



Engineered Timber Systems

PRODUCT SELECTOR





Kingspan Century

Established in 1990 and acquired by Kingspan in 2005, Kingspan Century is one of Europe's leading manufacturers and innovator of modern methods of construction, with over 40 years experience in the design, manufacture and an innovator of Engineered Timber Frame systems providing high performance solutions to both the residential and commercial sectors. The company uses the latest in off-site manufacturing techniques to produce complete building systems for a broad range of applications.

Each of these systems provide a whole building construction method consisting of a range of offsite manufactured 2D loadbearing panel assemblies including Structural Framing, Wall Framing, Floor Cassettes and Roofing systems in a bespoke modular format. This range of highly insulated and airtight building fabric systems, have the capacity not only to exceed the ever increasing regulatory requirements but the potential to deliver Zero Carbon Buildings.

Kingspan Group

Kingspan Group is a leading manufacturer of a range of sustainable products for the construction industry. The Group's principal activities comprise the manufacture of insulated panels, rigid insulation boards, raised access floors, timber frame and steel frame off-site solutions, environmental solutions for drainage, waste water treatment, rainwater harvesting and fuel storage, hot water systems and renewable energy solutions including solar collectors.

Innovation is the key to growth and Kingspan is aware of the importance of research and development to support market leading results. The core energy conservation qualities of many of the Group's products demonstrate Kingspan's ability to relentlessly convert specifiers and end-users from traditional and less effective materials towards more modern solutions.

The enormity of climate change, and its accelerating implications, continues to gain much greater exposure than at any stage in the past. With that comes a very evident shift in demand for all solutions that will contribute to an easing of these pressures over the medium to long term.

Buildings, be they residential, commercial or manufacturing account for in excess of 40% of carbon emissions globally. Recognising this, Kingspan has, and continues to, innovate and deliver solutions today that will dramatically reduce the need for energy tomorrow, and provide compelling economic payback.

Kingspan were the first in the world to develop the Zero Carbon home, which utilised higher insulation standards, rainwater recovery, use of renewables such as solar hot water and power generation, all products currently in the Kingspan suite.

System Applications

From private and affordable housing through to education, healthcare, hotel & leisure and commercial buildings, Kingspan Century offer an extensive range of effective Off-Site Future-Proofed Solutions across any masterplan. With a range of timber framing systems, encompassing Engineered Wall, Floor & Roof Systems, Kingspan does not however limit its offering to the structure, but can also deliver façade packages as well as integrated low carbon technologies, renewable energy and water management systems.



Housing Developments

Kingspan Century deliver to the private and social housing market a wide range of sustainable, cost effective solutions that allow the development of high quality, low energy homes. Kingspan Century's advanced Engineered Timber Solutions are ideally suited to meet demands of modern Contemporary Architectural Design and offer unrivalled levels of thermal efficiency and extremely high levels of airtightness that not only satisfy the ever increasing requirements of the Building Regulations but which can also deliver carbon neutral performance.



Private Residential

Kingspan Century is the market leader in self build housing, recognising that the requirements of the self-builder are different to those of the larger developer and offer a complete and comprehensive support service to Self Build customers in the delivery of individual bespoke solutions. Our reputation is peerless with expertise that has been built up over many years helping thousands of self builders fulfil their dreams.



Hotel / Leisure

Kingspan Century have extensive experience in the provision of high performance buildings to the Hotel & Leisure sector, including multi storey units.



Education

Kingspan Century offer a range of sustainable off-site Rapid Build solutions for both Temporary & Permanent Schools, Crèche's and Residential Student Accommodation.



Commercial

Kingspan Century's range of sustainable off-site solutions are equally applicable to Commercial Buildings.



Healthcare

Kingspan Century are specialists in the provision of high performance Residential Healthcare Buildings, including multi storey units.

Kingspan Century System Build Advantages

System Build techniques provide predictable costs, specification, construction quality, reliable on-site schedules, 'on time' completion and project handover. Off-site assembly shortens the overall project programme, promoting higher confidence and providing the opportunity for accelerated investment return. Off-site construction methods mitigate weather interruption, therefore minimising programme and cost overrun risk.

Kingspan Century Building Systems provide a complete building structural and external envelope solution. A Kingspan Century Building System structural frame is fully integrated for building physics and service requirements. The structural frame consists of sub assembly panels, made under Modern Methods of Construction (MMC) offsite factory conditions, for delivery and installation on site.

Understanding the needs of architects, builders / developers and homeowners has made Kingspan Century the outright leader of the Timber Frame market. Continual innovation in both product and service, driven from listening to our customers, has kept Kingspan Century at the forefront of building physics performance and system build technology.

Kingspan Century provide comprehensive design development support and seek to integrate with the client's design as early as possible. Advice on Thermal Performance and preliminary DEAP or SAP ratings are also included in the service.

Kingspan Century's experienced Design Team are well versed in all aspects of timber engineering and seek to deliver real and workable solutions.

Key Benefits of Kingspan Century Building Systems :

- Flexibility in Design afforded by fully Engineered Construction Systems
- Highest Levels of thermal and airtightness performance
- Predictability and speed of programme
- Certification of performance and regulatory compliance
- Sustainable & highly structural efficient building materials
- Improved health and safety
- Elimination of site waste
- Operational cost - lifetime savings from energy efficient structure

Design

- Flexibility in Design afforded by fully Engineered Construction Systems
- Design synergy through integration of structural frame with cladding and building services.
- Fully 3D modelled prior to manufacture, exposing potential clashes and resolving them before they become costly problems on-site.
- In house design team involved at all stages of the project, with the experience necessary to develop innovative bespoke solutions for individual project needs and offer the most cost effective design solution.
- Incorporation of a vast array of architectural treatments and features, including creation of open plan areas through integration of elements with wide span capabilities.

Building Physics

- The highest levels of assured performance :
 - U-Values down to 0.09 W/m²K
 - Reduced Thermal Bridging, with thermally modelled Junctions
 - The Highest levels of Airtightness
 - Up to 2 hours Fire rating
 - High levels of Acoustic attenuation
- Advice on thermal (DEAP or SAP) assessments, Blower Door Airtightness testing and Energy Rating Certification by Kingspan Century technical teams.

Speed of Build

- Risk to the client is reduced through predictability and speed of programme which in turn offers a quicker return on investment.
- Utilising advanced design and production techniques Kingspan Century Building Systems can exceed a 30% reduction in overall build programme relative to traditional builds.
- Rapid dry envelope - reduction in time to achieve a watertight structure over a traditional build allows access for follow on trades earlier, reducing the build programme.
- Service integration – service cavities and open web joists reducing fit out times.

Quality & Cost

- Build cost - saving on site labour, fewer trades and less waste on-site.
- Just-in-time - delivery of components as needed allows construction on tight sites, lowering costs in site management and storage facilities.
- Improved health and safety – work is carried out under safe, warm and high quality environments utilising ISO 9001, ISO 14001, and OHSAS 18001 management systems – equating to fewer man hours on-site.
- Tight tolerances - high dimensional accuracy of construction gives long term reliability.
- The highest level of Product Certification providing contractors with assurance on both performance and regulatory compliance
- Kingspan Century's construction services team provides dedicated site supervision ensuring the highest quality standards are maintained.
- Operational cost - lifetime savings thanks to highly energy efficient structure.



ULTIMA Wall System

ULTIMA™ Patented Insulated Structural Panels represent the next level in timber frame technology, delivering exceptionally high levels of thermal performance and airtightness with practically eliminated Cold Bridging due to its continuous high performance Kooltherm™ insulation lining.

Available in a range of thicknesses delivering U-Values ranging from 0.19 to as low as 0.09 W/m²K.

The ULTIMA™ *Passiv-Wall* range meet the U-Value, Thermal Bridging and Airtightness performance requirements for Passive House Design.

U-Value (W/m ² ·K)	Panel ⁽¹⁾ Thickness (mm)	Support ⁽²⁾ Width (mm)
0.19	160	100
	210	150
0.18	*185	100
	165	100
0.17	215	150
	185	100
	160	100
	215	150
0.16	210	150
	185	150
	185	100
	165	100
0.15	*235	150
	195	100
0.14	185	100
	235	150
0.13	235	150
0.12	*315	215
	235	150
0.11	315	215
	235	150
0.10	315	215
0.09	315	215

ULTIMA™ *Passiv-Wall*

⁽¹⁾ Panel Thickness including 35mm Service Cavity

⁽²⁾ Support Width refers to the width of rising wall required for structural support

* Indicates the Optimal Cost Panels

Factory Installed:

- Insulation
- Airtight membrane
- Service Void

Eliminating:

- Cold Bridging
- Air Leakage & Draft

Optional:

- Windows / Doors
- Internal Linings
- External Cladding

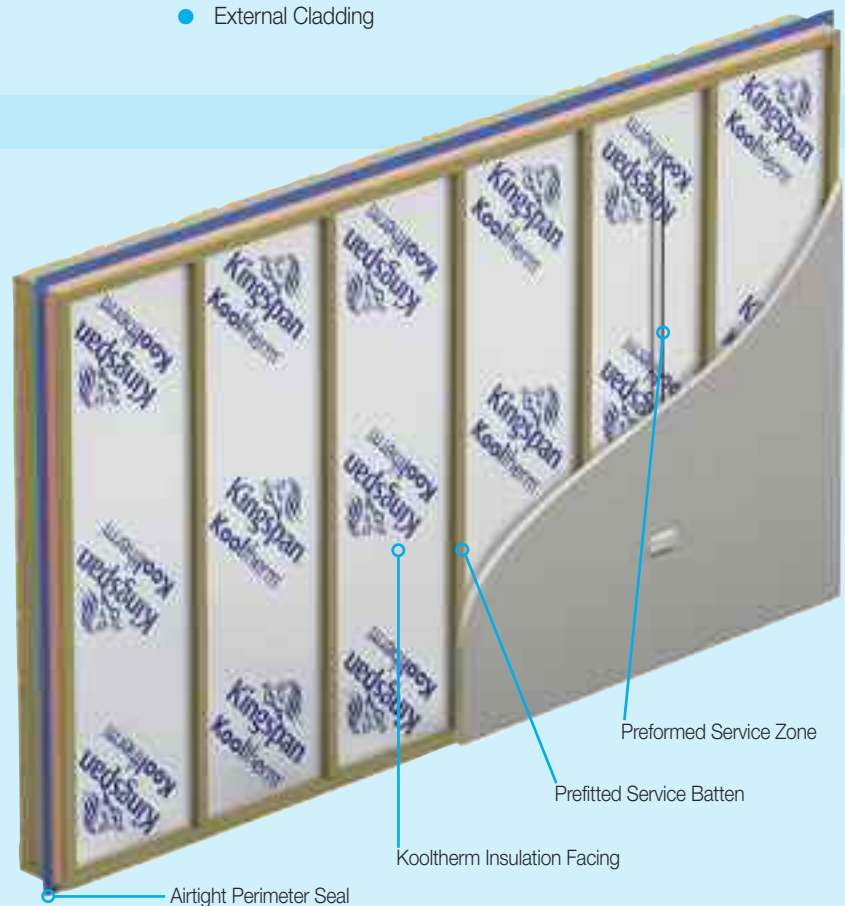
Airtightness

The provision of a dedicated service void maintains the integrity of both the insulation and airtightness of the panels.

The ULTIMA™ Panel jointing system maintains continuity of airtightness not only at panel to panel junctions but also at critical junctions with foundations, intermediate floors and roof.

In whole building airtightness testing ULTIMA™ has consistently delivered permeability's less than $2\text{m}^3/\text{m}^2/\text{hr}$ @ 50pa and as low as $0.5\text{m}^3/\text{m}^2/\text{hr}$ @ 50pa.

Air leakage Barrier dressed into window reveals allows a simple tape seal to windows, doors and other wall penetrations.

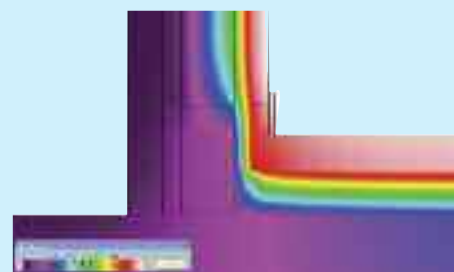


Kingspan ULTIMA™ Patent No. S85372
Pending: GB 2462912 A, WO 2010/023649 A1

Thermal Bridging

The continuity of the high performance Kooltherm™ Insulation internal lining not only ensures the elimination of Thermal Bridging within ULTIMA™ panels but also at critical junctions with foundations, intermediate floors and roof.

Full thermal modelling of critical details has been carried out to determine λ Values and demonstrate the elimination of thermal bridging.





Floor Systems

Kingspan Century supplies, as part of its timber frame package, engineered floor solutions enabling increased spans, reducing the need for intermediate load-bearing walls as well as easier access for services.

Joists and floor boarding are factory fabricated into large cassette panels, reducing site labour and eliminating health & safety issues associated with loose joist floors. Engineered floor panels manufactured with regularised joists provide a completely level substrate overcoming potential problems with warping and squeaking that can be associated with traditional timber floor joists.

Open Web Joists

Kingspan Century offer prefabricated floor panels constructed from lightweight yet strong open web joists.

Open web joists are the next generation of high performance engineered timber achieving greater clear spans than solid or I-Joists, reducing the need for internal load-bearing walls and giving greater flexibility.

The innovative use of high strength steel webs and lightweight timber flanges combine to make a structural beam that is not only capable of increased spans than would be possible with a beam made of just timber, but also provides a clear space for the distribution of services (cables, pipes, waste pipes, ventilation ducting) within the floor.

Benefits offered by open web joists:

- Greater clear spans for design flexibility
- Open web design for easy services installation
- Lightweight, strong and easy to install
- Engineered for consistent quality and reliability.



Engineered I-Joists

Kingspan Century can also provide floor cassette panels formed with Engineered Timber I-Joists.

I-Joists are a propriety joist system produced to give uniform strength, rigidity, size and weight. Manufactured with Kerto (LVL) flanges and a high quality OSB web, I-Joists provide a high strength to weight ratio therefore providing lighter, longer spans. Produced at reduced moisture content I-Joists deliver less dimensional change over time, virtually eradicating floor movement and its associated problems, resulting in enhanced floor performance.

Engineered I-Joists

- Range of Depths 200 – 400mm
- Regular 'pop-outs' for ease of service distribution



Concrete Floor Screeds

Self levelling liquid floor screeds are becoming an increasingly common finish to Kingspan Century floor cassettes and combine enhanced acoustic performance with the easy accommodation of underfloor heating.

Kingspan Century can allow for screeds by strengthening the floor joist to carry the additional load.

Kingspan Century also offer a range of floating floor build-ups to provide performance levels in excess of building regulation Compartment Floor requirements and compliance with Robust Standard Details.





Roof Systems

Kingspan Century offer a series of innovative prefabricated roof solutions as part of its structural frame package. Our engineered roof systems range from Trussed Rafters and Attic Trusses to Structural Insulated Roof Panel systems suitable for use on both pitched and flat roofs. Roof packages can also include, prefabricated Dormer Units, firebreaks, party wall spandrels, and a range of ancillary roofing products including felt & battens and fascia & soffits.

Prefabricated Roofing Solutions for every situation

- Ventilated
- Room in the Roof
- Warm & Cold Roof
- U-values to 0.09 W/m²K.

Roof Panels

Prefabricated Roof Panels are the fastest means of constructing a roof and therefore making a building weather tight, insulated and airtight all in one action.

Kingspan Century offer Roof Panels in ULTIMA, which provides superior thermal insulation (U-values to 0.09 W/m²K) and the elimination of thermal bridging.

Kingspan Century roof panels are also inherently airtight, maintain continuity of airtightness and the elimination of thermal bridging at often problematic purlin and roof to wall junctions.

Particularly ideal for room in the roof applications roof panels eliminate the need for attic trusses which can be time consuming, difficult to erect and costly to insulate.



Trusses

Kingspan Century can design and manufacture a diverse range of timber truss configurations to frame any roof profile. Roof trusses are an engineered skeleton consisting of timber chords forming a triangulated framework which are individually designed components, engineered to provide the structural support of the roof.

Factory-fabricated from responsibly sourced, quality timbers and joined with steel nail-plate fasteners, trussed rafters offer:

- A flexible, practical and fully engineered roofing solution
- Economy of materials, as trussed rafters can use up to 40% less timber than a traditional cut roof;
- Reduced on-site labour costs;
- Rapid erection of the roof structure;
- Reduction in waste on-site

Timber Trusses can also be provided in 'Attic' room in the roof configurations providing an open frame enabling use of the attic space for habitable purposes.



Dormer Units

Whether it's a Truss or Panelled Roof, Kingspan Century include prefabricated Dormer assemblies with all of our roof systems and we have a solution for every configuration of dormer design.



Second Fix Packages

At Kingspan Century we source only the finest products and materials offering an impressive range of doors, stairs and ironmongery to complement any home. Understanding our customers needs is very important to us and we take a personalised approach to this aspect of our business providing a hands-on approach.

Whether you're looking for a traditional or contemporary style, you'll be sure to find the products to suit your home at Kingspan Century.

Staircases

Kingspan Century supply staircases to both large-scale building developments and individual private homes. Our design process involves discussing individual needs with our clients to help Design and Create the staircase that best fits their requirements.

Doors

The latest manufacturing methods, fresh design perspective and highest quality materials are combined to offer a selection of stylish, contemporary door models, characterised by clean modern lines and quality wood veneers.

Ironmongery

Kingspan Century stock a wide range of Architectural Ironmongery. Every type of handle, hinge, lock, restrictor, knob etc in stainless steel, brass and aluminium.



Sustainability

Kingspan Century supports sustainable construction and 'Eco' best practice throughout every stage, from design concept to end of life recyclability:

- Concept and design phase
- Material selection and application (low embodied energy)
- Waste (typically reduced by 30%)
- Manufacturing processes
- Transportation
- On-site working and resources
- Superior thermal and airtightness performance
- Reduces energy consumption and carbon dioxide (CO₂) emissions by up to 40% per annum, over the building's lifetime, compared to traditional on-site construction methods
- HVAC plant and building services can be downsized by up to 40% reducing capital and operating costs over the building's lifetime
- Optimises the building's energy performance rating certification
- Enhanced end of life re-use and recyclability.

Component Sustainability:

- Structural efficiency – our systems offer high strength to weight ratio and therefore reduce material usage over traditional materials
- A and A+ ratings in the BRE Green Guide
- Recyclable – Kingspan Century frame sections are 100% recyclable. This characteristic also reduces the waste produced by the overall project
- Lightweight - up to 50% reduction in overall weight of the structure relative to traditional construction reduces requirements for foundations
- Zero ODP and low GWP insulants.

Environment

As a professional and environmentally conscious organisation, we recognise the impact that our operations may have on the environment and are therefore committed to operate in an environmentally sustainable manner through the on-going maintenance of our ISO 14001 – Environmental Management Certification to ensure continual improvement of environmental performance.

The Company is also committed to sustainable and responsible procurement practices through the on-going maintenance of our Chain of Custody certification with both the FSC® and PEFC.

Kingspan has set ambitious targets for reducing its effect on the environment in its business operations and through the lifecycle performance of its products. With regard to regulations, standards and the climate change agenda, Kingspan is renowned for not only meeting, but exceeding and even driving forward, legislation that provides a step change towards increasingly more energy-efficient, low carbon buildings.



The mark of
responsible forestry



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