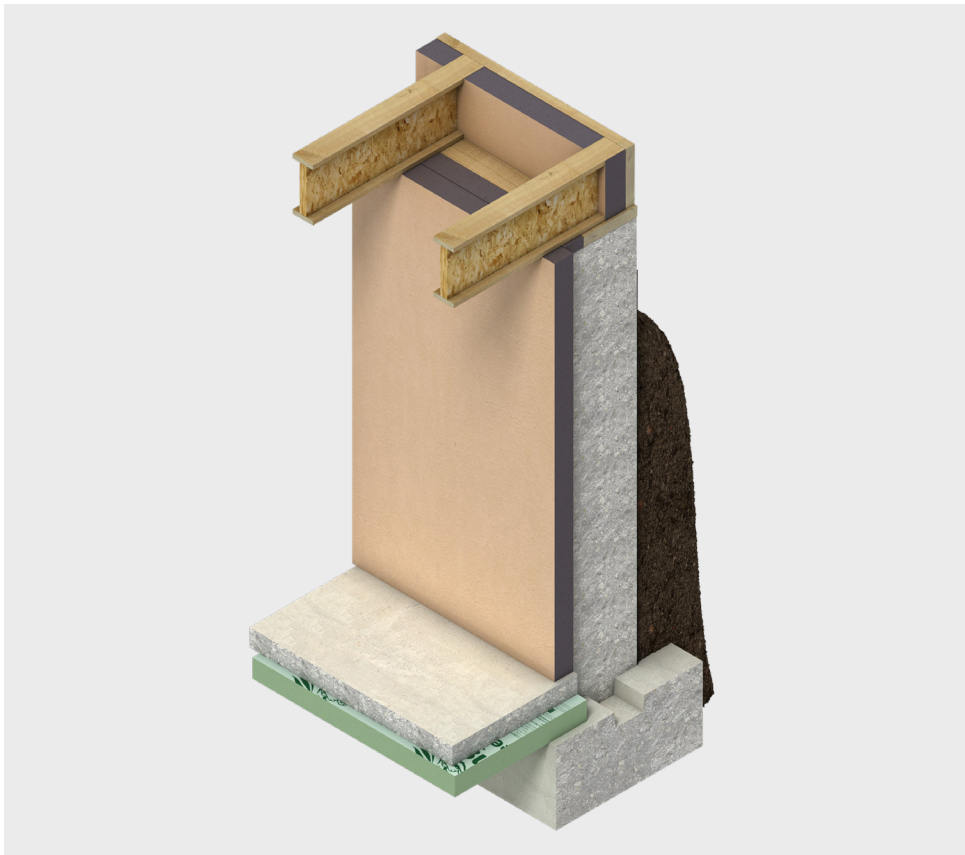


Kooltherm[®]

K9 Internal Insulation Board

Internal Insulation for Basement / Crawl Space / Attic Wall Applications



- Can be left exposed to the interior¹
- Negligible smoke developed¹
- Highest R-value per inch²

¹ Please see fire performance section for additional details regarding exposed applications

² Of any commonly used insulation

Typical Constructions

K9 Internal Insulation Board

Introduction

Kingspan Kooltherm® K9 Internal Insulation Board is a premium performance insulation product, used for interior exposed application on habitable space, basement, crawlspace and attic walls.

- Fire resistance
 - Negligible smoke developed
 - ASTM E84 rating of 5/5 (flame spread/smoke developed index), Class A¹
 - NFPA 286 approval¹
- R-value
 - R-7.4 per inch
 - Premium performance
- Ultra-thin
 - More R-value in your available space
 - Thinner panels needed to meet required R-value
 - Thinner insulation means more internal floor space
- Proven product line
 - Used in thousands of projects world-wide
 - In service across the world for over 20 years
- Sustainability
 - Manufactured with a blowing agent that has zero ODP, low GWP, and both HCFC and CFC free.

NOTE: Products referenced in this brochure are appropriate for the US only.

Interior Application

K9 Insulation Applied Direct to Interior Concrete Wall

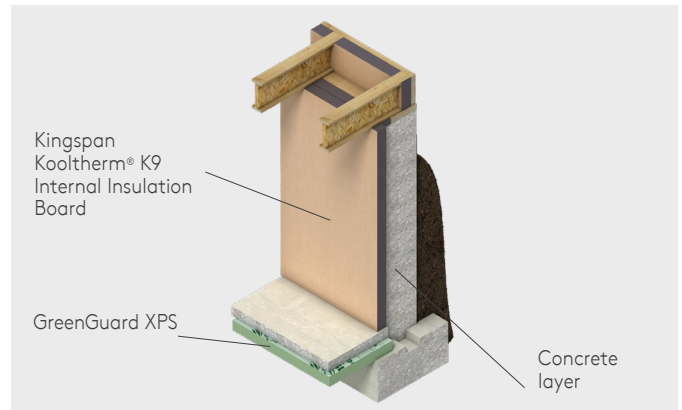


Figure 1

K9 Insulation Applied Direct to Interior Concrete Wall with Stud Wall

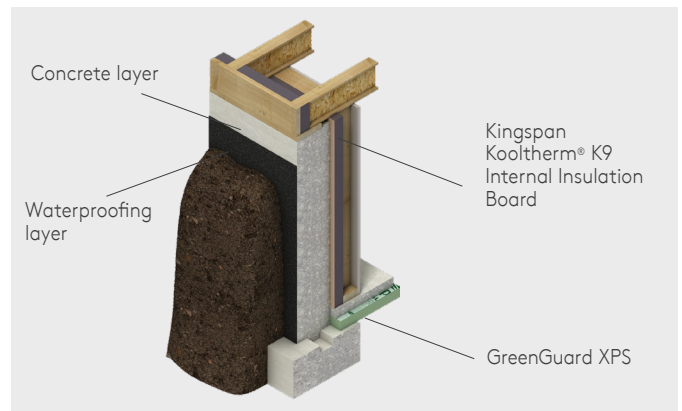


Figure 2

K9 Insulation Applied Direct to Interior Concrete Wall with Stud Wall

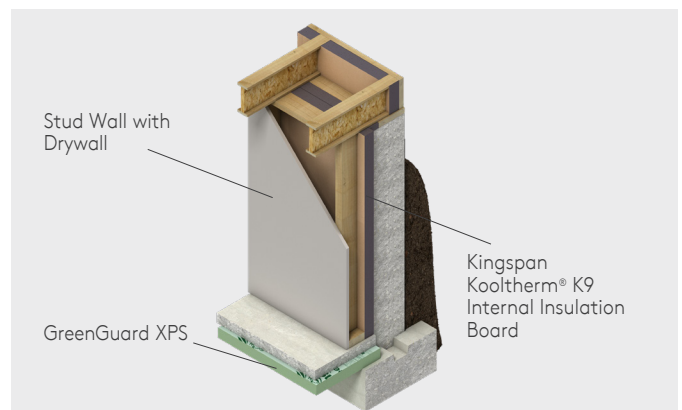


Figure 3

¹ See fire performance section for details

Typical Constructions/Product Details

K9 Internal Insulation Board

K9 Insulation Applied Direct to Interior Concrete Wall with Stud Wall

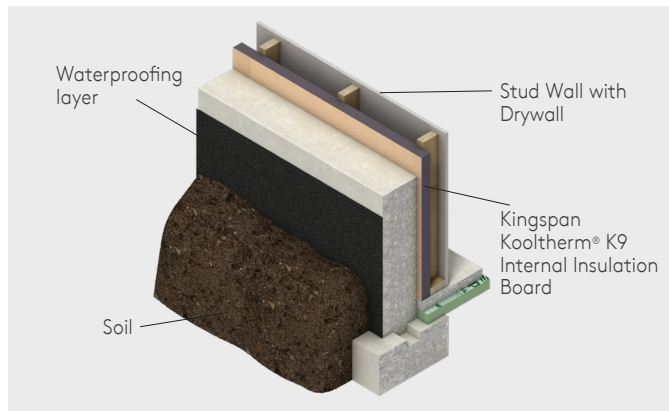


Figure 4

K9 Insulation Applied Direct to Interior Concrete Wall

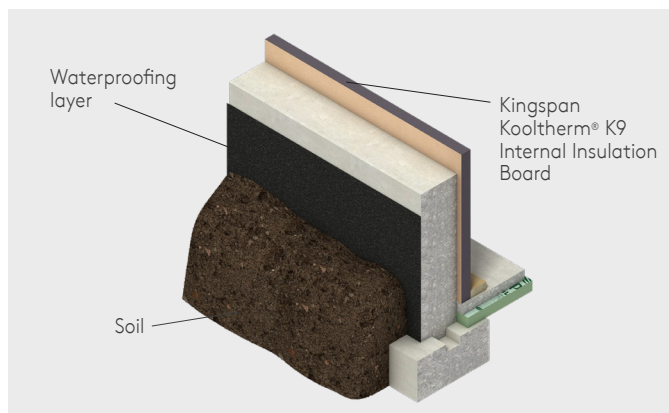


Figure 5

Product Data		
Property	Test Method	Result
Compressive Strength, Min. (psi)	ASTM D1621	16
Water Absorption, Max. (% by volume)	ASTM C209	1.21
Density, Min. (lb/ft ³)	ASTM D1622	2.0
Closed Cell Content (% of cells closed)	ASTM D6226	94.67
Air Permeance (L/(s•m ²)@75 Pa) (cfm/ft ²)@1.57 psf)	ASTM E2178	0.002 0.000
Water Vapor Permeance, Max. (perm) ¹	ASTM E96	0.79

¹ Permeance shown is for 25mm thick board. Permeance typically decreases as board thickness increases.

Standard Dimensions

Kingspan Kooltherm® K9 Internal Insulation Board is available in the following standard size(s):

Nominal Dimension	Availability	
	(in)	(mm)
Width	47.244	1200
Length	89.370	2270
Custom length available	Made to order	

Standards and Approvals

Kingspan Kooltherm® K9 Internal Insulation Board is manufactured to the highest standards under a management system certified to ISO 9001: 2015 (Quality Management Systems. Requirements), ISO 14001: 2015 (Environmental Management Systems. Requirements), ISO 45001: 2018 (Occupational Health and Safety Management Systems. Requirements) and ISO 50001: 2018 (Energy Management Systems. Requirements).

The Facings

Kingspan Kooltherm® K9 Internal Insulation Board has a glass tissue based facing, adhesively bonded to the insulation core during manufacture.

The Core

The core of Kingspan Kooltherm® K9 Internal Insulation Board is a premium performance rigid thermoset fiber-free phenolic insulant manufactured with a blowing agent that has zero Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).



Product Details

K9 Internal Insulation Board

Thermal Resistance

The R-values detailed below are quoted in accordance with ASTM C518 (Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus).

Insulant Thickness		Thermal Resistance
(in)	(mm)	(R-value)*
1.18	30	8.7
1.57	40	11.6
1.97	50	14.5
2.36	60	17.4
2.76	70	20.4
2.95	75	21.8
3.15	80	23.3
3.54	90	26.1
3.94	100	29.1

* Note: Listed R-values per Intertek Code Compliance Research Report CCRR-1066. R-values are expressed in ft²•h•F/Btu.

* Contact Kingspan Insulation for available non-stock sizes



Fire Performance

The Kingspan Kooltherm® K9 Internal Insulation Board, when subjected to the ASTM E84/UL 723 (Standard Test Method for Surface Burning Characteristics of Building Materials) has achieved the below results.

Flame Spread	Smoke Developed
5	5

NFPA 286

Kingspan Kooltherm® K9 Internal Insulation Board can be left exposed without a thermal or ignition barrier on the walls or ceilings of interior habitable spaces, basements, crawlspaces and attics. This application is in compliance with the International Building Code (IBC) and the International Residential Code (IRC) through testing to the NFPA 286 (Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth). Kingspan Kooltherm® K9 Internal Insulation Board can be installed up to a maximum thickness of 75mm (3-inches) in exposed applications.

It is important to note, while it can be left exposed on walls or ceilings, it cannot be installed on both walls and ceilings in the same application. For more information regarding the exposed application of Kooltherm Insulation Board please see our DrJ Engineering Technical Evaluation Report Certification on www.kingspaninsulation.us or at <https://www.drjcertification.org/ter/1601-06>.

Product Details

K9 Internal Insulation Board

Sustainability & Responsibility

Kingspan Insulation has a long-term commitment to sustainability and responsibility. Explore the milestones achieved, progress made, and details on how our global business is stepping up to the challenging goals of our sustainability program, Planet Passionate. To learn more, please visit the website for more details.

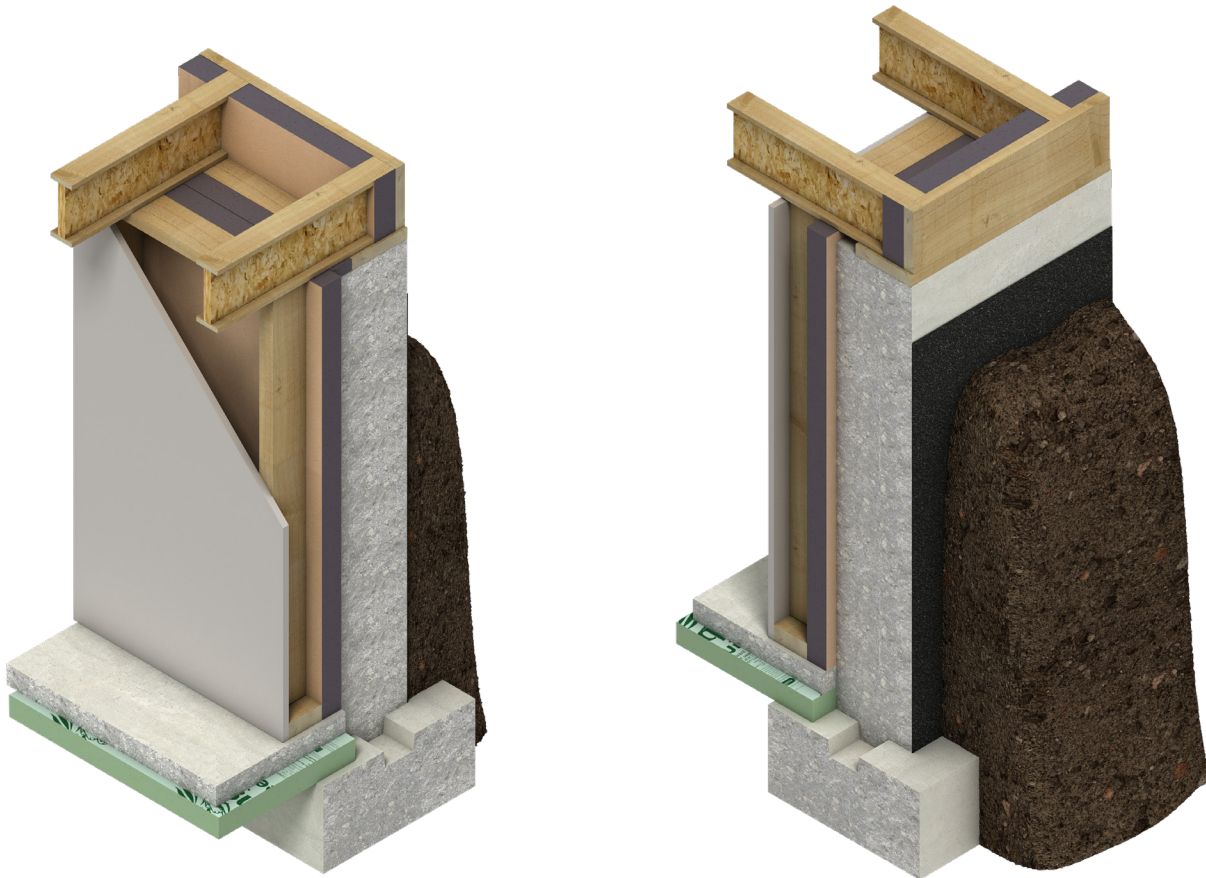
Durability

If correctly installed, Kingspan Kooltherm® K9 Internal Insulation Board can have an indefinite life. Its durability depends on the supporting structure and the conditions of its use.

Resistance to Solvents, Fungi & Pests

The insulation core is resistant to short-term contact with petroleum and with most dilute acids, alkalis and mineral oils. However, it is recommended that any spills be cleaned off fully before the boards are installed. Ensure that safe methods of cleaning are used, as recommended by the suppliers of the spill liquid. The insulation core is not resistant to some solvent-based adhesive systems, particularly those containing methyl ethyl ketone. Adhesives containing such solvents should not be used in association with this product. Damaged boards or boards that have been in contact with harsh solvents or acids should not be used.

The insulation core and facings used in the manufacture of Kingspan Kooltherm® K9 Internal Insulation Board resist attack by mold and microbial growth, and do not provide any food value to pests.



Sitework

K9 Internal Insulation Board

General

Cutting

- Cutting should be carried out either by using a fine toothed saw, or by scoring with a sharp knife, snapping the board over a straight edge and then cutting the facing on the other side.
- Ensure accurate trimming to achieve close-butting joints and continuity of insulation.

Daily Working Practice

- At the completion of each day's work, or whenever work is interrupted for extended periods of time, board edges and joints should be protected from inclement weather.

Packaging and Storage

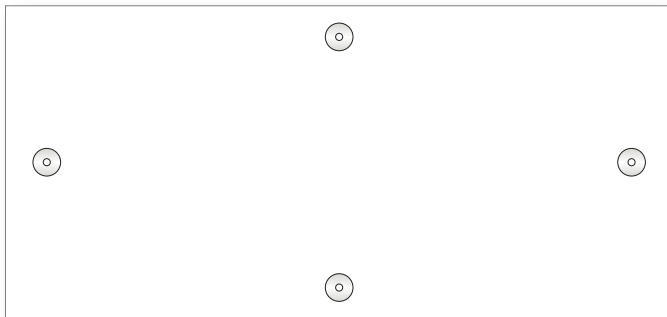
- The polyethylene packaging of Kingspan Insulation products, which is recyclable, should not be considered adequate for outdoor protection.
- Ideally, boards should be stored inside a building. If, however, outside storage cannot be avoided, then the boards should be stacked clear of the ground and covered with an opaque polyethylene sheet or weatherproof tarp. Boards that have been allowed to get wet should not be used.

Health and Safety

- Kingspan Insulation products are chemically inert and safe to use.
- A Safety Data Sheet for this product is available from the Kingspan Insulation website www.kingspaninsulation.us.

Recommended Fastening Pattern

The images below show the recommended fastening pattern and the number of fasteners used. Can be installed vertically or horizontally depending on wall dimensions.



4 Fasteners Per Board

Fastening Directly to Foundation Interiors

- Insulation boards should be installed with joints tightly butted.
- A minimum of 4 mechanical fasteners, with a minimum head diameter of $\frac{3}{8}$ in, are required to secure the insulation board to the foundation. Alternatively, insulation adhesive can be used to adhere the board to the foundation wall.**
- Insulation boards can also be fitted by a shot fired fastening method which can result in significantly faster installation times. All of the guidance above still applies.

For details on fasteners refer to:

EJOT 262-612-3550

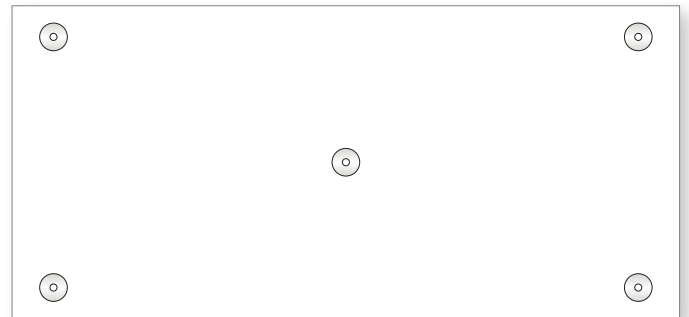
www.ejot-usa.com

TRUFAST 616-454-3100

<https://www.trufastwalls.com/kingspan-kooltherm>

ITW Ramset 800-848-5611

www.ramset.com



5 Fasteners Per Board

** See technical bulletin TB11.

Kingspan Insulation

K9 Internal Insulation Board

Product Overview

Company Details

Kingspan Insulation LLC is part of the Kingspan Group plc., one of Europe's leading construction product manufacturers. The Kingspan Group was formed in the late 1960s and is a publicly traded group of companies headquartered in Kingscourt, County Cavan, Ireland.

Kingspan Insulation LLC, headquartered in Atlanta, GA, is a leading manufacturer in energy efficiency and moisture management products, offering high performance insulation, building wraps and pre-insulated HVAC ductwork.

Products & Applications

Kingspan Insulation LLC has a vast product range that includes optimum, premium and high performance rigid insulation products and moisture management products.

Kingspan Insulation LLC products are suitable for both new build and renovation in a variety of applications within both residential and non-residential buildings.

Insulation for:

- Flat Roofs (XPS & VIP)
- Green Roofs (XPS & VIP)
- Cavity Walls
- Solid Walls
- Wood and Steel Framing
- Insulated Cladding Systems
- Below Grade
- Basement Walls
- Floors
- Soffits
- Ductwork

Further Solutions:

- Kingspan KoolDuct® Pre-Insulated Ducting
- Kingspan GreenGuard® Building Wraps and flashing tapes

Kingspan OPTIM-R® Vacuum Insulation Panel (VIP)

- With an aged design R-Value of 28 per inch, these products provide an insulating performance that is up to five times better than other commonly available insulation materials.
- Provides high levels of thermal efficiency with minimal thickness.

Kingspan Kooltherm® Products

- Higher R-value per inch than any commonly used insulation.
- Each product achieves the required fire performance for its intended application.
- Rigid thermoset insulation core achieves the best possible rating of 5 under ASTM E84 smoke developed index.
- Manufactured with a blowing agent that has zero ODP, low GWP, and both HCFC and CFC free.

Kingspan GreenGuard® Product Line

- Rigid extruded polystyrene insulation (XPS) for use as general purpose insulation for roofing, wall and foundation applications requiring a minimum compressive strength.
- R-value of 5.0 per inch of thickness.
- Continuous Insulation (CI) for above-grade walls, as well as below-grade walls and floors.
- Provides an extra barrier against moisture infiltration.
- Each product achieves the required fire performance for its intended application.

All Products

- Unaffected by air infiltration – a problem that can be experienced with mineral fiber and which can reduce thermal performance.
- Safe and easy to install.
- If installed correctly, can provide reliable long term thermal performance over the lifetime of the building.

Contact Details

USA

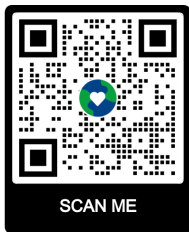
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www.kingspaninsulation.us



Please scan the QR code for the most recent product information.

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For the most current installation guidelines and compliance information go to www.kingspaninsulation.us.

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