

Heat Pump Sizing Assessment

Project Ref SAV/HP/119192/DA/29 Jun 2026
Project Name Stoney Wood Quarter
Proposal 1no SAV DELTA-HP4 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

568,000 kWh

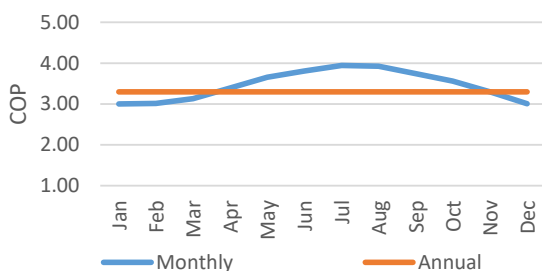
Site Temperatures

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

70°C

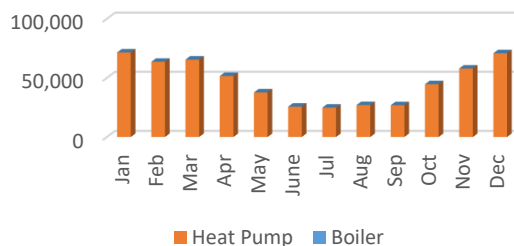
Project Specific COP/SCOP

SCOP = 3.30

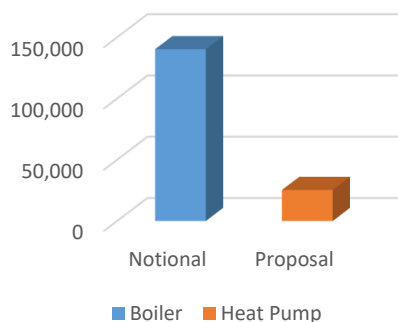


Heat Pump Share

100.0%

Carbon Footprint (kg/CO₂)

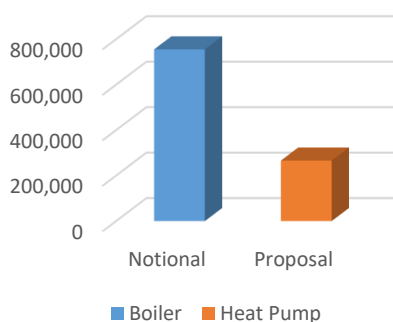
-82%



Comparison with Notional Building

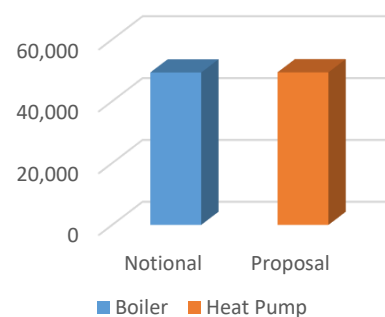
Primary Energy kWh

-65%



Operating Cost (£)

+0%



* Notional building with gas boiler

Report

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

Peak plant load (Duty)	351 kW
Number of SAV DELTA-HP4 Heat Pumps	1 Capacity 352 kW @ -5°C, 434 kW @ +7°C
Maximum current of heat pump installation	232 Amps
Number of Boilers	0 Boiler duty 0 kW
Maximum current of boiler installation	0 Amps
Minimum Thermal Store Capacity	15000 litres
Recommended Defrost Buffer Capacity	2500 litres
Demand Profile Used	Residential
Type of Building	Multi residential, 142 Apartments
Data reference	SAV Benchmark data for typical 2-bed flat DHW = 2500 kWh/yr, Heating = 1500 kWh/yr

1.0 Summary of Usage:

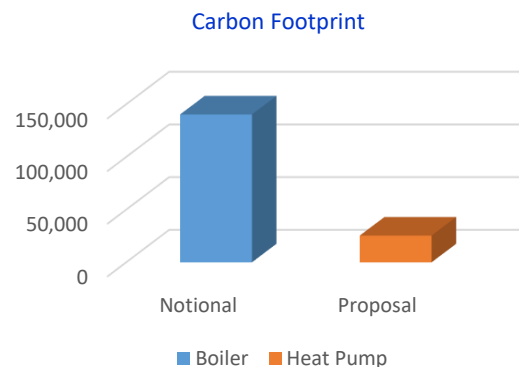
Annual heat demand	568,000 kWh	
Distribution Loss Factor Used	1.00	
Plantroom Output	568,000 kWh	
Site flow temperature	60°C	
Site return temperature	30°C	
Heat pump flow temperature	70°C	
Gas tariff	7.38 p/kWh	Prices used by SAP/RdSAP (From April 2024)
Electricity tariff	28.66 p/kWh	Prices used by SAP/RdSAP (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)	140,329 kg CO ₂ pa
Heat Pump Solution	25,370 kg CO ₂ pa
Reduction	114,959 kg CO ₂ pa

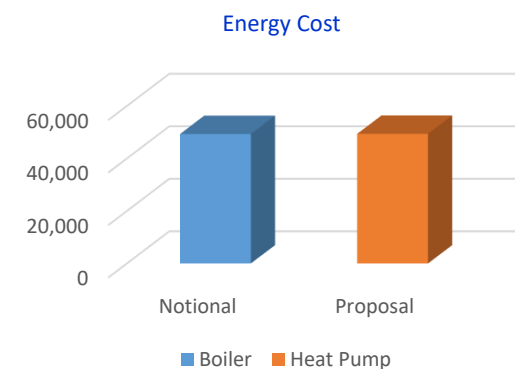


Carbon reduction due to proposed Heat Pump:	115 tonnes (compared with notional building) $114,959 / 140,329 = 82\%$ reduction
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3.0 Energy Cost Comparison:

Notional Building (Gas Boiler)	£49,316
Heat Pump Solution	£49,374
Increase	£58

Energy cost increase due to proposed Heat Pump:

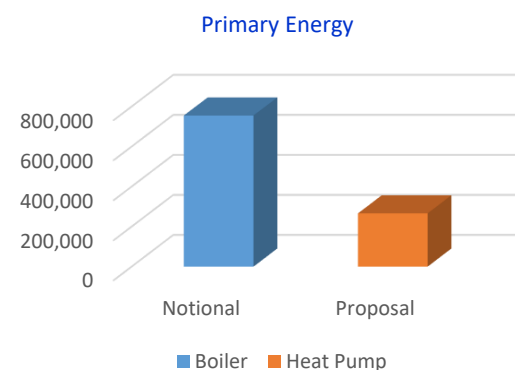


£58 (compared with notional building)
 $\text{£58} / \text{£49,316} = 0\%$ increase

4.0 Primary Energy Comparison:

Notional Building (Gas Boiler)	755,106 kWh pa
Heat Pump Solution	266,144 kWh pa
Reduction	488,961 kWh pa

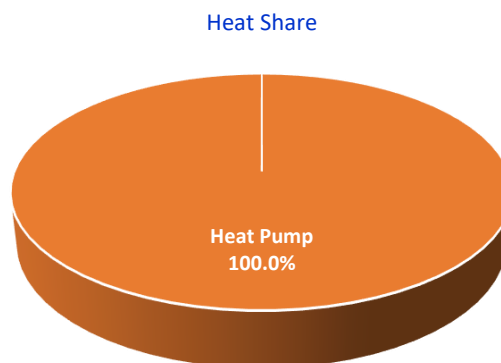
Primary Energy reduction due to proposed Heat Pump:



488,961 kWh (compared with notional building)
 $488,961 / 755,106 = 65\%$ reduction

5.0 Heat Pump Share Of Heat

Building Heat Demand	568,000 kWh pa
Heat Pump Output	568,000 kWh pa
Boiler Heat Output	0 kWh pa
Heat Pump Share	100.0%
Boiler Heat Share	0.0%



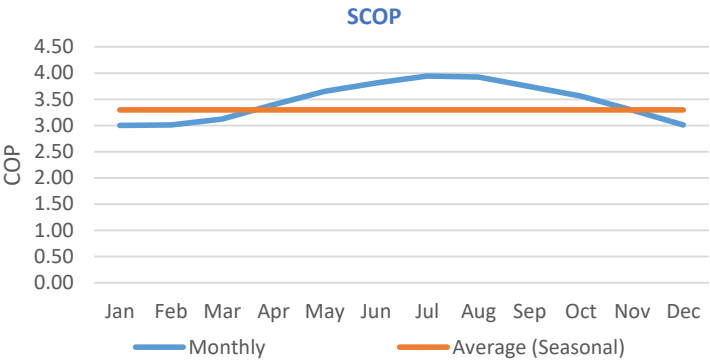
6.0 Seasonal Coefficient of Performance - SCOP

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	142	213,000	355,000	568,000	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	351.72	100%	568,000	100.0%
Boiler	0	0%	0	0.0%
Total	352	100%	568,000	100.0%

* With > 15,000 litre Peak Thermal Store