

# افيكو AFICO

Arabian Fiberglass Insulation Company Ltd.  
J.V. of Zamil Industrial & Owens Corning Corp.

## Thermacon Board Insulation

Technical Data Sheet  
Product Code: **BD**



### DESCRIPTION

**Thermacon Board Insulation** is composed of fine, stable and uniformly textured inorganic glass fibers bonded together by a non water soluble and fire-retardant thermosetting and heat resistant resin, and formed into semi-rigid rectangular boards or slabs. It is free from coarse fibers and shot due to its mineral composition.



### FACING

**Thermacon Board Insulation** is available unfaced or with a factory applied Kraft, Aluminum Foil or Aluminum Foil Glass Reinforced Kraft Paper (FRK) vapor barriers or other specific substract laminated on one side.



### APPLICATION

**Thermacon Board Insulation** is a semi-rigid and rigid glass fiber board intended for use in commercial, institutional, industrial and residential construction as thermal and acoustical insulation for exterior walls, interior walls and partitions, cavity wall construction, floor, precast structures and prefabricated houses. The semi-rigid boards with densities from 24 to 48 kg/m<sup>3</sup>, 1.5 - 3.0 lb/ft<sup>3</sup> are flexible insulation boards for application over irregularly shaped surfaces where board-like properties are desired. The rigid boards with densities from 56 to 120 kg/m<sup>3</sup>, 3.5 - 7.5 lb/ft<sup>3</sup> are even more rigid for strength, abuse resistance and a flat appearance.



### STANDARD AVAILABLE PRODUCTS

Nominal Manufacturing Specifications.  
Check for availability of other dimensions and densities.



### NOMINAL THERMAL CONDUCTIVITY

W/m.°C-Btu.in./ft<sup>2</sup>.hr°F (ASTM C 518) (BS 874)  
"K" or "λ" value at mean temperatures

Product Type BD	Density		Thickness		Width		Length		Nominal Thermal Conductivity											
	kg/m <sup>3</sup>	lb/ft <sup>3</sup>	mm	inch	m	ft	m	ft	0°C	32°F	10°C	50°F	24°C	75°F	50°C	122°F	75°C	167°F	100°C	212°F
240	24	1.5	25 38 50	1 1 1/2 2	1.2	4	1	3	0.031	0.21	0.032	0.22	0.035	0.23	0.039	0.27	0.043	0.30	0.047	0.33
320	32	2.0	25 38 50	1 1 1/2 2	1.2	4	1	3	0.030	0.20	0.031	0.22	0.033	0.23	0.037	0.25	0.040	0.27	0.044	0.30
400	40	2.5	25 38 50	1 1 1/2 2	1.2	4	1	3	0.029	0.20	0.030	0.21	0.032	0.22	0.036	0.25	0.039	0.27	0.043	0.30
480*	48	3.0	25 38 50	1 1 1/2 2	1.2	4	1	3	0.029	0.20	0.030	0.21	0.031	0.22	0.035	0.24	0.037	0.26	0.041	0.29
560	56	3.5	25 38 50	1 1 1/2 2	1.2	4	1	3	0.030	0.21	0.031	0.21	0.033	0.23	0.036	0.25	0.038	0.27	0.042	0.30
640*	64	4.0	25 38 50	1 1 1/2 2	1.2	4	1	3	0.030	0.21	0.031	0.21	0.032	0.22	0.036	0.25	0.038	0.27	0.043	0.30
720	72	4.5	25 38 50	1 1 1/2 2	1.2	4	1	3	0.030	0.21	0.031	0.21	0.032	0.22	0.036	0.25	0.039	0.27	0.043	0.30
800	80	5.0	25 38 50	1 1 1/2 2	1.2	4	1	3	0.030	0.21	0.031	0.21	0.032	0.22	0.036	0.25	0.039	0.27	0.043	0.30
960*	96	6.0	25 38 50	1 1 1/2 2	1.2	4	1	3	0.030	0.21	0.031	0.21	0.032	0.22	0.036	0.25	0.039	0.27	0.043	0.30
1120	112	7.0	25 38 50	1 1 1/2 2	1.2	4	1	3	0.030	0.21	0.031	0.21	0.032	0.22	0.036	0.25	0.039	0.27	0.043	0.30

\* Standard Products and Sizes



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## Performance & Physical Characteristics

### Working Temperature Limitations

-51°C to + 450°C. At Excessive temperatures, a limited migration of binder may occur in the insulation in contact with the hot surface. This in no way impairs the performance of the insulation.

### Alkalinity

pH 9

### Corrosiveness (ASTM C 665)

Chemically inert. Will not cause or accelerate corrosion of steel, stainless steel, copper or aluminum, due to its particular inorganic and mineral composition.

### Mold Growth (ASTM D 2020, UL 181)

Does not breed or sustain mold, fungus, bacteria or rodents.

### Moisture Absorption (ASTM D-07 B, ASTM C 553)

In conditions of 95% relative humidity at 49°C for 96 hours, moisture absorption is less than 0.2% by volume, when tested in accordance with ASTM C 533. **Thermacon** fiberglass products do not absorb moisture from the ambient air nor water by capillary attraction, only water under pressure can enter the insulation products but that will quickly dry out owing to the material's open cell structure.

### Vapor Permeability (ASTM E 96 A)

FRK 0.02 PERM (U.S. Federal Specification HH-B-100 B TYPE I)  
ASJ 0.02 PERM

### Puncture Resistance (ASTM D 781)

FRK 25 Units

### Compressive Strength

Type	240	320	400	480	560	640	720	800	960	1120
PSF at 10% Deformation	12	16	20	25	40	60	100	150	200	250
PSF at 25% Deformation	40	60	80	90	150	225	-	-	-	-

### Surface Burning Characteristics (UL 723, ASTM E 84, ASTM E 136)

Base glass fiber is non-combustible when tested to ASTM E84.

Facing	Flame Spread	Smoke Developed	Fuel Contributed
FRK	0	0	0

### Fire Properties

B.S 476 Part 4 – Non-combustible  
B.S 476 Part 5 – Ignitability  
B.S 476 Part 6 – Fire Propagation  
Class "0" fire rating to the building regulations section E15

### Thermal Conductance, 'C'-VALUE (ASTM C 518, ASTM C 177)

$$C = \frac{1}{R} = W/m^2 \cdot ^\circ C \text{ or } Btu/hr \cdot ft^2 \cdot ^\circ F.$$

It is the ability of the product to conduct heat.

### Specification Compliance

**Thermacon Board Insulation** complies with the property requirements of the following specifications:

- TYPE 240, 320, 400 (UNFACED): U.S. Federal Specification HH-I-558 B, Form A, Class 1: Form B, Type 1, Class 7
- TYPE 480 TO 1120 (FACED, UNFACED): U.S. Federal Specification HH-I-558 B, Form A, Classes 1 and 2
- ASTM C 612, Classes 1 and 2
- ASTM C 553, Type III
- DCL ASTM - C 533 - C 547 - C 612 - C 665
- CE-EN 13162

### Thermal Resistance "R" Value (Excluding Facings) (ASTM C 167)

"R" is a measure of the resistance to heat flow of a material of any given thickness. ("R" = m<sup>2</sup>·°C/W or hr. ft<sup>2</sup>·°F/Btu.)

$$R = \frac{T}{K} \quad \text{where "T" = thickness} \\ \text{and "K" or "λ" = thermal conductivity}$$

The following table shows the "R" values of **Thermacon's** standard products and sizes at 24°C (75°F) mean temperature.

Product Type BD	Thickness (T)		THERMAL CONNECTIVITY (K-VALUE)		THERMAL RESISTANCE (R-VALUE)	
	mm	inch	w/m.°C	Btu.in/ft <sup>2</sup> hr.°F	m <sup>2</sup> ·°C/W	hr.ft <sup>2</sup> ·°F/Btu
480 (48 kg/m <sup>3</sup> )	25	1	0.031	0.22	0.758	4.35 (4)
	38	1 ½	0.031	0.22	1.152	6.52 (7)
	50	2	0.031	0.22	1.515	8.70 (9)
640 (64 kg/m <sup>3</sup> )	25	1	0.032	0.22	0.781	4.55 (5)
	38	1 ½	0.032	0.22	1.188	6.82 (7)
	50	2	0.032	0.22	1.563	9.09 (9)
960 (96 kg/m <sup>3</sup> )	25	1	0.032	0.22	0.781	4.55 (5)
	38	1 ½	0.032	0.22	1.188	6.82 (7)
	50	2	0.032	0.22	1.563	9.09 (9)

\* 24°C / 75°F mean temperature

### Thermal Transmittance (U Value)

Thermal transmittance is the rate of heat flow through unit area of a wall system when unit temperature difference exists between air on each side of the structure.

The U value is the reciprocal of the sum of the resistances of the component parts of the structure plus the resistance of the surfaces and any cavities within the structure.

### "U" Value of typical Cavity Wall Construction

$$"U" = \frac{1}{"R" \text{ (Total)}} \\ = \frac{1}{R_{so} + R_1 + R_A + R_2 + R_3 + R_4 + R_{si}}$$

$$"R" \text{ (Total)} = R_{so} + R_1 + R_A + R_2 + R_3 + R_4 + R_{si}$$

### Key

- Thermal Resistance = T/K
- R<sub>so</sub> = T/K of outside surface air film
  - R<sub>1</sub> = T/K of external wall
  - R<sub>A</sub> = T/K of air space
  - R<sub>2</sub> = T/K of insulation
  - R<sub>3</sub> = T/K of internal wall
  - R<sub>4</sub> = T/K of internal finish
  - R<sub>si</sub> = T/K of inside surface air film



## Performance & Physical Characteristics

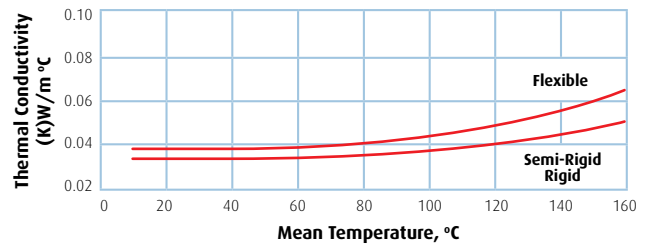
### Sound Absorption Coefficients (ASTM C 384) Impedance Tube Method

Insulation Thickness	Sound Absorption Coefficient at Frequencies (Hz)						
	Rigid	125	250	500	1000	2000	NRC
25mm ( 1 in )		0.12	0.32	0.52	0.84	0.93	0.65
38mm ( 1 ½ in )		0.22	0.36	0.58	0.92	0.94	0.70
50mm ( 2in )		0.31	0.44	0.73	0.92	0.95	0.75

### Sound Absorption Coefficients Reverberation Chamber Method (Unfaced)

Insulation Thickness	Sound Absorption Coefficient at Frequencies (Hz)					
	125	250	500	1000	2000	NRC
<b>Flexible</b>						
25mm ( 1 in )	0.14	0.27	0.53	0.69	0.84	0.60
<b>Semi-rigid</b>						
25mm ( 1 in )	0.09	0.26	0.64	0.90	1.10	0.70
50mm ( 2in )	0.28	0.80	1.12	1.18	1.10	1.05
<b>Rigid</b>						
25mm ( 1 in )	0.10	0.26	0.69	0.99	1.08	0.75
50mm ( 2in )	0.26	0.75	1.17	1.14	1.07	1.05

### Thermal Conductivity (ASTM C 177)



### Installation Recommendation

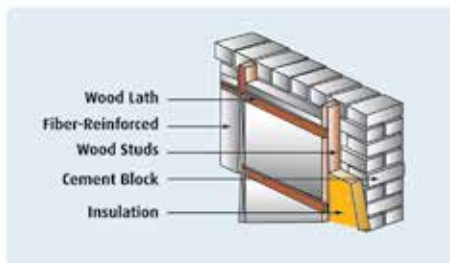
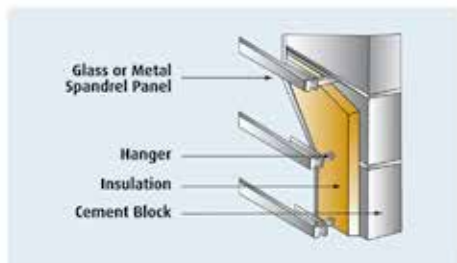
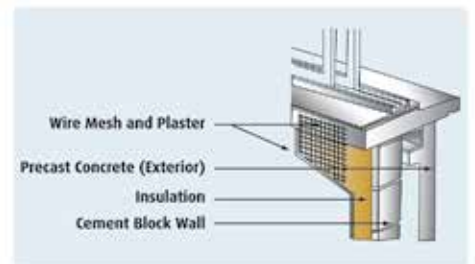
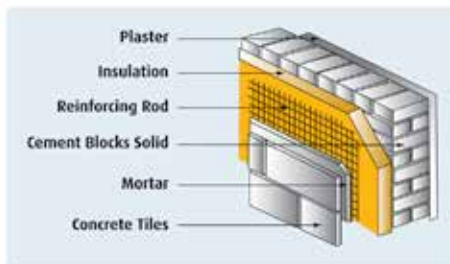
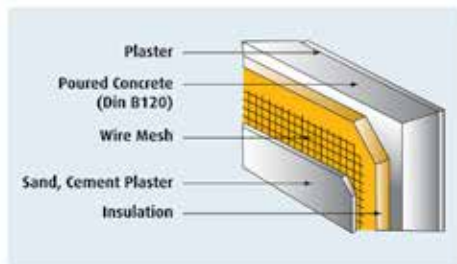
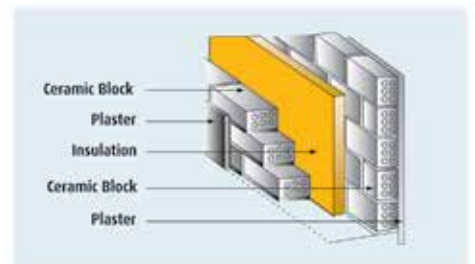
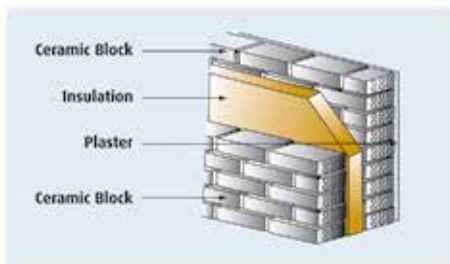
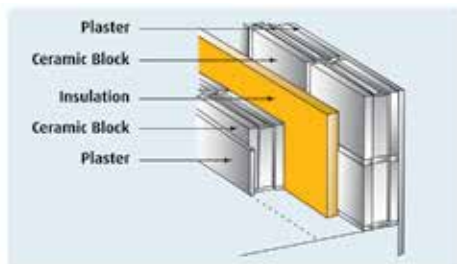
**Thermacon Board Insulation** products can be easily cut with a knife and neatly fitted into irregularly shaped areas.

**For Vertical Applications:** **Thermacon Board Insulation** can be installed between furring, strips or Z channels. For enclosed applications the product can be impaled on impaling pins and/or adhered with adhesives.

**For Horizontal Applications:** **Thermacon Board Insulation** can be installed by the use of impaling pins against horizontal surfaces.

**On Masonry Surface:** **Thermacon Board Insulation** can be installed between wythes and on wall faces with impaling pins, mechanical fasteners and/or adhesives.

**On Precast Concrete:** **Thermacon Board Insulation** can be installed using impaling pins and/or appropriate adhesives.



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## MAINTENANCE

No maintenance is required. **Thermacon Board Insulation** have a high resistance to accidental damage from knocks and handling during installation and maintenance. Dimensionally stable under varying conditions of temperature and humidity, rot-proof, odourless, non-hygroscopic and will not sustain vermin or fungus due to its inorganic and mineral compositions.

The product will maintain its thermal properties throughout the lifetime of the construction and will not age. **Thermacon** fibreglass is non toxic and not hazardous to health.

## STORAGE

To avoid moisture in the building construction, **Thermacon** insulation products stored outside must be kept dry. We recommend **Thermacon** products to be always stored in covered and dry areas. **Thermacon** is not liable for the damage resulting from inadequate utilization, loading and off loading and mishandling of its products.

## WARRANTY

See manufacturer's General Terms and Conditions of Sale. As **Thermacon** and/or OC has no control over installation design, installation workmanship, accessory materials, or conditions of application, **Thermacon** and/or OC does not warrant the performance or results of any installation containing their products. This warranty disclaimer includes all implied warranties, including the warranties or merchantability and fitness for a particular purpose.

Arabian Fibreglass Insulation Company **Thermacon** reserves the right to alter product specifications without prior notice, as part of its policy of continued development and improvement. The installation methods described in this leaflet are not compulsory. The choice of **Thermacon** materials and methods of fixing are the decision of the specifier, consultant or contractor. For further information or advice on specification of **Thermacon** products, contact your local sales office.

## AVAILABILITY

Manufactured by **Arabian Fibreglass Insulation Company, Ltd.** (AFICO), member of **Zamil Industrial**, with headquarters and production facilities located in Dammam, Saudi Arabia, under license from and utilizing the manufacturing specifications and technology of **Owens-Corning Corporation** (OC), Toledo, Ohio, U.S.A.

Marketed throughout Saudi Arabia, the G.C.C. countries, the Middle East and the Far East. **Thermacon** products are available directly from **Thermacon** as well as through a vast and reliable network of local distributors.

**Special products are manufactured on request.**

## Thermacon PRODUCTS

## PRODUCTS CODE

Acoustical Ceiling Panels	ACP
Blanket Insulation	BKT
HD Series Blanket Insulation	HDB
<b>Board Insulation</b>	<b>BD</b>
Roof Insulation	RI
Roof Deck Board Insulation	RD
Cavity Wall Insulation	CWI
Pre-engineered Metal Building Insulation	MBI
Faced Duct Wrap	FDW
Duct Liner	DL
Duct Liner Board	DLB
Mechanical Board Insulation	MBD
Heavy Density Pipe Insulation	PI
Pipe Wrap Insulation	PWI
Thermal Insulating Wool	TIW
Quiet Liner	AQL
Woven Facing	AWF
Prefabricated Duct Board	PDB

**For more information call the insulation professionals:**



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Our GREEN promise:  
the healthy solution

- ENERGY SAVING
- ENVIRONMENTALLY FRIENDLY
- RECYCLED MATERIALS
- SOLUTION FOR GLOBAL WARMING



AFICO is committed to a greener, cleaner environment. AFICO have responded to this call for conservation by increasing the amounts of recycled materials in our products.

Authorized Distributor



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