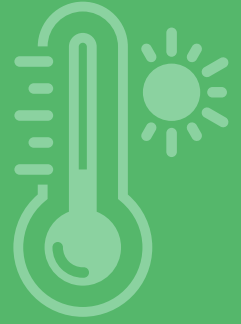


Fed up of being too cold or too hot?

Here's the answer you're looking for.



I'm writing this because I've created a Victorian eco home, cutting my energy bills by 75% so I know how life changing retrofit can be.

I live in a Victorian end of terrace, built in 1901. For 43 years I have been cold. We've done loads of work on the house over the years – made it bigger, easier to live in and beautiful. Strangely we never thought about making it warm!

We were planning the fourth major renovation, taking down the 'too cold in winter/ too hot in summer' conservatory and replacing it with a useable room. At least that was the starting point.

We got an eco architect to do the design. Total honesty? I've been an eco worrier since the early 1970's, so I was thinking planet first and foremost. John was thinking heat pump – he loves a new bit of tech! I didn't know what that involved, but he'd done the research so that was good enough for me.

In retrospect it's hard to believe that we never thought about saving money on the energy bills. I suspect there is something in the Brit psyche that expects home to be cold – we've just got used to it. I was born into cold and I assumed that was my lot.

Your house is really leaky

The architect knew about the heat pump agenda and assured us the new extension would be perfect, but – the rest of the house was horribly leaky. His next comment changed the course of my life.

Drum roll: 'I think the house will probably be good enough'.

Now I had no idea what would be involved, but 'good enough' has never really appealed to me. As far as I was concerned he laid down the gauntlet.

A long night with sheets of paper, lists and wine led us to the determination: we'll make this home a legacy for the future'. It felt very exciting at midnight, bit less so in the cold light of day!

Next morning, in discussion with Pete the builder, we agreed that we would replicate the set-up of the extension – airtightness and insulation – for all the exterior walls of the house.

We had the architects blueprint to start us off and I needed to start learning. It wasn't very appealing if I'm honest. I mean would you fancy spending hours searching for insulation materials? My main memory is of early morning 'Homes Under the Hammer' episodes to lighten the load. Well at least it was going in the same direction!

Did it make a difference?

Let's begin with the big question. Is it possible to make any significant reduction in the energy bills? **Quick answer – YES**

Here's the detailed answer:

Pre retrofit we used 25,500kWh's per year for house and car
Post retrofit we're using between 6,000 and 7,000 kWh's per year for house and car
Add solar and batteries, and we now pay nothing for energy through the year.

The solar delivers approx. 3,500 kWh's directly to the house.
Any excess is sold back to the grid and earns us more than the cost of the remaining 3,500kWh's

We paid out £251.80p last year for the balance of standing charge and VAT

But that's not all.

I've discovered that the house is worth 10% more than the equivalent home that hasn't been retrofitted. People don't want to move from one cold house to another. They want to more comfortable and better off.

And, most important, we are warm and more comfortable than we have ever been.

What does it take to be energy efficient?

Retrofit is putting into the building what wasn't included when it was constructed. Nowadays it generally refers to energy efficiency.

There are two ways to do this:

- 1. Shallow retrofit:** if you have no plans or budget for major work, there are some immediate steps you can take to reduce the loss of heat and reduce energy bills.
- 2. Deep retrofit:** If renovating already, this is the perfect time to retrofit. You're already back to the brick so adding in insulation and airtightness is an easy step to take.

To find out more about shallow retrofit, [you can download a free booklet here.](#)

Deep retrofit

There are five pillars to a deep retrofit:

Insulate: warm up the walls so you have a thicker barrier between inside and out, a warm surface to reduce condensation and a wall that can hold heat in the winter and reduce heat in the summer.

Make airtight: cut out all the uncontrolled air that is seeping in from under the floor, round the windows, down the chimneys.

Ventilate: add back in controlled air, preferably in a way that also retains the heat. This can be whole house or single room units.

Sustainable heating: air source or ground source heat pump that moves heat from the air into your home.

Renewable energy: solar panels on your roof – or anywhere you can put them – to provide you with free energy from the sun.

How to get the best from a retrofit

There is some basic information that will help you get the retrofit your house needs.

If you are going down the DIY route, understanding the basics will help you choose the best materials for your home and the right order for the work.

If you want builders to do the work, then this information informs the builders you choose and the level of involvement you have.

You need to understand:

1. How to find the right builder

Finding a good builder is a prime challenge for so many homeowners. And it's the factor most likely to stop people taking the plunge.

There is no easy way around this. You just need to go through the process, looking for a person you can either:

- Trust to really understand retrofit and your home
- Trust them to be flexible and include you in the process

So few builders have an understanding of the sustainable, future proofing retrofit. Chances of you finding someone you can just hand over to are slim. But you can still go ahead if you have enough knowledge to ask the right questions and provide a clear outline of what you need.

2. Understanding the contract and insurance you need

Some builders are brilliant at providing a quality contract that you can understand and check to make sure it's what you want and need.

The other extreme are builders who don't bother with a contract at all. Then you need to step in and either set one up yourself or get in someone to help you.

Insurance is another issue that often gets forgotten. You need to know who is insured for what and who pays the bills.

3. What your home needs

Your house is classed as old for building purposes if:

- It was built before 1930
- has a suspended floor over a sub floor void (the space between the floorboards and the earth).
- is a single brick build (no cavity)
- you have fancy airbricks at ground level on the outside walls of the original build

If this is your house, then you need to use materials that are vapour permeable - from insulation through to paint if you are to avoid problems with condensation.

Natural vapour permeable materials also have the advantage that they can manage excess heat in the summer. Because of this they work well in homes of any age.

4. The importance of ventilation

This one trips up so many homeowners. To make your home warm and comfortable, you need to cut out the random draughts. So far makes sense. But, while random draughts are cold, they also serve to manage the moisture you produce during each day. Getting rid will keep you warm but increasingly damp.

Moisture in the air will condense on the walls bringing the risk of mould but also making the air and walls harder to heat.

So installing some form of heat recovery ventilation is a vital step in the retrofit process. And no, trickle vents are not enough!

5. Understanding heat pumps

Heat pumps work really well unless:

- they are not fitted appropriately
- they are not optimised for energy efficiency
- you don't use them correctly.

Once you understand some basic principles you will see the real value of a heat pump in terms of comfort and saving money on your energy bills.

6. The benefits of solar energy

This becomes more obvious every day. As energy prices rise, more and more homeowners are installing their own panels. It can be a real gamechanger – especially if you have an electric car.

There are questions to ask that often are not included in the sale. The one that caught me out was: what happens in a power cut?

It's also worth considering if you have other places where you could put some panels – like on a garden office. The more you have the better your bills are going to look.

Help is at hand

Don't panic. I wrote two books to help you:

Beginner's Guide to Eco Renovation

Understand the basics and the best questions to ask

[Buy the book](#)



What the Builder Won't Tell You

The essential homeowner's guide to an energy efficient, healthy home.

[Buy the book](#)

