

Heat Pump Design Calculations
Project Reference: Manor House

SPACE HEATING ANNUAL HEAT DEMAND		
Demand	kWh/yr	20915
Heat supplied by HP, excluding auxiliary heaters	kWh/yr	20915
Seasonal Coefficient of performance SCOP	SCOP	3.92
Electricity consumed by HP, excluding auxiliary heaters	kWh/yr	5335
Renewable heat supplied by HP	kWh/yr	15580
Remaining heat to be supplied by auxiliary heaters and other heat source	kWh/yr	0
Remaining heat, supplied by other heat sources	kWh/yr	0
Remaining heat, supplied by auxiliary heaters	kWh/yr	0
Electricity consumed by HP, including auxiliary heaters	kWh/yr	5335
Where other heat sources are used:		
Fuel used	N/A	
Efficiency of other heat sources	%	0
Consumed by other heat sources	kWh/yr	0

WATER HEATING ANNUAL HEAT DEMAND		
Demand	kWh/yr	5619
Heat Supplied by HP, excluding immersion heater	kWh/yr	5619
SCOP of HP in Hot water mode	SPF/SCOP	1.75
Electricity consumed by HP, excluding immersion heater	kWh/yr	3211
Renewable heat supplied by HP	kWh/yr	2408
Remaining heat to be supplied by immersion heater and other heat sources	kWh/yr	468
Remaining heat, supplied by other heat sources	kWh/yr	0
Remaining heat, supplied by immersion heater	kWh/yr	468
Electricity consumed by HP, including immersion heater	kWh/yr	3679
Where other heat sources are used:		
Fuel used	N/A	
Efficiency of other heat sources	%	0
Consumed by other heat sources	kWh/yr	0

Heat Pump Design Calculations

PROPORTIONS, ENERGY CONSUMPTION, AND PERFORMANCE

Proportion of space heating and water heating demand provided by heat pump (excluding auxiliary/immersion heaters)	%	100
Capacity @ design conditions	kW	12.9
Renewable heat	kWh/yr	17987
Electricity consumed by HP (excluding auxiliary/immersion heaters)	kWh/yr	8546
Electricity consumed by immersion (supplied as part of HP)	kWh/yr	468
Fuel consumed by auxiliary/other heat sources	kWh/yr	0
HP combined performance SCOP	SCOP	3.00
Star Rating / Flow Temperature	3 / 50°C	
Outside air temperature	-2.61°C	

RUNNING COSTS (Based on Calculations)

Cost per unit of electricity for HP	p/kWh	23
Cost per unit of fuel for other heat sources	p/kWh	0
Cost of electricity for HP (including auxiliary/immersion heaters)	£/yr	2073
Cost of fuel for other heat sources	£/yr	0

Disclaimer

The performance of Microgeneration heat pump systems is impossible to predict with certainty due to the variability of the climate and its subsequent effect on both heat supply and demand. This estimate is based upon the best available information but is given as guidance only and should not be considered as a guarantee.