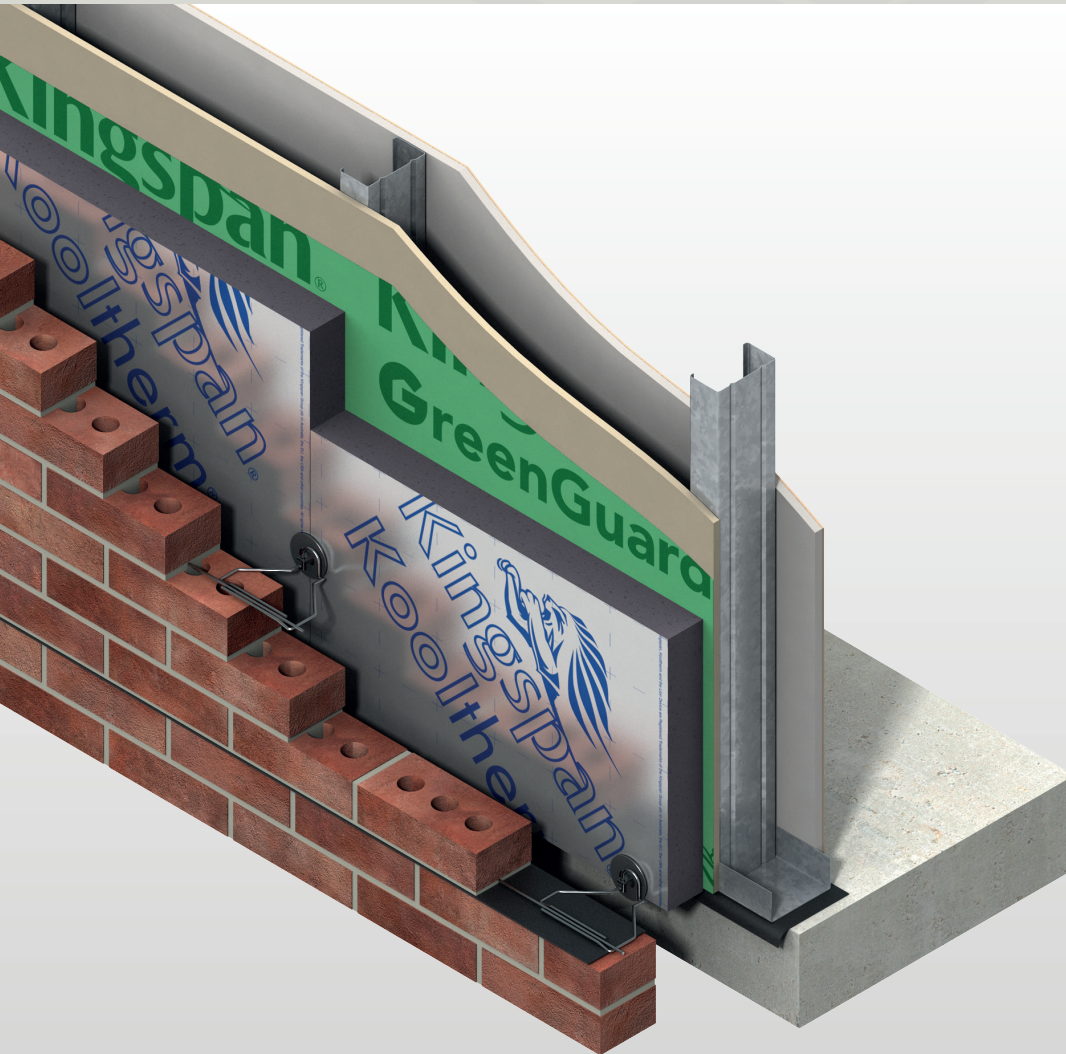




Kooltherm® K12 Framing Board

INSULATION FOR WOOD AND STEEL FRAMING SYSTEMS



- Premium performance rigid thermoset insulation
- R-value of 16 on 2"
- Higher R-value per inch than any commonly used insulation
- Negligible smoke developed
- NFPA 285 compliant
- ASTM E 84 rating of 25/20 (flame-smoke)
- Clear cavity is maintained – resists moisture penetration
- Low emissivity foil facings significantly increase the thermal resistance of the cavity
- Unaffected by air infiltration
- Easy to handle and install
- Manufactured with a blowing agent that has zero ODP, low GWP, HCFC and CFC free

Fiber-free
Core



Kingspan®

*Low Energy –
Low Carbon Buildings*

Typical Constructions

Introduction

Kingspan **Kooltherm**® K12 Framing Board is a premium performance insulation, with a fiber-free rigid thermoset phenolic insulation core faced on both sides with a low emissivity composite foil facing which is used in wood or steel frame walls.

Insulated Sheathing

Insulated Sheathing on Steel Frame

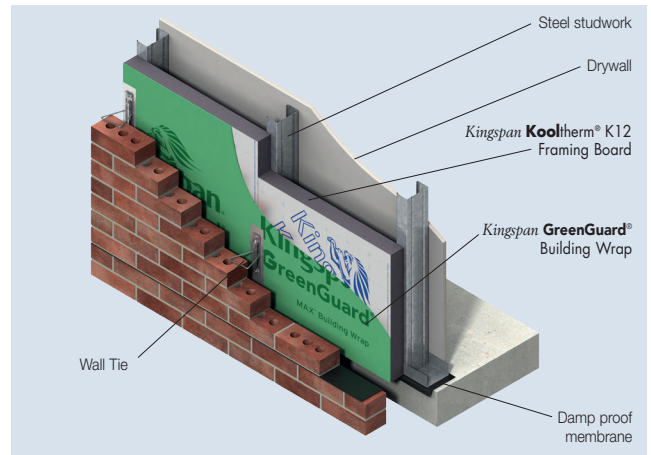


Figure 1

Insulated Sheathing on Wood Frame

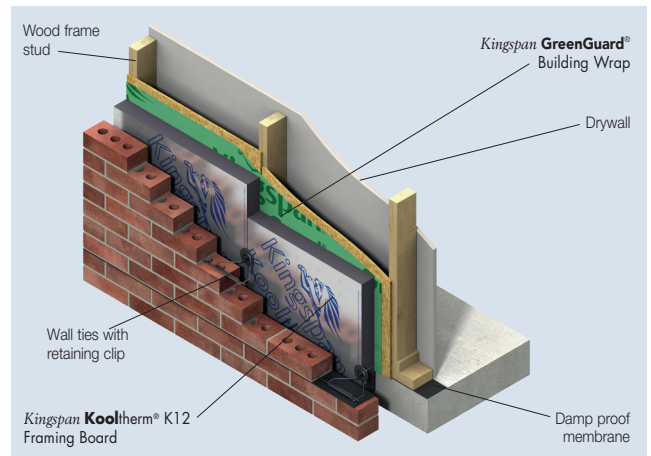


Figure 2

Insulated Sheathing on Steel Frame

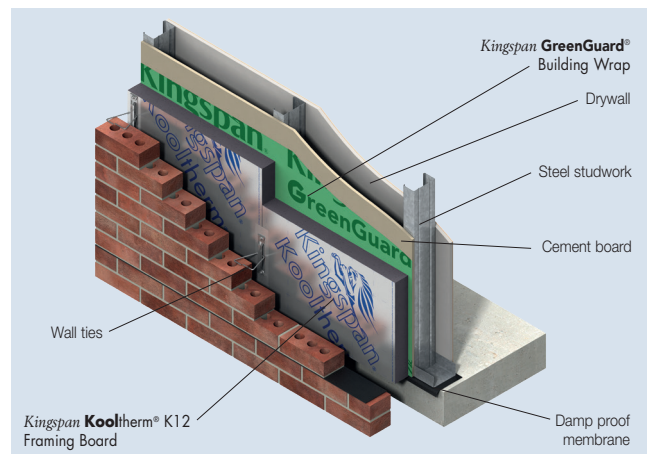


Figure 3

Wood Frame Wall with Stucco on Blockwork

Insulation Between Wood Frame Studs with Insulated Drywall

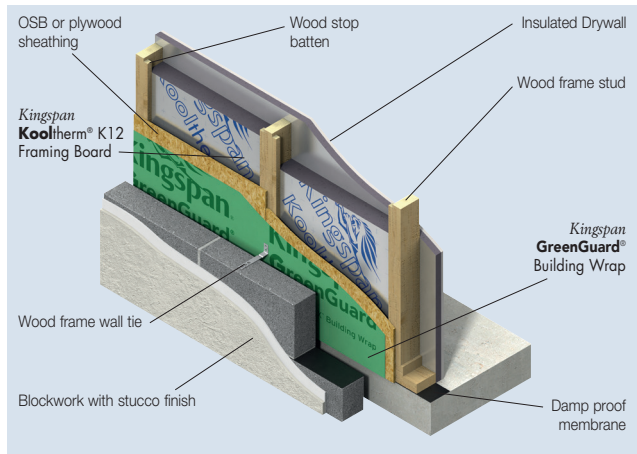


Figure 4

Wood Frame Wall with Ventilated Cladding

Insulation Between Wood Frame Studs with Insulated Drywall

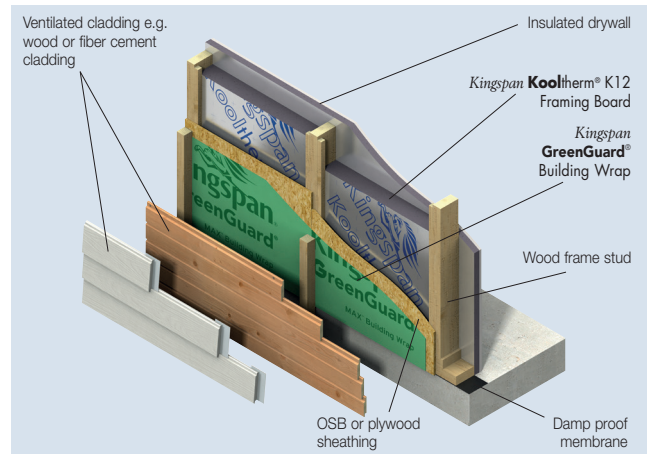


Figure 6

Insulation Between Wood Frame Studs and Insulated Sheathing

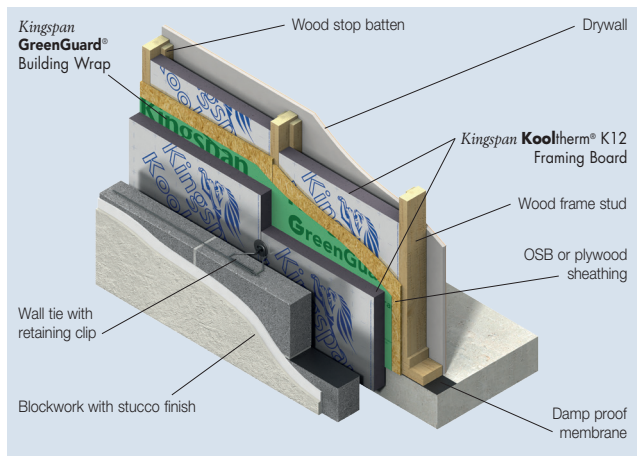


Figure 5

Insulation Between Wood Frame Studs and Insulated Sheathing

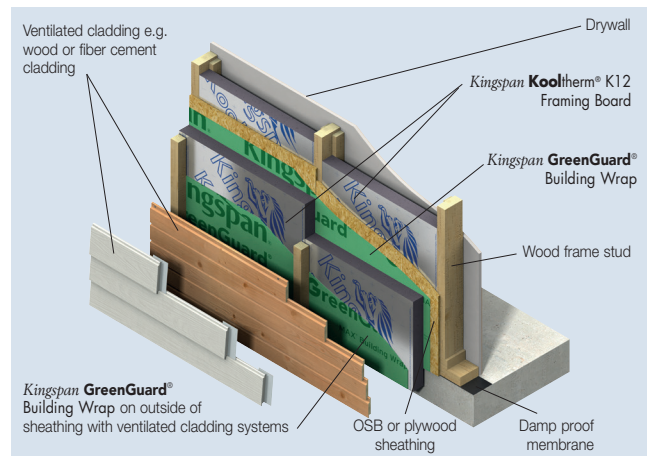


Figure 7

Typical Constructions

Renovation - Internal Drywall

Insulation Between, and Insulated Drywall Attached to, Wood Framework on Solid Brick Wall

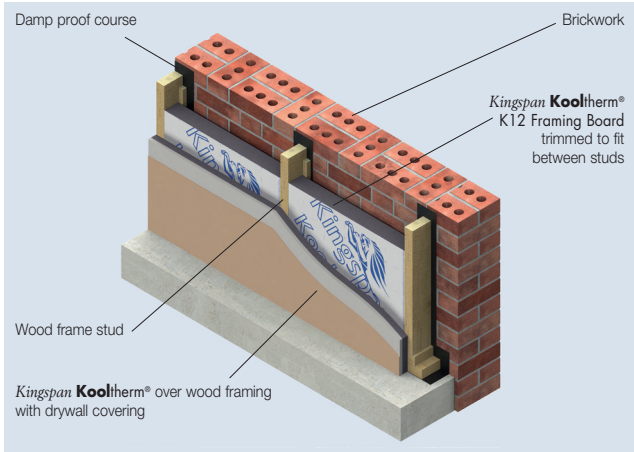


Figure 8

Wood Frame Wall with Brickwork

Insulation Between Wood Frame Studs with Insulated Drywall

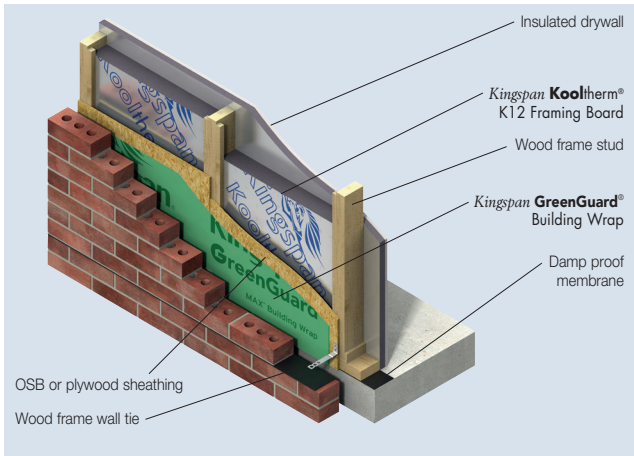


Figure 9

Insulation Between Wood Frame Studs and Insulated Sheathing

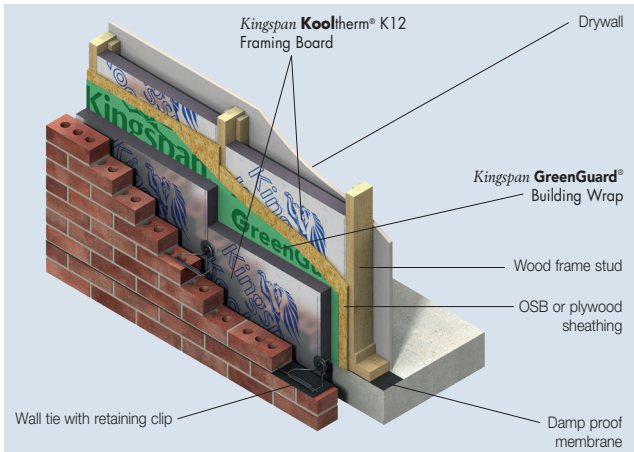


Figure 10

Product Details

The Facings

Kingspan Kooltherm® K12 Framing Board is faced on both sides with a low emissivity composite foil, adhesively bonded to the insulation core during manufacture. This reflective, low emissivity surface improves the thermal resistance of any unventilated cavity adjacent to the board.

The Core

The core of *Kingspan Kooltherm*® K12 Framing 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).



Standard Dimensions

Kingspan Kooltherm® K12 Framing Board is available in the following standard size(s):

Nominal Dimension	Availability	
	(in)	(mm)
Width	47.25	1200
Length	96	2438
Insulant Thickness	Refer to Product Data table	

Standards and Approvals

Kingspan Kooltherm® K12 Framing Board is manufactured to the highest standards under a management system certified to ISO 9001: 2008 (Quality Management Systems. Requirements), ISO 14001: 2004 (Environmental Management Systems. Requirements), OSHAS 18001:2007 (Occupational Health & Safety Management Systems. Requirements), and CCRR 1066.

Durability

If correctly installed, *Kingspan Kooltherm*® K12 Framing 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 petrol 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 spilled 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® K12 Framing Board** resist attack by mold and microbial growth, and do not provide any food value to pests.

Product Data

Property	Test Method	Result
General		
Nominal Thickness (in / mm) (in / mm)	Stock* 1.181 / 30 1.969 / 50	
Standard Dimensions		
Width (in / mm)		47.25 / 1200
Length (in / mm)		96 / 2438
Compressive Strength, Min. (psi)	ASTM C 209	21
Water Absorption, Max. (% by volume)	ASTM C 272	1.15
Density, Min. (lb/ft ³)	ASTM C 1621	2.0
Closed Cell Content (% of cells closed)	ASTM D 6226	94.67
Air Permeance (L/S/m ² / (cfm/ft ²))	ASTM E 2178	0.002 / 0.000
Water Vapor Permeance, Max. ¹ (perm)	ASTM E 96	0.51

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

* Contact Kingspan Insulation for available non-stock sizes.

Fire Performance

The rigid thermoset insulation core of **Kingspan Kooltherm® K12 Framing Board**, when subjected to the ASTM E 84 (Standard Method for Surface Burning Characteristics of Building Materials) fire test specified in the table below, has achieved the result shown.

Flame Spread	Smoke Developed
25	20

Further details on the fire performance of Kingspan Insulation products may be obtained from Kingspan Insulation.

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).

Thermal resistance (R-value) varies with thickness and is calculated by dividing the thickness of the board by its thermal conductivity.

Insulant Thickness		Thermal Resistance
(in)	(mm)	(R-value)*
1.18	30	9.5
1.38	35	11
1.57	40	12.5
1.77	45	14.5
1.97	50	16
2.17	55	17.5
2.36	60	19
2.56	65	20.5
2.76	70	22
2.95	75	24
3.15	80	25.5
3.35	85	27
3.54	90	28.5
3.74	95	30
3.94	100	31.5

Refer to Kingspan Insulation for current stock and non-stock sizes.

* Listed R-values are based on certified thermal conductivity testing at 75 mm.

Design Considerations

Sustainability & Responsibility

Kingspan Insulation has a long-term commitment to sustainability and responsibility.

A report covering the sustainability and responsibility of Kingspan Insulation Ltd's British operations is available at

www.kingspaninsulation.co.uk/sustainabilityandresponsibility.

Specification Clause

Kingspan Kooltherm® K12 Framing Board should be described in specifications as:

The stud wall insulation shall be *Kingspan Kooltherm*® K12 Framing Board ____ mm thick: comprising a premium performance rigid thermoset insulation core faced on both sides with a low emissivity composite foil facing. The product shall be manufactured: with a blowing agent that has zero Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP); under a management system certified to BS / I.S. EN ISO 9001: 2008, BS / I.S. EN ISO 14001: 2004 and BS / I.S. OHSAS 18001: 2007; by Kingspan Insulation Limited; and installed in accordance with the instructions issued by them.

Sitework

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.

Availability

- *Kingspan Kooltherm*® K12 Framing Board is available through specialist insulation distributors throughout the US.

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, outdoor 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.

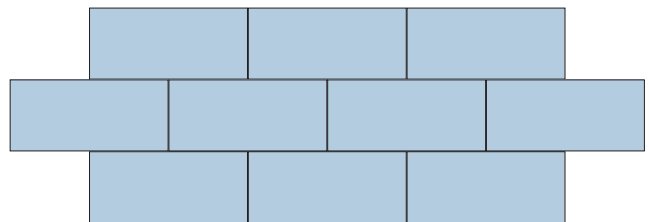
Health and Safety

- 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

Please note that the reflective surfaces on this product are designed to enhance its thermal performance. As such, they will reflect light as well as heat, including ultraviolet light. Therefore, if this product is being installed during very bright or sunny weather, it is advisable to wear UV protective sunglasses or goggles, and if the skin is exposed for a significant period of time, to protect the bare skin with a UV block sunscreen.

The reflective facings used on this product can be slippery when wet. Therefore, it is recommended that any excess material should be contained to avoid a slip hazard.

Warning – do not stand on or otherwise support your weight on this product unless it is fully supported by a load bearing surface.



Layer Staggered-Joint Pattern

Boards to be installed horizontally (meaning 96 in horizontal orientation)

Kingspan Insulation

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
- Insulated Render Systems
- Below Grade
- Basement Walls
- Floors
- Soffits
- Ductwork

Further Solutions:

- *Kingspan* **Kooltherm**® Cavity Closer
- *Kingspan* **KoolDuct**® Pre-Insulated Ducting
- *Kingspan* **GreenGuard**® Building Wraps

Insulation Product Benefits

Product Overview

Kingspan **OPTIM-R**® Vacuum Insulation Panel (VIP)

- With an aged R-value of 23.8 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.
- Over 90% (by weight) recyclable.

Kingspan **Kooltherm**® K-range Products

- Higher R-value per inch than any commonly used insulation.
- Each product achieves the required fire performance for its intended application.
- ASTM E 84 rating of 25/20 (flame/smoke).
- Manufactured with a blowing agent that has zero ODP, low GWP, HCFC and CFC free.

Kingspan **GreenGuard**® Range Products

- 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

Sales and Technical Support

Tel 1 800 241 4402

Fax 1 678 589 7325

email info@kingspaninsulation.us

website www.kingspaninsulation.us

Kingspan Insulation LLC believes the information and recommendations herein to be accurate and reliable. However, since use conditions are not within its control, Kingspan Insulation LLC does not guarantee results from use of such products or other information herein and disclaims all liability from any resulting damage or loss. No warranty, express or implied, is given as to the merchantability, fitness for particular purpose, or otherwise with respect to the products referred to.

For more information on specific building product recommendations and product data, contact your Kingspan Insulation LLC representative.

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



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