

Technical Note

Project Title	2 Akenside Road		
Subject	Planning Statement to Support Proposed Installation of Heat Pumps	Date	03/11/21
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1 Introduction

This technical note is intended to provide a brief statement outlining the need for and rationale behind new heat pumps at the above property in support of the planning application.

2 Statement

The property was recently refurbished and extended under a design and build contract. It is heated by means of gas boilers feeding underfloor heating and is not currently equipped with any cooling.

However, since these works were completed and the house has been occupied, it has become apparent that a number of rooms are underheated in Winter and overheat during warmer weather, when the current natural ventilation strategy is not capable of keeping temperatures within a comfortable range.

The proposed heat pump installation is therefore intended to provide supplementary heating to these spaces in winter from a lower carbon source and to provide the facility to “peak lop” temperatures in Summer when external air temperatures are too warm to provide cooling by natural means.

In Winter, additional heat provided from the heat pumps will be significantly less carbon intensive than drawing further heat from the existing gas boilers, due to the improved efficiency of the heat pumps and rapidly decarbonising electrical grid;

System	Gas boiler	Air Source Heat pumps
Seasonal COP (efficiency)	0.95	3.5
Fuel type	Natural Gas	Electricity
Carbon emissions rate for fuel (BRE SAP 10.2 – 08/21)	0.210	0.136
Carbon emissions kgCO ₂ / kWh	0.221	0.039
Reduction in emissions/ kWh Vs. Gas Boilers	0%	82%

In Summer, the internal temperatures achievable by the current natural ventilation strategy are ultimately limited by the external air temperatures. The building is already relatively well insulated as part of the previous refurbishment, which assists in minimising direct solar gains from roofs etc. It is not practical to introduce significant additional thermal mass in order to try to buffer temperature peaks.

The new heat pumps will be manually operated by means of local controls, such that these are only used when the specific rooms are occupied, during periods of particularly warm or cold weather.

They are not enabled centrally to automatically maintain temperatures when the rooms are unoccupied and are not expected to be used at all during the “mid-season”.