KORE

Insulation & Energy Saving Solutions

A product of AIRPACKS

BUILDING WITH KORE

KORE SOLUTIONS

AIRPACKS

KORE

Providing Insulation and Energy Saving Solutions

At Airpacks we design, manufacture and deliver practical insulation solutions around a suite of high quality Expanded Polystyrene (EPS) products. Our 25,000 sq/ft state of the art facility is based in Kilnaleck, Co. Cavan since 1997.

The KORE product range, coupled with a nationwide installer network, offers customers a one stop shop solution to their insulation requirements. Our friendly, knowledgeable and experienced sales and technical staff are always on hand to provide design consultancy and technical support to suit every budget.

KORE products are available in two grades of material, original white polystyrene and thermally advanced silver Neopor polystyrene. KORE Silver can achieve the same insulating performance as the original white insulation with up to 50% less raw material. Graphite flakes responsible for reflecting heat radiation gives the product its distinguishable silver colour and superior insulation properties.

KORE products include an Insulated Concrete Formwork Building System, Bonded Bead Cavity Wall Insulation, Rigid EPS Board Insulation and BER consultancy. All our insulation products are Irish Agrement Board Approved.

Other Airpacks products include void formers for civil engineering works and precast concrete applications, EPS packaging, specialised profile cut EPS sheets, safety mattresses and loose bead for furnishings.

Effective Insulation Solutions

Reducing the Energy Demand

There are many elements to consider proving compliance under Building Regulations TGD Part L 2007.

Building Regulations Part L 2007 Explained

Aim

The new guidance represents a significant step towards minimising carbon dioxide emissions and optimising energy use with improvements of 40%. The aim of TGD Part L is to limit the use of fossil fuel energy and related CO_2 emissions arising from the operation of buildings.

When

The new TGD Part L replaces the current version on 1st July 2008 except where planning approval or permission has been applied for on or before 30th June 2008 and substantial work has been completed by 1st July 2009.

Criteria

Key Issues for New Dwellings

1. Limitation of primary energy use and CO_2 emissions
2. Use of renewable energy technologies
3. Limitation of heat loss through the building fabric
4. Building services efficiency
5. Construction quality and commissioning of services
6. User information provided

Key Issues for Existing Dwellings

7. Providing reasonable levels of fabric insulation
8. Air-permeability
9. Heating appliance efficiency
10. Space heating and water supply controls
11. Insulation of pipes, ducts and vessels

How

The methodology for calculation is the Dwelling Energy Assessment Procedure (DEAP) as published by Sustainable Energy Ireland. It calculates the annual primary energy use (kWh/m²/yr) and the carbon emission rate (kg/m²/yr) associated for both the proposed dwelling and the reference dwelling.

To demonstrate an acceptable Primary Energy Consumption rate, the calculated Energy Performance Coefficient (EPC) of the proposed dwelling should be no greater than the Maximum Permitted Energy Performance Coefficient (MPEPC).

To demonstrate an acceptable Carbon Dioxide Emissions rate, the calculated Carbon Performance Coefficient (CPC) should be no greater than the Maximum Permitted Carbon Performance Coefficient (MPCPC).

Where a building contains more than one dwelling the area-weighted average EPC of all the dwellings should not exceed the MPEPC and the area-weighted average CPC of all the dwellings does not exceed the MPCPC.

Solutions

Airpacks KORE Insulation Range of products can provide compliance solutions with respect to a number of criteria under Part L; limitation of primary energy use and CO_2 emissions, limitation of heat loss through the building fabric and construction quality and commissioning of services. For a full set of robust details please contact our technical department.

Remember

At all times aim to provide continuity of insulation and maximum airtightness. Quality installation is the key to long term insulation performance. High performing insulation products will ultimately reduce the demand on space heating requirements.

- ✓ Install Quality Insulation
- ✓ Eliminate Thermal Bridging
- ✓ Ensure Airtightness

SIGNPOST TO THE FUTURE

2008
40% Energy Improvement

2010
20% Further Energy Improvement

2015
Carbon Neutral

How KORE can help you achieve an A-Rated Building

The following measures when applied to a building design will assist in achieving an A-Rating.

- High levels of thermal insulation
- Reduced thermal bridging
- Airtight construction
- Balanced mechanical ventilation with heat recovery
- High performance external windows and doors
- Reduced north facing glazing
- High efficiency boilers
- Good space and water heating controls
- Space heating zone controls
- Increased natural day light
- Larger south facing windows to avail of solar heat gain
- Energy efficient lighting
- Renewable energy technology
- Draught lobby
- Draught sealing
- Balanced flues and independent combustion air supply

1 TRADITIONAL BUILD SOLUTIONS

ENERGY RATING ▸▸▸		A1	A2	A3	B1
Solid Ground Floor	**U-Value**	**0.12**	**0.12**	**0.16**	**0.18**
	KORE Floor Solution	200mm Silver	200mm Silver	150mm Silver	125mm Silver
Full Fill Cavity Wall	**U-Value**	**0.12**	**0.15**	**0.20**	**0.22**
	KORE Fill Solution	200mm Silver	200mm Silver	150mm Silver	135mm Silver
	KORE Linear Drylining	40mm Silver	-	-	-
Partial Fill Cavity Wall	**U-Value**	**0.12**	**0.15**	**0.20**	**0.22**
	KORE Key Solution	160mm Silver	150mm Silver	100mm Silver	85mm Silver
	KORE Linear Drylining	65mm Silver	40mm White	40mm White	40mm White
Warm Pitched Roof	**U-Value**	**0.12**	**0.12**	**0.14**	**0.16**
	KORE Lock Solution	250mm Silver	250mm Silver	200mm Silver	180mm Silver
	KORE Linear Drylining	40mm Silver	40mm Silver	40mm Silver	25mm Silver
Cold Pitched Roof	**U-Value**	**0.12**	**0.12**	**0.14**	**0.16**
	KORE Lock Solution	265mm Silver	265mm Silver	210mm Silver	190mm Silver
	KORE Linear Drylining	35mm Silver	35mm Silver	35mm Silver	25mm Silver
Flat Ceiling	**U-Value**	**0.12**	**0.12**	**0.14**	**0.14**
	KORE Pack Solution	300mm White	300mm White	260mm White	260mm White

Note: *The thickness of insulating material required to achieve a given U-Value can vary depending on the grade of material used and the exact application conditions. For different thickness options and advice please contact our technical department. Floor P/A taken as 0.5.*

KORE Solutions

1. Solid Ground Floor

KORE Floor Solution

2. Flat Ceiling

KORE Pack Solution

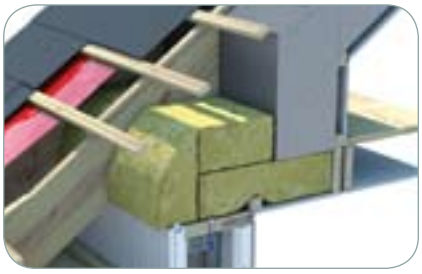
3a. Full Fill Cavity Wall

KORE Fill Solution

OR

3b. Partial Fill Cavity Wall

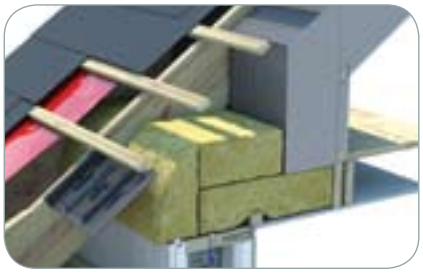
KORE Key Solution



4a. Warm Pitched Roof

KORE Lock Solution

OR



4b. Cold Pitched Roof

KORE Lock Solution

B2	B3	C1
0.22	**0.25**	**0.25**
115mm White	100mm White	100mm White
0.25	**0.27**	**0.27**
120mm Silver	110mm Silver	110mm Silver
-	-	-
0.25	**0.27**	**0.27**
70mm Silver	65mm Silver	65mm Silver
40mm White	35mm White	35mm White
0.20	**0.20**	**0.20**
115mm Silver	115mm Silver	115mm Silver
25mm Silver	25mm Silver	25mm Silver
0.20	**0.20**	**0.20**
125mm Silver	125mm Silver	125mm Silver
25mm Silver	25mm Silver	25mm Silver
0.16	**0.16**	**0.16**
225mm White	225mm White	225mm White

Other Specifications

	A Grade	B Grade	C Grade
Glazing (W/m^2K)	0.8 - 1.3	1.8 - 2.2	2.6
Airtightness ($m^3/hr/m^2$)	2	5	Default Not Tested
Lighting (CFL)	100%	100%	30%
Space Heating	98% Oil	95% Oil	85% Oil
Water Heating	$4m^2$ Solar Panels	Main Heating System	Main Heating System
Ventilation	Heat Recovery 95%	Natural	Natural
Photovoltic	$5m^2$	None	None

Note: *The details above are designed as a guide. They are an indication of the U-Values required to meet Building Energy Ratings. Given that the elements of every dwelling will vary the above information is subject to change. It is vital that a fully qualified BER assessor undertakes the BER assessment to determine every individual dwelling requirement.*

2 INSULATED CONCRETE FORMWORK SOLUTIONS

ENERGY RATING ▸▸▸		A1	A2	A3	B1
Solid Ground Floor	**U-Value**	**0.12**	**0.12**	**0.16**	**0.18**
	KORE Floor Solution	200mm Silver	200mm Silver	150mm Silver	125mm Silver
Insulated Concrete Formwork	**U-Value**	**0.12**	**0.15**	**0.20**	**0.20**
	KORE ICF Solution	150mm EHD	150mm EHD	150mm EHD	150mm EHD
	KORE Linear Drylining	100mm Silver	50mm Silver	-	-
Warm Pitched Roof	**U-Value**	**0.12**	**0.12**	**0.14**	**0.16**
	KORE Lock Solution	250mm Silver	250mm Silver	200mm Silver	180mm Silver
	KORE Linear Drylining	40mm Silver	40mm Silver	40mm Silver	25mm Silver
Cold Pitched Roof	**U-Value**	**0.12**	**0.12**	**0.14**	**0.16**
	KORE Lock Solution	265mm Silver	265mm Silver	210mm Silver	190mm Silver
	KORE Linear Drylining	35mm Silver	35mm Silver	35mm Silver	25mm Silver
Flat Ceiling	**U-Value**	**0.12**	**0.12**	**0.14**	**0.14**
	KORE Pack Solution	300mm White	300mm White	260mm White	260mm White

Note: *The thickness of insulating material required to achieve a given U-Value can vary depending on the grade of material used and the exact application conditions. For different thickness options and advice please contact our technical department. Floor P/A taken as 0.5.*

KORE Solutions

1. Basements and Retaining Walls

KORE ICF Solution

2. Solid Ground Floor

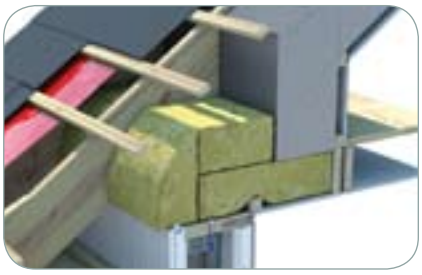
KORE Floor Solution

3. Insulated Concrete Formwork

KORE ICF Solution

4. Flat Ceiling

KORE Pack Solution



5a. Warm Pitched Roof

KORE Lock Solution

OR

5b. Cold Pitched Roof

KORE Lock Solution

B2	B3	C1
0.22	**0.25**	**0.25**
115mm White	100mm White	100mm White
0.20	**0.20**	**0.20**
150mm EHD	150mm EHD	150mm EHD
-	-	-
0.20	**0.20**	**0.20**
115mm Silver	115mm Silver	115mm Silver
25mm Silver	25mm Silver	25mm Silver
0.20	**0.20**	**0.20**
125mm Silver	125mm Silver	125mm Silver
25mm Silver	25mm Silver	25mm Silver
0.16	**0.16**	**0.16**
225mm White	225mm White	225mm White

Other Specifications

	A Grade	B Grade	C Grade
Glazing (W/m^2K)	0.8 - 1.3	1.8 - 2.2	2.6
Airtightness ($m^3/hr/m^2$)	2	5	Default Not Tested
Lighting (CFL)	100%	100%	30%
Space Heating	98% Oil	95% Oil	85% Oil
Water Heating	4m² Solar Panels	Main Heating System	Main Heating System
Ventilation	Heat Recovery 95%	Natural	Natural
Photovoltic	5m²	None	None

Note: *The details above are designed as a guide. They are an indication of the U-Values required to meet Building Energy Ratings. Given that the elements of every dwelling will vary the above information is subject to change. It is vital that a fully qualified BER assessor undertakes the BER assessment to determine every individual dwelling requirement.*

3 EXISTING BUILDING SOLUTIONS

Expected Results with KORE

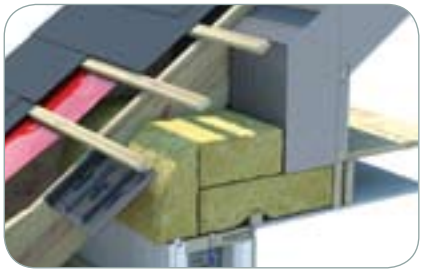
			KORE Fill Cavity Wall Insulation*			KORE Linear Drylining Panels**		
Year House Build	Cavity Width	Expected Insulation Level in Cavity	U-Value	Installed	New U-Value	U-Value	Installed	New U-Value
1997–2002	100mm	60mm SD EPS	**0.45**	40mm	**0.29**	**0.45**	50mm	**0.27**
1990–1997	100mm	50mm SD EPS	**0.51**	50mm	**0.29**	**0.51**	60mm	**0.27**
1980's	80mm	40mm SD EPS	**0.59**	40mm	**0.35**	**0.59**	70mm	**0.27**
1970's	40mm	None	**1.65**	40mm	**0.55**	**1.65**	105mm	**0.27**

** Note: Insulation λ = 0.033W/mK*

*** Note: Insulation λ = 0.034W/mK*

KORE Solutions

OR



1a. Attics: Ceiling Level

Install KORE Pack insulation between and over the joists.

1b. Attics: Pitched Roof

- Access between rafters and install KORE Lock
- Apply KORE insulated dry-lining to studded walls and sloping ceilings

OR

2a. Walls: Cavity Walls

Install KORE Fill Bonded Bead Cavity Wall Insulation.

2b. Walls: Cavity Blocks

Install KORE insulated dry-lining sheets to inner surface of external walls.

3. Floors

Insulating floors in existing buildings is very costly and disruptive. It is advised
to undertake this work if work on the floor needs to be done anyway.

4. Other Tips

- Upgrade window and doors
- Insulate pipes, ducts and vessels
- Install thermostats
- Seal all draughts around doors and windows
- Insulate behind attic door

Expected Results with KORE Pack Attic Insulation

Year House Built	Expected Insulation Level in Attic	U-Value	Installed	New U-Value
1997–2002	150mm	**0.24**	100mm	**0.16**
1990–1997	100mm	**0.35**	125mm	**0.16**
1980's	50mm	**0.42**	170mm	**0.16**
1970's	None	**2.55**	225mm	**0.16**

**Note: Insulation λ = 0.037W/mK*

TRAINING & SERVICES

Training

At KORE we run a comprehensive installers training program and only persons that have successfully completed this program will have the authority to construct a KORE building. To guarantee the highest standards all KORE installers undergo regular quality inspections by both KORE personnel and other qualified industry professionals. To become a KORE Installer and to benefit from learning new skills simply apply on line today.

Services

Technical Support

At KORE we pride ourselves on offering a comprehensive technical support package. Our highly trained team will work directly with builders, architects and engineers on every project, ensuring clear concise information is available throughout the build process.

Estimating Service

At KORE we offer our clients, free of charge, a quantity estimating service on our full range of products.

Technical Presentations

Full technical presentations can be arranged through our Business Development Team for all industry professionals considering a change to Insulated Concrete Formwork.

Supply & Fit

Where our clients are building their own homes KORE provide a full Supply and Fit Package. This ensures that only the very experienced of trades people will be involved during construction; it simplifies the project management process and provides peace of mind to all.

Building Standards

Quality Control both in our manufacturing plant and on-site is a high priority to KORE. We manufacture in accordance with IS EN 13163: 2001 Factory made products of Expanded Polystyrene to ensure that the products arriving on your building site are to the highest quality standard attainable. We ensure excellence through installation by consistently assessing the work standard of our installers.

Building Services

The KORE System is one of many aspects that make up the total building. We provide a building information service to help our clients make the best decisions about other aspects of their building to ensure compatibility with KORE.

Building Energy Rating

The KORE Team are fully qualified Building Energy Rating Assessors and can provide authorised Sustainable Energy Ireland Energy Labels for new dwellings.

KORE Technical Specification

The following section outlines the technical properties and application instructions for each product in the KORE range.

For further technical information please contact our technical team directly on 049 433 6998.

WALL INSULATION

KORE ICF
KORE Fill
KORE Key

FLOOR INSULATION

KORE Floor

ATTIC INSULATION

KORE Lock
KORE Pack

ADDITIONAL PRODUCTS

KOREICF

The KORE Insulated Concrete Formwork system is ideal for constructing:

- External walls
- Internal walls
- Load bearing walls
- Retaining walls
- Basements
- Footings
- Swimming pools

Description

Insulated Concrete Formwork is an advanced modern method of construction. KORE ICF products are modular interlocking concrete forms consisting of extra heavy density expanded polystyrene panels which are connected with a series of equally spaced injection moulded polypropylene bridges which are fixed with tensile steel into high impact polystyrene support tracts moulded into the polystyrene. Once the panels are laid they form a rectangular space into which concrete is poured. The concrete ensures the structural strength of the wall while the KORE panels remain permanently in place as thermal insulation for the life of the building.

KORE Advantages

U-Value of 0.20W/m2K achieved with 300mm wall, Unrivalled airtight construction, No thermal bridging, Concrete construction benefits, Superb fire resistant properties.

U-Values

Calculation Method I.S. EN ISO 6946.

External Finish	KORE Insulation Thickness	Concrete Thickness (mm)	Concrete Strength (N)	U-Value (W/m²K)
Render	150	150	25	0.20
Render	150	200	25	0.19
Render	150	150	30	0.20
Render	150	200	30	0.20
Brick	150	150	25	0.19
Brick	150	200	25	0.19
Brick	150	150	30	0.19
Brick	150	200	30	0.19

Note: *KORE ICF = 0.033W/mK*

Concrete Specification

Strength	25 Newton
Slump	Max 150mm
Aggregate–150mm Concrete Core	10–13mm
Aggregate–200mm Concrete Core	10–19mm

Physical Properties

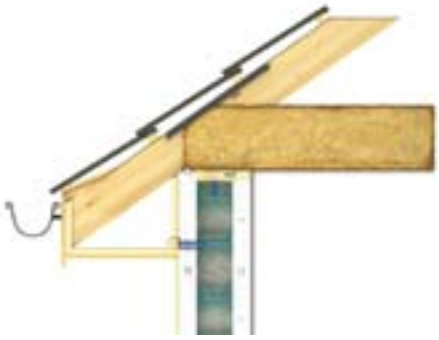
Properties	Units
Thermal Conductivity	0.033 W/mK
Density Minimum	25 kg/m³
Compressive Strength at 10% deformity	150 kN/m²
Bending Strength	200 kN/m²
Water Vapour Permeability	33 g/m²/day
Water Absorption by Total Immersion	0.2%

Installation

Installation of the KORE ICF System must only be carried out by Airpacks Ltd or by our approved Installers. For details of your local installer please contact Airpacks Ltd.

THERMAL BRIDGING & AIRTIGHTNESS **SOLUTIONS**

Roof Junction	Cill Detail	Jamb Detail	Header Detail




For further details on thermal bridging and airtightness at all junctions visit WWW.**KORE-SYSTEM**.COM

KORE Dual Panel

Function: Forms Wall Structure

Specification	150mm	200mm
Length	1200mm	1200mm
Wall Width	300mm	350mm
Height	417mm	417mm
EPS Depth p/sheet	75mm	75mm
Concrete Volume	0.15 cu/m per m²	0.20 cu/m per m²
Surface Area p/sheet	0.5m²	0.5m²
Quantity p/carton	6	6
Meter Squared p/carton	3	3
EPS Density	25kg/m3	25kg/m3

KORE 90° Corner

Function: Forms 90° Corners with one piece

Specification	150mm	200mm
Length Outside	900mm + 500mm	900mm + 500mm
Length Inside	600mm + 200mm	550mm + 150mm
Wall Width	300mm	350mm
Height	417mm	417mm
EPS Depth p/sheet	75mm	75mm
Concrete Volume	0.15 cu/m per m²	0.20 cu/m per m²
Surface Area p/sheet External	0.58m²	0.584m²
Surface Area p/sheet Internal	0.33m²	0.29m²
Quantity p/carton	2	2
Meter Squared p/ Carton	1.17	1.17
EPS Density	25kg/m³	25kg/m³

KORE Stop

Function: Forms thermally sealed window and door openings

Specification	150mm	200mm
Length	150mm	200mm
Height	417mm	417mm
EPS Width	75mm	75mm
Surface Area p/sheet	0.063m²	0.083m²
Quantity p/carton	12	12
EPS Density	25kg/m³	25kg/m³

KORE Header

Function: Insulation over window and door openings

Specification	150mm	200mm
Length	1200mm	1200mm
Width	150mm	200mm
Depth	50mm	50mm
Quantity p/carton	48	36
EPS Density	20kg/m³	20kg/m³

CERTIFICATION

KORE ICF successfully received IAB Certification proving compliance with Building Regulations 1997–2007. Certificate Number 08/0307.

KOREFILL

KORE Fill is a bonded bead, complete cavity wall fill insulation system for application in new and existing buildings.

Description

KORE Fill is expanded polystyrene injected in bead form into a cavity to form an insulating mass. The bead solidifies in the cavity as it is injected along with a special bonding agent. This insulating mass significantly reduces thermal transmittance across the cavity. Filling the cavity completely with KORE Fill will not diminish the original function of the cavity. The cavity will still be able to breath, the bead will not absorb water and will not allow the transfer of water across the cavity to the inner leaf.

KORE Advantages

Excellent thermal performance, immediate energy saving results, specialist insulation installers, complete insulation fill every time, concrete construction benefits.

Installation

The bead and bonding agent is injected, through drill holes, into the cavity using specifically designed equipment. The material packs to a uniform density inside the cavity. Once the proper drilling pattern and injection sequence is followed the cavity will be completely filled.

Installation of the KORE Fill Cavity Wall Insulation must only be carried out by Airpacks Ltd or by our approved Installers. For details of your local installer please contact Airpacks Ltd.

Physical Properties

Properties	Units
KORE Fill Bead	
Thermal Conductivity	0.033 W/mK
Density	12 kg/m³
Bead Size	3–8 mm
KORE Fill Bonding Agent	
Density	1.10
Quality	Free from impurities or lumps. Residue on 177 micron sieve max 20ppm
Form	Liquid Suspension
Colour	White
Odour	Mild Sweet
Viscosity	20–30 cP @ 20°C
Freezing Point	0°C
Boiling Point	100°C
Min Operating Temperature	5°C
pH	8.5–9.5

THERMAL BRIDGING & AIRTIGHTNESS **SOLUTIONS**

Roof Junction	Cill Detail	Jamb Detail	Header Detail
			

For further details on thermal bridging and airtightness at all junctions visit WWW.**KORE-SYSTEM**.COM

U-Values

The thermal performance of KORE Fill is only limited by the width of the cavity, the wider the cavity the greater the U-Value that can be achieved. (Calculation Method I.S. EN ISO 6946.)

Cavity Width KORE Fill(mm)	Render 1300 kg/m³ Block 2000 kg/m³ Block 2000 kg/m³ Plaster 1200 kg/m³	Render 1300 kg/m³ Block 650 kg/m³ Block 2000 kg/m³ Plaster 1200 kg/m³	Brick 1700 kg/m³ Block 2000 kg/m³ Plaster 1200 kg/m³	Brick 1700kg/m³ Block 650 kg/m³ Plaster 1200 kg/m³
100	0.29	0.26	0.29	0.26
105	0.28	0.25	0.28	0.25
110	0.27	0.24	0.26	0.24
115	0.26	0.23	0.25	0.23
120	0.25	0.22	0.25	0.23
125	0.24	0.22	0.25	0.22
130	0.23	0.21	0.23	0.21
135	0.22	0.20	0.22	0.20
140	0.22	0.20	0.21	0.20
145	0.21	0.19	0.21	0.19
150	0.20	0.19	0.20	0.19
155	0.20	0.18	0.20	0.18
160	0.19	0.18	0.19	0.18
165	0.19	0.17	0.18	0.17
170	0.18	0.17	0.18	0.17
175	0.18	0.16	0.17	0.16
180	0.17	0.16	0.17	0.16
185	0.17	0.15	0.17	0.16
190	0.16	0.15	0.16	0.15
195	0.16	0.15	0.16	0.15
200	0.15	0.14	0.15	0.15

Note: *It is assumed that cavity walls containing full-fill bonded bead will be constructed in accordance with the requirements of the 1997 to 2007 Building Regulations.*

CERTIFICATION

KORE Fill successfully received IAB Certification proving compliance with Building Regulations 1997–2007. Certificate Number 07/0293.

KOREKEY

KORE Key insulation system is designed for application to cavity walls.

Description

The KORE Key System combines partial fill cavity wall insulation and internal insulation to quickly achieve high comfort levels for occupants. The KORE Key partial fill cavity wall insulation system is unique as it is secured to the inner block leaf of the cavity wall by wall ties and a mortar lock key. The system is designed to prevent thermal looping (which is a major contributor to heat loss and severe condensation) while the wall is heating and cooling. Each board is tongued and grooved to form a continuous layer of insulation.

KORE Advantages

Excellent thermal performance, prevents thermal looping, cost competitive, control of surface and interstitial condensation in walls, concrete construction benefits.

U-Values

The U-Value of KORE Key is calculated with the inclusion of the partial fill cavity wall insulation and the internal dry lining insulation. (Calculation Method I.S. EN ISO 6946.)

U-Value	Standard Cavity Block Wall		
	KORE Key Silver (mm)	+	KORE Linear Drylining (mm)
0.27	65mm	+	35mm
0.26	65mm	+	40mm
0.25	70mm	+	40mm
0.24	75mm	+	40mm
0.23	80mm	+	40mm
0.22	85mm	+	40mm
0.21	90mm	+	40mm
0.20	100mm	+	40mm

** It is assumed that cavity walls will be constructed in accordance with the requirements of the 1997 to 2007 Building Regulations. KORE Linear Drylining λ = 0.037W/mK*

THERMAL BRIDGING & AIRTIGHTNESS **SOLUTIONS**

Roof Junction

Cill Detail

Jamb Detail

Header Detail

For further details on thermal bridging and airtightness at all junctions visit WWW.**KORE-SYSTEM**.COM

Physical Properties

Properties	Units	Density	
	kg/m³	15–20 Standard	20–25 Heavy
White EPS			
Thermal Conductivity	W/mK	0.037	0.034
Compressive Strength	kPa	>95	>211
Bending Strength	kPa	>171.70	>377.10
Dimensional Strength	DS(n)	2	2
Silver EPS			
Thermal Conductivity	W/mK	0.030	0.028
Compressive Strength	kPa	>95	>211
Bending Strength	kPa	>171.70	>377.10
Dimensional Strength	DS(n)	2	2

Wall Tie Spacings

	Horizontal Spacing	Vertical Spacing
100–110mm Cavity	750mm	450mm
111–150mm Cavity	450mm	450mm
At unbonded jambs	150mm from opening	300mm

Installation

- It is recommended that the inner leaf of block work is constructed ahead of the outer leaf. The first run of boards may commence below the DPC level to provide floor edge insulation for typical construction.
- After every second course of block work the KORE Key boards are placed tightly against the inner leaf in the cavity and held in place by the wall ties. Always ensure that the tongue is facing upwards and that the mortar key is filled when laying the mortar bed. Vertical joints should be staggered.
- KORE Key boards should be overlapped at corners and secured using wooden skewers. KORE Key should be installed with a minimum residual cavity of 40mm in accordance with TGD Part L.
- When installing the KORE Linear Drylining Panels fix continuous horizontal battens to the wall at ceiling and floor level leaving 20mm clear space. The KORE Linear Drylining Panels are then fixed directly to the inner face of the drywall construction using drywall adhesive.
- To accommodate the battens remove a strip of insulation from the top and bottom of each of the KORE Linear Drylining Panels.
- Apply drywall adhesive to the KORE Linear Drylining Panels and lift into place, applying pressure to achieve a full and secure bond.
- To ensure a fully effective fire stop nail the KORE Linear Drylining Panels to the battens at the top and bottom of the sheet.

CERTIFICATION

KORE Key successfully received IAB Certification proving compliance with Building Regulations 1997–2007. Certificate Number 06/0096.

KOREFLOOR

KORE Floor is a floor insulation system for use:

- Below a concrete floor slab
- Below a cement based screed on a concrete slab with a hardcore base
- Above a suspended concrete floor
- Between the joists of a suspended timber floor

Description

KORE Floor is a high performance floor insulation consisting of rigid polystyrene boards cut from moulded blocks of EPS. The closed cell nature of the boards ensures a consistent thermal and compressive performance throughout the lifetime of the building. KORE Floor is available in two grades of material.

KORE Advantages

Excellent thermal and compressive properties, Significantly reduced heat loss, can be laid in damp conditions without compromising product performance or longevity.

Dimensional Table

Length	1200; 1800 and 2400 mm
Width	600 and 1200 mm
Thickness	19–300mm

Other sizes and thickness are available upon request

U-Value Calculations

The U-Value of a floor is calculated by dividing the floor exposed perimeter (P) by the floor area (A). TGD Part L of Building Regulations requires that the U-Value of exposed floor must not exceed 0.25W/m²K. Where the source of space heating is underfloor heating, a floor U-Value of 0.15W/m²K is required. (Calculation Method I.S. EN ISO 6946.)

			P/A Calculations								
Product	**Conductivity**	**U-Value (W/m²K)**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1.0**
Ground Floor Slab*											
KORE Floor SD(mm)	0.037 W/mK	**0.25**	55	80	90	100	105	105	110	115	115
KORE Floor HD(mm)	0.034 W/mK	**0.25**	50	75	80	90	95	100	100	105	105
KORE Floor Silver(mm)	0.030 W/mK	**0.25**	45	65	70	80	85	85	90	90	95
Suspended Timber Floor*											
KORE Floor SD(mm)	0.037 W/mK	**0.25**	80	105	115	120	125	130	130	135	135
KORE Floor HD(mm)	0.034 W/mK	**0.25**	80	100	105	115	120	120	125	125	130
KORE Floor Silver(mm)	0.030 W/mK	**0.25**	70	90	100	105	110	110	115	115	120
Ground Floor Slab with Underfloor Heating											
KORE Floor SD(mm)	0.028 W/mK	**0.15**	110	130	140	150	160	160	160	160	160

** Ground default value taken as 2.0W/m²K*

Concrete slab

Suspended Timber Floor

Physical Properties

Properties	Units	Density	
	kg/m³	15–20 Standard	20–25 Heavy
White EPS			
Thermal Conductivity	W/mK	0.037	0.034
Compressive Strength	kPa	>95	>211
Bending Strength	kPa	>171.70	>377.10
Dimensional Strength	DS(n)	2	2
Silver EPS			
Thermal Conductivity	W/mK	0.030	0.028
Compressive Strength	kPa	>95	>211
Bending Strength	kPa	>171.70	>377.10
Dimensional Strength	DS(n)	2	2

Insulation above the slab

- When installing above the ground floor slab, the floor slab should be level. The concrete floor over which the KORE Floor boards are to be laid should be left as long as possible to maximise drying out.
- A minimum of 50mm vertical KORE Floor strips should be placed at the floor perimeter prior to the installation of the boards to minimise thermal bridging. The strip should be deep enough to reach the top of the screed.
- KORE Floor boards are cut to size, if necessary, and laid with closely butted joints, staggered with a break-bonded pattern and fitted tightly at the edges and around any service penetration.
- The minimum thickness of sand and cement screed is 65mm for domestic construction and 75mm for most other buildings. However architectural specifications should be consulted.

Insulation below the slab

- When installing below the ground floor slab, the hardcore should be level and must be bound with sand or cement based binding before application of the KORE Floor boards. A DPM should be placed below the KORE Floor boards.
- During construction, care must be taken to ensure that the KORE Floor boards are protected from mechanical damage.
- A minimum of 50mm vertical KORE Floor strips should be placed at the floor perimeter prior to the installation of the boards to minimise thermal bridging. The strip should be deep enough to reach the top of the slab.
- KORE Floor boards are cut to size, if necessary, and laid with closely butted joints, staggered with a break-bonded pattern and fitted tightly at the edges and around any service penetration.
- Electrical conduits, gas and water pipes or other services should, where possible, be accommodated by ducting or channels within the concrete slab. The insulation must be protected from direct contact with hot pipes.
- Where the reinforcing mesh is used in the slab the mesh should be fixed in position using galvanised spreader plates under the spacers, to avoid puncturing the DPM or radon barriers membrane.

Suspended Timber Floors

- When installing insulation between the joists of a suspended timber floor, the KORE Floor boards should be cut to fit between the timber joists and supported by carriers. These may be nails part driven into the side of the joists at a selected level, timber battens or proprietary saddle clips.
- Where services need to be accommodated below the floor, KORE Floor boards can be lowered to provide an insulated duct.
- Install flooring grade chipboard, ply or softwood timber flooring directly onto the joists fixing in the normal manner.
- Ensure that the void below the insulated suspended floor is well ventilated and that sleeper walls do not restrict the airflow.

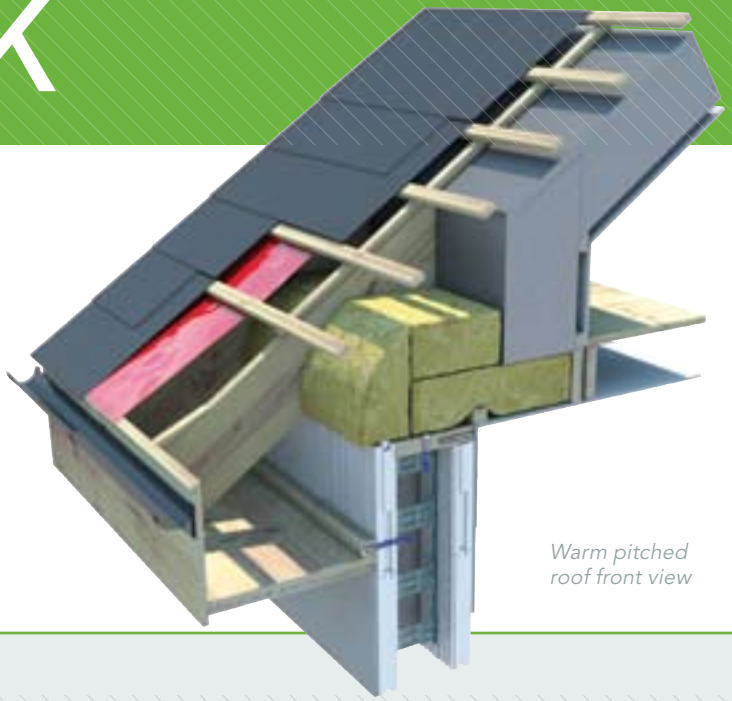
CERTIFICATION

KORE Floor successfully received IAB Certification proving compliance with Building Regulations 1997–2007. Certificate Number 04/0097.

KORELOCK

KORE Lock is an insulation system for use in:

- Warm pitched roofs
- Cold pitched roofs



Warm pitched roof front view

Description

KORE Lock is a high performance expanded polystyrene insulation system that is very simple and safe to install. The system provides a complete tight fitting insulation envelope eliminating thermal bridging. The unique cut in the KORE Lock variable width panels allows the product to be compressed slightly for easy insertion between the rafters. Once in place the KORE Lock panels return to their normal size and remain securely in place. KORE Linear Drylining Panels are fitted on top of the rafters in warm roof applications and below the rafters in cold roof applications.

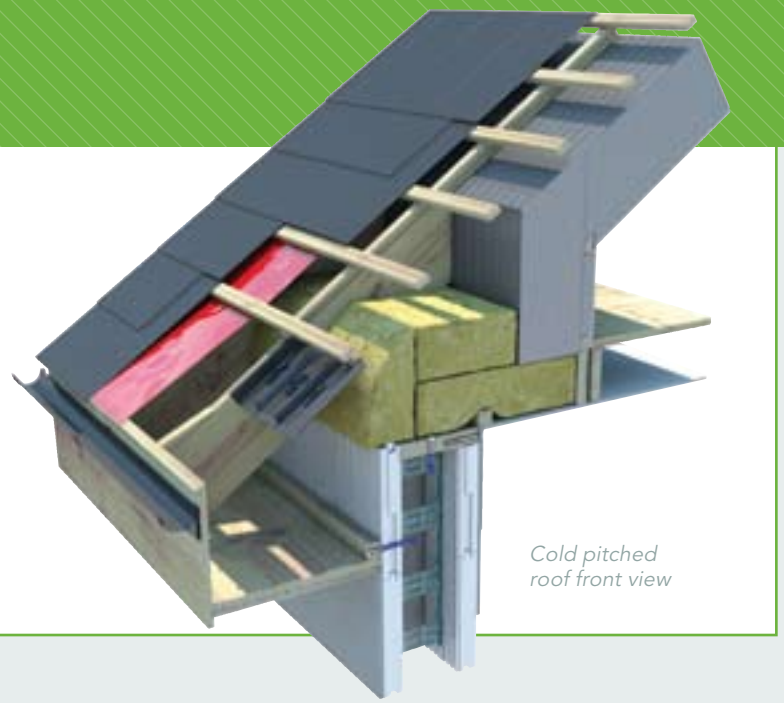
KORE Advantages

Excellent thermal properties, very simple and safe to install, variable width adjustment, tight fit reduces thermal bridging and facilitates necessary ventilation.

U-Values

The U-Value of the KORE Lock System is only limited by the depth of insulation installed. The more insulation that is installed the better the U-Value achieved. Contact Airpacks technical department for further U-Value calculations. (Calculation Method I.S. EN ISO 6946.)

		Cold Roof Application	Warm Roof Application
Thermal Conductivity	**KORE Linear Drylining Panels Thickness (mm)**	**KORE Lock Panels Thickness (mm)**	**KORE Lock Panels Thickness (mm)**
		U-Value 0.20 W/m²K	
0.037	25	165	155
0.034	25	150	140
0.030	25	125	115
		U-Value 0.16 W/m²K	
0.037	25	230	220
0.034	25	210	200
0.030	25	190	180



Cold pitched roof front view

Physical Properties

Properties	Units	Density	
	kg/m³	15–20 Standard	20–25 Heavy
White EPS			
Thermal Conductivity	W/mK	0.037	0.034
Compressive Strength	kPa	>95	>211
Bending Strength	kPa	>171.70	>377.10
Dimensional Strength	DS(n)	2	2
Silver EPS			
Thermal Conductivity	W/mK	0.030	0.028
Compressive Strength	kPa	>95	>211
Bending Strength	kPa	>171.70	>377.10
Dimensional Strength	DS(n)	2	2

Dimensional Table

	Variable width panels	KORE Linear Drylining Panels
Length	1200mm	1200mm
Thickness	To suit rafter design	25mm upwards in 5cm increments
Width	To suit rafter design centre with compression of 25mm in design width	2400mm and 2700mm

Installation

Before installation ensure that the cavity wall insulation has been continued to roof height to engage with the roof insulation. The insulation must be continuous to provide a complete envelope to reduce the risk of thermal bridging and condensation.

KORE Lock Cold Roof

- Commence by fitting KORE Lock variable width panels between each rafter, following completion of cold cladding, keeping panels flush with the underside face of the rafter and closely butted at the ends.
- Ensure the necessary clear 50mm air space between the insulation and the sarking felt is maintained. If an approved breather membrane is used as a tile underlay the requirement for a clear 50mm air space may be ignored and filled with insulation.
- Fix the first row of KORE Lock panels to the roof line at the junction with the vertical stud walls, beginning with the first slot. Secure in position by nailing through batten and insulation into the rafters. Repeat the procedure until the entire area is insulated.
- Continue installing KORE Lock Panels to vertical studding and ceiling collars to completion.
- Apply KORE Linear Drylining Panels to the underside of the rafters with suitable fixings, ensuring joints are tightly sealed. Face with minimum 500 gauge polyethylene vapour barrier.

KORE Lock Warm Roof

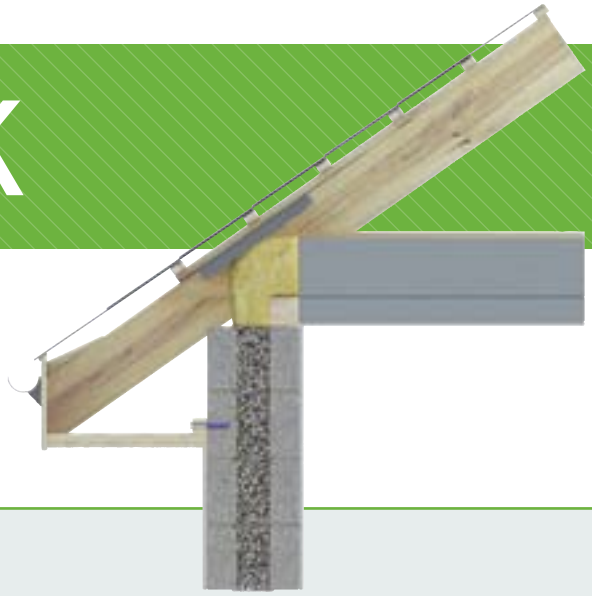
- Commence by fitting KORE Lock variable width panels between each rafter, keeping panels flush with the upper side of the rafter and closely butted at the ends.
- Place the KORE Linear Drylining Panels on top of the rafters ensuring joists are tightly sealed.
- Secure the panels by fixing the appropriate sized counter battens through the panels to the rafters.
- Lay an approved weatherproof breather membrane over the counter battens. Allow the membrane to sag as normal between the battens. This will facilitate proper drainage and ventilation.
- Fit tiling battens to the rafters and tile the roof in accordance with BS 5534.
- On the underside of the rafters fit an appropriate vapour control layer and plasterboard sheets.

CERTIFICATION

KORE Lock successfully received IAB Certification proving compliance with Building Regulations 1997–2007. Certificate Number 05/0235.

KOREPACK

KORE Pack is an attic insulation flooring system.



Description

KORE Pack insulation is specifically designed to allow householders to insulate the floor of their attic and still use the space for storage. The KORE Pack is firm enough to walk on while maintaining its depth of insulation. The product has a level of flexibility built in to guarantee it can be installed very easily. Once laid the attic surface will be ready for covering to be laid without the need for further battening. The product is clean and safe and no protective clothing is required during installation. Once installed KORE Pack gives a lifetime of safe effective insulation.

KORE Advantages

Excellent thermal properties, Insulated attic space facilitating storage, very simple and safe to install, durable and rot proof.

U-Values

Contact Airpacks technical department for further U-Value calculations. (Calculation method I.S. EN ISO 6946.)

Thermal Conductivity (W/mK)	KORE Pack
	U-Value 0.16W/m²K
0.037	225mm
0.034	210mm
0.030	190mm
	U-Value 0.12W/m²K
0.037	300mm
0.034	275mm
0.030	250mm

Dimensional Table

	Variable width panels
Length	1200mm
Thickness	To suit joist design
Width	To suit rafter design centre with compression of 25mm in design width

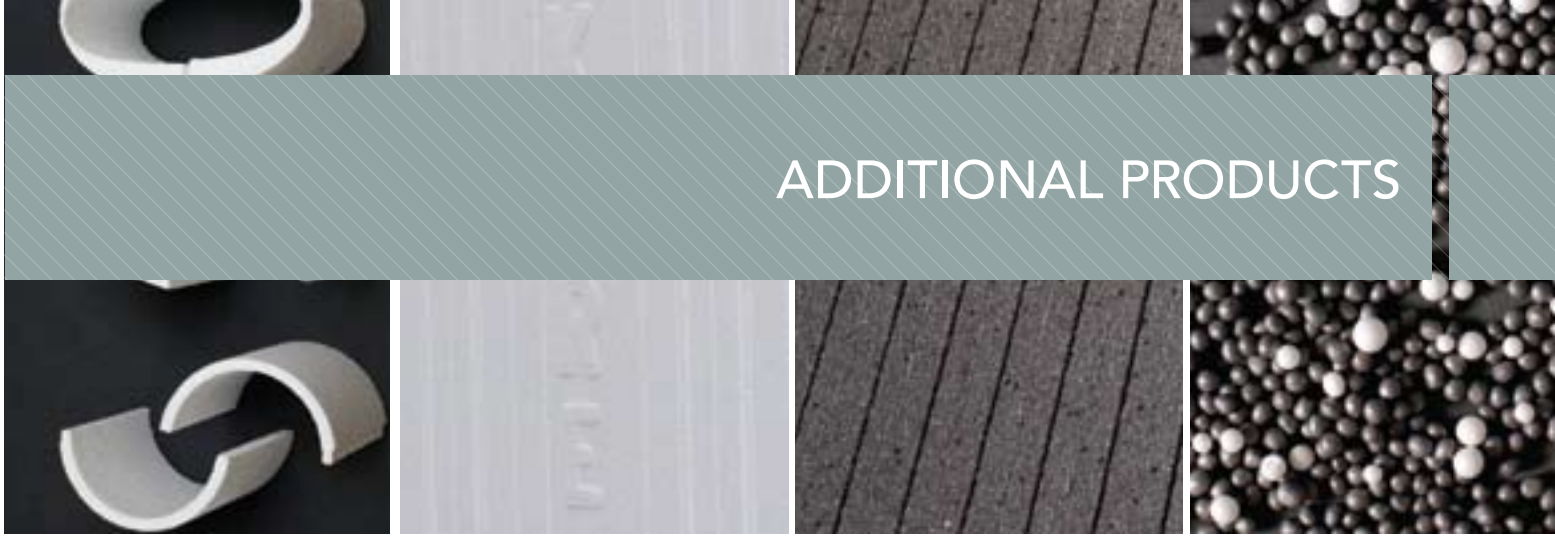
Physical Properties

Properties	Units	Density	
	kg/m³	15–20 Standard	20–25 Heavy
White EPS			
Thermal Conductivity	W/mK	0.037	0.034
Compressive Strength	kPa	>95	>211
Bending Strength	kPa	>171.70	>377.10
Dimensional Strength	DS(n)	2	2
Silver EPS			
Thermal Conductivity	W/mK	0.030	0.028
Compressive Strength	kPa	>95	>211
Bending Strength	kPa	>171.70	>377.10
Dimensional Strength	DS(n)	2	2

Installation

- An effective seal should be provided around the loft access hatch and a vapour control layer should be considered if the roof pitch is less than 15 per cent or where the shape of the roof is such that there is difficulty in ensuring that ventilation is sufficient.
- KORE Pack should be squeezed between the joists where it will widen for a tight fit.
- The sheets can be easily cut to size with a fine tooth saw or hot wire cutter to accommodate services. Each sheet is ship lapped on the upper layer to minimise cold bridging. All pipe work on the cold side of the insulation should be insulated.
- Along the eaves it is recommended that fibreglass is packed into areas which are inaccessible for accurate fitting of KORE Pack.
- The area under the cistern should be left uninsulated but its top and sides must be insulated.
- Electrical cables running within the KORE Pack product should be separated from it by enclosing them with a suitable conduit e.g. rigid PVC, as outlined in the National Rules for Electrical Installations section 522.5.3. Cables should be installed so that they can be located above the insulation.
- When starting boards are being laid, a batten should be nailed to the top of the ceiling joist, to support the sheet.
- After installing the KORE Pack product, lay sheets of plywood across the insulation to provide a finished floor. All covering sheets should be laid in accordance with relevant standards.

CERTIFICATION KORE Lock successfully received IAB Certification proving compliance with Building Regulations 1997–2007. Certificate Number 05/0234.



ADDITIONAL PRODUCTS

The Airpacks manufacturing facility has the capacity to produce an extensive range of specialised Expanded Polystyrene (EPS) products. We can manufacture many different grades of EPS material and cut and shape the material to virtually any size.

Over the years we have produced specialised products for a number of different applications; promotional, furnishing, marine, cabins, concrete flooring, safety, packaging, sporting, and civil engineering.

KORE Linear Dry Lining System

Airpacks KORE Linear Dry lining System is available in a wide range of insulation thicknesses and plasterboard specifications. The system is ideal for increasing thermal performance in both new and existing buildings.

Packaging

EPS is a safe, affordable and environmentally responsible method of packaging goods. The product is lightweight and has excellent absorbency properties. Airpacks Ltd can profile cut a large range of shapes to suit almost any application.

Loose Bead and Furnishing

Airpacks Ltd loose bead is the ideal solution for bean bag filling. Our loose bead filling is available in a large size bead with a fire retardant additive.

Void Formers

Airpacks Void formers are used extensively in civil engineering applications such as motorways, underpasses, foundation and embankments. EPS blocks are cut to size to suit individual site conditions. EPS is the choice of many professionals as it can reduce the deadweight of a variety of structures, has excellent load bearing qualities and it will not absorb water and therefore not affect the quality of any adjacent materials.

Precast Concrete Void Formers

Airpacks EPS Void Formers provide the ideal solution for precast concrete products. The concrete is poured around pre-moulded EPS shapes which are cut specifically to size. The EPS will minimise the concrete weight while not compromising the concrete strength.

Specialised Profile Cut EPS

Regardless of the size and shape required, Airpacks Ltd has the manufacturing facilities to cut specialised, one off orders.

Safety Mattress Fall Arrest System

Airpacks Ltd produces two alternative types of Safety Mattress System:

- Airpacks Safety Mattress: Polystyrene filled tough woven polypropylene bags.
- Fall-Pac Safety Mattress: Air filled foam cylinders protected with a tough woven polypropylene bag.

Description	Length (m)	Diameter (m)	Coverage (m²)
Full Bag	2.5	0.64	1.60
Half Bag	1.25	0.64	0.80

GENERAL INFORMATION

Environmental

KORE EPS is kind to the environment as no CFCs or HCFC's are used during the manufacturing process. In use, it conserves fossil fuels and prevents carbon dioxide emissions. KORE EPS is recyclable and may be recycled in many ways. Airpacks Ltd is actively involved in the recycling of all of our EPS products.

Reduce Carbon Footprint

Upon evaluation of the environmental impact of manufacturing various different insulation products, studies have shown that EPS has the least impact on the environment. The embodied energy of EPS is recovered many times over by the energy saved in the building in which it is installed. EPS is so lightweight, considerable fuel is saved during the transportation when compared with other building products.

Services

Electrical cable running within any KORE Expanded Polystyrene should be separated from it by enclosing them with a suitable conduit as outlined in the National Rules for Electrical Installations Section 522.5.3.

Durability

KORE Expanded Polystyrene is exceptionally durable, rot proof and dimensionally stable. KORE products are unaffected by damp and humidity and the unique products will last a lifetime.

Behaviour in Fire

When necessary KORE products are manufactured with a Flame Retardant Additive (FRA).

Moisture

KORE Expanded Polystyrene has a vapour resistance exceeding 145MNs/gm which prevents the risk of damage form interstitial vapour. It will prevent moisture penetration and cold bridging when installed as per KORE Installation instructions.

Handling and Storage

KORE products are delivered to site polythene wrapped. Each pack carries a label bearing the CE Marking together with the product description, product characteristics, manufacturer's name, IAB identification mark and IAB Certificate number for the system. Boards must be protected from prolonged exposure to sunlight, and should be stored undercover in their original wrapping, not in contact with ground moisture and raised above ground level. Care must be taken to avoid contact with solvents and with materials containing volatile organic components such as coal tar, and newly treated timber. The boards must not be exposed to a naked flame or other ignition sources.

For additional information on any Airpacks or KORE products please contact us

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KORE

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