



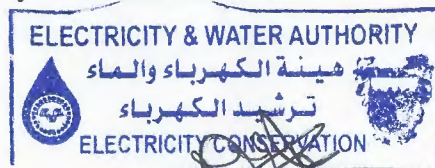
شهادة تسجيل منتج عزل حراري  
**Registration Certificate of Thermal Insulation Product**  
(Ministerial Order No. 149/2018)

<b>Certificate No:</b>	TIP19020	رقم الشهادة:
<b>Registration Date:</b>	16/10/2019	تاريخ الإصدار:
<b>Issued to:</b>	Al Manartain Company and Ali Alsheab Gro Kingdom of Bahrain	أصدرت إلى:
<b>Product Name:</b>	8" Sandwich Block (Al Manaratain)	اسم المنتج:
<b>Application For:</b>	Wall	الاستخدام في:
<b>Manufacturer Name:</b>	Al Manartain Company and Ali Alsheab Gro Kingdom of Bahrain	اسم المصنع:
<b>Valid Until:</b>	31/10/2020	تاريخ الصلاحية:


Product Details / تفاصيل المنتج	
Description	Sandwich Block (400X200X200mm) concrete masonry insulation block with two cavities and 75mm thick expanded polystyrene sheet between the two layers of concrete.
Density	Concrete: 2290kg/m <sup>3</sup> / Bahrain Expanded polystyrene: 30.69kg/m <sup>3</sup>
Min. Thickness	Sandwich Block: 200mm / Bahrain Expanded polystyrene: 75mm
Thermal Conductivity	0.1251W/mK
U-value	0.6255 W/m <sup>2</sup> °C

**Conditions:**

- The above thermal insulation product is to be used as described above, provided the overall U-value for the wall does not exceed 0.57 W/m<sup>2</sup>°C.
- The owner should take the necessary precautions to ensure proper storage and installation of the product to protect it from moisture and direct sunlight.
- The owner of this product is responsible of ensuring that the product is carried out by him or an approved applicator, for supplying all the accessories associated with it, and for any consequences that may result from the use of this product.
- All documents published by the owner for the above product should not contradict with the thermal conductivity value stated in this certificate.
- This approval is granted for thermal insulation only. Any additional approvals / permissions required should be sought from the concerned authorities.
- The TIU should not be held responsible for any consequences that may result from the use of this product.
- The TIU reserves the right in future to request additional documents and to withdraw its approval of the above if any variations are noticed.



**Electricity Conservation Section**

Kingdom of Bahrain		مملكة البحرين
Electricity & Water Authority		هيئة الكهرباء والماء
Electricity & Water Conservation Directorate		إدارة ترشيد الكهرباء والماء

• *Thermal Transmittance (U-Value) for external Walls with Blocks*

Sr. No.	Description of materials used	Density kg/m <sup>3</sup>	Thickness (I) m	r $\frac{m.k}{w}$	R $\frac{m^2.k}{w}$	Notes
1-	Ext.Surface Resistance				0.0590	
2-	External Plaster	1800	0.015	1.333	0.0200	k=0.75
3-	Sandwich Concrete Block	1200	0.200	7.994	1.5987	k=0.1251
4-	Internal Plaster	1800	0.015	1.333	0.0200	k=0.75
5-	Int.Surface Resistance				0.1210	
6-						
7-						
8-						
9-						
10-						
11-						
12-						
13-						
<b>Total thermal resistance for materials used in Wall (R<sub>T</sub>):</b>					<b>1.8187</b>	

<b>U-Value = 0.5498 W/m.<sup>2</sup> °C</b>
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\_\_\_\_\_  
Client's Name  
& Signature

\_\_\_\_\_  
In charge Engineer  
Name & Signature

\_\_\_\_\_  
Engineering Office  
Stamp & Signature

\_\_\_\_\_  
Electricity & Water Authority Approval

\_\_\_\_\_  
Date of Approval