

The Risby

A Net Zero + (energy positive) electric-only home which generates 2.5x more energy than the house needs and costs the same as a traditionally built home.

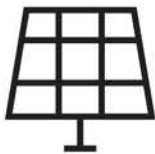




The original founders of Net Zero Buildings – Neil Gething and Neil Smith – have assembled a new team, at Energy Positive Assets, to develop energy positive housing. At our new factory near Bury St Edmunds, we have completed the first of a new generation of houses: The Risby.

We operate at the intersection of off site modular building and net zero construction. The Risby is the first of several new house types, which shine a light on what we believe will be the homes of the future.

Common features include:



Solar power generates 2.5 x more energy than the home needs



Net Zero +, electric only, energy positive buildings



Built at costs which favourably compare with high volume housing



Elegant design with high spec materials and components



Built off site and assembled on site in one day

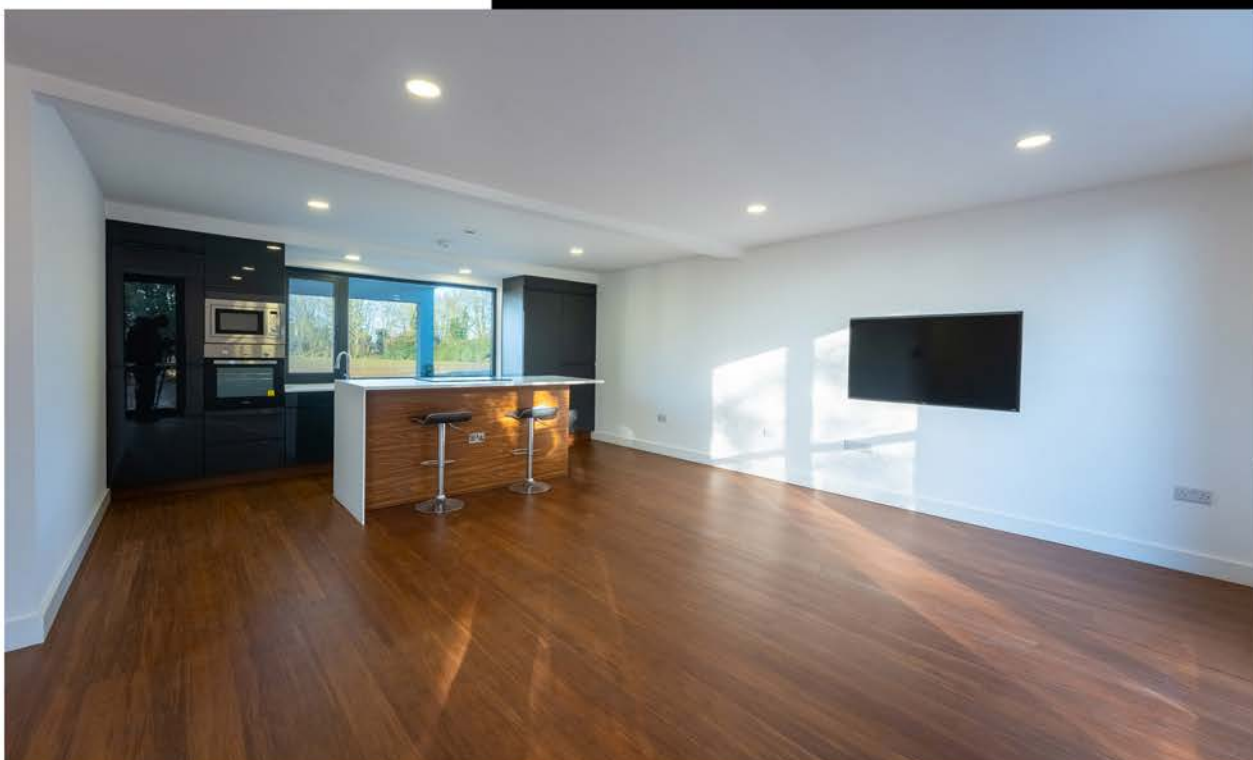
Project Overview

The Risby advances the cause of net zero to another level. This is a fully functioning prototype home which is sited next to the production facility of Energy Positive Assets, near Bury St Edmunds. The home utilises established building technologies to deliver an advanced, energy positive specification but without a price premium.

The 4 bed house is 1600 sq ft over three floors. It is the first of several designs or typologies. Built to a high specification and allowing for plenty of natural light. It's net zero credentials also means net zero utility bills – saving the inhabitants over £1200 pa when compared to a traditional build of a similar size. It also generates excess power equivalent to 20,000 miles of EV charging.



BUILD TIMELAPSE



Highlights

The Risby outperforms the new 'Zero' standard, current building regulations and other widely used industry standards.

It embraces solar architecture to create 2.5 x more energy than the home needs. An electric-only building, it also incorporates battery storage, EV charging, smart home technology, outstanding thermal insulation, MVHR, air source heat pumps and recycling systems; all of which are installed off-site using modern methods of construction to create the ultimate in energy efficiency, at the cost of a traditional home.

This ultra energy-efficient home saves typical homeowners £1200 pa as it costs nothing to run in terms of utility bills. And if you own an electric vehicle, the saving is over £4000 pa.

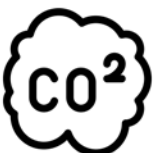
Performance



Under average load and climactic conditions, 4,000 kWh per annum is all that the Risby needs for internal and external lighting, space heating and domestic hot water.



U values for floor, walls, roof, windows and doors far exceed the Concurrent Notional Dwelling Specification and Limiting Fabric Parameters, specified in Building Regulations approved document L1A.



The values expressed in in W/(m²K) are as follows: floor 0.12, walls 0.14, roof 0.12, windows 1.00 and doors 0.9. With air permeability of 2 m³/(hm²) at 50 Pa and 10,000 kWh per annum of renewable energy generation from integrated solar tiles, the overall Target CO₂ Emissions Rate is easily surpassed.

M&E

The Risby is bristling with energy saving mechanical and electrical technology. An air source heat pump located in the loft-plantroom draws external air through a ventilated cavity in the external walls and distributes heat via an underfloor loop to the ground floor and heating loops within the bedroom walls.

Air movement within the cavity keeps the fabric healthy and reduces the temperature of the solar tiles, which in turn, improves their efficiency. It also harvests a small amount of latent heat from the cavity which improves the performance of the ASHP. The heating loops are zoned and can be individually controlled and the system also provides cooling in summer. A second ASHP located in the airing cupboard draws air from the same source to deliver hot water.

A whole house mechanical ventilation heat recovery unit keeps internal air fresh without discharging heat.

All internal and external lighting is LED, building integrated solar tiles cover the roof and elevations and a type-2 charging unit makes the Risby EV ready. A rainwater harvesting system and a 13.5 kWh battery completes the M&E line-up.

Construction

Risby is made primarily from engineered timber, which is durable, sustainable, structurally reliable and dimensionally stable. It is the only choice of fabric for an off-site system where positive environmental impact is a core deliverable. Our construction methodology embraces a “pods and panels” approach where MEP is factory installed into three-dimensional pods and two-dimensional panels make up the internal and external wall, floor and roof elements.

The construction palette consists of large format CLT and OSB panels (up to 18 metres in length), engineered joists, closed cell rigid polyurethane and aluminium doors and windows.

Smart Control System

The Risby has a unique proprietary smart home app that wirelessly monitors and controls its circuits and switches. It measures the energy that is consumed, generated, stored and exported to the grid. It turns lights, appliances and security cameras on and off and it modulates heating, cooling and ventilation. It can be accessed by service providers for remote diagnostics and proactive maintenance.