

## Retrofitting an air source heat pump into a '70's house

The recent increase in the Government's heat pump grant (Boiler Upgrade Scheme: BUS) to £7500 has brought a big increase in enquiries for fitting air source heat pumps (ASHP) into existing houses.

I am a huge advocate of ASHP's and have one in my 'new' house and have retrofitted another in my electrician's terraced house in Padstow.

ASHP's are not suitable for every house, but the customer in this case study had experience of a heat pump in a previous dwelling and was very keen to move away from his gas combi boiler to the more sustainable Mitsubishi Ecodan air source heat pump.

The houses in the road are traditionally built (two skins of block with a cavity and rendered externally) and have a 'base' energy performance rating of 'D'. The customer had previously improved his insulation by having cavity wall insulation installed and improved loft insulation (400mm). This took the rating to 'C' (74).

A roof solar PV array had been recently fitted. This, together with the ASHP would take the house energy performance rating to a high 'B'(c.86-88).



## The installation

Hooton Plumbing & Heating are registered under the Microgeneration Certification Scheme (MCS). Installers need this certification to be able to reclaim the £7500 government BUS grant. As part of this accreditation, the installer has to be fully trained to fit the ASHP to the MCS standard (MIS 3005). This is very similar to the Gas Safe accreditation for gas engineers.

An initial assessment was carried out to make sure that the ASHP was practical and a cost-effective proposition for both my customer and the house.

My 'partner' electrician, Craig Bellison of Lighthouse Electrical, Padstow, checked the sizing of the incoming electric supply and the earthing and bonding to make sure all was OK to proceed.

The ASHP fitted is a 11.2kW Mitsubishi Ecodan, which together with the various controllers, cost in the region of £4500. The heat pump was sited on a concrete plinth to the side of the house (note: planning consent is sometimes required if it is at the front of a house). It is compact and stands just over 1m in height.



New primary pipework was installed and connected to the existing 15mm copper system throughout the house. All radiators were resized and replaced. As the ASHP is circulating water at a lower temperature the radiator sizes were increased by c.100%. The whole system was flushed and cleaned with a special cleaner before commissioning.

A new highly insulated 250l Gledhill stainless 'heat pump' cylinder was fitted, together with a low-level electric immersion. The system is now unvented which means the hot water pressure at all taps will now be very good. The controller will heat the water to 60c once a week to control any legionella bacteria in the system.





The system was completed with the Mitsubishi FCA6 controller unit with the Melcloud access point for smart control, remote operation and monitoring using the Mitsubishi app. The customer can give the ASHP engineer remote access to help sort out any glitches or problems.

For more information: <https://www.melcloud.com/>

### **Warranty**

Hooton Plumbing & Heating is a *Mitsubishi Accredited Installer\** so the customer gets an ASHP 5 year warranty, instead of the normal 3 year warranty.

*\*Pete Hooton has completed all of the Mitsubishi ASHP training and has to undergo regular update training to maintain this accreditation.*

The ASHP & system will require an annual service to maintain the Mitsubishi warranty which is a relatively simple operation as there are far fewer technical components compared to a gas boiler.

The remainder of the installation carries my own company guarantee; and as a 'local', I am on hand to respond quickly to any issues. No waiting days for a van to come down from up country.

### **Cost**

The net cost to the customer in this case was roughly the same as a new gas central heating system (boiler, cylinder, primary pipework and radiators); maybe a bit less.

The customer also now has the opportunity to have the gas supply turned off, thereby giving them further savings.

This case study will be updated with running costs.

## Facts & myths

### **ASHP's cost more to run than a gas boiler**

*Not necessarily. The process of fitting an ASHP will involve looking at how to improve insulation levels and any house that is poorly insulated will cost a lot more to run anyway. Right now (November 2023) wholesale gas prices are increasing again.*

*As a rough guide, running costs will be about the same for a retrofit but comfort levels in a house are greatly improved as the ASHP is kept on for longer periods.*

### **ASHP's only work with underfloor heating**

*Not true. They work perfectly well with radiators, but these will need to be resized in most cases. If you are planning an extension you can combine underfloor heating with radiators. I use Continal of Launceston for my supplies.*

### **They don't work when it is cold**

*Not true. Mitsubishi ASHP's will work down to -20c. Many properties in Northern Europe and Scandinavia have had ASHP's for years where it is far colder than Cornwall.*

### **I can't fit an ASHP onto a small-bore heating system**

*Technically you could, but I would not recommend it or do it.*

### **I've got an electric car charging point; will my electric supply be OK**

*My electrician will check this for you and advise. On rare occasions, it is not possible and the supply has to be upgraded (at your cost). You will need to contact National Grid, previously Western Power.*

### **ASHP's are noisy**

*No. Mitsubishi's Ecodan ASHP's are amongst the quietest on the market, which gives you much more choice when it comes to selecting somewhere to install them. The company says its PUHZ Ultra Quiet Monobloc is as quiet as a typical library. Come and listen to mine and I guarantee you won't believe how quiet it is.*

### **How long do ASHP's last**

*Another reason why so many people are installing air source heat pumps from brands such as Mitsubishi is that they can last for a very long time. Some of these pumps can last for up to a quarter of a century, as long as you maintain them well*

### **Do they really help the environment**

*Mitsubishi ASHP's can generate three times as much energy as they use. An Ecodan pump will use 1kW to extract 2.2kW of renewable energy from the air. This 3.2kW heat pump can then be used to heat your water. Traditional boilers only transform up to 92% of the energy that they use into energy, with the remaining 8% being wasted.*

*Not only can ASHP's help you cut your energy bills they can also help you reduce your carbon footprint. The vast majority of the energy these heat pumps need to operate comes from natural air. The pumps do need a small amount of energy, but this is very little compared to what's required by a conventional oil and gas boiler. You may be able to reduce your carbon emissions by up to 50% once you have installed an air source heat pump.*

### **I want to buy British**

*You can - Mitsubishi heat pumps are manufactured in Livingstone, Scotland.*



## Where do I find more information

- *Call or e mail me and I will be happy to answer your questions or show you my own ASHP installation.*
- <https://les.mitsubishielectric.co.uk/homeowners/heat-pump-faqs>
- <https://www.ofgem.gov.uk/environmental-and-social-schemes/boiler-upgrade-scheme-bus>
- *Hooton Plumbing & Heating: 07931 126 801 or [pete@hootonplumbing.com](mailto:pete@hootonplumbing.com)*
- *Lighthouse Electrical: Craig Bellison 07817 241421*



**Hooton Plumbing & Heating**  
[www.hootonplumbing.com](http://www.hootonplumbing.com)



The company is just me, Pete Hooton. Personally, I see this as a real strength as I care about my business and my reputation.

After serving my apprenticeship with various companies in Cornwall, I worked for 3 years as the Head Plumber at the Eden Project before setting up on my own in September 2019; six months before the pandemic hit.

I am a member of the Association of Plumbers and Heating Contractors (APHC). See how this benefits you: <https://aphc.co.uk/why-use-an-aphc-member/>.

My APHC membership, together with my MCS Certification and accreditations ensures you have a plumber who is technically competent.

I carry full public liability insurance and am happy to show you my policy. I also have full terms and conditions that I ask my customers to agree to ensuring we are both 'protected'.

I pride myself on my standards, but don't listen to me, have a look at my reviews on Facebook and Google.

St Columb Major has always been my hometown and I am proud to be Cornish.

*Hooton Plumbing & Heating: 07931 126 801 or [pete@hootonplumbing.com](mailto:pete@hootonplumbing.com)*

