

Heat Pump Sizing Assessment

Project Ref SAV/HP/119192/DA/29 Jun 2026
Project Name Stoney Wood Quarter
Proposal 1no DELTA-HP4 + 1no DELTA-HP3 Heat Pump sized to peak
Assessor Liam Blake



Headlines

Source of emission factors:

SAP 10.2

Weather Data Used (CIBSE TRY):

1 London - South East

Project Estimated
Heat Demand

1,284,000 kWh

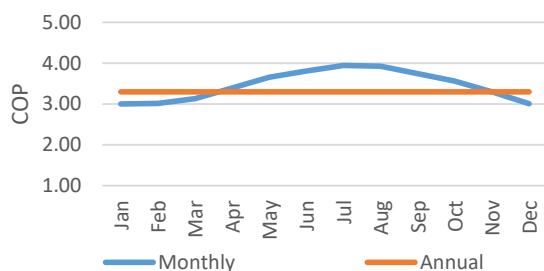
Site Temperatures

Flow: 60°C
Return: 30°CHeat Pump
Constant Outlet Temperature

70°C

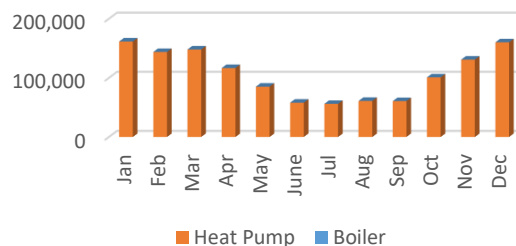
Project Specific COP/SCOP

SCOP = 3.30

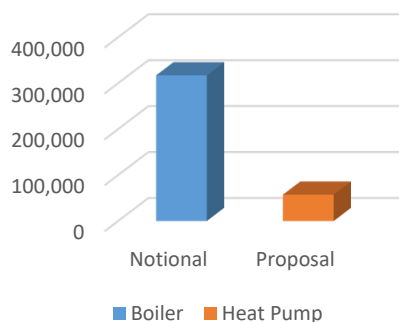


Heat Pump Share

100.0%

Carbon Footprint (kg/CO₂)

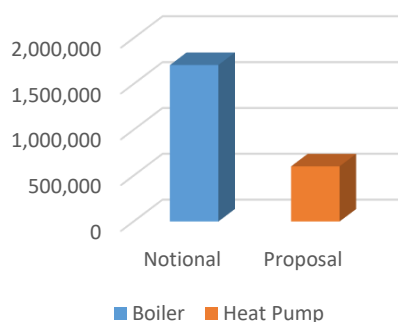
-82%



Comparison with Notional Building

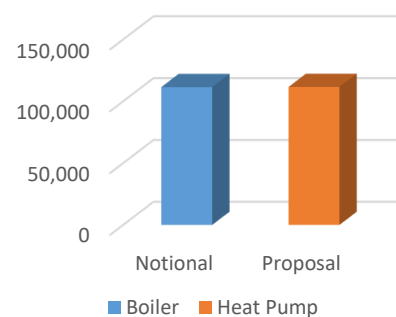
Primary Energy kWh

-65%



Operating Cost (£)

+0%



* Notional building with gas boiler

Report

NOTE: This assessment is specific to the DELTA-HP4 + DELTA-HP3 Heat Pump only - As supplied by SAV Systems

Peak plant load (Duty)	536 kW
Number of SAV DELTA-HP4 Heat Pumps	1 Capacity 352 kW @ -5°C, 434 kW @ +7°C
Maximum current of DELTA-HP4 installation	232 Amps
Number of SAV DELTA-HP3 Heat Pumps	1 Capacity 265 kW @ -5°C, 328 kW @ +7°C
Maximum current of DELTA-HP3 installation	174 Amps
Minimum Thermal Store Capacity	15000 litres
Recommended Defrost Buffer Capacity	2500 litres
Demand Profile Used	Residential
Type of Building	Multi residential, 321 Apartments
Data reference	SAV Benchmark data for typical 2-bed flat DHW = 2500 kWh/yr, Heating = 1500 kWh/yr

1.0 Summary of Usage:

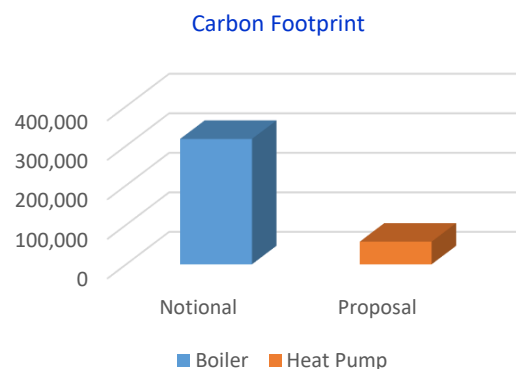
Annual heat demand	1,284,000 kWh	
Distribution Loss Factor Used	1.00	
Plantroom Output	1,284,000 kWh	
Site flow temperature	60°C	
Site return temperature	30°C	
Heat pump flow temperature	70°C	
Gas tariff	7.38 p/kWh	Prices used by SAP/RdSAP (From April 2024)
Electricity tariff	28.66 p/kWh	Prices used by SAP/RdSAP (From April 2024)

1.1 CO₂ Emission Factors used:

Source of emission factors used	SAP 10.2
CO ₂ Emission Factor for Gas	0.210 kg CO ₂ /kWh
CO ₂ Emission factor for Grid Electricity	0.147 kg CO ₂ /kWh

2.0 Carbon Footprint Comparison:

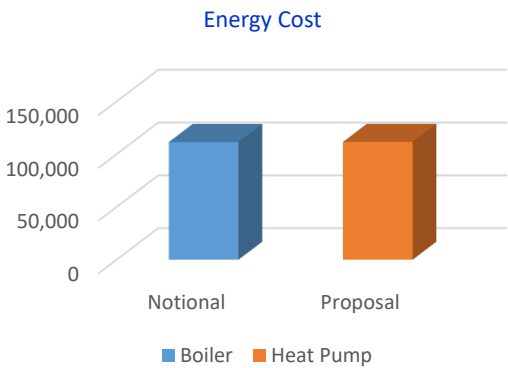
Notional Building (Gas Boiler)	317,224 kg CO ₂ pa
Heat Pump Solution	57,351 kg CO ₂ pa
Reduction	259,873 kg CO ₂ pa



Carbon reduction due to proposed Heat Pump:	260 tonnes (compared with notional building) $259,873 / 317,224 = 82\%$ reduction
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3.0 Energy Cost Comparison:

Notional Building (Gas Boiler)	£111,481
Heat Pump Solution	£111,612
Increase	£131

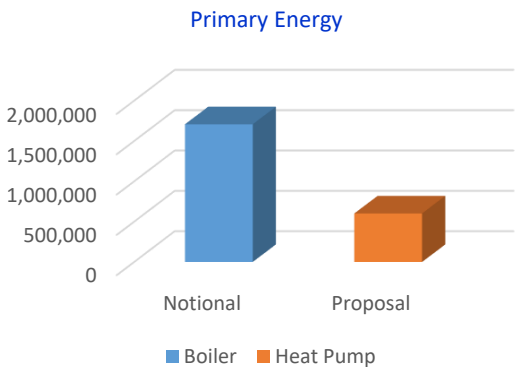


Energy cost increase due to proposed Heat Pump:

£131 (compared with notional building)
 $\text{£131} / \text{£111,481} = 0\%$ increase

4.0 Primary Energy Comparison:

Notional Building (Gas Boiler)	1,706,965 kWh pa
Heat Pump Solution	601,636 kWh pa
Reduction	1,105,328 kWh pa

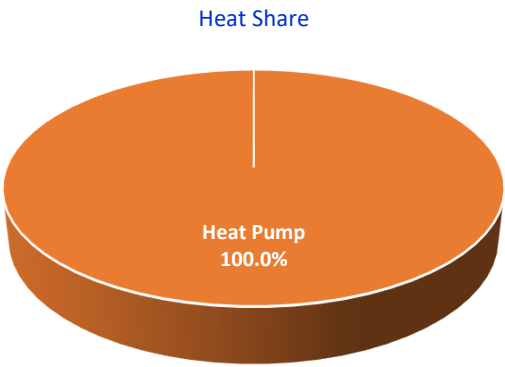


Primary Energy reduction due to proposed Heat Pump:

1,105,328 kWh (compared with notional building)
 $1,105,328 / 1,706,965 = 65\%$ reduction

5.0 Heat Pump Share Of Heat

Building Heat Demand	1,284,000 kWh pa
Heat Pump Output	1,284,000 kWh pa
Boiler Heat Output	0 kWh pa
Heat Pump Share	100.0%
Boiler Heat Share	0.0%



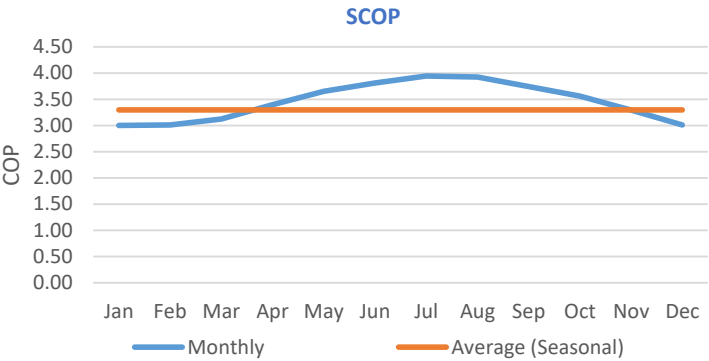
6.0 Seasonal Coefficient of Performance - SCOP

Heat Pump SCOP	3.30
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COP = Instantaneous
= Power In / Power Out

SCOP* = Seasonal
= Energy In / Energy Out

* or SPF - Seasonal Performance Factor



7.0 Seasonal Efficiency

The COP & SCOP calculation in this assessment is project specific and is an estimate of the DELTA-HP4 performance at the flow temperature selected. CIBSE TRY weather data for the project location and typical Residential heating & DHW profiles have been used.

For compliance purposes, refer to the SAV datasheet for model DELTA-HP4:
SCOP = 4.19 - 3.68 (EN 14825 average climate underfloor heating/radiator)

NOTE: European Standard EN 14825:2022 uses weather compensated flow temperature from the Heat Pump, ambient temperature and space heating profiles for Strasburg (France), and no DHW load.
This is not representative of Heat Network applications in the UK.

8.0 References

Benchmark Dwelling Energy Demand Estimation

Type	Number	Heating kWh	DHW kWh	Total kWh	DHW Share
Typical 2 bed. apartment	1	1,500	2,500	4,000	62.5%
Estimate for this Project	321	481,500	802,500	1,284,000	62.5%

NOTE: No allowance is made for network losses

Capacity & Energy Share

Plant	Power kW (Capacity)	% of Capacity	Energy kWh	% of Energy
Heat Pump	615.51	100%	1,284,000	100.0%
Boiler	0	0%	0	0.0%
Total	616	100%	1,284,000	100.0%

* With > 15,000 litre Peak Thermal Store