



Proposed System Specification

System Type:

Cascade Heat Pump System

Project Reference:

Building M

Contact Details:

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Because  **Vaillant** thinks ahead.

Dear Customer

Thank you for your request for information on a Vaillant aroTHERM plus 7kW cascade system. Below and in the appendix you will find a recommended aroTHERM plus 7kW system and material list. The system is based on information you have supplied.

Estimated Space Heating and DHW requirements

Based on the information supplied we can estimate

- The peak heat loss from the property is 13.9kW* at an outside temperature of -1.8°C.
- The annual heating requirement is 29746kWh/year.
- And that an addition 7641kWh/year will be required for DHW.

Thus making the total energy demand 37387 kWh/year.

*The peak heat loss was calculated using an estimated 45W/m² for the new build area of 307m²

Proposed aroTHERM System

From the estimated peak heat loss and total energy demand listed above (see "Estimated Space Heating and DHW requirements") the below system(s) have been selected to suit your requirements.

aroTHERM plus 7kW System

From the information you have supplied Vaillant have estimated that two aroTHERM plus 7kW will supply 124% of the heating demand. The aroTHERM plus 7kW will require a 230V~ single phase electrical supply.

Domestic Hot Water System

From the information you have supplied Vaillant have estimated the properties domestic hot water requirements would be met by our uniSTOR 500L unvented heat pump cylinder.

Additional Information

The DHW cylinder size has have been estimated, the requirements of the property need to be confirmed to ensure DHW volume is sufficient.

The emitters and pipe sizing must be designed for a heat pump system. Radiator sizing and underfloor heating spacing should be taken from the heat emitter guide sized to achieve the lowest possible flow temperature and highest star rating. Systems designed with lower flow temperatures will be more efficient. Mixed systems will only be efficient as the highest design temperatures. UFH system should be designed with zero temperature differential thermal mixers.

Buffer Tank

To hydraulically couple the heat pump to the heating system a 100 litre buffer tank will be required, The buffer is designed to allow the correct and efficient operation of the heat pumps.

Installation Information

Please refer to installation instructions for full information on installation requirements. Before purchase of the heat pump a full heat loss calculation in line with EN12831 should be carried out to ensure that the equipment is fit for the property. The plant room and entrance into the plant room must be measured to ensure all components required can be installed

The heat pump must be raised off the ground >100mm to ensure the condensate when produced can be fully cleared from the unit. A drain or soakaway will need to be accessed near the installation area. For further guidance please consult the installation instructions.

Flexible hoses and anti vibration feet must be installed in accordance with MCS MIS 3005. The primary pipework must be suitably sized to ensure correct flow across the heat pump. The heat should be positioned as close to the property as possible to reduce pressure and energy loss. Any external pipework must be insulated with HT armaflex or similar.

Planning Information

Development is permitted only if the air source heat pump installation complies with the Microgeneration Certification Scheme planning standards or equivalent standards.

An AWHP will be passed under permitted developments if the installation area passes a noise assessment (MCS 020) and the requirements of the planning portal are met. Information on planning can be found at <http://planningportal.gov.uk/permission/commonprojects/heatpumps>

N.B 15kw AroTHERM Air to Water Heat Pump requires planning

Non Vaillant required equipment list

Description	Quantity
Full bore isolation valve 28mm (min)	4
Honeywell V4044c 3 port diverting valve 28mm (min) (if using a non Vaillant cylinder)	1
Glycol/inhibitor (Fernox HP15c)	Variable
Return heating filter (Magnaclean, TF1 or equivalent)	1
Expansion vessel kit (for both Glycol and heating circuits)	1*
Heat pump return filter (Fully isolatable, appropriately sized Y strainer)	1

* Three expansion vessels are required if heat exchanger modules are used.