



# Quiet Liner Board (QLB)



### Product Description

**AFICO Quiet Liner Board** is highly efficient resilient fiber insulation 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. It is free from coarse fiber and shot due to its mineral composition.

### Facing

**AFICO Quiet Liner Board** is supplied in semi-rigid and rigid faced with a strong, dimensionally stable Black Woven Glass Fiber Fabric (WGF).

### Application

**AFICO Quiet Liner Board** is intended for use in commercial, institutional, industrial and residential construction as thermal and acoustical insulation of heating air-conditioning and interior of dual temperature duct work, air handling equipment and plenums operating at air-velocities up to 20m/s (4000 FPM) with actual test velocity at 10,000 FPM (2.5 times the rated capacity) and temperatures up to 232°C (450°F)

Also used as an efficient sound absorption treatment of walls and ceilings, acoustic enclosures, generator rooms, studios, curtain walls, auditoriums, conference rooms, theaters and others.

### Standard Available Sizes

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

Product Type	Density		K Value @24°C		R Value / Thickness									NRC Values			
	Kg/m <sup>3</sup>	Lb/ft <sup>3</sup>	W/m <sup>2</sup> ·°K	BTU-in/hr·ft <sup>2</sup> ·°F	25 mm	1 in.	50 mm	2 in.	75 mm	3 in.	100 mm	4 in.	150 mm	6 in.	25 mm	50 mm	75 mm
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	0.85	0.95	1.00
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	0.90	1.00	1.05
480	48	3.0	0.032	0.22	0.76	4.28	1.52	8.56	2.34	12.83	3.13	17.11	4.69	25.67	0.90	1.05	1.15
560	56	3.5	0.032	0.22	0.76	4.28	1.52	8.56	2.34	12.83	3.13	17.11	4.69	25.67	0.90	1.05	1.15
640	64	4.0	0.032	0.22	0.80	4.50	1.60	8.90	2.34	13.40	3.13	17.90	4.69	26.80	0.95	1.05	1.20
720	72	4.5	0.032	0.22	0.76	4.28	1.52	8.56	2.34	12.83	3.13	17.11	4.69	25.67	0.95	1.10	1.20
960	96	6.0	0.032	0.22	0.76	4.28	1.52	8.56	2.34	12.83	3.13	17.11	4.69	25.67	0.95	1.10	1.25

### Apparent Thermal Conductivity (ASTM C518, EN12667)

W/m<sup>2</sup>·°K or Btu·in/hr·ft<sup>2</sup>·°F for all product range "K" or "λ" value at mean temperatures

Data for 10, 24 and 35°C mean temperature.

Nominal K-Value

Product Type	Density		Mean Temperature					
	Kg/m <sup>3</sup>	Lb/ft <sup>3</sup>	10°C	50°C	24°C	°75C	35°C	95°C
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
480	48	3.0	0.031	0.21	0.032	0.22	0.035	0.24
560	56	3.5	0.031	0.21	0.032	0.22	0.034	0.24
640	64	4.0	0.031	0.21	0.032	0.22	0.033	0.23
720	72	4.5	0.031	0.21	0.032	0.22	0.034	0.24
960	96	6.0	0.031	0.21	0.032	0.22	0.034	0.24





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### Performance & Physical Characteristics

#### Thermal Resistance "R" Value (ASTM C518)

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

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

$$\quad \quad \quad \text{Where "K" or "λ" = Thermal Conductivity}$$

#### 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/mK °C or Btu/hr·ft<sup>2</sup> °F)

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

$$\quad \quad \quad \text{Composed of all elements/layers}$$

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-Value (of building element) = 1 / (Rso+Rsi R1+Rs...)

Where Rso is the fixed external resistance  
Rsi 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
Rso - Fixed external resistance	—	0.40m <sup>2</sup> ·°K/W
Rsi - Fixed internal resistance	—	0.13m <sup>2</sup> ·°K/W
R1 - Fiberglass insulation	0.100m; 0.035 W/mK	2.85m <sup>2</sup> ·°K/W
R2 - Clay bricks	0.105m; 0.710 W/mK	0.15m <sup>2</sup> ·°K/W
R3 - Concrete blocks	0.100m; 0.018 W/mK	0.55m <sup>2</sup> ·°K/W
R4 - Plaster	0.013m; 0.016 W/mK	0.08m <sup>2</sup> ·°K/W
Total		4.16m <sup>2</sup> ·°K/W

Therefore the overall wall element U-value = 1/R = 1/4.16 = 0.24W/m<sup>2</sup>K

#### Surface Burning Characteristics (ASTM E84, UL723)

Base glass fiber is non-combustible when tested.

Facing	Flame Spread	Smoke Developed
WGF	≤ 25	≤ 50

#### Working Temperature Limitations (ASTM C411)

Operating temperature up to 232°C (450°F) for the WGF faced product. At excessive temperatures, limited migration of binder may occur in the insulation in contact with the surface. This is 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 C665)

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 C871)

pH 9

#### Friction Loss

According to TIMA AHS-152T Pressure loss, in W.G., AFICO Quiet Liner Board.

This is to be used in place of the standard friction loss chart published in the ASHRAE Handbook of fundamentals.

For conversion of round equivalents to rectangular sizes, use Table C-2 "Circular Equivalents of Rectangular Ducts for Equal Friction and Capacity" from the same reference. Tests conducted in accordance with TIMA AHS 152T.

#### 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

#### Specification Compliance

AFICO Quiet Liner Board 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

SCS: Recycled Content Certified  
SCS-MC-02811

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

ASTM C1071: For Acoustical Performance

SASO: SASO GSO EN 13162  
License #201800652111

#### Acoustical Performance (ASTM C423)

Reverberation Chamber Method  
Sound Absorption Coefficients at Frequencies (Hz)

Type	Thickness		Sound Absorption Coefficients at Frequencies (Hz)						
	mm	inch	125	250	500	1000	2000	4000	NRC
320	25	1	0.11	0.29	0.68	0.76	0.75	0.62	0.60
	50	2	0.12	0.53	0.99	1.03	0.96	0.69	0.86
480	25	1	0.11	0.26	0.65	0.84	0.80	0.57	0.65
	50	2	0.14	0.69	1.14	1.04	0.85	0.65	0.95

#### Installation Recommendation for Board

AFICO Quiet Liner Board are available in rolls and board types. The desired application length can be easily measured and cut from the full roll. AFICO Quiet Liner Board is applied to the interior of ducts and plenums with the black surface facing the air stream.

Transverse joints are to be neatly butted, with no interruptions or gaps. Longitudinal corner joints are to be overlapped and tight. Top pieces are to be supported by side pieces.

AFICO Quiet Liner Board should be adhered to sheet metal ducts with 100% coverage of adhesive, and all exposed leading edges and all traverse joints coated with adhesive. The liner should be additionally secured with mechanical fasteners which will compress the product sufficiently to hold it firmly in place. In addition, mechanical fasteners should be used according to the following schedule:

**For Velocities of 10m/s:** On horizontal runs where duct width or height exceeds 500 mm, the liner should transverse edges and spaced at a maximum of 375 mm on centers and 375 mm from longitudinal joints. On vertical runs, fasteners should be similarly spaced where either dimension exceeds 300 mm.

**For velocities from 10 to 20m/s:** On horizontal runs where duct width exceeds 300 mm or duct height exceeds 400 mm, the liner should be secured with fasteners starting within 75 mm of the upstream transverse edges and spaced at maximum of 375 mm on centers and 375 mm from longitudinal joints. On vertical runs, fasteners should be similarly spaced where either dimension exceeds 300 mm.

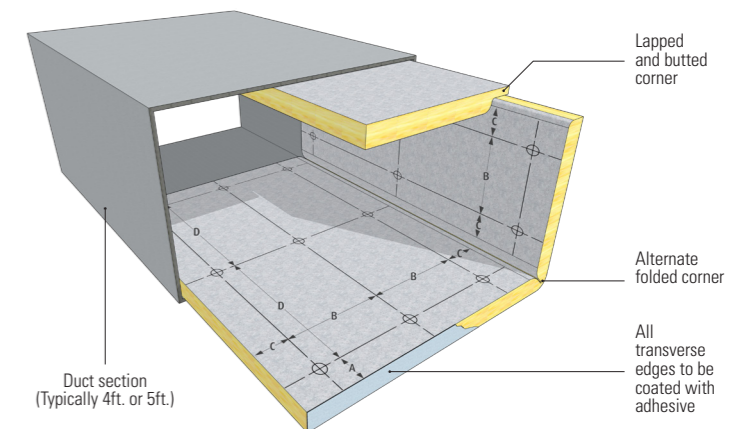
**For velocities up to 20 to 30m/s:** Same as for 10 to 20 m/s, except that fasteners should be spaced at a maximum of 300 mm on centers and metal nosing should be installed to secure liner at all upstream transverse edges.

When velocity exceeds 4000 FPM use metal nosing on every leading edge. Nosing may be formed on duct or by channel or Zee attached by screws, rivets or welds.

No. of pins	Liner Interior Width
0	8" dn
2	16"-9"
3	28"-17"
4	40"-29"
5	52"-41"
6	64"-53"
7	76"-65"
8	88"-77"
9	100"-89"

Maximum spacing for fasteners. Actual intervals are approximate.

Velocity	Dimensions			
	A	B	C	D
2500 - 0 FPM	3"	12"	4"	18"
6000 - 2501 FPM	3"	6"	4"	16"



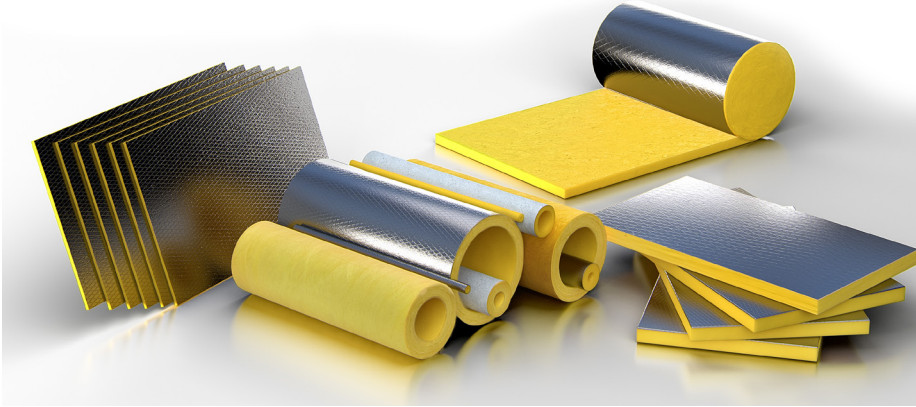
The velocity rated side of liner must face the air flow.

Liner adhered to the conduct with 90% min. area coverage of adhesive.





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

### Maintenance

No maintenance is required. **AFICO 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 member of Zamil Industrial Co. (ZI), with head-quarters and production facilities located in Dammam, Saudi Arabia, 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 from as well as through a vast and reliable network of local distributors.

**Special products are manufactured on request.**

**Call us today for more information & professional guidance:**

**Dammam (H.O. & Factory):** +966 13 331 3333

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**Jeddah:** +966 12 670 0020

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## 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**.

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