### INSULATED PANELS COLD STORE, ROOF & WALL



## TABLE OF CONTENTS

Introduction	02	
Production Technology	03	
Applications	04	
Design & Engineering Services	05	
EIP PANEL FEATURES	06	
Surface Profiles	06	
Insulation Core	07	
Metal Facers	08	
Quality Assurance	09	
Fire Shield	10	
EIP COLD STORE PANEL	13	
CSP Wall & Ceiling Span Guide	14	
CSP Heat Transmission Table	15	
CSP Installation Details	16	

A REAL PROPERTY OF A REAL PROPER

EIP ROOF & WALL PANELS	20
TRP: Trapezoid Roof Panel 40/333	21
TRP: Trapezoid Roof Panel 40/333 Flex	23
TRP: Trapezoid Roof Panel 45/150	25
HFW: Hidden-Fix Wall (Architectural)	27
TFW: Through-Fix Wall & Partition	29
SWP: Standard Wall Panel	31
Roof & Wall Installation Details	33
DELIVERY, HANDLING & STORAGE	37
DOORS	39

### INTRODUCTION

ânirates Industrial

Emirates Industrial Panel (EIP) was established in 2007 in Dubai to meet the ever-growing market demand for high-quality insulated sandwich panels.

Through our state-of-the-art German continuous production line, we are able to manufacture roof & wall facade cladding, internal partitioning, and cold store panels of the highest quality.

Our panels are customizable, locally certified, FM approved, and have been used in over 55 countries worldwide.

الواحناءة اللواحان

## **PRODUCTION TECHNOLOGY**

EIP's state-of-the-art German continuous production line has a production capacity of over 3 million square meters of panels per annum.

The production system features multiple stations, including: a profiling section, a foam application station, a special cut-to-length system, a curing zone, and an automatic stacking & packaging unit. The fully automated line requires minimum operator intervention, maximizing quality and efficiency.

The plant proudly operates using environmentally friendly blowing agents that meet international standards.



#### EIP panels are used for an array of different applications in various industries.

From pharmaceutical centers to vertical farms, EIP panels are designed for temperature-sensitive applications that require optimal hygiene standards and safety.

Our panels are suitably made for different construction designs such as:

- Single-external-box
- Box-in-a-box
- Rack-supported cladding systems



- Cold Stores
- Fruit & Vegetable Storage
- Pharmaceuticals
- Leisure & Recreation
- Fish & Meat Processing
- Vertical Farming
- Dairy Processing Plants









#### **DESIGN & ENGINEERING SERVICES**



At EIP, our experts are prepared to provide you with detailed engineering and technical advice at any stage of your project.

Some of the services that EIP provides are:

- Panel estimation based on project drawings
- Preparation of shop drawings, including detail solutions
- Final BOQ that includes panels, flashings & accessories
- Preparation of drawings to guide the installation team
- Site supervisor to guide the installation team
- Assistance in selecting an EIP-certified contractor for the installation of sandwich panels

All or a combination of the above services are available upon assessing the requirement of each project.

## SURFACE PROFILES

Internal & external facers of EIP panels have a standard Low Rib profile on both sides, unless specified otherwise.



#### SURFACE PROFILES - ROOF & WALL

TRP 40/333 and 45/150 panels have 40/333 corrugated and 45/150 corrugated profiles on the external side respectively, and have a Low Rib profile on the internal side.

HFW and TFW panels have Low Rib profiles as the standard on both sides.



### **INSULATION CORE**

#### The core of an EIP panel is rigid insulated foam, available as:

- ✓ FM Approved, fire resistant Polyisocyanurate (PIR) foam
- ✓ Flame retardant (PUR or PIR) B2 class
- ✓ Polyurethane (PUR) B3 class

#### The blowing agent used in EIP panels is environmentally-friendly pentane gas, with:

- ✓ Zero Ozone Depletion Potential (OPD)
- ✓ Low Global Warming Potential (GWP)
- Zero CFC and HCFC



#### **EIP PANEL BENEFITS**

	LIGHT WEIGHT	✓	EFFECTIVE FIRE RESISTANCE
	HIGH RIGIDITY	~	RESISTANCE TO ADVERSE WEATHER
	SUPERIOR INSULATION	~	AIR-TIGHT, FIRE RATED JOINT
¦ ✓	FIBER-FREE CORE	✓	HYGIENIC SURFACE (AS PER HACCP)
	CLOSED CELL FOAM	~	ZERO ODP, LOW GWP

## **METAL FACERS**

The standard substrate for internal and external facers is pre-painted & hot-dip galvanized steel.

Thickness	0.50 mm
Steel Grade	DX51D
Zinc Coating	Z275/Z200/AZ150
Top Coat	Polyester, PES, 25 microns thick
Colour	RAL 9002 Off-white
Surface Protection	Polyethylene (PE) film

Variations are possible in the surface material specifications to suite a wide range of specialized applications:

Thickness Options	0.40 mm to 0.80 mm
Substrate Options	Aluzinc-coated steel, Stainless steel (SS 304 or 316), Aluminium
Colour Options	Any colour from the RAL catalogue

#### TOP COAT OPTIONS

HDP (High Durable Polyester) coating is suitable for increased resistance against corrosion and harsh cleaning agents.

**PVDF (Polyvinylidene Difluoride)** coating is effective for external applications where higher resistance against corrosion, colour fading, and harsh environment conditions is required.

**Plastisol** coating is highly chemical resistant. This tough coating is suitable in internal applications for non-contact level food safety.

Food Safe coating has anti-microbial properties, which is ideal in internal applications such as kitchens for contact-level food safety.

#### STEEL FACER DETAILS



## **QUALITY ASSURANCE**

EIP is committed to providing clients with high-quality products and services.

Our team of experts operate a well-equipped laboratory to manage our effective **Quality Management System**. They use advanced technology to ensure our products are continually tested and meticulously reviewed. Numerous checks are routinely conducted on incoming raw materials, unfinished panels, and final products.

EIP's Quality System meets the requirements of ISO 9001:2008, and is regularly audited by four bodies:

- Peers Quality Assurance Limited
- Dubai Central Laboratories
- FM Approvals
- Emirates Safety Laboratory







## **EIP FIRE SHIELD**

Reliable fire resistance is necessary in the developing world of construction materials. Standard polyurethane and polystyrene insulated panels are vastly inefficient against fire, unlike the truly fire-resistant sandwich panels that utilize EIP Fire Shield technology.

#### **PIR Insulation Core**

EIP Fire Shield panels contain a high grade polyisocyanurate (PIR) insulation core, which provides superior fire-resistance when compared to most alternative standard insulation materials. PIR is a thermosetting material, which means that it will permanently become hard and rigid when heated, and will not melt or drip when exposed to fire. The foam core forms a strong

carbonaceous char, creating a protective layer from flames. With these properties, EIP Fire Shield PIR panels have been proven to help reduce the risk of critical building loss.

#### **Double Tongue & Groove Fire-Rated Joint**

A specially-designed joint protects the core from flame ingress. This enables the panel to maintain its structural integrity when exposed to fire.

#### When exposed to a real fire situation, EIP Fire Shield Panels:

- Do not contribute to the fire or act as a fuel to it
- Do not spread flames on their surface
- Give off minimal smoke
- Preserve their insulation properties<sup>1</sup>
- Preserve their structural integrity<sup>1</sup>
- Self-extinguish when the fire source is removed



#### CERTIFICATIONS

EIP Fire Shield panels have received FM Approval as **Class 1 insulated panels with no height restriction** in accordance with FM Approvals standards 4880, 4881, 4882, and 4471.

FM 4880	Overall Fire Performance of Insulated Panels
FM 4881	External Wall Panels
FM 4882	Suitability for Smoke-Sensitive Occupancies
FM 4471	Roof Panels
EN 13501-1	Reaction-to-Fire Classification of Non-Load Bearing Walls
EN 13501-2	Fire Resistance of Non-Load Bearing Elements
ASTM E84 (NFPA 255)	Surface Burning Characteristics of Building Materials
NFPA 285	Fire Propagation Characteristics of Exterior Non-Load Bearing Walls
ASTM E108	Standard Test Methods for Fire Tests of Roof Coverings
ASTM D1929	Standard Test Method for Determining Ignition Temperature of Plastics



# COLD STORE PANELS



## **EIP CSP: COLD STORE PANEL**

EIP's Cold Store Panel (CSP) is perfect for walls, ceilings, partitions, and roof applications with waterproofing; offering superior insulation, durability, and easy installation for temperature-controlled environments.



Thermal Performance & Weight									
t: Core Thickness (mm)	55	80	100	120	140	150	170	200	
Weight (kg/m²) <sup>1</sup>	10.40	11.40	12.20	13.00	13.80	14.20	15.00	16.20	
U value - PIR (W/m²K)²	0.38	0.26	0.21	0.17	0.15	0.14	0.12	0.10	
U value - PUR (W/m²K)²	0.41	0.28	0.23	0.19	0.16	0.15	0.13	0.11	

<sup>1</sup> Based on 0.50mm thick outer facers

<sup>2</sup> As per foam laboratory values

\* Consult EIP's technical team for updated values with different foam systems.

#### CSP JOINT SYSTEM

A double tongue-and-groove edge ensures that the panels precisely interlock with utmost ease.

This eliminates the risk of thermal bridging and provides an air-tight joint between the panels.

The extended steel edges within the joint system provide additional strength and protection against fire by prolonging the amount of time flames take to reach the panel's core. Panel lengths can vary from 2000mm to 18000mm.

This span table is based on panels with the standard 0.50mm steel thickness for internal and external facers.

While using CSP panels as self-standing partition panels, the following wall and ceiling span guide will show the maximum panel lengths for different thicknesses.



\* Span table is based on panels with 0.50mm thick steel internal and external facers

\* Wall panel length goes up to 18000mm with additional support

### **COLD STORE PANEL HEAT TRANSMISSION TABLE**

The maximum heat gain by conduction in a cold store should be limited to 10 W/m<sup>2</sup>. This table shows the optimal insulation thickness to be selected for various temperature differentials (TD).

Panel Thickness (mm)	55	80	100	120	140	150	170	200
Thermal Energy Transmission (W/m² K)	0.41	0.28	0.23	0.19	0.16	0.15	0.13	0.11
Temperature Differer	ntial (TD)							
10°C	4.181	2.875	2.300	1.916	1.642	1.533	1.352	1.150
15°C	6.271	4.312	3.450	2.874	2.463	2.299	2.028	1.725
20°C	8.362	5.750	4.600	3.832	3.284	3.066	2.704	2.300
25°C	10.452	7.187	5.750	4.790	4.105	3.832	3.380	2.875
30°C	12.543	8.625	6.900	5.748	4.926	4.599	4.056	3.450
35°C	14.633	10.062	8.050	6.706	5.747	5.365	4.732	4.025
40°C	16.724	11.500	9.200	7.664	6.568	6.132	5.408	4.600
45°C	18.814	12.937	10.350	8.622	7.389	6.898	6.084	5.175
50°C	20.905	14.375	11.500	9.580	8.210	7.665	6.760	5.750
55°C	22.995	15.812	12.650	10.538	9.031	8.431	7.436	6.325
60°C	25.086	17.250	13.800	11.496	9.852	9.198	8.112	6.900
65°C	27.176	18.687	14.950	12.454	10.673	9.964	8.788	7.475
70°C	29.267	20.125	16.100	13.412	11.494	10.731	9.464	8.050
75°C	31.357	21.562	17.250	14.370	12.315	11.497	10.140	8.625
80°C	33.448	23.000	18.400	15.328	13.136	12.264	10.816	9.200

### **COLD STORE PANEL INSTALLATION DETAILS**

- 01. Wall Floor Detail
- 02. Partition Wall Floor Detail
- 03. Wall Ceiling Detail
- 04. Partition Wall Ceiling Detail
- 05. Ceiling Mid-Suspension Detail
- 06. Ceiling T-Suspension Detail
- 07. Corridor Ceiling Wall Detail
- 08. Wall Corner Detail

06

01

03

08

05

07

04

02

### **COLD STORE PANEL INSTALLATION DETAILS**

Wall - Floor Detail 02 Partition Wall - Floor Detail 01 1 2 2 3 3 8 5 8 6 Wall Panel Vapour Barrier Partition Panel Vapour Barrier 1 Concrete Upstand 6 6 Floor Heater Cables Floor Heater Cables Concrete Upstand Spray Foam 3 Concrete Floor Spray Foam Concrete Floor 7 2 Layers of Floor Insulation 2 Layers of Floor Insulation Floor Angle Floor Angle Wall – Ceiling Detail Partition Wall – Ceiling Detail 03 04 2 2 3 5 3

Aluminium Corner Angle

**Ceiling Panel** 

Flat Flashing

Partition Panel Spray Foam

1

Aluminium Corner Angle

- Ceiling Panel
- Corner Flashing 2
- 3 Wall Panel
- Spray Foam
- 17

1

### **COLD STORE PANEL INSTALLATION DETAILS**





# ROOF & WALL PANELS



## EIP TRP: TRAPEZOID ROOF PANEL 40/333

The TRP 40/333 is a trapezoid formed roof panel, through-fixed on the side-lap joints. The name '40/333' indicates the rib height (40mm) and valley width (333mm) of this panel.

40mm high ribs provide improved strength and water-resistance against turbulent weather conditions. This is an all-rounder roof cladding suitable for use in all buildings with roof slopes as low as 3.5° (6.0%)<sup>1</sup>.

Note that all EIP TRP panels can be installed as roof or wall fixtures.



TRP 45/333's minimum length is 2000mm and maximum length is 18000mm.

Thermal Performance & Weight								
t: Core Thickness (mm)	50	60	75	100	150			
Weight - Steel (kg/m²)²	10.70	11.10	11.70	12.70	14.70			
Weight - Aluminum (kg/m²)³	5.80	6.20	6.80	7.80	9.80			
U value - PIR (W/m²K)4	0.36	0.31	0.25	0.19	0.13			
U value - PUR (W/m²K)4	0.40	0.34	0.28	0.21	0.14			

<sup>1</sup> Contact EIP's technical team for assistance with selecting the correct design for your required slope.

- <sup>2</sup> Based on 0.50mm thick outer facers
- <sup>3</sup> Based on 0.70mm thick outer facers
- <sup>4</sup> As per foam laboratory values

\* Consult EIP's technical team for improved values with different foam systems.

## EIP TRP: TRAPEZOID ROOF PANEL 40/333



## EIP TRP: TRAPEZOID ROOF PANEL 40/333 FLEX

The TRP 40/333 Flex is a lighter variant of the TRP 40/333, with the same trapezoid form but featuring aluminium foil as the inner sheet of the panel. This panel is through-fixed on the side-lap joints.

This is an all-rounder roof cladding suitable for use in all buildings with roof slopes not less than 5° (8.75%)<sup>1</sup>.

It is a functional and economic option to clad the roofs of buildings effectively.



TRP 40/333 Flex's minimum length is 2000mm and maximum length is 10000mm.

Thermal Performance & Weight						
t: Core Thickness (mm)	50	75				
Weight - Steel (kg/m²)²	6.70	7.70				
Weight - Aluminum (kg/m²)³	4.40	5.40				
U value - PIR (W/m²K)4	0.36	0.25				
U value - PUR (W/m²K) <sup>4</sup>	0.40	0.28				

<sup>1</sup> Contact EIP's technical team for assistance with selecting the correct design for your required slope.

<sup>2</sup> Based on 0.50mm thick outer facers

<sup>3</sup> Based on 0.70mm thick outer facers

<sup>4</sup> As per foam laboratory values

\* Consult EIP's technical team for improved values with different foam systems.

## EIP TRP: TRAPEZOID ROOF PANEL 40/333 FLEX



## EIP TRP: TRAPEZOID ROOF PANEL 45/150

The TRP 45/150 is a trapezoid formed roof panel, through-fixed on the side-lap joints. The name '45/150' indicates the rib height (45mm) and valley width (150mm) of this panel. This panel is suitable for use in all buildings with roof slopes as low as 3.5° (6.0%)<sup>1</sup>.

The height and number of ribs on this roof panel provide superior strength, longer distance spanning capability, and effective water resistance. This improved strength model is designed to withstand demanding conditions.



TRP 45/150's minimum length is 2000mm and maximum length is 18000mm.

Thermal Performance & Weight								
t: Core Thickness (mm)	45	50	70	95	145			
Weight - Steel (kg/m²)²	11.30	11.50	12.30	13.30	15.30			
Weight - Aluminum (kg/m²)³	6.00	6.20	7.00	8.00	10.00			
U value - PIR (W/m²K) <sup>4</sup>	0.38	0.35	0.26	0.20	0.13			
U value - PUR (W/m²K)⁴	0.42	0.38	0.29	0.22	0.14			

<sup>1</sup> Contact EIP's technical team for assistance with selecting the correct design for your required slope.

<sup>2</sup> Based on 0.50mm thick outer facers

<sup>3</sup> Based on 0.70mm thick outer facers and 0.50mm thick inner faces

<sup>4</sup> As per foam laboratory values

\* Consult EIP's technical team for improved values with different foam systems.

# EIP TRP: TRAPEZOID ROOF PANEL 45/150



## **EIP HFW: HIDDEN-FIX WALL (ARCHITECTURAL)**

The HFW is an architectural wall panel with a hidden-fix joint system.

This system conceals the fasteners used to install the panels, providing a smooth, aesthetic look to the building's façade.

It can be installed horizontally or vertically on any building with positive internal temperatures.

The top choice of architects, HFW panels can easily be cut and modified to satisfy different needs without sacrificing the beauty of a façade.



#### HFW panel's minimum length is 2000mm and maximum length is 18000mm.

Care must be shown while selecting longer lengths for HFW panels. Mishandling during unloading and installation can cause damage. EIP's technical department will be available to provide additional guidance.

Thermal Performance & Weight								
t: Core Thickness (mm)	50	75	100	120	150			
Weight - Steel (kg/m²)1	10.30	11.60	12.60	12.40	14.90			
Weight - Aluminum (kg/m²)²	5.50	6.60	7.60	8.00	10.40			
U value - PIR (W/m²K) <sup>3</sup>	0.42	0.28	0.21	0.17	0.14			
U value - PUR (W/m²K) <sup>3</sup>	0.46	0.30	0.23	0.19	0.15			

<sup>1</sup> Based on 0.50mm thick facers

<sup>2</sup> Based on 0.70mm thick outer facers and 0.50mm thick inner facers

<sup>3</sup> As per foam laboratory values

\* Consult EIP's technical team for improved values with different foam systems.

## **EIP HFW: HIDDEN-FIX WALL (ARCHITECTURAL)**



## **EIP TFW: THROUGH-FIX WALL & PARTITION**

The TFW is a double tongue-and-groove joint wall panel. This standard panel is through-fixed onto structures. It can be installed horizontally or vertically on any type of building.

Thanks to their design, EIP's TFW panels can be used as self-standing internal partition walls and suspended ceilings.



TFW panel's minimum length is 2000mm and maximum length is 18000mm.

Care must be shown while selecting longer lengths for TFW panels. Mishandling during unloading and installation can cause damage. EIP's technical department will be available to provide additional guidance.

Thermal Performance & Weight								
t: Core Thickness (mm)	55	80	100	120	140	150	170	200
Weight - Steel (kg/m²)¹	10.40	11.40	12.20	13.00	13.80	14.20	15.00	16.20
Weight - Aluminum (kg/m²)²	5.60	6.60	7.40	8.20	9.00	9.40	10.20	11.40
U value - PIR (W/m²K) <sup>3</sup>	0.38	0.26	0.21	0.17	0.15	0.14	0.12	0.10
U value - PUR (W/m²K) <sup>3</sup>	0.41	0.28	0.23	0.19	0.16	0.15	0.13	0.11

<sup>1</sup> Based on 0.50mm thick facers

<sup>2</sup> Based on 0.70mm thick outer facers and 0.50mm thick inner facers

<sup>3</sup> As per foam laboratory values

\* Consult EIP's technical team for improved values with different foam systems.

## **EIP TFW: THROUGH-FIX WALL & PARTITION**



### **EIP SWP: STANDARD WALL PANEL**

The SWP has an economic design for low-rise buildings.

This panel fatures a slip-joint and is through-fixed onto a structure.

It can be installed horizontally or vertically, and is predominantly used in agricultural or modular prefabricated buildings.



SWP's minimum length is 2000mm and maximum length is 12000mm.

Thermal Performance & Weight					
t: Core Thickness (mm)	40	50			
Weight - Steel (kg/m²)1	10.00	10.40			
Weight - Aluminum (kg/m²)²	5.70	6.10			
U value - PIR (W/m²K)³	0.53	0.42			
U value - PUR (W/m²K)³	0.58	0.46			

<sup>1</sup> Based on 0.50mm thick facers

<sup>2</sup> Based on 0.70mm thick outer facers and 0.50mm thick inner facers

<sup>3</sup> As per foam laboratory values

\* Consult EIP's technical team for improved values with different foam systems.

### **EIP SWP: STANDARD WALL PANEL**









- 01. Roof Ridge Detail
- 02. Roof Panel Overlap Detail
- 03. Skylight Detail
- 04. Insulated Valley Gutter Detail
- 05. Insulated Eave Gutter Detail
- 06. Side Wall Detail
- 07. Drip Flashing Detail
- 08. Joint Flashing Detail
- 09. Opening Detail
- 10. Gable Detail
- 11. Insulated Curved Eave Detail 1
- 12. Insulated Curved Eave Detail 2



56







_	
1	Self-Drilling Screw
2	Joint Flashing
3	Wall Panel
4	GI Angle
5	Purlin





2 Insulated Curved Eave Detail - 2



Curved Eave Sheeting

## **DELIVERY, HANDLING & STORAGE**

EIP panels will arrive at your premises packed in bundles. Each bundle will contain a number of panels wrapped together with transparent polyethylene (PE) film. The bottom of these panels will also be supported by multiple polystyrene blocks. Each individual panel will have protective film on its surface to prevent scratches.

Every transport vehicle can take four rows of EIP panels, even with different panel counts in each bundle for different panel types. Land and sea freight vehicle capacities differ due to the vehicle dimensions.

Please contact EIP to get more details about the number of panels per bundle to expect based on your project's specifications.



#### **Special Packaging**

Certain destinations may require special packing. Upon request, we can create reinforced packing using extra wrapping, timber elements, or crates. Additional charges will apply.

#### Handling

Panel stacks are carefully loaded & strapped at our factory to ensure clients receive their panels in optimum condition. It is critical to correctly handle the panels while unloading or moving.

All EIP panel bundles have instruction sheets taped on them to outline the handling, transportation, and storage guidelines that should be followed.

#### Unloading at Site

Extreme care is advised when unloading the panels at site. A forklift or a crane equipped with a spreader beam must be used to avoid pressure on the panel edges, which can damage the joints and warp the panel surface.

#### Storage

Panels should be stored in a shaded area, on a clean & flat surface, with no more than two bundles on top of each other. If no covered area is available, panels should be covered with a cloth material to protect the panels from dust and rain, but also allow for air circulation underneath the cover.

#### **Protective Film**

Avoid prolonged storage times. Panels should be installed soon after they are received. Remove the surface protection film after installation.



If the panels are not installed immediately and are kept in a packed condition for an extended period, the protective foil may affect the surface quality of the panels. It should be removed with care as soon as possible. Please contact EIP for additional instructions in case you face this.



# **DELIVERY, HANDLING & STORAGE**



#### DOORS

A range of doors are offered by EIP to suit a wide variety of applications for industrial & commercial projects:

- Hinged doors
- Manual horizontal sliding doors
- Automatic horizontal sliding doors
- Automatic vertical sliding doors
- Rapid access doors for chiller & freezer rooms

Door features:

- Off-white RAL 9002 door leaves as standard. Other RAL colours are available upon request.
- An internal safety release for added security.
- Door and floor heating for low-temperature applications.
- A range of thicknesses.

Stainless Steel (S.S.) hinged & sliding doors are available upon request.









# CRAFTED FOR **BEAUTY.** BUILT FOR **PERFORMANCE.**







#### **Head Office**

P.O.Box: 115408, Plot No: 598-1106 Dubai Investment Park, Dubai United Arab Emirates

Tel: +971 (0)4 885 9600 Email: info@emiratespanel.com



emiratespanel.com