

**BITUMAT**

# BituTHERM

*"An Intelligent Way to Insulate"*

**Extruded Polystyrene  
Thermal Insulation Boards**

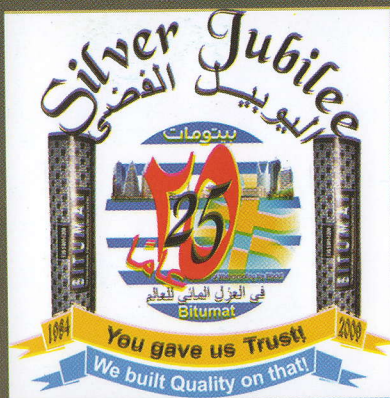
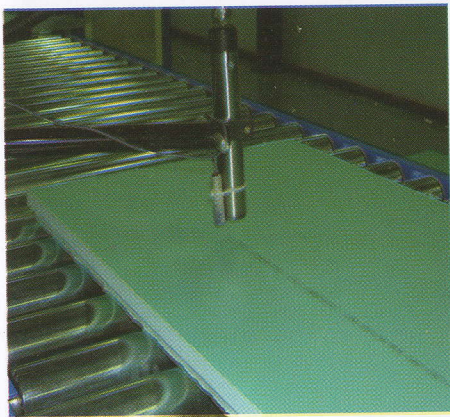
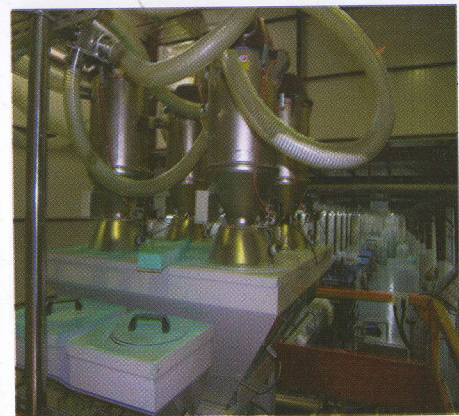
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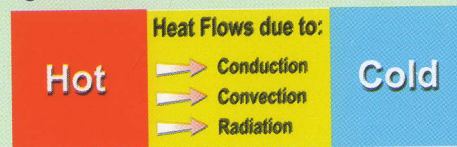
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The arid deserts of Arabia ensure that the scorching sun beats hard on the standing buildings during the day and then a thermal shock for the building in the night when the temperature drops to less than half. If you want your home to be warm in the winter and save on your heating bills, your insulation has one task... to keep the heat in! But if you want your home to stay cool on the warmest summer days, insulation's job is different... it must keep the heat out. How can one product do both? It's easy to understand once you grasp the simple concept of heat transfer. This daily occurrence takes its toll on the best of buildings if not suitably and adequately protected against the ravaging nature.



Heat flows naturally from a warmer to a cooler space. In winter, the heat moves directly from all heated living spaces to the outdoors and to adjacent unheated attics, garages, and basements wherever there is a difference in temperature. During the summer, heat moves from outdoors to the house interior. To maintain comfort, the heat lost in winter must be replaced by your heating system and the heat gained in summer must be removed by your air conditioner.

#### WHY INSULATE?

Heating and cooling account for 50 to 70% of the energy used in an average home. Inadequate insulation and air leakage are leading causes of energy waste in most home.

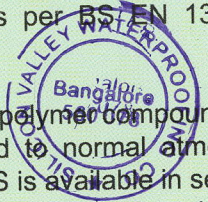
- Reduce the consumption of electrical energy up to 40% during the cooling process inside the building.
- Increases the level of comfort for the inhabitants in a building as it provides a cooler interior ambience.
- The usage of AC is minimized. This helps to reduce the cost of power consumption.
- Protects the building materials from the constant fluctuations in temperature thereby helping to enhance the expected life of the building.
- Reduces environment pollution and the heat transmitted into the buildings.
- Helps in preserving the national limited energy resources.
- Thermally Insulated buildings have less noise pollution from the AC's & chiller rooms as also from the noise penetrating from outside.

#### BITUMAT BITUTHERM

Produced in Dammam Saudi Arabia using the latest computerized state of the art technology, Bitumat BituTherm Extruded Polystyrene panels are specially formulated to suit the very harsh Middle Eastern climatic conditions. Bitumat BituTherm is an intelligent way to insulate a building.

Bitumat uses the most sophisticated German know how to ensure that the product is consistent, water resistant, reliable and able to maintain its high R Value for long periods. Bitumat BituTherm boards are made in a continuous skin surface & developed into a closed cell structure. Bitumat BituTherm maybe tested as per BS EN 13164-2001, ASTM C 578-95 or relevant DIN Standards.

The blended polystyrene polymer compound is heated, put through an extrusion process & exposed to normal atmospheric conditions so that the material will expand. XPS is available in several different densities and has an R-value at 75°F (24°C) of about 5 per inch (25mm) of thickness.





**Bitumat BituTherm can be used for Roofs, Walls or even Basement. Some salient features of BituTherm are:**

- Due to Closed-cell and homogeneous structure high resistance to water absorption thus ensuring that the product is not only dimensionally stable but capable of maintaining its K value for long periods.
- Desirable resistance to vapor diffusion so that breathability is maintained.
- Sufficient strength against heavy loads.
- Excellent K and R values.
- Long-term high insulation efficiency.
- Resistance to ageing and rotting.
- High resistance to thermal cycling.
- Non Toxic and non hazardous to humans & environment.
- Eliminates thermal bridging with its tongue & groove edges,
- Available in various types for roofs, slabs, and walls.
- Very light in weight with no additional load on the building.

**APPLICATION ROOF**

Bitumat BituTherm (R) can be very conveniently installed on a roof. In classical as well as Inverted roofs. It can be used with most roof membranes if appropriate precautions are observed. Once the waterproofing membrane has been installed and flood tested, the Bitumat BituTherm insulation boards can be installed loose laid or spot bonded to the waterproofing membrane. In protected roof membrane assemblies, ballast is applied after Bitumat BituTherm board roof insulation has been looselaid over the roof membrane. The amount of ballast will vary with the project's wind-uplift resistance requirements & thickness of the Bitumat BituTherm roof insulation board.

**WALLS**

Bitumat BituTherm (W) can be used as wall insulation also. It can be applied in several ways including as a sandwich application.

**FLOORS**

Heavy duty Bitumat BituTherm (F) can be used for floor applications also. The higher density and compressive strength makes it ideal for such applications.

**MULTIPLE-LAYER INSULATION**

NRCA's recommended specification is for multiple-layer insulation. Bitumat urges double-layer application, especially when the total required thickness of XPS insulation is more than 2 inches (50 mm).

**STORAGE & HANDLING PROTECTION**

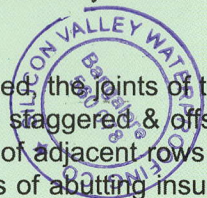
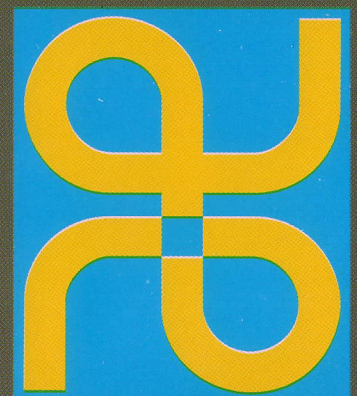
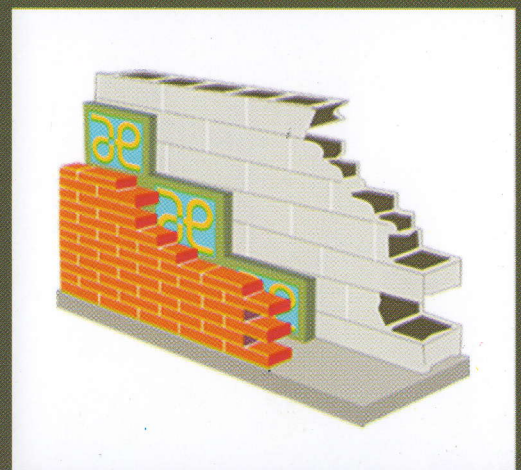
During storage and handling, Bitumat BituTherm insulation materials should be protected from the weather & petroleum-based solvents, adhesives and direct contact with certain coal-tar products. Bitumat BituTherm insulation should be protected from direct contact with asphalt at temperatures more than about 250° F (121° C), and it should not be exposed to flames or other ignition sources.

**COVER WITH ROOF MEMBRANE**

It is recommended that insulation boards be covered with a complete roof membrane by the end of each day's work. For protected membrane roof systems using Bitumat BituTherm insulation, it is suggested that the insulation be secured with appropriate ballast by the end of each day's work.

**JOINTS**

When double-layer Bitumat BituTherm insulation is used, the joints of the insulation boards in the top layer should be vertically staggered & offset from the joints in the underlying layer. The end joints of adjacent rows of insulation boards should be staggered, and the edges of abutting insulation boards should be in moderate contact.





# BituTHERM TECHNICAL DATA



S/N	Characteristics (Typical Values)	Test Method	Unit	Bitutherm R	Bitutherm W	Bitutherm F
1.	Density	DIN 53420 ASTM D 1622	Kg/m <sup>3</sup> lb/ft. <sup>3</sup>	32-35 2.0-2.2	28-30 1.7-1.9	40-45 2.5 - 2.8
2.	Thermal Conductivity	DIN 52612 DIN 52616 ASTM C 518-98	W/m <sup>2</sup> k Btu.in / h.ft <sup>2</sup> .°F	0.028 0.20	0.029 0.21	0.026-0.027 0.18-0.19
3.	Compressive Strength at 10% deflection	DIN 53421 ASTM D 1621-04	Kpa psi	300 43	210 30	500-700 70-100
4.	Water Vapour Diffusion resistance factor	DIN 52615	μ	100-200	100-200	100-225
5.	Water Vapour Permeability	ASTM C 355-64 ASTM E 96 00	Perm/inch	0.4-0.6	1.0	0.4-0.6
6.	Water Absorption by Submersion	DIN 53428 ASTM D 2842 (±1% by Vol. Precision)	% by Vol. % by Vol.	0.2 ≤1.0	0.2 ≤1.0	0.2 <1.00
7.	Linear Co-efficient of Thermal Expansion	DIN 52328	°C °F	70x10 <sup>-6</sup> 39x10 <sup>-6</sup>	70x10 <sup>-6</sup> 39x10 <sup>-6</sup>	70x10 <sup>-6</sup> 39x10 <sup>-6</sup>
8.	Fire Classification	DIN 4102	Building Material Class	B2	B2 too difficult to ignite	B2 too difficult to ignite

The information in this Technical Data Sheet is given to the best of our knowledge. However, as the product is often used under conditions beyond our control, we cannot guarantee but the product itself. Bitumat Bitutherm testing is being upgraded and is being currently tested in various independent laboratories for more accurate data.



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