

Aerofloor[®]

**COMPLIES
WITH**

2007 Building
Regulations Part L
&
EN Insulation
Standards



UNDER FLOOR INSULATION SYSTEM

Aerobord
Be part of the energy revolution

→ DESCRIPTION:

AEROFLOOR is a competitively priced high performance expanded polystyrene insulating panel with excellent thermal insulation properties. As in all of Aerobord's Insulation panels, Air as the insulating gas, AEROFLOOR's thermal performance is sustainable over the lifespan of the building. AEROFLOOR can be used to meet or exceed current Building Regulations. AEROFLOOR panels are ideally suited to underfloor heating applications and do not require a separating layer when concrete is being placed.

AEROFLOOR is available in compressive strengths of 70kPa (EPS70) 100kPa (EPS100) 150kPa (EPS150) 200kPa (EPS200) and 300 kPa (EPS300) At compressive strengths of EPS200 and EPS300 AEROFLOOR can be used to provide a "Scandinavian" type Foundation Insulation system. For more information on this system visit www.aerobord.ie

→ APPLICATION:

AEROFLOOR is used to insulate floors of various constructions, including ground supported and suspended concrete floors with a slab, screed or chipboard overlay.

→ GENERAL REMARKS:

Fire Resistance:

AEROFLOOR underfloor insulation does not prejudice the fire resistant properties of the floor. The product is available both in: Eurotype Class E - (Fire Retardant Additive - FRA), and in Class F - (Standard Grade).

Radon and Gas Free Site:

A damp-proof membrane (dpm) minimum 1200 gauge polyethylene or other specialised membrane should be used to avoid damp-penetration.

Radon and Gas Contaminated Site:

AEROFLOOR is an ideal upgrade to the AeroFlo Passive Radon Ventilation system where U values less than 0.25 W/m²K are required.

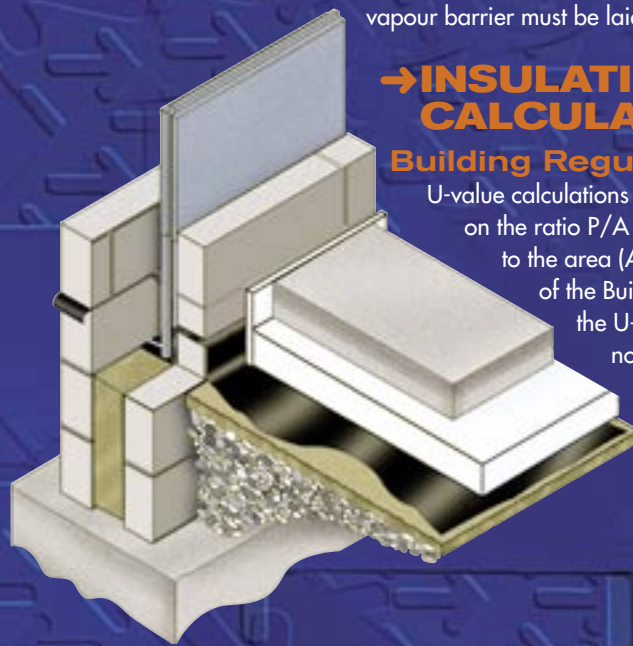
Further information on the AeroFlo Passive Ventilation system is available from our website on www.aerobord.ie

Services:

AEROFLOOR must not be used in contact with electrical cables or hot water pipes, (max.80 C). Electric cables in contact with the polystyrene must be enclosed in a suitable conduit, e.g. rigid PVC as outlined in the National Rules of the Electro Technical Council of Ireland (E.T. 101).

Durability:

AEROFLOOR is rot-proof, dimensionally stable and can be easily handled and cut to shape without damaging the insulating performance of the panel. AEROFLOOR Insulation panels will maintain their thermal performance over the lifespan of the building.



Vapour Check:

When used under moisture resistant timber overlay, a vapour barrier must be laid over the insulation.

→ INSULATION CALCULATION:

Building Regulations 2007:

U-value calculations for ground floors depends on the ratio P/A of the exposed perimeter (P) to the area (A) of the exposed floor. Part L of the Building Regulations requires that the U-value of exposed floors must not exceed 0.25W/m²K (2007 REGS) and note for 2010 REGS - 0.20W/m²K

GROUND SUPPORTED FLOOR:

The insulation thickness required for slab on ground designs for different grades of AEROFLOOR is shown in Table 1 opposite.

EXAMPLE:

FLOOR TYPE:	-	Rectangular slab on ground.
FLOOR DIMENSIONS:	-	15m x 9m (All edges exposed).
FLOOR AREA:	-	A = 135m².
EXPOSED FLOOR PERIMETER:	-	P = 48m.

Therefore: P/A Ratio = 48/135 = 0.36

Taking P/A = 0.40 from Table 1 (the nearest value to 0.36) 89mm AEROFLOOR EPS 70 satisfies the above mentioned Building Regulations requirement of 0.25W/m²K. 100mm AEROFLOOR EPS 70 meets the Elemental requirement if P/A ≤ 0.5.

SUSPENDED FLOOR:

The insulation thickness required for suspended ground floor designs (e.g. suspended concrete slab) for different grades of AEROFLOOR is shown in Table 2 opposite.

EXAMPLE:

FLOOR TYPE:	-	Rectangular suspended floor over ground.
FLOOR DIMENSIONS:	-	15m x 9m (All edges exposed).
FLOOR AREA:	-	A = 135m²
EXPOSED FLOOR PERIMETER:	-	P = 48m.

Therefore: P/A Ratio = 48/135 = 0.36

Taking P/A = 0.40 from Table 2 (the nearest value to 0.36) 91mm AEROFLOOR EPS 70 satisfies the Building Regulations requirement. 100mm AEROFLOOR EPS 70 meets the Elemental requirement if P/A ≤ 0.6.

→ INSULATION SELECTION TABLES:

Concrete Slab on Ground Insulation thickness - U = 0.25				
Lambda Values of Insulation	0.037	0.035	0.034	0.033
Exposed Perimeter / Area (P/A)				
0.1	-	-	-	-
0.2	47	44	42	41
0.3	76	69	68	65
0.4	89	82	80	78
0.5	98	90	88	85
0.6	104	95	93	90
0.7	108	99	96	93
0.8	111	102	99	96
0.9	113	104	101	98
1.0	115	106	103	100

Suspended Concrete Ground Floor Slab Insulation thickness - U = 0.25				
Lambda Values of Insulation	0.037	0.035	0.034	0.033
Exposed Perimeter / Area (P/A)				
0.1	20	19	18	18
0.2	65	62	60	58
0.3	82	77	75	73
0.4	91	86	84	81
0.5	96	91	89	86
0.6	100	95	92	89
0.7	103	98	95	92
0.8	105	100	97	94
0.9	107	101	98	95
1.0	108	103	100	100

→ DESIGN LOADING FOR BUILDINGS:

Typical distributed loads in accordance with BS6399, Part 1 1984 Design loading for buildings:

APPLICATION:

Domestic	- 1.5 kPa (Use 65mm screed)
Hotels	- 5.0 kPa (Use 75mm screed)
Educational Buildings & Assembly Areas	- 5.0 kPa (Use 75mm screed)

The effect of concentrated loads must be calculated for each application. Screeds may require reinforcing. e.g. A98 mesh minimum.

UNITS: 1kg = 9.81 N	1kPa = 1 kN/m²
Density of Concrete	2100 - 2400 kg/m³
Density of Screed	1200 - 2400 kg/m³

→ PERFORMANCE UNDER LOAD:

AEROFLOOR GRADE		EPS 70	EPS 100	EPS 150	EPS 200
MINIMUM BENDING STRENGTH	▶ kPa	115	150	200	250
COMPRESSIVE STRENGTH AT 10% STRAIN	▶ kPa	70	100	150	200
SAFE WORKING LOAD AT 1% COMPRESSION	▶ kPa	20	45	70	90

→ INSTALLATION:

The surface on which AEROFLOOR is installed should be smooth and level. A suitable Radon or gas resistant membrane / dpm must be installed in accordance with the manufacturer's instructions.

Where a screed is placed on AEROFLOOR it must be minimum 65mm thick for domestic applications or 75mm thick for other loadings. It is good building practice to use a minimum A98 reinforcing mesh.

AEROFLOOR is cut on site, taking care to avoid gaps when installing that could result in cold bridging. Perimeter edge insulation must be fitted around the edges of the floor slab.

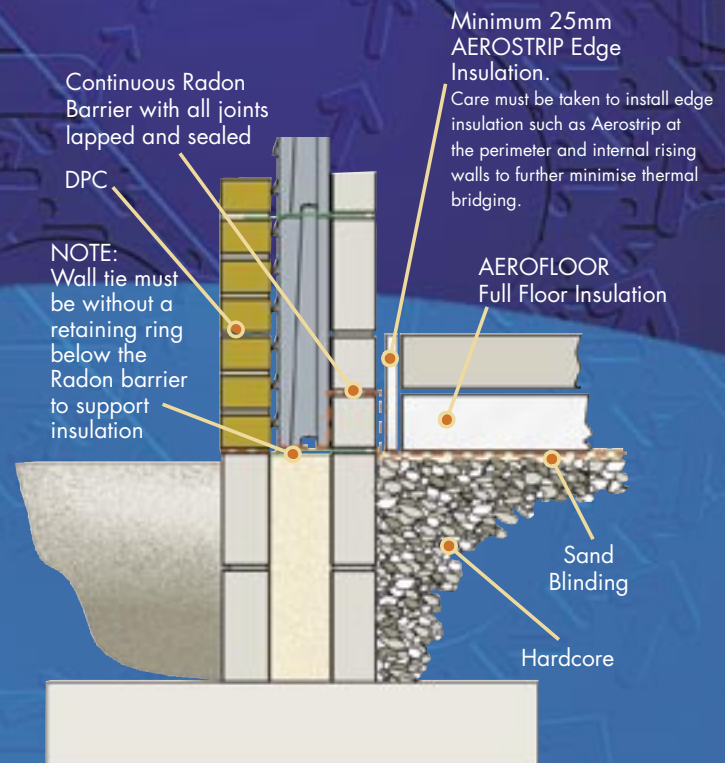


FIGURE2: CONCRETE SLAB OVERLAY WITH CAVITY WALL CONSTRUCTION

→ HEAT LOSS CALCULATIONS

SERVICES WE OFFER:

- U Value Calculations for Building energy Rating & DEAP calculations
- General Insulation Advice
- Insulation recommendations for Low Energy and Passive Construction
- Onsite installation advice
- Offsite training

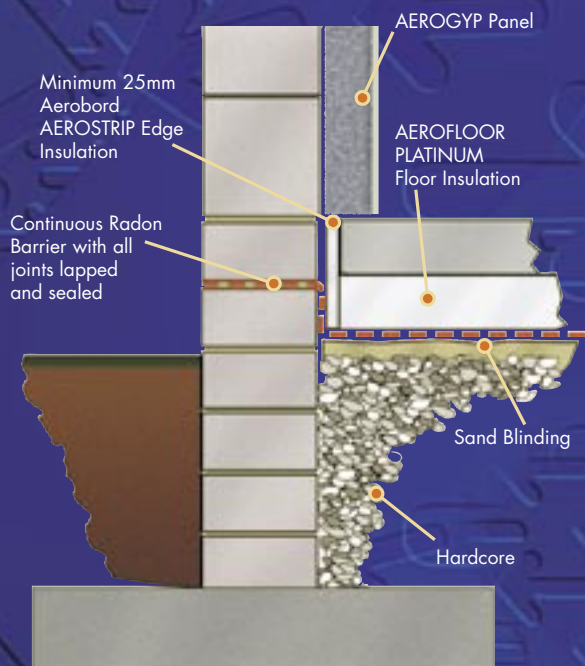


FIGURE3: CONCRETE SLAB OVERLAY WITH HOLLOW BLOCK CONSTRUCTION

→ HANDLING AND STORAGE

AEROFLOOR is safe, easy to handle and easily cut. It must be protected from prolonged exposure to sunlight and must be stored under cover or protected with polythene. Contact with solvents and organic based materials such as timbers, which have been either newly creasoted or coal tarred, should be avoided. The product must not be exposed to naked flame or other ignition sources. Handling and storage arrangements must comply with the recommendations of Paragraph 7 of BS 6203:1991.

→ PHYSICAL PROPERTIES:

EUROTYPE	EPS 70	EPS 100	EPS 150	EPS 200
Lambda Value - (W/mK)	0.037	0.035	0.034	0.033
Compressive Stress - (kPa)	70	100	150	200
Water Vapour Diffusion (μ)	20-40	30-70	30-70	40-100

→ ENVIRONMENT:

Aerobord's range of Platinum insulation products are awarded A+ rating by the BRE. Platinum Insulation is easily recyclable during the construction phase or at end of life. Aerobord is committed to maximising the volume of Insulation material recycled in Ireland. For further information please contact recycle@aerobord.ie

Insulation products in proximity to flues, hearts or heating appliances should be installed in accordance with the requirements of Technical Guidance Document J Building Regulations 1997.

→ SIZES:

AEROFLOOR butt jointed boards are available in the following standard sizes in any thickness from 12mm upwards.

STANDARD SIZES (mm)	2400 x 1200
	1800 x 1200
	1200 x 1200
	1200 x 600

VISIT OUR NEW WEBSITE: www.aerobord.ie

SERVICES WE OFFER:

- U Value Calculations for Building energy Rating & DEAP calculations
- General Insulation Advice
- Insulation recommendations for Low Energy and Passive Construction
- Onsite installation advice
- Offsite training

Aerobord

Aerobord Ltd,
Askeaton, Co. Limerick, Ireland.
Telephone: +353 61 604600
Fax: +353 61 604601

Aircell

Aircell Ltd,
Loch Gowna, Co. Cavan, Ireland.
Telephone: +353 43 83550
Fax: +353 43 83551

Springvale

Springvale EPS Ltd,
75 Springvale Road, Ballyclare,
Co. Antrim, N.I. BT39 0SS.
Telephone: 048 933 40203
Fax: 048 933 41159

Website www.aerobord.ie

Email: mail@aerobord.ie

Aerobord products are manufactured in accordance with IS EN 13163:2001 Thermal insulation products for buildings - Factory made products of expanded polystyrene (EPS)- Specification.

The information contained in this document in relation to the use of materials and construction details is given as illustrative only and must not be taken as a basis for design. In all cases professional advice must be sought in relation to design and installation. Aerobord accepts no responsibility in respect of same as the conditions of use are beyond our control.

