



THERMAL INSULATION UNIT

Ref: 5410 / 5.903 / TIS W 0801 / 2008
Date: 17.03.2008

SUB: NEW SYSTEM APPROVAL: AL MANARATAIN LECA BLOCKS

To: AL MANARATAIN EST.
BLDG. 267 & 271, R. 83,
Jidhafs 425.
Kingdom of Bahrain
Fax 17 591267

Your request regarding the above wall system has been approved. This approval is granted after reviewing the documents pertinent to the specified system submitted to us to ensure its compliance with the present regulations of the Kingdom of Bahrain with regard to Thermal Insulation in buildings. This approval is being granted on the following conditions:

- The approved system and the materials produced remain in compliance with the regulations of Bahrain and in accordance with the relevant standard specifications.
- The TIU reserves the right in the future to withdraw its approval of the above mentioned system.
- This approval is granted for the thermal insulation part only. Any additional approvals / permissions 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 system.

Regards



THERMAL INSULATION UNIT

Enc.

1. Thermal Insulation System Approval Form
2. Relevant Approved Data Sheet



DEPARTMENT OF BUILDING AND ENERGY TECHNOLOGIES
KUWAIT INSTITUTE FOR SCIENTIFIC RESEARCH

P.O. Box 24885
13109-Safat-Kuwait
TEL: 4989101, 4989129. FAX: 4989099.

LABORATORY TESTING REPORT

TEST REPORT NO. 71/2006.

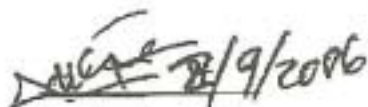
Client : Al Manaratain Company & Ali Al Shaab Group WLL
Manama, Kingdom of Bahrain.

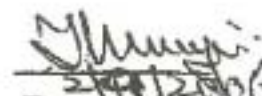
Sample : Lightweight Concrete Block.

Date : 02nd September, 2006.

Tests Performed : - Thermal Conductivity.
- Fire Test (Ignitibility).

The results in this report relate to the samples
submitted by the client and to no other.


Authorized by
DM/BET


Reported by
LS/BTL

No Liability

Neither Kuwait Institute for Scientific Research nor its employees give any warranty, expressed or implied, or assumes any legal liability for the accuracy and utility of any information, material, output, process or data disclosed. They do not suggest that its use would not infringe upon privately or publicly owned rights.



DEPARTMENT OF BUILDING AND ENERGY TECHNOLOGIES
KUWAIT INSTITUTE FOR SCIENTIFIC RESEARCH

LABORATORY TESTING RESULTS

Client : Al Manaratain Company & Ali Al Shaab Group WLL
Manama, Kingdom of Bahrain.

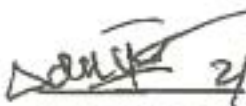
Test : Thermal Conductivity, ASTM C 518.

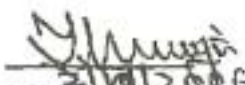
Sample : Lightweight Concrete Block

Procedure : Standard procedure of ASTM C 518 was applied on the oven dried specimens at mean temperatures of 40 °C (25 °C to 55 °C).

Results :

Specimen No.	Density (kg/m ³)	Thermal Conductivity		Total R Value	
		(W/m °K)	(Btu in/hr ft ² °F)	(m ² K/W)	Hr ft ² F/Btu
1	850.6	0.22951	1.59117	0.222	1.261
2	814.1	0.19296	1.33778	0.290	1.646
Average	832.4	0.21124	1.46448	0.256	1.454


2/9/2006
Authorized by
DM/BET


2/9/2006
Reported by
LS/BTL

No Liability

Neither Kuwait Institute for Scientific Research nor its employees give any warranty, expressed or implied, or assumes any legal liability for the accuracy and utility of any information, material, output, process or data disclosed. They do not suggest that its use would not infringe upon privately or publicly owned rights.



DEPARTMENT OF BUILDING AND ENERGY TECHNOLOGIES
KUWAIT INSTITUTE FOR SCIENTIFIC RESEARCH

LABORATORY TESTING RESULTS

Client : Al Manaratain Company & Ali Al Shaab Group WLL
Manama, Kingdom of Bahrain.

Test : Fire Test, Ignitability of Products by Direct Flame Impingement,
BS 476, Part 12.

Sample : Lightweight Concrete Block.


Procedure : The standard procedure of BS 476, Part 12 was applied on the received
specimen. Specimen was exposed to both surface and bottom edge ignition
using direct flame for duration of 15 minutes.


Results :

The Tested Sample did not catch fire.

- No spread of flame.
- No cracks were developed on the exposed surface.
- The tested specimen did not turn black, glow or there was no debris separation.

Note: The test results relate only to the behaviour of the test specimens of the product under the particular conditions of test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.


2/9/2006
Authorized by
DM/BET


2/10/2006
Reported by
LS/BTL

No Liability

Neither Kuwait Institute for Scientific Research nor its employees give any warranty, expressed or implied, or assumes any legal liability for the accuracy and utility of any information, material, output, process or data disclosed. They do not suggest that its use would not infringe upon privately or publicly owned rights.