Proposed Dwelling Building Performance Specification Scoping

GWPArchitecture | EcoHolmes | Connect Housing

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		Prefferd Strategy			
Energy Standard		**Passivhaus LEB + PV + ASHPWC**	**Passivhaus LEB + ASHP**	**Passivhaus LEB + ASHP + PV**	**Passivhaus Classic + PV + ASHPWC**
Compliance Minimum		Part L 2021	Part L 2021	Part L 2021	Part L 2021
Fabric Performance	Walls	0.14 (SAP) / 0.147 (PHPP)	0.14 (SAP) / 0.147 (PHPP)	0.14 (SAP) / 0.147 (PHPP)	0.13 (PHPP)
	Party Walls	0	0	0	0
	Floors	0.1	0.1	0.1	0.1
	Roof	0.09	0.09	0.09	0.08
	Windows	Triple 0.8 (Munster PassivUPVC+)	Triple 0.8 (Munster PassivUPVC+)	Triple 0.8 (Munster PassivUPVC+)	Triple 0.8 (Munster PassivUPVC+)
	Door	0.8	0.8	0.8	0.8
	Air Tightness	1	1	1	0.6
Thermal Bridging		Assumed Values from Previous Schemes	Assumed Values from Previous Schemes	Assumed Values from Previous Schemes	Assumed Values from Previous Schemes
Ventillation		MVHR (PHC Airflow DV96)	MVHR (PHC Airflow DV96)	MVHR (PHC Airflow DV96)	MVHR (PHC Airflow DV96)
Space Heating	Type	Direct Electric	ASHP	ASHP	Direct Electric
	Dist	Convection Radiators	Wet / Radiators	Wet / Radiators	Convection Radiators
Hot Water	Type	ASHPWC - Mixergy?	ASHP	ASHP	ASHPWC - Mixergy?
	Storage	Y (Integrated)	Y (Mixergy Cylinder)	Y (Mixergy Cylinder)	Y (Integrated)
Energy Saving / Technologies	DHW	N	N	N	N
	Storage	N/A	N/A	N/A	N/A
Renewables	PV	Y - 4kWp	N	Y - 4kWp	Y - 4kWp
Other					
SAP Dwelling Emission Rate (DER)	kgCO2/m2a	-0.3	3.8	-1.6	TBC
EPC**		**A94**	**B83**	**A99**	**TBC**
Other (SAP)	Smart Meter	Y	Y	Y	Y
	Controls	Time and temperature zone control	Time and temperature zone control	Time and temperature zone control	Time and temperature zone control
Energy Use Intensity***	(m2)	51.49 kWh/m2a	38.74 kWh/m2a	38.74 kWh/m2a	46.35 kWh/m2a
Space Heat Demand	(m2)	**18.39 kWh/m2a**	**18.39 kWh/m2a**	**18.39 kWh/m2a**	**14.95 kWh/m2a**
Hot Water Use	(m2)	10.98 kWh/m2a	8.46 kWh/m2a	8.46 kWh/m2a	10.59 kWh/m2a
PER Demand	Target	=<75 kWh/m2a	=<75 kWh/m2a	=<75 kWh/m2a	=<60 kWh/m2a
Renewables Generation	(m2)	-57.86 kWh/m2a	0.00 kWh/m2a	-57.86 kWh/m2a	-57.86 kWh/m2a
Energy Balance	(m2)	-6.36 kWh/m2a	38.74 kWh/m2a	-19.12 kWh/m2a	-9.80 kWh/m2a
Construction		Timber Frame (System TBC)	Timber Frame	Timber Frame	Timber Frame

*Predicted

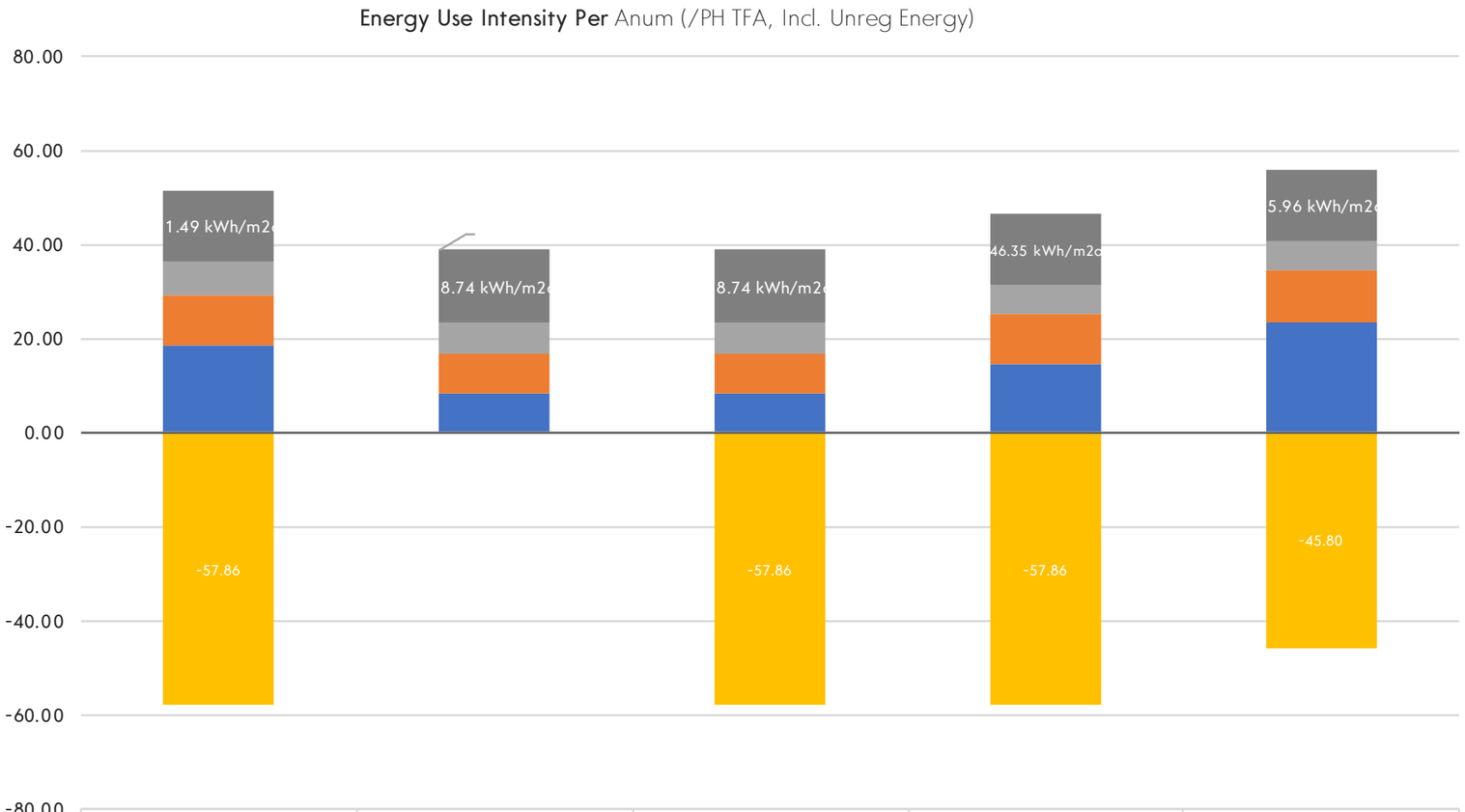
**'The house must be off the gas grid, i.e. have electric heating, as well as solar (likely minimum 3 kWp) and battery (likely minimum 5 kWh). We will assess, for a given design, the exact minimum hardware requirements to be eligible for Octopus Zero.' / 'as a general rule, the total annual solar generation on the homes must exceed the total annual consumption for the home in order to qualify. This includes heating and hot water according to SAP'

***Efficiency - excludes renewables - From PHPP

****Solar gain (G value) 0.63 Frame Factor 0.7

*****Calculated in PHPP to PH stadnards (timber fractions)

******'The AECB discourages direct electric heating and will not currently certify such designs for 1 – 3 storeys detached, semi-detached and terraced homes..



	BLOCK A - Opt 1: PHLEB + ASHPWC + PV	BLOCK A - Opt 2: PHLEB + ASHP	BLOCK A - Opt 3: PHLEB + ASHP + PV	BLOCK A - Opt 4: PHC + ASHPWC + PV	BLOCK B - Opt 1: PHLEB + ASHPWC + PV
Sum of PV (m2)	-57.86	0.00	-57.86	-57.86	-45.80
Sum of Unreg (m2)	15.32	15.32	15.32	14.78	15.05
Sum of Reg (m2)	6.80	6.80	6.80	6.55	6.61
Sum of DHW (m2)	10.98	8.46	8.46	10.59	10.80
Sum of SHD (m2)	18.39	8.15	8.15	14.42	23.51

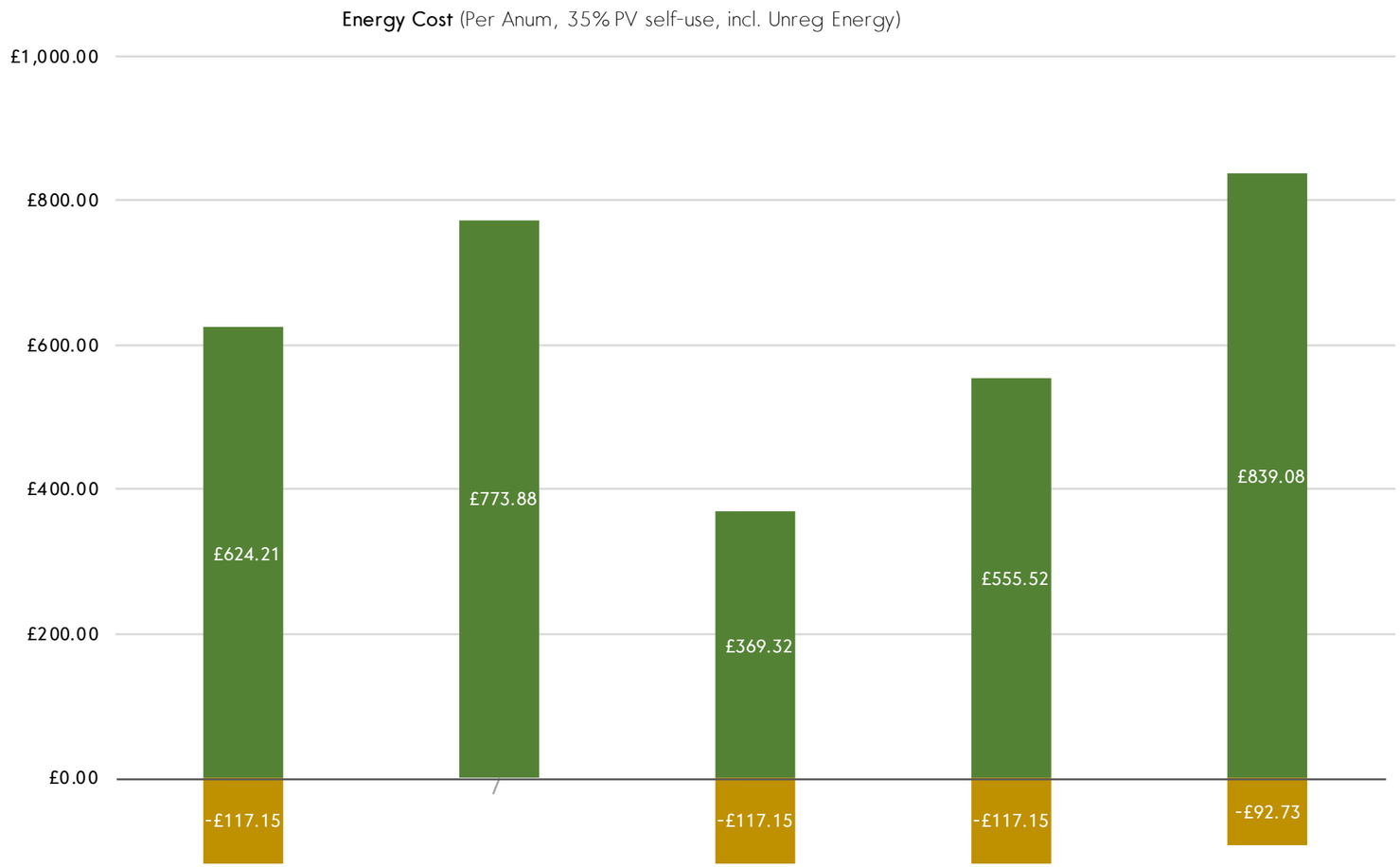
Assumptions

PV - Quantum and type (405Wp) assumed, subject to detailed review by specialist

EUI / Areas based on Passivhaus TFA - m2 GIA likely to give slightly lower results

Unregulated energy from PHPP, likely higher depending on residents/dwelling ratio

DHW, as above



	BLOCK A - Opt 1: PHLEB + ASHPWC + PV	BLOCK A - Opt 2: PHLEB + ASHP	BLOCK A - Opt 3: PHLEB + ASHP + PV	BLOCK A - Opt 4: PHC + ASHPWC + PV	BLOCK B - Opt 1: PHLEB + ASHPWC + PV
Sum of Total Less Self Use £	£624.21	£773.88	£369.32	£555.52	£839.08
Sum of PV Export £	-£117.15	£0.00	-£117.15	-£117.15	-£92.73

Assumptions

PV - Based on 35% 'sef-use', higher values acheivable with use of battery storage

Cost per kWh per lastest OFGEM: 0.27p (import), 0.04p (export), standing charge 0.53p (per day)

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DHW, as above

Connect housing

EcoHolmes Community Land Trust
AFFORDABLE LOW ENERGY HOUSING FOR THE HOLME VALLEY