SIP (STRUCTURAL INSULATED PANEL)

KINGSPAN TEK – ACORN SIP – ABSTRACT BUILDING SERVICES Ltd

Kingspan TEK is the manufacturer and supplier of the panels and components.
Acorn SIP are the Architects who individually design and supply as a registered contractor of Kingspan TEK.
Abstract Building Services Ltd are the Kingspan Tek registered installation contractor.

Design Flexibility

The panels are designed and manufactured to a wide variety of project requirements. Kingspan or Acorn will support individual and creative designs and specifically fabricate the panels according to your plans.
Your structure will arrive on site in kit form, ready to be transformed from concept to completion.
SIPs can be used in a variety of different applications including domestic housing, light commercial, industrial buildings, educational commercial and many others.
It is also very compatible with other forms of construction; the building system can be integrated and used for extensions, adding new storeys, conversions and roofs.

Advantages of SIPs

Fast construction method

Building with SIPs will considerably reduce construction and save time and expenditure on labour costs.

Environmental advantages

It is widely recognised that there are four main global sustainability issues: Global warming, non-renewable resource depletion, toxic pollution and ozone depletion potential (ODP). Recent studies have shown that the first three are essentially one. Fossil fuels are by far the most significant contributor to global warming, non-renewable resource depletion and toxic pollution. In the UK 60% of fossil fuels are used to heat buildings and half of this is for housing. Therefore as far as housing is concerned sustainability comes down to two main issues:
Reduce fossil fuel use and specify zero ODP products.
Timber is seen as one the greenest materials to use in construction, because not only do trees produce oxygen and remove carbon dioxide from our atmosphere, but timber is the only truly renewable building material.
SIPs use up to 50% less raw timber in construction, compared with conventional timber frame buildings.
During the manufacturing process of the panels very little energy is used. Compared with concrete, wood uses 5 times less energy to produce a product of the same strength. Both the OSB wood and the EPS insulation core of the panel can be recycled, and a water-based non-toxic glue is used during manufacturing.
Taking the above points into account, including the reduction of ODP this can only be seen as a distinct advantage for the environment.

Low wastage

Building with SIPs produces less waste than other forms of construction. Because the system arrives on site as a complete scheme there should be no site wastage apart from packaging materials. This results in more efficient use of materials and also lower landfill waste, which is globally recognised as a problem.

Design flexibility

SIPs can be used for a wide variety of applications and can be fabricated to suit any design of building.

Excellent thermal performance

SIP buildings provide superior thermal performance, which will last the life span of the building, due to the solid core of insulation throughout the structure.
Ensuring that the building is heated evenly, free from cold spots and benefits from reduced heating costs. There is no risk of the insulation sagging or deteriorating over time, as may be the case for conventional insulating materials.

Low U-value walls and roof

Structural Insulated Panels offer extremely high thermal performance, the Expanded Polystyrene (EPS) layer of rigid insulation, achieves U-Values as low as 0.20 Watts per Meter Squared Kelvin or better, making significant savings of up to 60% on your annual heating costs.
This means that not only can the system meet and exceed current Building Regulations/Standards but it also can meet the U-values that are expected to be set in the changes to future Building regulations / Standards in 2006 and beyond.

Integral insulation

The insulation is integral to the SIP system, and therefore does not require installing at a later date.

More Living Space – Added roof and floor space

More living space is gained for two reasons in using SIPs construction.
Firstly, the SIP roof system used provides an extra habitable room in the roof.
This building system requires no roof trusses or any other support that will obstruct the space.
The second reason is that more floor space is created for the same external dimensions of the structure. The explanation for this; a SIP house provides excellent strength and insulation in a smaller wall width than a house constructed via another method.

A Quieter Home - Excellent sound proofing

Sound proofing is an important factor if you are building semi-detached or terraced properties, a light commercial unit in a populated area or if you desire a peaceful home and wish to exclude the noise of traffic and the outside world.
SIP buildings are ideal for clients with sound-proofing considerations because their buildings provide significant resistance to airborne sound.

SIPS are quieter and more comfortable to live in

SIP buildings lock out moisture, prevent drafts and provide significant resistance to airborne sound.

SIP Houses are Stronger

SIP buildings are used all over the world because of their superior strength and quality. Homes built with this technology have survived hurricanes, earthquakes and tornados, when other homes around them have not. So it is not surprising that these are more than capable of withstanding climate extremes in the UK, as well as maintaining their strength throughout the years.
SIP walls are 7 times stronger than conventional timber frame.

Robust and solid feel

A SIP house feels indistinguishable from 'traditional' methods of construction once complete.

Solid panels provide a rigid surface for fixings

No additional timber 'noggins' are required to facilitate the hanging of radiators, kitchen units or any other fittings desired, as is required with timber frame construction.

Air-tight structure

This helps prevent heat loss from the building and moist air penetrating the structure.

Prevents condensation

There is no risk of condensation in a properly installed SIP building.

Limited cold bridging

Due to the continuity of the Expanded Polystyrene (EPS) layer of rigid insulation, the SIPS system greatly enhances thermal reliability compared with other insulation which often sags or slumps after time, as mentioned in Thermal Performance heading

Cheaper Fuel Bills

Excellent energy efficient building solutions that will save you money year on year. This is due to super insulated panels, airtight complete construction and the natural insulating benefits of wood, all working in unison to prevent heated air escaping from your home.
The SIP house will even out perform traditional timber frame construction with the same wall thickness.
A SIP house could save you up to 60% on your annual heating bills.

A SIP building ensures Comfortable Living

In a SIP house the comfortable living environment is made possible by the insulating, dense and non-permeable core of a SIP, which locks out moisture and prevents drafts.
When moisture creeps into the home, mould spores develop and other contaminants such as dust mites are able to breed.
Overall it is healthier, as well as more comfortable, because SIP structures prevent moisture penetrating the walls, reducing the opportunity for the contaminants to breed. This is an important consideration for households with any asthma sufferers.

Excellent resale value

SIPs houses are attractive to future buyers and occupiers, due to the inexpensive running costs of a SIP structure and the many other rewards a SIP house provides.