

Heat Pump Suitability Assessment & Recommendation

Property Overview

- Space available for external heat pump and internal hot water cylinder
- Underfloor heating downstairs
- Radiators upstairs on 8 mm microbore pipework
- No zoning, all radiators balanced

Current Boiler Performance

- Condensing boiler limited to 7 kW
- Flow temperature below 45 °C
- Indoor temperature stable at 20.5 °C
- At -3 °C outside: boiler runs ~25 minutes per hour
- Delta T: 10 K at stage 1 pump speed, 5 K at stage 2
- Annual gas consumption (heating + DHW): 6,200 kWh

Heat Load Assessment

Based on real-world data, the inferred design heat loss is approximately 3.5–4.0 kW at design conditions.

Heat Pump Size Recommendation

- Recommended size: **4 kW air source heat pump**
- Reasoning: best match to measured heat demand, longest run times, highest efficiency
- 5 kW acceptable but slightly oversized
- 6–10 kW units not recommended due to oversizing and efficiency penalties

Hydraulics & System Design

- Direct connection recommended
- No low loss header
- No buffer tank required unless mandated by manufacturer
- If required, install a small volumiser (20–50 L maximum)

Expected Performance

- Typical flow temperatures: 35–45 °C

- Expected SCOP: **4.2–4.6**
- Excellent candidate for high efficiency operation in UK climate

Conclusion

This property is exceptionally well suited for a small, correctly sized heat pump. A 4 kW unit operating on low flow temperatures with direct hydraulics should deliver high comfort, low running costs, and excellent seasonal efficiency.