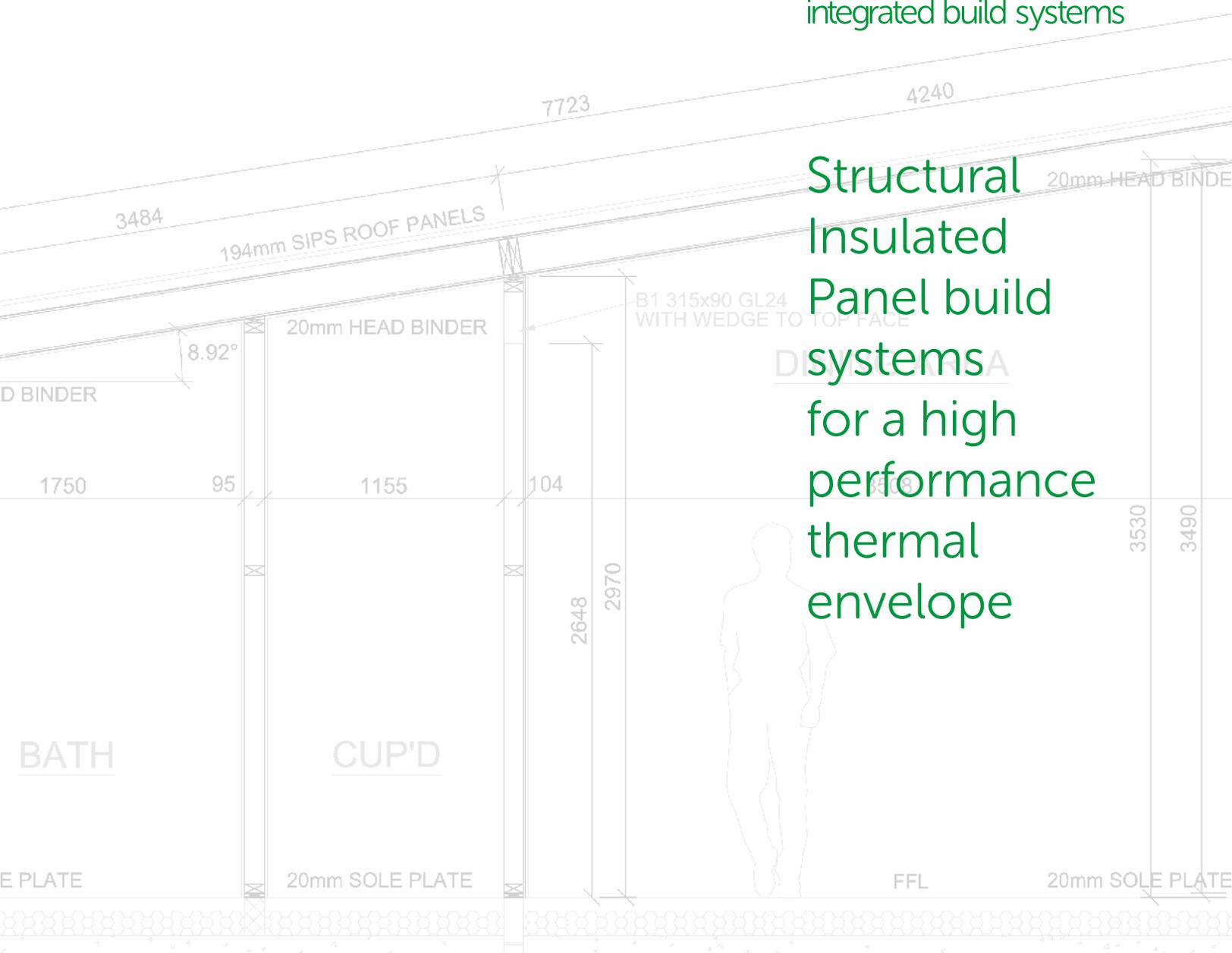




ecoenvelope
integrated build systems



Structural
Insulated
Panel build
systems
for a high
performance
thermal
envelope

Buildings of the future need to be more efficient, we need to think differently about how we keep warm (and cool) in our living and working environment. Our fabric first approach uses advanced building materials to create a highly efficient thermal envelope, retaining heat inside buildings. Designs that use less energy are key to reducing fuel bills, increasing energy security and building a low-carbon world.



Structural insulated panels (SIPs) are at the core of our build system, SIPs are a prefabricated, high performance, lightweight building panels that are used to form the walls and roof of residential and commercial buildings.



SIP panels are made up of two high density facing boards which are bonded to a low density foam insulation core, this forms a very strong structural bond and creates a composite material (similar to an aircraft wing) that outperforms the load bearing capacity and insulation values of masonry or timber frame considerably.



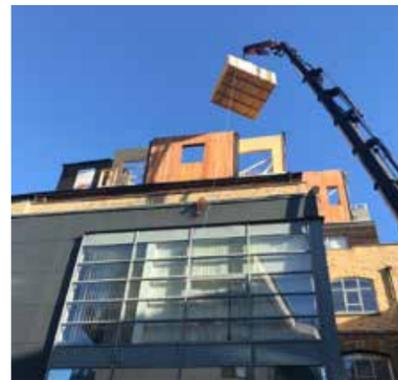
Our build system uses Orientated Strand Board (OSB) for the SIP panel facings.

All our systems are off-site manufactured to internationally recognised standards. The choice would depend on your building performance criteria.

OSB

Our OSB SIP panels use the highest quality material, Egger board, with a three-layer structure of micro-veneers, so called strands, which are approved for load-bearing construction. The special strand geometry and strand orientation in the surface layers, along with the low-emission glueing, ensure the best technical properties.

This is a standard low cost build system that will require the addition of breather and roofing membranes which are supplied with all of our build kits.



Outer Finishes

Brick slips or render can be added with the use of an approved carrier board, directly to the panels, removing the outer block work layer, saving materials, time and internal space. A typical built wall can be less than 200mm.



Our advance build system will give builders larger internal volumes on any development, typically a fully insulated wall can be less than 200mm.

Build system kits will include all structural engineering calculations, any structural elements required, all fixings, screws, fastenings, intermediate metal web joists and floor boarding and any membranes required by the design. Our approved erection teams work all over the UK and Ireland.



SIPs are manufactured under closely controlled factory conditions and can be custom designed for each application.

Our system is approved by NHBC, Premiere, and LABC, this means customers will be able to access a 10 year warranty with most providers. The building system has CATG SIP Mark scheme approval, and our suppliers are ISO9001 approved for quality management systems and are full members of the STA.

In addition our suppliers have ISO14001 certification for environmental management, all engineered wood products have PEFC chain of custody certification, our metal web eco joists are CE marked.



High-performance SIP systems are now replacing timber frame construction and here's why. The table below is an extract from a paper by Adam Meis, describing the cost comparison of SIP build compared to Timber frame.

SIP vs Timber Frame Performance Category	% Change
Construction Time Savings	+50%
Strength	+20-30%
Energy Savings	+18-24%
Onsite Waste Savings	+30-98%
Additional Shop Labor	+20%
Factory Waste	+10-20%
Design Time	+0%

The paper discusses OSB against timber frame. Applying finishes directly to the outer face of the panel, render, timber cladding, brick slips, tiles etc.



High quality, high performance windows and doors manufactured in timber with Aluclad options. Available in a range of double and triple glazed profiles up to a fully certified Passivhaus model.



Our bespoke windows and doors are available in a wide range of configurations. Timber windows can be made with pine, larch, oak and even accoya to your specifications.

All are fully finished in the factory and a basic undercoat and top coat of your choice, double glazed is our standard window, The addition of aluminium cladding, in any RAL colour and a choice of performance up to Passivhaus standard is available.

Double and triple glazing, our System 4000 Inward/outward opening tilt & turn system. The main difference from other composite type windows is the way that our product is capped directly to the wooden frame, not through plastic holders. Frame connections are punched corner joints, aluminium profiles are mitred at 45 degrees for a high quality finish.

A variety of mullion and transom profiles are available. All standard window designs and types of openings can be supplied in various styles and widths.

The MIRA Therm, Inward opening tilt & turn wood-aluminium system is used for low energy and Passivhaus use. MIRA Therm is a flush construction, which makes it ideally suited for contemporary designs. The profiles create clear lines at the visible edge.

The particular strengths of this system are versatile solutions for demanding architecture at a high technological level. A wide range of profiles are available to suit all projects. Aluminium cladding is available in any RAL colour.



NexGen is a new, unique radiant heating technology that provides extremely efficient low cost, high-energy, warming a room using radiant far Infrared rather than conventional gas, oil, lpg radiators or electric heaters.



NEXGEN

THE FUTURE OF HEATING

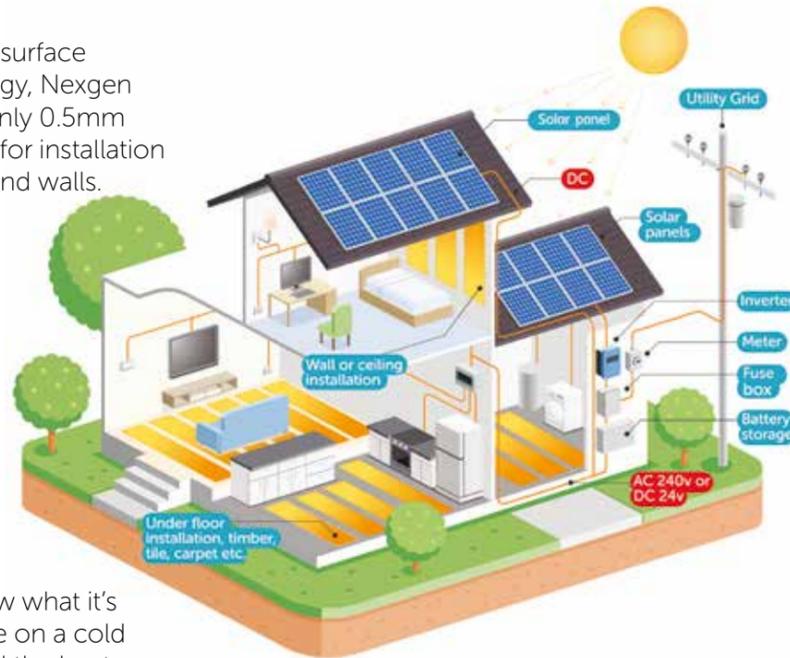


Using patented full surface graphene technology, Nexgen heating system is only 0.5mm thick which is ideal for installation on floors, ceilings and walls.

UK manufactured, Nexgen saves between 20 - 50% on running costs compared to conventional heating systems. Drawing only 24 Volts the system uses far infrared to heat objects rather than air. We all know what it's like to stand outside on a cold winters day and feel the heat of the sun even at very low temperatures, the sun is a far infrared heater.

The Nexgen system is very simple to install, a whole house system can be installed within a day (?) and is suitable for DIY installers and retrofitting to older properties.

With no moving parts the system is 100% maintenance free, silent and when connected to solar panels and our battery system is suitable for off grid solutions.



- Simple Installation**
- Fully controllable (wifi app)**
- Up to 50% energy savings**
- Zero maintenance**
- Graphene 100% heating surface**
- Silent running**
- 100% energy efficient**
- 24 Volt operation**
- Rapid heat up responses**
- Off grid solutions**

What is far infrared heating?

Infrared radiant heating systems work by emitting long wave Infrared Rays better known as FAR Infrared or Radiant Heat.

Radiant Heat is a completely safe invisible form of energy that only heats the surfaces of solid objects, walls, ceilings, floors and people. This is achieved by a conversion process and means that no energy is wasted by heating any of the surrounding air in the same way as conventional radiators, storage heaters and fan heaters.

Once a solid object heats up it radiates heat back into the surrounding air effectively turning your whole room and all objects and surfaces within it into a giant radiator. We benefit from this in several ways, we feel the effects of this type of heat almost immediately, no waiting for rooms to heat up.

Because we are heated directly this allows us to reduce the temperature in the room 2-3 degrees and still enjoy that same comfortable feeling but now with much smaller bills.

Traditional convection (radiators and panels) heating systems are notorious for circulating dust, pollen, spores and bacteria which can be harmful to our health. Using radiant heat the air remains still so that asthma and allergy sufferers are unaffected.

Far infrared heating is also used in many forms of physiotherapy, this type of energy stimulates micro-circulation by dilating blood vessels and capillaries. It enhances the delivery of fresh oxygen and nutrients to speed cellular repair and rejuvenation.



Our infrared heating system controls use innovative wireless technology to control your heating.

zoning can be achieved to selectively heat up areas of your home/office through smart and stylish thermostatic controls.

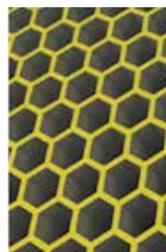




All of our buildings will be highly insulated, with exceptional levels of airtightness, allowing performance up to Passivhaus standard.



Effective management of ventilation and heat within this performance envelope is achieved through installation of a quality mechanical ventilation and heat recovery system (MVHR).

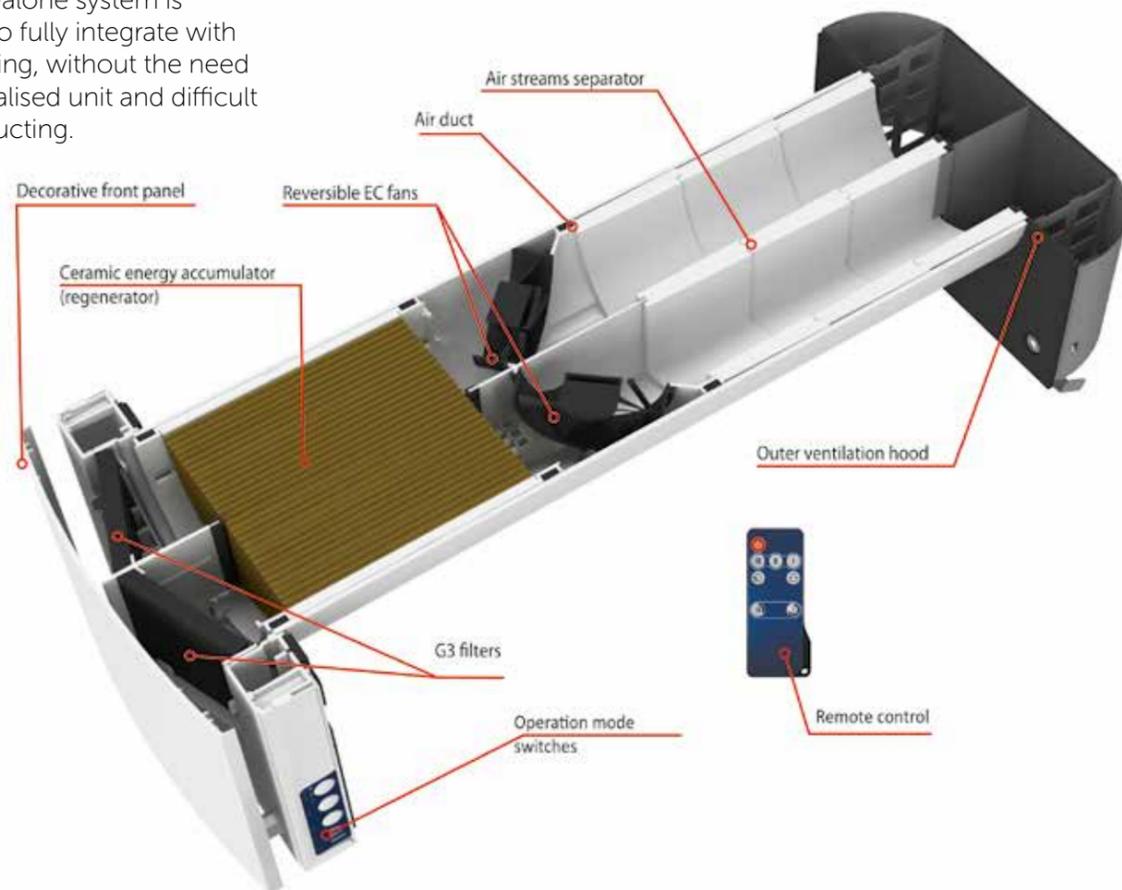


One of the best regeneration efficiency on the market due to hexagonal structure of the heat exchanger cells.



Built-in Wi-Fi for wireless communication between units and Android or IOS device control

Our stand-alone system is designed to fully integrate with each building, without the need for a centralised unit and difficult to install ducting.



Why decentralised systems are better

Our SIP panels help to develop a whole house thermal envelope, which is very airtight. Ventilation and heat control is achieved through an MVHR system. Centralised systems can be difficult to integrate, within the building because of complex ducting design. Also once installed most ducting cannot be cleaned, leading to air pollution problems in years to come.

Our simple decentralised system does not require complex ducting installation. The system saves costs in fitting and maintenance, running costs are very low and the units are extremely quiet. Units can be connected by Bluetooth and controlled, via wi-fi, by any smart phone, tablet or computer using a free to download app.



Warm stale air is extracted, this flows through the ceramic regenerator and transfers its heat energy and moisture to it.

As the ceramic regenerator is warmed, the unit switches to the supply mode.

Clean cold air flows through the regenerator and absorbs the accumulated heat and humidity.

When the ceramic regenerator is cooled, the unit switches to the extract air mode.



The units can be connected by Wi-Fi. Blauberg Vento app for Android or iOS devices is available at Google Play and App Store.





Complete Thermal Envelope

Full SIP Build Kit

Supplied as a kit for assembly, includes structural engineering calculations, full superstructure, walls, roof, intermediate floor joists and flooring, internal wall frames, fixings, fittings and screws, any membranes required and delivery to your site.

Installation options by our expert teams across the UK & Eire.

Windows and Doors

Range of timber, Aluclad, windows, doors, bi-folding doors, sliding doors and fixed glass supplied. Inward/outward opening or tilt and turn options available.

Ultra Low Energy Heating System

Nexgen Far Infrared heating system, fully controllable, maintenance free running on 24 Volts, suitable for off grid solutions.

MVHR Systems

Range of decentralised ventilation solutions up to 97% efficient, designed and supplied for your new build or refurbishment project.



Head Office:

Kintail House,
Beechwood Business Park,
Inverness, IV2 3BW

info@ecoenvelope.co.uk

01381 620708

www.ecoenvelope.co.uk