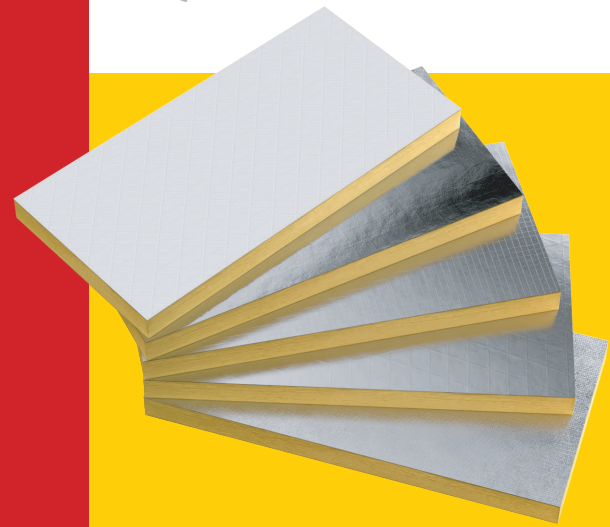




Mechanical Board Insulation (MBD)



Product Description

AFICO Mechanical 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

AFICO Mechanical Board Insulation is available with one side factory-applied Aluminum Foil Reinforced Kraft Paper Laminate (FRK) available or with one side factory-applied KRAFT, the white All Service Jacket (ASJ) and the Aluminum Foil Woven Fiberglass Jacket (AWF) to give a pleasing appearance vapor barrier. The facings have UL fire resistant ratings.

Application

AFICO Mechanical Board Insulation is intended for use in commercial, institutional, industrial and residential construction as thermal and acoustic insulation for the exterior of duct work and mechanical, air handling equipment, vessels and tanks where abuse resistance is required.

The semi-rigid boards with densities from 24 to 36 kg/m³ (1.5 - 2.25 lb/ft³) are flexible insulation boards for application over irregularly shaped surfaces where board-like properties are desired. The rigid boards with densities from 48 to 96 kg/m³ (3.0 - 6.0 lb/ft³) are even more rigid for strength, abuse resistance and a flat appearance.

Standard Available Sizes

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

Semi-rigid Boards

Product Type	Density		K Value@24°C		R Value / Thickness									
	Kg/m ³	Lb/ft ³	W/m ² ·K	BTU·in/hr·ft ² ·°F	25 mm	1 in.	50 mm	2 in.	75 mm	3 in.	100 mm	4 in.	150 mm	6 in.
240	24	1.5	0.036	0.25	0.69	3.94	1.39	7.87	2.08	11.81	2.78	15.74	4.17	23.62
320	32	2.0	0.034	0.24	0.74	4.10	1.47	8.20	2.21	12.30	2.94	16.40	4.41	24.60
360	36	2.25	0.032	0.22	0.78	4.30	1.56	8.60	2.34	12.80	3.13	17.10	4.69	25.70

Rigid Boards

Product Type	Density		K Value@24°C		R Value / Thickness									
	Kg/m ³	Lb/ft ³	W/m ² ·K	BTU·in/hr·ft ² ·°F	25 mm	1 in.	50 mm	2 in.	75 mm	3 in.	100 mm	4 in.	150 mm	6 in.
480	48	3.0	0.032	0.22	0.78	4.28	1.56	8.56	2.34	12.83	3.13	17.11		
560	56	3.5	0.032	0.22	0.78	4.28	1.56	8.56	2.34	12.83	3.13	17.11		
640	64	4.0	0.032	0.22	0.80	4.50	1.60	8.90	2.34	13.40	3.13	17.90		
720	72	4.5	0.032	0.22	0.80	4.50	1.60	8.90	2.34	13.40				
960	96	6.0	0.032	0.22	0.80	4.50	1.60	8.90	2.34	13.40				

Other thickness densities available upon request and verification



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Performance & Physical Characteristics

Apparent Thermal Conductivity ASTM C518, EN12667

W/m²·°K or Btu·in/hr·ft²·°F for all product range "K" or "λ." value at mean temperatures

Data for 10, 24 and 35°C mean temperature

Product Type	Density		Mean Temperature					
	Kg/m ³	Lb/ft ³	10°C	50°F	24°C	75°F	35°C	95°F
MBD								
240	24	1.5	0.032	0.22	0.036	0.25	0.037	0.26
320	32	2.0	0.032	0.22	0.034	0.24	0.036	0.25
360	36	2.25	0.032	0.22	0.032	0.24	0.036	0.25
480	48	3.0	0.031	0.21	0.032	0.23	0.035	0.24
560	56	3.5	0.031	0.21	0.032	0.23	0.034	0.24
640	64	4.0	0.031	0.21	0.032	0.23	0.033	0.23
720	72	4.5	0.031	0.21	0.033	0.22	0.034	0.24
960	96	6.0	0.031	0.21	0.033	0.23	0.034	0.24

Thermal Resistance "R" Value (ASTM C167)

"R" is a measure of the resistance to heat flow of a material of any given thickness.
("R" = m²·°K/W or hr·ft²·°F/Btu)

$$R = \frac{T}{K} \quad \text{Where "T" = Thickness}$$

$$R = \frac{T}{\lambda} \quad \text{Where "λ" or "λ." = Thermal Conductivity}$$

Thermal Transmittance "U" Value (ASTM C168)

"U" is a measure of how much heat is lost through a given thickness of a particular material.
("U" = W/m²·°C or Btu/hr·ft²·°F)

$$U = \frac{1}{Rt} \quad \text{Where "Rt" = Total Thermal Resistance}$$

Composed of all elements/layers

U-Values are calculated from the thermal resistances of the parts making up a particular part of the structure. Transmission of heat is opposed in varying amounts dependent on material and surface.

$$U\text{-Value (of building element)} = 1 / (R_{so} + R_{si} + R_1 + R_2 + \dots)$$

Where R_{so} is the fixed external resistance
R_{si} is the fixed internal resistance
R₁, R₂ etc are resistivity of all elements within the application including that of cavities within the construction.

Example Calculation:

Layer & Material	Thickness & Conductivity	R Value
R _{so} - Fixed external resistance	-	0.40 m ² ·°K/W
R _{si} - Fixed internal resistance	-	0.13 m ² ·°K/W
R1 - Fiberglass insulation	0.100 m; 0.035 W/mK	2.85 m ² ·°K/W
R2 - Clay bricks	0.105 m; 0.710 W/mK	0.15 m ² ·°K/W
R3 - Concrete blocks	0.100 m; 0.018 W/mK	0.55 m ² ·°K/W
R4 - Plaster	0.013 m; 0.016 W/mK	0.08 m ² ·°K/W
Total		4.16 m ² ·°K/W

Therefore the overall wall element U-value = 1/R = 1/4.16 = 0.24 W/mK

Surface Burning Characteristics (ASTM E 84, UL723)

Base glass fiber is non-combustible when tested.

Facing	Flame Spread	Smoke Developed
FRK	≤ 25	≤ 50
ASJ	≤ 25	≤ 50
AWF	≤ 25	≤ 50

Working Temperature Limitations (ASTM C 411)

Operating temperature up to 232°C. At excessive temperatures, limited migration of binder may occur in the insulation in contact with the surface. This in no way impairs the performance of the insulation.

Mold Growth (ASTM C1338)

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

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.

Alkalinity (ASTM C 871)

pH 9

Specification Compliance

AFICO Mechanical Board Insulation complies with the standard specification requirements of the following specifications:

DCL : ASTM C612

CE-EN : EN 13162-T4-WS.WL(P)1121-CPD-BA0136

UL 723 : Classified as FHC 25/50 File no R37968

ASTM C795 : Thermal Insulation for use in contact with Austenitic Stainless Steel tested

SASO : SASO EN 13162

License # 20240660861

SCS Global : SCS-HPD-09461

Global Green Tag : ARA:DS01:2025:GR

Global Green Tag : ARA:DS01:2024:PH

Emirates GBC : EmiratesGBC

SCS Global : SCS-HPD-09461

SCS-RC-02811

SCS-IAQ-07374

SCS-EPD-08453

Fire Properties

B.S. 476 PART 4: Non Combustible

B.S. 476 PART 5: Ignitability

B.S. 476 PART 6: Fire Propagation

B.S. 476 PART 7: Surface Spread of Flame
Class '0' fire rating to the building regulations sections E15

Facing Information (Flexible Vapor Barrier)

ASTM C 1136 Standard specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation

Vapor Permeability (ASTM E 96A)

FRK: 0.02 perms

ASJ: 0.02 perms

AWF: 0.00 perms

Puncture Resistance

FRK: 25 beach units

ASJ: 85 beach units

AWF: 1170 beach units

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.

Sound Absorption Coefficients (ASTM C423)

Insulation	Thickness	Sound Absorption Coefficient at Frequencies (Hz)					
		125	250	500	1000	2000	NRC
Semi-rigid	25mm (1inch)	0.11	0.29	0.68	0.76	0.75	0.85
	50mm (2inches)	0.12	0.54	1.00	0.97	0.68	0.90
Rigid	25mm (1inch)	0.01	0.57	1.04	1.10	1.02	0.95
	50 mm (2inches)	0.36	1.07	1.08	1.05	1.03	1.10

Installation Recommendation

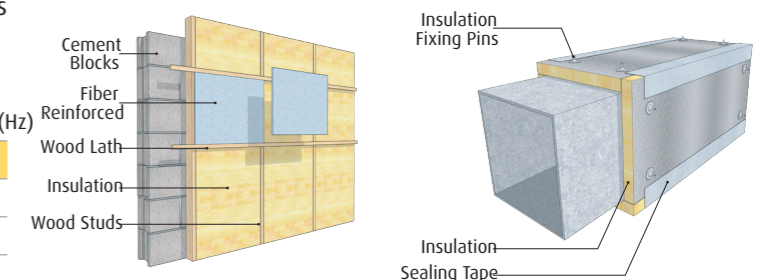
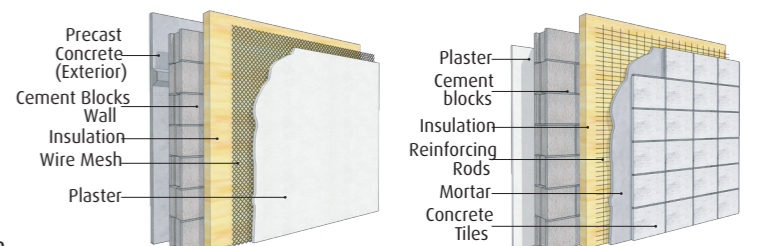
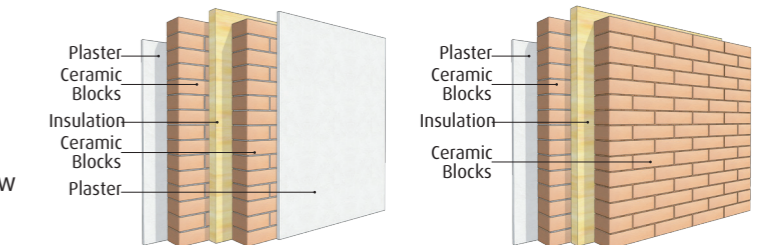
AFICO Mechanical Board Insulation products can be easily cut with a knife and neatly fitted into irregularly shaped areas.

For Vertical Applications: AFICO Mechanical 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: AFICO Mechanical Board Insulation can be installed by the use of impaling pins against horizontal surfaces.

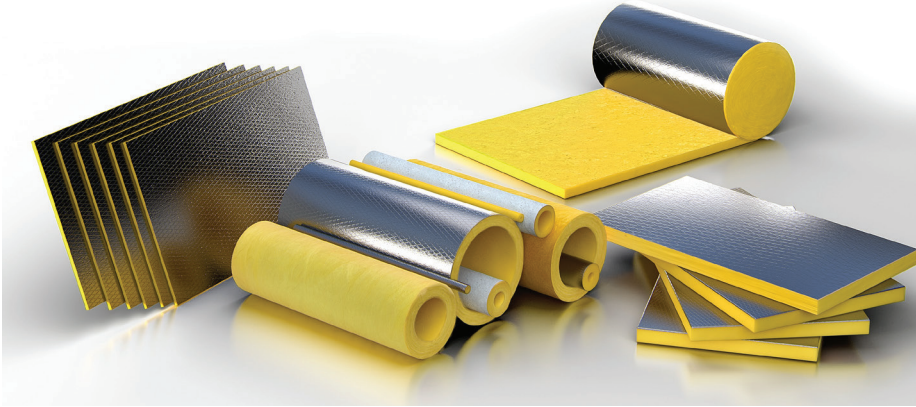
On Masonry Surface: AFICO Mechanical Board Insulation can be installed between withes and on wall faces with impaling pins, mechanical fasteners and/or adhesives.

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





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The AFICO Product Range includes

- Cavity Wall Insulation • Blanket Insulation • Duct Liner Board • Duct Liner • Faced Duct Wrap • Quiet Liner
- Thermal Insulating Wool • Pipe Wrap Insulation • Quiet Liner Board • Acoustical Ceiling Panels • Board Insulation
- Roof Deck Board Insulation • Heavy Density Pipe Insulation • HD Series Blanket Insulation
- Pre-engineered Metal Building Insulation • Mechanical Board Insulation

Call us today for more information & professional guidance:

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 Egypt (Cairo): +20 100 009 9209
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 Please send all email inquiries to info@afico.com.sa



People & Planet Always First

AFICO's products are all energy saving, environmentally friendly, use even more recycled materials and contribute to the fight against global warming.

A Subsidiary of



AFICO operates as a subsidiary of Gulf Insulation Group, With Owens Corning serving as its technology partner

Maintenance

No maintenance is required. AFICO Mechanical Board Insulation products 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, odorless, 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. AFICO fiberglass is non-toxic and not hazardous to health.

Storage

To avoid moisture in the building construction, AFICO insulation products stored outside must be kept dry. We recommend AFICO products to be always stored in covered and dry areas. AFICO 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 AFICO and/or OCF has no control over installation design, installation workmanship, accessory materials, or conditions of application, AFICO and/or OCF 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 Fiberglass Insulation Company AFICO 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 materials and methods of fixing are the decision of the specifier, consultant or contractor. For further information or advice on specification of products, contact your local, sales office.

Availability

Manufactured by Arabian Fiberglass Insulation Company, Ltd. (AFICO), a subsidiary wholly owned by Gulf Insulation Group. AFICO has headquarters and production facilities located in Dammam, Saudi Arabia, operating under license from and utilizing the manufacturing specifications and technology of Owens-Corning Corporation (OCF), Toledo, Ohio, U.S.A.

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

Special products are manufactured on request.



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