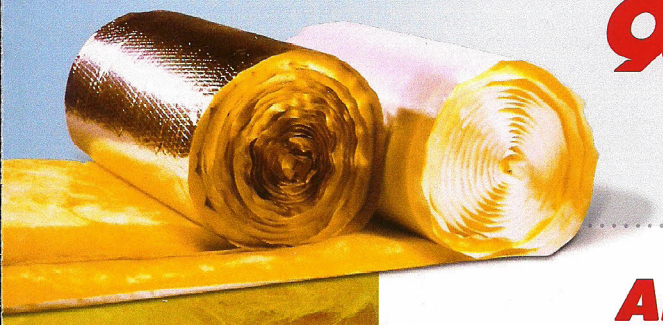
Affiliate of OWENS CORNING USA (OC)

Member of Zamil Industrial



AFICO

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

AFICO Pre-Engineered Metal Building Insulation (PEBI)

Technical Data Sheet
Product Code: **PEBI**

DESCRIPTION

AFICO Pre-Engineered Metal Building Insulation (PEBI) is a highly efficient, lightweight, strong, resilient, and easy to handle flexible blanket insulation composed of line, 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 fibers and shot due to its mineral composition.

The use of the proper facing helps to preserve the inherent fire safety of metal buildings. These facings brighten the building interiors due to their high light reflectance, reduce the cost of interior lighting, contribute to an effective vapor barrier and to the control of condensation and dripping moisture.

A 50 mm (2 inch) stapling and taping overlap flange on one side or both sides of these facings is available. The facings are also available with UL fire resistant rating.

FACING

AFICO Pre-Engineered Metal Building Insulation is designed and factory-laminated to a choice of functional finishes to provide attractive interiors, abuse resistance, and assistance in the control of moisture or vapor condensation. Pre-Engineered Metal Building Insulation is available with one side factory-applied Aluminum Foil Reinforced Kraft Paper Laminate (FRK), White Metalized Scrim Kraft (WMSK) and Aluminum Foil Woven Fiberglass Jacket (AWF) or other specific vapor barrier facings.

APPLICATION

AFICO Pre-Engineered Metal Building Insulation is manufactured specifically for use in the roof and side walls of commercial, industrial, residential, agricultural and poultry farms metal building construction. This insulation greatly reduces heat gain or loss through the building envelope. It will not rot, disintegrate or slump.

STANDARD NOMINAL DENSITY

10 – 12 kg/m³ (0.625 – 0.75 lb/ft³)
Nominal Manufacturing Specifications. Check for availability of other dimensions and densities.

NORMAL THERMAL CONDUCTIVITY (ASTM C 518) (BS 874)

"K" or "λ" = 0.047 W/m·°K or 0.326 Btu·in/hr·ft²·°F
at 24°C or 75°F mean temperature

THERMAL TRANSMITTANCE (U VALUE)

Thermal transmittance is the rate of heart 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.

Density		Thickness		Thermal Resistance "R"		Width		Length	
kg/m³	lb/ft³	mm	inch	m²·°K/W	hr·ft²·°F/Btu	mm	inch	m	ft
		25	1	0.53	3				
10	0.625	38	1 1/2	0.81	5	0.900	36	10	30
		50	2	1.06	6				
		64	2 1/2	1.36	8	TO	TO	TO	TO
		75	3	1.60	9				
12	0.75	89	3 1/2	1.89	11	1.10	44	36	120
		100	4	2.13	12			Depending on Thickness	
		159	6 1/4	3.38	19				

* Standard Products and Sizes

CE

TÜV NORD CERT GmbH BS OHSAS 18001

TÜV NORD CERT GmbH EN ISO 14001

TÜV NORD CERT GmbH EN ISO 9001

DCL PRODUCT CONFORMITY Certificate No. CL06020017

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Performance & Physical Characteristics

Thermal Resistance "R" Value (ASTM C 167)

"R" is a measure of the resistance to heat flow of a material of any given thickness.
("R" = $m^2 \cdot °K/W$ or $hr \cdot ft^2 \cdot °F/Btu$)

$$R = \frac{T}{K}$$

where "T" = Thickness
and "K" or "λ" = Thermal Conductivity

Thermal Conductance "C" Value (ASTM C 518, ASTM C 177)

"C" It is ability of the product to conduct heat.
("C" = $W/m^2 \cdot °K$ or $Btu/hr \cdot ft^2 \cdot °F$)

$$C = \frac{1}{R}$$

where "T" = Thickness
and "K" or "λ" = Thermal Conductance

Working Temperature Limitations (ASTM C 411)

Operating temperature -4°C (25°F) to 350°C (662°F) 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 D 2020, UL 181)

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

pH 9

Surface Burning Characteristics (ASTM E 84, UL 723)

Base glass fiber is non-combustible when tested to ASTM E 84.

Facing	Flame Spread	Smoke Developed	Fuel Contributed
FRK	25	10	0
WMSK	20	30	0
AWF	10	0	0

Specification Compliance

AFICO Pre-Engineered Metal Building Insulation complies with the property requirements of the following specifications:

DCL : ASTM C 665
CE-EN : 1121-CPD-BA0137

Vapor Permeability (ASTM E 96 A)

Aluminum Foil Reinforced Kraft Paper Laminate (FRK)	: 0.020 PERM
White Metalized Scrim Kraft (WMSK)	: 0.020 PERM
Aluminum Foil Woven Fiberglass Jacket (AWF)	: 0.018 PERM

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 'O' fire rating to the building regulations sections E15

Compressive Strength

PSF at 10% Deformation : 5
PSF at 25% Deformation : 10

Puncture Resistance (ASTM D 781)

Aluminum Foil Reinforced Kraft Paper Laminate (FRK)	: 25 Units
White Metalized Scrim Kraft (WMSK)	: 25 Units
Aluminum Foil Woven Fiberglass Jacket (AWF)	: 10 Units (270 Psi)

Overall Heat Transmission Coefficient:

		Manufacturers data for Uncompressed insulation		MBMA/TMA test values			
Insulation Thickness	Actual	Theoretical		Insulation compressed over girts and purlins, fasteners on 12" centers		Insulation compressed over girts and purlins, fasteners on 6" centers	
inches	"K"	"R"	"U"	"R"	"U"	"R"	"U"
1 ½	0.28	5.36	0.18	4.12	0.20	4.06	0.21
2	0.28	7.14	0.14	5.23	0.17	4.64	0.19
3	0.28	10.71	0.10	6.89	0.13	6.11	0.15
4	0.28	14.29	0.07	7.60	0.12	6.45	0.14

Performance & Physical Characteristics

Sound Transmission Loss in dB Metal Building Walls

Construction	Octave Band Center Frequencies, Hz						
Type	125	250	500	1000	2000	4000	NRC
Metal Building Wall 26 gauge	12	14	15	21	21	25	20
Metal Building Wall + 2" Insulation	11	15	16	29	31	37	24
Metal Building Wall + 3" Insulation	12	16	18	31	32	39	25
Metal Building Wall + 4" Insulation	11	17	21	34	35	42	27

Sound Absorption Coefficients

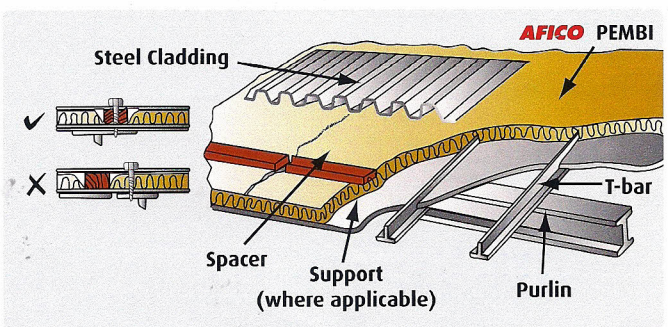
Insulation Thickness	Sound Absorption Coefficient at Frequencies (Hz)						
	125	250	500	1000	2000	4000	NRC
50 mm (2in)	0.33	0.49	0.99	0.60	0.30	0.23	0.60
75 mm (3in)	0.35	0.51	0.99	0.68	0.35	0.30	0.60
100 mm (4in)	0.33	0.48	0.99	0.86	0.44	0.33	0.70

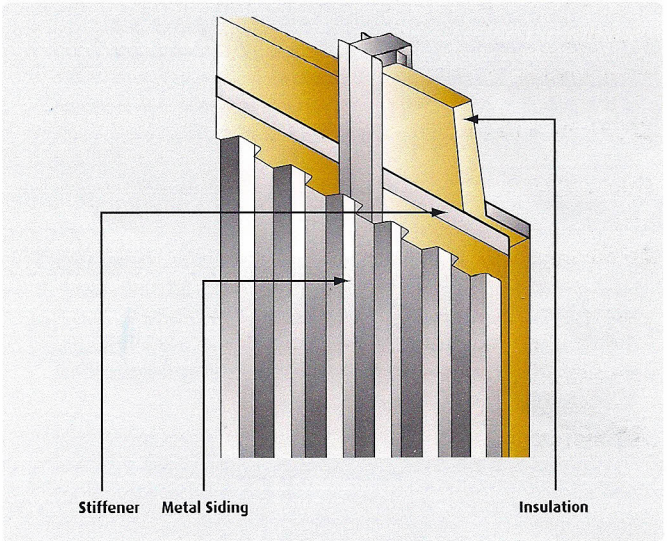
Application Guidelines

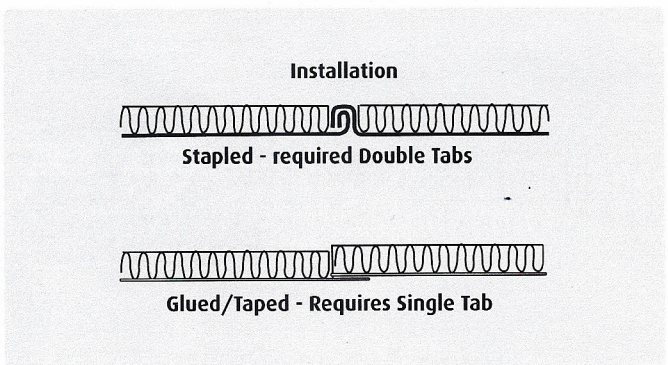
Several methods are used to insulate metal buildings. The usual method is to apply the insulation over the structural members (purlins and girts) and inside the exterior panels. This method generally accommodates single layer insulation to R-13. Methods are also used to apply insulation in metal building roofs between purlins so as to accommodate greater insulation thickness and better thermal performance.

In some cases, two insulation layers are necessary or desirable. In such case, ***AFICO*** **Pre-Engineered Metal Building Insulation** provides an economical unfaced second layer. The table below shows how double layer application may be used to achieve desired R-values.

Desired R-Value	First Layer (Faced)	Second Layer (Unfaced)
16	R = 7	R = 9
19	R = 7	R = 12
25	R = 7	R = 18
31	R = 7	R = 24







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MAINTENANCE

No maintenance is required. **AFICO Pre-Engneered Metal Building 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, 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 headquarters 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.

AFICO PRODUCTS	PRODUCTS CODE
Acoustical Ceiling Panels	ACP
Blanket Insulation	BKT
HD Series Blanket Insulation	HDB
Board Insulation	BD
Roof Deck Board Insulation	RI/RD
Cavity Wall Insulation	CWI
Pre-engineered Metal Building Insulation	**PEBI**
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	QL
Quiet Liner Board	QLB

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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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