Retrofit Performance Evaluation (RPE) according to the 'SuperHomes Rating Scheme' (SRS)

Date: February 2025	**Monitored period:** 2023-24	**Sample size:** 30 homes	**Legend** - Health & Comfort RAG review:	Significant concerns	Concerns	No concerns	National Energy Foundation	SuperHomes

Energy and Emissions - annual household as per measured data (Part L regulated emissions only)						**Health and Comfort** - as assessed against SRS criteria					**SuperHomes Rating** Level achieved
Ref.	**Location**	**Annual CO_2 emissions** kg CO_2/year	**Space Heating Demand (SHD)** kWh/m^2/year	**Primary Heating Type**	**On-site Generation**	**Health & Comfort commentary summary**	**Temperature** degC	**Relative Humidity** RH%	**Indoor Air Quality** CO_2 PPM proxy	**Occupant Interview conducted** Yes/No (Post Retrofit Performance Evaluation - RPE)	**Level 1 - 5**
P0001	Petersfield	67 kg CO_2	79 kWh/m^2/yr	Heat Pump	Solar PV	Temperature well maintained throughout year between 19-22C with single day reaching 25C in Summer. Humidity consistently maintained between 40-60% with occasional peaks to 70%.				Yes	Lvl 2
P0002	Hampshire	1056 kg CO_2	38 kWh/m^2/yr	Gas	Solar PV	Temperature generally well maintained although best practice limit for 'overheating' exceeded for several weeks during summer at 27C. Humidity consistently high, routinely above 70% in Autumn/Winter, on occasion reaching 80%. Indoor Air Quality (IAQ) CO_2 levels very high in bedroom exceeding 1500PPM all year and peaking at 2000PPM.				No	Lvl 1
P0003	Hawick	N/A	N/A	Biomass	None	Temperature maintained within recommended limits and no issues with Humidity levels.			Not measured	No	Full assessment not possible
P0004	Twyford	990 kg CO_2	39 kWh/m^2/yr	Gas	Solar PV	Average Temperature is 21C, but reached 30C for a week in the Summer. RH often reaches 75% humidity in bedroom during Autumn. CO_2 levels average out at 1000PPM, but reach 1500PPM in Winter				No	Lvl 2
P0005	Nottinghamshire	1179 kg CO_2	71 kWh/m^2/yr	Gas	Solar PV	Temperature well maintained. IAQ CO_2 levels normal. Humidity in Winter often exceeds 70%, often reaching 80% for whole months.				Yes	Lvl 1
P0006	Winchester	133 kg CO_2	72 kWh/m^2/yr	Heat Pump	Solar PV	Temperature is well maintained in both rooms across the year. Humidity spikes at 70% in the living room in Autumn and all year in the bedroom.			Pending data analysis from sensor	Yes	Lvl 2
P0007	Winchester	461 kg CO_2	53 kWh/m^2/yr	Heat Pump	None	No data for Winter temperature range. Humidity rises to 75% in Autumn and the CO_2 levels spike to 1500PPM regularly all year.	Sensor connectivity failure			Yes	Lvl 3
P0009	Petersfield	minus -21 kg CO_2	59 kWh/m^2/yr	Heat Pump	Solar PV	Temperature well maintained all year. Humidity sits between 70-80% in the Autumn. The CO2 levels are extremely high exceeding 2000PPM in the bedroom all year.				No	Lvl 3
P0012	Surrey	N/A	N/A	Heat Pump	Solar PV	During Spring CO_2 levels often reach 2000PPM suggesting inadequate ventilation. IAQ consistently reaches 1500PPM all month. During Summer reduces below 1000PPM. At start of Winter levels increase again rising to 1500PPM. Several interruptions of data collection, however, humidity reaches 70% multiple times, and regularly sits at 60%. Temp is well maintained.				No	No energy and emissions data provided
P0013	Hampshire	260 kg CO_2	28 kWh/m^2/yr	Electric	Solar PV	Pending data analysis from sensors (Whole home MVHR installed).	Pending data analysis from sensor	Pending data analysis from sensor	Pending data analysis from sensor	No	Lvl 4
P0014	Greater Manchester	1410 kg CO_2	65 kWh/m^2/yr	Gas	None	Issues with monitoring kit sensors failing, no data available.	Data Connectivity issue	Data Connectivity issue	Data Connectivity issue	Yes	Lvl 1

P0015	Hampshire	minus -46 kg CO_2	59 kWh/m^2/yr	Heat Pump	Solar PV	Temperature occasionally exceeds 25C but is well maintained majority of year. Humidity sits above 60% in the Autumn sometimes hitting 70%. CO_2 levels are extremely high reaching 2000PPM every day of the year in bedroom.				Yes	Lvl 3
P0017	Nottinghamshire	N/A	N/A	Biomass	N/A	Well maintained temperature. Humidity peaks at 80% daily. CO_2 often exceeds 1500PPM during the Autumn and Winter months.				Yes	Full assessment not possible
P0018	Birmingham	616 kg CO_2	26 kWh/m^2/yr	Gas	Solar PV	Extremely low SHD. In the absence of conducting an interview, it is assumed the occupants preference is to underheat rooms (as these are frequently observed to drop to 15C in the Winter), and/ or actual occupation time and patterns are lower than typical households. Temp reaches 28C in Summer for half a week. Humidity exceeds 60% all year round often reaching 70%.			Not Measured	No	Lvl 2
P0019	Winchester	minus -68 kg CO_2	90 kWh/m^2/yr	Heat Pump	Solar PV	Temperature well maintained between 16-26C all year. RH often reaches over 70% in Autumn, and a yearly averages of 63% with the bedroom sometimes reaching 80%.			Not Measured	No	Lvl 2
P0020	Winchester	579 kg CO_2	85 kWh/m^2/yr	Heat Pump	None	On very limited occasions CO_2 reaches 2000PPM and regularly exceeds over 1000PPM, however, the majority of the time is spent below 1000PPM	Pending data analysis from sensor	Pending data analysis from sensor		Yes	Lvl 2
P0023	Hertfordshire	minus -285 kg CO_2	38 kWh/m^2/yr	Heat Pump	Solar PV	Temperature maintained between 16-26C all year round with humidity held below 60% all year.			Not Measured	Yes	Lvl 5
P0024	Gwynedd	N/A	N/A	Biomass	None	Data indicates that room temperature ranges from 6C to 35C. Occupant did not respond to interview request. Humidity reaches 79% and is consistently above 60% in the Autumn.			Not Measured	No	Full assessment not possible
P0025	Berkshire	231 kg CO_2	60 kWh/m^2/yr	Heat Pump	Solar PV	Sensor reveals that the temperature in living room is well maintained across the year. Occurrences of 'overheating' in bedroom during summer warrant further investigation. No response to interview request. Humidity in the living room and bedroom at good practice levels with the exception of Autumn, when RH rises to 70% on average.			Not Measured	No	Lvl 3
P0026	Winchester	minus -518 kg CO_2	42 kWh/m^2/yr	Heat Pump	Solar PV	Temperature well maintained between 16-26C all year. Humidity sits between 62-73% all year. Very high CO_2 levels, frequently above 1500PPM, often reaching 2000PPM indicating poor IAQ and inadequate ventilation.				Yes	Lvl 5
P0028	Petersfield	111 kg CO_2	45 kWh/m^2/yr	Heat Pump	Solar PV	During Summer the bedroom temperature reaches 30C. The humidity is also generally above recommended level and in Autumn sits between 70-80%. The IAQ is well maintained although during Winter the bedroom experiences daily spikes of 1000PPM.				Yes	Lvl 4
P0029	London	minus -166 kg CO_2	39 kWh/m^2/yr	Heat Pump	Solar PV	Temperature is well maintained between 18-21C in the living room. In the bedroom the temperature reaches 30C for a week in the Summer. Humidity has peaks of 70% all year with an average of 62%. Whole home MVHR installed.			Not Measured	No	Lvl 5
P0030	Twyford	N/A	N/A	Heat Pump	Solar PV	Temperature is well maintained. Humidity always above 60%, reaching 80% in the Autumn. In Winter months IAQ CO_2 levels reach 1500PPM for at least 5 days or more each month and over the course of the year on 10 days reaches 2000PPM.				Yes	No energy and emissions data provided

P0031	London	833 kg CO_2	30 kWh/m^2/yr	Gas	Solar PV	Well maintained Temperature. Humidity sits between 60-75% in Autumn. IAQ CO_2 levels are extremely high reaching 2000PPM daily.				Yes	Lvl 2
P0032	Flintshire	154 kg CO_2	75 kWh/m^2/yr	Direct Electric	Solar PV	Temperature well maintained all year. Humidity reaches above 70% in the Autumn months (indicative of seasonal changes in ventilation practices by occupant and run up to commencement of a regular heating regime).			Not Measured	No	Lvl 2
P0034	Coldon Common	300 kg CO_2	59 kWh/m^2/yr	Heat Pump	Solar PV	Temperature well maintained, Humidity levels acceptable with common occurrence observed of RH increasing in Autumn to 60% and often reaching 70%.			Not Measured	Yes	Lvl 3
P0035	Petersfield	163 kg CO_2	77 kWh/m^2/yr	Heat Pump	Solar PV	Temperature level very consistently maintained. Humidity is observed to increase between 70-80% in Autumn but unlikely detrimental, the CO_2 consistently reaches 1000PPM all year.				No	Lvl 2
P0036	Greater Manchester	1128 kg CO_2	68 kWh/m^2/yr	Gas	None	Sensors commissioning failure on installation	Cannot be assessed	Cannot be assessed	Cannot be assessed	No	Lvl 1
P0037	Petersfield	N/A	N/A	Heat Pump	None	Temperature is well maintained. The humidity often exceeds 60% in Autumn but not excessively. The IAQ CO_2 levels reach 1500PPM on multiple occasions in the Winter.				No	No energy and emissions data provided
P0038	Buckinghamshire	1411 kg CO_2	71 kWh/m^2/yr	Gas	Solar PV	Temperature is well maintained. Humidity peaks at 70% in the Autumn and IAQ CO_2 proxy spikes daily at 1500PPM.				No	Lvl 1
Sample averages	Based on 24 homes with recorded data	416 kg CO_2/year	57 kWh/m^2/year							RPE interviews completed: 14 of 30 (47%)	SRS certifications possible: 24 of 30 (80%)
Average UK home		2680 kg CO_2/year	Typical >150 kWh/m^2/yr								
SuperHomes as % of typical		15%	Min 38%								
SuperHomes improvement as a %		85% better (lower)	Min 62% better (lower)								