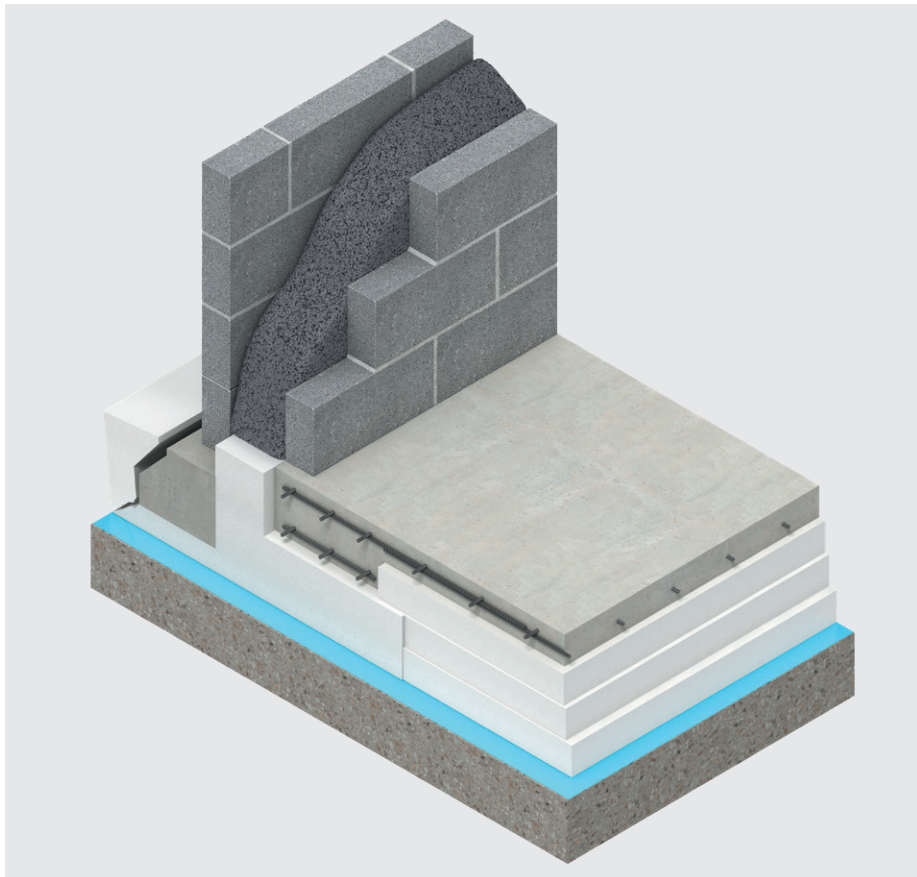


Aeroground™

Insulated foundation system



- Rigid expanded polystyrene (EPS) insulation system
- Practically eliminates thermal bridge to ground
- U-values of 0.10 W/m²K
- Manufactured in Ireland
- Compatible with underfloor heating and Radon protection systems

Design considerations, product details and sitework

Description

Kingspan Aeroground is a rigid expanded polystyrene (EPS) insulation system consisting of rigid EPS 300 polystyrene panels cut from moulded blocks to form ring beam shutter profiles, together with EPS floor insulation.

Application

Kingspan Aeroground system can be used to insulate ground floors and foundations. The Aeroground system is suitable for use with timber, steel frame, insulated concrete form (ICF) or block construction methods. Its high compressive strength and low U Values means it is suitable for both residential and commercial buildings

Thermal properties

The Aeroground Insulated Foundation System has been designed to meet and exceed the U-value requirements of the current Irish Building Regulations making it suitable for low energy and passive design projects.

Thermal conductivity

EPS 300 0.034 W/mK

EPS 200 0.035 W/mK

EPS 100 0.035 W/mK

Typical U-values provided by the foundation system as low as 0.10 W/m²K depending on the specifications of the project. Our technical department can provide U-value calculations as part of the quotation process.

U-values for various thicknesses of Kingspan Aeroground and floor perimeter / area ratios

Perimeter / area (m ²)	U-value (W/m ² K)
0.10	0.07
0.30	0.09
0.40	0.10
0.60	0.10

NB Based on a 3-layer system.

Compressive strength

The declared compressive strength of each board, when tested to EN 826 (Thermal insulating products for building applications. Determination of compression behaviour), as follows:

- Kingspan Aerofloor® 100 is 100 kPa
- Kingspan Aerofloor® 200 is 200 kPa
- Kingspan EPS 300 is 300 kPa

Kingspan Insulated Foundation system has the ability to accommodate heavy loads and can be designed to take into account heavy Internal building loadings.

Standards & approvals

Kingspan Aeroground is manufactured in accordance with BS EN 13163: 2012 + A2: 2016 (Thermal insulation products for buildings. Factory made expanded polystyrene (EPS) products. Specification).

Kingspan Aeroground produced at Kingspan Aerobord Ltd., Askeaton (Co. Limerick) manufacturing facility is manufactured under a management system certified to ISO 9001: 2015 (Quality management systems), ISO 14001: 2015 (Environmental Management Systems), ISO 45001: 2018 (Occupational Health and Safety Management Systems), ISO 50001: 2018 (Energy management systems) and ISO 37301: 2021 (Compliance management systems).

The use of Kingspan Aeroground Insulated Foundation System is covered by BDA Agrément Certificate BAF-24-348-S-A-UK.



Responsible sourcing

Kingspan Aeroground™ produced at Kingspan Aerobord Ltd., Askeaton (Co. Limerick) manufacturing facility is manufactured under a management system certified to ISO 14001: 2015 (Environmental Management System).

Thermal bridging

Kingspan Aeroground practically eliminates thermal bridging in the wall-to-floor junction by wrapping the entire foundation in a continuous layer of EPS. Psi-values have been created for the Aeroground Insulated Foundation system based on a variation of Construction types.

All of the calculated Psi-values for the Kingspan junction details are better than the default Psi-values given in Table D1 of Technical Guidance Document L 2022 and SAP Table K1.

The Psi-values in this document have been calculated by persons with suitable expertise and experience as required. Thermal bridge and typical detail Psi-values are available upon request. The Psi-values are according to methods outlined in BR IP1/06, BS EN 10211 - Thermal Bridges in Building Construction and BR 497- Conventions for Calculating Linear Thermal Transmittance & Temperature Factors.

Thermal bridging and typical detail Psi-values are available upon request from the Kingspan Insulation Technical Service Department.

Design considerations, product details and sitework

Thermal modelling

Junction detail (0.033 W/mK) - Ground floor to external wall

Insulation material	Thermal conductivity (W/mK)
EPS 300	0.034
EPS 100	0.035

Psi-value calculated in accordance with BR 497: 2016	
0.0741	

Minimum temperature criteria to BR IP1/06	
$f_{\text{Res}} = 0.95$	

NB: The thermal conductivity of the external wall cavity insulation used in the analysis is 0.033 W/mK.

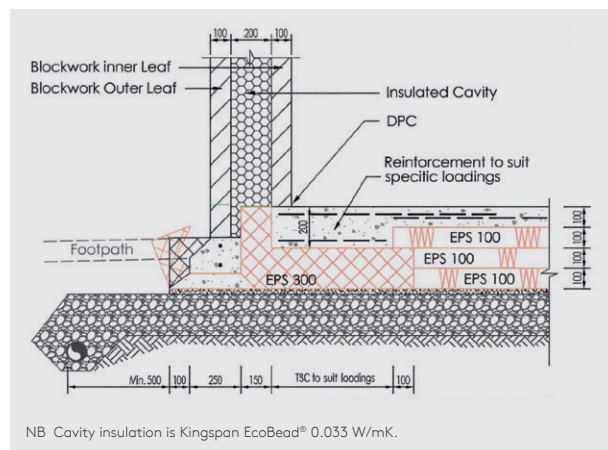


Figure 1: Ground floor to external wall

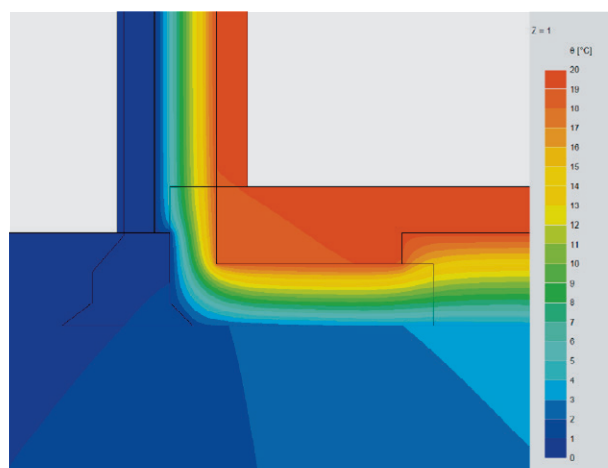


Figure 2: Isotherms 02 (colour increment of 1°C, line increment of 5°C)

Availability

Kingspan Aeroground is available through insulation distributors and builders merchants throughout the Republic of Ireland and Northern Ireland.

Durability

The thermal insulation properties of Kingspan Aeroground will remain effective for the life of the building.

Resistance to solvents, fungi and rodents

It is a dimensionally stable product that is resistant to attack from bacteria, mould and fungi, and will not provide nutrient value for insects or vermin. It is also non-toxic and non-irritant.

Handling and storage

The foundation system is delivered to site with its floor EPS components polythene wrapped.

Contact details

Aerobord Ltd

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Kingspan Insulation Ltd

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For individual department contact details please visit
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To access pre-existing product information or information relating to previously sold/discontinued products please email literature@kingspaninsulation.ie.

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