



Riverdale Maisonettes

Comparison Report for the Class 4 ASHP and Class 6 ASHP

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1.0 INTRODUCTION

This report compares two air source heat pump (ASHP) units—Class 4 ASHP and Class 6 ASHP—focusing on their ability to meet heating and domestic hot water (DHW) load requirements. This evaluation includes a review of space heating demand, DHW load management, reheat times, and the use of immersion heaters. t.

2.0 SPACE HEATING LOAD

The space heating demand for the property is 4 kW, as calculated previously. This indicates that both ASHPs meet this requirement for efficient space heating. The class 4 ASHP may slightly struggle during peak heating periods but it will rarely happen. The Class 6 ASHP offers a higher output, making it more flexible and capability to meet the heating demands efficiently across different weather conditions.

3.0 DOMESTIC HOT WATER LOAD & REHEAT TIMES

3.1 Hot Water Cylinder Reheat Time:

As shown in the calculated results below, the reheat time for the ASHP Class 4 is significantly greater than 2 hours, while the reheat time for the ASHP Class 6 is around 2 hours. Note that all cylinders include a 3kW immersion heater. If there is a hot water peak demand, the reheat time can be reduced to less than 2 hours by manually turning on the immersion heater. However, it should be noted that relying on immersion heaters is not an efficient solution.

ASHP Class 6				
Hot Water Storage (L)	ASHP Output (kW)*	Hot Water Stored Temp	Cold Water Incoming Temp	Reheat Time (Mins)
180	5.9	60	10	107
210	5.9	60	10	125

ASHP Class 4				
Hot Water Storage (L)	ASHP Output (kW)*	Hot Water Stored Temp	Cold Water Incoming Temp	Reheat Time (Mins)
180	4.3	60	10	147
210	4.3	60	10	171

*Based on Ambient air temperature 7 degC and leaving water temperature 45degC

3.2 Hot Water Demand for Shower

IAs shown in the calculated results below, a 180L hot water cylinder can provide enough hot water for 4 showers, while a 210L hot water cylinder can accommodate slightly more than 4 showers. However, if an electric shower is used, there will be no hot water demand concerns for either cylinder size.

Hot Water Storage (L)	Hot water for a 5 mins shower (L)	Times Allowed for Shower
180	45	4
210	45	4.7

4.0 RECOMMENDATION

Based on the evaluation above, the Class 6 ASHP can handle higher heating and DHW loads more efficiently, reducing reheat times and reliance on immersion heaters. The Class 4 ASHP may struggle to meet the space heating peak demand, requiring more frequent use of the immersion heater and longer runtimes during peak periods. Therefore, the Class 6 ASHP is recommended, as it provides greater long-term reliability and comfort.