Know More

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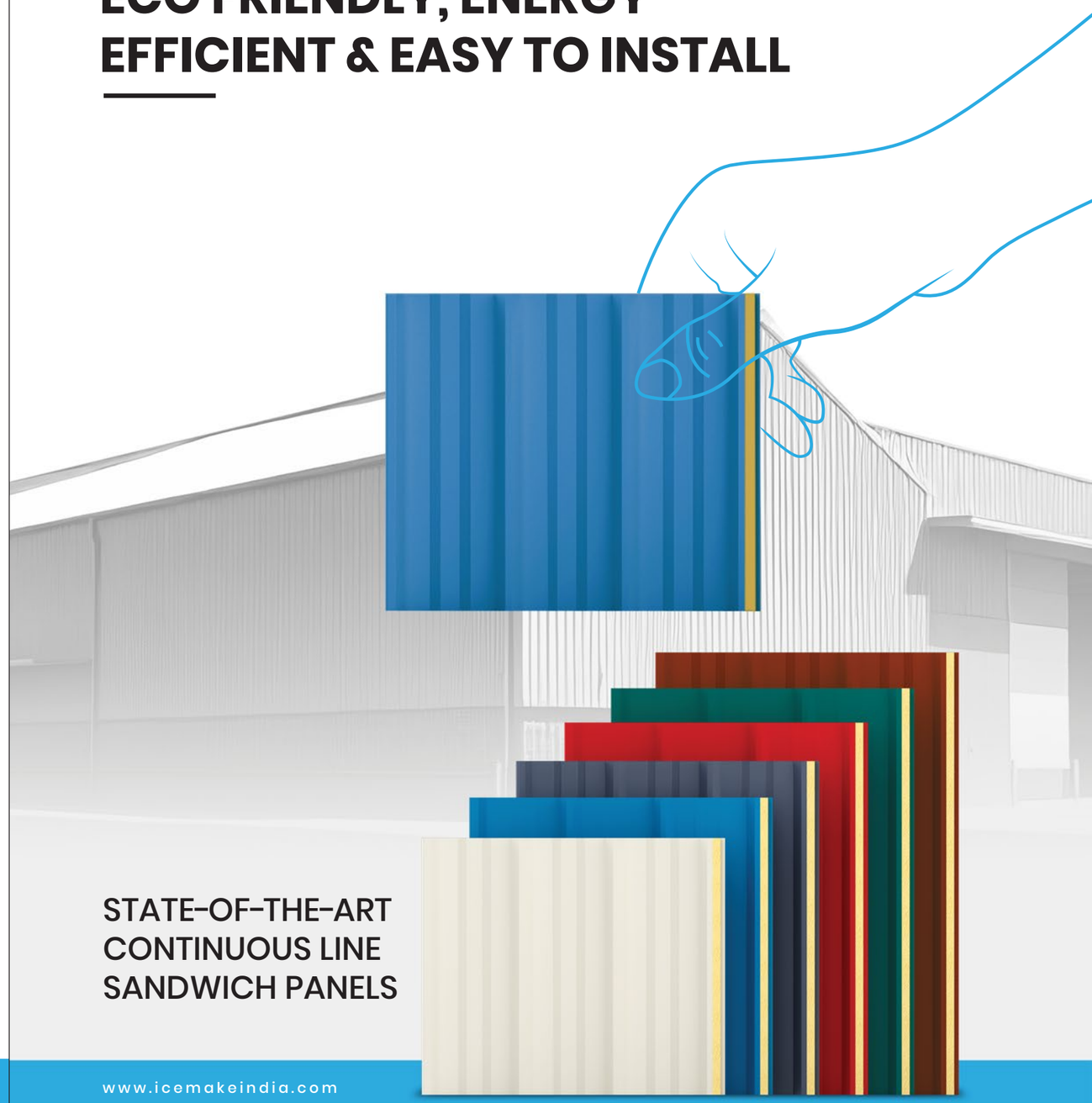
ICE MAKE REFRIGERATION LIMITED

Commercial & Industrial Refrigeration Equipment Manufacturer & Exporter
An ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 Certified Company.

PUF PANELS:

ECO FRIENDLY, ENERGY EFFICIENT & EASY TO INSTALL



STATE-OF-THE-ART CONTINUOUS LINE SANDWICH PANELS

About Us

Established in 1993, **Ice Make Refrigeration Ltd.,** a publicly listed company, has built a strong reputation for excellence in the manufacturing of cold rooms, industrial and commercial refrigeration systems, and ammonia-based refrigeration solutions. With a robust presence in both domestic and international markets, the company continues to deliver reliable and high-performance solutions across industries.

To further enhance its product offering, Ice Make has commissioned a **state-of-the-art, fully automated continuous production line** for manufacturing premium-quality sandwich insulated panels. These panels are available with core insulation options such as **PUR, PIR, and Rockwool,** catering to diverse thermal and fire-resistance requirements.

The advanced manufacturing line is equipped with cutting-edge technology, ensuring consistent quality and performance—making these panels among the **best in the industry.** All products are manufactured in compliance with **Indian Standard IS 12436,** as well as **international standards including EN 14509 (European Standard)** and **DIN 4102 (German Standard).**

Ice make has been acclaimed as the "**Most Trusted**" brand in its industry, over its **35 years** of presence.

Index

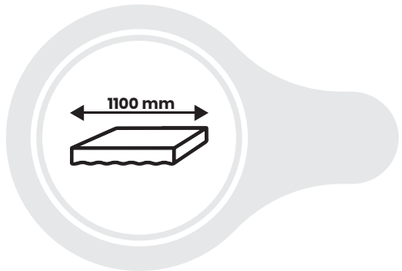
Key features:

Most advanced continuous sandwich panel machine, equipped with exceptional features - for improved quality and performance!

01

1100 mm Wide Panels

Ice make panels come in width of 1100 mm. Makes the panels robust while making it possible to supply longer length panels of 17-20 meters. This will also reduce the number of joints in the installation.



02

Stainless Steel Scrubber

Panels with Stainless steel on both sides can be produced with the specially equipped scrubber rollers, which can make the Stainless-Steel internal surface rough for more adhesion to PUR/ PIR, which in turn improves the compressive and adhesive strength of the panels.

03

Plasma Surface Prep

Coil fed in the line are treated for Corona/ Plasma treatment for better adhesion of the PUR/ PIR chemical on to the metal surface.

04

HCFC Free N-Pentane

N-pentane as blowing agent which is environmentally friendly and free of CFC & HCFC. Our practises also align with global Sustainable Development Goals and contributes to at least 10 SDGs.

05

Camlock Reinforcement

Our production line can also make camlock panels for PUR/ PIR, if specially required by the consultant/ Architect for additional reinforcement between the joints.

06

1220 mm Groove Strength

Ice make uses 1220 mm width to manufacture 1100 mm panels, which means 120 mm of steel width is utilised in grooves for both sides, makes the grooving system mechanically stronger than ever.

07

200 m Cooling Line

One of the longest lines in India at about 200 m in length, with both vertical and horizontal cooling system. This is to ensure that the products are packed only upon the complete curing of PUR/ PIR foaming at ambient temperatures for longevity.

Core Insulations:

I **PUR – Polyurethane Rigid foam**

II **PIR – polyisocyanurate Rigid foam**

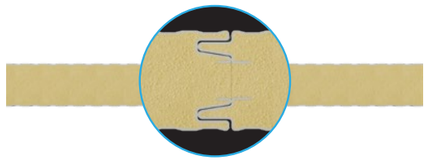
III **Rockwool**

1. Single grove Joint

Thickness: 30, 40, 50 mm

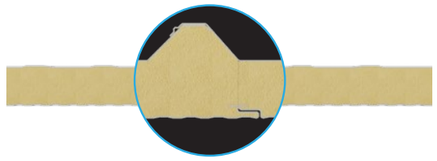
2. Double tongue and grove Joint

Thickness: 60, 80, 100, 120, 150, 200 mm*



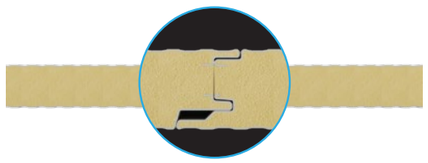
3. Roofing joint

Thickness: 30, 50, 60, 80, 100, 120 mm



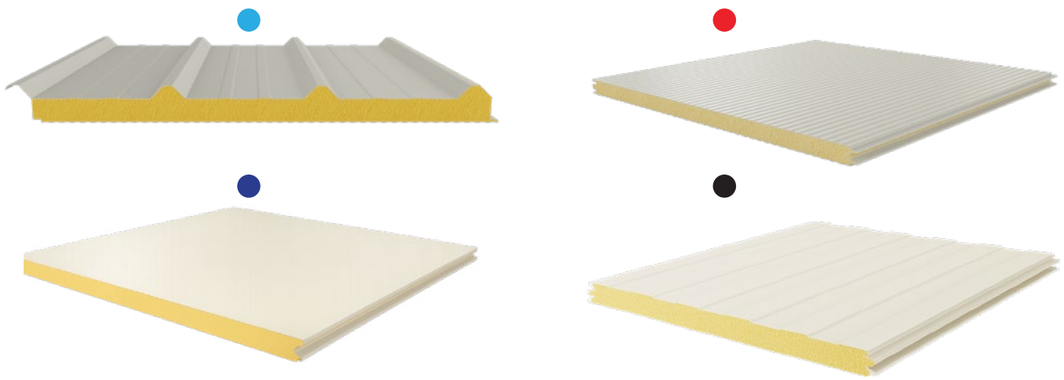
4. Architectural Panel (Hidden screw hole wall) Joint

Thickness: 50, 80 mm*



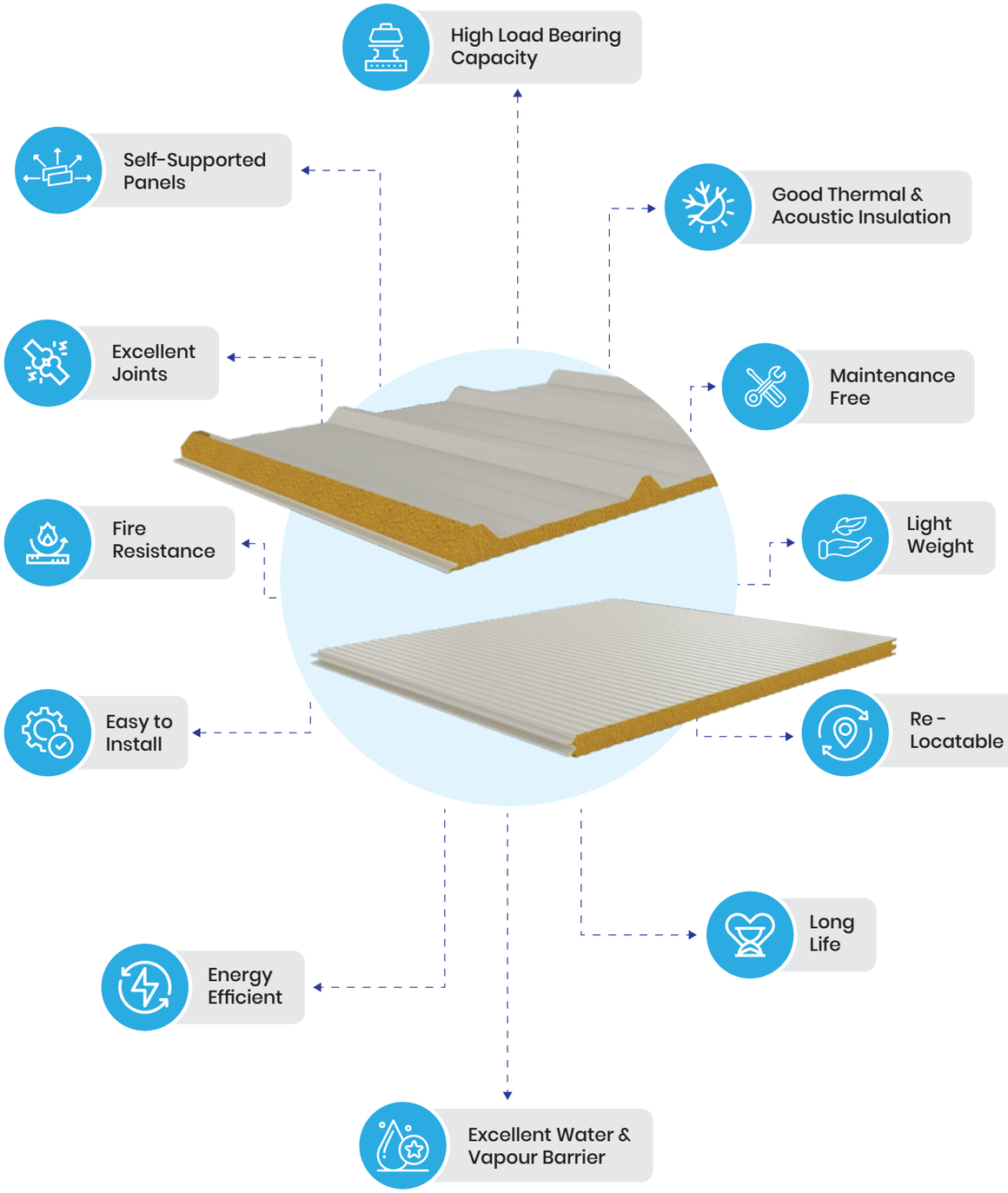
RIB Profile

Roof **Micro RIB** **Plain** **Regular**



**Availability based on demand*

Product features:

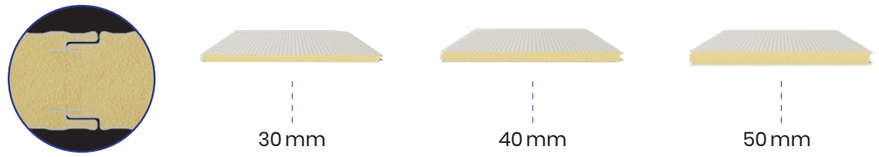


PUR (Polyurethane Rigid Foam)

Insulation **High** | Fire Resistance **Moderate**

AegisWall Panels

AegisWall panels are self-supported metal panels for use in building envelops of large pre-engineered steel building construction, industrial & factory buildings such as high precision, temperature-controlled manufacturing environment, warehouse requirements, commercial building and so on. This is also used for external wall cladding and internal partitions, anti-room applications, food processing units and production units with clean environment.



Single tongue and grove joint system ensures the perfect interlocking of the panels. The joint system is mechanically strengthened through stronger steel grooves. Foam to foam touch makes the press fit joining air-tight and ensures no thermal leakage.

Aegis wall panels are available in the thickness of 30, 40 and 50 mm. All panels are with the cover width of 1100 mm.

Technical Specifications

A) Panel cladding sheets specifications

External/ Internal sheet cladding specification	• PPGI (pre-painted galvanised iron) • PPGL (pre-painted galvalume) • SS 304/ SS 316 • Aluminium
Substrate thickness of steel	• AZ 70 – 150 • Z 120 – 275
Paint Finish	• RMP (Regular Modified Polyester) • SMP (Silicone Modified Polyester) • SDP (Super Durable Polyester) • PVDF (Polyvinylidene fluoride) • Stelvetite Coating
Resistance to Saline Mist	• >=500 hours (ECCA 18)
Resistance to Moisture	• >= 1000 hours (ASTM D2247)

B) Panel Polyurethane Foam Specification

Density of Foam	40± 2 kg/m3 to 45± 2kg/m3
Thermal Conductivity	0.024 W/mK
Temperature range	-45 to +80 degree Celsius
Closed cell content	>95%
Fire Resistance Property	Self-extinguishing
Environmental impact	Free of CFC/ HCFC

Load Calculation

Aegis Wall Panel Thickness	**Thermal Transmittance (U Value)**	**Panels safe length considering UDL of**	
		60 Kgf/m2	**120 Kgf/m2**
mm	**W/m2K**	**mm**	**mm**
30	0.70	2800	2000
40	0.53	3400	2550
50	0.42	4000	3100

Applications

External wall cladding using a pre-engineered steel building system

Also ideal for Warehousing and similar infrastructure

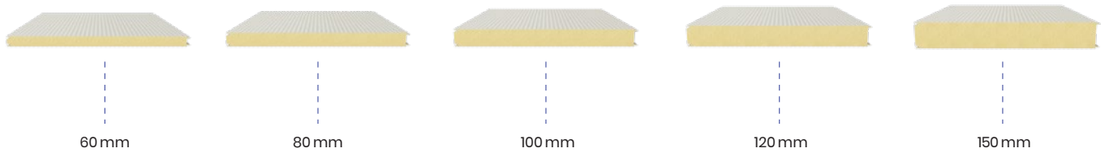
Internal partition for manufacturing units/ general buildings/ pharma buildings

For ceiling of process/ production areas and for clean environment requirements

Site offices/ Accommodation/ cabins/ booths and so on

TitanWall

TitanWall are ideal for cold storage/ cold chain and food processing industries. This panels can be used for various pre-engineered steel building systems, as well as for civil constructed buildings where higher thickness wall cladding panels are required (above 60 mm). TitanWall panels are also used for self-supported partitions.



TitanWall panels are produced with specifically engineered double-tongue joint, which eliminate the risk of thermal bridges and avoids any moisture ingression between the panels.

The panels are available in the thickness range of 60, 80, 100, 120, 150 and 200 mm. All panels are with the cover width of 1100 mm.

Technical Specifications

A) Panel cladding sheets specifications

External/ Internal sheet cladding specification	• PPGI (pre-painted galvanised iron) • PPGL (pre-painted galvalume) • SS 304/ SS 316 • Aluminium
Substrate thickness of steel	• AZ 70 – 150 • Z 120 – 275
Paint Finish	• RMP (Regular Modified Polyester) • SMP (Silicone Modified Polyester) • SDP (Super Durable Polyester) • PVDF - (Polyvinylidene fluoride) • Stelvetite Coating
Resistance to Saline Mist	• >=500 hours (ECCA 18)
Resistance to Moisture	• >= 1000 hours (ASTM D2247)

B) Panel Polyurethane Foam Specification

Density of Foam	40± 2 kg/m3 to 45± 2kg/m3
Thermal Conductivity	0.024 W/mK
Temperature range	-45 to +80 degree Celsius
Closed cell content	>95%
Fire Resistance Property	Self-extinguishing
Environmental impact	Free of CFC/ HCFC

Load Calculation

Titan Wall Panel Thickness	**Thermal Transmittance (U Value)**	**Panels safe length considering UDL of**	
		60 Kgf/m2	**120 Kgf/m2**
mm	**W/m2K**	**mm**	**mm**
60	0.35	4600	3600
80	0.26	5200	4100
100	0.21	5800	4600
120	0.18	6400	5100
150	0.14	7000	5600

Applications

Cold storage for fruits, vegetables, dairy and allied product industry

Sea Food Industry

Pre-engineered steel/ Civil building cold storage solutions

Poultry Industry

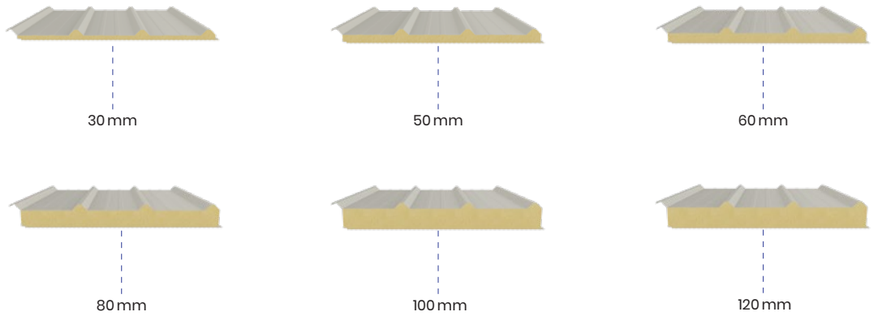
General food processing industry

FortiRoof Panels

FortiRoof Panels, which are self-supporting metal panels, used for direct roofing application for large industrial and commercial buildings, for pitched roof with a minimum slope of 7%.

Higher thickness panels of FortiRoof used for cold storage and cold chain application, which can directly be applied on the roof. FortiRoof panels can be used for wall cladding when the architectural demands same style for roof and wall of the building.

The panel joint profile has a built-in anti-capillary grove, which ensures a leak free joint. The panels will have 3 groves for effective width of 1100 mm, with a crown height of 32 mm. Th overlap joint ensures interlocking between the panels airtight and it withstands all weather conditions. FortiRoof panels are available in the thickness range of 30, 50, 60, 80, 100 and 120 mm. The effective width of the panel is 1100 mm.



Technical Specifications

A) Panel cladding sheets specifications

External/ Internal sheet cladding specification	• PPGI (pre-painted galvanised iron) • PPGL (pre-painted galvalume) • SS 304/ SS 316 • Aluminium
Substrate thickness of steel	• AZ 70 – 150 • Z 120 – 275
Paint Finish	• RMP (Regular Modified Polyester) • SMP (Silicone Modified Polyester) • SDP (Super Durable Polyester) • PVDF - (Polyvinylidene fluoride) • Stelvetite Coating
Resistance to Saline Mist	• >=500 hours (ECCA 18)
Resistance to Moisture	• >= 1000 hours (ASTM D2247)

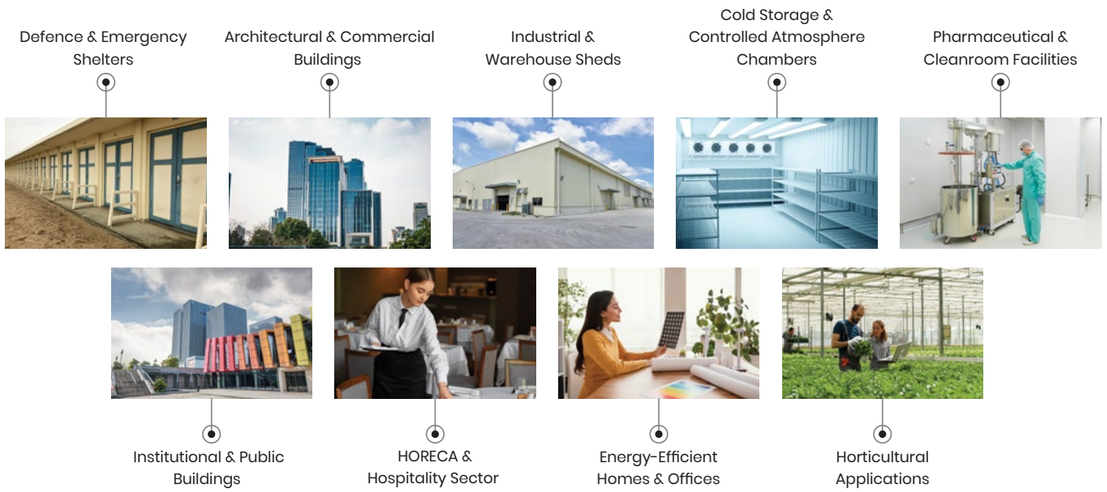
B) Panel Polyurethane Foam Specification

Density of Foam	40± 2 kg/m3 to 45± 2kg/m3
Thermal Conductivity	0.024 W/mK
Temperature range	-45 to +80 degree Celsius
Closed cell content	>95%
Fire Resistance Property	Self-extinguishing
Environmental impact	Free of CFC/ HCFC

Load Calculation

Forti Roof Wall Panel Thickness	**Thermal Transmittance (U Value)**	**Panels safe length considering UDL of**	
		60 Kgf/m2	**120 Kgf/m2**
mm	**W/m2K**	**mm**	**mm**
30	0.70	3500	2100
50	0.42	4900	3300
60	0.35	5400	3700
80	0.26	5900	4100
100	0.21	6400	4500
120	0.18	6900	4900

Applications



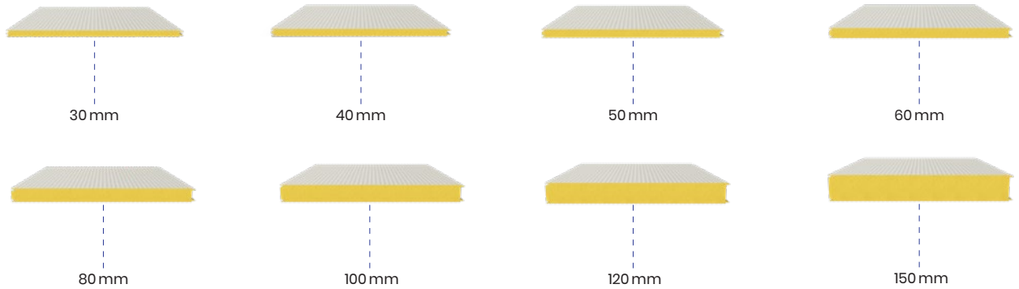
PIR (Polyisocyanurate Rigid Foam)

Insulation **High** | Fire Resistance **High**

PyroWall

PyroWall panels are self-supported metal panels, made from fire-resistant PIR (polyisocyanurate) rigid foam. PyroWall are engineered for superior thermal performance, fire resistance, and structural strength, making them the ideal choice for industrial, commercial, and cold storage applications. PIR rigid foam will ensure enhanced fire performance, minimising flame spread and smoke generation, while maintaining exceptional thermal performance of polyurethane continuous panels.

Our PyroWall comes with single tongue and grove joints for smaller thickness panels, which covers 30, 40 and 50 mm. All higher thickness panels, starting from 60, 80, 100, 120, and 150 mm comes with double tongue and grove joints. All panels are with the cover width of 1100 mm.



Technical Specifications

A) Panel cladding sheets specifications

External/ Internal sheet cladding specification	• PPGI (pre-painted galvanised iron) • PPGL (pre-painted galvalume) • SS 304/ SS 316 • Aluminium
Substrate thickness of steel	• AZ 70 – 150 • Z 120 – 275
Paint Finish	• RMP (Regular Modified Polyester) • SMP (Silicone Modified Polyester) • SDP (Super Durable Polyester) • PVDF - (Polyvinylidene fluoride) • Stelvetite Coating
Resistance to Saline Mist	• >=500 hours (ECCA 18)
Resistance to Moisture	• >= 1000 hours (ASTM D2247)

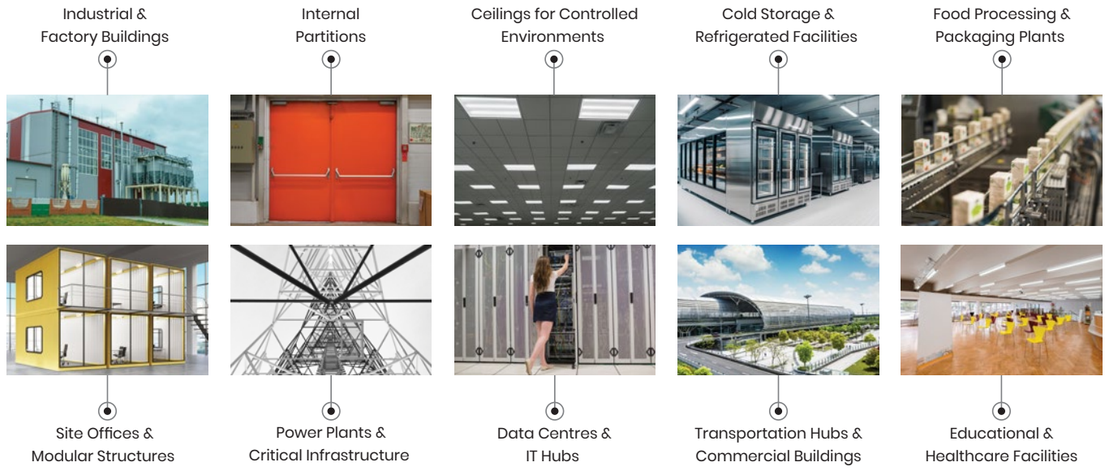
B) PIR Foam Specification

Density of Foam	42± 2 kg/m3 to 47± 2kg/m3
Thermal Conductivity	0.024 W/mK
Temperature range	-45 to +80 degree Celsius
Closed cell content	>95%
Fire Resistance Property	Fire resistance (Euro: Class B)
Environmental impact	Free of CFC/ HCFC

Load Calculation

Pyro Wall Panel Thickness	**Thermal Transmittance (U Value)**	**Panels safe length considering UDL of**	
		60 Kgf/m²	**120 Kgf/m²**
mm	**W/m²K**	**mm**	**mm**
30	0.70	2800	2000
40	0.53	3400	2550
50	0.42	4000	3100
60	0.35	4600	3600
80	0.26	5200	4100
100	0.21	5800	4600
120	0.175	6400	5100
150	0.14	7000	5600

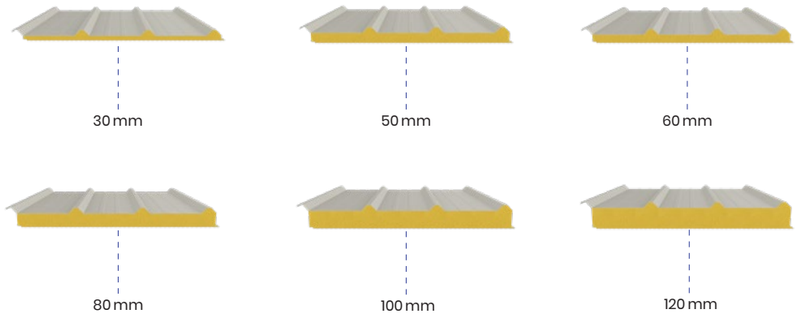
Applications



PyroRoof

PyroRoof is a self-supported metal roofing panel made from high-performance Polyisocyanurate (PIR) rigid foam, engineered for exceptional fire resistance, thermal insulation, and structural durability. Designed for industrial, commercial, and cold storage applications, PyroRoof provides a safe, efficient, and long-lasting roofing solution while maintaining the outstanding thermal performance of polyurethane continuous panels.

The panel joint profile has a built-in anti-capillary grove, which ensures a leak free joint. The panels have 3 groves, with a crown height of 32 mm. The overlap joint ensures interlocking between the panels airtight.



Technical Specifications

A) Panel cladding sheets specifications

External/ Internal sheet cladding specification	• PPGI (pre-painted galvanised iron) • PPGL (pre-painted galvalume) • SS 304/ SS 316 • Aluminium
Substrate thickness of steel	• AZ 70 – 150 • Z 120 – 275
Paint Finish	• RMP (Regular Modified Polyester) • SMP (Silicone Modified Polyester) • SDP (Super Durable Polyester) • PVDF - (Polyvinylidene fluoride) • Stelvetite Coating
Resistance to Saline Mist	• >=500 hours (ECCA 18)
Resistance to Moisture	• >= 1000 hours (ASTM D2247)

B) PIR Foam Specification

Density of Foam	40± 2 kg/m3 to 45± 2kg/m3
Thermal Conductivity	0.024 W/mK
Temperature range	-45 to +80 degree Celsius
Closed cell content	>95%
Fire Resistance Property	Fire resistance (Euro: Class B)
Environmental impact	Free of CFC/ HCFC

Load Calculation

Pyro Roof Panel Thickness	Thermal Transmittance (U Value)	Panels safe length considering UDL of	
		60 Kgf/m²	120 Kgf/m²
mm	W/m²K	mm	mm
30	0.70	3500	2100
50	0.42	4900	3300
60	0.35	5400	3700
80	0.26	5900	4100
100	0.21	6400	4500
120	0.18	6900	4900

Applications

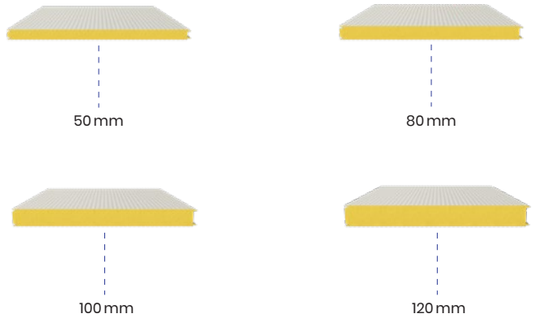
Rock Wool

Insulation **Moderate** | Fire Resistance **Extreme**

RocWall Panel*

RocWall continuous wall panels use high density Rock Wool as core insulation material, which ensures exceptional fire performance, structural strength, thermal and acoustic insulation. RocWall's non-combustible and smoke resistant nature makes it most suitable for cleanroom, pre-engineered buildings, industrial and commercial, transport hubs, theatres and residential buildings.

RocWall comes with single tongue and grove as well as double tongue and grove joints for stronger and sturdier joints. RocWall is available in 50, 80, 100 and 120 mm insulation thickness.
The effective width of RocWall panel is 1100 mm.



Technical Specifications

A) Panel cladding sheets specifications

External/ Internal sheet cladding specification	• PPGI (pre-painted galvanised iron) • PPGL (pre-painted galvalume) • SS 304/ SS 316 • Aluminium
Substrate thickness of steel	• AZ 70 – 150 • Z 120 – 275
Paint Finish	• RMP (Regular Modified Polyester) • SMP (Silicone Modified Polyester) • SDP (Super Durable Polyester) • PVDF - (Polyvinylidene fluoride) • Stelvetite Coating
Resistance to Saline Mist	• >=500 hours (ECCA 18)
Resistance to Moisture	• >= 1000 hours (ASTM D2247)

**This product is under development*

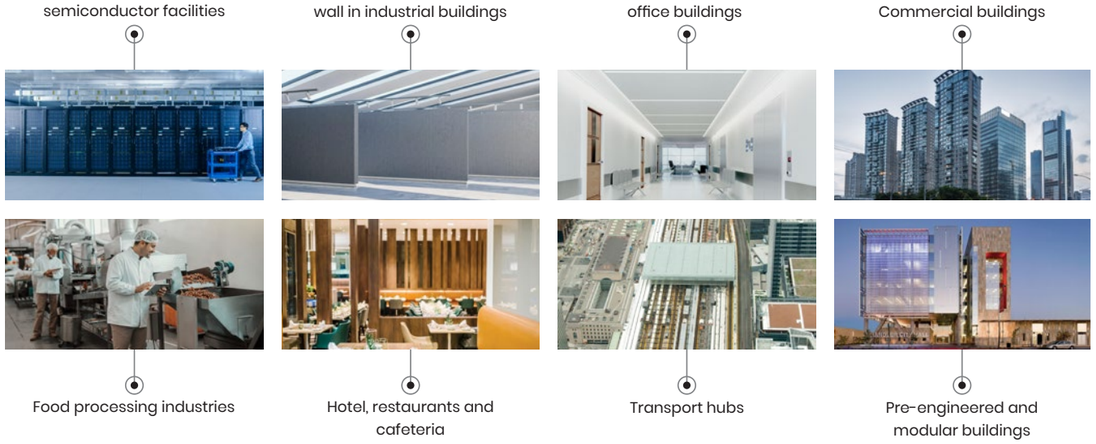
B) Rock Wool Core Specification

Core Density	100 ± 10 kg/m³ to 120 ± 10 kg/m³
Thermal Conductivity	0.035-0.045 W/mK
Temperature Range	-50°C to +250°C
Water Absorption	<1.0 kg/m² (after 24 hours immersion)
Fire Resistance Property	Non-combustible (Euroclass A1), fire rating up to 180 mins
Environmental Impact	Made from natural stone, recyclable, asbestos-free, eco-friendly
Sound Absorption	NRC up to 1.00 (varies with thickness and surface finish)

Load Calculation

RocWall Panel Thickness	Thermal Transmittance (U Value)	Panels safe length considering UDL of	
		20 Kgf/m²	60 Kgf/m²
mm	W/m²K	mm	mm
50	0.90	2500	1700
80	0.56	2900	2100
100	0.45	3300	2500
120	0.38	3700	2900

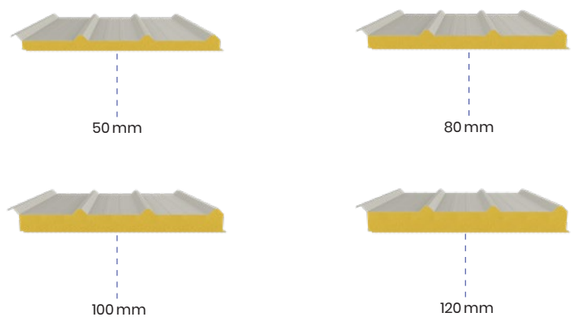
Applications



RocRoof*

RocRoof continuous roofing panels use high-density Rock Wool as the core insulation material, ensuring exceptional fire resistance, structural strength, and thermal and acoustic insulation. With its non-combustible and smoke-resistant properties, RocRoof is ideal for industrial and commercial buildings, cleanrooms, transport hubs, warehouses, and fire-rated roofing systems.

RocRoof is designed for high durability and weather resistance, making it suitable for demanding environments. It features overlapping joints for a secure, watertight fit and enhanced structural integrity. RocRoof is available in 50, 80, 100 and 120 mm insulation thicknesses. The effective width of RocRoof panels is 1100 mm.



Technical Specifications

A) Panel cladding sheets specifications

External/ Internal sheet cladding specification	• PPGI (pre-painted galvanised iron) • PPGL (pre-painted galvalume) • SS 304/ SS 316 • Aluminium
Substrate thickness of steel	• AZ 70 – 150 • Z 120 – 275
Paint Finish	• RMP (Regular Modified Polyester) • SMP (Silicone Modified Polyester) • SDP (Super Durable Polyester) • PVDF - (Polyvinylidene fluoride) • Stelvetite Coating
Resistance to Saline Mist	• >=500 hours (ECCA 18)
Resistance to Moisture	• >= 1000 hours (ASTM D2247)

**This product is under development*

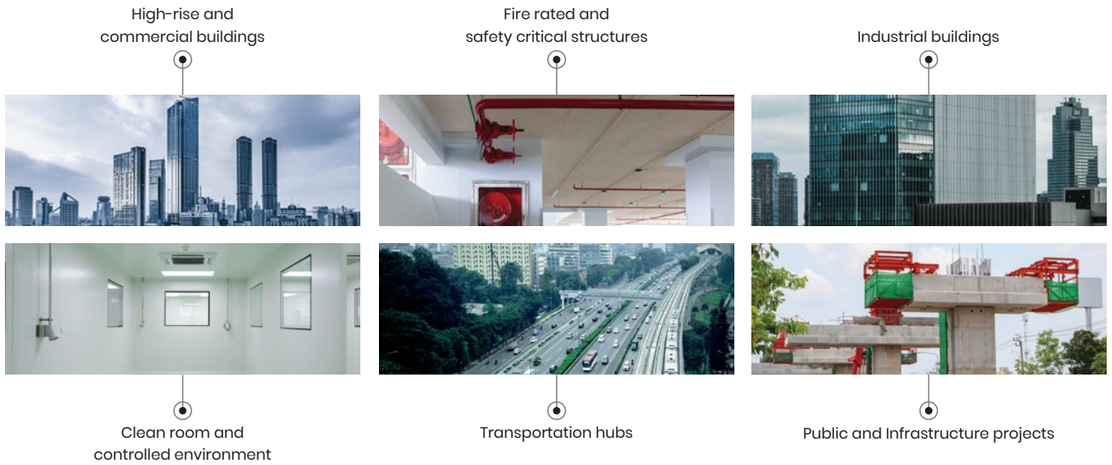
B) Rock Wool Core Specification

Core Density	100 ± 10 kg/m³ to 120 ± 10 kg/m³
Thermal Conductivity	0.035-0.045 W/mK
Temperature Range	-50°C to +250°C
Water Absorption	<1.0 kg/m² (after 24 hours immersion)
Fire Resistance Property	Non-combustible (Euroclass A1), fire rating up to 180 mins
Environmental Impact	Made from natural stone, recyclable, asbestos-free, eco-friendly
Sound Absorption	NRC up to 1.00 (varies with thickness and surface finish)

Load Calculation

RocRoof* Panel Thickness	Thermal Transmittance (U Value)	Panels safe length considering UDL of	
		20 Kgf/m²	60 Kgf/m²
mm	W/m²K	mm	mm
50	0.90	2500	1700
80	0.56	2900	2100
100	0.45	3300	2500
120	0.38	3700	2900

Applications

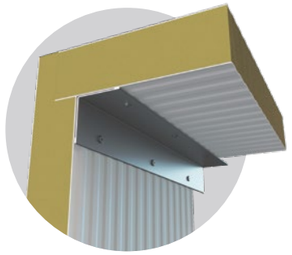


Panel Flashings and Accessories

Flashings act as protective shields for all exposed areas in panel applications, ensuring durability and resistance against environmental factors. At Ice Make, flashings are an integral part of every project we deliver. Since flashing requirements vary by project, they are carefully designed and custom-manufactured by Ice Make to ensure a perfect fit and optimal performance. Each set of flashings is supplied along with the necessary accessories—such as rivets and sealants—to ensure secure installation, superior weather resistance, and enhanced leak-proofing.

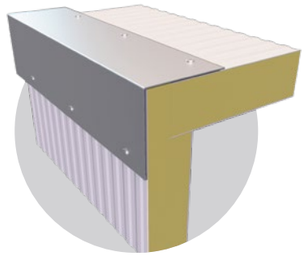
C Channel

C channel is used to support the wall panel on ground.



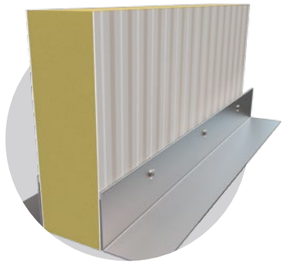
Inner L

Inner L flashings are used to cover the wall panel corners as well as wall to ceiling corner on the inside



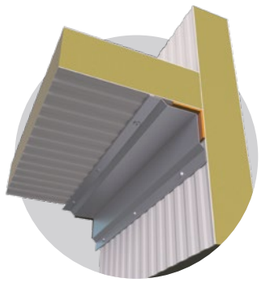
Outer L

Outer L flashings are used to cover the wall panel corners as well as wall to ceiling corner on the outside



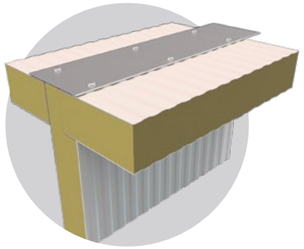
Floor L flashings

Internal L flashings to set up the wall panel on flat finished floor



L Angle Cover

L Angle cover is used to cover GI angle, which helps in improved asthetics



Flat Flashings

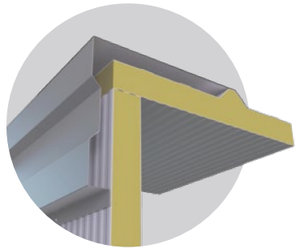
Flat flashings are used to cover false ceiling joints in width of panels

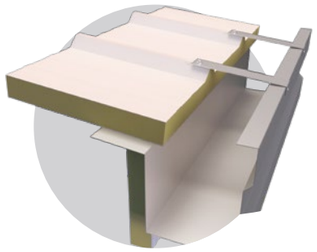
Omega/ Hat flashings

Omega flashings are used to cover the verticle joints in width of panels, foaming is done on site to prevent any heat loss/ leakage

Gable End/ Rake Flashings

Gable end flashings are used to cover Roof to Wall in length of Roof slope



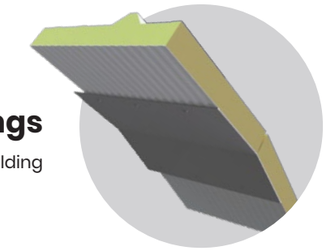


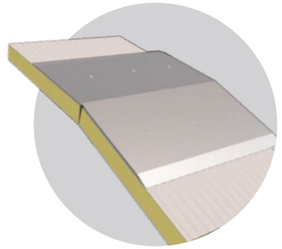
Gutter

Gutter is used to collect water from Roof slope and drain it via drainage pipe

Inner Ridge Flashings

Inner Ridge flashings are used to cover the inside joint of the top most point of building



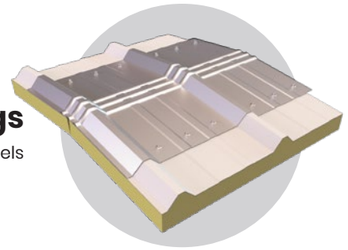


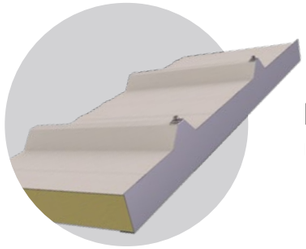
Outer Ridge Flashings

Outer Ridge flashings are used to cover the outside joint of the top most point of building

Outer Profiled Ridge Flashings

Flat flashings are used to cover false ceiling joints in width of panels



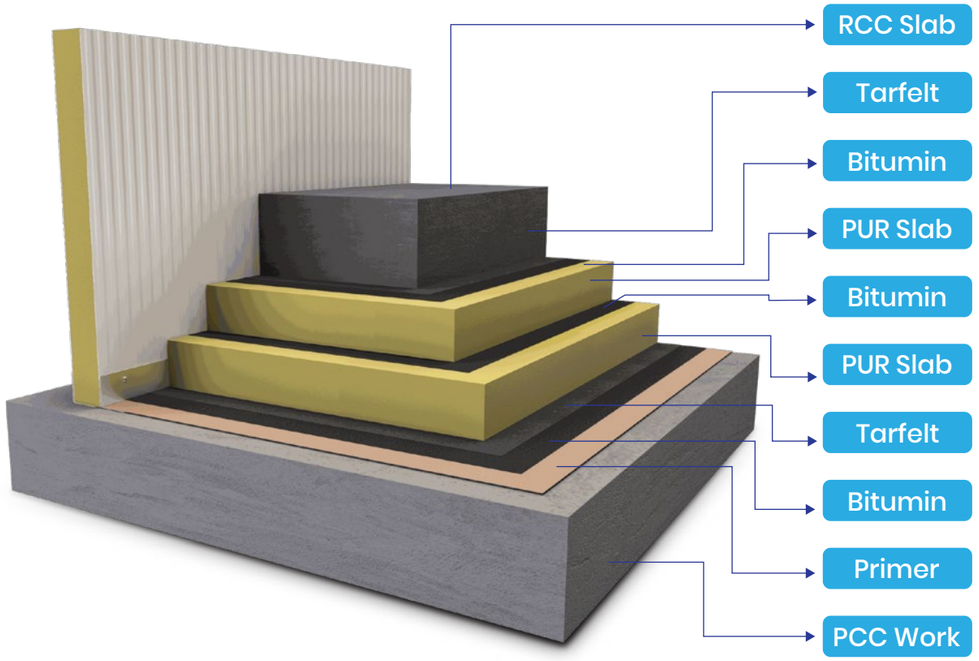


Roof End Cap

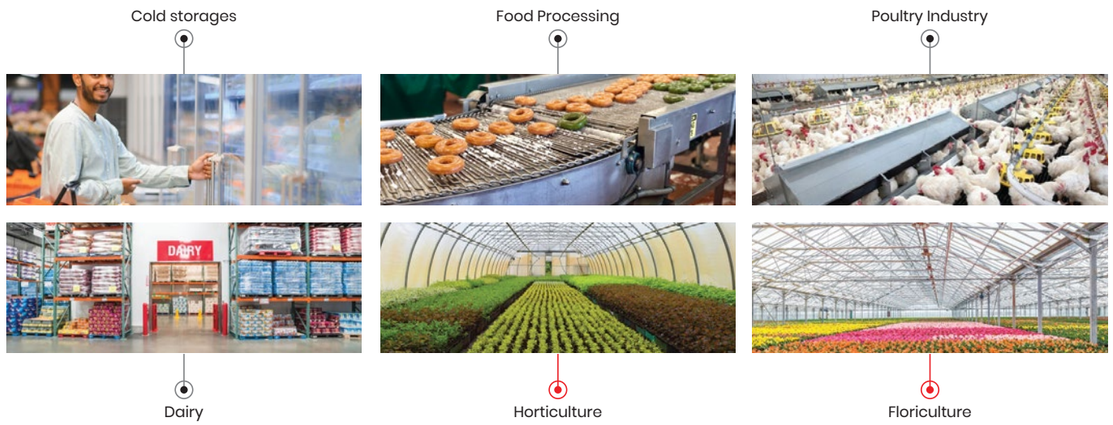
Roof End cap is used to cover the visible PU foam at the end of panel

PUR & PIR Slabs

Ice make produces both PUR and PIR slabs with both sides kraft sheets for floor insulations. Floor PUR/PIR slabs are supplied in two layers or single layer as per customer's preference. Ice make also supplies essential accessories for intact and leak proof floor insulation, such as sub coat as primer, bitumen solids (85/25 grade) and Bituminous Tar felt. Ice make can also supply Aluminium chequered plate as part of floor insulation as per requirement.



Applications



**This product is under development*

Insulated Doors

Ice make insulated doors are used in cold rooms, temperature controlled areas, warehouses, clean room applications and other applications.

As a complete cold chain solution company, we manufacture our own doors, which are as follows,

1) Hinged Doors - (Swing Type)
2) Sliding Doors – Manual operation
3) Sliding Doors – Automatic operation
4) Complete Dock System - (Sectional overhead doors, dock leveller, and dock seal)*

Doors are supplied in various sizes and thickness to suit the application. Heater is optional and can be installed in all types of Hinged and Sliding Doors. Customised size can also be manufactured as per project's requirement

Hinged Doors

Specification

Standard Size	1000 × 2100 mm 1200 × 2100 mm 1500 × 2100 mm 1800 × 2100 mm
Non-standard specification	Upto 5000 × 5000 mm
Insulation Thickness	80/ 100/ 120 mm
Insulation Material	PUR (Polyurethane foam)
Density	40 kg/m³ (±2 kg/m³)
Sheet Material	PPGI/ PPGL/ S.S/ GRP
USP	Easy Installation Thermal breakage profile with rubber gasket Heavy duty frame and doorblade fabrication Improved asthetics
Frame Heater	Optional
Gasket Heater	Optional

Sliding Doors

Specification

Standard Size	1000 × 2100 mm 1200 × 2100 mm 1500 × 2100 mm 1800 × 2100 mm
Non-standard specification	Upto 5000 × 5000 mm
Insulation Thickness	80/ 100/ 120 mm
Insulation Material	PUR (Polyurethane foam)
Density	40 kg/m³ (±2 kg/m³)
Sheet Material	PPGI/ PPGL/ S.S/ GRP
USP	Easy Installation Thermal breakage profile with rubber gasket Heavy duty frame and doorblade fabrication Improved asthetics
Frame Heater	Optional
Gasket Heater	Optional

**This product is under development*

Notes