



An Introduction to

Kingspan **Kooltherm**[®] INTERNAL WALL INSULATION SYSTEM



- Access Green Deal and ECO Funding
- Premium performance rigid thermoset insulation – thermal conductivities as low as 0.020 W/m·K
- Insulation, plasterboard and vapour control layer in one product



*Low Energy –
Low Carbon Buildings*

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Introduction

Most of the buildings we see around us today were designed and built long before energy conservation, carbon saving and rocketing energy prices were foreseen. As a consequence, those buildings use more energy than their modern equivalents, cost more to run and cause more carbon dioxide emissions.

All elements of a building's fabric can be upgraded to meet current Building Regulations and Standards. However it is the estimated 6.6 million solid-walled homes that offer the most significant opportunity for improvement.

There have been a number of government initiatives to address carbon emissions, energy efficiency and fuel poverty. The latest of which are the Green Deal and the Energy Company Obligation (ECO), which seek to give consumers, local authorities, landlords amongst others, access to funding to upgrade properties.

The consensus of opinion is that a building's fabric should be made more thermally efficient and airtight, before other energy reduction or energy generation measures are considered.

Kingspan Insulation has developed the *Kingspan Kooltherm*[®] Internal Wall Insulation System to provide specifiers with a single system that provides insulation and drylining in one application. Both the *Kingspan Kooltherm*[®] K17 and K18 Internal Wall Insulation Systems hold BBA accreditation.

In addition, in order to ensure that solid-walled property owners can take advantage of the Green Deal and / or ECO, Kingspan Insulation has also developed an Internal Wall Insulation System training programme to allow installers to become fully accredited under PAS 2030, therefore providing access to Green Deal projects.

Drivers for Internal Wall Insulation

- The 6.6 million homes in the UK with uninsulated solid walls which could benefit from either Green Deal or Energy Company Obligation (ECO) funding or a combination of both.
- When a wall is being re-plastered, re-plumbed, re-wired or when fitting new kitchens and bathrooms.
- If external wall insulation cannot be used because the building is in a conservation area or where local planning constraints exist.
- The property owner prefers the existing look and aesthetics of the outside of the building.
- Internal wall insulation can be also used as part of a 'hybrid' approach – for example using it on the front elevation of the property with external wall insulation on the side and rear elevations.



Introduction

Proven Track Record

Kingspan Insulation has manufactured and supplied insulated plasterboards comprising gypsum plasterboard with closed-cell rigid insulation backings into the UK market since the 1960s. The following 45 plus years of experience has led to the development of *Kingspan Kooltherm*® K17 and K18 Insulated Plasterboard, manufactured since 2005.

This proven track record in manufacturing is not enough to ensure that internal wall insulation systems are reliable and perform to expected levels, especially for older, solid-walled buildings. This is why Kingspan Insulation, through TIMSA and the BBA, was one of the founder companies behind the U-value calculation and condensation risk analysis competency scheme which seeks to promote and assist accurate, objective and consistent calculation of U-values and condensation risk in buildings.

“Registration under the Scheme provides reassurance to any specifier or user that the services or data being provided are supplied by an individual or company that has been subject to a rigorous independent assessment process. They can therefore be assured that this output is representative and reliable” – BBA

Best Practice and Peace of Mind

Of course, innovation and technology is developing fast and some of this is reflected in Building Regulations and Standards. This is why, as part of the commitment to the internal wall insulation and wider industry, Kingspan Insulation is monitoring developments within simulation software and conducting its own research to ensure that its solutions are matching or exceeding best practice.

As with all product offerings within the Kingspan Insulation range, customers using the *Kingspan Kooltherm*® Internal Wall Insulation Systems are supported by full technical advice throughout the specification and installation process. This is vital for the refurbishment of existing buildings where the condition and suitability of a property to receive insulation needs to be assessed, as well as compliance with regulations and detailing to maintain airtightness and ensure thermal performance.

Kingspan Insulation is also a founder member of SWIGA (Solid Wall Insulation Guarantee Agency) which has developed a robust quality framework including site assessments, recording of measures installed and a 25 year guarantee. This is all to provide consumers, specifiers and funding organisations the peace of mind needed when installing solid wall insulation under both Green Deal and ECO.



Later on in this document you will read about the *Kingspan Kooltherm*® Internal Wall Insulation Systems Training Course which teaches best practice and the practical know-how to install measures correctly so that they perform as intended.

Benefits

- **Three products in one:** Insulation, plasterboard and vapour control layer in one product.
- **Thin:** Kingspan Kooltherm is amongst the thinnest insulation commonly available.
- **Quality assured insulation:**
 - Certified BRE Green Guide Rating of A+
 - Produced under management systems certified to ISO 14001.
- **Flexible purchasing:** The ancillary components are commonly available and have a minimum specification meaning you are not tied to one supplier.
- **Lower costs:** No scaffolding required.
- **Quicker heating:** Internal wall insulation allows for a much faster response time to heating than poorly insulated or uninsulated walls.
- **Aesthetics:** Can significantly improve the internal appearance and finish of a property.
- **Training:** Full system training available allowing access to Green Deal and Energy Company Obligation (ECO) work.



Kingspan **Kooltherm**[®] Internal Wall Insulation Systems

Kingspan **Kooltherm**[®] Internal Wall Insulation Systems

Kingspan Insulation has developed two different pre-insulated dry-lining Systems to suit two different application methods. They are approved by the British Board of Agreement (BBA) and come in a range of thicknesses to suit different target U-values or space limitations.

In order for any system to be installed and perform correctly, all the components have to be of a specified quality and performance. Kingspan Insulation has also partnered a number of suppliers and distributors to help installers gain easy access to the each System.

The Systems and components are:

Kingspan **Kooltherm[®] K17 Insulated Dry-Lining System** for direct bonding with gypsum adhesive.

Name:

Kingspan **Kooltherm[®] K17 Insulated Dry-Lining System.**

Description:

A gypsum adhesive bonded insulated dry-lining system.

Front facing:

12.5mm Type A tapered edged gypsum plasterboard with composite foil vapour check.

Core:

Premium performance rigid thermoset modified resin insulant.

Reverse facing:

Glass tissue.

Board Size:

1.2 x 2.4 m.

Thickness:

12.5 mm plasterboard + insulation thickness
(20 mm up to 80 mm).

Components

- Fungicidal wash treatment.
- Water based acrylic sealant.
- Bonding agent.
- Gypsum based adhesive / general purpose bonding compound.
- Nailable plugs for secondary fixing into masonry.



	Thickness (mm) of Specified Insulant Required to Achieve U-value Shown	
U-value (W/m ² ·K)	0.30	0.22
Kingspan Kooltherm[®] K17 Insulated Plasterboard*	62.5	87.5
Rock Mineral Fibre (0.038 W/m·K)	Requires installation on stud work	

Calculations assume two leaves of 102.5 mm brickwork with a 50 mm unfilled cavity.

* Calculations assume **Kingspan **Kooltherm**[®] K17 Insulated Plasterboard** product thickness = insulant thickness + 12.5 mm plasterboard on 15 mm plaster dabs.

Kingspan Kooltherm® K18 Insulated Dry-Lining System for mechanical fixing with drywall screws.

Name:

Kingspan Kooltherm® K18 Insulated Dry-Lining System

Description:

A mechanically fixed pre-treated timber batten insulated dry-lining system

Front facing:

12.5 mm Type A tapered edged gypsum plasterboard with composite foil vapour check

Core:

Premium performance rigid thermoset modified resin insulant

Reverse facing:

Composite foil

Board Size:

1.2 x 2.4 m

Thickness:

12.5 mm plasterboard + insulant thickness
(20 mm up to 80 mm)

Components

- Fungicidal wash treatment.
- Water based acrylic sealant.
- Bonding agent.
- Pre-treated dried softwood timber battens.
- Drywall screws.
- All in one hammer fixings/ universal wall plugs and wood screws.
- Damp proof course.



	Thickness (mm) of Specified Insulant Required to Achieve U-value Shown	
U-value (W/m ² ·K)	0.30	0.22
<i>Kingspan Kooltherm</i> ® K18 Insulated Plasterboard	62.5	92.5
Glass Mineral Fibre (0.038 W/m·K)	Requires installation on stud work. See opposite.	

All calculations assume a 15% bridging factor. The thermal conductivity of the timber has been assumed to be 0.12 W/m·K.

Kingspan Kooltherm® K18 Insulated Plasterboard contains an integral vapour control layer in order to minimise the risk of condensation. *Kingspan Kooltherm*® K18 Insulated Plasterboard product thickness = insulant thickness + 12.5 mm plasterboard.

Case Studies

Project Name: 225 Court Farm Road

Building Type: Residential Low Rise

225 Court Farm Road is a 1930s two bedroom terraced house in South London which underwent a full refurbishment, with the aim of reducing the carbon dioxide emissions caused by the property by 80%. A number of different insulation measures were used, with 82.5 mm of *Kingspan Kooltherm*® K17 Insulated Plasterboard adhered to the external walls of the original building. This measure achieved a U-value of 0.18 W/m²·K.



Images courtesy of The Hyde Group

Project Name: Mole Valley

Building Type: Residential High Rise

Two 13-storey tower blocks containing 104 one and two bedroom flats in Dorking, Surrey, were refurbished for Surrey Mole Valley Housing Association by United House. 62.5 mm of *Kingspan Kooltherm*® K18 Insulated Plasterboard was installed on the inside surface of the external walls, reducing U-values from 1.7 W/m²·K to 0.3 W/m²·K, and heat loss in each flat by 40 per cent. This is estimated to help save each resident around £455 per year in fuel bills and increase the building's carbon efficiency by up to 77 %.



Images courtesy of United House

Project Name: 17, St Augustine's Road

Building Type: Residential Semi-Detached

A dilapidated 1850s semi-detached solid-walled house in a conservation area meant that only internal wall insulation could be used so as not to affect the external appearance of the building. The solid brick walls were insulated with 102.5 mm of *Kingspan Kooltherm*® K18 Insulated Plasterboard giving a U-value of 0.19 W/m²·K. Along with roof and floor insulation and attention to detailing and airtightness, the energy rating of the building was improved significantly from F to B. There was also a 55-70% reduction in gas consumption and CO₂ emissions were reduced from 10,900 Kg/CO₂/Yr to between 3,800 to 4,900 Kg/CO₂/Yr.



Kingspan **Kooltherm**® Internal Wall Insulation (IWI) Systems Training Course

Kingspan **Kooltherm**® Internal Wall Insulation (IWI) Systems Training Course

In order to ensure that internal wall insulation systems are installed correctly Kingspan Insulation has developed a training course for existing dry-lining installers. It is also a prerequisite to be able to install measures for Green Deal and ECO schemes under PAS 2030. This is summarised below:

Installer Surveyors and Operatives must have **ONE** of the following:

Relevant qualifications/qualification units and on-site inspection of work eg NVQ Level 2 Insulation and Building Treatments: Internal Wall Insulation

Completion of other aligned training and certification accepted by the oversight body and on-site inspection of work

Member of a Building Regulations Competent Person Scheme for the type of work
Note: Not applicable in Scotland

Demonstrable knowledge in relation to the competence gained through industry experience and verified by UKAS accredited certification body through a structured interview and onsite inspection of work eg. An Experienced Worker Assessment

PLUS

Evidence of product or system supplier surveyor approval eg. Kingspan Internal Wall Insulation (IWI) - Systems Training Course

Kingspan Kooltherm® Internal Wall Insulation (IWI) Systems Training Course

Course Overview

Attendees will benefit from a mixture of theoretical classroom based learning and practical hands-on experience for Kingspan Internal Wall Insulation Systems including the following

- Storage and handling.
- Tools and equipment needed.
- Preparation of the substrate.
- Materials and components.
- Detailing to maintain thermal continuity and airtightness.
- Dealing with services.
- Installation of the different Kingspan Kooltherm Internal Wall Insulation Systems.
- Installation of fixtures and fittings.

Who Should Attend?

The course is designed for existing dry-wall installers and contractors with at least 2 years experience.

Course duration: 1 Day

Cost: £150 + VAT

Course Benefits

- Learn the best practice approach to dealing with everyday refurbishment installation issues.
- Understand why installations have to be completed in a certain way.
- Gain confidence answering consumer questions about internal wall insulation.
- Helps installers comply with the Green Deal Code of Practice.
- Meets the PAS 2030 'evidence of product or system supplier approval'.
- **Convenient locations:** Dartford & Barnsley.

Training and Assessment Process

Training mostly involves practical installation techniques covering detailing and solutions to common problems. Each delegate will receive a comprehensive training manual which doubles as a handy reference guide for detailing in order to ensure thermal performance and airtightness.

Each successful candidate will receive a certificate confirming they have attended the course. Then after 2 successful on-site assessments per year, the candidate will receive a photo ID card. The status then allows the installer to work on Green Deal and ECO projects. Even after successfully completing the course and assessments, there will be additional on-site assessments annually to ensure quality and standards are kept high.



Locations

The *Kingspan Kooltherm*® Internal Wall Insulation (IWI) Systems Training Course can be accessed at two established training providers located in convenient locations.

Barnsley College

Barnsley College, Honeywell Site, Honeywell Lane, Barnsley, South Yorkshire S75 1BP

Tel: 01226 216 216

info@barnsley.ac.uk

www.barnsley.ac.uk

Able Skills

Able Skills Ltd Construction Training Centre,
Unit K5, Riverside Industrial Estate, Riverside Way, Dartford,
Kent DA1 5BS

Tel: 0808 100 3245

info@ableskills.co.uk

www.ableskills.co.uk

How to book

Simply contact your nearest training provider and ask for the *Kingspan Kooltherm*® Internal Wall Insulation (IWI) Systems Training Course.



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The National Insulation Association (NIA)



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