LRET

Lahdan Refrigeration Equipment Trading L.L.C.

ENVIRONMENT FRIENDLY

CFC / HCFC FREE

PIR

Insulated Composite Panels

Introduction

LRET manufactures a range of building materials to meet the needs of diverse range of industries. These include high quality corrugated metal sheets and insulated composite panels. LRET is the largest composite panel manufacturer in the Middle East. The products are manufactured to meet the prescribed specifications of design engineers and building contractors. The components manufactures by LRET are aesthetically pleasant, weatherproof, provide thermal insulation as well as resistance to fire, fungi and mildew.
The panels are manufactured to the exact measurement to fit perfectly and are mounted without mastic (dry joints) assuring short, cost-saving construction time.

The range offered by LRET can be broadly classified as

- **Profiled Cladding Sheets**
- **Composite Panels**
- **Purlins**
- **Metal Decking**
- **Roofing Systems**

With state of the art manufacturing facilities and latest advanced technology LRET is specialized in the design, production and distribution of Insulated Panels and Cladding Sheets.

PIR Sandwich Panels

An increasingly strict requirement to thermal insulation of buildings and higher standards in fire safety has led LRET to search for new solutions for the end user. In order to meet these requirements and to fulfil our customers' expectations we have developed a new offer of sandwich panels, which comprises of Polyisocyanurate as the core.

Polyisocyanurate is a conceptually new material which differs from foam polyurethane in its incombustibility. It offers a high degree of fire resistance, low thermal conductivity and low specific gravity. Due to lower weight, PIR sandwich panels considerably reduce the load on basement, which results in the minimum costs of foundation works and lower steel intensity of the building frames.

LRET's PIR Sandwich Panels are composite sandwich panels comprising of PIR as the core material. These panels are an ideal solution for projects that require high energy efficiency and fire-resistance for all external and internal partitioning.
These panels have gained increased popularity in the construction of refrigerating terminals, vegetable stores and logistics and retail centres. Our PIR panel system with non-combustible panels and specially designed details and accessories provides a complete solution for fire-resistant facilities or interiors.

Advantages

LRET's sandwich panels with PIR insulation core

- Panels are non hygroscopic
- Water absorbency degree is < 2.0%;
- Fire safe - No flame spread occurs within the panel core.
- Thermal conductivity is stable during all life time;
- No deformation in winter;
- Structurally efficient -
  the strength of the PIR panels is provided due to high adhesion to the outer skins and more rigid foam structure.
- Acoustically compliant
- Lightweight allows quick and rapid building installation and construction.

Applications

Here are some of the applications our product can be customized for:

- Warehouses
- Pre-fabricated buildings
- Fire- Resistant Rooms
- Partition Walls
- Transportation Containers
- Agricultural products storage and processing plants
- High-risk chemical & food processing facilities
- Packing & distribution centres
- Cold stores
- Garages for cars and heavy equipment
- Exhibition and shopping centres
- Sports and fitness complexes

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Specifications

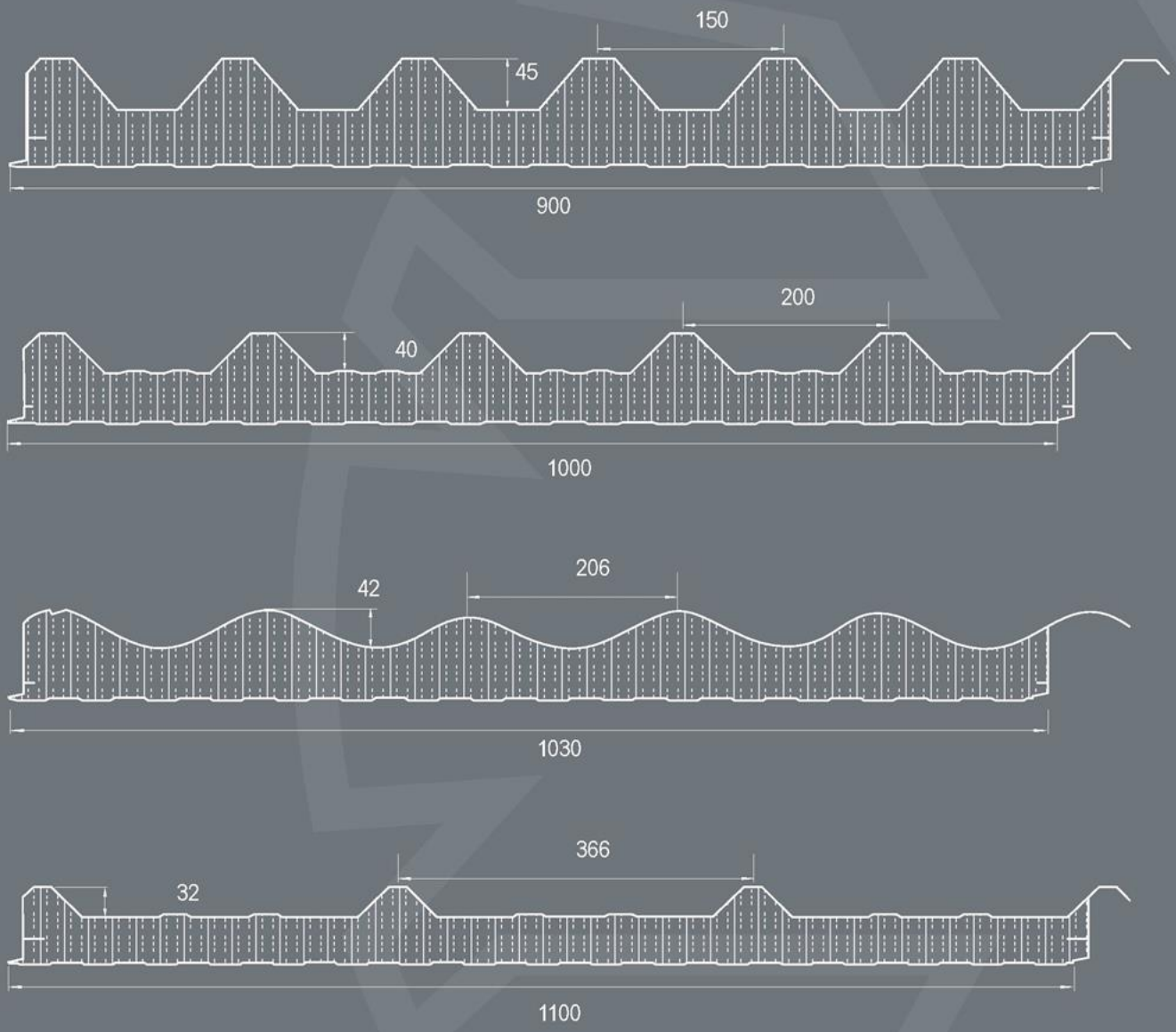
Parameters	Values					
Density kg/m³	40-45					
Thermal conductivity W/m² K, maximum	0.022 – 0.026					
Fire Classification	Fire Classification as per ASTM E84: Class 1 with less spread and smoke development. As per EN:13165:2008 our PIR foam is DCL (Dubai Central Laboratory) approved . Reaction to Fire: Meets Euro Class E Classification					
Water absorbency of the foam	1% of the volume					
Core Thickness (mm)	35	40	50	60	75	100
Overall Heat Transfer Coefficient U Value (W/m²K)	0.68	0.60	0.48	0.40	0.32	0.24
Top Skin	Trapezoidal, Microprofiled, Slightly Ribbed					
Bottom Skin	Slightly Ribbed					
Compression Resistance	> 100 Kpa					
Tensile Strength	> 100 Kpa					
Shear Resistance	> 100 Kpa					

Our PIR foam is certified by DCL (Dubai Central Laboratory|)

Colouring

RAL 5012 (Light Blue Color)
RAL1014 (Ivory color)
RAL 1001 (Beige color)
RAL 9003 (White color)
RAL 9002 (Off-white color)

Types of Facing Profiles:



Features of LRET's PIR Panels:

- Large bend radii on facings ensure that none of the protective coat properties is lost
- Facing profiling ensures uniform facade appearance
- Rigid, self-extinguishing, environmentally and ozone friendly PIR foam core provides excellent thermal insulation parameters.
- Double lock from outer and inner sides increases water-tightness and facilitates assembly.
- Auxiliary groove allows for precise assembly.
- Concealed panel fixings ensure aesthetic facade appearance.
- Properly profiled edges improve thermal insulation and joint tightness.
- Continuous PIR seal ensures proper thermal insulation and joint tightness.

Fire Safety Testing and Certification

The main purpose of the fire safety design of a building is to minimize the consequences of a fire. As fire increases in size and objects around the fire origin begin to burn, the surface linings of the walls and ceilings close to the fire also ignite. Therefore, it is very important that the walls and ceilings are fire safe and do not spread fire, spit out burning droplets or emit excessive smoke. **LRET's PIR Sandwich Panels** preserve their integrity and heat insulation properties for a certain time period preventing injury to people by allowing them to safely evacuate the building and also limiting the material and economic damage which is likely to follow.

Fire testing methods referred to as "reaction to fire" tests are conducted on surface linings to evaluate the contribution of products and materials to the early stages of a fire in terms of:

- Ignitability
- Flame spread
- Heat release
- Smoke production
- Occurrence of flaming droplets/particles

Building elements classified as "fire resistant" with respect to integrity and insulation are used as a means to prevent fire being spread between fire compartments.

LRET 's panels have been tested according to standards EN 13501-1 and ASTM E84. For more information, please contact our technical department.

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