What will it be like living in my sustainable home?

The Self-Build Series by Chris Brookman (September 2015)

This is the fourth and final guide in a series designed to help first time self-builders navigate through the enormous amount of information available and help them achieve their goals for sustainable construction. Our aim is to answer some of the questions that are not often answered by the main sites and forums covering sustainability.

These guides are for those new to construction, embarking on a sustainable building project. It's based on my personal experience of building a certified Passivhaus family home and 14 years of being a running Back To Earth, an eco building company.

Overview:

This guide has been put together for a single purpose; to give you an understanding of what it's like living in a sustainable home.

The following questions are covered:

1. What is it like to live in a sustainable home?
2. Will I live differently in a sustainable home?
3. What is Mechanical Ventilation (MVHR) like to live with?
4. Can I open the windows in my low energy house?
5. What things do I need to do to maintain my sustainable home?
6. Who do I speak to if I have a problem? What are the best resources?

What is it like to live in a sustainable home?

The first thing you notice in most well insulated sustainable homes is the warmth and comfort. Because the walls tend to be thicker and better insulated you often notice the quietness and lack of drafts which can be wonderfully relaxing.

If you've installed a ventilation system then the air quality tends to be better than you're used to, even if you've previously had windows open most of the time. Bathrooms tend to clear quickly, cooking smells disappear faster and you're windows don't get steamy.

Your utility bills are generally much lower which for most eases the monthly or quarterly anxiety of bills arriving through the door. Some Passivhaus owners have been known to look forward to receiving their bills to see how little they've used which is understandable when their homes use 14p per m2 in heating each year.

Will I live differently in a sustainable home?

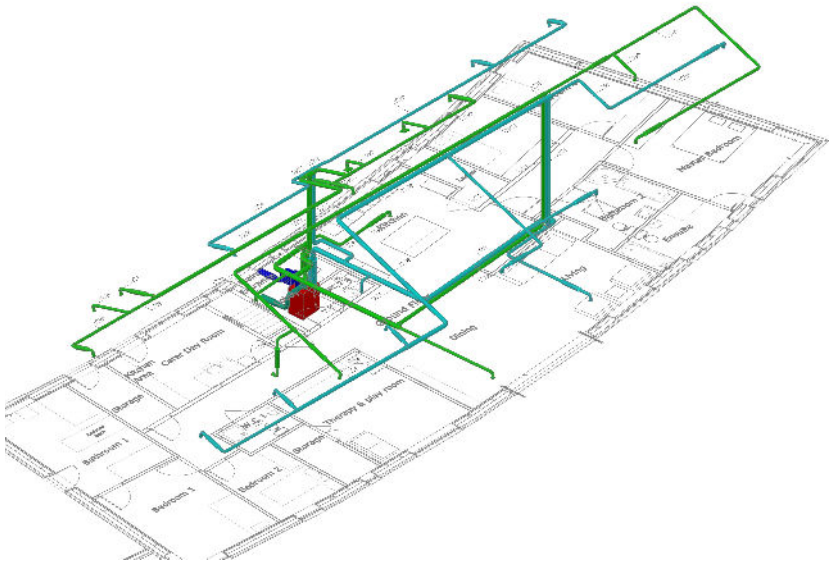
We all occupy our homes in different ways but if you never lived in a low energy home before then it's likely you'll go through some acclimatisation.

Your home will naturally be warmer and so you'll tend to wear thinner clothes and rarely need your thick duvet. Some owners of very low energy homes actually have to go outside to feel what clothes to wear as it is always warm and cosy inside.

The warmth and air quality bring health benefits which generally result in less coughs and colds, better circulation, better respiratory health and better mental health. People tend to drink more water too, as the environment is warmer and drier, giving certain health benefits.

Your view of 'heating' might change too. Suddenly your appliances begin to be the main source of heating in your house. Vacuuming is a great way to heat the house and clean it at the same time. Laundry and dishwashers also have the same effect but cooking on a hob or in an oven gives you the biggest boost. Having friends over also helps as each one of us emits between 100 and 200 watts of heat. It may however be best to keep any ulterior motives quiet to prevent friends feeling a little used!!

What is Mechanical Ventilation (MVHR) like to live with?



Most people love it and when the systems are installed correctly it is easy to understand why. With all of the silencer's in place and the vents set up correctly the air is always fresh and unless the system is on boost, there is no noise. Even on the coldest days the incoming air is fresh and warm and with a coefficient of performance of up to 10:1 it is an efficiency that heat pumps can only dream of.

Bathrooms and kitchens clear fairly quickly after use without having to open windows, bedrooms are fresh in the morning and all the heat from your bath/shower and cooking warms the rest of the house.

Ventilation systems also alleviate the problems associated with the great British tradition of drying clothes on bannisters or rails inside your home during the cold damp winters. They enable you to put up a clothes line inside and dry your clothes, safe in the knowledge that all of the moisture is being taken away by the system and not left to cause damp and mould inside your house.

The only maintenance that is required is regular changing of the filters, especially if you live in an area where there is plenty of dust (e.g. next to a busy road or farm). There are 2 filters to be changed at 3-6 monthly intervals, one filtering the incoming air and one filtering the extracted air. Both need to be changed at the same time to ensure efficiency of the system and an even balance between incoming and outgoing air.

The system is generally left on permanently to ensure all rooms have adequate ventilation, even if the windows are opened. The running costs are typically very low, typically 25p per day, which is worth it to have excellent air quality all of the time.

Can I open the windows in my low energy house?

Absolutely, this is allowed!!. It is important to have at least one opening window in each room to allow 'purge' ventilation (a useful option when it is really hot or you're cooking something particularly odourous) but also for the simple reason of it being pleasurable to have the windows open on nice days. They also act as an escape in the event of fire.

Trickle vents (occasionally) and even ventilation systems only provide enough air to prevent the feeling of stuffiness but there is nothing wrong with leaving the windows open during the warmer months for extra freshness. During the winter however, you probably won't want to open the windows much as this just wastes your heat.

What things do I need to do to maintain my sustainable home?

The maintenance of your sustainable home will generally be little different to any other home so keep gutters/drains/gullies clear, prevent piles of leaves/earth from building up against your walls, etc. with the exception of anything relating to ventilation and airtightness.

Firstly, as above, it is absolutely vital that you clean or replace your air filters in any ventilation system (MVHR) that you instal. Filters should be cleaned every 3-6 months as dirt build-up can affect the heat recovery performance of the system, the amount of air supplied by the system and also the quality of the air.

After 3 months the air filters can be really filthy, especially if you live in an urban environment or near roads. During the cold months the intake filter can become full of black mould and if left this mould will inevitably start growing in the filter and allowing spores to be blown in to your home. This can have implications to your respiratory health.

It is useful to go round each of your windows and doors at the end of each summer and remove any spider webs or debris that stop the seals working effectively. This will ensure that as the autumn and winter winds begin to blow your home remains airtight and you get the heating bill you're expecting!!

Another often overlooked area is the drain in your windows. Many triple glazed or very low energy windows have a special drain that allows any moisture to drain out from the various cavities within the frame. If these block they can allow water in to the frame and into your home. Whilst this is at worst an irritation in the short term it could rot timber windows in the much longer term. Sadly, they make wonderful places for spiders to live in, whose webs trap further debris. As yet I have no amicable solution to this problem!!

If you use solar PV or solar thermal panels it is useful to ensure that there is no mould growth or leaf litter on them each autumn as this will affect the amount of energy each produces. Many panels have a non-stick coating but it's effectiveness tend to decrease with time and is also dependent on the angle of installation. The shallower the angle, the quicker dirt builds.

These points may sound like a lot but in reality take little time.

Who do I speak to if I have a problem? What are the best resources?

If you have any installation problems then go to your installer but if you have operational problems go straight to the experts. This may be your builder/installer but if you have specified certain systems it may be best to go back to the suppliers who should be able to offer you all the technical support you need.

You could also try some of the various forums for help if you still can't get the answers you need. The AECB operate an excellent one https://www.aecb.net/forum/ and the Passivhaus Trust do too http://www.passivhaustrust.org.uk/forum.php . There are often people there who have more experience with certain systems than the suppliers themselves, plus there are various home owners, architects and building gurus who impart their wisdom.

What's next?

Did you find the guide useful? If so and you'd like to stay up-to-date with Chris' latest resources and all guide in this Self-Build Series, check out the Back To Earth Supplies website and signup to receive updates.