

# KIMMCO GLASSWOOL & ROCKWOOL



MANUFACTURED  
UNDER LICENSE TO  
**ISOVER**  
SAINT-GOBAIN

A subsidiary of  
**Alghanim**  
INDUSTRIES 

**KIMMCO**

means insulation!

# Company Profile

KIMMCO (Kuwait Insulating Material Manufacturing Co.), a subsidiary of Alghanim Industries, was established in Kuwait in 1977. It has become a leading insulation solution provider in the Middle East, Africa, and Asia.

As a licensee of Saint-Gobain Isover, the world leader in fiberglass insulation, KIMMCO provides insulation solutions for HVAC, buildings (including roofs, walls, floors, and metal structures) and technical/industrial applications. With an annual production capacity of 35,000 MT, KIMMCO is ISO 9001, ISO 14001 and OHSAS 18001 certified, and is compliant with ISO, ASTM, DIN, BS and other international standards.

KIMMCO products are used in private, commercial, government and industrial projects for floors, walls, roofs, air-conditioning and piping, as well as process and petrochemical industries. KIMMCO also provides stonewool insulation products manufactured by its subsidiary, Rockwool India Ltd. KIMMCO insulation products contribute to green building and sustainability project requirements to achieve points for LEED and ESTIDAMA certification.

In 2014, the Alghanim Insulation Group announced the construction of its state-of-the-art, stonewool plant in Yanbu, Al-Sinaiyah, Saudi Arabia. A joint venture with Saint-Gobain

International, the plant will have an annual capacity of 64,000 MT.

KIMMCO has supplied products to prestigious projects in the region such as the Dubai Metro, Burj Khalifa, Princess Nora University and Kuwait's Al Hamra Tower, to name a few. In addition, KIMMCO is one of the approved vendors for the impressive Masdar City in Abu Dhabi.

With a strong commitment to the environment, as well as to the health and safety of the surrounding communities, KIMMCO actively collaborates with international environmental organizations and is compliant with best-in-class international environmental standards.

## KIMMCO's COMMITMENT

KIMMCO's commitment to achieve green building and sustainability goes well beyond certifications, standards and testing. KIMMCO believes it is uniquely positioned, as an insulation manufacturer, to offer products that help protect and preserve the environment.

Through on-going efforts to provide innovative, eco-friendly and energy-efficient insulation solutions, KIMMCO has achieved its goal of becoming the regional leader in environmentally-friendly building solutions.



# Commitment to Quality

## Properties of KIMMCO Glasswool and Rockwool Products

- Excellent thermal performance
- Superior acoustic performance
- Excellent fire safety
- Environmentally friendly - made from abundantly available non-strategic materials like sand and up to 80% recycled glass
- Suitable for a wide variety of applications (flexible, semi-rigid and rigid)
- Address a variety of performance requirements (wide range of facing materials)
- Easy to cut and install, minimum wastage on site
- Light weight
- Flexible rolls, semi-rigid and rigid boards
- Dimensionally stable
- No sagging or settling
- Complies with international standards

## Our Commitment to Quality

Our Glasswool and rockwool products are manufactured under license of Saint - Gobain ISOVER, a world leading insulation provider headquartered in France.

Further, we have a strong commitment to quality, as recognized by our accreditation by international standards bodies such as ISO.

KIMMCO was selected as the sole insulation supplier and official collaborator with MASDAR city, the world's first zero-carbon, zero-waste city, in Abu Dhabi. We have a strong commitment to the environment, health and safety of our people, and surrounding communities, and actively collaborate with local and international environmental agencies. Further, KIMMCO Glasswool and Rockwool products help developers achieve green building rating certifications such as LEED, Estidama and QSAS.

### Our Glasswool products conform to:

- CE
- UL
- DCL (Dubai Central Laboratory)
- ABS

### Our Rockwool products conform to:

- UL
- FM
- Warrington Fire Certification

Further, we are members of the following industry associations:

- Emirates Green Building Council (EGBC)
- Qatar Green Building Council (QGBC)
- MASDAR (Future Build initiative)
- Middle East Mineralwool Insulation Manufacturers Association (MEMIMA)
- India Green Building Council



# Why Insulate?

## Enhanced Comfort from Thermal Insulation

Insulation works as a barrier to heat transfer, helping to keep out unwanted heat in summer and preserving precious warmth in winter. In fact, a well insulated home can stop up to 70% of all heat flow through the ceiling, walls and floors. Even with air conditioning, insulation is indispensable, as chilled air is far more expensive than warmed air. In the United States, where air conditioning was developed, regulations require a minimum thickness of 25cm of glasswool insulation in roofs (US R-Value of 30).



## Enhanced Comfort from Acoustic Insulation

Due to their unique fibrous structure, glasswool and rockwool insulation provide dual benefits of thermal and acoustic insulation. Insulation dramatically reduces the levels of external noise entering homes, offices, and commercial buildings, allowing for quiet, peaceful living and working environments. Conversely, insulation also helps to reduce noise generated from within a building (home theatres, etc.) from escaping outside. Further, insulation is used to reduce noise in applications such as air ducts and under metallic roofs.





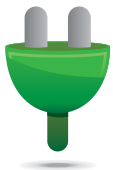
### Excellent Fire Protection

Unlike flammable organic foams, glasswool and rockwool are made from sand and rock respectively, and are naturally non-combustible. Further, unlike flammable organic foams, they do not produce toxic fumes which could be a real danger when evacuating premises. Glasswool and rockwool insulation act as fire barriers which reduce the spread of flames, affording valuable time to save people and property, and reduce environmental damage. Therefore, they are frequently used in walls, roofs, and air ducts of high rise buildings or commercial premises such as shopping malls and hospitals where fire safety is paramount. Glasswool and rockwool insulation are certified as non-combustible according to the stringent ISO, ASTM & BS tests.



### Lower Energy Consumption & Environmentally Friendly

Glasswool and rockwool insulation are critical to improving energy efficiency and reducing greenhouse gas emissions. When considering that worldwide, 40% of energy is used in buildings, a figure that rises to 50% in the Middle East, insulation can effectively reduce cooling costs by up to 50%, and is one of the best ways to improve energy efficiency.



In addition, glasswool and rockwool insulation are made using naturally occurring materials such as sand and rock, and high levels of recycled waste glass.

Our insulation businesses have comprehensive environmental management systems including advanced recycling technologies, and we are active members of relevant Green Building Councils and industry associations that promote working towards sustainable development and a greener, healthier planet.



# Glasswool

## KIMMCO Self-Seal



- Thickness : 25 - 100 mm
- Dimensions\* : Boards 0.4 - 1.2 m (width), 1 m (length)
- Facing & Covering : FSK, Aluglass, Black Glass Fabric
- Application Fields : KIMMCO Self Seal is a self-adhering Glasswool board for thermal and acoustic insulation of HVAC ducts and similar applications, which completely eliminates the use of liquid and flammable glue, improves greatly the ease and speed of installation and saves installation cost and time.



## KIMMCO Duct Insulation (KDI) + KIMMCO Duct Insulation Plus (KDIP)



- Thickness : 25 - 150 mm
- Dimensions\* : Rolls: 1.2 m (width), 10 - 20 m (length)  
Boards: 0.4 - 1.2m (width), 1 m (length)
- Facing & Covering : FSK and ASJ for KDI & Aluglass for KDIP
- Application Fields : Thermal insulation of heating, ventilation and air conditioning (HVAC) ducting systems. Aluglass facing ensures zero water vapour permeability, puncture resistance, and eliminates the need for external weather protection.

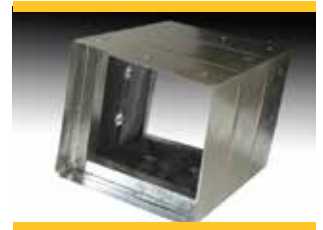


Now also with Self-Seal

## KIMMCO Clean Liner (KCL)



- Thickness : 15 - 100 mm
- Dimensions\* : Rolls 1.2 m (width), 10 - 32 m (length)  
Boards 1.2 m (width), 1 m (length)
- Facing & Covering : Black glass fabric
- Application Fields : Acoustic insulation for HVAC ducts and acoustically sensitive structures such as recording rooms, home theatres, cinemas, conference halls, etc.



Now also with Self-Seal

## KIMMCO Building Roll (KBR)



- Thickness : 15 - 150 mm
- Dimensions\* : 0.4 - 1.2 m (width), 10 - 45 m (length)
- Facing & Covering : Unfaced, FSK, Vinyl, White Metalized Polyester, Kraft Paper, Yellow Glass Tissue, Reflective Metalized ASJ and Aluglass
- Application Fields : Thermal and acoustic insulation of metal buildings (over and under roof purlins, walls), porta-cabins, partition walls, and roofs (false ceiling overlay).



## KIMMCO Building Slab (KBS)



- Thickness : 15 - 150 mm
- Dimensions\* : 0.4 - 1.2 m (width), 1 - 2.4 m (length)
- Facing & Covering : Unfaced, FSK, Glass Tissue, and ASJ
- Application Fields : Thermal and acoustic insulation of walls (internal, external, cavity, partition), roofs (under purlin, ceilings, external roof structures), floors, and technical applications such as industrial boilers, ovens and refrigeration storage tanks.



\* Other dimensions available on request

## KIMMCO Rigid Pipe Covering (K450)



- Thickness : 20 - 100 mm
- Pipe Size : 1/2" - 36" pipe dia. (Steel)  
1/2" - 16" pipe dia. (Copper)
- Facing & Covering : Unfaced, FSK, and ASJ
- Application Fields : Thermal insulation of steel & copper pipes used in HVAC and similar applications.



## KIMMCO Rigid Pipe Covering (K450 Plus)



- Thickness : 20 - 100 mm
- Pipe Size : 1/2" - 36" pipe dia. (Steel)  
1/2" - 16" pipe dia. (Copper)
- Facing & Covering : Aluglass
- Application Fields : Thermal insulation of steel & copper pipes used in HVAC and similar applications. Aluglass facing ensures zero water vapour permeability, puncture resistance, and eliminates the need for external weather protection.



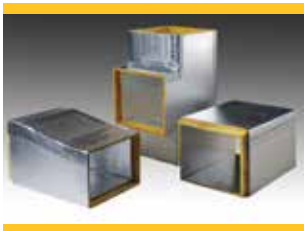
## KIMMCO Aluglass Duct System (KADS)



- Thickness : As per requirements
- Dimensions : As per requirements
- Facing & Covering : Aluglass (outside); FSK (inside)
- Application Fields : Air distribution in HVAC system



## KIMMCO Alu Duct (KAD)



- Thickness : As per requirements
- Dimensions : As per requirements
- Facing & Covering : ASJ (outside); FSK (inside)
- Application Fields : Air distribution ducts for HVAC



## KIMMCO Marine Board (KMB)



- Thickness : 25 - 75 mm
- Dimensions : 2' x 3'
- Facing & Covering : Heavy duty white glass fabric meeting naval engineering specifications
- Application Fields : Thermal and acoustic insulation for marine applications (cabins, etc.)



\* Other dimensions available on request

# KIMMCO

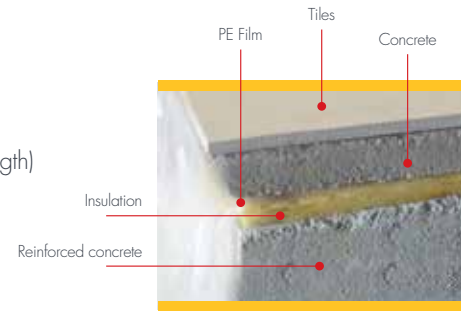
means insulation!

# Glasswool

## KIMMCO Acoustic Floor Insulation (KAFI)



- Thickness : 15 - 50 mm
- Dimensions : 0.6 - 1.2 m (width), 0.6 - 1.2 m (length)
- Facing & Covering : Unfaced
- Application Fields : Impact sound insulation for floating floors in multi-storey buildings (dwellings/apartments)



## KIMMCO Façade Insulation (KFI)



- Thickness : 25 - 150 mm
- Dimensions : 0.6 - 1.2 m (width), 1 m (length)
- Facing & Covering : Unfaced, BGT and FSK
- Application Fields : Thermal and acoustic insulation for non-load-bearing exterior wall cladding.



## KIMMCO Encapsulated Ceiling Boards (KECB)



- Thickness : 25 - 100 mm
- Dimensions : 0.6 m (width), 0.6 - 1.2 m (length)
- Facing & Covering : Encapsulated PE bag
- Application Fields : Acoustic insulation for false ceiling applications in airports, hospitals, entertainment malls and commercial complexes.



## KIMMCO Kalining (KKL36)



- Thickness : 50 - 85 mm
- Dimensions : 1.2 m (width), 5.4 - 10 m (length)
- Facing & Covering : Kraft Paper
- Application Fields : Thermal and acoustic insulation for retrofit walls of residential houses and commercial buildings.



## KIMMCO Lamella Insul (KLI)



- Thickness : 25 - 100 mm
- Dimensions : 1.2 m (width), 5 - 10 m (length)
- Facing & Covering : ASJ, Aluglass, FSK
- Application Fields : Thermal insulation of large pipes, pipe clusters, round or oval ducts, tanks & vessels, decorative roof surfaces (domes, arches, etc.)





# Rockwool

## KIMMCO Rockwool LRB Mattresses



- Thickness : 25 - 100 mm
- Dimensions : 1.22 m (width), 1.52 - 4 m (length)
- Facing & Covering : Galvanized steel or stainless steel hexagonal wire netting (mesh)
- Application Fields : Thermal insulation of high-temperature equipment (boilers, fluid storage tanks, etc) and pipelines up to 750°C



## KIMMCO Rockwool RB Slabs



Now also  
with  
Aluglass

- Thickness : 25 - 150 mm
- Dimensions : 0.6 m (width), 1 - 2 m (length)
- Facing & Covering : Unfaced, FSK, Aluglass and BGT
- Application Fields : Thermal and acoustic insulation in residential and commercial buildings, as well as industrial applications, especially where fire hour rating (fire safety) is required.



## KIMMCO Rockwool Pipe Sections



- Thickness : 25 - 100 mm
- Dimensions : 1/2" - 14" (Nom. Bore)
- Facing & Covering : Unfaced, FSK & Aluglass
- Application Fields : Thermal insulation of pipe work



## KIMMCO Rockwool Loosewool



- Thickness : NA
- Dimensions : NA
- Facing & Covering : NA
- Application Fields : Thermal insulation for in-fill around pipe bundles and for brake/clutch pads.

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means insulation!

# Rockwool

## KIMMCO Rockwool Building Roll



Now also  
with  
Aluglass

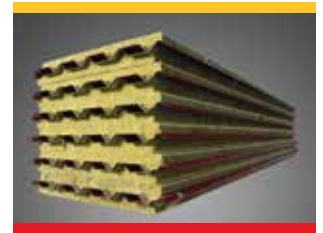
- Thickness : 40 - 100 mm
- Dimensions : 1.1 - 1.2 m (width), 5 - 10 m (length)
- Facing & Covering : FSK, Aluglass & Kraft Paper
- Application Fields : Thermal and acoustic insulation of metal buildings (over and under roof purlins, walls), porta-cabins, partition walls, and roofs (false ceiling overlay).



## KIMMCO Rockwool Rigid Slabs



- Thickness : 25 - 150 mm
- Dimensions : 0.6 m (width), 1 m (length)
- Facing & Covering : Unfaced
- Application Fields : Thermal insulation where extra rigidity is required such as sandwich panels, roof and flooring applications.



## KIMMCO Rockwool Lamella Bats



- Thickness : 25 - 118 mm
- Dimensions : 100 - 110 mm (width), 0.92 - 1.2 m (length)
- Facing & Covering : Unfaced
- Application Fields : Extra rigid thermal and fire-safety insulation used as core material for sandwich panels.



## KIMMCO Rockwool Acoustic 6



- Thickness : 50 - 100 mm
- Dimensions : 0.6 m (width), 1 m (length)
- Facing & Covering : Unfaced
- Application Fields : Acoustic insulation ideally suited for partition walls.



## KIMMCO Rockwool Acoustic Thermal Insulation Board (ATIB)



- Thickness : 20 - 30 mm
- Dimensions : 590 x 590 mm
- Facing & Covering : FSK (one side), BGT (other side) (encapsulated solution)
- Application Fields : Acoustic insulation for false ceiling applications in airports, hospitals, entertainment malls, hospitals and commercial complexes.



## FIBREGLASS PRODUCT CHARACTERISTICS

### THERMAL CONDUCTIVITY

The low thermal conductivity of fiberglass products is due to the fact that they consist of more than 95% air which is trapped and kept stationary by the thin fibres.

The dependencies of thermal conductivity of KIMMCO TEL process products on the mean temperature and density, according to BS 874, ASTM C177, C518 or DIN 52612 are presented in the tables below.

MEAN TEMPERATURE	THERMAL CONDUCTIVITY IN W/m.K for the below densities in kg/m <sup>3</sup>															
°C	10	12	16	18	20	24	32	36	48	64	80	96	100	110	115	120
0	0.038	0.036	0.034	0.033	0.032	0.031	0.030	0.029	0.029	0.031	0.031	0.031	0.031	0.031	0.031	0.031
10	0.040	0.038	0.036	0.035	0.034	0.032	0.031	0.030	0.030	0.033	0.033	0.033	0.033	0.033	0.033	0.033
25	0.044	0.041	0.039	0.038	0.036	0.035	0.033	0.032	0.031	0.035	0.035	0.035	0.035	0.035	0.035	0.035
50	0.055	0.048	0.044	0.043	0.041	0.039	0.037	0.036	0.035	0.037	0.037	0.037	0.037	0.037	0.037	0.037
75	0.064	0.059	0.051	0.048	0.046	0.043	0.040	0.039	0.037	0.040	0.040	0.040	0.040	0.040	0.040	0.040
100	0.074	0.065	0.057	0.053	0.051	0.047	0.044	0.043	0.041	0.043	0.043	0.043	0.043	0.043	0.043	0.043

INTERNATIONAL SYSTEM UNITS: W/m.K

MEAN TEMPERATURE	THERMAL CONDUCTIVITY IN Btu.in/ft <sup>2</sup> .h.F for the below densities in Lbs/ft <sup>3</sup>															
°F	0.625	0.750	1	1.125	1.250	1.500	2	2.250	3	4	5	6	6.250	6.875	7.1875	7.5
32	0.26	0.25	0.23	0.23	0.22	0.21	0.20	0.20	0.20	0.21	0.21	0.21	0.21	0.21	0.21	0.21
50	0.28	0.27	0.25	0.24	0.23	0.22	0.22	0.21	0.21	0.23	0.23	0.23	0.23	0.23	0.23	0.23
77	0.31	0.29	0.27	0.26	0.25	0.24	0.23	0.22	0.22	0.23	0.24	0.24	0.24	0.24	0.24	0.24
122	0.38	0.34	0.31	0.30	0.28	0.27	0.25	0.25	0.24	0.25	0.26	0.26	0.26	0.26	0.26	0.26
167	0.45	0.41	0.35	0.34	0.32	0.30	0.27	0.27	0.26	0.27	0.28	0.28	0.28	0.28	0.28	0.28
212	0.51	0.45	0.40	0.37	0.36	0.33	0.30	0.30	0.29	0.30	0.30	0.30	0.30	0.30	0.30	0.30

IMPERIAL SYSTEM UNITS: Btu.in/ft<sup>2</sup>.h.F.

### THERMAL RESISTANCE

Thickness mm	THERMAL RESISTANCE (m <sup>2</sup> . K/W) at 25°C for the below densities kg/m <sup>3</sup>															
	10	12	16	18	20	24	32	36	48	64	80	96	100	110	115	120
25	0.568	0.610	0.641	0.658	0.694	0.714	0.785	0.781	0.806	0.781	0.714	0.714	0.714	0.714	0.714	0.714
40	0.909	0.976	1.026	1.053	1.111	1.143	1.212	1.250	1.290	1.250	1.143	1.143	1.143	1.143	1.143	1.143
50	1.136	1.220	1.282	1.316	1.389	1.429	1.515	1.563	1.613	1.563	1.429	1.429	1.429	1.429	1.429	1.429
65	1.477	1.585	1.667	1.711	1.806	1.857	1.970	2.031	2.097	1.970	1.857	1.857	1.857	1.857	1.857	1.857
75	1.705	1.829	1.923	1.974	2.083	2.143	2.273	2.344	2.419	2.344	2.143	2.143	2.143	2.143	2.143	2.143
100	2.273	2.439	2.564	2.632	2.778	2.857	3.030	3.125	3.226	3.125	2.857	2.857	2.857	2.857	2.857	2.857
125	2.841	3.049	3.205	3.289	3.472	3.571	3.788	3.906	4.032	3.906	3.571	3.571	3.571	3.571	3.571	3.571
150	3.409	3.659	3.846	3.947	4.167	4.286	4.545	4.688	4.839	4.688	4.286	4.286	4.286	4.286	4.286	4.286

Thickness inch	THERMAL RESISTANCE (ft <sup>2</sup> .h.F/Btu) at 77 °F for the below densities in Lbs/ft <sup>3</sup>															
	0.625	0.75	1	1.125	1.25	1.5	2	2.25	3	4	5	6	6.25	6.875	7.1875	7.5
1	3.278	3.518	3.698	3.796	4.007	4.121	4.371	4.507	4.653	4.507	4.121	4.121	4.121	4.121	4.121	4.121
1.5	4.917	5.277	5.548	5.694	6.010	6.182	6.556	6.761	6.979	6.761	6.182	6.182	6.182	6.182	6.182	6.182
2	6.556	7.036	7.397	7.591	8.013	8.242	8.742	9.015	9.306	9.015	8.242	8.242	8.242	8.242	8.242	8.242
2.5	8.195	8.795	9.246	9.489	10.017	10.303	10.927	11.269	11.632	11.269	10.303	10.303	10.303	10.303	10.303	10.303
3	9.834	10.554	11.095	11.387	12.020	12.363	13.113	13.522	13.958	13.522	12.363	12.363	12.363	12.363	12.363	12.363
4	13.113	14.072	14.794	15.183	16.026	16.484	17.483	18.030	18.611	18.030	16.484	16.484	16.484	16.484	16.484	16.484
5	16.391	17.590	18.492	18.979	20.033	20.605	21.854	22.537	23.264	22.537	20.605	20.605	20.605	20.605	20.605	20.605
6	19.669	21.108	22.190	22.774	24.040	24.726	26.225	27.045	27.917	27.045	24.726	24.726	24.726	24.726	24.726	24.726



means insulation!

## COMPLIANCE OF KIMMCO PRODUCTS WITH INTERNATIONAL STANDARDS

STANDARDS COMPLIANCE	KIMMCO PRODUCTS								
	KBR	KBS	KDI/KDIP	KDL	KAD	KCL	K450	KLI	KKL36
American Standards									
<b>ASTM</b>									
C165		•	•					•	
C167	•	•	•	•	•	•			
C168	•	•	•	•	•	•	•	•	•
C177	•	•	•	•	•				•
C302							•		
C303		•	•				•		
C335							•		
C356		•					•		
C411		•	•	•	•	•	•	•	
C423		•		•	•	•			•
C518		•	•	•	•	•			
C 547 (class 1)							•		
C553			•						
C585							•		
C 612 class 1 To 3		•	•						
C653									
C665									
C 665 # 13.8 & 13.9		•	•	•	•	•	•	•	
C680							•	•	
C686			•						
C871							•	•	
C991									
C1045		•	•		•		•	•	
C1071				•		•			
C1101/1101M		•	•	•		•			
C1104/1104 M		•	•	•	•		•	•	•
C1136 (type1&2)		•	•		•		•		
C1290 (type III)			•						
C1335		•	•	•	•	•	•	•	•
C1338					•	•	•	•	
E84		•	•	•	•	•	•	•	•
E96		•	•		•		•	•	•
E136		•	•						
E336						•			
E477				•		•			
E795	•	•		•	•	•			•
E1376						•			
<b>UL</b>									
181				•	•	•			
181 A					•				
723	•	•	•	•	•	•	•	•	•
<b>Federal and Others</b>									
HH-B-100B (Type1)	•	•	•		•		•	•	
HH-1 -521F	•	•	•						
HH-1 -545B				•		•			
HH-1 -558B	•	•	•				•		
SS-S-118B (Type XI)									
NFPA 255	•	•	•	•	•	•	•	•	•
NFPA 90A/B Codes			•	•	•	•			
NAI MA Standards	•	•	•	•	•	•			•
ASHARE 90.1 requirements	•	•	•		•		•	•	
ASHARE 90.2 requirements			•		•				
SMACNA Standards			•	•	•	•			

STANDARDS COMPLIANCE	KIMMCO PRODUCTS								
	KBR	KBS	KDI/KDIP	KDL	KAD	KCL	K450	KLI	KKL36
<b>British Standards</b>									
476 (part 4)	•	•	•	•	•	•	•	•	•
476 (part 6)	•	•	•	•		•			
476 (part 7)	•	•	•	•					
874	•	•	•	•	•	•	•	•	•
1387							•		
2871							•		
2972	•	•	•	•	•	•	•	•	•
3533	•	•	•	•	•	•	•	•	•
3600					•		•		•
3958 (part 4)							•		
3958 (part 5)		•	•		•	•			
5234									•
5422			•				•		
5643			•	•	•	•	•	•	
5720				•	•	•			
5970							•	•	
6676 (part 1)	•	•	•						•
8290 (parts 1 and 2)									
<b>German Standard</b>									
DIN 18165	•	•	•	•	•	•	•	•	•
DIN 52612	•	•	•	•	•	•	•	•	•
<b>ISO</b>									
161 (part 1)							•		
274							•		
354	•	•		•	•	•			•
1182	•	•	•	•					
4200							•	•	
8301	•	•	•	•	•	•			•
8302	•	•	•	•	•	•			•
8497							•	•	
9229	•	•	•	•	•	•	•	•	•
9291	•	•	•		•	•	•	•	•

## CONVERSION FACTOR

Reference: ASTM E 380

Thermal conductivity		Btu/ft hF	Btu in/ft <sup>2</sup> hF	Kcal/m hK	W/mK
	1 Btu/ft hF =	1	12	1.488	1.73
	1 Btu in/ft <sup>2</sup> hF =	0.0833	1	0.124	0.144
	1 Kcal/m hK =	0.672	8.064	1	1.163
	1 W/m K =	0.578	6.933	0.860	1
Permeability	1 perm (grain/ft <sup>2</sup> h in Hg)	= 0.028 gramme/m <sup>2</sup> h mm Hg			
	1 perm (grain/ft <sup>2</sup> h in Hg)	= 0.00021 gramme/Nh			
	1 perm in (grain in/ft <sup>2</sup> h in Hg)	= 17 gramme mm/m <sup>2</sup> h mm Hg			
	1 perm in (grain in/ft <sup>2</sup> h in Hg)	= 0.0007 gramme/m h mm Hg			
	1 perm in (grain in/ft <sup>2</sup> h in Hg)	= 0.000005 m/Nh			
	1 gramme/m h mm Hg	= 0.0075 m/Nh			
	1 m <sup>2</sup> /h mm H <sub>2</sub> O	= 0.1 m <sup>4</sup> /Nh			

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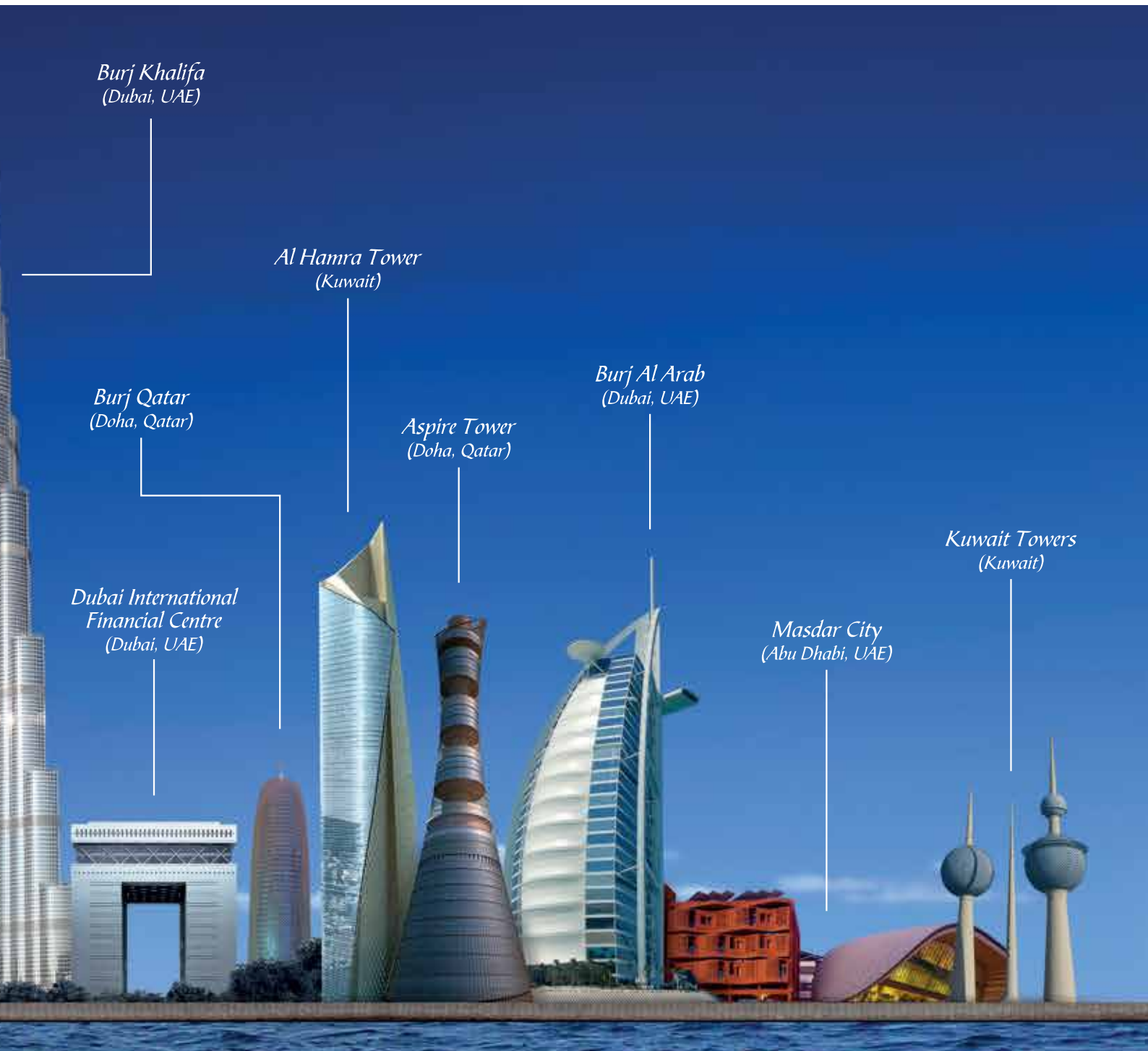
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