



Kingspan TEK® Building System

INFORMATION FOR SELF BUILDERS



IAB No. 02/0158



Live | Indulge | Imagine | Sustain

Intelligent Design for a Smart Future

You want your dream home, but you want it to be at the cutting edge of construction techniques and quality.

You want your home to be comfortable and warm but you don't want it to cost the earth to heat or for it to be any less environmentally sustainable than it can be.

The *Kingspan TEK*® Building System is a simple but revolutionary way of building your dream home quickly and with outstanding energy efficiency. Living in a home built using the *Kingspan TEK*® Building System allows you to benefit from future living standards today.

A *Kingspan TEK*® Building System home not only provides comfort in terms of heating bills and temperature control but it is also spacious.

Using this unique technology, walls are no thicker than you would normally expect, in fact in many cases they are thinner, but they are much more thermally efficient.

As for roofs, because the *Kingspan TEK*® Building System is completely pre-insulated, it gives you a room-in-the-roof space without having to lift a finger. Even if you just want a safe storage area, the System is ideal because the pre-insulated roof space is warm, dry and naturally light.

The *Kingspan TEK*® Building System enables you to live in a home, which some people can only dream about.



What is the Kingspan TEK™ Building System?

Traditional construction methods rely on bricks and blocks or a conventional timber frame. The *Kingspan TEK® Building System* is based on structural insulated panels (SIPs). These panels comprise 110 mm of high performance rigid urethane insulation sandwiched between two sheets of Oriented Strand Board (OSB). The panels are 1.22 m wide and up to 7.45 m long and are very strong.

The panels are joined together using a unique sealed jointing system that minimises the amount of air that can pass through the joints, making your home very airtight. In addition, the design of the panel joints means a more continuous layer of insulation in your walls and roof. To illustrate this point, in a property constructed with traditional timber frame, you could typically expect 15% of the walls and 6% of the roof to be uninsulated. By comparison, in a property constructed using the *Kingspan TEK® Building System*, as little as 4% of the walls and 1% of the roof will be uninsulated. The overall result is a home that is very energy efficient, making it very cheap to run from the point of view of heating costs.

However, your airtight home will need ventilation. We recommend using a mechanical ventilation with heat recovery (MVHR) system. In short, these systems extract the moist waste air from your home and replace it with fresh air from outside. Integral to these systems is a heat exchanger, which will extract the heat from the outgoing waste air to heat the incoming air. Recovering this heat can provide a large proportion of the heat required to keep a home at comfortable living temperatures.



The combination of an airtight building envelope and a MVHR system can mean that traditional central heating systems, which rely on hot water to heat radiators, can become a thing of the past. You should check with your architect to ensure that your heating system, if required at all, is not oversized and therefore over expensive.

The *Kingspan TEK® Building System* is also very quick to build. The panels can be erected and joined together very quickly and with the application of a breather membrane the System forms a weather tight shell, enabling you to start doing jobs such as plastering at the same time as tiling the roof.

More detailed information is given in the literature for the *Kingspan TEK® Building System*, which is available from the Kingspan Insulation Marketing Department (see rear cover).



Why use the Kingspan TEK™ Building System?

Energy Efficiency & Environmental Sustainability

- The need for environmentally sustainable living has been well documented.
- The **Kingspan TEK® Building System** is CFC/HCFC-free with zero Ozone Depletion Potential (ODP).
- The **Kingspan TEK® Building System** achieves U-values of 0.2 W/m².K as standard for walls and roofs.
- To achieve this thermal performance in traditionally constructed timber frame or masonry cavity walls, greater wall thicknesses may be required – thicker walls that encroach on living space.
- The **Kingspan TEK® Building System** can achieve air-tightness levels as good as 0.91 air changes per hour at 50 Pa.
- It is very difficult for traditional timber frame or masonry construction methods to achieve this standard.
- These factors combined, could result in your home being so energy efficient, that you may have potential to avoid installing a conventional heating system e.g. radiators altogether.
- Concern for the environment does not have to equate with being out of pocket.



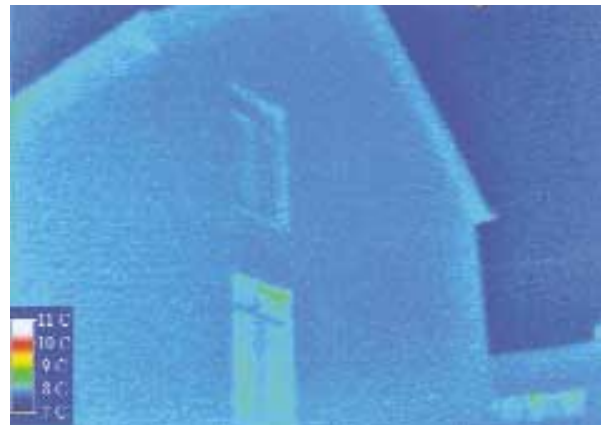
- People that use the **Kingspan TEK® Building System** to build their dream home can also see the financial benefits that the System offers.
- To achieve **Kingspan TEK® Building System** levels of energy efficiency with traditional masonry or timber frame construction methods would demand a significant premium in build costs.

Build Speed

- **Kingspan TEK® Building System** roof and wall panels are pre-insulated, which means that the construction of the structural frame and the installation of thermal insulation for your home happen in one operation.
- This can save time and money compared with traditional methods such as timber frame and masonry where the equivalent operation may have to be carried out in a number of different phases.

U-value – the figure that indicates thermal performance of an external wall, roof or floor – the lower the figure the higher the performance.

Air leakage – this is the amount of air that can escape from your home and is commonly expressed in air changes per hour e.g. how many times in an hour the complete volume of air in your home will be replaced by fresh external air. The higher the figure, the more leaky your home will be and the more energy you will need to maintain a comfortable living temperature.



The image above shows a **Kingspan TEK® Building System** gable wall with a relatively even surface temperature. Very little thermal bridging can be identified. There is also no visible air leakage at the verge. It should be noted that the rooms behind the are well heated which further displays the well insulated nature of the construction.

Waste & Landfill

- The **Kingspan TEK® Building System** is factory produced and thus suffers from minimal on-site wastage and thus lower waste disposal charges.

Building Reliability

- Your **Kingspan TEK® Building System** scheme must only be erected by your **Kingspan TEK® System Supplier** or a registered **Kingspan TEK® Contractor**.
- Defects are vastly reduced due to the factory-controlled manufacture of the System.
- By virtue of the System's prefabricated nature, it can only be erected one way and thus installation errors are evident almost immediately and are relatively easily rectified.



Predictable Programme

- The ease with which the **Kingspan TEK® Building System** can be erected and the eradication of wet trades means it is easier for the **Kingspan TEK® System Supplier** to predict project completion times.

Insulated Warm Roof Space as Standard

- Due to the roof and wall panels being pre-insulated, your home can have an insulated warm roof space as standard. The application of insulation as a second operation, as will be the case when building your home with traditional rafter techniques, is unnecessary.



Approvals

- The **Kingspan TEK® Building System** is recognised by building warranty providers such as NHBC and Zurich Municipal. It also holds BBA and IAB certification.



- The System has Lantac System approval, which means that it will be recognised and verified by the local authority building control network. Consequently, many objections that local building control departments may raise when using a modern construction technique are dealt with before they can be raised.



Self Build Case Studies

Client: Mark Gorgolewski
Location: Middle Barton, Oxfordshire
Architect: Mark Gorgolewski
Registered contractor: TJ Crump Oakwrights



Client: Confidential
Location: Summertown, Oxford
Architect: Confidential
Registered contractor: Confidential



Client: Jeffery Punch
Location: Patrickswell, Co. Limerick
Architect: J. Hill
Registered contractor: Gorman & Moran Building Contractors



Client:
Location:
Architect:
Registered contractor:

Peter McManus
Battle, East Sussex
Peter McManus
Confidential



Client:
Location:
Architect:
Registered contractor:

John Hayes
Clane, Co. Kildare
John Hayes
Confidential



Client:
Location:
Architect:
Registered contractor:

Robin Grayson
Hope Valley, Derbyshire
Confidential
R E Grayson & Sons



Getting Your Project Underway

Getting Started

To give you some idea of how to get your self-build project underway, here is a framework you may find useful.

The biggest decision comes first – committing to building your dream home. Before you make this decision, decide why you want to undertake the project and what you are hoping to achieve.

Once you are certain of your goals and are convinced of your vision you need to think about the location of your dream home.

You will need a plot of land, which should ideally carry outline planning permission. If you need help with this, here are some information sources that maybe useful:

- Build It Magazine (www.self-build.co.uk);
- Buildstore (www.buildstore.co.uk);
- Homebuilding and Renovating Magazine (www.homebuilding.co.uk);
- Self Build and Design Magazine (www.selfbuildanddesign.com);
- Plot Finder (www.plotfinder.net); and
- Self Build, Extend & Renovate (Ireland) (www.selfbuild.ie).

Decide on the Look You Want

Having acquired your land you can start thinking about the design of your dream home.

Having decided on the look for your dream home you need to appoint an architect, probably located reasonably close to your plot. The architect, with local knowledge, can adapt our plans to suit your requirements and also work with the local planning authority to make the look of your home acceptable to the local area. Once the plans have been finalised, your architect can submit the plans for detailed planning permission and Building Regulations approval. It is important to submit the plans at the earliest opportunity, as the planning process can be slow.

You should also appoint a *Kingspan TEK*® System Supplier prior to submitting plans for detailed planning permission and Building Regulations approval. Kingspan Insulation can provide you with a list of *Kingspan TEK*® System Suppliers. You will need to involve your *Kingspan TEK*® System Supplier in the design process to ensure all modifications are workable. As part of this process it may be advisable to arrange a visit with them to your site to address issues such as:

- the orientation of the site being compatible with views;
- access requirements;
- proximity of neighbours; and
- any site constraints or opportunities.



How the Kingspan TEK™ Building System is supplied and erected

The *Kingspan TEK*® Building System is sold in the UK and Ireland by a supplier network. The supplier network consists of System Suppliers and Registered Contractors. A definition of each is as follows:

- **System Suppliers** are able to design, engineer, supply and build the *Kingspan TEK*® Building System. Most System Suppliers also operate as Registered Contractors.
- **Registered Contractors** have been trained by the Construction Industry Training Board (CITB) to build with the *Kingspan TEK*® Building System.

Finalising Budgets and Finance Requirements

Having finalised your designs and submitted them for detailed planning permission and Building Regulations approval you will need to draw up a detailed budget for the build. This will make managing your project easier and finance providers will also require this detailed information before funds can be released.

Your *Kingspan TEK*[®] System Supplier will be able to assist with budget prices for the *Kingspan TEK*[®] Building System element of your project.



Involvement of the *Kingspan TEK*[®] System Supplier

The *Kingspan TEK*[®] System Supplier may be able offer a complete turnkey construction package for your project so all you have to do is move in. Alternatively, your *Kingspan TEK*[®] System Supplier can just erect the *Kingspan TEK*[®] Building System scheme and that will be the extent of their involvement.

If you do not have previous site management experience we would recommend that you bring in professional site management. This can be provided by a *Kingspan TEK*[®] System Supplier as part of a turnkey package. It can also be provided by a main contractor to which the *Kingspan TEK*[®] System Supplier is a sub-contractor. If you feel you have sufficient experience of site management and want to manage the project yourself, it can save you money. However, as well as previous site management experience, you should have plenty of spare time available!

Having agreed the level of involvement that your *Kingspan TEK*[®] System Supplier will have in your project, it is very important to agree areas of responsibility with them. This should be done at the earliest opportunity to ensure there are no delays once planning permission has been granted. Particularly important at this early stage is to establish who will install services and lay foundations, as your scheme cannot be erected until this work has been done.

Devise a Construction Programme

Before planning permission is granted you should finalise a detailed specification for your project with your architect and agree a construction programme with your *Kingspan TEK*[®] System Supplier and any other contractors you have appointed.

It is also essential at this point to agree a price with your *Kingspan TEK*[®] System Supplier in order that you understand the project's cost implications and also agree time scales with them.

Due to the superior air tightness of the *Kingspan TEK*[®] Building System we recommend that you install a mechanical ventilation with heat recovery system (MVHR). For further information on MVHR speak to your *Kingspan TEK*[®] System Supplier or an MVHR supplier. The requirement for and design of an MVHR system should be considered at this stage.

More detailed information on ventilation strategies is given in the literature for the *Kingspan TEK*[®] Building System, which is available from the Kingspan Insulation Marketing Department (see rear cover).



Getting Your Project Underway

Order your *Kingspan TEK*[®] Building System scheme

IMPORTANT: You should order your *Kingspan TEK*[®] Building System scheme through your *Kingspan TEK*[®] System Supplier at least one month before it is required on site.

Generally, what you are buying when you order a *Kingspan TEK*[®] Building System scheme is an erected building shell. This includes the panels and the breather membrane but does not include foundations, internal linings (e.g. plasterboard), external finishes (e.g. render, timber cladding, masonry, wall ties, battens, slates/tiles), mechanical and electrical services (e.g. plumbing, wiring), joinery (e.g. windows, doors, internal stud partition walls) etc. However, these items can be included the price from your *Kingspan TEK*[®] System Supplier by mutual agreement.

Your *Kingspan TEK*[®] Building System scheme will come supplied with *Kingspan nilvent*[®], an airtight breather membrane that is applied to the *Kingspan TEK*[®] Building System roof and walls as soon as they have been erected.

Erecting your *Kingspan TEK*[®] Building System Scheme

Your *Kingspan TEK*[®] Building System scheme must only be erected by your *Kingspan TEK*[®] Building System or a registered *Kingspan TEK*[®] contractor. Failure to comply could invalidate your warranty.

Warranty

Kingspan Insulation Ltd. provides a 20 year defect warranty for *Kingspan TEK*[®] Building System panels. Details of the conditions to and exclusions from this warranty are available upon request.



Request for further information

KINGSPAN USE ONLY
Ref: _____
Date received: _____



Kingspan TEK® Building System

The *Kingspan TEK® Building System* could revolutionise the way you build your dream home. Energy efficiency, sustainability and low running costs come as standard with the *Kingspan TEK® Building System*. In fact, heating bills can be reduced to the bare minimum. To find out more about the *Kingspan TEK® Building System* simply fill out the information below which will help us understand a little bit more about what you are planning to build then we'll match your details with one of our regional system suppliers who will be delighted to discuss your project requirements.

About you...

Name _____

Address _____

Town _____ County _____

Postcode _____ Best contact number(s) _____

Fax _____ Email _____

About your building project...

When is your building project due to start? Month _____ Year _____

What are you planning to build? Private Home Conversion
 Extension Other, please specify _____
 I'm not building, just seeking planning permission for re-sale purposes

How many properties are you planning to build? _____

Where is your build project located? Town _____ County _____

Do you have architects plans of what you intend to build? Yes No

Have you received full planning permission? Yes No

If no, when do you expect to receive it? Month _____ Year _____

Excluding land costs, fittings and finishes what is your budget for the total building project? £ / € _____

About what you're looking for...

On a scale of one to ten, which of the following are important to you. Please circle the appropriate number:

Scale of Importance	Least		Fairly						Very	
Warm home with very low fuel bills	1	2	3	4	5	6	7	8	9	10
Habitable room in the roof-space	1	2	3	4	5	6	7	8	9	10
Super-insulated walls	1	2	3	4	5	6	7	8	9	10
Quick and safe to build	1	2	3	4	5	6	7	8	9	10
Minimal on-site building waste	1	2	3	4	5	6	7	8	9	10
Internal works to start as soon as possible	1	2	3	4	5	6	7	8	9	10
Faster funding/ mortgage release payments	1	2	3	4	5	6	7	8	9	10

Did you get this form as a response to any of the following:

Advertising. If known, please state which magazine _____

Exhibition. If known, please state which exhibition _____

Kingspan internet site

Contacted Kingspan direct (Telephone/ Email)

Other, please specify _____

**Once complete, please return this page by fax to 01544 387 278, or by post to:
 Kingspan TEK Customer Services, c/o Kingspan Insulation Ltd, Pembridge, Leominster, HR6 9LA**

PLEASE TEAR HERE

Contact Details

Customer Service

For quotations, order placement and details of despatches please contact our Customer Services Department on the numbers below:

- UK – Telephone: +44 (0) 1544 387 308
– Fax: +44 (0) 870 850 8666
– email (quotations/enquiries): quotations@tek.kingspan.com
- Ireland – Telephone: +353 (0) 42 97 53045
– Fax: +353 (0) 42 97 53048
– email (quotations/enquiries): quotations@tek.kingspan.com

Technical Advice/Design

Kingspan Insulation Ltd support all of their products with a comprehensive Technical Advisory Service for specifiers, stockists and contractors.

This includes a computer-aided service designed to give fast, accurate technical advice. Simply phone the Kingspan Insulation **TECHLINE** with your project specification. Calculations can be carried out to provide U-values, condensation/dew point risk, required insulation thicknesses etc. Thereafter any number of permutations can be provided to help you achieve your desired targets.

We can also give general application advice and advice on design detailing and fixing etc. Site surveys are also undertaken as appropriate.

The **Kingspan TEK® Building System** incorporates a comprehensive Design Service. Give us your detailed architectural plans in hard copy or via email (see below) and we will engineer a **Kingspan TEK® Building System** scheme to match your design. This scheme lays out in detail the way in which the System's panels are to be joined on site to create your building. We will consult you on all aspects of design throughout this process.

Please contact our Technical Services Department on the numbers below:



- UK – Telephone: +44 (0) 1544 387 304
– Fax: +44 (0) 1544 387 278
– email (technical advice): techline.uk@tek.kingspan.com
– email (plans): design@tek.kingspan.com
- Ireland – Telephone: +353 (0) 42 97 53046
– Fax: +353 (0) 42 97 53048
– email (technical advice): techline.ie@tek.kingspan.com
– email (plans): design@tek.kingspan.com

Literature and Samples

Kingspan Insulation produces a comprehensive range of technical literature for specifiers and contractors. The literature contains clear 'user friendly' advice on typical design; design considerations; thermal properties; sitework and product data.

Kingspan Insulation technical literature is an essential specification tool. For copies please contact our Marketing Department on the numbers below:

- UK – Telephone: +44 (0) 870 733 8333
– Fax: +44 (0) 1544 387 299
– email: literature.uk@tek.kingspan.com
- Ireland – Telephone: +353 (0) 42 97 53047
– Fax: +353 (0) 42 97 53048
– email: literature.ie@tek.kingspan.com

General Enquiries

For all other enquiries contact Kingspan Insulation on the numbers below:

- UK – Telephone: +44 (0) 870 850 8555
– Fax: +44 (0) 870 850 8666
– email: info.uk@tek.kingspan.com
- Ireland – Telephone: +353 (0) 42 97 53045
– Fax: +353 (0) 42 97 53048
– email: info.ie@tek.kingspan.com

Kingspan Insulation reserve the right to amend product specifications without prior notice. The information, technical details and fixing instructions etc. included in this literature are given in good faith and apply to uses described. Recommendations for use should be verified as to the suitability and compliance with actual requirements, specifications and any applicable laws and regulations. For other applications or conditions of use, Kingspan Insulation offers a free Technical Advisory Service (see left) whose advice should be sought for uses of Kingspan Insulation products that are not specifically described herein. Please check that your copy of the literature is current by contacting our Marketing Department (see above).



Kingspan TEK

c/o Kingspan Insulation, Pembridge, Leominster,
Herefordshire HR6 9LA

www.tek.kingspan.com

Your local system supplier is: