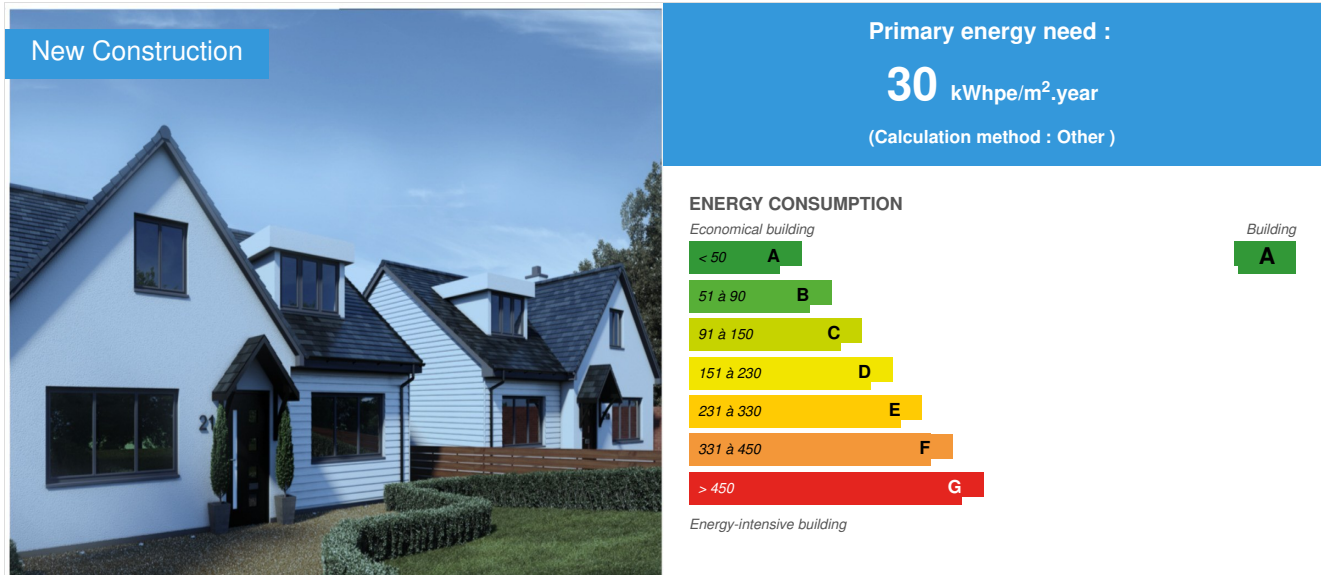


## Two innovative, near zero carbon houses

by Brad Kelly / © 2021-04-01 15:33:25 / International / 5550 / EN



**Building Type** : Isolated or semi-detached house  
**Construction Year** : 2021  
**Delivery year** : 2021  
**Address 1 - street** : 21 Pinnocks Lane SG7 6DF BALDOCK, ENGLAND, United Kingdom  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

**Net Floor Area** : 155 m<sup>2</sup> Other

**Certifications :**



### General information

PHPP designed to achieve passivhaus classic certification through applying the Beattie Passive build technology. In addition, carefully selected low energy, recycling and renewables ranging from Envirovent MVHR system, GRAF 2.7m<sup>3</sup> rainwater harvesting, Thermoception all-in-one air source water heater for DHW, two Recoup WWHRs are incorporated to achieve a near zero carbon status.

For added comfort and wellbeing regardless of age, disability, or gender, Smart Home Technology for power and led lighting along with doc M compliant wide door access throughout ground floor, automated pocket door to wet room, push button to control thermostatic showers and bath filling, sensor-controlled basin taps, kitchen gardens for home grown organic produce, permeable driveway, paths and patios, and architecturally designed recessed lighting.

Internal fixtures and fittings are of high specification.

External fabric of the buildings such as Internorm triple glazed aluminum clad UPVC doors and windows, automatic solar controlled triple glazed velux windows, cedar woodgrain effect cladding, colour through thin-coat K-Rend, fibre cement slate effect roof tiles, dry roof ridge and verges, anthracite wood grain effect upvc fascia and soffit have all been chosen for their quality appearance, long life, high performance and low maintenance.

## Photo credit

Brad Kelly

## Stakeholders

### Contractor

Name : Probuild Limited  
[www.probuildltd.co.uk](http://www.probuildltd.co.uk)

### Stakeholders

Function : Others  
Probuild Ltd

Function : Others  
Probuild Homes Ltd

Function : Others  
Batie Passive Ltd

Function : Others  
Thermoception Ltd

## Energy

### Energy consumption

Primary energy need : 30,00 kWhpe/m<sup>2</sup>.year

Calculation method : Other

Breakdown for energy consumption : Primary energy needs corresponds to Passivhaus PER value.Heat demand 13.9 kWh/(m<sup>2</sup>a)Heat load 10 W/m<sup>2</sup>Air tightness 0.3 Non Renewable primary energy PE demand 30kWh/m<sup>2</sup>aPER demand 14 kWh/m<sup>2</sup>aPrimary energy renewable Generation of renewable energy 4 kWh/(m<sup>2</sup>a)

### Envelope performance

Air Tightness Value : 0,30

## Renewables & systems

### Systems

Heating system :

- Heat pump

Hot water system :

- Heat pump

Ventilation system :

- Double flow heat exchanger

Two Recoup WWHRS installed to pre heat the supply water to the air source water heater and the shower.

### Smart Building

BMS :  
smart control (voice, phone and manual) Lighting and power controls throughout. Alexa provides as well as ring doorbells, smart phone app linked car charger,

showers and bath fillers via smart/remote and button control. electric income is smart meter.

#### Users' opinion on the Smart Building functions :

We have applied smart features which we believe are practical and simple use for end the user

## Environment

### Urban environment

Set in the historic market town of Baldock located in the district of North Hertfordshire which was founded by the Knights Templar in the 1140s. Baldock boasts an array of period buildings and a popular high street presents along with new modern builds and fantastic access to the A1M North and South bound. The external design therefore took into account the various ages and styles of properties in the area to fit in. The town boasts an excellent array of independent shops, Good Ofsted schools, pubs and restaurants, with the adjoining towns of the first ever Garden City in Letchworth Garden City and Hitchin providing an even wider range of facilities. Baldock is only 33 miles away for London or better still only a 30 minute train ride from Baldock to London's King's Cross which makes Baldock a commuters dream of a semi rural setting with great links via transport.

## Costs

### Construction and exploitation costs

Total cost of the building : 405 000 €

## Contest

### Reasons for participating in the competition(s)

Probuild Ltd has applied what we believe to be one of the best passivhaus build methods (Beattie Passive) to achieve the fabric first principles. We have then expanded on this to achieve near zero carbon status by incorporating best choice low carbon, low maintenance energy efficient recycling and renewable systems. Use of smart home technology in the home, plus consideration for the external of the home such as building kitchen gardens to encourage home grown produce using irrigation from rainwater harvesting and fertiliser from compost plus permeable surfaces throughout all whilst remaining in keeping within the existing street scene has been challenging but successful.

### Building candidate in the category



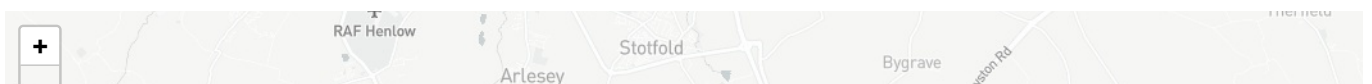
Energy & Temperate Climates



Low Carbon



Health & Comfort





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