

Project name Bristol Passivhaus Plus

Project summary As its certification testifies this building works as a Passivhaus Powerhouse, designed to be largely self-sufficient in heating and hot water. The house is built on a flat plot in the clients large garden in Nailsea, west of Bristol, that used to be an urban infill site. It is tactfully located at the rear of the plot, facing south. To harness the benefits of this orientation, the roof is covered entirely in an integrated 7.3KW PV system. Part of the renewable source of heating and hot water is generated by the Mitsubishi Ecodan air source heat pump with thermal store, and the latest Powerwall 2 TESLA battery is used for storage.



Project Description

Projected build start date

Projected date of occupation

Project stage Occupied

Project location Nailsea, Bristol, Somerset,

Energy target PassivHaus

Build type New build

Building sector Private Residential

Property type Detached

Existing external wall construction

Existing external wall additional information

Existing party wall construction

Floor area 153 m²

Floor area calculation method PHPP

Building certification Passivhaus certified

Project team

Organisation

Project lead

Client Private Client

Architect s2 Design Architects

Mechanical & electrical consultant(s)

Energy consultant(s) Piers Sadler

Structural engineer

Quantity surveyor

Other consultant Solarsense

Contractor Greenheart

Design strategies

Planned occupancy

Space heating strategy

Water heating strategy

Fuel strategy

Renewable energy generation strategy

Passive solar strategy

Space cooling strategy

Daylighting strategy

Ventilation strategy

Airtightness strategy

Strategy for minimising thermal bridges

Modelling strategy

Insulation strategy

Other relevant retrofit strategies

Other information (constraints or opportunities influencing project design or outcomes)

Energy use

Fuel use by type (kWh/yr)

Fuel	previous	forecast	measured
Electric			

Fuel	previous	forecast	measured
Gas			
Oil			
LPG			
Wood			

Primary energy requirement & CO2 emissions

	previous	forecast	measured
Annual CO2 emissions (kg CO2/m ² .yr)	-	-	-
Primary energy requirement (kWh/m ² .yr)	-	-	-

Renewable energy (kWh/yr)

Renewables technology	forecast	measured
-		
-		
Energy consumed by generation		

Airtightness (m³/m².hr @ 50 Pascals)

	Date of test	Test result
Pre-development airtightness	-	-
Final airtightness	-	-

Annual space heat demand (kWh/m².yr)

	Pre-development	forecast	measured
Space heat demand	-	-	-

Whole house energy calculation method

PHPP

Other energy calculation method

Predicted annual heating load

-

Other energy target(s)

Building services

Occupancy

Space heating

Hot water

Ventilation

Controls

Cooking

Lighting

Appliances

Renewables

Strategy for minimising thermal bridges

Building construction

Storeys

Volume

Thermal fabric area

Roof description

Roof U-value

Walls description

Walls U-value

Party walls description

Party walls U-value

Floor description

Floor U-value

Glazed doors description

Glazed doors U-value

Opaque doors description

Opaque doors U-value

Windows description

Windows U-value

Windows energy transmittance
(G-value)

Windows light transmittance

Rooflights description

Rooflights light transmittance

Rooflights U-value

Project images

