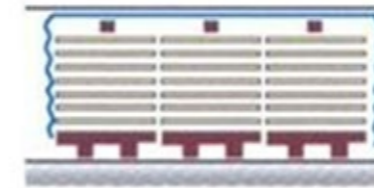
Panel's to be stored on site for long periods should be stacked in covered areas. Wherever possible, always place stacks preferably on wooden wedges, against ground water.



### d) Stack Type

The following issues should be considered when stacking the panels regardless the duration of stacking.

1. Two bundles should be put over each other at most.
2. The wedges should be put to provide a slope. (Around ~%2-3)
3. The height of wedge should be 3 to 5 cm and the distance between the wedges should be 2m.
4. No wedge should be put at the pallet height under the bundle tips if there are wood pallets under the bundles.
5. The wedges between the bundles should be inserted to allow the wedges to be at the same height.
6. Polyurethane or wood wedges should be used as wedges.
7. The panels stacked at the ground or standing individually should not be stepped over or walked over.



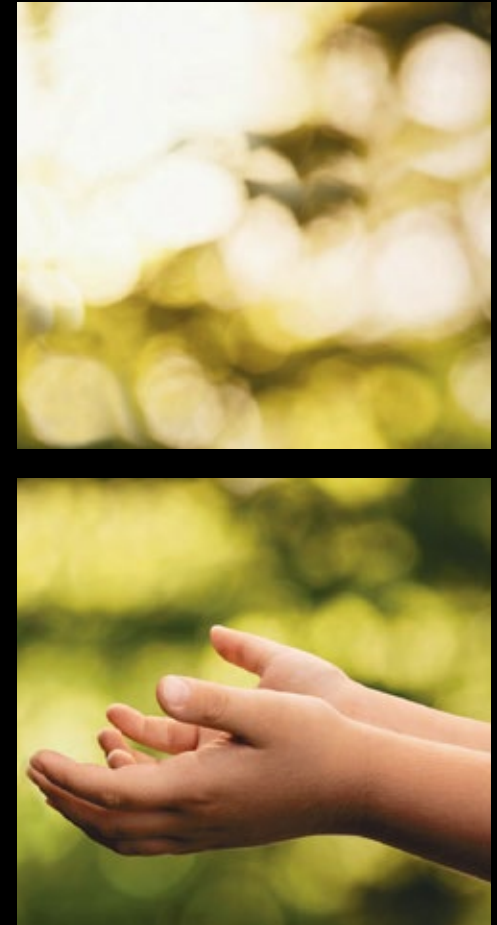
For shorter periods stacks should be arranged on sloppy areas with a simple scaffolding and polyethilen coverleaving space for ventilation. Place stacks on a simple wedge.



Do not walk on panels.



# Al-Buhsain Steel Industries JMB PANEL



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