

Procedure for Approval of New Thermal Insulation Product

1. For using any thermal insulation product of buildings in Bahrain, Manufacturers or their agents/dealers (if the manufacturer has no CR -Commercial Registration- in Bahrain) should submit Thermal Insulation System Approval Form (Attached) with the following documents:
 - a. Valid CR (Commercial Registration Certificate) for the applicant.
 - b. Authorization from the manufacturer, if the applicant is not the manufacturer, confirming that the applicant is authorized to get the required approvals from the concerned authorities.
 - c. Approval Certificate for the thermal insulation product from Directorate of Civil Defense.
 - d. Product photo/cross-section, specifications, catalogues/brochures.
 - e. Test report from an independent testing laboratory for the thermal conductivity of the product. Accreditation (as per ISO-17025) is required from the laboratory in the scope of thermal conductivity test. The tolerance error (Uncertainty measurement) of the test shall be mentioned in the test report. The test shall be conducted under the mean temp of 35°C & 60% of RH based on one of the following standards:
 - Method-1: Guarded Hot Plate (ISO 8302 / ASTM C177)
 - Method 2 : Heat Flow Meter (ISO 8301/ ASTM C518)
 - Method 3: Guarded Hot Box Method (ISO 8990 / ASTM C1363)
2. Minimum two samples are required to be tested. Test results should include the details as per the attached TEST RESULTS sheet (**Attached**).
3. Applicant should submit the original test report & test results signed by the authorized official of the testing laboratory with their official stamp. Originals will be returned to the applicant after verification.
4. Applicant should submit a sample of the product with clear identification labels.
5. Thermal Insulation Unit in the Electricity & Water Conservation Directorate (EWCD), shall study the submittals & evaluate the suitability of the product for thermal insulation of walls/roof of buildings in Bahrain, and issue a certificate of approval to the applicant.
6. The TIU reserves the right in the future to request additional documents and to withdraw its approval of the system/material.

Thermal Insulation Product Application Form

<u>Product Name:</u>		
<u>Application for:</u>	<input type="checkbox"/> Wall	<input type="checkbox"/> Roof	<input type="checkbox"/> Other.....

1. Applicant Information

<u>Applicant Details:</u>	Name of Establishment:		
	Address:		
	Contact Person:		
	Designation:		Mobile No.:
	Tel:	Fax:	E-mail:
<u>Manufacturer Details:</u>	Name of Manufacturer:		
	Address:		
	Contact Person:		
	Designation:		Mobile No.:
	Tel:	Fax:	E-mail:

2. Applicant's Undertaking and Commitments

<p>2.1 The Applicant hereby agrees to comply with the requirements of the Thermal Insulation order of Bahrain.</p> <p>2.2 The Applicant hereby undertakes to support the Thermal Insulation Unit (TIU), provide any information related to this product as requested by the TIU, and allow authorized person to carry inspection and sampling whenever needed at the site where the products are installed / stored.</p> <p>2.3 The Applicant, upon approval of this system, undertakes to exert all effort to ensure that the product remain in compliance with the regulations of Bahrain and in accordance with the relevant Standard Specifications.</p> <p>2.4 The TIU reserves the right in the future to request additional documents and to withdraw its approval of the product.</p>	
Authorized Stamp	Name:
	Designation:
	Date:
	Signature:

3. Required Documents:

<input type="checkbox"/> Valid Registration Certificate (CR)	<input type="checkbox"/> Mfg authorization letter	<input type="checkbox"/> Product Description / Photo / Cross-section (one page)
<input type="checkbox"/> Product catalogues / brochures	<input type="checkbox"/> Thermal Test Report	<input type="checkbox"/> U-value calculation
<input type="checkbox"/> Civil Defense Certificate	<input type="checkbox"/> Sample	<input type="checkbox"/> Display Board (May required after approval)
<u>Price per unit of the product or per square meter of the installation:</u>	_____BD / _____	
<u>Remarks:</u>		

4. Electricity & Water Authority Approval

Date Approved	
Authorized Signature and Stamp	
Remarks	

TEST RESULTS

Name & address of Testing Lab/Institute:

Test Request by

Sample Description

Date of Sampling

Date of Receiving Sample

Date Tested

Test Method

Testing Equipment Used

Product description	Measured density Kg/m ³	Tested Sample Thickness m	Mean Test Temperature °C	Thermal Conductivity (W/m.K)				Mean Thermal Conductivity (W/m.K)	
				Sample #1		Sample #2			
				Dry Condition @ test temp	@ 35°C, 60% RH*	Dry Condition @ test temp	@ 35°C, 60% RH*	Dry Condition @ test temp	@ 35°C, 60% RH*

* Uncertainty of measurement for thermal conductivity

Tested by (Name, Title & Signature):

Verified by: (Name, Title & Signature):

Stamp of Testing Lab

Procedure for Approval of New Thermal Insulation Product for Cool Roof Application

For any thermal insulation product intended to be used for cool roof applications for buildings in Bahrain, manufacturers or their agents/dealers (if the manufacturer has no CR -Commercial Registration- in Bahrain) should submit the following documents:

1. Thermal Insulation System Approval Form (Attached)
2. Valid CR (Commercial Registration Certificate) for the applicant.
3. Authorization from the manufacturer, if the applicant is not the manufacturer, confirming that the applicant is authorized to get the required approvals from the concerned authorities.
4. Product photo, specifications, catalogues/brochures.
5. Test report from an independent testing laboratory for Solar Reflectance and Emittance of the product. Laboratory accreditation (as per ISO-17025) is required in the scope of Solar Reflectance and Emittance tests. The tolerance error (Uncertainty measurement) of the test shall be mentioned in the test report. Tests should be conducted using the following test standards:

A- ANSI/CRRC S100.

B- Solar reflectance tests:

Solar reflectance tests shall be conducted based upon one of the following test methods:

1. ASTM E903 in conjunction with E891, analyzed using factors appropriate for an air mass value of 1.5
2. ASTM E1918
3. ASTM C1549, using an air mass value of 1.5
4. CRRC-1 Test Method #1, using an air mass value of 1.5
 - a. Tile Test Method
 - b. Tile Template Method
 - c. Wood Method

C- Thermal Emittance Tests:

Thermal emittance tests shall be conducted in accordance with ASTM C1371. Three measurements shall be taken on each sample.

- 6.
7. Thermal Insulation Unit in the Electricity & Water Conservation Directorate (EWCD), shall study the submittals & evaluate the suitability of the product for thermal insulation /roof cooling of buildings in Bahrain. Solar Reflectance and Emittance values given in the test results shall meet the requirement laid down in the thermal insulation regulations.
8. A certificate of product registration signed by the Chief, Electricity Conservation, will be issued to the applicant.
9. The TIU reserves the right in the future to request additional documents and to withdraw its approval of the product.

Thermal Insulation Product Application Form

<u>Product Name:</u>		
<u>Application for:</u>	<input type="checkbox"/> Wall	<input type="checkbox"/> Roof	<input type="checkbox"/> Cool Roof

1. Applicant Information

<u>Applicant Details:</u>	Name of Establishment:		
	Address:		
	Contact Person:		
	Designation:		Mobile No.:
	Tel:	Fax:	E-mail:
<u>Manufacturer Details:</u>	Name of Manufacturer:		
	Address:		
	Contact Person:		
	Designation:		Mobile No.:
	Tel:	Fax:	E-mail:

2. Applicant's Undertaking and Commitments

<p>2.1 The Applicant hereby agrees to comply with the requirements of the Thermal Insulation order of Bahrain.</p> <p>2.2 The Applicant hereby undertakes to support the Thermal Insulation Unit (TIU), provide any information related to this product as requested by the TIU, and allow authorized person to carry inspection and sampling whenever needed at the site where the products are installed / stored.</p> <p>2.3 The Applicant, upon approval of this system, undertakes to exert all effort to ensure that the product remain in compliance with the regulations of Bahrain and in accordance with the relevant Standard Specifications.</p> <p>2.4 The TIU reserves the right in the future to request additional documents and to withdraw its approval of the product.</p>	
Authorized Stamp	<p>Name:</p> <hr/> <p>Designation:</p> <hr/> <p>Date:</p> <hr/> <p>Signature:</p>

3. Required Documents:

<input type="checkbox"/> Valid Registration Certificate (CR)	<input type="checkbox"/> Mfg. authorization letter	<input type="checkbox"/> Product Description / Photo / Cross-section (one page)
<input type="checkbox"/> Product catalogues / brochures	<input type="checkbox"/> Solar reflectance Test Report	<input type="checkbox"/> Emittance Test Report
<input type="checkbox"/> Sample	<input type="checkbox"/> Display Board (May required after approval)	
Price per unit of the product or per square meter of the installation:	_____ BD / _____	
Remarks:		

4. Product Details

Product Description	
Measured Solar Reflectance	
Measured Emittance	

5. Electricity & Water Authority Approval

Date Approved	
Authorized Signature and Stamp	
Remarks	